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AND

AGRICULTURAL GAZETTE

FOR

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

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Seed Establishment, 181, High Holborn, London.

BASS AND BROWN'S new AUTUMN CATALOGUE, comprising a considerable portion of descriptive and useful information for purchasers, will be sent free by post for three penny stamps, or gratis to their customers, who may not have received them.

Seed and Horticultural Establishment, Sudbury, Suffolk.

CHARLES SOUTHBY (late Fairbairn), Seedsman and Florist, begs respectfully to inform the kind patrons of the late Joseph Fairbairn, that his CATALOGUE of Selected VEGETABLE, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be sent post free on application.

High Street, Clapham.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Jan. 5.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

PETER LAWSON AND SON, Seedsmen, Nurserymen, and Wood Foresters to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.

Peter Lawson & Son beg to intimate that their Prices, Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.

7, Great George Street, Westminster.

KENNEDY AND KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. Kempton, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. James Carter, of Holborn.—Address Kennedy & Kempton, Bedford Conservatory, Covent Garden, London.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application.

James Carter & Co., Seedsmen, 238, High Holborn, London.

MESSRS. JOHN WEEKS AND CO., beg to remind their numerous patrons that the present is the season for ordering SEEDS, a branch of their business to which they give their most deliberate attention; and that their CATALOGUE, comprising a judicious selection, alike in the AGRICULTURAL, CULINARY, and FLOWER SEED DEPARTMENTS, is prepared, and will be forwarded prepaid, or may be had on application at either of their Establishments.

The lovers of beautiful Annuals will be gratified with some interesting acquisitions made during the past season from various continental sources.

Horticultural Establishment, King's Road, Chelsea, Jan. 5.

THE KITCHEN GARDEN.

JAMES CARTER & Co., SEEDSMEN,

238, HIGH HOLBORN, LONDON,

CONTINUE to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.* J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* and *post paid* upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine, or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. Parties not customers of E. G. H. & SON, but desirous of this Catalogue either for reference or otherwise, will have it forwarded to them FREE, on applying by letter, stating their address, &c.

Messrs. E. G. HENDERSON & SON beg to announce that the following NEW PLANTS will be sent out by them during the spring and autumn, the prices and full descriptions of which, with the names of the raisers and other particulars, will be found at the end of the above Catalogue.

Ardisia Sieboldi
Camellia Jenny Lind
Geranium Fairy Nymph
" Mountain of Snow
" Countess of Bective
" Lady Turner
" Indispensable
" Lady Smythe
" Aurora
" Duchess of Kent
" Mr. Lawton
" Bridal Ring
Echites Houteana
Aralia Sieboldi
Begonia picta
" Cinnabarina hybrida
" Zanthina argentea
Calceolaria Rosy Morn
" Shirley
" Little Dorrit
" Ethel Newcome
" Don Saturnino
" General Pelissier
" Don Francisco
" General Canrobert

Dianthus albo-nigricans
Delphinium delicatum
" Belle Alliance
" Mrs. Gerard Leigh
Rhododendron Mrs. Dargan
" Countess of Rosslyn
" Earl of Burlington
" Lord Bolingbroke
" Duchess of Cleveland
" Duke of Hamilton
Verbena Lady Camoys
" Mrs. Archer Clive
" Lady Kerrison
" Viscountess Emlyn
" Nosegay
" Countess of Oxford
" Mrs. Hosier Williams
" Moonlight
" Imperialis
" La Stella
" Lady Harcourt
" Countess of Dunmore
" purpurea magnifica
Azalea Bride
" Louis Napoleon

Fuchsia Emperor Napoleon
" Venus de Medici
" Donna Joaquina
" Countess of Burlington
" Volcano di Aqua
" Charlemagne
" Ranunculæflora
Gynerium argenteum
Gloxinia Jacqueline
" Ferdinand
" Caterina
" Battista
" Bletso
Potentilla coccinea flore-pleno
" grandiflora maculata
" lutea flore-pleno
Epacris Mrs. Pim
" Princess Royal
" Lady Panmure
" Carminata
" Lady Alice Peel
" Viscountess Hill
" Lucifer

N.B. *The above List of New Plants, with descriptions, will be forwarded to the* TRADE *in a few days.*

Wellington Nursery, St. John's Wood, London.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder,* 1*s.* 6*d.* *per packet, or* 12*s*, *per ounce.* Good Seed can be had in sealed packets of the following Agents in London:—NASH, MINIER, and Co., Strand; DAWE, COTTRELL, and BENHAM, Moorgate Street; HURST and McMULLEN, Leadenhall Street; CHARLWOOD and Co., Covent Garden; or from MITCHINSON'S Seed Establishment, Truro, Cornwall.

From numerous unsolicited Testimonials we select the following:—

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs,—I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 6, 1854. "W. UNDERWOOD."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1*s.* 6*d.* worth of stamps, and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "GEORGE PENDER."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.
(Enclosed with Specimen.)

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured 3 feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. BICE, Gardener, Grampound, Cornwall. April 7, 1854."

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Red Hybrid, Nursery, Browick, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

WALTON NURSERY, LIVERPOOL.

To NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of T[illegible] and SHRUBS of various sizes, adapted either for immed[illegible]ect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August* 4*th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2½ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—
Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.

FRESH AND GENUINE GERMAN FLOWER AND VEGETABLE SEEDS.

THIS year's Wholesale CATALOGUES of th[illegible] FLOWER and VEGETABLE SEEDS of Mr. T[illegible] BOETTNER, Seed Grower, at Greussen, near Erfurt, are in cour[illegible] of publication, and may still be had on application, post pai[illegible] from Mr. J. RÜPPELL, 22, Milman's Row, Chelsea, London.

Seeds are grown with the utmost care. The rarest and choice[illegible] kinds are offered at moderate prices.

TO NURSERYMEN AND OTHERS.

JOHN PERKINS begs to offer the following sorts [illegible] SEED POTATOES, VIZ.:—

KIDNEYS.	ROUNDS.
Albion or Walnut-leaf	Ready Penny
Jackson's Improved do.	Early King
Golden Multiplier	Soden's Early Oxford
Perkins's White	Rillett's Flourball
Napoleon	American Seedling
Fluke	Taskar's Seedling
Lapstone	Irish Apple

Also, 100,000 Larch Fir, 4 to 5 feet.
100,000 Spruce Fir, 1½ to 4 feet.
30,000 Scotch do., 2 feet.
50,000 English Oaks, 3 to 4 feet and 4 to 5 feet.
50,000 do. do. 1 to 2 feet, 15*s.* per 1000.
4,000 to 5000 fine standard Beech, 6 to 8 feet.
8,000 to 10,000 fine standard Limes, 6 to 8 feet.

The above trees have been well transplanted, and will mo[illegible] with safety. Prices may be had on application.

Seed Establishment, Market Square, Northampton, where a[illegible] communications are to be addressed.—Jan. 5.

CROCUS, TULIP, AND HYACINTH BASKET[illegible] with Wire or Zinc Linings, for suspension or for tab[illegible] stand; also Bracket Baskets made and Japanned in a variety [illegible] colours and designs, by W. RICHARDS, Imperial Wire Wor[illegible] 370, Oxford Street. Conservatories fitted up.

Window Blinds and Wirework of every description.

NETTING FOR SHEEP FOLDS.

WILDEY AND CO., Holland Street, Blackfria[illegible] Road, London, are the original introducers of th[illegible] COCOA-NUT FIBRE SHEEPFOLDING NETS, which [illegible] years' experience has proved to possess the most extraordina[illegible] durability when exposed to alterations of weather. Cocoa-n[illegible] fibre will wear out several sets of *tarred hemp netting*, and is [illegible] light that a herdsman may with ease carry 200 yards of it.

WILDEY & Co. were awarded a Prize Medal for this Nettin[illegible] by the Royal Agricultural Society in 1842, at the Exhibition [illegible] all Nations, in 1851, and at the Exposition Universelle, Par[illegible] 1855. Sold in Nets of 50 and 100 yards long, 42 inches high, b[illegible] the Manufacturers, WILDEY & Co., at the Cocoa-nut Fib[illegible] Works, Holland Street, Blackfriars Road, London.

TRELOAR'S COCOA-NUT FIBRE MANUFA[illegible] TURES consist of MATTING, DOOR MATS, MA[illegible] TRESSES, HASSOCKS, BRUSHES, &c., and are distinguishe[illegible] by superiority and excellence of workmanship, combined wi[illegible] moderate charges. Catalogues, containing prices and eve[illegible] particular, free by post.—T. TRELOAR, Cocoa-nut Fibre Man[illegible] facturer, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty th[illegible] Queen, the Duke of Northumberland for Syon House, [illegible] Grace the Duke of Devonshire for Chiswick Gardens, Profess[illegible] Lindley for the Horticultural Society, Sir Joseph Paxton for t[illegible] Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, [illegible] Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Ha[illegible] and Wool, a perfect non-conductor of Heat and Cold, keepin[illegible] wherever it is applied, a fixed temperature. It is adapted f[illegible] all horticultural and floricultural purposes, for preserving Frui[illegible] and Flowers from the scorching rays of the sun, from win[illegible] from attacks of insects and from morning frosts. To be had [illegible] any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, [illegible] ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trin[illegible] Lane, Cannon Street, City, and the Royal Mills, Wandswor[illegible] Surrey; and of all Nurserymen and Seedsmen throughout t[illegible] kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS. BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during th[illegible] winter months should construct their walks of PORTLAN[illegible] CEMENT CONCRETE, which are formed thus:—Screen t[illegible] gravel of which the path is at present made from the loam whi[illegible] is mixed with it, and to every part of clean gravel add one of sha[illegible] river sand. To five parts of such equal mixture add one of Por[illegible] land Cement, and incorporate the whole well in the dry state befo[illegible] applying the water. It may then be laid on 2 inches thick. A[illegible] labourer can mix and spread it. No tool is required beyond t[illegible] spade, and in 48 hours it becomes as hard as a rock. Vegetati[illegible] cannot grow through or upon it, and it resists the action of t[illegible] severest frost. It is necessary, as water does not soak through [illegible] to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARN[illegible] CATTLE-SHEDS, FARM-YARDS, and all other situatio[illegible] where a clean, hard bottom is a desideratum. May be laid [illegible] winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHER[illegible] Milbank Street, Westminster.

GALVANISED WIRE GAME NETTING,
6*d.* PER YARD, 2 FEET WIDE.

BARNARD AND BISHOP, Market Place, Norwic[illegible] in consequence of improvements in their machinery [illegible] the manufacture of the above article, have been enabled to ma[illegible] a great reduction in the prices.

		Galvanised.	Japann iron.
2-inch mesh, 24 inches wide	... ...	6*d.* per yd.	4½*d.* per y[illegible]
2-inch " strong, do.	... ...	8 "	6 "
2-inch " intermediate, do.	... ...	9½ "	7½ "
2-inch " extra strong, do.	... ...	11 "	9 "
1⅝-inch " 24 inches wide	... ...	7 "	5½ "
1⅝-inch " strong, do.	... ...	9 "	7 "
1⅝-inch " intermediate, do.	... ...	11 "	9 "
1⅝-inch " extra strong, do.	... ...	13 "	11 "

All the above kinds can be made of any width (under 8 fee[illegible] at proportionate prices. If the upper half is of a coarser me[illegible] than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 10*d.* per yard; Galvanis[illegible] Sparrow-proof Netting for Pheasantries, 3*d.* per square foot.

Illustrated Catalogues and Patterns forwarded by post. De[illegible] vered free of expense in London, Peterborough, Hull, or Ne[illegible] castle. Manufacturers of Improved Strained Wire Cattle a[illegible] Deer Fencing, Iron Hurdles, &c.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SPLENDID SEEDLING HERBACEOUS CALCEOLARIAS.

WILLIAM BARNES has now ready to send out at 5*s.* per dozen a few of his unrivalled CALCEOLARIAS. They are very beautiful healthy strong plants, and are now quite ready for their permanent shift into large pots.

W. B. can recommend them with the greatest confidence, as they have been saved only from the most beautifully marked and finest shaped varieties, and if potted now will make splendid blooming plants.—Camden Nursery, Camberwell, London.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MILLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 63, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that they have taken the premises, 82, Bishopsgate Street Within, where they intend carrying on the SEED BUSINESS in all its branches and trust by great assiduity and strict attention to merit an extended share of patronage. Their Priced Lists will be published in a few days and extensively circulated; they confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality.—London, Jan. 5.

THE BEST NEW SPOTTED GERANIUM OF THE SEASON, "QUADROON" (Beck's).—The stock of this very fine variety not having been sufficient for the demand, it was not sent out in October last as announced, but will be sent out early in March, at 21*s.* each. It is the darkest spotted variety yet offered, and will please all purchasers, being an abundant bloomer, good habit, and very attractive. A Certificate of Merit was awarded it at the June Exhibition of the Royal Botanic Society.

The following new varieties are now sending out:—Rosa Mundi (Beck's), 42*s.*, quite new in colour; Sultan (Dobson's), 31*s.* 6*d.*; Margaret (Beck's), 21*s.*; Constancy (Beck's), 31*s.* 6*d.*; Euphemia (Beck's), 21*s.*; Evelyn (Beck's), 21*s.*; Mr. White (White's), 31*s.* 6*d.*; Fandango (White's), 21*s.*; Delicatum (Dobson's), 21*s.*; Juliet (Dobson's), 31*s.* 6*d.*; Gaiety (Dobson's), 21*s.* Descriptive Catalogues on application to

JOHN DOBSON & SON, Woodlands Nursery, Isleworth.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer a NEW BIOTA, which is quite distinct from the others, and is warranted particularly hardy.

BIOTA MELDENSIS, good plants £1 15 0
" " very strong 2 10 0

This fine Coniferous plant will be shortly figured in Verschaffelt's "Illustration Horticole."

A. V. also directs attention to his Journal L'ILLUSTRATION HORTICOLE, which is one of the best Floricultural works on the Continent. The last Number (12th Number of the second Vol.) is out, and contains:—

1. Genetyllis tulipifera.
2. Rose Perpetual Panachée d'Orléans.
3. Clematis campaniflora.
4. Dion edule (fruits of).
5. Dion edule (site in its natural country).

The Work can be seen and obtained of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Price 12*s.* a year.

CONIFERÆ.

WILLIAM WOOD AND SON having a good stock of well grown plants of the following are desirous of offering them at reduced prices, particulars of which will be furnished on application.

Cedrus Deodara, 4 and 4 feet.
Cupressus Goveniana, 2, 3, and 4 feet.
Libocedrus chilensis, 1½, 2, and 3 feet.
Cupressus funebris, remarkably fine and bushy, 1½, 2, and [3 feet.
Cedrus africanus, 2 and 3 feet.
Juniperus recurva, 3 and 4 feet.
" squamata, 2 and 3 feet.
" Wittmaniana, 2 and 3 feet.
Cryptomeria japonica, splendid plants, 2, 3, and 4 feet.
Taxodium sempervirens, 2, 3, and 4 feet.
Thuja aurea, nice bushes, 1 foot.
Pinus excelsa, very fine, 2, 3, 4, and 5 feet.
Cupressus thyoides variegatis, Gold-striped Cedar, 9 to [18 inches.
" ericoides, very bushy, 15 inches.
Common Yews, 2, 3, 4, and 6 feet.
Irish Yews, very fine, 3, 4, and 6 feet.
Portugal Laurels, bushy, 2, 3, 4, and 6 feet.
Do. do., standards, with splendid large heads, 4 and 6 feet.

The above have been regularly transplanted every season, and will remove with perfect safety.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s.*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained.

All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen
DWARF BUDDED ROSES	12*s.* to 18*s.*
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New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

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3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
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The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

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J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

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Belle Lyonnais	5	0	Vicomtesse Laure de Gironde	5	0
Comtesse d'Orleans ...	5	0	Madame Masson	7	6
" Vaillant	5	0	" Theodore	5	0
General Jacqueminot ...	3	6	" Cambacères	5	0
Gloire de France	3	0	" Vidot	7	6
" de Vitry	5	0	" Hector Jacquin ...	3	6
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Mademoiselle Aline Gibbon	3	0	Madame Place	5	0
Prince de la Moskowa...	5	0	Panaché d'Orleans	5	0
Sir John Franklin ...	3	6	Prince Leon	3	6
Souvenir de Madame Lille	3	6	Triomphe de Paris	3	6
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Melanie Willermoz (Tea) ... ... 3*s.* 6*d.*

For a full description of the above see Catalogue, which may be had on application.—Jan. 5.

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RHODODENDRON PELARGONIÆFLORUM (DELMOTTE), hybrid between a Rhododendron maximum and a Ghent Azalea, exceedingly pretty. Hardy. 21*s.*

LYCHNIS SIEBOLDI (VAN HOUTTE), quite hardy Japan perennial, large white flowers, in corymbs, form and flowers of the Lychnis Coronaria, but twice larger. 1*s.* 6*d.*

THE TRADE SUPPLIED.

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The Gardeners' Chronicle.

SATURDAY, JANUARY 5, 1856.

WE have been occupied during so many years in planting fine looking trees that it has been scarcely thought of any importance to consider what they may be worth when arrived at the state of TIMBER. And yet it would seem to be desirable that correct information should be had upon that point even in so rich a country as England; for it is not very unwise to occupy land with trees that can be used in their old age, as well as admired in their youth.

A striking instance of the want of knowledge upon this point has been shown in the construction of the huts at Aldershott, where deal, some say Pine, the most combustible of all wood, has been used instead of Poplar, the least inflammable that is known, and which would last as long as Fir wood, or we ought to say longer, especially if well payed with some mineral fluid incapable of feeding flame. Another has been afforded by the difficulty of finding any one able to state, of his own knowledge, in answer to a recent correspondent, to what purposes Ailanthus timber may be advantageously applied. At last Mr. GODSALL, the experienced nurseryman at Hereford, has furnished some evidence which induces us to point attention to the present subject.

It is probable that very few of our readers ever heard of the tree called *Ailanthus glandulosus;* nor indeed is it by any means common in this country. And yet it has good qualities, even in an ornamental point of view, which should have saved it from neglect; for it is perfectly hardy, has a most noble aspect, and grows excessively fast. The account given of it by LOUDON (*Arbor. Brit.* p. 491) is as exact as it could have been at the time when he wrote:—

"This species of *Ailanthus* is a native of the northern provinces of China, more particularly in the neighbourhood of Pekin. Seeds were sent to England, to the Royal Society of London, by the Jesuit missionary D'Incarville, in 1751; and they were sown by Miller in the Chelsea Botanic Garden, and by Philip Carteret Webb, at Busbridge, in Surrey, in the same year. As the tree produced suckers freely, it was soon generally propagated; and there are many fine specimens of it in different parts of the country. The original tree planted by Mr. Webb was cut down some years ago; but several others, which have sprung up from the roots left in the soil, were in existence about the same spot when we visited it in 1834. (See *Gard. Mag.*, vol. ix. p. 481.) The tree was introduced into France, in 1780, by Mr. Blaikie, and the oldest specimens are at St. Leu, and in the Jardin des Plantes. We have not heard of the timber having been applied to any useful purpose in Europe, because trees of a large size are not yet sufficiently numerous to admit of their being cut down for profitable application. In France and Italy, it is much valued as a tree for shading public walks, and is planted for that purpose along with the Tulip tree, the Horsechestnut, the Platanus, and other large-leaved exotic trees. Its leaves are not liable to be attacked by insects, which is a very great recommendation, and they continue on the tree, and retain their green colour, till the first frosts in November; when the leaflets drop suddenly off, the petioles remaining on often a week or two longer. The tree grows in any soil, though one that is light and somewhat humid, and a sheltered situation, suit it best. In France, it is said to thrive on chalky soils, and attain a large size, where scarcely any other tree will grow. It is readily propagated by cuttings of the roots. It might probably be found a valuable tree to be treated as coppice, and cut down every third or fourth year for fuel."

Some idea of its rate of growth may be gathered from the following table, compiled from LOUDON's statements made 17 years ago, with the exception of the last:—

Where growing.	Age.	Diameter of trunk.	Height of do.
Syon	Unknown.	3 ft. 10 in.	70 feet.
Kew	Do.	...	60 feet.
Cobham in Kent	20 years.	1 foot.	36 feet.
White Knights	19 years.	9 inches.	27—30 ft.
St. John's College, Cambridge.	Unknown.	2 ft. 7 in.	40 feet.
St. Leu, France	44 years.	3—3½ ft.	80 feet.
Bot. Garden, Geneva	Unknown.	2 ft. 5 in.	45 to 50 ft.
Hort. Gardens, Chiswick ..	30 years.	1 ft. 10 in.	35 feet.

Perhaps some of our correspondents living near these places can tell us the real age and present dimensions of the specimens enumerated. That in the Garden of the Horticultural Society has been allowed to form three arms near the ground, which has interfered with its rate of horizontal growth.

If from these facts we turn to the purposes to which the tree is applied, we find in France it bears the following character, as we learn from M. SOULANGE BODIN, an unquestionably good authority: "Although it likes a light rather damp soil, it nevertheless grows very well in any, its creeping roots running so near the surface that even a thin soil suits it. Its timber is hard, but rather brittle, fit for cabinet-makers' work and for similar purposes; makes very good firewood, burning with a bright flame; and it yields charcoal as good as that of the Elm or the Mulberry tree. The best timber is that of trees growing in a rather dry gravelly soil."

The authors of the Bon Jardinier report that it grows a yard a year; if the lateral branches are removed, and it is trimmed up to a single stem it forms a fine spreading head (*parasol*). They also describe the wood as satiny, pale yellow, and as handsome as Maple.

The specimens of wood with which we have been favoured by Mr. GODSALL answer to this description. In the letter which accompanied them he says:—

"I think the wood of Ailanthus glandulosus may

be employed in the manufacture of furniture and other purposes to advantage. It is hard, takes a fine polish, is slightly transparent, and resembles in some measure Satin wood. Its growth is rapid, as you will perceive, and the tree is hardy and very ornamental. A thin board similar to the specimen (2-10ths of an inch thick) was exposed to the weather for several years, and was found sound at the last. If I was not, like your correspondent, an *Old* Subscriber, I certainly would plant it extensively with a view to profit."

The specimen which we received was a little worm-eaten, and so might Oak have been under the same circumstances. But we concur with Mr. GODSALL in thinking that the tree deserves much more attention from planters than it has yet received, considering the great rapidity with which it forms timber.

SINCE frosts will soon be doing their work among us, let us remind those whom it concerns of the very common fact that whether a low temperature does injury or not to plants depends greatly upon the precautions taken when thawing begins. In the *Theory and Practice of Horticulture*, p. 203, this is insisted upon, and is well understood by experienced gardeners. But as every body has not the book in question, and as more people are inexperienced than the contrary no apology is necessary for a few words of timely warning.

Many plants perish of cold, not so much because of the cold itself as because they are thawed rapidly. A row of frozen Peas facing the morning sun is completely cut off by a degree of cold unfelt by the very same crop screened from the sun. A lot of bedding out plants are frozen hard in a neglected vinery; get up the heat and they die; shade them, and thaw them very slowly, and they are as fresh as ever. The circumstance is analogous to what happens to man in intensely cold countries. Walk in St. Petersburgh in midwinter with an unprotected nose, go suddenly into a heated room, and ten to one but you lose that ornament of the face. But rub it well with snow till it glows again and you are safe.

A couple of examples of what happened in France last winter may assist in rousing the incredulous to an appreciation of such facts. Last January a gardener had the ill luck to have a batch of Pelargoniums frozen in spite of all the care he could take to shelter them. As soon as he found out what had happened he put half into a greenhouse and half into a cellar. The first lost all their leaves; the second were completely saved. The same person took up his fine solid Celery (*céleri à côtes*, qu. *Céleri court hâtif?*), and left the plants at the foot of a wall facing the south. When the severe frost set in he had no time to take them in doors, and therefore covered them well up. The thermometer, however, fell to 5°, and the plants were frozen. He then removed some to his kitchen garden shed, and the rest to an Orangery, where the temperature was kept a few degrees above freezing. The next morning the Celery in the shed was all right, but that in the Orangery was rotting fast.

So much for quick thawing!

"WE shall have visitors early in February, and must have GREEN PEA SOUP once or twice at least. Tell the gardener to provide a supply of young Peas." Such was the order given one Christmas day to the cook in a great household, and duly communicated by the culinary to the horticultural department.

"Fresh green Peas in a month, in the middle of winter! the thing's impossible," cried the astonished gardener. "My lord can't have given such an order; we haven't a house or a light to grow them in—and if we had ——"—"We must have them for all that," was the curt rejoinder; and the gardener was left to discover the *quomodo*.

In his despair the worthy man bethought him that young Peas and young Pea leaves tasted much alike, and that perhaps the one might be as good for soup as the other. So he took some shallow pans, planted them pretty thickly with Dwarf Spanish Peas, put them in his early vinery on a shelf where he sometimes grew Strawberries, and where a good heat was kept up. The Peas soon began to grow; they had air as much as it was possible to give it them, and by the beginning of February were 6 inches high, well furnished with healthy tender green leaves, and stems.

The supply thus obtained was cut like Mustard and Cress, and handed over to the cook, who declared that it made better *purée* than if he had had green Peas themselves.——And from that time forward Peas were forced at —— as regularly as French Beans; and all lovers of good living wondered how Lord —— continued to have such capital purée of green Peas whenever they visited him in the winter.

New Plants.

157. CENIA PRUINOSA, *De Cand. Prodr.* vi. 82.

Among hardy annuals of modern introduction this is one of the prettiest. Although a native of the Cape of Good Hope it requires no more tender treatment than a patch of Camomile, to which in foliage it bears some resemblance, the leaves being very finely and frequently divided into linear segments. It forms bright green hemispherical tufts not more than 5 or 6 inches high, from among which appear in profusion and in long succession circular convex flower-heads about as big as a sixpence, consisting of a crowd of tubular yellow florets, edged by short tooth-like rays, yellow above, dull purple on the under side. The involucre consists of two rings of scales, each ring made up of eight, at the edge of a top-shaped

expansion of the peduncle, and both are covered with a glaucous bloom, whence the species derives its second name.

Another Cenia also in cultivation is—

158. CENIA TURBINATA, *Persoon. De Cand. Prodr.* vi. 83.

This, the old Cotula turbinata of Linnæus, was grown at Oxford in the days of Morison, but was lost till reintroduced from the Cape a few years since. It is very much like the last, but has more hairy and sharper pointed leaves, while the swelling at the top of the peduncle is much larger in proportion, and not glaucous. In garden lists we have three sorts—viz., C. turbinata, C. turbinata formosa, and C. turb. alba. They are much alike, and form a pretty variety growing by the side of C. pruinosa.

THE VEGETATION OF BRAZIL.

THE illustrious author of the "Physiologie Végétale" (M. Mirbel) has stated that, according to the testimony of credible observers, after the destruction of a forest in South America, the soil, when left to itself, frequently produces trees of a different species from those which have been destroyed by the axe or by fire—a phenomenon which can easily be explained if we admit that seeds buried in the earth from time immemorial can remain there without germinating, and yet preserve their vegetative powers till they are subjected to the influence of the air. This is an indisputable fact.

In Brazil, the soil of a forest destroyed by the axe and by fire—I say by the axe and by fire, because a forest grubbed up for the purpose of cultivating the land must necessarily be burned—clothes itself *always* and not *sometimes* with a vegetation different from that which previously existed upon it. Nature proceeds differently from what has been supposed. A forest does not rise immediately to replace another, of which there only remains the carbonised debris; she appears to try her forces, and instead of immediately producing large trees, the vegetation consists of Ferns, some herbaceous plants, of which several resemble Spermacoce ferruginea. This medicinal plant is used for the same purpose as the Oxalis repens, commonly called Poya, in Brazil, and Ionidium Ipecacuanha (Poya Branca in Portuguese), some Solanaceæ as the Nicotiana, and some Grasses analogous to the Panicum guineense but stronger, together with the Lobeliaceæ having large dentate spiny leaves, several plants bearing edible fruits, and finally various species which attain a greater height in five months than is attained in five years by trees destined to form the pride of the woods. The rapidity of growth in a plant is in direct proportion to the quantity of pith which it may possess, or rather in proportion to the dilatation of the cells which compose its tissues. Several Campanulaceæ form an under growth. Such is (in the first year) the vegetable aspect of a woodland cleared by fire.

In the second, third, and fourth years, this vegetation takes its final growth and dies. Then appear under shrubs (Abutilon esculentum, which is not found in any old wood), species of the genus Cassia, and other Leguminosæ, the Strychnos pseudoquina, and others belonging to the same family.

After these species, some of which entirely disappear in the course of 10 years, succeed tall fruit trees of the genera Anona, Cerasus, &c., Anona sylvatica especially. (Say Anona sylvatica, because the species to which I allude has the most perfect analogy to it, the fruit instead of being spherical assuming a conical form.) In the virgin forests there are some species of Anona very dissimilar to the Anona sylvatica. Several species of Quercus appear, of which few attain the height of 26 feet. These, it will be understood, are such as spring on cleared grounds.

During my 20 years' sojourn in the virgin forests of Brazil I have observed that three new aspects of vegetation have succeeded each other in the space of 12 years, on the soil of old forests destroyed by fire. These species are everywhere uniformly the same in the province of Rio Janeiro or Nitherohy. I ought to have included in this enumeration the Sonchus oleraceus. This plant must belong to the New World as well as to the old, for it may be said to be the first plant that is abundantly produced when an old forest is overthrown, even before the wood is burned.

ORCHIDS.—It is not without reason that Europeans adore the Epiphytes, and more especially the Orchids, which are the ornament of the tropics. Whether as regards variety of colours, perfume, or peculiarities of form, this family excels all others which the vegetable kingdom presents for our admiration. Orchids are the last work of nature, and possess that degree of perfection which an able artist gives to his last works.

This family is found growing on dicotyledons; to meet with one on a monocotyledon, even in the midst of an original forest, is purely accidental. Out of about 200 species which I have found during many years of repeated researches, I only met with the Zygopetalum rostratum on the great Tree Fern, and on that alone it existed. A similar observation applies to a species which I named at the time Lælia epidendroides (now, I believe, Aspasia), which sprung up, lived, and died on the Vellosia or Tree Amaryllis); away from its support it made a sickly growth, the new bulbs appeared to diminish, and only a few flower stems were produced. Some tropical fruit trees, such as the Psidium (Guava) appear singularly favourable for the growth of certain species of Orchids, for instance, the Ionopsis paniculata, Burlingtonia venusta, candida, and picta.

Woods that have lately sprung up on soils cleared of original forests appear to have given rise to the following species: Ionopsis paniculata, Burlingtonia venusta, candida, picta, Comparettia coccinea, Oncidium flexuosum pumilum, and odoratissimum. The following terrestrial species, Neottia orchioides, Govenia Gardneri, Oncidium Pinelianum, belong exclusively to soils that have been cleared, as do likewise various species of Phaius. (Eulophia?)

Horticulturists, by the separation of a single bulb from a full grown plant, obtain in the course of the year a new bulb as strong as the old, and sometimes stronger. Nature has not this advantage. The same result is only gradually and very slowly attained by seeds, even when these find a place suitable for their vegetation. Orchids, it may be said, have their periods

of infancy, mature growth, and old age. They pass from one of these stages to the other, not as timber trees, which increase in height and diameter, but by a series of individuals of which the first may be considered abortive; the second producing the species in its full degree of perfection and beauty; and the last, doubtless for want of sap, tending to a state of dryness which does not permit the hope of flowers every year. In the Orchids which spring from seed, the roots very soon acquire considerable strength, out of all proportion to the rest of the plant.

The progressive amount of strength acquired by the bulbs from year to year is considerable, till the species is complete in all its parts and produces flower stems. The greater part of the Brazilian species flower in the rainy season, or from November till April. Although not removed from the branch on which they have grown, yet if taken from a high to a moderate temperature, even in Brazil, the Orchids suffer, and the size of their new bulbs is much less than that of their predecessors. It is scarcely necessary to add that these bulbs do not produce flower-stems. When the rains are too frequent, all Orchids are apt to perish. I have not observed them to do so in consequence of great drought.

STATION OF ORCHIDS, *in the Province of Rio Janeiro, or Nitherohy.*—It has been stated that no Orchids have been found on the sea-coast, nor in very hot regions; but the species Burlingtonia rigida, Oncidium flexuosum, Cattleya Harrisoni, Schomburghkia marginata, or crispa, belong to the hottest regions of Rio Janeiro, the swamps near Macacu, the name of a town now entirely deserted since fever took permanent possession, about 2 leagues from the sea or bay of Rio Janeiro, and almost at the level of the sea.

The species Cattleya intermedia, guttata, and Brassavola teretifolia belong to the banks of the Parahyba, near the town of Campos, where the temperature is perhaps even higher than at Rio Janeiro.

Proceeding from the estate of Mr. Alexander Tranin, who introduced the rearing of silkworms to Brazil, on the summit of the Serra de Morroquimado, about 10,000 feet above the level of the sea, where the thermometer in July indicates 27½°, Fah., or 4½° below the freezing point, and in the hottest season of the year, January 10, 100° Fah., until we reach the estates of Messrs. Manuel Roderiguez and Desroches, and at the base of the Serra those of the late Colonel Ferreira and Meudoc, where the temperature is as high as at Rio Janeiro, we meet with the following species, growing indiscriminately at all intermediate altitudes, without appearing to suffer from the vicissitudes of temperature, either as regards the size of their bulbs or the brilliancy of their flowers:—

Ionopsis paniculata.
Comparettia coccinea.
Miltonia epidendroides.
" spectabilis.
" cuneata.
" Clowesi.
Pleurothallis cochleata.
Oncidium divaricatum.
" crispum.
" marginatum.
" pumilum.
" monoceras.
" trulliferum.
" uniflorum.
Maxillaria fucata.
" subulata.
" imbricata.
" nana.
Zygopetalum rostratum.
" crinitum.
Grobya Amherstiæ.
Epidendrum fragrans.
" inversum.
" inosmum.
" biforatum.
Burlingtonia fragrans.
" venusta.
" candida.
" rigida.
Cattleya marginata.
Leptotes bicolor.
Sophronitis grandiflora.
" cernua.
Isochilus graminifolius.
Rodriguezia laxiflora.
Octomeria lancifolia.
Cymbidium echinocarpon.
Schomburghkia crispa.
Huntleya imbricata.
" cochleata.
Cyrtochilum gladiatum.
" stellatum.
Bifrenaria atro-purpurea.
Catasetum semi-apertum.

Also many other species of purely botanical interest, which I need not mention here.

Travellers through Brazil too often run through the country without taking time to verify the correctnes of their observations. In proof of this, I need only state that I have discovered some of the finest species of Orchids in the very places where these gentlemen have passed them over. My experience tells me that within the tropics Orchids are found everywhere. The genera or species are not confined to any particular altitude; for during 18 years' residence in the country, I have found, and daily continue to find, the same species at widely different elevations—as commonly at 30 feet as at 10,000 feet above the level of the sea. As for giving the horticulturists of Europe the advice not to maintain a high degree of temperature in their houses it is useless, as they find that a high temperature is advantageous as regards the increase of the plants, or pseudo-bulbs. This luxuriant vegetation, forced beyond Nature, perishes as soon as it is in the hands of amateurs. If the latter would wish to possess plants that would outlive a Rose-bloom, they should obtain their Orchids direct from the countries where they grow; and they should take care not to *overwork their plants. Ch. Pinel, Nouveau Fribourg, Rio Janeiro.* [We give the names employed by our esteemed correspondent; but some of them are evidently erroneous, although we are unable to correct them].

VEGETABLE PATHOLOGY.—No. CII.

408. ACAULOSIA* (*Defect of Stem*).—The development of a firm healthy stem undoubtedly requires considerable vigour in a plant, and in many cases is accomplished only after long preparation. In most biennials, for instance, the first season is consumed in making provision for the ensuing year, and in those plants, as the Turnip or Cabbage, where the nutriment is directed towards the hypertrophy of some particular part, though in the wild state, which is always one of natural vigour the flower-stem may be thrown up the first year, so much of the strength of the plant has been directed t the peculiar development of the variety, that the stem is not formed till the following season, and in such cases Acaulosia is regarded by the cultivator as a sign of perfection, while the development of the stem is justly as regards his own especial object counted as a disease.†

409. In some cases, however, a defect of stem is natural. Take, for instance, the common Primrose, which is named Primula acaulis from the very circumstance of the absence of a stem. Other varieties or subspecies, however, as the Oxlip and Cowslip, have a well developed stem, and individuals occur partaking almost equally of the nature of the Primrose and Oxlip, which at one period appear stemless, while at another there is a perfectly developed stem. The causes which produce these appearances are apparently altogether constitutional.‡

410. In other cases, however, Acaulosia is not so much constitutional as dependent on scanty nourishment. Cnicus acaulis, for instance, in open barren downs produces no stems, but accession of manure, or removal to the rich loose soil of a garden, alters the habit at once, and a perfect stem is produced as in other neighbouring species.

411. Sometimes, however, a defect of stem is dependent on other circumstances. For instance, it not unfrequently happens that in the garden Hyacinth though the flowers are imperfectly developed there is almost a total absence of stem, or if developed, it is reduced to a tenth of its usual length. This may arise from various causes. In the chlorosis of Hyacinths, for instance, described in a former paragraph, it was found to accompany an imperfect development of roots, in consequence of which, though there was enough nutriment already stored up in the bulb to cause the expansion of the flowers, the stem remained undeveloped for want of a fresh supply from the roots. The same effect will obviously be produced by any cause which should destroy the spongelets, and therefore it is easy to see why excessive heat, as asserted by Ré, should be no less hurtful than constitutional chlorosis, or why superficial planting, in countries where the surface soil is liable to be dried up to the depth of some inches, should prove productive of this disease. It is scarcely probable that the flowers of his Hyacinths and Ranunculuses should be developed without any stem, from the mere stimulation of an increased temperature, if a proper supply of moisture and nutriment were coming from below. In some cases again, where the base of the bulb is decayed and in consequence not a single root is produced, the flowers are still partly developed at the expense of the nutriment already existing in the root scales.

412. Another case mentioned by Ré, after Moehring who published an account of it in 1735, of Poppies and other plants remaining without a stem, arising as he relates under circumstances of soil and diminution of light likely to produce or aggravate a chlorotic condition of the leaves, originates from causes which at that time he was unable to appreciate. Such plants will, in almost every case, be found to be the victims of the growth of some one of the various species of parasitic moulds known under the name of Botrytis or Peronospora, for while some of these species stimulate the chlorophyll, rendering it of a more vivid green than usual, others produce the contrary effect, preventing its formation or exhausting it when already made. Poppies may frequently be found in this condition, and as these moulds are especially prevalent in seasons when the soil is dry and the atmosphere moist, their effects may readily be attributed to peculiar conditions of climate.

413. The dwarf condition of many trees in consequence of the reduction of the stems may be constitutional and peculiar to particular varieties, but unusually reduced stems may exist in cases where the trunk is generally well developed. Where trees are close together the lateral branches soon decay from want of light, and the principal nutriment in consequence being drawn upwards the stem becomes elongated. In exposed situations the contrary effect will be produced. Frequently, however, short stems arise from injury to the leading shoot. Skilful pruning alone can administer a remedy. Injudicious pruning, even where that lopping which produces pollards is not intentional, may cause the same effect as accidental injury. *M. J. B.*

* From ακαυλος, deprived of a stem.

† The elongation of the stem is sometimes due to weakness arising from over-stimulation in a particular direction, as in seedlings drawn up in a forcing frame. Such individuals scarcely ever make good plants in perennial species, and perhaps never in annuals.

‡ The abstract of Irmisch's treatise on Bulbs and Tubers, given in the "Transactions of the Horticultural Society of London," vol. 8, p. 217, may be consulted on this subject. The peduncle of the Cowslip is always terminal, and the several flowers which form the truss answer to the individual flowers of the Primrose which are collected round the apex of the axis, which does not become elongated.

NOTES ON PEARS.

THERE is no fruit so full of vagaries, so capricious in its quality, adaptation to different soils, and in its seasons of ripening as the Pear. The past has been pre-eminently a Pear year; I purpose, therefore, to give a few running notes on new and old varieties, their variations in quality under different circumstances, and hints as to culture when necessary to serve as a Pear record for the year 1855.

After having cultivated and tasted nearly all the old varieties of early Pears, I have come to the conclusion that we ought entirely to discard such sorts as Amiré Joannet, the Blanquets, and Muscats, and confine ourselves to Doyenné d'Eté, Citron des Carmes, and Beurré Giffart, as the only very early kinds worthy of cultivation. They ripen as nearly as possible in succession; the first commencing to ripen in July, and the others following till the middle or end of August, depending much upon season, soil, and site. I am writing of their ripening here in the south, but not in a warm locality; these three varieties were all very good last season and bore abundantly. The first named, as is pretty well known, is small, and when ripe of a beautiful red and yellow. I have eaten it fully ripe from the tree, and very juicy and agreeable, but as a rule it should be gathered before it is ripe and kept a few days in the fruit room, it is then more juicy; a very simple mode of prolonging their season, and which may be applied to all early Pears, is not to gather them all at one time, but to do so at intervals of three or four days. This summer Doyenné is a great bearer and seems to bear nearly as freely when grafted on the Pear stock as on the Quince, in deep rich soils. I have seen it on the latter stock grow vigorously and bear profusely, but in most soils it forms a pretty and most prolific bush or small pyramid; on the Pear stock it will grow into a moderate-sized standard, and also forms on that stock a nice prolific espalier or pyramid, f such a form is preferred.

The Citron des Carmes is a very old variety, and in most seasons is exceedingly juicy and agreeable; last season they were very good indeed; when grafted on the Quince it grows freely, and bears fine fruit, but it is very apt to swell over the stock and become unsightly, unless the stock is carefully covered. The tree is not so tractable as the Doyenné, but throws out vigorous irregular shoots. As it does not make a handsome pyramid it is better cultivated as a bush or espalier; in the former case its vigorous shoots should be pinched in early in June, so as to make the bush as compact as possible with such an irregular grower. In most soils when cultivated on the Pear stock it cankers terribly; but I saw last autumn fine standards growing on a hill at Cheltenham on the blue lias clay without a spot of canker; I have indeed rarely seen such beautiful trees. *T. R.*

CLIMATE OF PERSIA.

THE atmosphere of Persia is peculiarly dry, and the rays of the sun have such power that all herbaceous plants enjoy an existence of a very short duration. In early spring the Grasses and the flowering tender annuals only present themselves for a few weeks. Amongst them are most of the species common to Europe, and the Salvia tribe, with blossoms of various hues, catches the eye in every direction. Soon after the end of May the country assumes a scorched appearance, and to the vernal productions succeed a variety of shrubs, such as the Wormwood, the Camel Thorn, the Gurwan, a prickly oval bush, and a variety of others.

The gardens of Persia do not produce any choice or rare plants, and it requires much skill to raise any from seed, because their germination is seldom aided by rain but is effected by irrigation, which is not congenial when the water thus let over the earth is speedily absorbed by the ardent heat of the sun, and the soil in consequence hardens over them. Their principal ornaments are Rose trees, Lilacs, Jessamines, and Snowballs; Tulip trees, Narcissuses, Hyacinths, Tulips, the Marvel of Peru, Hollyhocks, Larkspurs, Poppies, Marygolds, Pinks, Single Stocks, Wallflowers, Violets, and a few others, are universally cultivated, but not with sufficient skill to produce any varieties or vigour of bloom. It is not in flowers, but in fruits, that the gardens in Persia excel, and the whole range of European fruits may be found in them, both in abundance and in high perfection. The Grapes and Melons are in great variety and excellent in quality. The Rose trees certainly blossom in great splendour and luxuriance. The large species called the Nustarund, which grows to a considerable height throwing out garlands of highly scented flowers, would be a valuable acquisition to our pleasure-grounds; the Miskeeja is also a very pretty delicate cream-coloured Rose, and from a red kind, highly scented, the best rose water is distilled.

From this scant enumeration it may be supposed that the Persians have no taste for horticulture, yet this is not the case. All classes are particularly fond of flowers, and such as the country produces are regarded with admiration both by the noble and the peasant, the poet extols their beauty and fragrance, and the dervise both cherishes and admires them with the utmost devotion and pleasure.

My opinion can have little weight; but I should say that Persia does not afford a wide scope for botanical research. The plants producing assafœtida, and the gum ammoniacum have been fully described, and these, with the sweet substance gathered or shaken from the Gurwan, are its chief peculiar vegetable productions; his latter is generated by an insect alone found on this shrub or thorny plant.

The shores of the Caspian and the range of mountains which gird the provinces of Ghilan and Mazanderoun, from the warmth and humidity of their atmosphere give birth to a most luxuriant vegetation, and have never been diligently explored by the botanist. In these regions forest trees of every description acquire the most gigantic height, whilst the Vine and all species

of fruit trees common to Europe present themselves in every direction; Nature, in short, exercises her fullest power over the vegetable world. Extensive tracts are covered with plantations of the White Mulberry to feed the silk-worm; cotton is produced in great quantities; the Sugar-cane is also cultivated, and the Orange and Pomegranate trees yield abundant crops.

The natives of these provinces, however, only speak in praise of the Violet, Narcissus, and Tuberose, and with the addition of the Silk Acacia, I could never learn that they held in esteem any flowering plants peculiar to their country.

However, against the assertion that Persia is not rich in botanical treasures, may be placed its ancient reputation for a great variety of plants possessing the most wonderful virtues. Of old the mountain of Demawund near Tehran, Alwund near Hamadan, and the Koordish range of Alburz were famed for their vegetable productions. Even from India persons travelled in search of them, prompted by the reputation of their medicinal virtues, or from their supposed power, in combination with other ingredients, of converting the baser metals into all-powerful gold. *G. W.*

ANOMALOUS CONDITION OF A CABBAGE-LEAF.

As every variety of vegetable tissue, however complicated, is derived from one common source, the single original fertilised cell in the embryo sac being the parent of every one which succeeds it in the formation of the largest organism, no reason can be assigned why it should be impossible that adventitious buds and roots should be produced under favourable circumstances from any part of the plant. We have accordingly various instances on record of the origin of such organs in very unexpected situations, as roots and leafy shoots in the cavity of the pith of the Cabbage, or swollen roots of the Turnip, buds from the edge or surface of leaves, &c. We have already, on more than one occasion, figured roots springing from the fractured leaves of Celery, and we have just met with a case in which a snail, having gnawed a hole into the midrib of a Cabbage leaf at its juncture with the stem, a fascicle of roots has been formed, bursting through the tissue lining the cavity, and then covered with abundant delicate hairs, after the fashion of ordinary radicles. In all such cases we have observed previous to the formation of roots a coating of spongy cells over the wounded surface. The Cabbage has an especial tendency to form such tissue wherever the cuticle is ruptured, or where there is a free cavity. In the instance before us the adventitious roots were, however, in reality no product of the leaf, but merely penetrated its midrib, and in consequence before a section was made seemed to be derived from it. The spongy tissue itself was perfectly distinct from leaf or stem, and was seated indifferently on the several varieties of tissue beneath it, whether the parenchymatous cells of the leaves, or the medullary rays and fibro-vascular bundles of the stem; and the vessels of the adventitious roots were in evident connection with those of the stem, and not with those of the midrib of the leaf or its axillary bud, but carried over so as to pass both, and unite with the complicated masses running between the medullary rays. The case then was more exceptional in appearance than in reality, and our object in calling attention to it is more with a view to show the necessity of close and accurate observation in such matters, without which conclusions may be hastily formed which the premises would not in fact warrant than to indicate the particular case, which is not however without instruction and suggestive matter.

The whole spongy surface was greatly discoloured, and in part decayed; but the cellular and woody tissue beneath was little affected, while, on the contrary, the vascular tissue, whether truly spiral or dotted, whether against or in the direction of gravity, was gorged with matter varying in tint from golden yellow to dark brown, according to the chemical change which had taken place.

It may be well perhaps, in conclusion, to state that the brown cavity in which the roots were formed was not exposed to the light, but covered over with several imbricating leaves. Though many similar cavities existed, in one case only roots had been generated. The theory of descending roots is now retained by so few botanists, that it is scarcely worth while pointing out the bearing of the case before us on the question. *M. J. B.*

Home Correspondence.

Ferns.—Thanks are due for the few notices of Ferns that have occasionally appeared in your Paper, and I venture to hope that they may be continued and be seen more frequently. The items of information chiefly required are simply, if the species requires to be kept damp or comparatively dry, whether hardy, requiring a greenhouse, or must be placed in a stove temperature. On these points correct information is most deficient; and I find it always necessary to decide by trying an experiment myself, and I have often thus found that some Ferns always designated and grown as stove varieties have stood the winter in a greenhouse where fire was never used except to exclude frost. In an excellent work now publishing on foreign Ferns (Lowe's), amongst others I would just mention two described as requiring stove temperature, viz., Gymnogramma leptophylla and Adiantum cuneatum. Both these grow beautifully with me in a cool greenhouse; the latter I formerly wintered with success in a cold frame, with merely a mat or two thrown over in frosty weather. As there are perhaps 10 times more amateurs who have greenhouse accommodation only, than there are who have stoves in addition, it shows how primarily essential it is to furnish full and accurate information on this head. It would have been desirable in the above instances to have stated—Will succeed in a greenhouse, but will attain a much larger size if grown in a stove. *R. W.* [There is no doubt that many Ferns reputed to require a stove temperature, and indeed only reaching perfection under stove culture, will nevertheless succeed tolerably well in a closed frame or greenhouse from which frost is excluded; and many more of them would even thrive in what is called a "warm" greenhouse. Comparatively few experiments on this subject have been made public, and the scattered facts bearing thereon, elicited for the most part by amateur cultivators, are lost to the public. Our readers who are in possession of authenticated facts indicating the degree of cold which reputedly tender species are capable of enduring without serious injury, would confer a favour on the many amateur cultivators of Ferns by communicating them for publication. If they reach us by a certain date, say February 1, we will undertake to arrange them in some useful form. For general purposes the natural geographical range of a species will usually indicate the probabilities as to its cold-enduring capacity. Thus, for example, Gymnogramma leptophylla, inhabiting Jersey and the south of Europe, cannot require, however it may bear, stove heat; and Adiantum cuneatum, occurring among other stations on the Organ mountains, might be expected to bear a moderately low temperature better than its general habitat—Brazil—would seem to indicate. It is on the other hand a curious fact that many Ferns, which do not require heat, thrive in heat.]

Vitality of Seeds.—My attention was accidentally turned to the following instance of prolonged vitality many years ago, and I was induced to make some experiments and indulge in some speculation regarding it, for my own satisfaction. Whenever in this county the Whin (Ulex Europæus) is rooted up or burnt, the common Pansy comes up invariably in great abundance. So far as the soil can be examined by a common hand microscope no seeds are visible, and yet when a portion of it is exposed to favourable circumstances for growth (in a pot exposed to heat), the Pansy makes its appearance. In this county a flagstone is very extensively quarried for; it is frequently covered to the depth of 20 feet or more by the "till" (agriculturally), or "mortar" of the geologists. This has to be removed to get at the stone, and in the deep sections of it thus exposed the underground operations of the common earthworm may there be very commonly seen, and his route traced to the depth of 10 or 12 feet. At the bottom is a chamber, which generally contains quantities of small stones and seeds; of these I noticed particularly the rough "boll" of flax. The stones being a size larger than these, the cavities running from 1 inch to 1½ inch in diameter, the perpendicular tube or track (and chambers also) is lined by an exceeding fine black earth, like that which forms the "casts" of the surface, and although to common examination no seeds are apparent, whenever the bisected pipe or chambers happen to remain exposed to the weather on the face of the hard clay section for a sufficient time, the whole becomes green from the growth of Grasses, the seeds or germs of which must apparently have existed in the fine black earth. There are several small lakes in this county (Forfarshire) which were drained at great expense many years ago to get at a shell marl, once in great request as a dressing for land; the use of this is now nearly abandoned, one of the causes assigned, at least, being its fouling the land, chiefly by the presence of Sorrel. Having easy access to it by railroad, and the price being greatly reduced, some years ago I gave it a trial. The result was a heavy crop of Thistles. The land previously was in high heart and perfectly clean, the quantity was so great, and the circumstances such as that the presence of the Thistle seed could only be ascribed to the marl; it is notorious that in ditches and ponds the Thistle seed will exist for years, but here the marl was not only covered by water for time immemorial, but had several feet of black earth over it besides, all of which was carefully excluded from the marl in preparing it for market. *B. S.* [We have omitted the theory, facts being more important. It is not worth wasting time in searching for the opinions of the illuminati who write upon equivocal generation. Nobody *can* explain the material quality of life.]

Lentil Soup.—The following recipe for this was given me by an old Baronet and M.P., and was considered a great favourite and extremely wholesome. Whoever of my friends have tried it praise it before all others of its kind, and it is very economical. I trust it may prove useful at this season:—1 pint of Lentils, soak in cold water, and then add 6 middle-sized Onions, 2 heads of Celery, 2 Carrots, 1 Turnip, 1 quart of pot liquor from boiled beef, mutton, or pork, and 1 quart of water. Stew the whole slowly, as green Peas for soup; pour it all into a mortar, and pound it well; then strain it through a tammy or sieve, and add 1 tablespoonful of powdered lump sugar. N.B. No stock or glaze to be used. 1 pint of Lentils make enough soup for seven persons. *Northwood.*

Vines in Pots.—I quite agree with Mr. Henderson's remarks on this subject (see p. 822, 1855), provided one had the convenience which Mr. Henderson appears to have; but if his instructions are intended for amateurs, or even persons in more humble situations who may not have a house or pit chiefly for Vines in pots, something more is necessary. I have here three Vineries, one or other of which I keep as a stove at seasons most convenient. My employer is very anxious to have Vines grown in pots, and I am the same, were it in my power to do so with a hope of being successful in procuring a moderate crop. I have no house or pit with a good command of bottom-heat to grow my Vines in where I can have them near the glass, &c., like Mr. Henderson. I have bark beds in two houses, but these I cannot fill to be nearer the glass than 3 or 4 feet, and were I to devote one of them to pot Vines, in a short time they would be shaded so much by the permanent Vines that they would not have the same chance as if they had a house to themselves; a few hints, therefore, from Mr. Henderson on the best mode of procedure with the convenience I have would be acceptable. *R. Reid, Birch House, Lancashire.*

Bee Flowers.—Mr. Payne in his "Bee Keeper's Guide," a practical and useful work, recommends as good bee flowers Tussilago Petasites, Cuscuta sinensis, and Anacampseros populifolium. Would you have the kindness to inform me by what English names these flowers are known? I have looked carefully over the lists of the nurserymen in this neighbourhood, but can see nothing of them, nor can I meet with any one who knows anything about them. Mr. Payne professes to write for cottagers; in such a case a parade of pedantic Latin names of plants is rather out of place. What cottager is to be found who will discover his own simple pot-herb Sweet marjoram under Mr. Payne's fine name of Origanum humile? I assure you I write for information, not to cavil at Mr. Payne's useful work, and I look forward to finding in your pages a solution to my difficulties.. *A Bee Lover, Sheffield.* [Tussilago Petasites is the common Butter Bur; Cuscuta sinensis is the Chinese Dodder, a plant not to be easily procured by any one—if at all; Anacampseros populifolium is, we presume, Sedum populifolium. Mr. Payne's cottagers must live in *cottages ornés*].

Packing Seeds for Exportation.—Anything in paper within a tin box is sure to get damp, but if the seeds were packed in "tinfoil," or those small leaden bottles made for oil colours, and which are very cheap, I conceive that they would keep better and be more portable than glass phials. *Somerset.* [The principle upon which the vitality of seeds is to be preserved is opposed to all such plans. See Theory and Practice of Horticulture, p. 249.]

Classifying Pears.—I fear that this is almost hopeless, as they vary in character to such a great extent. I observe that M. de Jonghe (p. 837) places the Colmar and Brown Beurré (Beurré Gris) under one type. Surely this cannot be, for no two Pears differ so widely in every respect as the Old Colmar, with its long smooth shoots, small buds, tardiness in bearing, and in the appearance and lateness in ripening of its fruit, and the Brown Beurré, which is remarkable for its entirely opposite characters. *T. R.*

Foreign Correspondence.

Adelaide, South Australia, August 16, 1855.—In a distant colony like this ornamental gardening makes but little progress—first from the utilitarian views of all new comers, and secondly on account of the old residents having but little opportunity of profiting by the markets of England and the superior skill and enterprise of the mother country. You might greatly assist us and benefit our growers were you to furnish twice every year a supplement to the *Chronicle*, containing priced lists of botanical and horticultural books, seeds, plants, Dutch roots, plans of conservatories, and other erections, with price and size; wirework, garden ornaments, farming machinery, all new things of the season being marked with an asterisk. This would be of essential service in distant places, and a record of the times. It is of little use to say that a list may be had by applying for it, and sending a postage stamp when a person has to send 12,000 miles. At this very time the newly established Botanic Garden here requires ornamental conservatories, costing say 2000*l.*, 1000*l.*, and 500*l.* respectively, but I am quite at a loss to know what sort of structures we may have for the money, we finding brickwork and fittings; the same is the case with hot water apparatus, agricultural machines, and many other things. It is also only fortuitously that we know where to procure particular varieties of bulbs and tubers. I have looked very carefully over the advertising columns of your volume for 1854, and can find no lists of the varieties of florists' flowers. Carter's catalogue has been my only resource for years past. Where, also, is a list of species of herbaceous plants? What is the use of saying 100 varieties may be had for a certain sum, when perhaps we have half of them already, and the other half would not bear transport? Were each indicated by name we could send for what we want, and have them only—to send for a mere collection always entails disappointment. Another valuable result would obtain, viz., the acquisition and distribution of species rather than varieties, and the study of Botany, instead of being cramped as now would be enlarged, and a sounder and more instructive view of it would be entertained. There are 50 or 60 species of Narcissus, yet the seedsmen sell only 8 or 10—who has any of the others? Who has any of the 30 or 40 species of Anemones except 4 or 5 common ones? Who can supply the greatest number of Crinums, or the 60 Ornithogalums, or the 120 Alliums? If I want the Ranunculus roots called Naxara, or the

old orange Brabankin, who has it still? It would be worth while for a lover of flowers to collect them, or even to pay an agent to do so, in order that he might have some from one person, and some from another; but how can this be done upon the present system? Many a beautiful plant, too, may be easily forgotten amidst so many charming novelties of a particular year, and soon afterwards be lost; it is no argument to say that such has been found unsuited to the climate or inferior to some other. Many a plant which dwindles in England would be magnificent here or elsewhere. I believe that this state of things might be somewhat altered by the plan which I venture to recommend. Nor need the trade fear any injurious result from all their advertisements appearing on the same day of the same type; having equal extent of distribution they would be as valuable for a length of time in England as abroad. One tradesman may have a more extensive stock than another, may have choicer plants, may be cheaper, or he may possess superior structures and machinery; but how is the world to know this except by the plan I propose? Independent of this, I would state that as far as this place is concerned, if any one will send me their catalogues by post as published, I will take care that they shall always lie on the table of the Botanic Garden Museum for general inspection. A new botanic garden has been commenced here under Government auspices, and it has been entrusted to my care. Forty acres of rich land, opposite North and East Terrace in this city, have been set aside for the purpose; 16 acres will first be cultivated, leaving the rest for an arboretum and drive. It is expected to cost 12,000*l.*, a sum which may appear small to English artists; but it is to be observed that that climate is very different from ours, which does not require that range of conservatories which are necessary in England. Scientific arrangement will not be neglected; but the chief object is the introduction of new plants, and to form a place of healthful recreation for the people. *G. W. Francis, Botanic Garden, Adelaide.*

Notices of Books.

The Entomologist's Annual for 1856. 12mo, pp. 174; with a coloured plate. Van Voorst. Price 2*s.* 6*d.*

THIS is the second volume of a yearly work which promises to be of considerable use both to the professed as well as the incipient entomologist, its principal object being to record the new or rare species of insects captured during the year, accompanied by other information, such as notices of new works, lists of entomologists, accounts of collecting localities, &c. Mr. Stainton, the editor, has contributed an introductory article on the advantages of the study of natural history, and a second on the pleasures of entomology, from which we extract the following passage, one of the best in the volume; which, whilst aiming at popularity, is too often frivolous:—

"It must also be borne in mind that it is no slight pleasure to find occupation and an object in every country walk. An entomologist cannot say—

'A Primrose by the river's brim
A yellow Primrose is to him,
And it is nothing more.'

A Primrose conveys to his mind a reminiscence of all the insects that feed on it; he thinks of the fat larvæ which eat the leaves in winter and early spring, and for which he has oft perambulated his garden by night with a lantern; he thinks of the dipterous miner that forms its mazy whitish track on the surface of the leaves; and not only has a Primrose this importance to him, an importance which, without lessening its beauty as a flower, invests it in addition with other points of interest, but almost every plant and shrub becomes to him replete with pleasant recollections; a walk, even when he is not actually looking for insects, becomes a totally different thing from what the same walk would be to another person. But when we further consider that a walk is generally undertaken by the entomologist with the express object of finding something, and it is rarely that he fails to succeed (if not in finding the very thing he was seeking for, at least of finding something which he is glad to meet with), we can comprehend that an entomologist derives pleasure from every walk he takes."

Mr. Stainton has also given an account of the new and rare species of Lepidoptera captured during the year, together with lists of entomological works, both foreign and English, occasionally adding critiques upon them, some of which are not only written in very bad taste, but also convey erroneous ideas on the works themselves. (See especially p. 159.) Messieurs. Dawson & Janson have contributed articles on the recent captures among the Coleoptera, and Mr. F. Smith among the Hymenoptera; but the most valuable article in the volume is by Mr. Lubbock, entitled "On the Objects of a Collection of Insects," which well deserves attentive perusal. We trust the other orders of insects will not be neglected in future volumes, as they have been in this and the preceding.

First Report on the Noxious, Beneficial, and other Insects of the State of New York, made to the State Agricultural Society pursuant to an Appropriation for this purpose from the Legislature of the State. By Asa Fitch, M.D., Entomologist of the N. Y. State Agricultural Society, Mem. Ent. Soc. Farmers of Pennsylvania, &c. Albany, 1855. 8vo. pp. 180.

OUR cousins over the water have not only the tact of finding out the right man for the right place, but of reversing the practice, and finding a right place for the right man. Dr. Asa Fitch is an excellent practical entomologist, and the State of New York have appointed him the entomologist of the State Agricultural Society. We have here the first of his annual reports in an elaborate memoir upon the insects which are injurious to the fruit trees in that part of North America, from which it appears that although some species, such as the white woolly aphis (or American Apple blight, as it is termed in England), the mussel scale, and some of the Coccidæ, appear to be identical both in our own country and America, the fruit trees in the latter country are subject to the attacks of a number of different species producing varieties of disease to which our orchards are not subject. As might be expected, the author is hardly *au courant* with the publications of Europe. The work is, however, a most creditable performance and we congratulate the American naturalists on having so excellent an entomological annual.

The medical profession will be glad to know that Dr. Copland's *Dictionary of Practical Medicine*, one of the greatest and most important medical works of the present day, is approaching its conclusion. Part XVII., or Part VIII. of Vol. III., now before us, terminates with p. 1152, and includes a large portion of the learned author's observations on tubercular consumption. Long as Dr. Copland's labour has been, the first number having, we believe, appeared in 1844, it has not been longer than a dictionary so elaborately executed rendered inevitable. We understand that the final completion of the work may be expected shortly.

Garden Memoranda.

MESSRS. HENDERSON'S NURSERY, PINE-APPLE PLACE.—Even at this season the glass-houses here are well worth inspection, for already are the show-houses becoming gay with flowering plants; and places in which there is at present little blossom have been decorated with plants remarkable for fine foliage, so as to set them off to the best advantage. Among things in flower were Chinese Primulas, both single and double—the former handsomer than the latter, and being from seed, they are more easily increased. Cultivators, however, who are fond of the latter, and have but few plants of them in their possession, may readily have more by dividing them into as many pieces as they have crowns, and potting them separately. This is a surer and better way of multiplying them than by cuttings, as each portion thus detached has roots to it, and is enabled to begin growing without much check. Among other plants in flower we noticed Early Tulips, Cyclamens, Daphnes, whose fragrance renders them favourites with everybody, and varieties of Epiphyllum truncatum; the latter were in perforated pans, suspended from the roof, and arranged in this way they served to vary the appearance of the house, and had a good effect. Mignonette, sown last July and brought on in cold pits, was also coming into bloom, while some sown in August is growing on to succeed it, and thus by sowing at intervals a supply is kept up all through the spring. A plant of Fuchsia Dominiana was in bloom, and at this season when flowers are scarce it is quite an acquisition. Its blossoms are fully as handsome as those of F. spectabilis, and the plant is reported to be more cultivable.

In the stoves the red berries of Ardisia are just now very attractive, and not less so are the large scarlet bracts of Poinsettia pulcherrima, young plants of which it may be mentioned produce these gay floral leaves of larger size than old ones. Thyrsacanthus Schomburgkianus, aliàs T. rutilans of gardens, was also in blossom here, and for effect at this time of year few plants can equal it. Its long drooping clusters of scarlet flowers are extremely ornamental. Gloxinias for early blooming were arranged along the shelves of this house near the glass. They have just been shaken out of the pots they were in, repotted, and otherwise put in a growing condition.

In the Heath-house some of the early sorts as hiemalis, Autumn gracilis, and Westcotti, were in bloom. Variegated Aloe-leaved Yuccas, with stout tree-like stems and fine heads of yellow-striped leaves were also placed here and there in this house, and with good effect, while on the roof was Lapageria rosea in bloom. This handsome climber was planted out in a border of peat and loam at one end of this house a year or two ago; but it never made much progress until last season, when it grew away freely, and now it promises to bloom profusely. The border, it may be mentioned, is close to the hot-water pipes; but in a house of this kind the latter are but little used.

One of the stoves here has been made into a Fern-house, in which are many fine specimens of this deservedly fashionable tribe of plants. The majority of them are in pots; but some of them are planted out in loam and peat mixed with broken pots and brickbats in crevices of rockwork, and managed in this way they not only look more attractive but they thrive better. Lycopods, of which we need scarcely say there are now many varieties, and some of them extremely handsome, have also been interspersed among the Ferns with good effect. Plants of Ficus barbata were clinging to the damp walls of this house like Ivy, and for situations of this kind they are well adapted. It is in the Orchid-house, however, where this Ficus is to be seen in greatest perfection. Here, where it has been planted out in good soil it has made a growth of 6 feet in length in four or five months; while its leaves, which spread out flat against the wall on each side of the stem, measure quite 6 inches in length and 4 inches across. Under kind treatment, therefore, this plant may be induced to cover whatever it is intended to hide very speedily.

Tropæolums in cool houses are now beginning to push freely. They are trained here over twiggy branches of Birch stuck into the pots, the tallest in the centre and smaller pieces towards the outsides: grown in this manner they have a less stiff appearance than when they are trained over formal wire trellises.

On an open wall was a plant of the yellow Jasminum nudiflorum literally loaded with blossoms, which are said to have stood the recent severe weather without injury. It must be mentioned, however, that it gets a good deal of warmth from a chimney which passes through the wall on which it is trained.

The Pampas Grass in an exposed border here also stood the late frost uninjured, except the ends of the leaves, which got bleached a little.

Miscellaneous.

Cassava (*Manihot*).—Two varieties or species of this plant are cultivated in the West Indies, the so-called bitter and sweet (*Manihot utilissima* and *Janipha*); I say so-called because neither of them is bitter or sweet, the words probably having been applied by the negroes, who, with a limited vocabulary, are nowise exact in the use of terms. The tuberous roots—the parts used—do not differ in a very marked manner. That of the first-named has a more decided pungent acrid taste than that of the second; and from the few comparative trials I have made, appears to contain a larger proportion of glutinous matter and of hydrocyanic acid. When a section of the root is made, three parts are distinguishable—an epidermis, very thin and tasteless, an inner laminated and fibrous layer, which is easily separated, the principal seat of the hydrocyanic acid and gluten; and innermost, the body or main portion, abounding in starch contained in a cellular structure. On the division of the root the glutinous matter exudes as a milky fluid, like that from the Sweet Potato, and with the same microscopic character. Its granules are about $\frac{1}{10000}$ of an inch in diameter, and they are coloured brown by iodine. The starch particles contained in the substance of the root vary in size from $\frac{1}{5000}$ to about $\frac{1}{800}$ of an inch in diameter. In the mode of preparing the root as an article of diet—viz., by steeping for a short time in water, grating and pressure, a portion of the glutinous matter is separated, and in the dressing, whether by roasting or baking, the volatile poison, the hydrocyanic acid, is dissipated. To the gluten which remains probably the highly nutritious quality of the Cassava is owing. We learn from Southey's "History of the Brazils" that the Dutch "soldiers preferred Mandioc to Wheat, thinking it a stronger food;" and I have been assured by a gentleman who travelled in the wilds of South America in company with native Indians, that he lived for many days on no other food than Cassava bread, undergoing a great deal of fatigue, and found it to agree with him well and support his strength. *Dr. Davy in the Edin. New Philosophical Journal.*

New Way of Ripening Grapes by means of Straw and Wool.—In Hovey's *Magazine of Horticulture* for February is a letter from Mr. M. H. Simpson, of Saxonville, giving an account of a method of ripening Grapes in December and January. Mr. Simpson follows the business of manufacturing blankets. Reflecting how they keep heat in the human body, he bethought himself of trying something like blankets upon Vines. For ten years he has made six hundred pairs in a day, making, on the whole, between three and four millions. To retain the heat of the ground in the borders which contained the roots of his Vines, he covered them, for a foot of depth, with dry hay, using two tons for the purpose. Over the hay he laid what might be called a blanket of waste wool and manure. The heat passed off very slowly from the borders thus protected; as the cold weather came on the temperature diminished about three degrees a week. On the 1st of December it was sixty degrees. His Grapes became fully ripe under this process in December and January. *American Paper.* [We fail to understand why they did not ripen in September.]

Medieval Gardening.—Our invaluable ancient authority, Alexander Necham, says a "noble garden" should be arrayed with Roses, Lilies, Sunflowers, Violets, and Poppies; he mentions also the Narcissus (N. pseudo-narcissus?) The Rose seems to have been cultivated from the most remote time; early in the 13th century we find King John sending a wreath of Roses to his lady, *par amours*, at Ditton; Roses and Lilies were among the plants bought for the royal garden at Westminster in 1276: the annual rendering of a Rose is one of the commonest species of quit-rent named in ancient conveyances. The extent to which the cultivation of this flower had been carried between the 14th and 16th centuries may be estimated by the varieties enumerated by Lawson; they are the red, damask, velvet, double Provence Rose; the sweet musk Rose, double and single, and the double and single white Rose. The Provence Rose was probably first imported in the 15th century, when the occupation of France by the English may be conjectured to have caused the introduction of many additional varieties of fruits and flowers; the marriage of Margaret of Anjou with Henry VI., may be regarded also as an event likely to have brought the Provence Rose to our northern climate. Of all the flowers, however, known to our ancestors, the Gilly-flower or Clove Pink (*clou-de-girofle*), was the commonest, and to a certain degree the most esteemed.

Mr. Loudon has stated, erroneously, that the cruelties of the Duke of Alva, in 1567, were the occasion of our receiving through the Flemish weavers Gillyflowers, Carnations, and Provence Roses. The Gillyflower had been known and prized in England centuries before; at the end of the 16th century, Lawson, who terms it the king of flowers, except the Rose, boasted that he had Gillyflowers "of nine or ten severall colours, and divers of them as bigge as Roses. Of all flowers (save the Damaske Rose) they are the most pleasant to sight and smell. Their use is much in ornament, and comforting the spirites, by the sence of smelling." There was a variety of this flower well known in early times as the wall Gillyflower or bee flower, "because growing on walles, even in winter, and good for bees." The reserved rent "*unius clavi gariofili*," which is of such frequent occurrence in medieval deeds relating to land, meant simply the render of a Gillyflower, although it has been usually understood to signify the payment of a Clove of commerce; the incorrectness of this reading must be apparent if it is recollected that the Clove was scarcely known in the 12th and 13th centuries, when this kind of reserved rent was most common. Another flower of common growth in medieval orchards, or gardens, was the Pervinke, or Periwinkle:—

"There sprang the Violet all newe,
And fresh Pervinke, rich of hewe,
And flowris yellow, white, and rede,
Such plente grew there nor in the mead."

CHAUCER.

As this plant will flower under the shade of trees or lofty walls, it was well adapted to ornament the securely enclosed, and possibly sombre, gardens of early times.—*Florist, Fruitist, and Garden Miscellany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As severe weather may now, at any time, be expected, a good supply of dry litter, Fern, or other materials should be in readiness, for extra covering, when required. Take advantage of bad weather, to wash up and arrange the stock of dirty pots, to paint any tubs, baskets, wires, &c., out of use; repair and paint the sashes of houses not covered in, prepare labels of various sizes, forked sticks for pegging down plants in the flower garden, look over the stores, and provide whatever may be required for the season's use. If not already done, lose no time in getting under cover a supply of the various loams, peat, &c., required for spring potting. The principal work in plant houses will consist in keeping them and their inmates scrupulously clean. Moderate fires and ventilation, with frequent washing of stove plants, will be necessary. The conservatory and show houses should now be gay with Camellias and forced plants, which will take the place of the Chrysanthemums, now over. Keep up a regular succession of plants to bloom through the spring, by bringing forward the stock of forcing plants as wanted. Roses, both dwarfs and standards, Honeysuckles, scarlet Thorns, hybrid Rhododendrons, and Azaleas, with a host of other things, will enable you, in addition to the usual occupants of the houses, to make a brilliant show through the spring. Hyacinths, Narcissus, Tulips, Lily of the Valley, and other plants of the above class, must be duly forwarded as wanted. Hard-wooded plants will require a dry pure atmosphere to guard against mildew and damp.

FORCING DEPARTMENT.

PINERY.—A night temperature of about 60° should be maintained in the fruiting pits, allowing it to rise to 70° during the day, or 75° with sunshine, and where the fruit is approaching maturity 5° higher may be maintained if this can be done without injury to the general stock. Also aim at keeping up a steady bottom-heat of about 80°, which for the present will be high enough.—The Vines in houses about to be started should receive a dressing with the ordinary composition a few days before closing the house, rubbing it well into the crevices of the bark; also get the outside border covered if not already done; this, however, should always be effected before this season, so as to retain a portion of the warmth infused by the summer's sun, and throw off heavy rains. Where very early Melons are required, seed of some established favourite should be got in at once. Cucumbers being very generally grown for early use, it is scarcely necessary to refer to these farther here than to say that, if not already done, seed should be sown at once. These and Melons require plenty of light and moisture, and every care should be used to keep them clear of insects, and this renders it advisable to have them in a light by themselves. A small quantity of Strawberry plants may now be placed in a pit or frame where a temperature of about 45° can be maintained, keeping them close to the glass, and giving abundance of air whenever the weather will permit.

FLOWER GARDEN AND SHRUBBERIES.

Where any of the beds or borders require a dressing of fresh soil this should be provided, in order to have it in readiness to wheel on when favourable weather for such work may occur. Fresh soil is, in most cases, preferable as a dressing for flower beds to manure, which is apt to cause too luxuriant a growth for a first-rate display of flowers. On soils that are naturally poor, however, and where neither fresh mould nor decayed leaves can be had, a moderate dressing of well rotted farm-yard manure will be useful; but this should be well mixed with the mould the full depth of the bed, and not carelessly turned in and left in lumps near the surface; for in this case a gross habit of growth would be promoted early in the season, and as the principal part of the roots would be near the surface in the manure, the plants would soon feel the effects of dry weather, whereas if the manure is well incorporated with the soil, to the depth of about 18 inches, no ordinary amount of dry weather will injure the plants after they once get fairly established. Shrubberies may be thinned where this involves only the cutting out of overgrown plants or lopping deciduous trees or the hardier kinds of evergreens; but where evergreens generally require pruning, the work had better be deferred until March, except in favourable localities; for although when the winter proves mild such work may be successfully performed at any time, it is never safe to depend upon this. Avoid getting upon, or working the ground when it is in a sodden state, and if the hands cannot be profitably employed at out-door work, get a good stock of Dahlia stakes, brooms, and things of that kind, prepared for use when wanted.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting of fruit trees has yet to be done this season, it should be seen to while the weather is favourable for such work; also see to getting ground intended to be planted with young trees prepared, and spare no pains or expense to have this properly done, remembering that future success will very largely depend upon how this is effected. Make sure of thorough drainage, and where the subsoil is unkind this should be removed, replacing it with some good fresh loam. When a large breadth has to be planted in one season this expensive kind of preparation connot always be afforded, but it is better to do such work only in such quantities as will allow of every precaution being used to ensure success, and it is useless to hope for this on some soils without making expensive preparations before planting. Get pruning and nailing forwarded as fast as circumstances will permit. Attend to keeping up a supply of Seakale, Rhubarb, and Asparagus, according to the demand and convenience, by introducing quantities of the roots into heat at intervals of about a fortnight. Where there is room to spare in the Mushroom-house, the two former will be found to do exceedingly well there, and a supply will be obtained with little trouble. A quantity of roots should be got up and laid in where they can be covered in case of severe frost, so as to avoid the chance of having to take them up when the ground is frozen hard. Also see to providing a supply of French Beans. These are frequently grown in the early Vineries or in plant houses, but their liability to the attacks of red spider renders them dangerous inmates of such structures, and where it can possibly be done they should be cultivated in a pit devoted to such purposes. For land that has been long cropped with vegetables a dressing of fresh loam would in many cases be preferable to manure, and where this is wanted and can be obtained it should be got to hand, in order that advantage may be taken of frosty days for wheeling it upon the ground. Where fresh soil cannot be obtained, charred vegetable refuse, such as prunings of shrubberies, edgings of walks, and many things which turn up in course of the season, may be cheaply made to form an excellent substitute.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1855 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January ...	2.60	1.06	1.33	2.25	2.97	2.85	1.21	1.16	1.73	1.43	3.07	2.72	2.14	1.92	0.10
February ...	0.76	1.82	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	1.06	0.59	0.78	1.95
March ...	1.32	1.81	0.47	2.44	1.25	1.02	0.41	3.05	0.85	0.13	3.57	0.25	1.48	0.42	1.75
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	2.58	0.30	0.26
May	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.03	1.94
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.54	1.53	1.48
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.00	2.28	4.17	2.40	6.30
August ...	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	1.87	1.77	1.45
September...	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15
October ...	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.57	3.78	2.61	6.15
November...	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	0.90	0.91	1.31	1.94
December ...	2.12	0.76	0.58	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	0.80	1.27	1.11
Annual amount	30.97	22.27	25.48	21.34	23.33	27.71	16.65	28.84	22.84	18.28	20.79	32.55	24.37	18.92	24.38

The amount of rain in 1855 is half an inch above the average.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 3, 1856, as observed at the Horticultural Gardens.

Dec. and Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Friday 28	19	29.743	29.616	58	39	48.5	44	42	S.	.00
Satur. 29	20	29.963	29.9[illegible]9	51	33	42.0	44	42	S.W.	.01
Sunday 30	21	30.264	30.106	49	27	38.0	41	42	W.	.00
Mon.. 31	(	30.220	30.035	46	29	37.5	42	42	S.	.00
Tues. 1	23	29.872	29.793	46	39	42.5	42½	42	S.	.00
Wed. 2	24	29.659	29.517	50	36	43.0	43	42½	S.E.	.01
Thurs. 3	25	29.611	29.531	49	39	44.0	44	43	S.	.04
Average .		29.9[illegible]4	29.785	49.8	34.6	42.2	42.9	42.2		.06

Dec. 28—Fine; very fine; cloudy at night.
— 29—Fine; very fine; slight rain.
— 30—Overcast; cloudy and fine; slight frost.
— 31—Fine throughout; cloudy at night.
Jan. 1—Overcast; cloudy and fine.
— 2—Foggy; exceedingly fine; slight rain.
— 3—Fine; uniformly overcast; rain.

Mean temperature of the week 5 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 29 years, for the ensuing week, ending Jan. 12, 1856.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	41.6	30.5	36.0	11	0.33 in.	2	6	3	3	4	9	3	—
Mon. 7	41.6	29.7	36.6	11	0.34	2	3	4	3	3	7	5	3
Tues. 8	39.8	30.9	35.3	7	0.26	3	3	7	4	—	11	1	1
Wed. 9	40.0	31.3	36.6	11	0.20	1	6	4	3	3	7	5	1
Thurs. 10	41.3	30.3	35.8	14	0.40	2	7	3	4	5	4	3	2
Friday 11	41.0	31.6	36.3	16	0.83	4	5	3	1	5	8	2	2
Satur. 12	41.7	30.9	36.3	15	0.76	2	6	2	3	5	9	2	1

The highest temperature during the above period occurred on the 6th and 7th, 1845, and 12th, 1852—therm. 54 deg.; and the lowest on the 7th and 8th, 1841—therm. 6 deg.

Notices to Correspondents.

AQUARIA: *J G.* We doubt much whether Gutta percha would suit the inhabitants of a marine aquarium: and most certainly the water must be prepared *exactly* as directed by Mr. Gosse: your substitute will probably kill everything.—*A Dipper.* There is no book that we can refer you to better than Loudon's Encyclopædia of Gardening.

ASCENSION ISLAND: *Qy.* The only public account used by us was a very interesting paper by Captain Brandreth, R.E., published in the Journal of the Royal Geographical Society, Vol. V. p. 243. Our own statement, for the accuracy of which we pledge ourselves, is derived from unpublished documents. We may return to the subject.

A TROUBLESOME TREE: *Frank.* You may "get quit of a forest tree which shades your garden very much without cutting it down" if you poison the ground in which it grows with corrosive sublimate dissolved in water. But—although the tree is of no use, yet as your landlord does not allow you to cut it down we venture to doubt whether it can be quite right to poison it. We however are happily not the keepers of any one's conscience except our own.

BEANS: *S Q.* It is Lupinus albus, used largely in the south of Europe for ploughing in green, and said to have great value for such purpose. Cattle in the south of Europe will eat the Beans if they have been soaked in water for some hours. You will find an account of it in Morton's Encyclopædia of Agriculture. They probably come from some part of Sicily or Naples.

BOOKS: *F R.* Sweet's Greenhouse Cultivator; Lindley's Theory and Practice of Horticulture. The two together will teach you all you can learn without experience.

CAMELLIAS: *P R.* It is no uncommon thing for a Camellia to sport in the manner you describe. Next year it will probably resume its original colour.‡

CANADIAN PLANTS. We have to thank Mr. Lunn, of Montreal, for a small set of dried North American plants which have arrived through Messrs. Montgomerie & Co. There is not anything new among them; British America has been so ransacked that a new species there would be almost as unexpected as in the old country.

COPPICE: *T F.* You had better make hurdles and hoops, unless your rods are fit for Hop-poles, which is improbable. Charcoal is the only other preparation worth attempting. You may get hurdle-makers from Hampshire and Sussex without difficulty. An advertisement or two in our own columns would probably bring you offers.

HOT-WATER PIPES: *A Constant Reader.* By all means use 4-inch pipes. For prices we must refer you to dealers in hot-water apparatus. Of course 4-inch pipes are much the cheaper of the two.

KITCHEN GARDEN BORDERS: *Tyro.* Good hard bricks on edge make a good durable and cheap edging. All live edgings are apt to die off, harbour slugs, and are expensive. Wood is ugly and costly. Some of the edgings of artificial stone, such as Minton's, and that made by Adamson, of Turnham Green, stand very well, but cost more than brick. The best of all, if you can get it, is the coarse tile-edging made of fire-brick clay at Stourbridge. We fear they would be considered the landlord's property unless they could be shown to be *ornamental* fixtures. But on legal questions never take a "travelling opinion."

MISLETOE: *Sissie.* When ripe insert the glutinous seeds into a slit or cleft on the *under* side of the branch. The reason why you fail no doubt is that birds eat the seed before it germinates; they cannot get at it if on the under side.‡

MONEY: *H W.* The bank you mention has a good reputation, and we suppose your money would be safe if deposited in it. But you will get low interest.

MOSS: *D K.* Water your lawn with gas water. The Moss will die and the Grass flourish. If you can't do this, use a good top-dressing of guano mixed with one-third of sulphate of ammonia.

NAMES OF FRUITS: *J C W.* A, B, Monstrous Leadington; C, D, Golden Harvey; E, F, perhaps Flemish Beauty, long past its season; K, Ribston Pippin; 3, Dutch Mignonne; 6, Court of Wick: 7, Cornish Aromatic.—*Novice.* Your Pear is very like the Bergamotte d'Esperen.‖

NAMES OF PLANTS.—*P S.* Acacia lophantha.—*Y Z.* Thyrsacanthus Schomburgkianus, *alias* rutilans of the gardens.—*N Z.* We cannot understand you. The plants were named at p. 728, and we actually wrote to you privately to say so. Of course we don ot name plants when none are sent.

PLUMS: *Diss.* For a west aspect wall, taking into consideration those you already possess: 2 Royale Hâtive; 2 Jefferson; 1 Reine Claude Violette; 2 Kirke's; 1 Early Orleans; 1 Perdrigor Hâtif.‖

POTATOES: *Alpha.* Your bed has been allowed to lose too much of its heat before the frame was applied. You may plant with safety on a bottom heat 10° or 15° warmer.

SEEDLING FRUITS: *A B.* No. 2, a middle-sized oblong or obovate fruit, is the only Pear worthy of notice amongst those you sent. It has the flavour of the Passe Colmar. The seedling from the Ortley is a tolerably good Apple.‖

THE DOWNY LARCH COCCUS. Can any correspondent oblige us with an account of the manner in which this nuisance may be practically removed?

UNDERWOOD: *Enquirer.* We see nothing to alter in the recommendation we made, except as regards Evergreen Oaks, which we fear will hardly thrive in Northumberland. The Juniper we meant is the common kind, found wild in all chalky districts, but which will grow very well elsewhere. Don't have the Swedish or upright sort at any price.

MISC.: *Surrey Sub.* Messrs. Grigor & Co., Nurserymen, Forres.—*Diss.* We cannot alter the stamp.

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MANURES.
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The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
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2. In no case is any investigation of Title necessary.
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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
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OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

FIRST PRIZE REAPING MACHINE.
NOTICE.
MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1½ to 1¼ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

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PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.
Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

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IRON FENCE, HURDLES, ETC.
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
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The Agricultural Gazette.
SATURDAY, JANUARY 5, 1856.

IT was a clever conceit of the ancients which depicted the god Janus with two faces. The fanciful heathen divinity who still lends his half forgotten name to the opening month of the Christian year, lends also a significant image of the attitude it brings to every mind—of looking back and of looking forward. Launched as we find ourselves into another of those periods, whose name is yet unfamiliar to the tongue—which the pen can hardly yet mark without the lingering error that shows at once what creatures of habit we are, not without the redeeming trait of attachment to a departed friend; the conflicting posture between the coming and the parting guest, presents a moment whose very business, unlike any other that occurs in the full swing of current time, seems to take the intended shape of reflection. There is a time we have high authority to know, for everything; and the opening of a new year is a period which not only invites but seems almost to compel the most indifferent and thoughtless, and what is perhaps harder still, the busiest and most self-absorbed, to spare some thought to the grand total that must occur, as page after page is turned in the ledger of life. *Seventy* or *eighty* such pages—and what is it then, so the work was well done, what the title of the volume may have been? Whether it was headed 'mercantile' or agricultural,' whether it was indited of the Forum or the Camp, whether it was high or humble, in affluence or in the perpetual struggle of self-renewing need—so the work was well done? It is happy for all that such moments should come; for, they are moments that bring all to a level of common brotherhood, in bringing thoughts that equally belong to all.

That equally belong to all: that is a wide phrase! Bnt it is a phrase that like the terse and pithy mottoes on the wind-scattered leaves of the Cumæan Sybil, we should like to drop upon the path of English Agriculture, to tell it, in the hour of success, in the hard-earned and well-deserved and favourable moment of prosperity, of one thing it has yet to study, of one task which whether it look backward or forward, or both, as were best at this opening of a new year, it has yet to accomplish, and has hitherto failed to do.

A century ago—only ten times ten years ago—deduct but one from the second figure in 1856—and England was an *Ex*porter of Corn; and had been so for a long time. Nay, so advantageous was it thought to be, to find consumers in other countries, for our cereal produce, that a 'bounty' on the export, a shilling bribe on every bushel shipped away to find its market in foreign ports was the stimulant that 'sped the ploughs' of our ancestors, and armed the conflicting views of the controversial writers of the day. *Half* a century ago—at the opening of the present one—all this had passed away. War, bad seasons, scarcity, increasing population, with decreasing supplies, foreign markets shut against us, with a success not so great as that produced by the privateering dangers encountered on the high seas, and the enormous consequent rise of freights and insurance charges,—led to an inclosure of fresh land for the plough, such as had never been witnessed before in this country, but which still failed to meet the present wants for home supply which the combination of these and other causes had engendered. In the twenty years from the beginning of the present century *one thousand six hundred and seventy-seven* inclosure bills, embracing an area of above *three million acres* of land were met by an increase of nearly *five million*—more than five-and-forty per cent—in the population: Since then, the remaining fifty-five per cent. have been added, and England presents a community of *double* the number that saw the opening of the century, while the land remaining for inclosure has decreased in each subsequent decennary period till now it is scarce worth the reckoning.

And how has the plough—no longer able to find another acre to supply the deficiency of the last—kept pace with the increased demand? The account for the last fifteen years is a startling one, and may well suggest some thought for the future, as connected with, and indicated by, the past. From 1840 to 1846 (both inclusive) our average yearly import was three million quarters of grain, and from thence to the present time the average has been *nine millions and a half* per annum!

But would it be credited, by any one who did not know what an odd fellow an Englishman is, that with this tremendous history behind us, with this enormous growing demand upon the produce of the rest of the world—every bushel of which is counted as it enters our ports—that we have never yet taken the trouble to ascertain what portion of the grand total that we consume is grown *upon our own acres?*

Given, a population of two-and-twenty millions (omitting Ireland), a yearly importation of 9½ millions of quarters of grain, what is the *other figure* in the Simple Rule of Three Sum? If indeed we have a 'common brotherhood' in anything, surely this is of those questions *that equally belong to all?* Does the English farmer think it is against his interest to lend his help to solve this problem? to furnish his quota towards the statement of this momentous 'Rule of Three?' Is it not a familiar fact that the corn sold during the first four months after harvest has two years out of three during the last fifteen been sold below its true value ascertained in the subsequent average of the year? that in ten years out of the fifteen it has *touched the lowest price* of the year between harvest and the end of the following January? Is it forgotten that in 1846 Wheat was selling from harvest to the end of November between 46*s.* and 50*s.* a quarter, which in

six months afterwards fetched the extravagant price of 102*s.* 5*d.*; more than double the price obtained by the early seller?

Why should this be? Why should the man who desires to sell early be obliged to sell at a loss? Why is the needy or the early bird compelled to lose? Simply and solely, for want of knowledge; for want of knowledge that might be obtained early as easily as late, by the mere evolution of *existing facts*, facts that have existed from the moment the harvest of the year was gathered in, and even before, and only needed the collection.

But is it credible that the objectors, if such really exist, to the contribution of these facts are to be found among the *smaller occupiers* of land? Of all the individuals in the community of this country there are none who are like them so deeply, in the most simply pecuniary shape into which an argument or motive could be coined, interested in the earliest possible information of the grain-produce of the year. Let them only look, for themselves, at the returns of the months of highest and lowest price for the last fifteen years: no mirror could reflect the face of vanity or folly with more cruel fidelity, than they will see there set down their annual loss, twice out of thrice, so far as they may be confessed as early sellers. "I'll tell what crops I grow," said somebody, quoted by somebody else, at the meeting of the Tring Agricultural Society, "if the Grocer will tell how much Tea and Sugar he buys and sells, the Draper how much broad-cloth he measures, and so on." Passing by the false comparison between the grower and the retailer of an article, is it possible that the utterer, or the indorser, of this sentiment was ignorant of the fact that every lb. of Tea, every cwt. of Sugar has *twice* gone through accurate statistical measurement, once for export duty in the country of its growth, and again on entry through the British Customhouse? As for the broadcloth argument, is not every parcel of wool of foreign growth measured for duty as it comes into this country; and, for the home-grown remainder, is it not one of the items of the very problem it is desired to solve? Would intelligence have used, or quoted, such an argument as this? Yet it seems to have remained unanswered; and men rode home from the meeting, perhaps, with an objection suggested, or a prejudice confirmed, by an argument which only stated truly blows up the very position it was used to fortify.

Statistics, instead of being wondered at and cross-questioned as an intrusion from without, should be a spontaneous growth springing from the very root and life sap of a thriving and well-regulated business. They belong to the *Civilisation of Industry*. They make use of the Past and Present to look into the Future. They are the 'Governor' which the Engine should itself set in motion, to regulate itself withal. They set a man thinking a little of the relation he bears to the great world around him, at home and abroad, instead of having his eyes centred only on himself; and all that he grows, or does, he sees with a new and enlightened eye and with his feelings, as well as his knowledge expanded, when he is able to study the great commercial facts of the business he is taking part in, drawn from the broad area of district compared with district, country with country, and nation with nation. The petty and almost childish selfishness that cannot look beyond the homestead-interest of its own acres, is a condition of mind which even *while it exists*, is gone by: for there are things in which men outlive for a while the grown up facts of their own age, and cease to be its cotemporaries. But it lasts not long, and it is an useless struggle while it does last.

The change that has come over the agriculture of this country, in regard to its commercial relations, during the last seven years is unequalled by any former development that this branch of industry has ever before known in any country. It is no longer a home business; it is a great commercial concern between this and the other nations, towards whom we stand in the relation of purchasers. Not to know our own produce is to be ignorant of the first requisite towards knowledge of the market in which we buy and sell. The present move for 'Agricultural Statistics' is one of those great involuntary orbit-like movements, in which Society is borne along by the unconscious, and therefore the more safe and irresistible gravitation of its instinctive wants.

Far from thinking that the agriculturist has any thing to fear in this matter, we see in it a most important field, for him, of trade-knowledge, belonging to his most special interest and calculations. But there is more than that. There is more than words can very shortly describe of civilising, and mind-enlarging, and refining influence, in the study that once draws a man out, and makes him look abroad: be the motive never so self-interested at its birth, Wisdom is justified of her children: it will grow in time into its moral as well as natural proportions: it will outstrip that local isolation of mere 'acreage' that hides a man, not more from others than from himself; and may its manhood be all that our ambition foreshadows for the wealth, the enlightenment and the advancement of the English Farmer. *C. W. H.*

WE give below the measurements, and estimated and actual weights of some of the cattle shown last month at Baker Street and Bingley Hall respectively. It will be seen that on the whole the measurements were a trustworthy guide to weight. The cattle gauge made by Mr. TREE, of Charlotte Street, Blackfriars Road, on the plan furnished by Mr. EWART, of Newcastle-on-Tyne, is superior to the old cattle gauge by CAREY in having several readings, any of which may be chosen, so that the result is to some extent dependent on the judgment of the observer, and not merely the necessary result of a rigid calculation. The same length and girth will yield less beef in the case of a Holstein ox than in the case of a shorthorn, Hereford, or Devon; it will yield less beef in the case of a half fat large-framed ox than in that of an extra fat beast originally of smaller frame—it will yield more in the case of bull beef than in that of oxen or of heifers. It is plain, therefore, that several index points should be available, any one of which shall indicate the result upon the scale, and any one of which may be selected according as the ox is "half," or "moderately," "prime," or "extra" fat, and also according as the animal in question is well or ill bred. In the guage before us, accordingly, there are no fewer than nine different indications to every pair of measurements. A beast girthing 8 feet, and 5 feet long, may be 64, 71, 74, 77, 80, 84, 88, 92, or 97 stones, according to its breed, its fatness, and its sex. An extra fat short-horn bull, which should have these measurements, would weigh, if slaughtered, probably near 100 stones; a half fat Holstein ox, if so large, would not weigh so much as 70. There is all this variation in the weights of animals of equal bulk. This, however, is not fatal to the use of measurement as a guide to weight. It is only fatal to the use of any one rigid uniform rule on the subject. If you combine, as Mr. EWART does, in the gauge already named, judgment along with measurement, you can get generally a very fair result. And those who by long practice have acquired the art of judging weight by sight should not look contemptuously upon the use of aids of this description. It used to be thought an answer to the advocates of wheels for ploughs that they were useful merely for unskilful ploughmen; their being useful at all has insured the gradual displacement of the ploughs without them. And so these cattle gauges being useful in the absence of extraordinary skill, will become generally and, we have no doubt, usefully employed.

The following tables indicate the measurements and weights of a few of the cattle shown last month. If we should receive reports of any others whose measurements we took they shall be given next week.

MEASUREMENT AND WEIGHT OF CATTLE SHOWN FOR THE PRIZES OF THE SMITHFIELD CLUB.

No. in Catalogue.	Girth.	Length.	Estimated Weight.			Actual weight.	Purchasers' Names.
			Prime Fat.	Very Fat.	Extra Fat.		
	ft. in.	ft. in.	stones.	stones.	stones.	st. lb.	
1	7 2	4 5	57	59	62	57 1	Mr. Jeffrey, Foubert Pl., Regent St.
4	7 5	4 11	68	71	74	69 0	
7	7 8	5 0	74	77	80	68 0	— Collingwood, High St., Islington.
10	7 4	4 9	64	66	70	66 8	— Jeffrey, Foubert Pl., Regent St.
13	8 9	5 3	100	105	110	103 0	— Wither, Guildford, Surrey.
41	8 2	5 1	85	88	93	92 4	— Oliver, Southampton.
59	8 5	5 2	93	96	100	103 0	— Woodward, George St, Richmond
79	8 4	5 3	92	96	100	98 6	— Collingwood, High St., Islington.
90	8 9	5 5	103	108	114	104 6	— Kirby, Park Street, London.
95	8 0	5 3	85	89	92	90 12	— Chambers, Ealing.
96	8 5	5 9	102	107	102	104 6	— Orris, 1, King Street, Islington.
103	9 1	5 11	122	127	133	130 8	— Barnes, St. Neots.
110	9 3	5 9	123	128	134	123 0	— Oliver, Southampton.
112	8 4	5 8	98	103	107	100 12	— Housego, Westminster.
			1266	1320	1371	1311 7	

MEASUREMENT AND WEIGHT OF CATTLE SHOWN FOR THE PRIZES OF THE MIDLAND COUNTIES' EXPOSITION.

No. in Catalogue.	Girth.	Length.	Estimated Weight.			Actual Weight.	Purchasers' Names.
			Prime Fat.	Very Fat.	Extra Fat.		
	ft. in.	ft. in.	stones.	stones.	stones.	st. lb.	
1	9 5	5 4	118	124	129	120 2	Mr. Hipkins, Tipton, Dudley.
2	8 0	5 1	82	86	90	97 2	— Dean, Stafford.
4	8 3	5 6	94	98	103	10 3	— Suckling, Birmingham.
5	8 0	5 3	85	89	93	97 8	— do. do.
7	8 3	5 4	91	95	100	106 4	— Hopkins, Leighton Buzzard.
9	8 0	4 10	77	81	85	81 1	— Holmes, Beoley, Redditch.
13	8 1	5 1	83	87	91	88 8	— Tompkins, Leighton Buzzard.
25	8 5	5 3	93	97	102	92 12	— Radford, Derby.
27	8 11	5 6	109	114	120	115 10	— Noble, York.
30	8 6	5 9	104	108	116	108 2	— Turner, Chesterfield.
33	8 10	5 8	110	115	120	102 2	— Kirk, Chesterfield.
36	8 2	5 5	90	94	98	91 12	— Jackson, Hodnet.
			1136	1188	1247	1111 10	

THE DISCUSSION ON LAND DRAINING

BEFORE THE SOCIETY OF ARTS, DECEMBER 12.

WILL you kindly indulge me with space in the *Agricultural Gazette* to make a few statements in reference to the discussion on draining at the meeting of the Society of Arts on Wednesday, Dec. 12, which arose on the reading of Mr. Bailey Denton's paper.

Mr. Baker stated that great difference of opinion exists amongst draining engineers, and many persons present may have concluded from what was said by Lord Berners, by the Rev. Mr. Clutterbuck, Mr. Trimmer, and Mr. Mechi, that this is actually the case; whereas, I believe that all the most thinking and most experienced men agree very nearly, both in their theory and in their practice.

I do not believe that any of them recommend a uniform depth of drain, as one speaker inferred; but, as it is desirable to obtain a deep bed of dry soil for the operations of the cultivator, looking to this fact and to the cost, they have adopted 4 feet as a good depth in operating upon an indefinite depth of wet tenacious soil, having neither above it, nor below it, a bed of porous gravel or drift, nor a stratum or pan of non-absorbent material by which the water is upheld. I have found a depth of 4 feet, under such circumstances, answer all my expectations, with a distance between the drains of 30 feet or 33 feet. But I am strongly impressed with the belief that a distance of 40 feet apart, on some of the diluvial soils of Hertfordshire, Bedfordshire, and Northamptonshire, and which I have observed part with their water very readily, would in the end answer the purpose as fully as 30 feet, and I should be glad to elicit through your pages, from practical men, their experience on this point, as I had no opportunity of alluding to it on Wednesday night.

It may also have been inferred that draining engineers are in the habit of working without properly investigating the strat fication of the soil, but this surely is not the case, and I do not suppose that any one would attempt to drain the cup (actually a land spring) described by Lord Berners, otherwise than by tapping it with a drain in the bottom, as prescribed by his lordship. Again, with regard to the sketch and section produced by the Rev. J. Clutterbuck, and explained by him in his usual lucid and earnest manner, illustrating the section of a porous bed of Oxford drift, overlying an impervious and undulating stratum, the operation would really consist of draining one or more land springs, and I think most men would adopt a similar remedy.

Nor is the plan pursued by Lord Berners and designated the Keythorpe system, I think at variance with ordinary practice. His lordship has accomplished his object in the most effective manner and with a very small outlay, and therefore it demands our serious consideration, although it can obviously only be adopted in very rare instances; and I regret much that I was not able to satisfy myself, by inquiry of his lordship, that I rightly understood what he wished to convey.

It was carried out, as I understood, upon a soil having a superstratum of clay, said to be impervious (specimens of which were produced), varying in depth from 1 foot 6 inches to 5 feet, having beneath it a porous stratum or bed, charged with water, in which the drains were laid. The water was discovered by means of trial holes, and the drains were extended towards them, until they acted upon the trial holes, and carried off the water contained in them.

Now I submit that the water taken off by the drains is that supplied by the water-bearing vein of shingle or gravel beneath the clay. How then comes it that the clay is so efficiently drained, when all previous attempts to drain it, by laying drains in it in the ordinary mode, at a less depth, as I understood, had failed? Of course this clay is not actually impervious, as has been supposed; and is it that it has been kept wet by

the reservoir beneath it, which may have surfeited it with water in dry seasons, and have prevented the descent of the rain water in wet seasons? But then how is this reservoir itself supplied? Surely by percolation through the superincumbent (impervious) clay. If such is the state of the case, then the most effective and the most scientific means have been resorted to to obtain the desired end, and we all owe our thanks to Lord Berners and to Mr. Trimmer for so forcibly directing our attention to the beacon of science which should ever be present to the mind. But then it must be conceded that the clay could have been drained, though at a greater cost, in the ordinary way by parallel drains placed in it. If it parts with its excess of moisture to a natural drain lying beneath it, so it would do so, though in a less degree, to an artificial drain placed in it. Science has detected the natural drain, and common sense said, "Let it do its work and we will make it subservient to our purpose." [The Keythorpe system makes use of the varying depths at which a *sub*stratum of clay exists beneath the comparatively *pervious* soil overlying it.]

In this case I again submit that there is nothing at variance with the practice of draining engineers. An error might have been commited for want of care or for want of geological knowledge, but whoever set about draining the soil in question would have dealt with the porous vein, the natural drain or spring beneath the clay, if he had been aware of its existence, and not with the clay itself; feeling satisfied that the clay was not so impervious, but that it would part with its superfluous moisture to the absorbent bed below. Therefore great thanks are due to the scientific gentlemen who have with so much pains illustrated this operation and refreshed the memory of all, but there is, I think, no new system discovered.

I submit that the clay could have been drained in the ordinary mode notwithstanding the failures that have taken place. Let us suppose a similar soil with a depth of 30 feet instead of 5 feet. I think the draining engineer could successfully administer the ordinary cure; but as he would not be assisted by the natural drain he would have to make a far greater outlay.

The trial pits, which constitute an important feature in Lord Berners' proceedings, could not be used in the same manner in draining ordinary clays and stiff soils. You might lay some drains within a foot of them in the wet season and they would for a long time stand charged with water, in defiance of the drains, and yet the drains might be well and effectively laid. Two statements were made that I think call for special notice as worthy of investigation. First, that of Mr. Denton, to the effect that coloured water, that is, I understand, water coloured with the soil on which it has fallen, issues from shallow drains. I am inclined to believe that in ordinary close soils 2 feet or even 1 foot 6 inches of filtrating medium will free the water from all mechanical impurities at least. But the second statement I would notice, and which renders further comment upon the first superfluous, is that of Mr. Mechi, to this effect, that the sewage water which he throws over his land at Tiptree, flows out of the outfall of his drains (laid I understand 4 feet and 5 feet deep), and into the ditches, still charged with its colouring matter.

This is so adverse to all our accepted theories that every one who understood Mr. Mechi as I did must have been startled by the assertion. If filtration through a solid bed of earth 4 feet and 5 feet in thickness does not effectively deprive water of all its mechanical impurities, then we must cease to believe that in 4 feet we have discovered the depth at which water may be economically removed from the soil, after having enriched it with its ammonia and some other valuable matters which it held in chemical combination. The question also arises how far Mr. Mechi's irrigation under such circumstances is desirable, and whether it is not absolutely injurious.

Of course occasionally, with an unusually rapid flow, the water might become discoloured by the silt or other sedimentary matter deposited in the drains; but I understood Mr. Mechi to imply, that the water was coloured with the colouring matter derived from his tank.

If the discussion is continued at the Society of Arts, I hope these points may be alluded to; if not, I hope that through your columns they may obtain some elucidation. *Chas. F. Humbert, Watford, Herts.*

AGRICULTURAL CONSTANTS.

In this age of scientific agriculture farmers are inclined, or are driven to try many innovations on their old practice, while by reason of a deficient chemical education, all may not be able to judge fairly of the value of these new modes of treatment.

For the assistance of such non-scientific farmers it would be well that certain facts should be established, which may be called "Agricultural Constants," and if these were discussed in your valuable columns, and a definite conclusion arrived at, it would be of great service to practical farmers. For example, let this question be discussed and settled:—

Can farm-yard dung be entirely and efficiently replaced by artificial manures? and at what cost? Or in another form—What price per ton can we afford to give for dung on the land to equalise it with. guano at 13*l.* per ton and superphosphate at 8*l.*? Would a mixture of guano and superphosphate entirely replace farm-yard dung? If not, what are the deficiencies? How are these to be obtained?—and at what cost?

If I am not wrong in my reading of section 3334 of Stephens's "Book of the Farm," Dr. Madden has made an erroneous calculation of the comparative values of bones and dung. He there states that:—

		Farm dung.
1 ton bone dust equals, as regards	organic matter ...	1 ton
" " "	soluble matter ...	1 "
" " "	easily dissolved ditto	2 9 "
" " "	azote	3 9 "
" " "	saline matter ...	5.0 "
" " "	earthy phosphates ...	18.3 "

He then proceeds to add all these separate benefits into one sum, and comes to the conclusion that 1 ton of bone dust is equal to 30 tons of farm yard dung.

Now is not this an error? for according to Dr. Madden's own showing, before 30 tons of dung can be equalled

In organic matter there must be		30	tons of bone.
" soluble matter	"	30	"
" easily dissolved do.	"	$10\frac{1}{2}$	"
" azote	"	$7\frac{5}{4}$	"
" saline matter	"	6	"
" earthy phosphate	"	$13\frac{1}{4}$	"

How then is it possible that 1 ton of bone is of equal agricultural value to 30 tons of dung?—nay, if we take the highest benefit conferred by the bone, it is only $18\frac{1}{3}$ times better than dung. It is quite possible I may have overlooked some essential element in the calculation, and if so I trust some one will set me right, for correctness in such statements (which are the "Agricultural Constants" I wish settled) is of the first importance. My object is not to call attention to any errors in the work in question, but to obtain, if possible, by discussion in your pages "Agricultural Constants" on which we can rely. *Martyn Roberts.*

YIELD OF THE PAST HARVEST.

CAVAN AND LONGFORD.—Speaking of a wild district of hilly country on the borders of Cavan and Longford, altogether occupied by the smaller description of farmers with scarcely an exception, and containing, it may be, about 100 square miles, there are not, I believe, 10 acres of Wheat, no Barley, and little Turnips or other green crop. The Oat crop, which held fair promise of being over an average, has disappointed the growers; and, on the assertion of every one, has threshed out far beneath their expectations, and, certainly not equal to the average yield per acre, to what extent, however, it is not possible to ascertain. The crop is not only deficient in yield, but inferior in sample; that which lodged, which much did on the lower heavier and ranker ground, was, as it ever must be, deficient in yield and bad in quality; but that which was standing appears also to have suffered from ripening too quickly, and, therefore, not well filling. The Potato crop is very good, and has suffered but little by disease; this is not only the general opinion, but is evidenced by the market price, as, without any pressure of sale on account of apprehended loss by disease, or from necessity of the holders, and where every other article of food is at very high prices, Potatoes are selling at about two-thirds of last year's price, that is for 4*d.* or $4\frac{1}{4}$*d.* a stone, a price which they have not been sold at since 1845. The hay crop appears also deficient. *J. M. Goodiff, Scrabby.*

NORFOLK.—As to the probable yield of the past harvest, I beg to say it is not in my power to give you anything like an accurate opinion. As a proof take the following as the result of my inquiries: One large and influential farmer told me that his Wheat was 16 bushels per acre below his usual average; another said that the crop might be put down at 8 bushels less than an average, and a third declared that he had just threshed a 20-acre field, and it only produced 4 bushels per acre. This district is a sandy loam, and averages about 30 or 32 bushels per acre. Upon the good clay loams along the sea-coast the reports are equally conflicting; we hear of land usually producing 40 bushels per acre, this year not yielding 30; and some of the very choicest land we have in the county, and I may say equal to any in England, not yielding more than 20 bushels per acre. Again, we have fields, and I need not go out of my own parish, producing from 40 to 44 bushels per acre. On the whole, I have no doubt there is a deficiency, and taking the quality of the grain into consideration, I am inclined to think it will be fully, if not more than one-fourth below the usual average; but I should imagine in this county we were more affected with blight than other parts of the kingdom. The Barley is not so good a crop, either in quantity or quality, as was expected, and will probably not reach an average. Turnips made considerable improvement after the rains in October, but there is a general complaint of their being consumed too rapidly. Hay is the lightest crop I ever saw grown in this district, and a fourth of it spoiled by the weather. *W. Cubitt.*

MONMOUTHSHIRE.—In sending you a report on the appearance of the crops previous to last harvest in the portion of this county included in the division of Uske, which may be called Mid-Monmouthshire, I remarked that though the acreage yield of Wheat would most probably be a little under the average, the deficiency would be quite made up by the greater breadth of land under that crop. I find my statement to have been pretty correct, the returns from the better class of farms having been a fair average, viz., from 24 to 26 bushels per acre, the quality on the whole good, though a little below the average weight, whilst on the colder farms with one or two exceptions, where for that part of the district I have heard of marvellous crops, with better scale results the bushel tells a deficiency, the yield proving from 18 to 20 bushels per acre. Of Barley and Oats the report is but indifferent, both being sadly deficient in weight. In Clover and hay, more particularly, we are better off than in most parts I have been in, but we shall want it all, and it will require the strictest economy in the use both of it and straw to carry us on till there is a bit of Grass again, the root crops are so lamentably deficient, 10 tons of Swedes per acre being thought well of this year. Mangel Wurzel, the growth of which is quite exceptional here—to our shame be it said—is very good. The Wheat plant is looking well, and the glorious seed time and the high prices have enabled and induced many to put every possible acre under Wheat. *Relph, Pentwyn.*

WILTS.—From my own experience in threshing, and from what I have been able to glean from others, I consider the Wheat crop in this immediate neighbourhood to be a little short of an average crop in quantity, but from a considerable portion of the crop being badly blighted, it is from 2 to 8 lbs. per bushel lighter than last year, and from 2 to 4 lbs. lighter than the average of seasons. Barley an average crop in quantity, but a good deal of inferior quality. *Thos. Arkell.*

BERKS.—From my own experience (having a steam-engine let for hire) upon my own farm, as well as those of others, I am happy to say the yield of Wheat is much better than was ever at one time expected. The heavy Wheat lands are quite an average crop; the deficiency is on high and thin soils from want of plant. Taking the two together I am of opinion that the Wheat crop of 1855 is not more than 2 bushels per acre short of an average, although 8 bushels short of the crop of 1854. Of Bar ey about an average crop, quality generally bad. Oats above an average—4 bushels to the acre. As there are few Beans or Peas grown in my own immediate district I am not able to say anything about them. *W. Chandler, Aldbourne, Hungerford.*

Home Correspondence.

Farm Bailiffs, who are they, or whom ought they to be?—Will you assist me to gain some information on this question? I believe I am not alone in the wish to be gratified on this head. Although I do not remember to have seen the question asked before, still I have often heard the subject talked freely upon when I have been in the company of farmers, and sometimes in such a manner as to lead an ignorant person in such matters to suppose that the bailiffs were a class of persons whose services could very well be dispensed with, for the arguments were not unfrequently closed by general expressions of wonder why gentlemen did not manage their land themselves. I confess I do not exactly take that view of the case, for a person may be fond of hunting and still think it advisable and profitable to keep a groom, and doubtless gentlemen find that this remark applies to farming, as many of our leading agriculturists do keep bailiffs. However, I wish to be understood that the remarks I am about to make are not intended to detract from the value or usefulness of farm bailiffs, but merely to provoke discussion, and to enable other readers who, like myself, may not be quite *au fait* on this subject, to be better informed. As far as I am concerned, I must say that it is the many varieties of the farm managers that has mystified me to a degree, therefore I have written in the hope that through some of your able correspondents all may be made clear. I am informed that the greater number are Scotchmen, generally allowed to be well informed upon the northern system of farming; but often, it is said, knowing very little of the southern practices until they have served an apprenticeship, as one may say, and taken a few peeps over the hedges of the fields of the neighbouring farmers to get an idea of their customs. Does not an employer incur a considerable risk should he happen to have fixed upon a locality a little behind the age as regards agricultural improvements—I mean as to his chances of success in farming, should he have a learner of this description? Another class also said to be numerous appear to be of a higher order than the foregoing, for one hears that they expect to have two or three horses kept for them, and all other things found in the like treble proportion; it is admitted that they can talk like oracles about the herd book, reaping machines, steam-engines, &c., but it is said that they do everything by deputy except receiving their salary; that they would deem it derogatory to cast their gloves (not mentioning their coat) to touch anything except to place a finger artistically upon a few of their choicest animals; that they can prove without a doubt that it is good policy to give an unlimited number of guineas for a descendant of Hubback (I am not sure of the name), and that the true method of saving is to curtail the price paid for manual labour, say, for instance, 8*s.* 6*d.* instead of 10*s.* Is that a consistent argument? Others, again, said to be next to those mentioned above as regards number, are, if I may be allowed to use the term in speaking of their occupations, of a hybrid nature, that is, they are between the florist and agriculturist. I should be glad to be made aware how those two branches of knowledge combined answer, whether for the benefit of the employer or *vice versâ*, as I am informed that the culture of flowers is usually attended with great expense, even though carried on on a limited scale. A few are said to be farmers who have tried for themselves, and have been unfortunate, or something else; then it appears they turn their abilities to the management of similar affairs for another, when at the same time they have been unsuccessful in the same object for themselves. The last class I shall touch

upon are the smock frock or working bailiffs. Farmers say that they often see land under the management of this class in as creditable a condition in all respects as that overseen by any of the varieties I have mentioned; that these men have not the same advantages of education as their more fortunate compeers, I must not say brethren, as I am told fraternity does not exist among the classes as a body. Now if the latter are competent to fulfil such duties, which of all I have mentioned is the right man for the right place? *A Novice.*

Hedge Cutting Machine.—At page 780 of *Agricultural Gazette* attention is called in a long detailed article to the great importance of a hedge dressing or cutting machine. Having performed a good deal of that work by the common hedge bills, "implements made expressly for that purpose" to be used by hand, I have often thought of a machine for that purpose. Such an one as W. Wooler describes I would disapprove of, and to travel on both sides of the hedge, as cross fences would be a great obstacle in the way, I should rather adopt the frame to be built upon four pillars tied with cross bars, above and below, and the two knives projecting out upon the spindle, all in one piece upon the end of the spindle at an angle of about 75° or so, or whatever slope should be most approved of for keeping hedges in the wedge shape. The pillars of the machine would answer the desired purpose best to be cast metal, in fact, it should be all metal or malleable iron. The spindle and two revolving knives resting on top of frame-work ought to be good and well secured; the latter ought to be of the best Sheffield cutlery, and instead of having them concave "the knives" should rather, if anything, be convex, as they would clear themselves; but if they were concave, as described by W. Wooler, they would drag the power very much, as I always found in dressing hedges the work was easier performed with a straight implement instead of any hook or concave being in the blade. My impression is, that being all metal it will stand more secure to its work, being of some weight to resist the velocity or power at which the upper spindle would require to be driven at to make clean work. The motion at which the knives should revolve may be fairly set down at 300 revolutions per minute; this would require to be brought up from the one or other of the two axles on which the frame would travel. The greater the velocity the less power required in driving the machine. But I beg to remark that if such a machine should come to be constructed all hedge sides would require to be landed in gradual rises and falls, as the hedge would allow, for the least sudden rise or fall in the machine would cause a sudden concave or convex in travelling over the different lines of fences; and applying to railways, the surfaces on such are so very irregular that I scarcely think it could be recommended as a profitable machine. The expense of such work is not very great on arable land, where the fields are of ordinary size from 16 to 20 acres in each, which is chiefly enclosed with Whitethorn. It will run nearly to 1*l.* to each pair of horses kept on the farm for dressing hedges, "I mean to be dressed annually 4½ feet high." If hedges are not attended to annually they are a very bad fence and costly, which is too often the case by a majority of the agricultural class of gentlemen; or they can be let by contract on railways at 1*l.* per mile of 1760 lineal yards. I am aware they are done for less, but too often in a very imperfect manner; I myself have had to do them over again after being done by other parties. But if they can be got at 4½ feet high, a close healthy fence at the above figure, in the wedge shape, is about the mark, and the charge I use to make for such. *W. G. Abernethy.*

Drains.—As I perceive the professionals are puzzled to account for the fact of drains which had run dry discharging water just previous to a fall of rain, I beg to give you my "reason why," and whether right or wrong it may be of use in ventilating the subject. The weight and consequent pressure of the atmosphere being greater in a state of dryness than in one of moisture, and the water in the soil below the drains being subjected to that pressure, it is kept lower in the soil in dry weather than just before rain; and as the quicksilver in the tube of a barometer falls just before rain, owing to the lessened atmospheric pressure, so will the water in the soil and below the drains rise and flow in them for the same reason, viz., a partial relief from atmospheric pressure. *Robert Mein.*

Anbury.—Owing to the interest I take in the "anbury" question (from having been for more than 20 years one among the greatest sufferers from the disease, perhaps, in this country), I wrote some time back to Professor Buckman to inquire after the appearance of the promised report of his experiments on the subject. And I write now because in his report mistakes have been made which appear in the *Agricultural Gazette* of the 8th Dec. One of these is of no moment whatever, and consists merely in the mistake of my name (owing very naturally perhaps to Mr. B. being in communication at one and the same time, and on the same subject, with Mr. Campbell, of Craigie); the other, however, is of importance, as having reference to the question in hand. I sent Mr. Buckman a box of diseased Green-top Yellow Turnip, but no Swedes; and for the reason that I had none, and have hardly ever had any of these affected by anbury. For more than 25 years (10 of that time when possessed by a tenant), the farm I hold has seldom suffered to a less extent than 20 acres of loss, often to a greater, out of 100 acres of Turnip crop. In all that time the loss from diseased Swedes can hardly, I should think, have exceeded an acre or two in all. I attribute this mainly to stronger land having always been allotted to the Swedes, and to their having been treated to both farm-yard dung and artificial manures, while the other Turnips have only had the latter, and been planted on land offering the most favourable habitat for insects; this, in my case, has been where the old red sandstone is very near the surface, and where it is perfectly dry by nature. I have all along attributed the malady to the operation of insects, but such is not yet generally the opinion of neighbouring farmers, nor even of my own bailiff, who has been with me for 30 years. What I have observed of the operations of these insects does not altogether tally with what is recorded in your recent article. I have found a small hairy red wire-worm, eating round the cuticle or bark of the rootlet, thus, in my idea, occasioning a revulsion or extravasation of the sap, ending in the formation of tubercles; but I have never succeeded in finding the appearances you describe at that season when they might be expected to be found were they the cause, although I have done so at a later period, viz., when I sent the subjects of Mr. Buckman's examination; but then I ascribed this to their being rather the effect, and a very natural one, of the previously long established affection. I agree with you, there is much to learn on the subject, and the investigation is all the more important and pressing, that I fear the anbury is spreading rapidly over the country. You have already made a considerable step, for which I feel thankful—inquiry and improvement will now be better directed. Besides the proper anbury produce, I have always noticed the presence—in a much minor degree, however—of a grub of different habits. This cuts off entirely the plant, when, after thinning it is from 4 to 6 inches high. The Turnip crop of 1852 was almost totally destroyed in this neighbourhood by this insect on farms where anbury was never yet known, and to an extent never attained by the anbury. I have tried almost all the remedial measures suggested in print, and have found none of any avail, but alternating with Potato and other green crops in the rotation, and this is effectual, and having now adopted it for the last 10 years my losses have been comparatively trifling. Liberal manuring is also a good remedy; this, when assisted by high heart in the land and by favourable weather, I have often seen carry through a field (in which scarce a plant was unattacked by anbury) to a heavy crop, the ground at topping and tailing time being covered with the unsightly "knobs" and other products of the disease. *W. F. Lindsay Carnegie, Kenblethmont, Arbroath, N. B.*

Brown Bread.—In answer to a correspondent "J. T. B.," *Agricultural Gazette*, concerning brown bread, I would recommend the following recipe, which answers perfectly with us:—Mix ½ lb. of coarse pollard, and ½ oz. of salt, with 24 oz. by measure of cold water, over night. Next morning add, in the usual way, to 4 lbs. of flour, 2 drachms of fresh German yeast (or a piece the size of a cobnut), dissolved in 4 oz. of water at 75° (3 oz. of cold and 1 oz. of boiling water will produce the right temperature). When this has risen in the flour, add to the pollard and cold water 8 oz. by measure of boiling water. Mix the whole together, and knead it in the usual way. The smaller the quantity of yeast used the more wholesome and sweeter will be the bread. White bread would require 4 oz. less water, and of course no pollard. *B. P. R.*——As "J. T. B.'s" cook understands the making of white bread, all she has to remember relative to brown bread is that as it ferments easily it does not require so much yeast as white bread dough, and the flour of which it is made, or meal as it is usually called (being the Wheat ground, and not having the bran separated from it for the brownest bread, or the coarser parts of the flour for the lighter coloured brown bread), absorbs more moisture than the white loaf flour. Rye-flour is a great improvement. At this time of high prices, I would suggest to "J. T. B.," and any other of your subscribers to make bread according to what is called the Rev. Mr. Hagget's plan, as follows:—"Only the coarse flake bran is to be removed from the flour; of this take 5 lbs. and boil it in rather more than 4 gallons of water; so that when perfectly smooth you may have 3¾ gallons of clear bran water. With this knead 56 lbs. of flour, adding salt and yeast in the same way and proportions as for other bread. When ready to bake divide it into loaves, and bake them 2½ hours. Flour will imbibe 3 quarts more of bran water than of plain, so that it does not produce a more nutritious food, but makes an increase of one-fifth of the usual quantity of bread. The same quantity of flour which, kneaded with water, will produce 69 lbs. 8 oz. with bran water, produces 83 lbs. 8 oz., a gain of 14 lbs. When 10 days old, if put into the oven for 20 minutes, this bread will appear quite new again." *Abridged from Mrs. Rundell's Domestic Cookery.*

Royal Agricultural Society.—I beg to be allowed to suggest that the Royal Agricultural Society ought really now to publish a complete classified Index to the volumes of their Journal. The work is becoming valueless for want of it. The Royal Geographical Society have published about the same number of volumes, and have twice printed a General Index. *A Member.* [A General Index for the first eight volumes was printed with Vol. IX. Now that the number of volumes have doubled, an Index for the whole series is much wanted.]

Societies.

Society of Arts.—An extraordinary meeting was held on Friday evening of last week, for the purpose of resuming the discussion upon Mr. Bailey Denton's paper "*On the Under Drainage of Land.*" Mr. P. L. Simmonds occupied the chair. The proceedings commenced by the Secretary reading communications which he had received from Messrs. Arkell, Bazalgette, Beattie, Blamire, and Girdwood. Mr. Arkell in his communication referred to two errors, as he considered them, which had crept into recent practice, viz., the use of the small pipe tiles at present made, and the putting parallel drains at equal distances apart, regardless of the existing surface furrow. Mr. Bazalgette's letter developed more fully the style of observation and experiment which, in his opinion, was still needed in order to the full elucidation of correct theory and practice in draining land. To this we shall hereafter return. Mr. Girdwood contended that, in order to the more perfect discussion of the subject, certain points, as Mr. Bazalgette had indicated, should be more constantly kept in view. Mr. Beattie, of Aberdeen, related his experience in confirmation of Mr. Denton's advocacy of deep draining. "At first," he says,

"Drainage was begun here at shallow depths, but in course of two years it was gradually carried deeper, until 4 feet was generally adopted at distances apart of 24, 27, and 30 feet, the latter being the greatest distance that I countenanced. I may mention that the sum expended under my directions, arising from loans from government and private outlays by the owners of land, since 1846, is about 200,000. The nature of the ground over this and the adjoining counties is exceedingly variable; indeed, it is not unusual in a drain of 6 or 7 chains long, to pass through three or four different descriptions of subsoil. A great part is difficult to cut, from the number of stones and large boulders imbedded in hard gravelly clay. The expense, therefore, is much beyond the cost spoken of by Mr. Denton, being here from 6*l.* to 9*l.* per acre. Pipes and collars are now invariably used by the most experienced drainers. I have discontinued trench ploughing immediately after drainage. I observe that the soil when drained subsides in dry periods and expands during wet seasons, so that an action takes place naturally sufficiently strong to break up even the moorband pan which is so frequently met with in this district. This is more apparent where the drains have been deep and not far apart. I have recommended old Grass land that had become in its wet state tough in the surface, to be left at least two years unbroken up after being drained. The Grass improves in quality, and the land, when afterwards ploughed, is friable and mellow, more easily prepared for cropping, and produces better crops. The saving of labour is also very great, particularly when it comes to be prepared for Turnips. The green surface is replaced on the drains and rolled down flat. Before adopting 4 feet deep drains, I had much difficulty in dealing with the iron ore which generally appeared at 2 or 3 feet from the surface, but by the extra depth the water filters off to the pipes free of ore. Occasionally iron ore is found at a greater depth, but the floating substance is then in most cases lighter, and does not adhere to the pipes in the same way as that found near the surface."

Mr. T. Scott stated his experience as a land-drainer:

"In 1838, he served his apprenticeship to land draining on the farms of Mr. John Dudgeon, in West Lothian, and in that and the two following years superintended the execution of 140 miles of drainage, executed on the principle recommended and then practised by his friend Mr. Smith, of Deanston. These drains were dug 27 and 30 inches deep, the conduits being formed by 2½-inch tiles and soles, or 12 inches of stone broken to pass through a 2½-inch ring. The effect of this drainage was wonderful and repaying at the time, but when he wrote to Mr. Dudgeon in 1850, just 10 years afterwards, to know the result, he learned that he had terminated his old leases several years before the stipulated time, that he might have the inducement, which the beginning of a new lease would afford, to take up these very 30-inch drains and re-lay them 4 feet deep, which he has done. Here is a material guarantee, by one of the leading and most acute tenant farmers in Scotland, that deep draining on the stiff and cold subsoils of West Lothian, is the most effective and remunerative drainage. Having gone into Cheshire in 1841, he had carried out the Deanston system, and received a silver medal from the Manchester and Liverpool Agricultural Society in 1843, and again in 1844. The depth, as well as the inclination of this drainage, was ridiculed at the time by his local friends, and the landlord began to doubt the propriety of putting his money into such a sinking fund, and the tenants were unwilling to promise a per centage on the outlay. But what is now the result? Why the landlord, agents, and tenants, are all superseding these drains, though many of them were 3 feet deep, with deeper ones still, the minimum being 3 feet 6 inches. It was, therefore, with some degree of humility that he held this handsome medal for work now obsolete in principle and being superseded in practice, but he had rather blush for the past than hold out against reason and experience for the future. The rules of the same society now say, 'no drain to be less than 36 inches deep, but the society recommend it still deeper.' In 1850 he went into the county of Wilts, as resident agent to Joseph Neild, Esq., M.P., and being then fully convinced of the soundness of deep draining, and hoping that his Wiltshire friends might not know how much comparatively shallow draining he had been guilty of, he commenced by draining 3½ to 5 feet deep on all soils, being a stage in advance of local practice. A war of words ensued with the tenants and neighbours, but he persevered for three years, and until nearly 2000 acres of land in Wilts and Somerset had been throughly drained in this way, being supported by the confidence of the proprietor throughout. At the end of the time mentioned he began to perceive that he was being followed, but still at a respectful distance, by a good many of his early but thinking and observing opponents, and his mission ended by a handsome testimonial being presented to him as an acknowledgment that he had practically exemplified in that district a sound system of land drainage. Three more years have rolled by, and time has so far confirmed the result, that the ordinary farmers in that district are now deep drainers from experience if not from principle. He thought that no stronger proof could be adduced than these examples, that 3 feet 6 inches is the minimum depth for drains on the stiffest soil for permanency and effect. As a further proof of this, he had evidence that the late Mr. Wm. Smith, of Braydon, near Swindon, in Wiltshire, executed some drainage on his own lands there in 1812, 4 feet deep and 20 feet apart, and though this is the most unporous soil and subsoil he believed, in the three kingdoms, these drains are still running, and the land is effectually dry. He wished also to record here the result of an experiment which he made in 1851 with Fowler's Draining Plough, on the Braydon land, and which land Mr. Bravender, of Cirencester, has described in the 'Royal Agricultural Society's Journal,' as almost untractable. This drainage was done by contract, 3 feet 3 inches deep, and 16½ feet apart, the main drains being dug by hand and laid with 3 and 4-inch pipes, the outlets having grated pipes built in stone work, and the minor drains being left without pipes, except for about 12 feet in length from the main drains upwards. The economy of this work was great; sheep are now folded with advantage on the land, which was formerly unsafe for cattle, except for about three months in the year; the aquatic Grasses have died out and better herbage has taken place, and the annual value of the land so drained is doubled. The average cost of this comparatively deep draining on Mr. Neeld's estates did not exceed that of shallow and temporary

perations previously in vogue in this district, namely, 4*l.* an acre, on 1800 acres of thorough drained land, labour being then at least 30 per cent. less than it is now. That the drainage was thorough he had good reason to believe, from not having heard a single statement to the contrary from any of the 30 or 40 occupying tenants over whose farms the drainage extended."

Mr. Bullock Webster's address contended for the sufficiency and efficiency of shallower drains than previous speakers had advocated:—

"He did not, however, differ in opinion materially as to the advantages of a uniform depth of 4 feet in strong clay subsoils not surcharged with under water. The result of practices of the last ten years had shown that the principle of parallel equi-distant uniformity is applicable only where there exist uniform texture of soil, and uniform inclination of surface; that it requires modification directly the soil varies, and the surface becomes irregular, and that the desire for uniformity had led to a waste of money and imperfect work. He contended that soils resting on retentive clay subsoils not surcharged with under water (he was not speaking of subsoils with veins of gravel and sand containing water) should be drained not less than 3 feet deep, but that the depth must be regulated by the extent to which the clay cracks, and to where the water was checked by the retentive nature of the subsoil, for his opinion was, that these particular soils require drainage, because the water does not get into the subsoil, not because the subsoil is full of water. Our object, then, is to tempt the water through all the soil we can, and then get rid of it. Effectual three-feet drainage left no water below the drains: they were out of the way of all agricultural implements; roots of plants would as freely go into a four-feet drain as a three-feet one, if they had a tendency to stop up a drain. As to water running clearer out of four-feet drains than three, Professor Way's experiments had proved a much less depth of soils above the drains would extract all valuable matter from rain-water or manure. He thought it would be found that the temperature would be quite as high on these lands drained three feet as four feet. He objected to the four-feet drains on these retentive clay subsoils, because you could not get your drains further apart, as Mr. Denton admitted—because the extra foot after three feet often costs nearly as much as the first three—because of the expenses of the outfalls in many cases, and the subsequent annual expense of keeping these outlets open. Let the roots of the crops be kept within the influence of the sun, in eighteen inches of well manured soil, and he thought it would be found that the produce would be far more than if you tempted them into four feet of clay subsoil, if you could do so. With regard to the deep drainage on the clay at the Duke of Wellington's estate, at Strathfieldsaye, it was tried and given up some years since. He could show an estate in that neighbourhood where deep drains at wide intervals did so little good that drains closer together and not so deep had since been put in. We often heard of the retentive clay subsoils completely changing their character by the action of four-feet drainage; now he had frequently seen strong clays exposed a whole summer to the sun and rain in a brick-yard year after year and yet they remained much the same. A soil might be altered by freeing it from water, and admitting air, but beyond the depth to which it was moved, no very great change would take place in the dense clay subsoil. He felt confident that many estates in this country would not cost half the money to drain if all the main outlets were well opened, the springs cut off, and some of the upper lands laid dry, and then left for a year or two before the rest of the drainage was proceeded with."

Mr. Hewitt Davies said:—

"My experience in draining has so decidedly been in favour of what is termed deep draining, that I have long ceased to drain shallower in any soils than 4 feet, whenever a fall of this depth could be gained, and I give 4 feet as a minimum depth because I am convinced occasionally there are soils and conditions when it is advisable to go much deeper. The wetness of the surface of land appears to me to arise from two different conditions of the soil, and that these call for different systems of draining, both as regards depth and distance. I consider most soils, and more particularly what are called strong, are made wet by the surface water sinking only a short distance, and accumulating in the pores and fissures of the subsoil until it reaches the surface, and it is with this standing water that the drainer usually has to operate, and I give 4 feet as the minimum depth of the drains in these soils because I have always found that the cracks and fissures formed by the drought and changes of temperature on the strongest clay, and which make these soils permeable, extend below this depth, and the water from the surface may be made to reach the drains at this distance, and I do not advise going deeper, when the object is merely to take off the surface water, because the difficulty and expense then too rapidly advances to admit of doing so with advantage. As these descriptions of soils are made wet by water that soaks perpendicularly, and rests in the soil, and call for draining solely to rid them of water that reaches them from the surface, they are only to be laid dry by parallel drains, down the fall, at widths regulated by the depth of the drains and the facilities that the openness of the soil offer for the water to draw into the drains. The other description of draining solely applies to land that is made wet by land springs, or water which reaches it from a distance, as well as from its own surface, and is brought to the surface by the cropping out of the impervious strata on which it lies. It was to this description of land that Elkington's system of draining by spring tapping was applied with so much success a hundred years ago as to gain him a parliamentary grant of 5000*l.* He found that by cutting up the hill and across the clay into the watery bed upon it, he frequently succeeded by means of a single deep drain, in laying a considerable distance dry; but we must not forget that his success lay in dealing with land made wet by water brought to it and oozing on to its surface, and in intercepting it before it came to the surface. Had I heard Lord Berners' description of his soil and its watery fissures, previous to Mr. Trimmer's account of it, I should have understood that he had dealt with land springs or water brought from a distance, and that he had succeeded in laying it dry upon Elkington's system of cutting through the side of the strata that basined it in, but this system of draining can be applied only to particular soils and circumstances, and the greater advantages from parallel draining are found to still more narrow the field for its adoption. With respect to Mr. Bullock Webster's remarks with reference to 4 feet and shallower drains, and in objection to the rule that 'depth should govern the distance between the drains,' or in other words, that 'increasing the depth in clay to 4 feet extends the distance drains draw,' I need say little, for every farmer's experience in ditching and water furrowing is against him; and Lord Lonsdale has well exemplified the effect of depth in drying the land by saying that he early learnt the greater benefit of depth in his experience in road making from observing the assistance that deep draining the road sides gave in laying the ground between the drains solid, and I appeal to Mr. Denton to say whether or not he does not find that the deeper the drains in all soils the wider they draw. I began draining 25 years ago by laying bushes 2 feet deep, and a rod apart; but I soon found that by going deeper the drains drew further and laid the land drier, and for the last 20 years I have never drained less than 4 feet deep."

Mr. Denton and the chairman gave concluding addresses on the subject. To them and to the speeches of other gentlemen who addressed the meeting, we must refer next week.

Farmers' Clubs.

BIGGAR: *The Turnip Crop.*—The competition for the largest crop of Turnips on 5 acres, from one field, took place lately. Each field was minutely examined, and an average portion selected and measured; the Turnips thereon being topped, tailed, and weighed, the judges found the largest crop on the farm of Overburns, tenanted by Mr. William Gibson, to whom they awarded the prize of the silver cup presented to the club by William Wilson, Esq., Windsor, land steward to H.R.H. Prince Albert.

Name of Farm and Parish.	Kind of Turnips.	Average Distance of Turnips.	Average weight per Acre of 5 Acres.	Average Weight of each Turnip.	Kind and Quantity of Manure per Acre.	Estimated Rent of Land per Acre.	Date of Sowing.
		Inches.	tons. cts.	lbs.			
Birthwood, Culter ...	Grn. Top Yellow	10.4	34 17	3		£1 10	
Overburns, Lamington	White Globe	10.7	38 15	3.8	20 yards dung & 3 cwt. Peruvian guano	2 10	20th May
	Grn. Top Yellow	10.6					
	Do.	8.2	28 3	2			
Blythbank, Linton ...	Do.	8.6	36 12	2.5	15 yards dung & 2 cwt. Peruvian guano	2 0	23d May
	Swedish	8.8	30	2.1			
Crosstane, Broughton ...	Grn. Top Yellow	11.9	38 5 8	3.1	30 yards dung & 3 cwt. Peruvian guano	2 10	May
Cornhill, Culter ...	White Globe	11.1	34 16	3.1	15 yards dung, 3 cwt. Peruvian guano, and 2 cwt. super-phosphate of lime	1 5	June 15
	Grn. Top Yellow	11		3.1			June 1
Muirhouse, Liberton ...	Purple Top Yel	10.6	37 1	3	20 yards dung, 3 cwt. Peruvian guano, and Bailey's manure	2 0	
	White Globe	10.6		3.66			
Cormiston, Liberton ..	Grn. Top Yellow	9 8	32 11	2.68	20 yards dung & 3 cwt. Peruvian guano	2 0	June 5

MELKSHAM.—*Cottages and Poors' rates.*—At the late agricultural meeting here the following remarks on this subject were made by the Rev. J. Wilkinson:—One favourite topic with my brother clergymen of late is the want of cottage accommodation for the poor; and, taking that as their text, they take the opportunity thus afforded them of reading the landowners a lecture as to their duty in this matter. I shall not imitate their example, both because I consider such advice to be much misplaced and to take a very short-sighted view of the subject, and because I believe the landowners want no advice from me to tell them that "Property has its duties as well as its rights." You may see at Grittleton cottages with one or two rooms down stairs and bed rooms upstairs, a good supply of water, and a piece of garden ground, all of which is rented for about 1*s.* a week. The way in which Mr. Neeld has provided cottage accommodation for the poor on his estates will make his name to be long remembered; and he will sleep all the better in that palace he is raising for himself at Grittleton, for the way in which he is enabling the poor men to sleep in their cottages around him. I believe it to be exceedingly short-sighted and misplaced to find fault with any landlord for not providing cottages; for in proportion as he does so he will increase the rates and decrease his rent. It is unreasonable to expect that of any man. The guardians of Broughton Gifford were some time ago surprised to receive a notice of the removal of a widow and her four children, of whom they had never before heard anything, to that parish for support. Upon inquiry we found that the grandmother of the woman had been born at Broughton Gifford about 70 years before, and had been taken from the place soon afterwards by her father. But that fact was against us rather than in our favour, for birth in a parish is a *primâ facie* settlement until some other and better settlement be set up. So that we were afraid we should be saddled *in perpetuam* with the support of this widow and her four children. But we found out that her grandmother's father had been acknowledged as a parishioner of Lacock some 100 years ago, and inasmuch as this was the case, the great grandchildren followed the settlement of their great grandfather, and consequently we were relieved by the fact of some benevolent landlord having built a cottage in Lacock, in which this man raised and gained a settlement not only for himself but for his descendants a hundred years after im. This is an illustration of the working of the present law of settlement, even after all the relaxations that have been made in it. But this law of settlement is not only a great hardship to the proprietors, but to the labouring man himself. It has been said that a labouring man has his capital as well as others—and that capital is his ability and willingness to labour. And he ought to be as free to invest that where he chooses as any other man; but he is not free, for he is deterred by the apprehension that if he migrate he shall be torn from his old acquaintances and be transplanted to another place with which he has nothing more than a legal connection. We talk of freedom, but a man is not free unless he is at liberty to work where he pleases. Neither with regard to the employer is this law a fair one, for the employer is a rate-payer, and he knows he must provide relief for those who require it, either in or out of the house; and the consequence is that he has only a choice of difficulties left him—either to employ labourers he does not want, or support them in the poorhouse; and therefore it is that a labouring man, whatever his inferiority as a labourer, yet if he has a large family, and is likely, with them, to become a burden to the parish, is almost sure to get employment, though his work may be unremunerative to his employer. I venture, therefore, to think that, in the interest of the whole agricultural community—in the interest of the landlord, the employer and the labouring poor—some alteration in the law of settlement is exceedingly desirable. What that change may be it is not for me to say; but I trust the importance of the subject may be some sort of an excuse for having made these remarks; and I venture to hope that in the next session of Parliament (notwithstanding the war, which almost entirely engrosses everybody's thoughts) we may come to some decision on the settlement question, and at last see the end of that law which for 200 years has been one of the most despotic, searching, and stringent enactments which ever fettered the free action, and injuriously affected the domestic condition and industrial habits of any people whatever.

Miscellaneous.

Computation of Inexhausted Improvements:—The following schedule is proposed by Mr. Humberton, of Chester, as proper for adoption in leases of land for agricultural purposes. *Report of Discussion—Courant Office, Chester.*

DESCRIPTION OF IMPROVEMENT	CONDITIONS ANNEXED.	RATE OF COMPENSATION TO BE ALLOWED ON QUITTING.
1. Fine ground bone and half-inch bones	On drained or naturally dry tillage land ...	Two-thirds of the costs of what has been used in the last year of tenancy, and one-third of that used in the year preceding.
2. Bone dust and half-inch bones	On dry or well drained pasture or meadow land, the same not being afterwards mown	Seven-eighths of the costs of that used in the last year of tenancy, and diminishing one-eighth every previous year subsequent to the application.
3. Dissolved bones or guano	On dry or well drained land	One-fourth of the cost of that used in the last year of tenancy for Turnips and Rape.
4. Lime	On dry or well drained land	Three-fourths of the costs of that used in the last year of tenancy, and one-fourth of that used in the preceding year.
5. Linseed-cake	Consumed on the farm	Three-fourths of the costs of that used in the last year of tenancy. The manure being carefully preserved in the foldyard.
6. Draining—landlord finding tiles	Provided the drains are not less than 3 feet deep at regular distances, and cut under the superintendence of the landlord or his agents, and are in perfect order at the expiration of tenancy	Four-fifths of the expense of cutting, laying, and filling in the drains made during the last year of tenancy, and diminishing one-fifth for every crop grown on the land since it was drained.
7. Draining—tenant finding tiles	Same proviso as above	Six-sevenths of the cost of those made in the last year of the tenancy, and decreasing one-seventh for every crop grown since it was drained.
8. New buildings or walls—landlord finding materials	Provided the same are done under the direction and approved of by the landlord or his agent, according to plan and specification previously agreed upon	Nine-tenths of the costs of those erected in the last year of the tenancy, and decreasing one-tenth for each year's occupation after erection.
9. Ponds and rods	Same proviso as above	Nine-tenths of the costs of those made or filled up in the last year of the tenancy, and decreasing one-tenth for each year's occupation after completion.
10. New walls or buildings—tenant finding all materials	Same proviso as above, tenant keeping and delivering up in good repair	Nineteen-twentieths of the costs of those made in the last year of tenancy, and decreasing one-twentieth for each year's occupation after erection.
11. New fences of Hawthorn landlord finding posts and rails	Provided they have been properly protected and cleaned	Nine-tenths of the costs of those made in the last year of tenancy, and decreasing one-tenth for each year's occupation after completion.
12. Clover and Grass seeds ...	Provided proper seeds have been sown in a husbandlike and proper manner, and have not been depastured or trod by stock.	The invoice cost of seeds sown in the last year of tenancy.

Calendar of Operations.

DECEMBER AND JANUARY.

WESTER ROSS, *Dec.*—For this last month we have had more than an ordinary supply of sterling winter weather. About three weeks ago a severe frost set in, and a few days thereafter we had a snowfall so abundant that the mail coach stuck fast in a wreath, and for some days our letters were late by several hours. The thaw was sudden, and so speedily did the snow dissolve, that, on the west coast, where the hills are precipitous, the water came down in torrents, carrying away bridges, and causing much damage. On one property some 200*l.* or 300*l.* will have to be expended ere matters be in the same state as they were previously. The fall of rain since harvest has been much under an average, and our streams, although increased by the thaw, have been again, for a week, sealed up with an intense frost, so that our farmers have been sadly complaining of want of water to thresh out the grain. To-day, however, we have a change. It is now fresh and showery. The soil has been since harvest in a particularly good working state; never was our Wheat laid down in better condition, and the whole outdoor labour has been accomplished with much comfort to all concerned; and so far advanced

was labour generally that we were well prepared for the severe weather with which we have been so early overtaken. Even now the ground is far from being thoroughly soaked, and so small are the streams that much wet would be needed ere our supply would be abundant. We are now busy collecting manures from all quarters for Potatoes and Turnips, and that farmer may well be counted rich in manure who can, by Christmas, point to dunghills sufficient to supply all his green crop lot. That man would have time enough to provide an abundant supply of manure for the coming Wheat crop. Farmers are now busy shipping Potatoes, which fetch from 3*l.* to 3*l.* 5*s.* per ton. The disease, which appeared this season in a mitigated form in the field, has been particularly busy in the pit, and the farmer has once again, been emphatically reminded that "there is much between the cup and the lip." A much smaller quantity will be disposed of than was calculated on. The earlier shipped ones reached their destinations in a very diseased state, and much loss has been sustained thereby. When the disease is making way in the pits, there is great difficulty in getting the Potatoes into a right marketable state, and in the delivery of them more disputings arise than about all the other commodities of the farm.

WEST SUSSEX, *Jan.* 1.—This is a time when there is little to report, all in the fields is quiet, and labour is confined to barn work, road making, and providing for cattle, sheep, &c. Lambing is begun, and has hitherto been fortunate. Wheat is nearly all up, and looks very well; we had a week of very sharp frost, but it has done good in opening the land about the young plant, for some was put in with the land in bad order, but that is now all right, as the present mild weather sends it all up in good order. Respecting the yield of the Wheat crop in this neighbourhood, the general account is that it is from two to three sacks an acre less than last year, and I have heard some say that they had the heaviest crop then that they ever had or expect to have, so that upon the whole it cannot be said to be much below an average—certainly not 1 quarter per acre; but the land here is well adapted for Wheat, and does not suffer so much in a bad season as it will in many places. We hear often of 11, 12, and even 16 sacks grown on the acre—a crop that in some districts can only be believed to exist in imagination. Our local root-show took place a week or two ago, and there were some very fine roots shown, especially Mangels and Carrots, for which the locality is well suited. *G. S.*

Notices to Correspondents.

ADDRESSES: *Correspondents*: The patent corn mill is by Messrs. Samuel and Charles Adams, Oldbury, near Birmingham; the Turnip grater by Mr. Frederick Phillips, The Hall Farm, near Brandon, Suffolk.

BOOKS ON DISEASE OF CATTLE: *Clithero.* Mr. Spooner's papers in the "Cyclopædia of Agriculture" are condensed in the "Farmer's Almanack," published by Blackie & Son.

BOTTLING BEER: *W P.* You had better delay bottling till March, as it is better not to disturb the beer during the cold weather. Beer brewed in October is generally bottled off the following March if bright, but if not it should stand over till the following October. There is an old saying that English wines should be bottled when the trees are in blossom from whose fruit the wine was made; for instance, Gooseberry wine in the following April.

COMPOST: *Standish.* Caustic lime will take any acid from an ammoniacal salt, and the ammonia disunited will assume its own proper form as a vapour liable to absorption by water, and by various porous materials. An old compost of earth and lime does not however necessarily contain caustic lime, and urine does not necessarily contain any ammonia or ammoniacal salt. The two may, under certain circumstances, be added together therefore without harm. Fresh urine may be added to an old heap of lime and earth without water, and even old urine, which does contain ammonia, would probably not suffer much extra waste, for its ammonia is already in a volatile state, and the earthy matter to which it would be added would in some measure retain it.

GORSE: *G R.* We give the remarks of the Rev. W. D. Fox of Delamere, Cheshire, on this subject. The Gorse seed commonly sold in the seedsmen's shops is the only kind of seed. Some will sell it as "French Gorse," but I do not think it is the least different. Decidedly sow where it is to remain; but it would also be a very good plan to have a quantity sown in boxes—old Orange boxes answer very well, and can be got for almost nothing—in order to fill up vacancies in September. If your ground is very foul, I would altogether sow in beds and transplant in September, and you can clean the land, but, of course, it is much more expensive, and if the land is clean it will grow much better sown where it is to remain. It is more readily sown by forming the land into drills, but the less they are raised the better. Manure will much improve it, but it is not necessary. If the drills are 2 feet apart, a horse hoe can be freely used for cleansing between rows.

JERUSALEM ARTICHOKES: *W P.* They may be planted in April in rows about 2 feet apart, and 6 inches apart in the rows.

MARL: *A Subscriber.* The word refers to many different things, as you will see in Sprengel's papers on inorganic manures in the early volumes of the *Agricultural Gazette.* Its efficiency depends often on phosphates present in them in small quantities rather than on the lime or other more abundant earth that they contain. A heavy dressing of marl is often sufficient for many years, and a re-dressing under such circumstances would be useless. The gradual descent of any dressing, as of ashes, marl, &c., is owing to the worm casts being taken from below them continually. Mr. Darwin's explanations of this was given some years ago in the Transactions, we think, of the Geological Society.

PEG DRUM THRESHING MACHINE: *J T B.* Will you excuse the delay of a week.

POULTRY: *W R C.* For eggs we recommend Cochins, as they are more to be relied upon during cold weather than any other variety. The Hambro's, though good layers, are not so hardy, but if appearance be consulted as well as useful qualities, they are well worth a trial. As table fowls the Dorkings are not to be surpassed; about five hens are allowed to one cock. Three ducks and one drake of the Aylesbury breed will give satisfaction. Examine the advertising columns, and if convenient, commence at once. Good Dorkings ought to be purchased at 10*s.* each; Hambro's at 7*s.* 6*d.*; and Cochins at 5*s.*—*T B.* So much depends upon the consuming qualities of the variety you keep, that we hesitate to give an opinion. Feed three times a day; give as much as the birds will eat without waste, and then you cannot be wrong.

THE STEAM PLOUGH: *X.* We may mention that the Manchester and Liverpool Agricultural Society intend holding their next annual meeting at Wigan, on August 6th and 7th, 1856. A local fund has been raised for the purpose of giving additional and increased prizes, which has been attended with great success. There is, however, a strong desire that there should be a trial of steam cultivators, and that after the trial, a discussion "on the best mode of applying such power" should take place, by practical engineers, so as to lead to the production of the implement so much required, for it may be fairly considered, that so much practical science does not exist, in any other district in England as this. A discussion on this subject might lead to very beneficial results. Those interested in the subject should address Mr. F. Twining, of Parbold Hall, Wrightington, near Wigan.

TURNIP CUTTER: *Clericus.* Apply to any commission agent for the sale of implements, as Burgess & Key, or Deane & Dray. They will sell you a small machine for the purpose for about 50*s.*; but Gardner's Banbury cutter, costing about 5*l.*, is the best machine of the kind.

ERRATUM: The return of the average of Oats at page 858 last week, column *b*, should have been stated at "933,611½—932,994."

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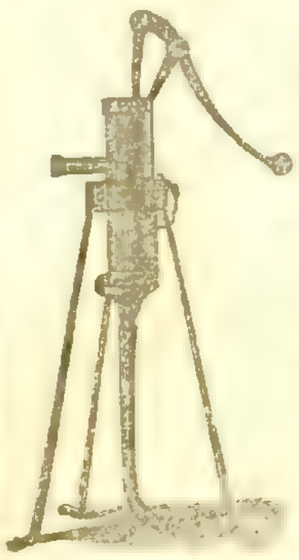
JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

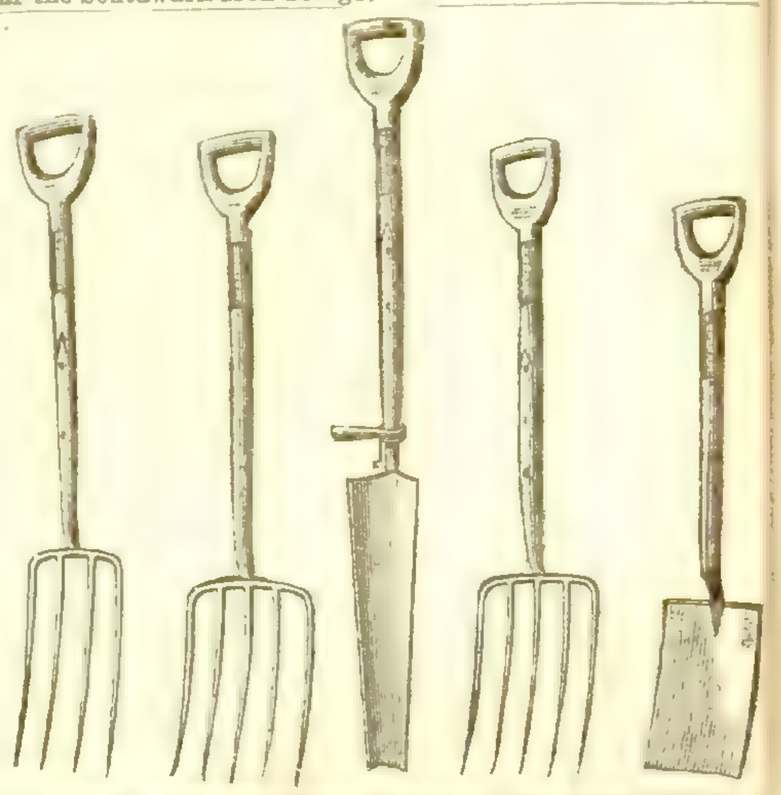
THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture,* including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30*s.*; cast iron 35*s.* each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

Address BARTON'S Iron Works, 370, Oxford Street, London.

TO FLORISTS AND OTHERS.

J. JONES, IRON MERCHANT, has always a great variety of CYLINDRICAL and SADDLE BOILERS in stock, also Fire and Furnace Bars, Supply Cisterns, Double Doors and Frames, Furnace Grates, Soot Doors, Hot-water Pipes, Elbows, Tees, Syphons, Throttle Valves, Stop Cocks, Flange and Socket Elbows, &c.; also Trough Pipes.—Drawings and Prices of the above, or estimates given for the work fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130*B* and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

DR. DE JONGH'S
LIGHT BROWN COD LIVER OIL.
TESTIMONIAL from DR. LETHEBY,
Professor of Chemistry and Toxicology in the Medical College of the London Hospital, Medical Officer of Health to the City of London, &c., &c.

"I have frequently had occasion to analyse the Cod Liver Oil which is sold at your establishment.

"In all cases I have found it possessing the same set of properties, among which the presence of cholaic compounds and of iodine in a state of organic combination are the most remarkable; in fact, the Oil corresponds in all its characters with that named 'Huile brune,' and described as the best variety in the masterly treatise of Dr. DE JONGH.

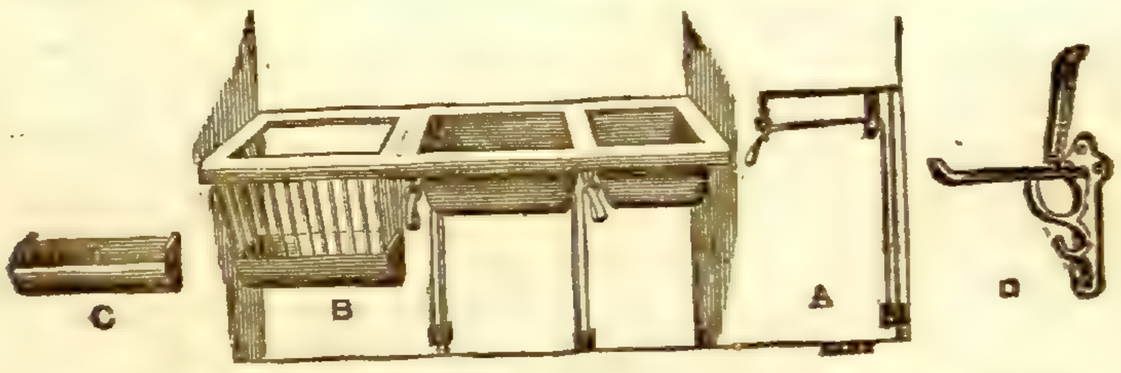
"IT IS, I BELIEVE, UNIVERSALLY ACKNOWLEDGED THAT THIS DESCRIPTION OF OIL HAS GREAT THERAPEUTICAL POWER; AND FROM MY INVESTIGATIONS, I HAVE NO DOUBT OF ITS BEING A PURE AND UNADULTERATED ARTICLE.

"College Laboratory, London Hospital, Sept. 24, 1855."

Sold ONLY in bottles, capsuled and labelled with Dr. DE JONGH'S Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH'S sole Consignees; and by many respectable Chemists in town and country.

Half-pints (10 oz.), 2*s.* 6*d.*; Pints (20 oz.), 4*s.* 9*d.*; Quarts (40 oz.), 9*s.*; IMPERIAL MEASURE.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.
(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show.

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes under 10 by 8, 12*s.* 6*d.*: above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

	SHEET SQUARES. In Boxes of 100 feet.	CROWN SQUARES. In Boxes of 100 feet.
Under 6 by 4	... £0 12*s.* 0*d.*	... £0 8*s.* 6*d.*
6 by 4, and 6½ „ 4½	... 0 13 0	... 0 12 6
7 „ 5, — 7½ „ 5½ / 8 „ 6, — 8½ „ 6½	... 0 14 0	... 0 14 0
9 „ 7, — 10 „ 8	... 0 16 0	

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2½*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* „ 5*d.* „ „
26 oz. „ 6*d.* „ 7½*d.* „ „

SIXTEEN-OUNCE SHEET GLASS OF ENGLISH MANUFACTURE FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet

Double-crown Glass of various dimensions in 100 feet boxes.

HARTLEY'S PATENT ROUGH PLATE GLASS.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 4½*d.*

Foreign Sheet Glass, in cases of 200 feet 38*s.*, 40*s.*, and 42*s.* per case.

Fern Cases with Ferns complete, suitable for the Drawing-room, from 25*s.* each.

Aquariums with French polished stands, from 10*s.* each. Vase shaped ditto, on Glass stand, 25*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12*s.*	0*d.*
6½	„	4½	„	7	„	5	...	... 12	6
7½	„	5½	„	8	„	6	...	... 13	0
8½	„	6½	„	9	„	7	...	... 13	6
9½	„	7½	„	10	„	8	...	... 13	6
10½	„	8½	„	11	„	9	...	... 14	0
12	„	9	„	13	„	9	...	... 14	0
10	„	10	„	10½	„	10½	...	... 14	0
11	„	10	„	11½	„	10½	...	... 14	0
11	„	11	„	11½	„	11½	...	... 14	0
12	„	11	„	12½	„	11½	...	... 14	0
13	„	11	„	13½	„	11½	...	... 14	0
13	„	12	„	13½	„	12½	...	... 16	0
13½	„	13½	„	14½	„	13½	...	... 16	0
15½	„	13½	...	...	...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash, A reduction made on 1000 feet.

Sizes.—Inches.	Inches.	Per foot.	Per 100 feet
	Under 6 by 4	at 1½*d.*	is £0 12 6
From 6 by 4	„ 7 „ 5	„ 2*d.*	„ 0 16 8
7 „ 5	„ 8 „ 6	„ 2½*d.*	„ 0 18 9
8 „ 6	„ 10 „ 8	„ 2½*d.*	„ 1 0 10
10 „ 8	„ 12 „ 9	„ 2¾*d.*	„ 1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
26 oz. „ 3¾*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

SEASONABLE PRESENTS.—The most appropriate offerings for this Season of Festivity are those which tend to the promotion of Health and Personal Attraction; none can be more acceptable than ROWLAND'S MACASSAR OIL, for imparting a transcendent lustre to the hair, and sustaining it in decorative charm.

ROWLAND'S KALYDOR imparts a radiant bloom to the cheek, and a delicacy and softness to the hands, arms, and neck; and

ROWLAND'S ODONTO, or PEARL DENTIFRICE,

Bestows on the teeth a pearl-like whiteness, and renders the breath sweet and pure. The patronage of Royalty throughout Europe, their general use by rank and fashion, and the universally-known efficacy of these articles give them a celebrity unparalleled.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

*** BEWARE OF SPURIOUS IMITATIONS

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

F. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

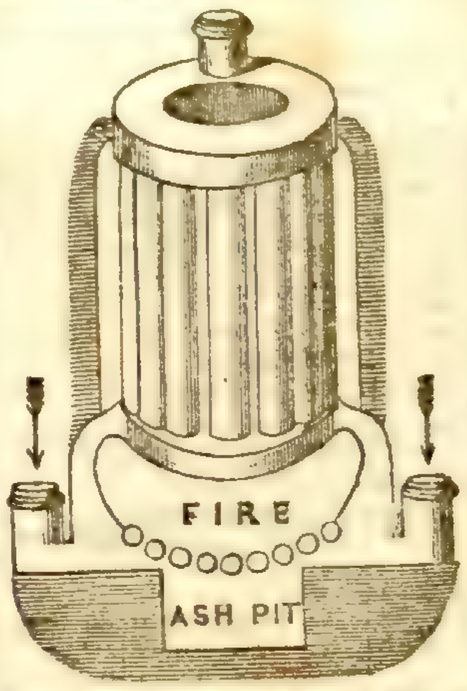
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army), Surgeon, 9, North Terrace, Moor Edge, Newcastle-upon-Tyne.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co. Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 17[illegible]), removed to 407, Oxford Street, near Soho Square. A Box, containing 14 fine Sisal Cigars for 1*s.* 9*d.*; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

GIFTS of FRIENDSHIP and AFFECTION.—The almost insuperable difficulty so frequently experienced in the selection of an appropriate article for presentation which will fully convey in an acceptable, attractive, and useful form the kindly intention of the giver, and at the same time merit the appreciation and regard of the recipient, is now entirely removed by an inspection of the varied attractive manufactures displayed in the magnificent SHOW ROOMS at Mr. MECHI'S ESTABLISHMENTS, 112, REGENT STREET, and 4, LEADENHALL STREET, London: consisting of the newest and choicest patterns in Ladies' and Gentlemens' Dressing Cases, Work Boxes, Writing Desks, Dressing and Carriage Bags, Inkstands, Bagatelle Tables, Caskets, Tazzas, French Bronzes, and Bijous of the newest and most novel description. The Papier Maché Department presents a large variety of the most beautiful designs in Work Tables, Chess Tables, Desks, Blotting Cases, Inkstands, Tea trays, Pole screens, Tea pays, Envelope Cases, Multiformias, Cabinets, Tea Chests and Caddies, Jewel Boxes, &c. Table and small cutlery of every description, A Show Room, at 112, Regent Street, is devoted exclusively to the display of the best electro-plated Dinner, Tea, and Coffee Services, Cruet Frames, Liquor Frames, Salvers, Toast Racks, Cake and Bread Baskets, Fish Carvers, plated and silver Dessert Knives and Forks in Cases, Spoons, Forks, &c. The above but represents a few of the leading articles to be seen at these Emporiums. An inspection will amply repay the trouble of a visit. Same prices charged at both houses.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WM. S. BURTON to collect from the various manufacturers in Metal and Glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d.* (two light) to 16*l.* 16*s.*

THE PERFECT SUBSTITUTE FOR SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18*s.*	26*s.*	32*s.*
Dessert Forks „	30*s.*	40*s.*	46*s.*
Dessert Spoons „	30*s.*	42*s.*	48*s.*
Table Forks „	40*s.*	56*s.*	64*s.*
Table Spoons „	40*s.*	58*s.*	66*s.*

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto ... ... „	10*s.*	21*s.*	25*s.*
Tea ditto ... ... „	5*s.*	11*s.*	12*s.*

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5*s.* 6*d.* per gallon.
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SEEDS FOR THE KITCHEN GARDEN *can be obtained from* DEVONSHIRE, *through* Messrs William E. Rendle & Co., Seed Merchants, Plymouth. *All orders carriage free.*
See their "Price Current and Garden Directory" just published.

VAN PARCEL TRAINS *are now running on the Great Western and the other Broad Guage Railways, so that Seeds can now be sent from* DEVONSHIRE *with as much regularity and despatch as from any other county in England.*
William E. Rendle & Co., Seed Merchants, Plymouth, Devonshire.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.
THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "Sutton's *Complete Collections for one year's supply," particulars of which may be had on application, addressed*—
Sutton & Sons, Seed Growers and Merchants, Reading.

THE READING ONION *is very superior to the sort called White Spanish, which is usually supplied for it.*
Sutton & Sons, Reading, Berks, can supply genuine Seed at moderate price, according to quantity required.

TO THE TRADE.
NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.
THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

TO THE WHOLESALE SEED TRADE.
MESSRS. PLATZ and SON, Seed Growers, Erfurt, Prussia, supply from their extensive Stock the very best Flower and Vegetable Seeds, the growth of 1855, through their agent, Mr. R. Kennedy, Bedford Conservatory, Covent Garden, London.

CYPRIPEDIUM MACRANTHUM, Sw.
L. VAN HOUTTE, of Ghent, Belgium, offers the above very scarce and hardy SIBERIAN CYPRIPEDIUM, at 42*s*.—Apply as above, or at his Agent's, Mr. R. Silberrad, Harp Lane, Great Tower Street, London.

CHRYSANTHEMUMS.
W. HOLMES offers for Sale large Flowered and Pompone varieties at 5*s*. per dozen. The Large Flowered varieties include Stafford, August Mie, Hermine, Albion Godereau, and the whole of the best show flowers. The Pompones include Bob, Brilliant, Berrol, Requiqui, &c.
W. Holmes, Florist, Well Street, Hackney.

CAMELLIAS, ETC.
MESSRS. CHANDLER and SONS, Nurserymen and Seedsmen, Wandsworth Road, London, have for sale fine healthy plants of CAMELLIAS, well set with flower-buds, at 30*s*. and upwards per dozen. Chinese Azaleas, Hardy Greenhouse Plants, Geraniums, and a great variety of Ferns for cases; also Kitchen Garden and Flower Seeds; prices moderate.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (TRUE).
CHARLES TURNER is now able to supply strong Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s*. 6*d*. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

CHARLES SHARPE and Co., Seed-Growers, respectfully acquaint the Trade that they have a large stock of Agricultural and Horticultural Seeds, and will have pleasure in forwarding prices on application.
N.B. A large quantity of two years' Seedling and Transplanted Quick, price on application.—Sleaford, January 1856.

LILIUM GIGANTEUM SEED.
FRANCIS and ARTHUR DICKSON and SONS, Upton Nurseries, Chester, having this last Autumn ripened a considerable quantity of Seed of this noble LILY (the flower stem of which was fully 10 feet high), beg to offer packets containing 50 selected Seeds, at 2*s*. 6*d*. per packet, free by post, on receipt of 30 postage stamps.—Jan. 12.

CORNWELL'S VICTORIA RASPBERRY CANES, 15*s*. per 100; NEW MONTHLY AUTUMN FRUITED, 12*s*. per 100; WHITE, 10*s*. per 100; the usual allowance to the Trade. To be had of George Cornwell, Market Gardener, Barnet.

SPLENDID SEEDLING HERBACEOUS CALCEOLARIAS.
WILLIAM BARNES has now ready to send out at 5*s*. per dozen a few of his unrivalled CALCEOLARIAS. They are very beautiful healthy strong plants, and are now quite ready for their permanent shift into large pots.
W. B. can recommend them with the greatest confidence, as they have been saved only from the most beautifully marked and finest shaped varieties, and if potted now will make splendid blooming plants.—Camden Nursery, Camberwell London.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,
SUTTON'S AMATEUR'S GUIDE. Published by Longman, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.
Sutton & Sons, Seed Growers and Merchants, Reading.

RENDLE'S PRICE CURRENT and GARDEN DIRECTORY for 1856 *can now be obtained from the undersigned, or through any Bookseller in town or country.* Price 6*d*., free by post.
For the Contents of this popular Work, see *Gardeners' Chronicle* December 29th.
William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.
Seed Establishment, 181, High Holborn, London.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season will be published in a few days, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

CHARLES SOUTHBY (late Fairbairn), Seedsman and Florist, begs respectfully to inform the kind patrons of the late Joseph Fairbairn, that his CATALOGUE of Selected VEGETABLE, AGRICULTURAL, and FLOWER SEEDS is now ready, and will be sent post free on application.
High Street, Clapham.

IMPORTANT TO PLANTERS.
EAGLE and HENDERSON, Nurserymen, Seedsmen, and Florists to the Queen, beg respectfully to announce that their CATALOGUE OF ORNAMENTAL, FRUIT, AND FOREST TREES, CONIFERÆ, &c., is now published; also their Lists of Garden, Flower, and Agricultural Seeds, all of which may be had free on application.
Shrub Bank Nurseries, Leith Walk, Edinburgh.—Jan. 12.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Jan. 12.

AMERICAN PLANTS.
WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

PETER LAWSON and SON, Seedsmen, Nurserymen, and Wood Foresters to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.
Peter Lawson & Son beg to intimate that their Prices, Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.
7, Great George Street, Westminster.

KENNEDY and KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. Kempton, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. James Carter, of Holborn.—Address Kennedy & Kempton, Bedford Conservatory, Covent Garden, London.

FLOWER AND VEGETABLE SEEDS.
JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application.
James Carter & Co., Seedsmen, 238, High Holborn, London.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Corbett's Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

CHARLES DALY and SON, Nurserymen, Coleraine, have now about one million of two-year THORNS to sell, at 2*s*. 6*d*. per 1000; fine do., 3*s*. 6*d*.; one-year do., 9 to 18 inches, and very strong, 3*s*. 6*d*. per 1000. Irish Yews, 1½ to 2 feet, 10*s*. per 100; Portugal Laurel, 1 to 1½ feet, 6*s*. per 100; Holly Berries, 4*s*. per bushel; Haws, 2*s*. per bushel; one-year seedling Larch, fine, 1*s*. 6*d*. per 1000; one-year do. Ash, do., 1*s*. 6*d*. per 1000; for cash only. Orders taken by Messrs. Huxley & M'Mullen, of London, or here. List of prices free by post.

BASS AND BROWN beg to offer the following, all of fine and strong growth Plants:—

ROSES.

100 Standards, in	100	splendid vars.	...	...	£7 0	0
100 "	50	"	...	...	6 0	0
100 Dwarfs,	100	"	...	...	3 0	0
100 "	50	"	...	...	2 5	0
100 "	100	"	the whole perpetual bloomers ...		5 0	0
100 "	50	"	" ...		4 0	0

Choice Selections, per dozen, Standards, 15s. to 24s.; Dwarfs, 6s. to 18s.; Short Standards, on 1½ to 2 feet stems, 9s. to 21s.

DWARF TRAINED FRUIT TREES.

A very fine lot of strong well grown two and three year trained Fruit Trees. Gentlemen requiring first-rate trees for planting will not be better supplied:—

Apricots, Peaches, Nectarines ... ... fine, 3s. 6d. each; extra, 5s. each.

Plums, fine, 2s. 6d each; extra, 3s. 6d. each.

Other FRUITS, all of choicest sorts, see Catalogue.

Hardy Herbaceous Plants, 100 distinct and showy vars., 30s., or 50 for 17s. 6d.

Ditto, 100 superior and newer vars., 50s., or 50 for 30s.

Hardy and Flowering Ornamental Shrubs, 20 fine vars., 12s.; 20 fine newer vars., 24s.

Hardy Climbing Plants, 20 fine sorts, 20s.

Camellias, choice assortments, per dozen, well set with flower-buds, 30s. to 60s.

RHUBARB.—Bailey's Early Monarch, each 2s. 6d.; Salt's Crimson Perfection, 3s. 6d. These two varieties are very similar, and the earliest grown.

Ditto, Victoria Giant, 7s. 6d. per doz.; Myatt's Linnæus, a good early sort, 7s. 6d. per doz.

SEAKALE, strong, for Forcing, 10s. per 100.

Catalogues, Nos. I., II. and III., for the present Season, forwarded complete for three penny stamps.

Goods carriage free (not under 20s.) to all the London termini, and all Stations on the Colchester line between London and Norwich.

Seed and Horticultural Establishment, Sudbury, Suffolk.

EXCELLENCE, ECONOMY, & CONVENIENCE.

SUTTON'S COMPLETE COLLECTIONS OF KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY.—Noblemen and Gentlemen who prefer making their own purchases will find it most convenient to order one of SUTTON'S COMPLETE COLLECTIONS, which are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection		(No. 1) is	£3	0s.	0d.
Do.	do.	(No. 2) is	2	0	0
Do.	do.	(No. 3) is	1	10	0
Do.	do.	(No. 4) is	1	0	0
Do.	do.	(No. 5) is	0	15	0
Do.	do.	(No. 6) is	0	10	6

The No. 1 Collection contains 20 quarts of the best sorts of Peas, 10 quarts Garden Beans, 5 pints French or Kidney Beans, and all other Vegetable Seeds in due proportion. The quantities contained in the other collections are stated in a Paper entitled "Contents of Sutton's Collections," which will be sent post free on receipt of two penny stamps.

INSTRUCTIONS ON CULTIVATION ARE SENT WITH THE SEEDS.

N.B. If any kinds of Seeds are already possessed they should be named, that we may omit them and increase the quantities of others in lieu of them. Those purchasers who may prefer making their own selection are recommended to apply for our GENERAL SEED CATALOGUE for 1856, which will be sent post free. It contains all the newest and best kinds of Kitchen Garden and Flower Seeds yet introduced, many of them from the Continent, with the prices affixed to each article.

*** Choice New Flower Seeds, 100 sorts, 21s.; 50 sorts, 10s. 6d.; 36 sorts, 7s. 6d.; 24 sorts, 5s., free by rail or post, with instructions on Cultivation.

SUTTON & SONS, Seed-Growers & Merchants, Reading, Berks.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder, 1s. 6d. per packet, or 12s, per ounce.* Good Seed can be had in sealed packets of the following Agents in London:—NASH, MINIER, and Co., Strand; DAWE, COTTRELL, and BENHAM, Moorgate Street; HURST and MCMULLEN, Leadenhall Street; CHARLWOOD and Co., Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON'S Seed Establishment, Truro, Cornwall.

From numerous unsolicited Testimonials we select the following:—

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs,—I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 6, 1854. "W. UNDERWOOD."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1s. 6d. worth of stamps, and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "GEORGE PENDER."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.

(Enclosed with Specimen.)

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured 3 feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. BICE, Gardener, Grampound, Cornwall. April 7, 1854."

WATERER'S AMERICAN PLANTS.—A new DESCRIPTIVE CATALOGUE is now published of the celebrated Collection of hardy Scarlet and other Rhododendrons, as exhibited by JOHN WATERER at the Royal Botanic Gardens, Regent's Park; it will be found to contain a few practical observations on their successful management, and will be forwarded on application by enclosing two stamps for postage. Apart from its enumeration of the most popular American Plants in cultivation, a List of choice Coniferæ will be seen, embracing the latest importations of this fine and hardy tribe of Plants.

J. W. has now the pleasure to offer in large quantities, and of all heights, the following selection of CONIFERS, with the remark that they are all now growing in the open ground, are bushy and handsome as can be desired, and have been transplanted each succeeding spring, whereby no risk can be encountered in their removal from the nursery:—Araucaria imbricata, Cryptomeria japonica; Pinus Douglasi, Cembra, excelsa, Lambertiana, insignis, Jefferyana, Beardsleyi, tuberculata, &c.; Cedrus Deodara, Lebanon, and Africana; Wellingtonia gigantea, Cupressus, Juniperus, Taxus, Thuja, &c.

☞ The attention of gentlemen, public companies, and others engaged in planting, is especially directed to the foregoing; indeed, all intending planters would be well repaid by a visit to inspect our stock, as much may be seen which of necessity cannot be given within the limits of an advertisement.

The Nursery is easily reached by railway, being near the Farnborough Station, South-Western Railway, and Blackwater on the South-Eastern Railway.

The American Nursery, Bagshot, Surrey.

DICKSON'S "EARLY FAVOURITE PEA."

FRANCIS AND ARTHUR DICKSON AND SONS have great satisfaction in again calling attention to this distinct and truly valuable EARLY PEA (sent out by them for the first time last season), which is admitted by all who have grown or seen it to be the most prolific and best Early Pea ever introduced. It comes in *very few days* after the *earliest* varieties; and the following testimonials (merely a few of many equally flattering ones which they have received), will, they think, be sufficient guarantee for its extraordinary productiveness and general excellence.

From MR. WHITAKER, *Gardener to the Right Hon. the Earl of Shrewsbury, Alton Towers, Staffordshire.*

Having tried your "Early Favourite Pea" last season, I can recommend it very confidently as a most desirable variety. It is considerably earlier and more prolific in pods than the Auvergne; the number of Peas in each pod is greater, and coming in before that fine variety, is certainly a most important acquisition as an early, prolific, fine-flavoured Pea.

Alton Towers, November 20th, 1855.

From MR. POVEY, *Gardener to the Right Hon. Lord Waterpark, Doveridge, near Derby.*

Your "Early Favourite Pea," sent me this spring, has more than realised the high character you gave it. Sown early, it makes a good successive to Dan O'Rourke; I have had whole rows of it averaging 10 Peas in a pod. Its productiveness is quite extraordinary, and the flavour is everything that could be desired. I have sown this variety in the middle of summer, and the crop was abundant; it is also excellent as a late Pea. Too wide circulation cannot be given it.

Doveridge, November 20th, 1855.

From MR. UPTON, *Gardener to Lady Cotton Sheppard, Crakemarsh Hall, Uttoxeter.*

Your "Early Favourite Pea," supplied to these Gardens last year, I consider to be the best early variety in cultivation. It is an extraordinary bearer, and the pods contain on an average, from nine to ten Peas, of excellent quality and flavour.

Crakemarsh, 24th November, 1855.

From MR. DYTCH, *Gardener to the Hon. R. W. Clive, M.P., Oakley Park, Shrewsbury.*

From one pint of Dickson's "Favourite Pea" I have this season gathered three pecks of good seed, and at this date I am gathering excellent Peas from a late sowing.

Oakley Park, Shrewsbury, Dec. 11th, 1855.

From MR. OATES, *Gardener to the Right Hon. Lord Leigh, Stoneleigh Abbey, Warwickshire.*

The Pea, "Dickson's Early Favourite," which I got from you last season, I can with confidence recommend as having advantages over all other Peas now grown. It is very early, of excellent flavour, and in productiveness, in my opinion, surpasses all other Peas. I have strongly recommended it to my friends, and I hope never to lose sight of it.

Stoneleigh Abbey, November 21st, 1855.

From MR. BROWN, *Gardener to W. Ormsby Gore, Esq., M.P., Porkington Hall, Oswestry.*

I have much pleasure in giving my opinion of your "Early Favourite Pea." It surpasses all others I know, both in productiveness and flavour. It called forth the admiration of all who saw it here in bearing, for looking up the row it appeared somewhat like a wall of pods 5 feet high, each containing nine and ten, and many eleven Peas in a pod. It is a first-rate early Pea and a great acquisition; indeed too much cannot be said in its favour.

Porkington Hall, 1st December, 1855.

From MR. EDWARDS, *Gardener to Lady Broughton, Hoole Hall, near Chester.*

Your "Early Favourite Pea" is the most prolific and finest-flavoured early Pea I ever grew. It is nearly as early as Warner's Emperor, and is literally covered with pods from top to bottom, each pod containing from 9 to 11 Peas. Her ladyship was much pleased with it, and has desired me to write you this testimonial.

Hoole Hall, 27th November, 1855.

From MR. STRACHAN, *Gardener to J. H. Smith Barry, Esq., Marbury Hall, Cheshire.*

It affords me much pleasure to testify to the merits of your "Early Favourite Pea." Sown the same day as "Sangster's No. 1," it was fit to gather a few days after, and the crop it produced surpassed anything I ever saw grown. In quality, too, it is first-rate, and it should be in the hands of every gardener.

Marbury Hall, 4th December, 1855.

From MR. GORTON, *Gardener to T. P. Purton, Esq., Faintree Hall, Bridgenorth.*

In reply to your letter, I beg to say that I have been much pleased with your "Early Favourite Pea," and it was the admiration of all the gardeners in this neighbourhood who saw it growing. Its earliness, productiveness, and fine flavour render it the finest Pea of its season which I have grown, and in future I do not intend to be without it.

Faintree Hall, 10th October, 1855.

From MR. JOHN ELSON, *Gardener to Henry Underhill, Esq., Pirton Grove, Wolverhampton.*

The "Dickson's Early Favourite Peas" I got from you this spring for myself and five neighbouring gardeners have given us all the greatest possible satisfaction. It is by far the most prolific Pea I ever saw grown; the flavour is excellent, and being very early it certainly is a great acquisition, and must become an universal "favourite." In my opinion it is unequalled for second and third crops, and for sowing late to come in at the end of the season.

Pirton Grove, 1st November, 1855.

From MR. HILL, *Gardener to Ralph Sneyd, Esq., Keele Hall, Staffordshire, in the "Cottager Gardener," Sept. 11, 1855.*

Permit me to offer a few remarks on the above-named Pea. I consider that when nurserymen, or anyone else, introduce a really good fruit or vegetable, they ought to have every credit for it. I am not very fast in buying new vegetable seeds; but from the favourable report given of this Pea by the Horticultural Society, I was induced to purchase a couple of quarts. One row was sown on the 12th February, with a little more than one quart of seed, which produced nineteen pecks (heaped measure) of good Peas, each pod containing on the average nine Peas, and in many of them we found eleven. A row of "Bishop's Long Pod Pea," sown by the side of "Dickson's Favourite" the same day, and the same quantity of seed, only produced eight pecks of Peas—many of these pods were not well filled. The Peas from "Dickson's Early Favourite" were sold at 11*d.* per peck. Your readers will agree with me this was a tolerably good crop. I consider everybody that grows Peas ought to have, at least, one row of "Dickson's Early Favourite."

Keele Hall Gardens, Staffordshire.

Price 2s. 6d. per quart, or 1s. 6d. per pint, in sealed parcels.

The Old Established Seed Warehouse, 106, Eastgate Street, Chester.—January 12, 1856.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2s. 6d. each; also mixed, at 1s. per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that have hitherto come under their notice."

DR. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th, 1855, page 520.*

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white: and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived: their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few tallest specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S

Twenty-fifth Annual Edition of their SEED CATALOGUE

IS VERY SELECT, AND CONTAINS EVERY THING WHICH CAN BE DESIRED OF THE CHOICEST NEW AND OTHER VEGETABLES.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These are particularly recommended to the notice of Amateurs not keeping regular Gardeners. The collections furnished from this establishment have met with the highest approval, and will be found on trial such as will not be surpassed. Supplied as usual as follows, for which see full particulars in Catalogue:—

No. 1, £3 ... No. 2, £2 ... No. 3, 25*s.* ... Collections for Small Gardens, 10*s.* 6*d.* and 15*s.*

A few Choice New PEAS.—Descriptions see Catalogue.

Harrison's Glory	per quart	5*s.* 0*d.*	
" Perfection	"	5 0	
Epps' Lord Raglan	"	3 6	
" Monarch	"	3 6	
Denyer's Prolific Marrow	per quart	3*s.* 6*d.*	
Dickson's Favourite	"	3 6	
Waite's King of the Marrow	"	3 0	
Fairbeard's Nonpareil	"	1 6	

" All the choicest Broccoli, Lettuce, Cabbage, Cucumber, and other Vegetables, including many new approved kinds.

CHOICE FLOWER SEEDS.

The varieties of Flower Seeds now sold have become far too numerous. Our aim has been annually to turn our attention to the growing of such only as are the most desirable for their beauty, odour, or other particular attractive properties; and our List will be found to contain as select a collection as can be brought into a catalogue, with all the neat gems of the season. The usual arrangement of colours, heights, time of flowering, hardiness, duration, the Climbers also specified, and embracing every necessary information for purchasers. Useful instructions for the culture and growth of Seeds are supplied with each order.

FLOWER SEEDS IN ASSORTMENTS.—We beg strongly to recommend these assortments, for which, see Catalogue.

IMPORTED GERMAN SEEDS.—Superb collections of these (see Catalogue).

SMITH'S NEW BALSAMS, so highly spoken of by Dr. Lindley and the National Floricultural Society. In sealed packets, of six separate colours, for 2*s.* 6*d.*; packets of mixed, 2*s.* each.

BULBS AND ROOTS FOR SPRING PLANTING.

Very splendid collections of Ranunculus, Anemones, Gladiolus, Iris Germanica, and Primula, Lilium lancifolium, and other superb Lilies, Tigridias, Oxalis, and a great variety of other Roots. For Spring Planting, see Seed Catalogue.

ACHIMENES AND GLOXINIAS.

Several superb new Continental varieties, including 10 beautiful erect flowering sorts, tubers of which are now ready, and will make fine flowering plants this season, for descriptions of which, see the last page of Seed Catalogue.

SEED CATALOGUES SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20*s.*) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW FLOWER SEEDS.

MESSRS. WILLIAM ROLLISSON & SONS

Are now prepared to supply the annexed new and beautiful ANNUALS and BIENNIALS, which have been selected from their general Stock of novelties for the present season.

	Per packet.—*s.*	*d.*
Abronia umbellata, new, beautiful half hardy Annual, rose-coloured trailer ...	1	0
Ageratum conspicuum, new, very handsome ...	2	6
Alonsoa Warscewiczi, new, splendid half hardy Annual, of graceful habit, adorned with scarlet flowers, borne in spikes ...	1	0
Arctotis breviscarpa, new, pretty dwarf Annual, bright orange and dark brown ...	1	0
Anthoxanthum gracile, new, ornamental Grass ...	1	0
Browallia abbreviata, new, fine, very free flowering ...	2	6
Calceolaria californica, new, very pretty ...	1	6
" scabiosæfolia, new, very handsome ...	1	6
Campanula stricta, new, very profuse flowering variety, extremely pretty ...	1	0
Centauridium Drummondi, new, orange composite flower, very showy ...	1	0
Chrysocephalum arenarium, new, handsome Australian Everlasting ...	2	6
Collinsia bicolor alba, new, pure white, very pretty ...	1	6
Convolvulus bicolor, fl. pl., new, handsome Climbing Annual	1	6
Coreopsis coronata, new, very showy ...	1	0
Cuphea Pelliferi, new ...	2	6
Cynoglossum cœlestinum, new, light blue, extremely pretty	2	6
" Hayni, new, blue, very fine ...	2	6
Delphinium cardiopetalum, new, dark blue, very beautiful	1	0
Dianthus Garnierianus, new, beautiful, very showy ...	1	6
Erigeron Beyrichi, new, pretty composite flower ...	1	6
Erysimum Arkansanum, new, pale yellow, handsome, sweet scented ...	1	6
Gomphrena Haageana, new, beautiful orange-coloured half hardy species, very fine ...	2	6
Gutieruezia gymnospermoides, new, very pretty ...	2	6
Gypsophila muralis, new, dwarf, very pretty Annual, with small glossy foliage, covered with deep pink flowers, suitable for edging of beds and rock work ...	1	6
Helichrysum brachyrhynchum, new, beautiful Everlasting	1	6
" bracteatum, dwarf yellow, new ...	1	6
" " dwarf white, new ...	1	6
(Both the above varieties are much superior to the old bracteatum.)		
" macranthum manum, new, very desirable variety ...	1	6
" compositum maximum, new, large flowered, double, of many colours, from bright yellow to scarlet ...	1	6
Ipomœa limbata, new, purple, with broad white margin, very free flowering (we received this most lovely Climber from our collector, Mr. J. Henshall, who discovered it in Java; this we can strongly recommend) ...	2	6
Ipomœa Mexicana alba, new, very fine ...	2	6
Linum grandiflorum rubrum, new, the true bright crimson large flowering species from Algeria, new and very beautiful ...	1	6
Lypochæta texana, new, handsome ...	2	6
Morna elegans, new, very handsome Everlasting ...	1	0
Nepeta Meyeri, new, very fine ...	1	6
Palafoxia texana, new, fine ...	1	0
Phalacræa cœlestina, new, beautiful light blue ...	1	6
Sabbatia campestris, new, a splendid half hardy Annual, of graceful habit, glossy foliage, and bright rosy pink yellow-centred flowers, very fine and full flowering ...	1	6
Silene Bergeri, new, very pretty ...	1	0
Trifolium aurantiacum, new, free flowering and pretty ...	1	6
Tropæolum Lobbi puniceum, new, dark-blood red, splendid	2	6
Whitlavia grandiflora, new, splendid, very large dark bell-shaped flowers ...	1	6

IMPORTED GERMAN SEEDS, in Collections.

Messrs. WILLIAM ROLLISSON & SONS can now supply the undermentioned German Flower Seeds, which are all in assorted colours, and sent out in sealed Collections, as received from the first German growers in Germany. Our supply of German Flower Seeds we can with every confidence recommend, from the universal satisfaction which they have given for many years. Their superiority over English saved seeds consists in the greater variety and beauty of their colours, and the much larger proportion of double Flowers which they produce.

	Per collection—*s.*	*d.*
Asters, dwarf double German, in 18 splendid varieties ...	4	6
" quilled double German, in 20 splendid varieties ...	5	0
" globe-flowered double, in 12 splendid varieties ...	3	0
" globe pyramidal flowered, double, in 20 splen. vars.	5	0
" new dwarf bouquet pyramidal double, in 12 splendid varieties ...	4	0
" Truffaut's new superb French pæony-flowering pyramidal, in 10 finest varieties ...	4	0
Balsams, Smith's superb double Balsams. The flowers are large, extremely double and well formed, of good habit, and of distinct and striking colours. In sealed packets, containing 6 vars. separate ...	2	6
" Camellia-flowered, double, in 10 new varieties ...	3	0
Larkspurs, double dwarf rocket, in 12 splendid varieties ...	3	0
" double tall, in 8 splendid varieties ...	3	0
" new Hyacinth flowered, in 8 splendid varieties ...	3	0
Stocks, dwarf 10-week, in 12 most distinct and beautiful colours ...	3	0
" new dwarf large flowering 10-week Stocks, in 12 distinct colours, very fine ...	3	0
" Autumn flowering, in 12 beautiful varieties ...	3	0
" Summer branching, in 12 finest varieties ...	4	0
" Summer Wallflower leaved, in 16 fine varieties ...	4	0
" Brompton, in 12 fine sorts ...	3	0
" Emperor, in 12 very beautiful varieties ...	5	0
" Emperor, new large flowering Stocks, in 4 very beautiful varieties ...	4	0
" Giant Cape, in 6 splendid varieties ...	3	0
Phlox Drummondi, in 12 beautiful varieties ...	6	0
Poppy, in 12 fine double varieties ...	3	0
Wallflowers, in 12 fine double varieties ...	6	0
Zinnia elegans, in 12 splendid double varieties ...	3	0

Messrs. WILLIAM ROLLISSON & SONS will be happy to forward their general CATALOGUE of SEEDS, post free on application, and have much pleasure in saying their Seeds for the Kitchen Garden will be found to be of superior merit, as most of the kinds most difficult to obtain true, as Lettuce, Beet, the Brassica tribe, &c. &c. are saved by themselves; four of their Nurseries being situated at some considerable distance one from the other, afford facilities for this purpose which, under ordinary circumstances, cannot be adopted. We may here remark that one article most difficult to get really first-rate is Beet; Rollisson's Crimson Beet has been pronounced by all growers to be the first in cultivation. Rollisson's Victoria Cabbage Lettuce is also a very superior article; it stands longer without running than any other variety.

Messrs. W. R. & Sons beg to draw attention to their splendid Collection of Dwarf, Standard trained, and other Fruit Trees, which are this season unusually fine, to the cultivation of which alone they have several acres devoted. They have also a splendid lot of fruiting plants in pots of Peaches, Nectarines, and Apricots, which they can with confidence recommend.

The Nurseries, Tooting, London.

DWARF-TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in offering some of the finest Dwarf-trained PEACHES and NECTARINES in the Kingdom; in short W. W. & SON feel convinced they are not to be surpassed in the trade. Price 5*s.* per plant.

N.B. Having a large stock of the above W. W. & SON are disposed to deal liberally with the trade, and will furnish wholesale prices on application.

Fine Pyramidal Pears on Quince, 18*s.* to 24*s.* per dozen.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

GREENHOUSE AZALEAS.

A. PAUL AND SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s.* the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s.* the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s.* and 30*s.* per dozen. A few larger plants 3*s.* 6*d.* to 5*s.* each. Carriage free to London.—Nurseries, Cheshunt, Herts.

ABIES OR PICEA GRANDIS (TRUE.)

HUGH LOW AND CO. have consigned to them for sale a small parcel of Seeds of the true Picea or Abies grandis. It is unnecessary to enter into any description of this noble Fir, which is well known to be one of the finest, as it is unquestionably the rarest in Collections, of the Conifers of Northern California. The Seeds have been recently collected, are perfectly fresh, and, to suit amateur purchasers, will be offered by the hundred. When delivered the Seeds will be at buyer's risk.

Per 100 Seeds, 2*l.* 10*s.*; per 500 Seeds, 10*l.*; per 1000 Seeds, 15*l.*

In addition to the above H. Low & Co. have received Seeds of the undernamed Oregon plants:—

Abies Douglasi, two varieties, per 100 seeds ... ... £1 5*s.*

Abies species, probably Abies taxifolia of Jeffrey, per 100 Seeds ... ... £2 10*s.*

Cornus Nuttali, described as a splendid ornamental Tree, producing white flowers as large as Magnolia tripetala, per 25 Seeds ... ... £1.

Clapton Nursery, London.

SEEDS FOR WALES.—*Arrangements have been made by the undersigned for the speedy transit of all orders for* WALES. *Seeds can be forwarded from Bristol direct by Steamer, or by the South Wales Railway, viâ Gloucester.*

WILLIAM E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

GARDEN SEEDS FOR IRELAND.—*Plymouth is situated in close proximity with* CORK, DUBLIN, BELFAST, and LIMERICK, *and Steamers call every week at the Great Western Docks, so that purchasers in our sister country will find their orders attended to with promptness and despatch, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS FOR IRELAND, SCOTLAND, AND WALES.

SUTTON AND SONS having many customers in North and South Wales, Scotland and Ireland, whom they have supplied with Agricultural and Horticultural Seeds for many years, are well acquainted with the sorts which thrive best in each locality.

SUTTON & SONS *deliver their Goods Free of Carriage to the Seaports, and many other parts of Ireland, Scotland, and Wales.* For particulars, address

SUTTON & SONS, Seed Growers, Reading, Berks.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* GARDEN SEEDS *and* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Horticulturists and Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, JANUARY 12, 1856.

Now that increasing interest is taken in every direction where it is possible to utilise fecal matters, especially that which we formerly endeavoured to introduce into familiar use under the pleasant name of CLOACINE, the opinions of our skilful and scientific neighbours across the Channel deserve more than ever to be recorded. The other day the application of this matter gave rise to a discussion upon a point of no small importance to Gardeners.

After explaining the value of Cloacine in its fluid and solid state, some one objected to its use in any form because of the offensive smell and taste it gave to the crops obtained with its assistance. We abridge the conversation that took place on this occasion. M. BECQUEREL referred to an experiment with liquid cloacine made by M. BATAILLER, on his estate near Montargis; the result he said was good, but the Grass crops (*fourrages*) gave out a nauseous smell. Another speaker remarked that this had been prevented by using leather or gutta percha hose and excessively weakening the fluid till no smell remained. M. DE GOURCY stated that a friend of his in Belgium was in the habit of deodorising his cloacine by means of sulphate of iron, and that his garden crops almost always won prizes at the exhibitions. M. MOLL referred to the Edinburgh meadows as a proof that the use of liquid cloacine was not injurious to the quality of Grass, and said that, in Alsace and other provinces of France where it was largely employed by market gardeners, he never heard any complaint of the quality of the produce. M. PEPIN followed on the same side, and added that the Paris market gardeners had for three or four years past been in the habit of

using dry cloacine mixed with straw and earth for their vegetable crops, and on a very large scale, without any inconvenience to the produce.

On the other hand M. PAYEN stated that in Lombardy they had been forced to give up using Poudrette (Cloacine mixed with charcoal) in the pastures, because it gave a bad taste to the milk of the cows fed there. This, he said, was no prejudice, as some people think, but an undoubted truth. If, however, he added, the cloacine was deodorised by dry earth of a clayey texture, the crop acquired no bad taste. M. HUZARD confirmed this assertion; when, he said, he was at the veterinary school of Alfort, the great close of the establishment was manured with cloacine, but the practice was given up because it gave a bad taste to the vegetables grown for the use of the students. On the other hand, at Lucca, where large quantities of water passing through ditches filled with cloacine are conducted over the meadows, no bad smell is perceived. Oranges and Olives, growing there on slopes, are fed in this way by being banked up with dry stones on the lower side. Finally, M. DE MORTEMART observed that the Indian Corn thus manured near Lucca gained no bad smell.

M. PAYEN was of opinion that although the corn of Grass plants was not affected, yet the foliage was, and this he ascribed to the power possessed by the leaves of absorbing by their skin both scented gases and vapours, and thus contracting a disagreeable taste. But, said M. MOLL, nowhere is liquid cloacine more used than in Lombardy; at Milan it is collected in a canal the water of which is used for irrigating the adjoining meadows; it is here that the cows are pastured from whose milk the cheeses of the country are made; so that it is clear that liquid cloacine, sufficiently diluted, has no such bad effect as the *poudrette* above mentioned.

The discussion ended by a remark by M. PAYEN that every thing depended on the quantity of water used in diluting the cloacine. Earth, also, by virtue of its porosity, and the peculiar property of all clays, absorbs liquids, detains gases and thus becomes a complete disinfectant. This seems to have been the opinion of the majority of the members present, and is probably correct. But before accepting it as entirely satisfactory we should like to hear what our kitchen gardeners have to say on the subject. Cloacine may be taken, for argument's sake, to be what is called very rank manure. Does such manure give a bad taste to vegetables, or does it not? The subject is of vast importance.

NOTHING has shown more unmistakeably the intelligent feeling which actuates the present Commissioners of Inland Revenue than their anxiety to relieve trade and manufactures from all excise difficulties, where it can be effected without serious loss to the revenue. This, which has led to the extinction of the brick and glass duties, has lately been manifested in a new direction, which may advantageously affect rural interests. It has long been a great source of complaint among mercantile men that some branches of manufacture have been wholly driven out of foreign markets in consequence of the high duties levied in this country upon the alcohol or "spirits" indispensable to such trades; nor indeed has the inconvenience been limited to foreign trade, for among ourselves the smuggler would step in and supply one manufacturer with a cheap raw material to which his neighbour had no access. Nor has the effect of excise duties been confined to the manufacturer, but it has been felt by the cultivator of the soil, who till lately has been prohibited from growing materials for the distiller except under regulations which were in fact prohibitory.

A great but little known change has, however, taken place in the Excise laws. Certain descriptions of spirit are now permitted to go into consumption *duty free;* the condition attached to the privilege consisting in their being rendered undrinkable. Such spirit has received the name of METHYLATED, in consequence of being mixed with wood-naphtha, or methylic spirit, a substance so nauseous that the most depraved appetite would revolt at it. The immediate effect of this may be expected to be an immense demand for spirit from cheap sources, and of this the cultivator cannot fail to profit.

Mangel Wurzel, Potatoes, and the recently introduced plant "Holcus saccharatus," will probably now enter largely into consumption. It is true that the law has not as yet made provision for admitting the last named article to be used in the manufacture of spirits, and that although the two other roots may be used if unmixed with any other material, there is said to be a difficulty in their employment because the wash they produce cannot be successfully converted into alcohol without the addition of some saccharine ingredient. But this must be, at the most, merely a temporary embarrassment.

In the case of Potatoes and Mangel Wurzel, the raw material is produced by the lowest description of unskilled labour, employing men, women, and children, and the refuse is valuable for cattle. These roots may be grown where grain cannot, and thus land now unproductive may become profitable.

In the case of the Holcus there seems to be the additional recommendation, that after the juice has been extracted it is said to yield 4 tons an acre of a material for making paper.

A correspondent intimately acquainted with questions of this nature calculates that the comparative produce of spirits from an acre of land may be thus estimated:—

	Quantity grown on an acre.	Quantity of sugar obtainable	Comparative quantity of spirits at proof calculating 10 lbs. of sugar to produce a gallon.
Holcus ...	...	...	182 gallons.
Mangel ...	14 tons.	14 cwt.	156 "
Potatoes ...	10½ "	37 "	414 "
Barley ...	32 bushels.	...	80 "

We have no means of ascertaining the cost of raising the Holcus, nor of knowing what description of land is necessary for its successful cultivation on a large scale, but it is probable it could be grown cheaper comparatively than Mangel Wurzel.

The price at which 100 gallons of spirits could be produced from the other articles, or from sugar, he assumes to be as under—

Potatoes, at 50*s.* per ton	£6	6*s.*	9*d.*
Mangel, at 15*s.* "	6	14	7
Barley, at 30*s.* per quarter	7	10	0
Sugar, at 18*s.* per cwt.	8	0	8

In ordinary years, in Scotland and Ireland, Potatoes would probably be procurable at a lower price, and from the cost of the material in the case of the Holcus, the Mangel, and the Potato, a considerable deduction may be made for the refuse.

Formerly the precautions and restrictions necessary to secure the large revenue derived from spirits prevented the use of any material which did not afford the means of charging a presumptive produce in the earliest stages of the manufacture. And from the nature of the process this charge could not be maintained in the case of Potatoes or Mangel Wurzel, and probably not in the case of the Holcus. But that difficulty no longer exists. The law now requires the worm ends of all stills to be enclosed, and the spirits to remain under the control of the Excise until they are removed from the distillery.

In lieu, therefore, of the old presumptive charge, the Excise could easily frame other regulations which, while they protected the revenue, would give perfect freedom of action to the distiller, and thus enable him to use up a large amount of field-produce, at present of little value, such as the refuse of Potato fields and roots of Beet too small for cattle feeding, but rich in sugar, and grown in land which hitherto no practical man would have occupied with such a crop.

All in fact that the distiller would require would be that duty should be charged on the spirit in its finished state, and on the quantity actually produced, and this, we believe, might be carried into effect with little amplification of the existing laws.

Since the foregoing was in type a pamphlet has reached us, on the Distillation of Alcohol from Field Beet, extracts from which will be found in another column, p. 26.

New Plants.

159. CANNA LILIIFLORA, *Warczewicz in Flore des Serres*, x. *t.* 1055.

Most cultivators of stove plants know that one of the rarest and finest is that called *Canna iridiflora*, conspicuous for its tall graceful habit, and its magnificent drooping spikes of purple and crimson flowers. When Mr. Warczewicz was in the state of Veraguas he met with a kindred species, destitute indeed of brilliant colouring, but rivalling the Peruvian in stature and graceful form. This, which he called *C. liliiflora*, because of the resemblance between its blossoms and those of the pure white *Lilium candidum*, has been raised by M. Van Houtte of Ghent, with whom it has lately flowered. That skilful cultivator gives the following account of the treatment which he has found successful. "As soon as we received the seeds they were sown, and when the seedlings appeared they were transferred to the stove. When fine weather came a few specimens were put out in a very airy but thoroughly sheltered place in the open air; but whether owing to negligence or some other cause, only one of them remained alive in the autumn. Nevertheless that plant was strong, though dwarf; another plant kept in a hothouse rapidly grew 7—8 feet high, and flowered, but unluckily in winter, so that it ripened no seeds." M. Van Houtte adds that the plants turned into the open ground should have been taken up by the middle of September; but that they should not be then repotted and stimulated into growth unless the roots are plunged in a tan bed, or in some other way exposed to a brisk bottom-heat.

DANGERS OF THE BUSH—THE LATE J. C. BIDWILL, ESQ.

(ABRIDGED FROM "*The Western Times*" OF DECEMBER 24.)

THE public journals, and especially those devoted to the science of Botany, recorded, a short time since, the death of Mr. John Carne Bidwill, son of Mr. Bidwill, of St. Thomas's. He died at Wide Bay, New South Wales, where, by the force of his character, and the superiority of his intellect, he had attained to offices of trust and the highest degree of influence and public usefulness. As his career was so creditable to his native country, we devote a brief space to his memory. His father intended him for commercial life, and educated him accordingly. But his strong natural taste for scientific pursuits, and especially Botany, showed that the current of his life was setting into another channel. In the solitudes of Australia, and the endless variety of its plants, his mind found inexhaustible treasures. He was the first to penetrate alone into the interior of New Zealand—of which arduous but interesting journey he published a brief and unpretending account. His reputation and talents were speedily appreciated in a young colony, where integrity and energy of character are the only patents of nobility. The Council offered him the Curatorship of the Royal Botanical Gardens at Sydney. Subsequently he was appointed Commissioner of Crown-lands, and Chairman of the Bench of Magistrates for the district of Wide Bay, New South Wales, an office onerous, and in the highest degree important. The journey which we record below was undertaken with the view of discovering a practicable route from Wide Bay to the adjoining district of Moreton Bay; but his friends really believe that botanical investigation was the master-motive that sent him forth. The fatigues and sufferings of this journey were followed by his last fatal illness, during which he was watched and tended with the most affectionate solicitude by his brother magistrates, who in turns watched by his bedside, and in whose presence he died. Every mark of public respect was paid to his memory by the whole population of the Wide Bay district; and his death was spoken of by the press as "entailing a great loss to the colony of New South Wales, as a botanist and naturalist." Sir William Hooker and Dr. Lindley, who knew him well, paid his memory very flattering compliments—the one in his "Journal of Botany," and the other in his *Gardeners' Chronicle*. The annexed, which was written in an interval of pain shortly previous to his death, shows the calmness with which he met it, and the Christian and filial feelings of his heart:—

"Tinana, March 5, 1853.

"I thought it would give my dearest parents pleasure to receive the last words written by their absent, but I know much cared for son. How much I have to thank you for none can tell; but believe me, in seeing how constantly and untiringly you have exerted yourselves for my comfort, I have felt how utterly wanting my conduct towards you has really been. It will, perhaps, please you to let you know that for a long time past my castle in the air has been to manage my return to you. Could I have seen this it might have pleased the Almighty to have given my constitution strength to rally. May the blessings of the Redeemer be your lot hereafter, and may it please the Great Disposer of Events that we may hereafter meet in peace, when all the troubles of this world shall have departed from us. I have been ill for about a week, but was too restless and in pain to write until now. I have arranged my worldly affairs as far as I am able; and, my very dear parents, my last worldly thoughts will be of your long-continued goodness to your long-absent son, "J. C. BIDWELL."

"It has pleased God that I shall die of want of vital power. It is a week since the stomach has refused to perform any of its duties: I have been unable therefore to drink even. The vomiting has passed, and I thank His goodness I am free from pain. May He bless you.—J. C. B."

The narrative of his journey was written on the couch of illness. It shows the intellectual vigour which animated him, and is of general interest for the powerful picture which it conveys of the difficulties and privations which the pioneers of civilisation have to undergo whilst threading their way through the dense forests of a vegetation which has not been disturbed since it was first planted by the hand of the Creator; we give it as a graphic picture of

TRAVELLING IN THE BUSH.

"Tinana, Wide Bay, New South Wales, June 10th, 1851.

"My dear Father,—I set out in the middle of April to find out and mark a new line of road between Maryborough and Brisbane; at present the distance by the road is 250 miles, the actual distance is 120, as the crow flies. I started with a team of bullocks, four men, and a couple of horses. This was a volunteer business on my part, and heartily have I since repented of stepping out of my way. For the first 50 miles I got on pretty well; I then came to a long ridge, which gave me a great deal of trouble; but at last I passed it by an easy road, by going a little more to the west than I wished. I then came to the head (as I thought) of the Mary; it was a large river, exactly like what the river was much lower down, and I supposed it to be the main branch, or rather that there was no other branch. I crossed it after a good deal of trouble, nearly drowning the oxen, and having them driven away and speared by the blacks, while I was detained in making a crossing-place. Near Durandur are a curious group of hills, or conical rocks—the highest about 800 feet high—which are visible from the sea, and are laid down as the "Glasshouses," from their striking resemblance to these buildings. The Glasshouse nearest to Durandur is called by Leichardt in his book 'Beowan;' it is the largest of five, which is generally supposed to be the entire number. In 1842 I walked from Durandur to the top of Beowah, and back again to Durandur), in one day—an open level country. It was my intention therefore, to steer for the Glasshouses (which are to the north of Durandur, as soon as I should get sight of these pass to the eastward of Beowah, and strike the road about ten miles south-east of Durandur. When I got to the top of the long ridge I saw, as I thought, the Glasshouses bearing south-east from me; I steered for the largest, and when we crossed the river supposed myself to be only about ten miles from it. At a distance of a day's journey from the crossing place we met with a party of blacks, by means of one who had come with us from Maryborough. I inquired how far it was to Beowah, and whether it would be easy to take the dray there? They said that we should get there in two days! Next morning one of the blacks, Minni Minni by name, led me to the top of a hill, where

he pointed out what I supposed to be the Glasshouse, and said that it was called 'Karora.' I supposed, of course, that Karora was another name for the same mountain that was called Beowah by the blacks at Durandur. I must do Minni Minni the justice to say, that he persisted in saying that he did not know of any station near Karora; but the perfect resemblance between the two rocks, and his having shown me Karora when I asked him for Beowah, led me to suppose (which was the case) that he did not know the country much farther to the south, and that he merely said that he had not seen any station near Karora. After crossing the river we struck an old track—made in 1842 by a person named Eales, who brought 50,000 sheep here, and was driven away by the blacks—and followed it until we were within, as I guessed, four miles from Karora. Here the direct line appeared likely to be difficult, and I turned off at the place where Eales's track turned, intending to follow it on the Brisbane range, as I knew that it struck the road about ten miles west of Durandur, get to Durandur, and then get blacks, who knew the intermediate country, to guide me back round the Glasshouse to the point where I left the direct line which I had been marking. We accordingly went on until the evening by Eales's line. Next morning both blacks had decamped. A person named Hunter, who was on the look out for country, to put stock on, came up this evening; he is a sort of squatter of a rather low class. I was obliged, in consequence of the absence of the blacks, to go on and track the old road myself; it was very difficult to do this, in consequence of the length of the Grass; but at night we had made about eight miles, and came to a deep soil, through which Eales had cut a road. I went on to see where the road went after passing the scrub, which I did not think the men would reopen that night. When I returned after dark, I found that Hunter had so pressed them that the dray was across the gully on the further side of the scrub. I was sorry for this, because I had been unable to find any track of the road after passing the gully, and had half made up my mind to turn back on my own line. Next morning I renewed my search for the old track, but without success. I then ascended a high rocky hill, and saw that there were endless scrubs to the southward, and great hills of scrub in every other direction. I saw, however, a long low ridge, running nearly east from where I had left the dray, and that Karora was only about four miles off, east by north. On returning to the dray I made up my mind to go on with the horses and one man by the long ridge to Durandur, which I thought could not be above 10 miles off in a straight line, and accordingly started about 10 A.M. with about a day and a half's provision for one man. We followed the low ridge until Karora was due north of us—a strongly beaten path lay along the top of the ridge, and we saw the fresh footprints of their shod horses. The track at last led us to a place where the two scrubs, which clothed the two sides of the ridge, met at the top. I must explain to you that the name 'Scrub' is the most absurd that could have been devised; in the southern parts of the colony the same things are called 'Brushes'—a name equally absurd. Scrubs are dense forests, filled with large trees of totally different kinds from those that grow in the open country, or 'Forests,' as it is called; the undergrowths in these scrubs consist of thorny Vines, Nettles, and bushes; sometimes a species of Rattan, covered all over with minute sharp spines, and of which the leaves are armed with most formidable incurved hooks, renders the space below the trees almost impassable; this Rattan is commonly called the 'Cat's claw Vine.' I had with me your billhook, or I should never have got through the tremendous mass of scrub which I encountered. The first patch of scrub we passed was not 50 yards through; but after we had passed it, I perceived that the ridge we were following began to lead us round the Glasshouse, and that it would be impossible, without immense difficulty, to go direct to its base. The valley between which I stood and the Glasshouse was filled with a dense mass of scrub, and the sides were nearly perpendicular. We continued to follow the track until dark, passing through several scrubs—two of which were a mile in length. At last we were obliged to stop on the top of a stony mountain, having been unable to find our horses, or to provide water all day. My attendant was in a dreadful state of alarm, never having been in such a predicament before; he also suffered greatly from thirst and did nothing but groan all night. We could not eat, as our mouths were too dry—this I afterwards considered a fortunate thing. Next morning I found that I was on the table top of a stony mountain, and could not find any trace of a path, or sign of an opening in the scrub—neither could I see Karora. I made up my mind to force my way in a direct line south-east down the side of the mountain, never doubting that by the end of the day, at farthest, I should get into open land near Durandur. The scrub was the densest I ever saw in the country; full of 'Cat's-claw Vines,' and several other spiny kinds: other tough Vines in all directions, and Nettle trees were terribly common, and their sting is fearful. The side of the mountain was covered with large loose angular stones. We did not reach any water until about 11 o'clock, when I procured a little by digging a hole in the bottom of a water course; I did not drink any because it was too muddy, and I can restrain my appetite; but the man Climpson drank a large quantity. I got a little by making lengths of a species of Vine, which gives excellent water when the ground is wet. About noon we reached a deep stony gully with plenty of water, but I would not allow Climpson to eat more than half a meal, as I began to get alarmed at the density of the scrub, and the run of the water, which was to the east, instead of the south. I began to fear that I might be upon the waters of a river called the Murrumbidgee, and that I should have another range to pass. After 36 hours we emerged on an open ridge, and found a very strong blacks' path, running south-east. I followed this path through many scrubs. While passing through the scrubs it was impossible to tell the direction of the path, in consequence of its extreme crookedness. I therefore could not tell exactly whether I was going east or south-east, or even north-east. At night we encamped in an opening, where there was good Grass. I shot the only bird we saw on the journey, which helped to give us a meal. Next morning I found that I had not strength to cut a path through the scrub, and could not find any blacks' tracks, so determined to retrace my steps. I went back through several openings, and at last found myself unable to discover the path by which I had left the surrounding scrub. After half a day's anxious search I ascended a high hill, which showed me to the north and west an enormous mass of scrub—a plain, as far as the sea, to the east, covered with scrub—and mountains covered with scrub to the south; the only outlet was the south-west, by which lay the continuation of the ridge, with a strong blacks' path running along the crest. After half a day's toil through Bunya scrubs, by a very good blacks' path, I emerged on a table land, on which the waters ran south. I thought this must be the head of the creek at Kilori—the station next Durandur to the west. The party who came out in search of me made precisely the same error. I had now nearly done with the scrubs, but I was not yet on the waters of the Brisbane, but on another branch of the Mary. On the seventh day I had reached the top of the real Brisbane range, and was just about to plunge into the scrub on the south side—which would have led me, as I expected, to Kilori, but I should have had to pass a tremendous scrub—when some blacks overtook me, and told me that I had better go to Durandur by a pass at the head of the valley I had just left. They had nothing to eat to give us, but soon provided a nest of native bees. A suck of the honey greatly revived me. This, and one large grub, was all the refreshment we obtained for the eight days—except, of course, the three quarters of a day's ration with which we started. A boy, who was sent by the tribe to show me the way, left us at the edge of a scrub just at nightfall—nothing that I could promise him would induce him to go further. I had lost my matches and knife in the morning, and with great difficulty managed to make a fire with my pistol. A heavy storm of rain came on just after our fire was made, and nearly put it out; but it fortunately was not cold any night that we were out, although the beginning of winter. We had not taken any blanket with us, but I had the India-rubber sheet which you so kindly thought would be useful to me, and very useful it was, for we had several days' rain. Reached Durandur about 3 P.M., very thankful for my deliverance—not that I ever expected to be starved; but I could not help feeling on the last day that a very trifling obstruction would prevent our getting on; and although I knew that I was on an occupied run, by seeing the cattle tracks, I had so little strength and energy left that I could not have travelled much further on that day, and of course we should have been still weaker next day. Climpson, who was a poor-spirited soft being, had given himself up for dead three days before, and I was obliged to speak very sharply to him to make him come on at all. The poor horses were so completely knocked up that we could not get them to move faster than about a mile an hour. My whole anxiety during the eight days had been for the safety of the dray. It was, of course, impossible for me to return by the road I had come. I therefore bought two fresh horses on the road, and reached home in about a week by very hard travelling. I found that six days after I had left the dray the men had been attacked by a party of blacks, and had left everything to them: only one of the men showed the slightest courage, and he, being unsupported, was speared in the thigh. ——, who had been my chief reliance, behaved shamefully. The blacks got everything, and the men walked home, leaving the bullocks and dray behind them. I have since recovered the dray and oxen—one or two of the latter speared: but all the property, including my travelling kit, diary, watch, and dressing case, is lost. If the men had shown the smallest resolution, it is quite certain the blacks would not have done anything; they never do any mischief if a bold face is shown, and there were plenty of arms for all hands. I thought myself very fortunate not to lose my rifle. On the last journey I was constantly wet through for a fortnight—but never caught cold, or felt in the least unwell. I had nothing to eat beyond the regular ration that the men had—damper, salt beef, tea, and sugar. I took one bottle of brandy with me, but did not need it; I thought it might be useful if I got wet, but I found that I could do without it. I never before tasted one of the large grubs, which are a favourite food of the blacks—they are about 4 inches long, and about as thick as a finger—they inhabit the wood of the Gum trees. I had often tried to taste one, but could not manage it. Now, however, hunger overcame my nausea: it was very good, but not as I had expected to find it—rich; it was only sweet and milky. It went much more against my grain to eat the honey which the blacks brought me, as they always are obliged to break up the branch in which the nest is situated. The honey would be wasted, but for a contrivance to prevent it: they beat up a large quantity of the inner bark of some tree until it is like lint or tow—with this they mop up the honey, and afterwards chew the bark. Hungry as I was my stomach rebelled against chewing the bark until I had tasted the honey. I believe, after all, that the bark is quite clean when used. After I had done chewing the yard and half of bark, it was passed one to another and chewed very industriously, while, I suppose, any taste of honey remained. *J. C. Bidwill.*

BRUGMANSIA SANGUINEA.

A NOBLE specimen of this fine plant grows in the pleasure grounds adjoining Crom Castle, the seat of the Earl of Erne. It was planted in a conservatory in May, 1845, and was then about 3 feet high. Notwithstanding severe annual pruning it grew too large in a few

years, and was considered scarcely worthy of a place under glass. In May, 1851, I planted it in the open ground, having the previous autumn cut its roots 3 feet from the stem, and ever since it has attracted the attention, and been universally admired by the numerous visitors to this beautiful demesne. At the request of some ladies on a visit here I measured the plant last August; it was then 14 feet 6 inches high, and girthed at the ground 2 feet 6 inches, and covered an area of 165 square feet. At that time it was really a beautiful plant, completely covered with flowers and foliage to the surface of the ground; I then counted 180 flowers fully expanded, with twice that number ready to open. A gentleman told me a few days afterwards that he had counted above 200 open on it. It would be difficult to calculate the number it produced last summer, but I would say at least some thousands, as there was a regular succession from the beginning of summer, and it has now, January 5th, many open on it.

It was planted in a mixed soil composed of loam, bog earth, a good portion of charred matter, rotten dung, and leaves—perfect drainage of course being secured. As I learned from experience that Brugmansia will not stand our winters without protection, ever since it was planted in the open ground I each year in October covered it by sticking poles in the ground, 5 inches apart, the spaces between being stuffed tight with Grassy moss raked from an adjoining wood. A span roof is then put on, one side of which is thatched, the other covered with sashes, which has an additional covering in long continued frost; to make all sure I put inside a few cast metal pipes, connected with a stove, but even last winter, although very severe, they were seldom used, as it requires a very great frost to penetrate through Moss a few inches thick; at the same time arrangement for free ventilation is provided. I take the protection gradually away in March and April, and altogether in May. It may be considered that the plant is not worthy the trouble thus bestowed on it, but few could see it in summer and make that remark. The branches are shortened in before covering, or it might have been twice as tall as it now is. The accompanying representation will give some idea of the general appearance of the plant when in bloom.

There are many free flowering plants, commonly occupants of the greenhouse, which I think would succeed quite as well planted out as the Brugmansia, large specimens of which would add a new and interesting feature to our pleasure grounds. I propose planting out a few next May, with a view to their remaining out through the winter, and getting glass structures made (so that they can be easily increased in size at pleasure and removed in spring) for their protection. Some who have the management of gardens may remark, and perhaps with justice, that it is more easy to write about these matter than to get the necessary means for their execution; but here, I am happy to say, such is not the case, as my noble employer, who is both indulgent and generous, puts no obstacles in the way of improvement or experiment. *Robert Dowling, Crom Castle Gardens, Co. Fermanagh, Ireland.*

VEGETABLE PATHOLOGY.—No. CIII.

414. HYPOSATHRIA* (*Bletting*).—In an unripe state most fruits are acid, and the walls of the component cells hard and unyielding, so that without subjection to heat they are either absolutely uneatable, or so disagreeable and indigestible as to make them objects of aversion except to depraved or childish appetites. This unripe condition is called by Ré Carpomosia,† but as it is merely a transitional state, and one which necessarily precedes maturity, I do not think it requisite to consider it under a distinct head, though circumstances may occur under which the fruit may never pass through those chemical changes which are necessary to bring it to perfection. This may arise from cold, damp, ungenial weather, inducing a deficiency both of light and temperature, both of which are necessary to the perfect formation of the fruit and the generation and metamorphosis of those matters which in due process of time are destined to supply that proportion of sugar which is requisite for the perfection of its proper flavour, or the access of light may be prevented by the superabundance of foliage, the judicious removal of which in proportion to the exigencies of every function of the plant, without attention to which mischief may arise in a different direction, is often necessary in cultivation, especially under artificial heat.

415. In some cases no sooner has the fruit arrived at that condition which renders it available for the uses of man, than a further change takes place; the cell walls and their contents pass into a state of incipient decomposition acquiring the brown tint so frequent where decay takes place in vegetables; the peculiar aroma vanishes and the whole becomes a soft vapid tasteless mass devoid of every useful quality. Some varieties of Pears so rapidly pass into this condition that they are scarcely worth cultivation, though some of them, as the Jargonelle, are of first-rate quality when in perfection. The change generally takes place in a centrifugal direction, a circumstance which distinguishes the condition from many forms of putrescence. Apples are far less subject to such a change, in which the condition

* From ὑποσαθρος partly decomposed.
† From καρπος fruit, and ωμος raw.

assumed by many varieties after they have arrived at perfection is one of a gradual separation of the several cell walls, without any change of colour or putrefaction, which constitutes the state known commonly under the name of mealiness.

416. In some fruits, however, as the Medlar, Service, &c., the saccharine matter is not formed till the walls of the cells begin to give way. Such fruits are altogether uneatable so long as every part is in perfec health, but when the balance of vitality is deranged, and decomposition commences, sugar is formed at the expense of the contents of the cells, the general mass of the sarcocarp becomes tender, and at the same time there is an agreeable acidity which renders the fruit extremely palatable, where it is not too powerful. This is the condition known under the name of bletting, and though certainly of the nature of disease it is one without the accession of which the fruit is useless, as is not unfrequently the case with poor varieties of Medlar, or where the soil does not suit the finer kinds. In such cases the sarcocarp blets so slowly and partially that different kinds of moulds are developed before the fruit becomes eatable, producing a species of putrefactive decomposition which is destructive of every good quality. A change similar to bletting, as observed above, occasionally takes place in Apples, insomuch that though decayed they are sweet and eatable, but this is not very common, and as it only occurs in individuals it must arise from some especial cause, and not from any constitutional peculiarity.* I am not aware that bletting fruit has been studied by any competent chemist, nor is it probable that the matter would afford any point of much interest. There are comparative analyses by Berard of the ripe and unripe states of Gooseberries, Greengages, Cherries, Apricots, and Peaches, and also of Pears and Apples in three conditions: when fit for gathering, after having been kept for some time, and when putrid. In the ripening of fruits sugar is constantly formed at the expense of the acids, and yet there is often more acid in the ripe than the unripe fruit, according to Berard's analysis. "Citric acid $C_{12} H_8 O_{14}$ becomes by the addition of six equivalents of water $C_{12} H_{14} O_{20}$, and this losing 6 equivalents of oxygen yields $C_{12} H_{14} O_{14}$ or crystallised sugar. In like manner 3 equivalents of malic acid and 16 of water losing 18 of oxygen likewise yield Grape sugar." Greg. Org. Chem., p. 460, ed. 3. It is observable that in Berard's analyses with an increase of sugar there is always a great corresponding decrease of water. The sugar in the fruit where starch † is present is evidently not formed at its expense, nor in all probability is it formed immediately from carbonic acid and water. In putrid Pears the quantity of sugar, though larger than in the fresh gathered fruit, has decreased one fourth, the water has decreased nearly in the same proportion, while the malic acid has increased. I can find no analysis of Medlars or any similar fruit. *M. J. B.*

SPINES ON SEEDLING PEAR TREES.

A few remarks were made in a previous article on the spines which are produced on the branches and shoots of a seedling Pear tree. The presence of these was classed among favourable indications, and their absence, on the contrary, was considered as a bad omen. There is, however, a widely spread prejudice to the contrary which leads to the rejection of those spring seedlings that ought to be carefully preserved, and to the preference being given to those without spines, from which nothing good can be expected. It is therefore necessary to enter into some details on this subject, in order to demonstrate that the general opinion above alluded to is merely a prejudice, aud is not supported by facts.

All amateurs, who for the last 50 years have raised seedling Pear trees with the view of obtaining new and improved varieties, have proved the truth of the observation, that a seedling having a sufficiently strong stem, neither too thick nor too tall, furnished with spines, and forming branches and shoots, at wide angles, likewise furnished with spines which are neither too slender nor too long, and situated at distances similar to those of the shoots, have always produced, in the long run, the finest and most delicate fruits, and which ripen in long-continued succession.

In various passages of the "Pomonomie" of Van Mons, the greatest raiser of fruits in modern times, the correctness of these observations are completely corroborated. Are not also the best seedlings raised by the late Thomas Andrew Knight, and which still exist in the gardens of the Horticultural Society at Chiswick, decidedly spiny? If these seedlings had been trained as pyramids, they would have still further confirmed these assertions; for in that case the spines make their appearance when the seedling is two, three, or four years old; they are more numerous on the lower branches of a seedling pyramid, when these are trained near the ground. The formation of spines is continued on the stem, branches, and partly on the shoots up to 8 or 10 feet above the surface of the ground; then they gradually disappear. They are not produced on the slender twigs.

It is in the upper part of a seedling that recently formed spines turn first into fruitful spurs, which continue bearing for a period of perhaps 10 years without being worn out. The spines on the stem and lower branches form spurs, year after year, successively down to the base of the pyramid. Thus, a seedling trained as a dwarf pyramid, furnished only with fruit spurs and spines changing into spurs, as well as a certain number of twigs, after having produced its first fruits in the upper part of the tree, bears seven or eight years afterwards on all the branches from top to bottom. Without having seen it, no idea can be formed of the productive power of these fruit spurs formed from spines on the strong branches of a vigorous seedling, planted 15 or 20 years in a favourable situation. I have seen many bearing from 250 to 300 Pears. It is the most magnificent spectacle that can be seen in our climate by an amateur pomologist. In the propagation of a seedling variety by buds or grafts taken from the upper part of the tree, which is the part where the spines begin to disappear, they are frequently seen to reappear on the first branches of the propagated plant. These spines are much more numerous, when, by inadvertence, the propagator employs shoots from the lower part of the seedling, where the wood is some years from a bearing state. The tree so propagated will not be less substantial, but its growth will not be so fine as those from cuttings higher up, its aspect will be wilder, and it will be longer before it bears fruit.

As for the long, slender, sharp-pointed spines which are formed along the weakly branches, not furnished with a terminal bud, they indicate in a seedling small but long-keeping fruit. They appear in seedlings of which the wood is weak, the branches taking a horizontal or pendulous direction. These bad signs in the seedling are evident in the third, fourth, or fifth year of its age. There should not then be a moment's hesitation in cutting back all the lateral branches of the stem after the first flow of sap, to the height of 7 feet, and there bud in August following with a good new and late-keeping variety, which can be cultivated as a standard. Seedlings that are furnished with an excessive number of spines generally form trees of larger dimensions, and attain a greater age than those that have none. *J. De Jonghe.*

* Bletting Pears are commonly known under the name of sleepy, as there is an absence of that acid which renders Medlars and Services so agreeable to the palate. In such fruit putrefactive fermentation does not always follow, but even where it has already commenced without bletting it is sometimes suddenly arrested provided the atmosphere is not too damp, and in such cases more sugar is I believe formed, in consequence of which, as in specimens now before me, the sarcocarp assumes a condition and flavour somewhat similar to those of the dried Pears which are sent from Normandy.

† It is curious that Berard does not record the existence of starch in any of the analyses alluded to above. Dr. Thomson himself says that there is no starch in Apples, as slices of them do not turn blue when submitted to the action of iodine. A microscopical examination will however, I believe, always exhibit starch granules in Apples, and they probably exist in other fruits equally.

TRADE MEMORANDA.

They are swindlers: and we suppose they find the trade profitable. We have warned people over and over again against these adventurers; but the world is so ignorant of common things, and so uncommonly gullible that we do not think we have met with much success.

Home Correspondence.

The Horticultural Society.—I am a very old member, having been elected before 1821. I have always cheerfully paid my three guineas a year in aid of an institution which has been second to none in the substantial service it has rendered to the country; but when the great garden at Chiswick was established I for one refused to support it, and to that decision I have adhered. Not that I underrated the garden or was blind to the benefits it conferred upon horticulture, but because I always felt, what the event has proved, that it would be quite beyond the strength of the Society. I therefore hail with pleasure the present crisis in its affairs, being convinced that the proposals of the Council are rational and better calculated to promote gardening than a costly garden, and public shows which have now degenerated into something very like a race course. For people no longer exhibit their productions for honour or for the sake of horticulture, but purely and simply for the money they can make. I see, however, with regret that the Council wish to retain these exhibitions, only changing their ground. Of course, the object is revenue; they desire, I suppose, to obtain money wherewith to carry on more important but less showy operations. In this they are certainly wrong. They have carried flower shows to a pitch of perfection the like of which the world never saw. Those of last year, at least the one at Gore House, the only one I went to, surpassed all previous ones. Let them now leave such things to their friends in the Regent's Park and Sydenham, and confine themselves to their legitimate business—the scientific as well as practical improvement of gardening. However important the money question may be, there is something more important than that; and I much mistake the temper of the gentlemen who forms so large a part of this association, if they would not readily subscribe such a sum as would place the Council in a position to think of something more than the quickest way of providing ways and means. I, at least, and some of my friends, are ready with our contributions if such views as mine are entertained by a large part of the Society. *F. H. S.*

Sending Live Plants to Australia.—There is an article in a late Number (see p. 852), on "the transport of roots and seeds to Australia." Some years since my son, who was then in England, wanting to send some Gribble's (seedling Apple trees) to New South Wales, tried the following method with perfect success. In a stout wood case, closely put together at the joints, he packed 1000 four or five year old plants, I forget which, in the following manner, and every plant grew. The plants were cut off in the stem at about 6 or 8, or perhaps 10 inches, for I write from memory, from the base or root, for the convenience of packing. He then packed them in a layer at the bottom as closely as he could, the roots inwards; and so, layer after layer, until the whole were packed. Between every layer he sifted dry earth, taken from and within an old barn, perfectly dry, and well shaking the earth as it was sifted on; so that the whole, when finished, was as if the plants had been buried, root and stem. The cover was then screwed down, and the case shipped for New South Wales, whence my son wrote to tell me that every plant grew. It is not for me to comment upon this my intention being only to state the fact; but, acting upon the fact, I have from time to time similarly sent, using indifferently earth or sand perfectly dry, great varieties of seeds to New South Wales, New Zealand, and India, and from the absence of complaint, which invariably occurred when I have sent seeds in any other way, I infer, I think reasonably, with comparative success. *J. G. Bidwill.*

Endive.—It is very strange that Endive with us is only known as a salad, dressed green with oil and vinegar, and yet how excellent a vegetable it forms those who have visited the Paris restaurants must well know. I have sent you the recipe to show how it is cooked on the Continent, the bitterness removed, and an excellent dish produced:—Chop up Chicorée, Endive, or Spinach very fine (cooks say for 10 minutes); boil it first, then put it into cold water; then drain the water off, and squeeze it out till quite dry. Take a good tablespoonful of flour, and a piece of butter about the size of a Walnut, mix them well near the fire, and boil them in a pipkin. Put this mixture with the vegetable, and about a teacupful of water, for fear of burning; add a little salt and pepper, and boil till done. So, I think, the German mode of boiling Beetroot the true one to obtain the fine saccharine flavour, and it has been much approved at my table, though "never heard of before." I have one or two more recipes, if worth your acceptance, of these kinds. *Northwood.* [By all means.]

Fall of Rain at Deanston House, Perthshire; halfway between Stirling and Callander:—

	1841	1842	1843	1844	1845	1846	1847	1848	1849	1850	1851	1852	1853	1854	1855
January ...	2.00	3.00	5.00	4.80	4.35	4.45	1.80	2.60	7.90	2.80	5.75	10.00	7.30	6.15	0.95
February ...	2.00	3.90	0.70	3.20	1.90	3.05	4.40	8.10	4.60	6.85	3.55	5.45	1.70	2.70	1.15
March ...	2.65	5.40	3.80	2.20	3.10	2.85	1.60	2.75	0.80	0.75	5.00	0.75	2.00	2.40	2.00
April ...	1.85	0.20	0.50	1.00	1.40	3.20	3.00	2.45	2.20	2.80	1.90	0.70	2.00	1.40	1.90
May ...	1.60	2.90	0.80	2.55	1.35	2.20	3.60	1.60	2.85	2.20	0.85	1.65	0.60	3.30	1.50
June ...	1.75	2.90	0.90	3.95	1.65	4.95	0.95	4.30	1.70	2.00	2.85	3.00	3.60	4.35	3.00
July ...	1.15	2.30	2.30	1.50	2.85	5.50	2.70	4.00	3.60	3.20	3.30	3.90	5.00	4.20	4.20
August ...	3.55	1.00	1.70	1.10	2·75	6.50	1.50	3.85	3.90	3.60	2.95	5.85	5.00	2.40	4.65
September...	3.50	1.40	0.80	1.00	5.30	3.10	2.20	1.15	2.30	2.30	0.40	1.20	3.00	2.40	0.70
October ...	5.20	0.70	8.80	1.40	7.20	4.60	5.90	3.00	2.60	2.25	2.70	3.20	4.40	8.35	5.15
November...	3.40	2.10	8.70	5.40	5.50	3.50	4.60	5.05	4.70	5.50	0.95	6.80	8.40	2.75	1.10
December...	3.50	5.60	1.70	1.25	6.80	0.20	5.40	3.75	2.85	5.00	2.15	11.85	0.70	6.75	2.35
	32.15	30.80	30.70	29.35	44.15	44.10	37.65	42.60	40.80	39.25	32.45	54.35	38.70	42.15	28.65

Average fall during 15 years, $37\frac{83}{100}$ inches.

Rain-guage 6 inches diameter, sunk in the ground in an open field, protected by an open fence—80 to 100 feet above sea level. *J. Finlay.*

Diseased Pine Apples.—Has any one been troubled with a disease in Pine Apples? Mine are infested with something of the kind. They are fine fruit, and appear quite sound before cut. When cut through some are sound and good, while others that look equally sound are spotted with dark spots, and with others the discoloration appears to go right up the centre of the fruit. Any information on the subject would oblige *J. P.* [How do you water them? and how much?]

Vitality of Seeds.—In your volume for 1855, p. 854, Mr. Darwin refers to the discovery of ancient seeds in graves in France, but supposes that "no known botanist looked to the correctness of the names." If he will turn to your volume for 1848, p. 700, he will find an account of these discoveries in the form of an abstract of a tract published by Mr. C. des Moulins, of Bor-

deaux, concerning them. That botanist is a sufficient authority for the correctness of the names of the plants raised. It will also be seen by the same account of these discoveries that much care was taken to ensure certainty in the results. *Charles C. Babington, Cambridge.*

Orchard-Houses.—In order to obtain a succession of Peaches in orchard-houses, it has been recommended to turn out a few trees in the beginning of summer and replace them in the autumn. As by this system the trees are twice moved, and as each time the roots which have grown through the holes at the bottom of the pots must necessarily be mutilated, it would appear that in order to carry out this plan of retardation, larger pots should be used than are required in other cases. I would, however, suggest a much simpler plan, namely, keeping the pots plunged under a north wall during winter and early spring, and moving them into the orchard-house when the first bud shows a little pink. The trees will thus receive no check. I purpose trying the plan this year. For quality I have not yet found any variety of Peach which equals the Noblesse. *G. S.*

Seedlings.—In the *Chronicle* of the 22d ult. there is an article on the subject "Of the Propagation of Plants from Scions or Buds retaining all the properties of the Germs or Buds from which they are originally taken." My son raised some seedlings from the common imported dried Turkey Fig of commerce, which bore incipient fruit freely, but which never reached maturity, invariably falling off when about half or two-thirds grown. I budded one of these from a Fig growing immediately adjoining, and the same aspect, and the fruit varies materially in shape, colour, size, and flavour; the shape is more elongated, size smaller, flavour inferior, colour darker, and the skin more bright or shining than the original. *J. G. Bidwill.*

Luculia gratissima.—It is a matter of surprise that this plant is not grown in every cold greenhouse, for its beauty and fragrance at this season of the year cannot be surpassed. Two fine plants are growing in a cold conservatory at Thorp Perrow, Bedale, where the thermometer seldom rises above 44°. It covers a space on a back wall 24 feet by 12; in the Christmas week there were more than 100 bunches of bloom open at one time, and their beauty is likely to last for a long time, which makes them more prized in winter. The plants are never exposed to cutting winds. They were planted—one five years ago, the other six. The soil used for them was a mixture of loam and leaf-mould; so impatient are the plants of heat that the hot-water pipes near them have been covered up for two years; previous to that the lower blooms dropped off before they came to perfection. *Hortulanus.* [See our report on Frogmore in another column].

Ailanthus glandulosa (see p. 808, 1855).—In answer to "An Old Subscriber," I would suggest one use to which the timber of the tree he is about to fell (or part of it at any rate), may be advantageously put. If he will offer a specimen to Sir Wm. J. Hooker, Royal Gardens, Kew, for the Kew Museum, I have no doubt of its being accepted and gratefully acknowledged. *Publicola.*

Undrained Borders.—In your paper of Dec. 15th, p. 821, a correspondent offers a plan for the protection of wall tree borders, as well as trees. He says, "Would not, moreover, the result in consequence of the wood and buds being more perfectly matured and hardened in autumn be the production of more vigorous blossoms in spring, more certain of setting, more capable of resisting the action of frost, and less susceptible of blight from that or any other cause?" I may add, in illustration of this, that I once took charge of a garden in autumn, and but a poor account was given of the crop of wall fruit generally, which was verified by the results of that season when they were under my notice, for although the trees were protected in spring by woollen nets and blossomed well considering circumstances, still at the time the blossoms should have set it was a great disappointment to observe them die off and reward us with no fruit. Now, the cause I think was plain—most of the garden was a very heavy soil, and in winter full of moisture. It appeared to have been partly drained, but not effectually, the consequence was the ground was full of slugs, worms, wireworm, &c., and the Brassica tribe would stand for months, and then prove to be more like half plants than otherwise. In fact their appearance indicated the cause of the evil, and thus no doubt it had been for years before; and although every season might bring its blossoms on the wall trees, yet as freely would they shed them, and the wood die back surprisingly, which told too true a tale of the effect of undrained borders on fruit trees, and the little reason we have to expect blossoms to set while the root are surrounded by superfluous moisture. *J. Drivers, Maidstone.*

Foreign Correspondence.

Mona Vale, near Ross, Van Diemen's Land, 18th September, 1855.—I confess I regret my own ignorance of botany, for there is a very extensive garden here, and a large greenhouse 120 feet in length, and proportionate breadth and height, with a loftier oblong in the centre 30 feet by 20, which have been much neglected of late years, until last season. A gardener arrived from England competent it seems, though young; he brought the Grapes to great size, quantity, and quality last year, and this season promises well, and in Cucumbers and Melons also; but in plants it is poor, so that I often wish for such another bag of seeds as was given me before I sailed for New Zealand, as every one of them could be used here and valued. In New Zealand I doled them out in small parcels, and I am glad to learn by letters lately read from Wellington, that most of them have been very prolific indeed, particularly the Guatimala Tobacco, of which I had only three pods, which I gave to three people with greenhouses; one a nursery gardener—one a lady, who writes me word that both have flourished, and I think this climate would suit it even better; the 12 sorts of Cratægus have mostly done well; here we have plenty of the common Thorn—white—but none of the pink sorts. Just now spring is bursting out upon us, though we have had no snow, nor severe frost, as in England; yet winter is cold and vegetation is stayed, so that spring and all it brings are welcome; and it is the pleasantest season, for midsummer brings heat, but which would not be bad but for the frequent droughts, which last some seasons very long, and then everything is burnt up to positive white heat. *H.*

Notices of Books.

Falconry in the British Isles. By F. H. Salvin and W. Brodrick. Large 8vo. Van Voorst. Pp. 147, with 24 coloured plates.

As the long bow gave way to the harquebuss, and boar spears to rifles, so has falconry perished in the face of fowling pieces and patent cartridges. We say perished because we cannot bring ourselves to believe that the sport can now be revived, even when aided by the knowledge, skill, and enthusiasm of the two authors who have produced this beautiful book.

When the late Sir John Sebright gave to the world his admirable little treatise on hawking, he expressly declared that his object was to point out the manner in which a wild bird may be reclaimed, rather than to enlist recruits for a sport so completely fallen into disuse as it had become in 1826. Even then a little Dutch village, appropriately named Falconswaerd, was supposed to be the last refuge of professional falconers, who in that secluded spot occupied the only nest thought to remain to the race. And although our authors assure us that Scotland had also her native breed of falconers, traces of whom existed so lately as 1819 in the person of one of the Flemings of Barochan; and even down to 1845 when Sir John Maxwell, of Pollock, had Wm. Barr, of Arrochar, as his falconer, yet we cannot but think these were the last sparkles left of the brilliant sport which once was the glory of princes. Corn-fields, drains, and railways have done their work, and Falconry must, we fear, be mentioned among the arts that are lost. We are, however, assured that it still boasts of its followers; there is a club held annually at Loo, near Arnheim; Wallachian gypsies pay tribute to the Sublime Porte in quails, which are all taken by sparrow-hawks; some Russian nobles still fly hawks over their steppes and boundless plains; and Mr. O'Keefe, an Irish sportsman, rides after his hawks with no little success in quest of woodcocks, partridges and herons.

"The decline," say our authors, "of a sport once so generally practised in this country may be attributed to several causes; the principal one having no doubt in the first instance arisen from the more frequent use of gunpowder: this and the enclosing of waste lands gave the first blow to the art. A great reaction with regard to the hawks themselves followed, and in place of the strict protection they used to enjoy came a most violent persecution. Discarded as allies in the field, they were and are only looked upon as enemies; and the same noble bird which in former days would have rested on a monarch's wrist, is now handed over to the tender mercies of a menial as vermin. The custom of collecting together within narrow bounds large quantities of game, artificially reared, and semi-domesticated, has tended greatly of late years to destroy the taste for real sport amongst the upper orders, and at the same time to crowd the gaols from the lower ranks of society. No pursuit deserves the title of sport which taxes nothing beyond the organ of destruction in those who follow it. The Battue system, in which hundreds of pheasants reared almost by the hand of the keeper, and scores of hares enclosed within nets, are driven into the very faces of sportsmen posted in advantageous situations, and slaughtered by wholesale with the smallest possible expenditure of trouble to the slayers, may be styled in newspaper paragraphs 'glorious day's sport,' but has certainly nothing in common with that description of sport which brings into play the qualities of energy, perseverance, endurance of fatigue, great self-command and calmness of nerve in times of difficulty, and which has given to the national character its title to respect, in the sportsman by flood and field at home, and the warrior abroad. One part of this system of game-preserving consists in the destruction of every bird or beast supposed capable of claiming its share in the spoil, whether or not nature has provided it with the requisite powers or even inclination. As might be imagined, this mode of arriving at the desired end generally defeats itself, and the extirpation of one supposed hostile species only makes way for some other still more destructive agent, as for instance in localities where everything in the shape of weasel, stoat, or foumart has disappeared, immense numbers of rats, equally destructive to game, and far more generally injurious, have sprung up, and from their amazing fertility defy the skill of man to hunt them down. An excess of birds and beasts of prey, generally called in gamekeeper's language 'vermin,' no one would advocate; there is, however, no doubt that such may be killed off far too closely. It is a dangerous thing to break the admirable balance of nature, and were the habits of the greater number of our larger hawks better known, it would be found that instead of being injurious to the preservation of game, exactly the opposite is the case. Though gamekeepers are in general a prejudiced race, and probably draw their conclusions as to the usual prey of the hawks they meet with, from seeing them in the act of discussing the remains of one of their own victims, it is but fair to remark that we know more than one of their number who, being observing and intelligent men, rejoice in a visit from the Peregrine to their moors during the time that the grouse are laying; being aware that the falcon's principal object of pursuit at that season is the Royston and carrion crow, and other egg-stealers which then infest the ground. On some of the Highland moors the alpine hares have become so numerous, in consequence of the destruction of their chief enemy the golden eagle, as to prove a perfect nuisance both to the farmer and also to the sportsman, whose dogs are continually pointing them."

We wish we could think that country gentlemen would subscribe to these opinions, especially as regards the fashionable game-massacres, or battues, which have been invented to save them the trouble of using their legs. At all events falcons and falconers can desire no better advocates than the authors of the work before us; concerning which we need only add that it contains full and particular directions for all parts of a falconer's business, that it points out the merits and faults of the various kinds of hawk, illustrating the species with characteristic coloured plates, and that the whole volume is written in the true spirit of the naturalist as well as of the enthusiastic sportsman.

The Year Book of Agriculture (8vo. Paterson, London), for 1855 and 1856, is not, as its name indicates, merely a record of agricultural facts, but it embraces horticulture in all its branches as practised in the United States. In this point of view it may be regarded as a useful work, to which the attention of gardeners, as well as farmers, may be directed. Mr. Wells, the editor, has done his part carefully, with the exception of correcting the press, which, where scientific names are introduced is greatly in need of revision. The volume contains a very large quantity of statements relating to cultivation in North America, and, in conjunction with the Official Patent Office reports, offers a complete view of what is going on in the rural districts of North America. The volume contains 400 pages of extremely well and closely printed matter, of which Agricultural Mechanics and Rural Œconomy occupy 134, Agricultural Chemistry and Geology 86, Meteorology for Farmers 10, Agricultural and Œconomic Botany, 60, Horticulture 50, Agricultural Zoology, Statistics, 60 pages. The text is illustrated by excellent woodcuts and bad litho-tints; and contains by way of frontispiece a portrait of Downing, the Loudon of America, which as a work of art, will bear comparison with the best copperplate book illustrations of this country. We shall frequently take occasion to refer to the pages of Mr. Wells's useful publication.

Garden Memoranda.

ROYAL GARDENS, FROGMORE.—A visit to these great gardens, of which plans were given in our volume for 1849, is necessarily highly interesting at any time of the year, and scarcely less so at the present season than in summer, for now an opportunity is afforded of inspecting the various forcing houses in operation. Of Pine Apples alone the quantity grown here is enormous, and of the excellence of the fruit or the health of the plants it is impossible to speak in too high terms. The varieties are chiefly Cayennes and Queens, and all of them are planted out on beds of prepared soil over hot-water pipes laid in shingle; even the suckers are not put into pots, but are taken off the stools and planted out thickly at once in soil placed over a bed of leaves. The plants in the two Pineries in the principal range are truly admirable examples of skilful cultivation and careful management, not a broken or diseased leaf nor an insect is to be seen on one of them, and they promise to bear fruit worthy of the noble gardens from which they are to come.

Ripe Grapes are obtained here all the year round. A house of West's St. Peters has not yet been touched; the fruit in it exhibits the greatest possible excellence. The bunches are large, the berries well swelled, black as Sloes and covered with a most beautiful bloom. The foliage is yet green, while that on a plant of Black Barbarossa at one end of the house, and subjected to the same treatment, is quite withered, and the footstalks of the berries decayed. The latter is, however, a valuable late Grape, though many still prefer the West's St. Peters. Of the last-named variety there could not be less than 300 lbs. of ripe fruit in this house which, we need scarcely say, at mid-winter presents a novel spectacle. A low house filled with Black Hamburghs planted on a raised bed over a hollow chamber closed in with slates is also now full of nearly ripe fruit, making the second crop from the same Vines this season. They produced a crop last March, when they were pruned and exposed to the weather by taking the lights off. About the beginning of August they broke again, when the lights were replaced, and the result is a fair crop of fruit, which will come into use after the St. Peter's above alluded to are over, and thus there will be ripe Grapes until new ones

are obtained from the Vines trained on the back and upper portion of the roof of the principal Pine-stoves, in which the first fruit is always produced. These latter, owing to the little rest they receive, break somewhat irregularly, some of the young shoots being now nearly 2 feet in length, with bunches on them coming into flower, while the majority of the buds have not yet pushed; they do, however, in time all break, and their not doing so all together is rather an advantage than otherwise, for the fruit also ripens in succession, which is what is wanted. This crop keeps up the supply till new Grapes can be had from the houses in the principal range, some of which have just been started. In the early vinery the Vines had become somewhat unfruitful; they were therefore cut down after the crop was ripe last May to within about 3 feet of the bottom, and while they were still in full leaf. After the operation they pushed vigorously, and during the season filled the house with new wood, which ripened well. The rods for the most part are as thick as the thumb, with prominent well swelled buds. Next season they look as if they would yield a crop of not less than 10 lbs. to each Vine, and thus a season is gained by this mode of treatment.

The early Plum and Cherry houses have just been started; Strawberries are also being "set to work." The variety employed here for forcing is Ingram's Prince of Wales, which bears an excellent character both for flavour and productiveness; Cucumbers and French Beans are fit for use here the whole year round. The latter are grown along the kerbs of the Pine stoves, and in the borders inside the early Vineries and other houses. They are started in boxes or in little square bits of turf placed over warm surfaces before they are permanently planted out, and thus all failures in the principal plantations are obviated and the rows are kept uniform and without blanks. The Cucumbers are grown on raised beds over heated chambers, and the plants are trained on strings over the roof of the house. After they have done bearing Vines are introduced through holes in the wall from the outside of the house, along the front of which they are grown in a narrow border which is now, together with those of other houses, enveloped in a covering of Fern.

Asparagus has been "in cut" here for the last two or three weeks. The plants, which are three years old, are brought from the open ground and placed on a bed of leaves in pits. The main supply of forced Asparagus is, however, obtained from ranges of low pits heated by hot water. This method has been fairly tried here, and has given most satisfactory proofs of its superiority over the modes usually practised. The Asparagus is planted in brick pits which are sunk to the depth of 4 feet; between each pit exists a space traversed by hot-water pipes, which spring from a central boiler; the divisional spaces are covered securely with York stone, and the beds have a tight-fitting wooden span roof. The soil employed is chiefly the rich loam peculiar to the garden mixed with leaf-mould and rotten manure. The beds are usually started early in December, with a temperature ranging between 50° and 60°, and in three weeks or so afterwards the tops are fit for cutting, the size and flavour being excellent. It should be mentioned that the plants are occasionally assisted by a supply of manure water.

Early Peas in a pit (Sangster's No. 1) are now coming through the soil. The mould in which they are sown is placed over a bed of leaves in which there is just sufficient warmth to excite vegetation. Early Carrots and Potatoes in beds similarly constructed are also coming forward. The latter are started in warm houses, and then planted out on a bottom-heat of about 65°. Much warmer than that does not answer; for should severe weather occur about this season, which is very likely to happen, and the pits have to be kept covered for weeks together, the plants get drawn, blanched, and ruined.

In the principal stove Bignonia venusta was in beautiful condition. Its long pendant branches, festooning from the roof, were completely loaded with blossoms of the richest orange, and allowed to hang loosely in this manner they have a much better effect than when trimly tied up. In the greenhouse at the other end of the range of houses was the fragrant Luculia gratissima, presenting such a display of flowers as perhaps has never been seen in this country before. Its top occupied an area some 8 feet in height and nearly as much in width, and almost every inch of this space was full of blossoms highly coloured, and each cluster formed a perfect bouquet in itself. This plant, as well as the Bignonia, is planted out in a bed of peat and loam. The soil about the roots of the Luculia has not, it is said been disturbed for the last six or seven years. Little attention is therefore required to have it in perfection, and when seen in the condition in which this plant is, nothing can be handsomer. Kennedya Marryattæ trained along the roof of this house was also full of scarlet flowers, and very showy.

A new fruit-room 60 feet in length has lately been put up in one of the "slips" against the garden wall. It has a slate roof, under which are 4 inches in thickness of straw. The front wall is brick, 4 feet in height, and the house is 5 feet high at the back. Along the front are small fixed windows of thick plate glass, while at the end a window is made to open, and in the door at the opposite end there is an open ventilator. The circulation thus produced is considered sufficient to dry up all damp, and in this house fruit is found to keep well. It is arranged on shelves placed in tiers against the front and back walls.

Eugenia Ugni fruited under glass here last summer, and next year it is intended to try it against the open wall. The fruit was about the size of large Black Currants, and most delicious in flavour, fully realising in this respect all that was said of it in our volume for 1854, p. 644. It is a most valuable acquisition.

Calendar of Operations
(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Where the twiners for covering the roof are grown in boxes, or have but limited root room, as much of the surface soil should be removed annually, as can be done without seriously injuring the roots, replacing it with some good rich, fresh material, and this cannot be done at a better season than the present. The conservatory or show-house should very soon be full of floral beauty. Camellias, Luculias, Epacrises, Heaths, Primulas, Mignonette, Tree Violets, Cinerarias, Indian Daphnes, and many other showy things, may easily be had in bloom about this time; and, with proper convenience, a few Roses and other forced plants, as Oranges, bulbs, &c., should also be coming in, and will greatly assist in maintaining the gaiety so desirable in this house.

FORCING DEPARTMENT.

PINERY.—There is often considerable difficulty experienced in getting the requisite number of plants to show fruit at this season, and where this is the case every advantage should be taken of mild weather to maintain a brisk temperature, which may be kept at from 70° to 75° by night, and 80° to 85° by day. The difficulty of getting plants to show fruit is generally the result of their growth not having been properly matured in time to allow the plants a period of comparative rest before subjecting them to forcing with the view of getting them to show fruit, and where any difficulty of this kind is experienced timely attention should be given to the preparation of the plants for another season, which is the only means of having them at command. All that can be done this season, however, with backward plants will be to take advantage of bright days to maintain a brisk temperature, letting it rise to 80° or 85° with sunshine, and 70° to 75° should be secured at night. Maintain a moist growing atmosphere, but do not syringe plants overhead that are showing fruit. Also see that the roots are in a properly moist state, using tepid water where any is wanted.

VINERY.—In houses being started use means to get the buds to break regularly, and where necessary bend the Vines, raising the backward buds to the highest point; maintain a moist atmosphere, and sprinkle the Vines morning and afternoon. When the buds begin to break the night temperature may be increased a few degrees, but it should not exceed 55° until they are all fairly started, and 65° by day should not be exceeded except with sunshine and air. Rub off all superfluous buds, taking care to leave the strongest ones, but in cases where there is any fear about the show of fruit, it will be advisable to leave all promising buds until the bunches can be perceived. It is only in cases, however, where the Vines are in a bad state that there need be any fear about destroying all superfluous buds as soon as this can be done. Admit air on every mild day, using a sufficient amount of fire heat to maintain the proper temperature. Look well to the border, and see that it is protected from wet or sudden changes of weather; and, where fermenting materials are used, turn them as often as necessary, adding a small quantity of fresh leaves and dung, in order to maintain a steady heat.

FLOWER GARDEN AND SHRUBBERIES.

Let the most be made of favourable weather in the way of pushing forward new work, and all out-door operations. Where the turf is at all unlevel time should be spared in course of this or next month to repair this, as if lifted later than February it might require some attention to get it to take quickly. Unlevel turf is an eyesore the season round, and it makes the mowing more tedious and difficult, hence it is worth an effort to spare time to make whatever little repairs may be necessary here. Sweep lawns occasionally to clear them of fallen bits of branches, &c, and use the roller here and on gravel frequently to secure a firm smooth surface. Let the stock of plants, except those that may be wanted to furnish cuttings, be freely exposed to air whenever the weather will admit, so as to keep them hard and render them less liable to damp off in the event of their having to be kept covered up for some time. Any of the stock from which many cuttings are wanted should be removed to a light warm situation without loss of time, first washing the pots and clearing and adding a little fresh soil to the surface of the ball. Some kinds of Verbenas, &c., are very subject to mildew when placed in heat in the winter season, but this is easily kept in check by means of sulphur, only let the sulphur be applied the moment the pest makes its appearance.

HARDY FRUIT AND KITCHEN GARDEN.

If any planting of fruit trees still remains to be done this should be seen to very soon, and every available despatch used to get it completed. If it is worth while to occupy ground with fruit trees, and incur the expense, &c., of planting them, it certainly is worth consideration whether the ground is in the best possible state of preparation for being planted with fruit trees, and to incur any expense and trouble which may be requisite in order to render the soil as suitable as can be made for the kind of trees with which it is to be planted. To do this is seldom a work involving much direct outlay, for provided the ground is well drained, there is little else required except labour, materials for concreting, and a supply of good loamy soil, all of which can generally be obtained about most places. But it is useless to plant trees except there is a fair prospect of their doing well, and the necessary preparations for securing this can be more conveniently, cheaply, and efficaciously made before planting than afterwards, and the requisite preparations should be made, even if doing this should necessitate putting off planting until another season. Push forward the digging or trenching as the case may be, and get all vacant ground turned over as soon after this as circumstances will admit. In the kitchen garden, as in other departments, alterations will occasionally be required, such as taking up and relaying Box-edgings that have become imperfect, or those that have grown too strong and bulky, turning or surfacing walks with fresh gravel, and such jobs should be done if possible before the busy season.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 10, 1856, as observed at the Horticultural Gardens.

Jan.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Friday	4	26	29.647	29.670	47	40	43.5	44½	43	S.E.	.07
Satur.	5	27	29.520	29.421	49	43	46.0	45	43½	S.E.	.11
Sunday	6	28	29.310	29.174	48	35	41.5	45	43½	E.	.12
Mon..	7	●	29.066	28.970	47	37	42.0	45	44	N.E.	.00
Tues.	8	1	29.146	29.021	43	32	37.5	44	44	N.E.	.02
Wed.	9	2	29.204	29.158	38	34	36.0	43	44	N.E.	.23
Thurs.	10	3	29.622	29.317	40	25	32.5	42	43½	N.E.	.00
Average .			29.359	29.237	44.6	35.1	39.8	44.1	43.6		.55

Jan. 4—Cloudy and mild; uniformly overcast; rain at night.
— 5—Rain; densely overcast; rain.
— 6—Cloudy; rain; overcast.
— 7—Cloudy; hazy; bright sun; foggy; barometer very low.
— 8—Densely overcast; cloudy and cold.
— 9—Drizzly; rain; sleet; rain.
— 10—Cloudy; clear and cold; frosty at night.

Mean temperature of the week 4 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Jan. 19, 1856.

Jan.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	13	42.7	33.1	37.9	16	0.29 in.	4	4	4	2	6	6	3	1
Mon.	14	42.4	30.6	36.5	16	0.80	4	5	4	3	3	6	2	3
Tues.	15	41.3	29.3	35.3	10	0.54	3	4	3	3	3	6	5	3
Wed.	16	41.6	31.5	36.5	17	0.34	1	7	5	1	5	6	3	2
Thurs.	17	42.2	30.6	36.4	10	0.48	3	6	2	3	2	8	3	3
Friday	18	42.0	30.8	36.4	12	0.55	1	4	1	3	4	10	4	3
Satur	19	4 .2	30.1	36.1	12	0.88	4	2	4	2	5	7	5	1

The highest temperature during the above period occurred on the 19th, 1828—therm. 60 deg.; and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

Notices to Correspondents.

BOOKS: *George.* The Vegetable Kingdom is the only volume in which you will find the information you seek.—*Curiositas.* There is no such book. Paterson's Zoology will tell you part of what you want to know.—*A Z.* Loudon's Self-instruction for Young Gardeners. *Very choice* garden seeds are acceptable everywhere. It is unwise in a young man earning good wages here to go to any colony as a gardener. If he goes as a settler the change may be advantageous, especially in Canada, if he is strong in body, industrious, and resolute of will.—*Sheffield Gardener.* There is no such book as you want that we know of.

COMFREY: *W B.* Morton's Encyclopædia of Agriculture will tell you all about this under Symphytum. Of the pamphlet we know nothing. The plant yields abundant food on good deep land, but it is not very nutritious, and hardly deserves the attention of those who grow for profit.

FILBERTS: *Amateur.* Suckers taken from old stools will answer perfectly well for forming new plantations. ‡

BEET-ROOT SPIRIT: *X Y Z.* It was Bizot of Dijon who obtained a first class medal for his Beet-root spirit, which we hear was remarkably good.

GARDENING: *James.* You are ill advised. Spend your days in honest labour, and your evenings *in study*, by which we do not mean mere reading. A newspaper will do you no harm.

GYNERIUM: *Old Sub.* We are unable to advise you. Seeds are now being distributed abundantly by the Horticultural Society, and the value of plants has become extremely small.

IMPOSTORS: *H D.* Yams with blue, rose, and violet flowers! Hydrangeas striped like Carnations! Asphodels mazarine blue, scarlet and crimson! Is it possible that you believe in the existence of such marvels? They belong to the same category as sea serpents, mermaids, krakens, dragons, and flying ladies.

INSECTS: *Ammophila.* Apus signifies footless, Apis a bee, Apion a kind of Curculio.—*E C T.* We never before saw leaves so overrun with insects. To clean them is impossible; and it is probable that the entire plants are in the same foul condition. You had better throw the plants, the earth they grow in, and the pots which hold the earth, on a fire heap, and utterly consume all that will burn. If not you may have your whole collection hopelessly ruined.

NAMES OF FRUITS: *H B.* 2, Blenheim Pippin; 7, New Golden Pippin. The others appear to be local Apples not known.—*E S.* Your Apple is the Ponto Pippin. ‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*X.* Chamærops Palmetto, Rondeletia anomala, Impatiens Hookeri.—*G. Simons.* Ask your father's gardener. If he does not know, inquire of some parish schoolboy. Failing him apply to the clergyman of the parish. If all these are unable to muster knowledge enough to answer such a simple question then apply once more to us.—*S N.* Apparently a small frond of Polystichum coriaceum; it is found in many countries, but we never saw it "*viviparous.*" If you will send us a viviparous bud on a small plant we will see more about it. *S.—A B.* 1, Phymatodes vulgare longipes; 2, Gompholobium neriifolium; 3, Pleopeltis squamulosa; 4, Phymatodes irioides. *S.—J B.* We are very sorry to see that there has been some omission on the part of one of our reporters. The former parcel was put into the usual hands on its arrival, and we thought had been dealt with long since. The new parcel will be noticed, we doubt not, next week.

PEAS: *Veritas.* You must authenticate the statement by giving your name and address.

POISONING TREES: *W T.* We had hoped that we had expressed our disapprobation in terms sufficiently intelligible to a careful reader.

SEEDS FOR AUSTRALIA: *Reader.* Put them loosely into canvass bags, and hang them up in some dry airy part of the ship. ‡

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol: or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—ANTONY GIBBS & SONS.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

AGENCY FOR A VALUABLE MANURE.—A MANUFACTURER is open to appoint a few respectable Agents for his Manure, which commands a ready sale, as its goodness is certified by more than 1000 Testimonials from all parts of the United Kingdom, and by many farmers who have used it several years.—Address, with occupation and references, R. T., at Mr. E. Colyer's, Printer, 17, Fenchurch Street, London.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Temple Gate, Bristol.

IMPROVEMENT OF LAND.
TENANTS FOR LIFE AND OTHERS.

MR. HUMBERT, of Watford, Herts, a LAND AGENT and SURVEYOR of more than 20 years' experience, offers advice to Landowners having but limited or life interests, as to the means by which they can effect improvements without an immediate outlay; and his services in Erecting and Improving Farm Buildings, in Draining, Reclaiming, Planting, and Road-making by contract or commission, and the general Improvement of Land; also in Falling and Selling Timber, in the Transfer and Management of Estates, and the Enfranchisement of Copyholds. Mr. HUMBERT has long been largely interested in Landed Property, and is authorised to refer to his employers.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

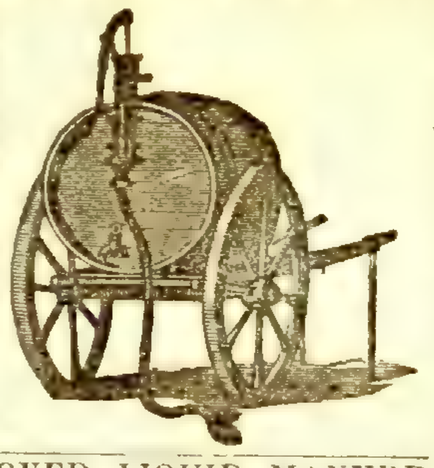
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

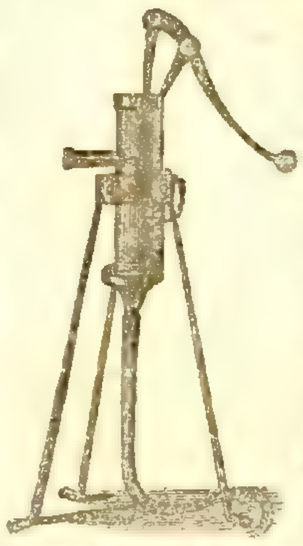


Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 6*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

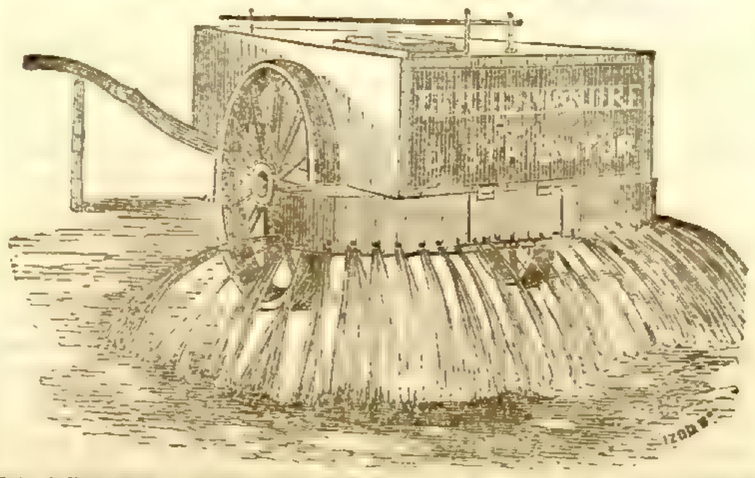
1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

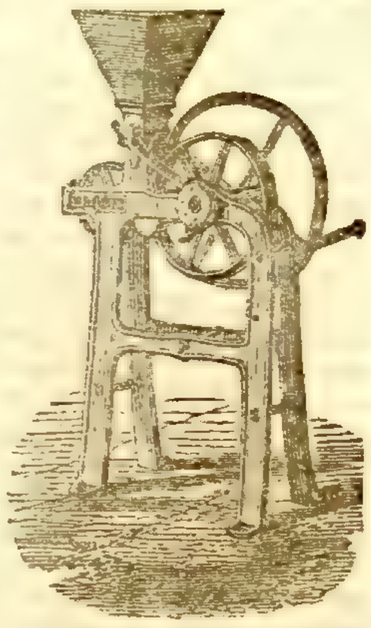
LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

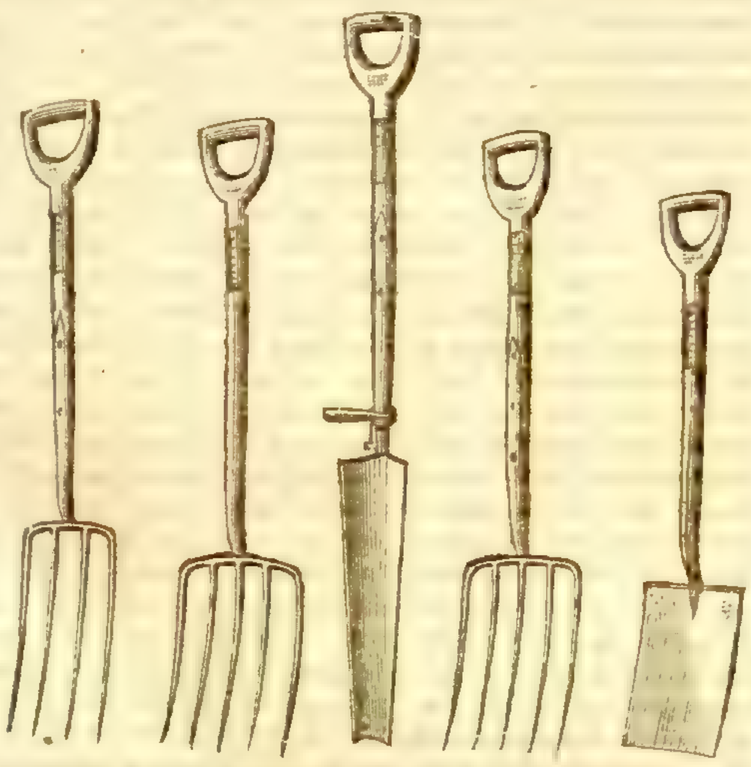
OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15*s.* 6*d.*

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

CAUTION.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

Whereas very inferior descriptions of Steel Digging Forks are now manufactured and sold, and I have been informed that purchasers of the same have believed them to be the same as those manufactured by me, and to which the Royal Agricultural Society and numerous Agricultural Societies' prizes have been awarded, I hereby respectfully inform the public that every Fork manufactured by me is stamped with my trade mark "J. P.," and that Messrs. BURGESS & KEY, of No. 103, Newgate Street, London, are my sole Wholesale Agents, and I have authorised them to replace to the purchaser every Fork of my manufacture found defective; they will also on application send Wholesale and Retail Price Lists, &c., post free. FRANCIS PARKES & Co.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill: Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

THE PRIZE ROOT PULPING AND MINCING MACHINE.—PHILLIPS'S is the only Root Pulping and Mincing Machine which has received the Prizes of the Royal Agricultural Society. Made only by WOODS, Suffolk Iron Works, Stowmarket. Delivered carriage free in London, Peterborough, Hull, Gainsborough, Newcastle-upon-Tyne, and any station on the Eastern Counties Railway. Illustrations, Descriptions, and Prices forwarded post free on application.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

EVENING COURSES OF GENERAL AND ANALYTICAL CHEMISTRY are now conducted in the Laboratory of the Royal Polytechnic Institution by Mr. R. V. TUSON, Assistant Teacher of Practical Chemistry at St. Bartholomew's Medical College.—Fee, 3*l.* 3*s.* per term. Agricultural and other analyses conducted.

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL, AND OTHER FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. SUTTON'S *Priced List*, which may be had, post free, on application, Addressed SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Agricultural Gazette.

SATURDAY, JANUARY 12, 1856.

THE *Times* newspaper gives the following information, which as it may prove to be of agricultural importance, we publish here:—

From Peru we learn that in the Convention now in session, a most extraordinary and important project of law has been introduced by Senor Roca, to sell *the Chincha Islands*. The following is a brief abstract of the law.

The preamble states that, considering Guano to be the chief source of revenue of the Republic, and at the same time a terminable one, the nation had not derived the benefit from it to which it is entitled, while the present mode of sale was unsuited and expensive. Considering at the same time the wants of the nation—namely, to encourage immigration, educate the people, and irrigate the sterile coast lands, and that the interest of the National Debt in 25 years will equal the principal, it is therefore, desirable to realise the sale of the guano in a more prompt manner for the benefit of the national treasury. Considering further that, according to the best calculations, the present amount of guano is 12,070,152 tons (Peruvian measurement), which may be reduced to, say, 11,670,152 tons by the time the sale is effected, and, lastly, that the net profit has not exceeded 30 dols., &c., be it decreed that the guano on the Chincha Islands, say, 11,670,152 tons, be sold at public auction, in nine months, at a price not less than 30 dols. per ton, equal to 350,104,560 dols.; the sale to take place under the management of a committee of officials named in the bill. The regulations of the sale are next stated. The nation does not hold itself responsible for the amount of guano, and will allow no reclamation for a deficiency, nor seek it for a surplus. The law to be published in all languages, and circulated, through the Government representatives, in Europe, Asia, and America. The money to be paid cash, or at least one-fourth of the sum, and the remaining three-fourths at short dates. The money to be deposited in the Bank of England to the credit of

the nation, and appropriated in certain sums for the national good, &c.

The foregoing, which is only a brief summary, contains the principal points of the proposed measure.

The remarks which have been made in these columns on the malformations and diseases of root crops seem to suggest to us a somewhat interesting subject of discussion, namely the advisability of substituting specimens of roots at our agricultural shows.

Although prizes are not unfrequently offered for roots at agricultural meetings, especially of Turnips, Swedes, Carrots, and Mangel Wurzel, we have never yet witnessed much competition—the only exception we remember was at Birmingham last month—perhaps one, or at most not more than two or three competitors for each kind have come forward; and the reason usually assigned for this apparent neglect is that a few large roots which can be culled here and there are no criterion as to crop, and growers refuse to enter into competition in a matter which appears to be too much one of chance. Just so, indeed, would it be with cattle shows if only a single point was made the standard of excellence; but when there are several points to attend to it requires skill and knowledge, united with judgment and perseverance, for approaching towards perfection, to which end the many valuable points are carefully studied in cattle, and tolerably well understood by all breeders.

Here then the question arises: are not the different breeds of cattle *derivative?*—that is, are not many if not all their peculiar characteristics derived from cultivation?—and is not a knowledge of the circumstances under which the required changes are brought about and maintained the basis of skill in breeding? Just so is it with roots. They are derived from wild originals, from which they widely differ by cultivation, and each kind offers several varieties suitable for a wide range of circumstances; hence some are used for the table whilst others are employed as food for cattle, and of these one form is suitable, for one season another for others; and of these, again, one sort may require immediate consumption, whilst another is improved by storing.

This, therefore, introduces us to a wide range of qualifications, which in the case of cattle are provided for by a classified schedule; and we have prizes for long-woolled, short-woolled, and mixed breed sheep; but as regards roots, their infinite variety and varied adaptations necessarily preclude such classification, and hence scarcely any qualification is insisted upon but that of size.

Now, if we bear in mind that all our forms of root crops are liable to be deformed by degeneracy of growth, to become injured by various insect attacks, to be woody from poverty or dryness of soil, and watery from being grown too fast or too close together, we shall see that even in the growth of roots many points ought to be taken into consideration, not only influencing the successful growth and competition connected with root crops, but also the decisions of those who may be appointed as judges of roots.

Without attempting to describe all the facts worth noting in deciding upon good roots, we would recommend attention to the following points both from the exhibitor and judges:—

1st. A well-formed top.
2d. A well-formed bulb or tap root.
3d. Compactness of structure.
4th. Size.
5th. Freedom from insect attacks.

1st. Well-formed tops, especially in Turnips, Parsnips, and Carrots, are such as do not present a superabundance of leaves, and consists of a single bud proceeding from the centre of the root; all such as have an ascending central axis should at once be rejected, and any tendency to side shoots should be viewed as an evidence of degeneracy.

2d. In the case of bulbs or tap roots, the first point to examine is the presence or absence of lateral roots. These may be long and straggling, or large and thick—in the first, showing the tendency to form finger and toe, and in the second bearing unmistakable evidence of this malformation having been established; it is therefore imperative that roots for exhibition be presented with the leaves intact as far as may be, whilst the roots should never be trimmed. As regards general outline this must depend upon the peculiar sort, and in the case of all Turnips the tap root should not gradually thin downwards, but be more like a tail fastened to the base of the bulb, whilst with fusiform roots the tap root should taper somewhat abruptly from the fleshy main root.

3d. It has been so much the custom to look only at size that compactness of structure is usually disregarded, but all must see that a hard juicy root is of more use for all purposes than one of a spongy or woody nature; therefore no specimens should pass muster without one or more of a lot being cut into to determine this point. Allied to this it may be remarked that colour as indicative of purity of sort should not be overlooked.

4th. Size should never be disregarded, especially as in most cases the object is to show the largest; but should even the greatest examples be deficient in their other characters as laid down they should at once be disqualified, or at least take their place rather upon other qualities than size.

5th. As it is almost impossible that roots can be well formed when subject to insect attacks of any kind, these should also guide a judgment, for even if such malformations as galls and anbury be not their result, yet form and structure, and sometimes even flavour and goodness will be interfered with by the presence of insects.

Here then it will be seen that even in the judgment of good roots several points have to be taken into consideration, which from the examples we have usually noticed at agricultural shows would appear to have been overlooked, not only by the grower, but by the judges. Nor is this a trivial matter, inasmuch as there is just as much of breed or sort in roots to be carefully arrived at, and as carefully maintained as in cattle; and therefore it seems desirable that their selection and judgment should be founded upon more correct knowledge of their principles of growth.

SUPERPHOSPHATE OF LIME.

Mr. Grady has misconstrued my object in sending the paragraph referred to by him. He has gone from the phosphates, to which my remarks applied, and included in his new theory the whole list of chemical inorganic elements found in the vocabulary of agricultural chemistry. Our controversy will not be easily understood by casual readers except I give the extract from Mr. Grady's lecture, where he uses the word "neutral" as being "semi-soluble:"—

"Mr. Grady then dealt with the next question as to whether the superphosphates should be left soluble or insoluble. He showed by passages from Dr. C. R. Fresenius and Professor Liebig, that insoluble phosphates were as beneficial to the full development of corn as the soluble; for the ingredients which were soluble served for immediate use, whilst those which were neutral, or semi-soluble, exercised a more permanent action; and those which were altogether insoluble afforded a prospect of future nourishment for plants, although for the time being they possess no nutritive powers. It was a mistake to suppose that artificial manures were merely ephemeral. If properly prepared they were of a permanent character. The lecturer then read some testimonials to show that the Patent Superphosphate Compost had exercised upon several crops a beneficial effect for two years in succession—that being the whole period the company which manufactured it had been in existence. He had no doubt that experience would show the manure to be of a more lasting character." (*Agricultural Gazette, Dec.* 10.)

After reading this new theory I wrote as follows:—"I do not remember seeing anything about semi-soluble phosphate in the writings of Liebig or other writers, neither can I see how any manures can be too soluble, provided they are not washed out of the soil by the rains. Will you, sir, be so kind as to enlighten me on these points!" It will be seen that Mr. Grady speaks of soluble, semisoluble, and insoluble phosphates. Mr. Grady's mistake (if mistake it be), seems to rest with the word "neutral." This word has conveyed to his mind something "semi-soluble." In fact, he says he gave the word "semi-soluble" "parenthetically, as giving to his audience the closest meaning of the word 'neutral' that occurred to him at the moment that he was delivering an extempore address." It is evident that he must have misled his audience, as they coincided with the lecturer's views, or he would have been met by objections from his hearers. There is no such thing as "semi-soluble" phosphate, but only soluble and insoluble—neutral and insoluble are one and the same thing. There are two forms of phosphate in superphosphate of lime. phosphate of lime and biphosphate or soluble phosphate of lime. One part of the former is soluble in 1510 parts of cold water charged with carbonic acid (Liebig). "It is insoluble in water" (Voelcker). Soluble phosphate is soluble in water. These are the two forms of phosphates that are found in superphosphates made from bones and sulphuric acid. If any other phosphatic salt occurs in superphosphate of lime it is not worthy of notice, being a mere trace per cent. The "semi-soluble" phosphate on which the lecturer delighted to dwell must be a salt peculiar to "the Patent Superphosphate Compost" if any such salt exist, and on this must hang the superiority of it over all other superphosphates. On this salt depends the more permanent action exercised by Mr. Grady's patent manure. Bones exercise a more permanent action than the best superphosphates, but this is no argument in favour of using undissolved bones. It has long been known that the value of superphosphate of lime depends on the biphosphate of lime it contains. "The larger the proportion of soluble biphosphate of lime, the greater the value attached to it" (Morton's Cyclopædia). It is found that superphosphate of lime made from bones and acid, with the addition of a little ammonia, will grow the best Turnip crops in Dorsetshire, therefore we may decide that 15 per cent. of soluble and 15 per cent. of insoluble phosphate may be applied without any fear of the soluble phosphate being washed from the soil at the season of the year in which we apply it to the Turnip crop. 3 cwt. of superphosphate of lime per acre is usually applied; therefore I presume that 50 lbs. of soluble biphosphate of lime per acre may be applied without any fear of loss resulting from it. Mr. Grady does not coincide with the views entertained by Mr. Lawes; in fact their views are antagonistic. Mr. Lawes is preparing superphosphate of lime containing from 30 to 35 per cent. of soluble biphosphate of lime, whereas I presume Mr. Grady would have about 3 per cent. soluble (how much "semisoluble" I cannot say), and 10 per cent. insoluble phosphate. I hope to see the opinions of the editor and correspondents of the *Agricultural Gazette* on this important subject.

Geo. Summers, Houghton Farm, near Blandford, Dorset.

ON THE DISTILLATION OF ALCOHOL FROM FIELD BEET.

By the Right Hon. T. F. Kennedy, of Dunure, in a Letter to the Carrick Farmers' Society.

[*Extracts only.*]

Dunure, 14*th September*, 1855.

My idea is, that a most beneficial trade may be established in distillation from Mangel; and it is no visionary project, inasmuch as within the last few years the manufacture of spirit from field Beet or Mangel has been carried on to a large extent in France, and is rapidly extending at this moment. This takes place in a country in which the climate is so much drier than in ours as to restrict the produce of roots, per acre, to about one-half of what our more moist climate enables us to grow; and if such be the fact, which it is, the growth and manufacture ought to be greatly more advantageous in this country than in France. In France an excellent spirit is manufactured, a brandy which, in quality as a spirit, is unquestionably equal to the vast mass of spirit now manufactured in Great Britain and Ireland. I send you a very small sample of the brandy made from Mangel, which I procured from France, and which I think makes good the opinion I have stated.

There is, besides the recommendation of a spirit made from Mangel, that it would be produced from a raw material not applied to the food of man; so that, in times of high prices in grain, the price of the bread of the people would not be interfered with by distillation. It is sufficient for my purpose that a good spirit, that an alcohol, call the spirit what you will, can be produced from Mangel; and, as it will be seen, in great abundance, and in the manufactories of this country, vast quantities of alcohol or spirit of wine are required. I will proceed to state some detailed calculations, and to show probable results to the parties who would be concerned in such a manufacture; the farmer on the one hand, and the distiller and moderate capitalist on the other, whom I should look upon as distinct parties; the former furnishing to the latter the raw material of the trade.

There are many authorities, and among them Dr. Ure, in his "Dictionary of Arts and Manufactures," by whom it is laid down that 100 lbs. of field Beet or Mangel will yield 10 or 12 lbs. of proof spirit (let it be taken at the smaller quantity of 10 lbs.), and 10 lbs. of proof spirit is equal to about 6½ quarts (let it be taken at 6 quarts). Thus 2000 lbs., or, still more, 2240 lbs. (a ton), of Mangel, will yield 120 quarts or bottles of proof spirit. The produce of 1 acre will thus yield of proof spirit, if the crop be 30 tons, 3600 quarts; if 25 tons, 3000 quarts or bottles. Let the Excise duty be for the present placed out of view, and let the value of the spirit, free of duty or in bond, be adverted to, and the crop taken at 25 tons: 3000 quarts at 6*d.* is 75*l.*; at 9*d.*, 112*l.* 10*s.*; at 1*s.*, 150*l.*, and I believe its value as mere alcohol would be nearer the latter than the former sum. How remarkable is this result, or anything approaching to it; and yet it rests entirely on calculations founded on the statements of highly competent authorities. The conclusions are arrived at, not seeing how they can be avoided, on the basis of the facts applicable to the subject.

To pursue the subject a little farther, let a farmer dispose of his Mangel to a neighbouring distiller at 1*l.* per ton, 25*l.* or 30*l.* per acre, as the case may be. Such a sum would amply remunerate the farmer; and if he was to raise 30 acres of Mangel, and dispose of the crop at 30*l.* per acre, he would receive a net sum of 900*l.* in hard cash for the raw produce of 30 acres of his farm; and how many of the farmers of Carrick could readily grow annually such an amount of crop, and cart it one, two, or three miles to the distiller. It will be seen that the probable result seems to be equally favourable to the distiller—the purchaser from the farmer. He would pay 25*l.* or 30*l.* for the raw material, which was to yield, from the smaller of these sums, a manufactured article worth 75*l.*, 112*l.* 10*s.*, or as much as 150*l.*, as the case may be, leaving to him 45*l.*, 72*l.* 10*s.*, or 120*l.* as the value of his manufactured article, free from the price of its raw material, and as the return he would have on each 25 tons of Mangel purchased for his capital, risk, machinery, and expenditure all of kinds—a vast margin being afforded in these sums for any shortcoming which might take place. If, instead of either of these larger sums, only 25*l.* were realised, as the value of the spirit contained in 25 tons of Mangel (after deducting the 25*l.* paid for the raw material), how good a trade, it would seem, might be carried on. If the produce of 300 acres, at 30 tons an acre, were distilled, the quantity of Mangel would be 9000 tons; the sum paid to the farmers would be 9000*l.*, and the value of the spirit, at only 30*l.* per acre, would be an

equal sum of 9000*l.* after paying the 9000*l.* to the farmers.

I have attempted to state these figures on the authority of the best materials I have at command, far from supposing that they do not admit of modification or correction. I have abated much in some of the calculations on the side of moderation; and I have much confidence that the statements are substantially correct, and think that the subject is well deserving of the attention of parties more intelligent and well informed on such subjects than myself.

I may add, as an additional item of profit, that the dry fibre and tissue of the Mangel, after the whole saccharine matter has been extracted, is worth at least 10*l.* per ton as a material for the manufacture of paper. This fact I have ascertained on the highest authority; and I imagine that 30 tons of Mangel would yield about 1 ton (but on this point, of the quantity of fibre produced, I am not so certain), thereby adding 10*l.* to be divided between the farmer and the manufacturer for each 30 tons of Mangel distilled.

Before concluding, I must state the remarkable contrast between an acre of Mangel and an acre of Barley—the usual material from which spirit (whisky in this country) is derived. I have taken Mangel at 25 or 30 tons per acre. I now take Barley at a rate of produce quite the outside—say 60 bushels an acre, and weighing 55 lbs. a bushel. This would give a weight of Barley of 3300 lbs. per acre as compared to 30 tons, or 67,200 lbs. of Mangel. The same authorities which state the produce of spirit from Mangel at 10 or 12 lbs. per 100 lbs. of roots, state that Barley yields 40 lbs. of spirit per 100 lbs. of grain. Thus the full produce of an acre of Barley yields only 3300 lbs., or little more than 1½ ton of grain, instead of 67,200lbs., or 40 tons of Mangel. No doubt the spirit yielded by Barley is in quantity four times the quantity yielded by Mangel: but still the 3300lbs., of Barley will only yield 1320lbs., or 840 quarts of spirit while 67,200lbs. of Mangel will give 3600 quarts of spirit. Put the Barley spirit at 1*s.* a quart, and it will amount to 42*l.*, while the Mangel spirit, also at 1*s.*, gives the large sum of 150*l.* Such a comparative result shows either that there is some error or fallacy in these calculations, or that distillation from Mangel holds out pecuniary advantages which cannot be extracted from Barley; and yet distillation has been a profitable trade when prudently conducted.

A STEAM-CULTURE REVERIE.—No. I.

LOOKING over my farm accounts one evening, I was surprised to find how large a proportion of the corn and straw, Grass, hay, Clover, and other produce, was "entered for home consumption" by the teams. But all this provender might have been "exported" in the shape of meat instead of being converted into uneatable horseflesh, it might have fed a number of hungry English people instead of being consumed in the mere obtaining of motive power to work farm machinery. And what a saving of good victuals if the toiling quadrupeds, living engines of one-horse power each, would but feed on wood or coals; or rather, if steam engines, which really will pant and perspire as laboriously as you like upon no better fare than the blackest mineral bread, and a drink of cold water, could be taught to perform the operations now effected by the horse.

This thought led me into a general meditation on the subject, suggesting first the old inquiry—Why agriculture alone of all branches of industry still fails to convert its raw material, the land, by the agency of steam power! Steam is a great genius as well as a mighty giant; a simple handicraft he will raise into a manufacture, and even create new fields for employment. For the workers in metals, in textile, and other materials, he has wrought miracles—why not also for the tiller of the soil? Yet once make steam an agricultural labourer, and all men agree that our sluggish husbandry would grow vigorous as any industrial art, so that Britain—happy land!—might revel in a chief staple production of bread-and-meat.

Steam has muscle enough to grapple with the clods of the field; only, as with Hercules at the spinning-wheel and Samson in the corn-mill, we must first beguile him into submission to the yoke. As for spinning and grinding, to be sure, our modern antitype of all the strong-limbed demi-gods of yore has long been broken to the work; but the most honourable of all labour—that of delving and tilling—has still to upbraid him for his stubbornness. He is very ready at all such mill-work as threshing, winnowing, or crushing corn, cutting and cooking cattle food, sawing timber, lifting drain waters off low lands, or throwing irrigation-floods over thirsty meadows. Some enterprising agriculturists have reduced him to the drudgery of conveying manure to their prolific acres, by the apparatus of pumps, hose-pipes, and hydrants so much talked of; and latterly one ingenious mechanist has conducted him into the field, and there made him excavate and burrow underground drains and lay in drain-tiles in the most perfect manner. Why, then, stop short of tillage, the fundamental and principal operation of husbandry; why is not steam to break up the hardened surface of our farms, expose an upturned subsoil to the fertilising atmospheric influences, cleanse it from parasitic and encumbering weeds, and prepare it to receive and nourish the tender roots of crops! Twenty acres are to be prepared as a seed bed 6 inches deep; that is, 12,000 tons of hard ground have to be sliced, inverted, and crumbled into fine mould, but "the panting giant" can do it—do it conveniently in two days if you only show him how. And the true reason why he does not accomplish the feat must be, that nobody has yet watched the turning of a furrow as Newcomen gazed at his palpitating teakettle; we are simply waiting for a genius and his "invention." * * * * At this point my reverie was interrupted by the arrival of a letter in the handwriting of an old acquaintance, pressing me to visit him on a most interesting business,—in fact, to see a trial of some new agricultural machinery. The writer of the epistle—formerly my neighbour—had often discussed with me the steam culture question: indeed, he was somewhat of a mechanical genius; for when only a boy, he had applied a blacksmith's bellows to the winnowing of corn, producing a perfect, if not expeditious, order of work. Together we had spent many leisure hours, and not a few solid gold pieces, in contriving and modelling steam ploughs, digging machines, and similar ingenuities. And our ideas were not simply suggested by books, or by a cursory inspection of tillage operations, but were based upon our personal experience of deficiencies, and *desiderata* in the field.

Residing now in a distant county, and being a comparatively wealthy man farming his own fee-simple, he had devoted his land and his talent to some rather wild experiments both in mechanical and chemical agriculture.

Of course I decided for "the early train" next morning, anticipating some practical instruction upon steam-ploughs, cultivators, and diggers. *I. A. C.*

AGRICULTURAL STATISTICS.

WHATEVER be the opinions one may hold as to the advantages of agricultural statistics, it is right that the question should be fairly stated on either side, and I therefore protest against a style of argument lately employed in *Bell's Messenger*, and more recently repeated at the Croydon Farmers' Club. At a meeting of that body held on the 29th of last month, the subject of statistics was introduced by Mr. E. Stenning of Godstone, and was treated too much, to my taste, in a partisan spirit; it is, however, only with one of his arguments—that which had previously appeared in Bell's paper—I mean to make or meddle. Mr. Stenning's object was to show from evidence, borne by supporters of statistics, that, where they do exist, they are fallacious, and accordingly he quoted Mr. Hall Maxwell's opinion against the accuracy of the Irish, and Mr. Caird's against that of the Scotch returns, and then triumphantly assumed that both were valueless. Now, even had Mr. Stenning dealt fairly with the evidence on which he founded, the answer would have been:—"Such, no doubt, are the opinions of two gentlemen, each the author of a particular system, and naturally a little prejudiced perhaps against any other, but if their authority, when it coincides with your own view, be so conclusive on a point of detail, is their general testimony in favour of statistical information to be entirely rejected?" Mr. Stenning, however, so far from dealing fairly with the evidence was guilty, first, of a misrepresentation, and secondly, of a suppression of it. He said—"I will read to you evidence before their lordships, respecting which you may form your own opinions whether I do not prove it a fallacy, and show that the returns so taken are not accurate. Now, Mr. Hall Maxwell, who took the Scotch returns, throws entire discredit on the Irish statistics, and says if the acreage and estimates come from the police, he would not attach weight or value to them." Here is the misrepresentation; Mr. Hall Maxwell did not "throw entire discredit on the Irish statistics." He was asked (p. 12 of evidence before Lords' Committee): "Have you turned your attention at all to the Irish statistical returns?" "Not very particularly—I understand the parties employed are the constabulary—a very fitting agency to note down a fact such as that there are so many acres of Wheat, or Barley in a district." He does therefore attach weight and value to the Irish returns of acreage, and it is only the estimates of produce he questions, on the ground that they involve an amount of professional knowledge and experience which constables can scarcely be expected to possess. Mr. Stenning's suppression of evidence is to be found in his reference to Mr. Caird's opinions. He quotes these as conclusively establishing that, however well the Scotch inquiry may have been conducted, "there was not the least test of the returns being accurate;" but he carefully abstains from stating that Mr. Hall Maxwell was re-examined on this point by the committee; that he denied the validity of Mr. Caird's objection; and that he indicated three different tests, all of which had, more or less, been employed. Such treatment of evidence—misrepresenting it here, suppressing it there—little warranted Mr. Stenning in appealing to his audience whether he had not shown "how fallacious the plan is in so far as the Scotch and Irish statistics are obtained." Fallacious it may be as regards one or both systems, but the fallacy must be established by means other than that abuse of evidence which Mr. Stenning has employed, and which he probably unwittingly borrowed from the weak and prejudiced articles in *Bell's Messenger*, to which I have already alluded. *Correspondent.*

Home Correspondence.

Thin Sowing.—The stormy year of 1855 has given practical proof of the advantage of thin sowing. The Wheat which in the spring appeared scarcely worth leaving on the ground, in consequence of the severe frost having killed thousands of plants, on the approach of mild weather late in the spring improved so much by tillering out that a sufficient crop was produced to afford a fair yield of grain. The additional strength afforded to the straw by having plenty of room increased the size of the heads, as well as enabling them to defy the high winds and resist the deluges of rain. The farmer will lose nothing by dibbling his Wheat thinly in rows 14 inches apart, or even more. Following this plan the hoe can be used frequently for stirring the surface, killing weeds, and admitting the atmospheric air to fertilise the soil. The first operation of the hoe should be deep with a tool made for the purpose; the second and third hoeings should be shallower, to prevent injury to the roots of the plant. There is no greater mistake committed either by farmers or gardeners than leaving any crops too thick upon the ground, excepting those intended for green food: a tree to be fine and healthy must have space to extend its branches and roots. The same holds good with regard to Turnips, Carrots, Mangels, Onions, &c. It sounds strange to hear men say, "The soil is poor; you must, therefore, sow more seed." The contrary is the fact, which they should know more from painful household experience; at least many of them could answer the following question, which comes home to them:—If one child requires a pound of bread per day to keep it in health and condition, what would be the result if three were obliged to exist upon the same allowance. *Falcon.*

The Wool Trade of 1855.—The year opened on the trade with some demand for many descriptions of wool, and found the manufacturers and dealers comparatively low in stock, in consequence of the great number of farmers who then held two years' wool, the high prices of 1853 having prevented them from selling, and the lower ones of 1854 having had the same influence. The demand for goods continuing, a disposition was manifested to take off the stocks from the farmers, who responded and sold very freely before the clip. At the clip considerable eagerness was manifested in the purchase of most sorts of wool, and large sales were made. These large deliveries have glutted the market, and the consequence is that at the present time large stocks are held simply because no opportunity has offered itself of realising a profit, At the same time there has just lately been a more general demand, and doubtless stocks will gradually be lessened as a disinclination generally exists to holding heavy stocks at the approaching season. On the whole the state of our trade has been better throughout the year than could have been expected, which may be accounted for by the following circumstances; the prostration of the previous year exhausted the stocks of goods and yarn abroad, which naturally required some replenishing. The demands for the armies and navies of ourselves and allies have, of course, had some influence, and above all the magnificent harvest of America has brought into our markets our best customer. These occurrences combined have kept up a demand larger than might have been expected considering the high price of corn on the continent and at home, which has deprived the working classes of their power of purchasing clothes as usual. To conclude, we would not despond as to the future, but expect a fair and remunerative trade; still we do not hold out any expectations of any considerable advance in the price of wool, which is at its present rate decidedly remunerative to the farmer. We may also, once for all, explain to those farmers who see our quotations that they must make a proper allowance for expenses, such as carriage and interest of money, which are generally overlooked, and the buyers are expected to give full quotations, although the terms are net cash, and at the nearest town or railway station. Another remark may also not be out of place, and this refers to the greater steadiness of our report of prices than is elsewhere manifested, and this arises from an indisposition to be unduly excited by casual and exceptional rises or falls, a register of which is only calculated to mislead rather than to inform those who may depend on us for information. *London, Dec.* 28.

Hedge Cutting Machine.—I was very glad to see, some weeks back, the want of hedge-cutting machinery mentioned in the *Gazette*, as I had long foreseen its utility myself. I have heard of one being used in the far west of the United States, where the Osage Orange is being extensively employed for fencing in the prairies; where open ditching is not the fashion, and labour being scarce and dear, there are no disadvantages attending the introduction of such machinery. Credit is due to your correspondent "W. Wooler" for introducing the subject, and I hope the discussion will lead to the invention and adoption of a new and labour saving machine. He proposes to employ shears for the cutting agent, but he must take a lesson from the history of reaping machines. In the early reapers, Bell's for instance, shears were employed, but have now made way for the vibrating sickle. I think the same principle will be found to answer best for clipping hedges; of course made much stronger and the cutting edges of harder temper than for reaping. It would be desirable (if possible) to cut both sides at once, and to do this would require three vibrating sickles or saws, one on each side and one on the top. The frame in which the outer sickle works must be moveable at the will of the driver, while the machine is in motion, so as to be lifted up to pass over the cross fences. The machine must have a very efficient steering apparatus, so that the operator can guide it independently of the motion of the horses, like a steerage drill. W. G. Abernethy's plan

is good, but would scatter the thorns all around, and might cut off some one's arm or head by mistake. By using the sickle a guide may be placed behind it to conduct the thorns to the ground, and leave them in a convenient row to be gathered and removed so as not to trouble the sheep. Is W. G. A. right in saying that by having a greater velocity less power is required? [No.] If we increase the speed of machinery, do we not lose power in the same ratio that we gain speed? *Thos. F. Wilkinson.*

Waste Lands in the Highlands.—I am glad to see that some one takes an interest in this subject, and ventures in these days to think them of use for other purposes than affording sportsmen an opportunity of bagging grouse or deer, and exhibiting their uncouth dresses to the natives. And let me hope that some who will visit the Highland capital at the ensuing meeting of the Highland Society (so called) will see the necessity of doing something more than humbly imitating the Lothian farming on small patches near towns, or attached to large sheep farms. What I think is wanting is a system of farming adapted to the locality, and specially suited to the climate and peculiar characteristics of the country. But in the first place we must understand the defects of the present system. Sixty years ago the agriculture of the Highlands was in as bad a state, by all accounts, as it had been in the Lothians some time before. A number of poor tenants, crowded together without capital, knowledge, or encouragement, paid irregularly very miserable rents; but instead of improving this state of things by giving leases to the industrious and turning out the idle, the whole was swept away together, and in its place the system of large sheep farms was brought in, no doubt at the time increasing the rent roll, but having no elements of progress. This, I think, is the great error; an immense tract of land is let to one man; this is in most instances annually deteriorating from the increase of Heather, Alder, Birch, &c.; indeed the sites of old farms which were green and, to some extent, are so still, will soon be covered with Heather like the rest of the hills. Attached to this farm there is generally some arable land well cultivated, but what is wanting is not only a great increase of arable land, but a cultivation and gradual improvement of the pasturage, the gradual replacement of Heather and marsh plants by good Grass; well kept Grass parks to afford hay for winter food, and such an addition to our green crops as shall afford Turnips in winter, for I am of opinion (however the idea may be laughed at by sheep farmers) that sheep are the better of being fed at home in winter and not left to starve in the snow. There may be farmers who do this, but I cannot say I have heard of them. I do not think our peasantry are inferior to the lower classes in England, but we suffer from an absentee gentry, who when they do come home understand nothing of the people, but regard them as some outlandish sort of people, and generally have the luck to get the worst congregated about their establishments. I hope this subject will not be lost sight of, but that some endeavour will be made to bring the increased knowledge of rural affairs to bear on the Highlands. *A. H. F. C.*

Straw for Fatting.—I have recently seen an article in your Paper by a Scotchman speaking of the use of straw as a substitute for hay in fatting, and he relates how well cattle do upon Oat straw and Turnips, in proof of which he instances the quality of the Scotch fed beasts in the London market. I freely give my testimony in favour of all that he states. But why is not the same thing done here in the south? I think because it cannot; I have done it in the north, but have never been able under any circumstances to do it in the south. I believe that straw and Turnips are both very different here from what they are there. The chemist might be able to tell in what they differ; but I have found that the texture of straw is not the same. In Scotland the Barley straw is generally hard and straight like Wheat straw here, and Oat straw is correspondingly hard, while Wheat resembles canes, and in threshing makes the powerful fixed threshing machines tremble when getting it through. I think this may be owing to the soil; in the north the granite rocks are near the top, and the soil partakes largely of their nature, which is not the case southward; now will chemists say is it this that causes the difference, and then say what that is?—and the quality of the Turnips is quite as marked in its nature. They never possess the same sweetness, and of course have not so much sugar in them, and we all know that it is a very fattening agent, hence the little progress that stock make upon them. To those who can fat upon Turnips and Oat straw it does seem odd to hear of so many receipts for fatting as are now published, but I think there is good reason for them all. I find in Morton's "Cyclopædia" that Oat straw is put at a very low value by the chemist, which I suppose is accounted for by its being grown southward. Again, what is the reason that we must cut the Oat crop so much less ripe there than in the north, if we would prevent the loss of a great deal by shaking out; does that not prove that it is not the same here as there? All these things go to prove that each locality has its peculiarities, which must be carefully noticed if we mean to succeed. But there is another point in feeding that is not so often noticed, that cattle in the north always have a certain quantity of Turnips during the winter when young, the object being to increase their value as fast as possible at all stages of their growth, while in the south the idea is to keep them on as little as possible, and have them only to make dung, that is, tread straw and water together, eating a certain quantity to keep themselves alive the summer being the only time that they improve much in value, and then when fatting time comes the change of food is so great that it is no wonder that they make but little improvement for some time, they hardly know how to eat a Turnip when first put up; not so the Scotch beasts, they will at any time get over a fence, if possible, into a Turnip field, and are soon hurt by their voracity. May not this do a little towards reconciling the conflicting statements about fatting paying? *G. S.*

Superphosphate of Lime.—I have read with attention an article in your last Paper under the head of Superphosphate of Lime, signed "Standish Grove Grady," being a reply to a question sent to you by a correspondent who, after calling attention to Mr. Grady's lecture, concludes with the following:—"I do not remember seeing anything about semi-soluble phosphate in the writings of Liebig or other writers, neither can I see how any manures can be too soluble, provided they are not washed out of the soil by the rains. Will you, Sir, be so kind as to enlighten me on these points?" Now it appeared to me in my ignorance that the remark here made was perfectly clear, and the question put perfectly reasonable, and although I have not the slightest idea as to who the correspondent might be, yet as his breath must evidently be taken away by the shock he has received, I may be allowed to make a few remarks while he is recovering his wind; for being, according to Mr. Grady, less than "a mere tyro in chemistry, and ignorant of the first principles of chemistry," it cannot be expected that he will be able to reply for some time, although I innocently thought that he would, if needful. It appears that the term semi-soluble, as applied to phosphate of lime, is not to be found in the writings of Liebig or other writers of repute, but that the credit of the term and its new application must be recorded as being due to the Recorder himself. A public lecturer is public property, and his statements become a fair subject for public criticism, and he has therefore no right to complain if his incorrect statements or reasonings become the subject of animadversion, more particularly when they refer to a matter so important as that before us. The correspondent clearly meant that he doubted the existence of any such substance as semi-soluble phosphate. Semi-soluble must clearly mean half soluble; now I can understand that a manure which contains some 14 or 15 per cent. of biphosphate and the same quantity of phosphate of lime might be termed, as regards these matters, semi-soluble, but then it appears this will not do, it is not sufficient, it requires some semi-soluble dose added to it. Malt and Hops are not sufficient for the brewing—it requires a little Hops and malt added to it. But then what is this semi-soluble phosphate, after all, that is to be added to the manure which contains soluble and insoluble phosphate combined? Liebig says nothing about it, nor Way, nor Playfair; only Mr. Grady. But I am wrong; though he seems to say so in his lecture he does not in his paper, he only infers there might be such a thing; for, says he, if there is different solubility, why should there not be semi-solubility? Simply because there is not, we were almost stupid enough to reply, bearing in mind, however, that we are talking of phosphate of lime, which the writer rather runs from. Now we do hope that the Recorder does not charge his jury by the means of such arguments as this. Why it is as if a prisoner brought up for theft, although there might be no evidence against him, was condemned because a theft had been committed, and why should not he be the man? Now it appears that a tyro in chemistry knows, according to Mr. Grady, that an ingredient in a highly soluble state is immediately taken up by water, and must accompany that water wherever it goes. This is, no doubt, quite correct, for if such person was not a mere tyro he would know full well that the water could only retain such soluble ingredient until it met with an object for which it had an affinity, and that the soil itself possesses the property of absorbing the ammonia as well as the soluble phosphates. He would know, too, equally well that superphosphate added to the soil meeting with carbonate of lime and sufficient moisture became neutral. Why then should neutral, letting alone "semi-soluble" phosphate, be added to the manure? The lecturer complains that he was not fully reported so as to make him clear, and yet the report was full enough to mention that he was a director of the Patent Superphosphate Compost Company. When we read the report we thought it a pity that anything was said about this patent superphosphate at all, because farmers are not all scientific and enlightened men, and although the lecturer's intentions were no doubt laudable, yet there are some stupid ignorant farmers who may be inclined to think that this learned Recorder came down from London to tell them that they are fools in using the best superphosphate, or that which has most soluble phosphate in it, and though they have got plenty of compost at home, yet they must let him put in *his* "compost," and he won't charge them any more for it than if they had the superphosphate with no compost in it at all. *X.*

Reviews.

The Journal of Agriculture and the Transactions of the Highland and Agricultural Society of Scotland.

The number just published contains useful papers both in the Journal and the Transactions which are here stitched together.

A statistical compilation and comparison by Mr. Simmonds on the Production, Consumption, and Commerce of Grain in Great Britain, America, and France opens the former. It concludes with a general reference to our wants and to the means of supply which we possess, chiefly in America and in our own improving agriculture. The next paper is one—historical, botanical, and agricultural—on Red Clover, with especial reference to the "sickness." We shall soon give a paper on this subject, read at a recent meeting of the East Lothian Society. The writer of the paper before us enumerates the several theories of the Clover failure, and specifies among its causes—the too frequent growth of the crop on the same soil—the excretions from the plant itself, or the exhaustion of the land of those portions which it needs as food—the want of consolidation of the soil, the last well argued by the Rev. W. Thorp, in the 3d vol. of the English Agricultural Journal. He thus specifies some of the remedies which have been suggested:—

"1. When complaints were first made of the failure of Clover, a remedy which was tried and proved successful was, where the four or five shift course was followed, to substitute Peas for Clover every alternate rotation. 2. And when Turnips and Potatoes came to be more extensively cultivated, and the Clover failed in consequence, a practice adopted then, and which has been recently revived, was to apply manure to the white crop amongst which the Clover was sown. 3. We are told by Mr. Jackson, in his 'Prize Essays,' that the soil of a farm near Edinburgh had become so 'Clover-sick' that not only his Clover crop, but his other crops, fell off so much, that becoming disheartened, the tenant gave it up. It was taken by a flesher, with whom pasture was an object. Instead of following, therefore, the four-shift course, which was the rotation of the previous 19 years, he allowed the fields to lie three or four years in pasture. The result was that the power of growing Clover was completely restored to soil, and his other crops were better than those raised by his predecessor, though a first-rate farmer. Pasturing, then, for three or four years has in this instance, as it has in many others, been successful in restoring the growth of red Clover. A modification of this system has been followed with success by some farmers. They sow red Clover and no white in a field which is intended to be cut for hay in one rotation; in the next, that field is pastured for two, three, or four years, white and no red Clover being sown in it. 4. Rolling Clover-sown lands, both in autumn and early in spring, has been found to be most beneficial; or the treading of the soil with sheep in autumn, in pasturing on the young Clover plants, has been followed with good results, when the plants were not too closely cropped. 5. The success of the application of lime, chalk, marl, clay, gypsum, depends on the nature and composition both of the soil and of the substance applied. Lime cannot be recommended as a never-failing remedy for Clover sickness; but still, where it is deficient in the soil, its application has been attended with marked success in favouring the growth of Clover more than almost any other crop, and imparting a sweetness to the herbage. Chalk appears to some an enigma, for, while Clover refuses to grow on certain chalk soils, its application to soils of another description has been always found to be a remedy for 'Clover sickness.' We will probably be able to solve the difficulty here by taking into account the difference of the texture of the soils. The use of marl in agriculture is of ancient date: and to it some of the best farmed counties in England are indebted for their excellent crops of the present day. Its action as a remedy for Clover sickness is both mechanical and chemical—mechanical, from the clay which it contains—chemical, from the calcareous matter which enters into its composition."

There are, however, some other causes of failure in the Clover crop, which the writer specifies, such as bad seed—the attacks of the slug—and of parasitical plants, which are more obvious and more within our reach.

The next paper in the Journal is a description of "Agriculture as represented in the French Exhibition." It takes as the sources of its information Prof. Wilson's lecture on this subject before the University of Edinburgh, and a series of papers in the *Revue des Deux Mondes*, by M. Leonce de Lavergne, the able author of the work on the Rural Economy of England, which has been already reviewed in our columns. We extract one passage in reference to the implement part of the exhibition.

"The grand success of the present year," says our author, "the leading feature in this vast competition, open to the whole world, is the reaping-machine. There is now no longer any doubt that the instrument which is to save man the most toilsome of his labours is discovered, and has nearly reached its perfection. America again has the credit, if not of inventing, at all events of executing better than others this emancipating implement. I cannot describe the feeling which came over me when I saw the corn fall and range itself in swarthes as the machine went along. A man conveniently seated drives the horses which draw the machine. In some cases another man is employed to rake up the corn, but this interference is not necessary; and so in this instance, which did perfectly well without him. M'Cormick's machine from Chicago (Illinois) reaps 120 square yards per minute, or nearly an acre and a half per hour. It is the best as well as the oldest, for it appeared at the Great Exhibition of 1851 in London, where at that time it presented some defects which have since been remedied. M'Cormick sells 2000 of these per annum, at 30*l.* apiece. The town of Chicago, which sends us this happy revolution, was a desert 15 years ago. France can claim some participation in the solution of this problem. Among the reaping-machines tried this year was one invented and manufactured in France by M. Cournier, a mechanist of St. Romans (Isère). It possesses some defects, but these are of easy correction; but it has this advantage, that it is worked with one horse; and I have no doubt, with a tolerable demand for the article, that it could be supplied at the price of 20*l.* What is such an expense compared to the fears, delays, vexations, and expenses which harvest-time involves? It may be contended that the idea did not suggest itself to M. Cournier until after the appearance of M'Cormick's and Bell's machines; but I may mention one thing which more clearly establishes a certain right of priority in our favour, which is that a reaping-machine, very similar to the one in question, was invented and published 10 years ago by M. Constant of Rebecque, a landed proprietor at Poligny (Jura), and brother of Benjamin Constant. I have considered it only fair to recall this circumstance, as people generally seem to be ignorant of it."

A very interesting section of the "Journal of Agriculture" is the collection of short papers which, under the title of "The Farmer's Note-book," gives the short critique upon a novelty—the review of a book, the reference to an item in farm practice, &c, which are read with interest and facility when longer and more formal disquisitions are neglected. This has now reached its fiftieth number, and its success well warrants the conductors of the English Journal in asking from its readers for the means of filling such a section there. In the present instance this collection contains a short

paper by Mr. Russell, of Kilwhiss, on the nomenclature of agricultural science, in which he attributes a great deal of the misconception, ignorance, and misunderstanding, both on the part of practical and scientific men to the misuse of the terms organic and inorganic, as applied to elements. There are also papers by Mr. Gorrie on the meteorology of the year, and on the insects injurious to Pine trees. And this section concludes with a review of Mr. Stephens's Catechism of Agriculture, and of the useful life of the late lamented Professor Johnston.

The Transactions of the Highland Society contain a number of reports on the Reclamation of waste land, on Ploughing lea, on the Planting of an estate in Aberdeenshire, on the Growth of Turnips with different manures, and on Tile-making machines. There are also papers by Dr. Anderson on his proceedings in the laboratory, and the now well-known report on the agricultural statistics of Scotland by Mr. Hall Maxwell. To some of these papers we shall hereafter direct attention; meanwhile we have said enough to prove the great value of the work, and the able manner in which its character is sustained in the number just published.

Notices to Correspondents.

ADDRESS: *G E Scott.* We do not know the address of the agent for Dr. Newington's implements, of which we have not heard much during the past year. The other address asked for is 3, Frederick's Place, Old Jewry.

CATTLE DOCTORING: *Wallington.* There is a good deal of information on this subject, condensed from the writings of one of our best veterinary surgeons, in the "New Farmers' Almanack," published by Blackie of Glasgow.

CENTRAL FARMERS' CLUB: The following subjects have been selected for discussion during the present year:—

1856.	Proposed by
Feb. 4.—Agricultural Statistics, combined with a Practicable and Equitable System of taking the Annual Average Price of Corn...	Mr. J. A. WILLIAMS, of Baydon, Hungerford.
March 3.—The Form of Farm Agreement best calculated to give a stimulus to Agricultural Improvements	Mr. G. JACKSON, of Tattershall Hall, Salop.
April 7.—The Relative Values of Artificial Manures, and their Comparative Adaptation to different Crops ...	Mr. J. C. NESBIT, of 39, Kennington Lane.
May 5.—On the Application of Geology and Hydraulics to the Drainage of Land	Mr. R. BAKER, of Writtle, Chelmsford.
June 2.—On the Expediency of Converting Grass Land into Tillage ...	Mr. J. WOOD, of Ockley, Sussex.
November 3.—The Moral and Social Condition of the Agricultural Labourer, and the best Means for Improving it	Mr. W. SPEARING, of Chilbolton, Stockbridge.
December 8.—On the Rotation of Crops, more especially as to how far the Four-course System is susceptible of Improvement	Mr. J. THOMAS, of Lidlington Park, Woburn.

CHURN: *J Butters.* We cannot name one that has "always satisfied everybody," but the American churn has as good reputation as any. It is sold by Burgess & Key, of Newgate Street; and a modification of it, spoken highly of by some, is sold by Deane & Dray, of Thames Street.

COUCH: *G P S.* Plough it with a shallow furrow and then work it over with the Finlayson's harrow or grubber (if not very foul, for then it would choke that implement), or Biddle's scarifier, or the Uley cultivator, if very rough and foul, for these cannot easily be choked. If your land is to be kept clean for the future, the lighter implement (Finlayson's) is best.

DISEASES OF CATTLE: *New Subscriber.* "Spooner on the Sheep;" "Youatt on the Ox and Horse." The two latter are the volumes issued by the Society for the Diffusion of Useful Knowledge. The articles on Cattle Diseases in "Blackie's Cyclopædia of Agriculture," are by Mr. Spooner, of Southampton.

LINSEED CAKES: *J H.* Thank you. The present price is 13*l.* to 13*l.* 15*s.* per ton for Home-made; and for Foreign, 12*l.* 10*s.* up to 14*l.* Rape Cakes are from 7*l.* 10*s.* to 8*l.* per ton. Bone-dust from 1*l.* 4*s.* to 1*l.* 7*s.* per quarter. Superphosphate of Lime, 7*l.* to 7*l.* 7*s.* per ton. Nitrate of Soda, 19*l.* a ton, or more.

PEG DRUM THRESHING MACHINE: *J T B.* We have not any information as to the form of Mr. Drew's drum, and our inquiries in Scotland as to the structure of the drum machine there have not yet obtained for us what we wanted. The drum machine is more common in the north of England and Scotland than in the south.

RELATION OF LANDLORD AND TENANT: *Reader.* The case is this, as we understand it: Mr. Wetherall farms one of the Duke's estates most ably and successfully. The Duke has adopted particulars of agreement, which he requires all his tenants to sign. Whether he has been well advised in this, not knowing the condition in which his farms at present are, we cannot say. But at all events there was no need of compelling Mr. Wetherall to any other system of cultivation than that which he has hitherto adopted, unless indeed a plea for that need can be made out of the impolicy of exceptional cases in the management of a large property. Mr. Wetherall refuses to sign the new agreement, and the Duke refuses any the least modification of it; and so the Duke suffers the loss of a good tenant, and Mr. Wetherall suffers the hardship of losing a good farm. His case has justly excited a good deal of feeling in the north.

SALT: *W H E.* A very large quantity may be used on light and gravelly soils—and in inland situations with advantage. As much as 5 cwt. have been spoken of per acre. We should recommend sowing about 2 cwt. in compost applied now or soon. As a general rule all very soluble manures should be sown during or at the commencement of the season of growth. Manures, of which only a portion is immediately soluble, may be sown at any time during winter.

RED WHEAT: *Inquirer.* Of Bromwich Red, Red Hybrid, Nursery, Prolific, Rough Chaff, Bristol Red, Tiny's Success, &c., we know the 1st, 5th, and 6th to be long-strawed, long-eared, prolific sorts. We should prefer them to any red Wheats for trial, but it is getting late, and the only really spring Wheat of a red sort is the "April," a bearded somewhat coarse sort but abundant yielder. Of white Wheats we would recommend Fenton's for quantity and Chidham for quality.

RINE: *Subscriber.* In the Clothing districts they give we believe 2*d.* an ordinary farm bucket full for it—that will be at least 30 lbs. weight, which would amount to 6*d.* or 8*d.* a cwt. We fancy its value to the clothier will exceed its value to the farmer, considering the expense of collection, carriage, &c.

ERATUM.—In Mr. Roberts's article last week on Agricultural Constants, for "13¼ tons of bone" read "1¾ ton."

As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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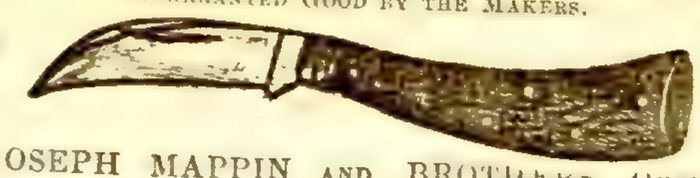

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7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...		...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

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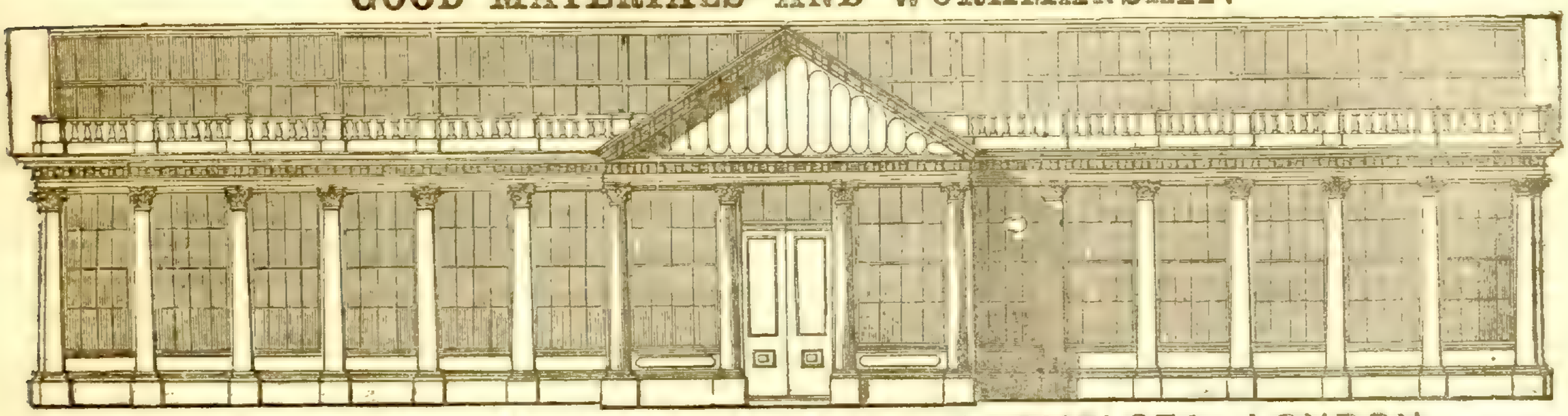

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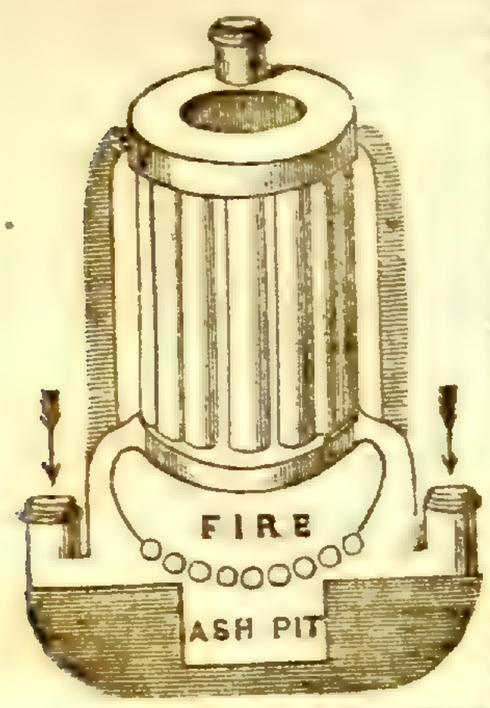

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Pure Colza Oil, 5*s.* 6*d.* per gallon.
Palmer's Candles, 10*d.* and 10½*d.* per lb.
Patent Camphine, 4*s.* per gallon.

DISH COVERS AND HOT WATER DISHES in every material, in great variety, and of the newest and most recherché patterns. Tin dish covers, 6*s.* 6*d.* the set of six; block tin, 12*s.* 3*d.* to 28*s.* 9*d.* the set of six; elegant modern patterns, 34*s.* to 58*s.* 6*d.* the set; Britannia metal, with or without silver plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield plated, 10*l.* to 16*l.* 10*s.* the set; block tin hot-water dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia metal, 22*s.* to 77*s.*; electro-plated on nickel, full size, 11*l.* 11*s.*

The alterations and additions to these very extensive premises (already by far the largest in Europe), which have occupied the whole year, are now nearly completed. They are of such a character that the entire of EIGHT HOUSES is now devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated, and Japanned Wares, Iron and Brass Bedsteads and Bedding), arranged in Sixteen Large Show Rooms, so as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Catalogues, with engravings, sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established A.D. 1820.

CLOSE OF HOLIDAYS.—The return of youth to their respective Boarding-Schools induces a solicitude from Parents and Guardians for their personal comfort and attraction, and ROWLANDS' MACASSAR OIL, for accelerating the growth and improving and beautifying the hair, ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions, and ROWLANDS' ODONTO, or Pearl Dentrifice, for rendering the teeth beautifully white, and preserving the gums, are considered indispensable accompaniments for the attainment of those Personal Advantages so universally sought for and admired. Beware of spurious imitations. The only genuine of each bears the name of "ROWLANDS" preceding that of the article on the wrapper or label.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and by Chemists and Perfumers.

DWARF ROSES ON THE MANETTI.

GEORGE CLARKE begs to offer his unrivalled stock of DWARF ROSES (6-inch stems, budded on the Manetti), consisting of all the leading kinds of Hybrid Perpetuals, Bourbons, &c., at 12*s.* per dozen; very superior, 18*s.*; fine strong plants, and beautiful fibrous roots, well adapted for pot culture, or forming beds in the flower garden.

G. C. respectfully solicits an inspection or trial of the above, which would doubtless clear away the prejudice which now exists with many towards this truly valuable stock the Manetti.

Standard Roses, in 12 distinct varieties, 18*s.* to 24*s.* per dozen; Climbing and Pillar Roses, fine strong plants, 12*s.* per dozen; Dwarfs in pots, on their own roots; also the late new French Roses.

N.B. Where two dozen or more are ordered, plants in proportion will be added to compensate for distant carriage.

Streatham Place Nursery, Brixton Hill, Surrey.

CUCUMBERS—CUCUMBERS.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, begs to offer the following fine varieties, which having been thoroughly proved have given the greatest satisfaction to growers generally. The best and most productive varieties for winter cultivation are as follows:—General Canrobert, 2*s.* 6*d.* per packet, very hardy and free setter, always growing one equal size from stem to point; will keep well for many days after it is cut. Captivation, 2*s.* 6*d.* per packet. Gordon's White Spine, 1*s.* per packet. Lord Kenyon's (true), 2*s.* 6*d.* per packet; a most useful variety. I have seen more than a dozen varieties under the above name, but not one has been the true sort as sent out by me. First-rate varieties for summer growing and exhibition. Sir Colin Campbell, 2*s.* 6*d.*, one of the finest black spine Cucumbers ever yet sent out, most productive, and very handsome, length from 20 to 28 inches, well proportioned in size from stem to point. Phenomenon, 2*s.* 6*d* per packet, a most excellent variety, the true kind being very scarce, as it is very rare that it ever produces seed. Ipswich Standard, a very fine Cucumber for exhibition, 2*s.* per packet. Three packets of any of those marked 2*s.* 6*d.* for 6*s.*

All the following fine old varieties true, 1*s.* per packet:—Victory of Bath, Hunter's Prolific, Mills' Jewess, Cheltenham Surprise, Manchester Prize, Sion House, Cuthill's Black Spine, Incomparable, Conqueror of the West, Godfrey's Black Spine, Allen's Victory, Lynch's Star of the West.

MELONS,—The best in cultivation at 1*s.* per packet:—Golden Drop, Golden Perfection, Golden Ball, Golden King, Windsor Prize, Scarlet Flesh, Scarlet King ditto, Green Flesh varieties, Bromham Hall, Incomparable, Bailey's Green Flesh, Blackhall's ditto, Camerton Court, Bowhood, Beechwood, Gordon Castle, Emperor, Trentham Hybrid, Hampton Court, Chichester Prize, Fleming's Hybrid Cashmere.

Any three of the packets of either Cucumbers or Melons priced at 1*s.* per packet will be served for 2*s.* 6*d.* the three packets.

PRIMULA SINENSIS, saved from all the best coloured fimbriated varieties, 1*s.* 6*d.* per packet.

DIGITALIS, or FOXGLOVE SEED, saved from 20 of the most superb striped and spotted varieties, 1*s.* per packet.

HOLLYHOCK SEED, saved from all the best varieties in cultivation, 1*s.* per packet; if required a packet containing 24 distinct sorts, all to name, will be sent for 5*s.*

Unequalled quilled GERMAN ASTER, 1*s.* per packet.

FRENCH ASTER, or PÆONIFLORA TRUFFAUT, about 20 of the most striking varieties, 1*s.* per packet.

CINERARIA SEED, saved from all the best named varieties, 1*s.* per packet.

BALSAM SEED, saved from the most superb distinct varieties, 1*s.* per packet.

Very superior DWARF LARKSPUR, 6*d.* per packet.

A remittance must accompany every order by cash or penny postage stamps, when the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, 14, Abbey Church Yard, Bath, Somerset.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired gentleman having cured himself of Deafness, Defect of Sight, and General Debility, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

DEBILITY AND NERVOUSNESS — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army), Surgeon, 9, North Terrace, Moor Edge, Newcastle-upon-Tyne.

TO BE LET, A NURSERY AND SEED BUSINESS.—JOHN YOUNG begs to say that he is desirous of treating with a Tenant for his Nursery Ground, which he is at present occupying himself, and which offers an eligible opportunity to any one wishing to enter on the business. The Stock is light, and the quantity of Land may be made to suit the convenience of the Tenant.—For further particulars, apply to JOHN YOUNG, Elm Cottage, Taunton.

TO BE LET, a NURSERY, a short distance from the principal Markets, and in good working order, consisting of DWELLING HOUSE, SEEDSHOP, 10 GREEN-HOUSES, PITS, and FRAMES.—Apply to H. F., 5, Ifield Terrace, Lansdowne Grove, Stockwell.

TO BE LET, and entered upon immediately, a compact Tithe-free FARM of 95 Acres of Arable and Pasture Land, with House, Barns, Sheds, and other Outbuildings; situated 6½ miles from Worcester and 2½ miles from Droitwich.—For particulars apply to Mr. RD. SMITH, Nurseryman, St. John's, Worcester.

PURE BRED DORKINGS.

TO BE SOLD, 50 HENS, bred in the Spring of 1854 and 1855.—For price and particulars apply to Mr. JOHN COATES, Escrick, York.

TO MARKET GARDENERS.

TO BE SOLD, about Eight Acres of various GROWING CROPS, including young Fruit Trees and Flower Roots, and the usual produce of a market garden, on the land adjoining the Gravesend Railway Station, belonging to the Southwark Metropolitan and Provincial Freehold Land and House Society. Time allowed for the crops to mature and be removed.—Tenders to be sent in on Monday, the 14th inst., before 6 o'clock to the Secretary Mr. BRETT, 4, Wellington Chambers, London Bridge.

IMPORTANT SALE OF DRIED PLANTS.

MR. J. C. STEVENS has received instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 29th January, at 1 o'clock precisely, all the VALUABLE COLLECTIONS OF DRIED PLANTS, which have been formed by the Travellers employed by the Horticultural Society of London during the last 40 years. The Herbaria consist of the collections formed by Douglass, Hartweg, Fortune, Forbes, Geo. Don, Parkes, Potts, and others, in North America, Mexico, Peru, Brazil, Chili, and other parts of the globe.—Catalogues may be had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street Covent Garden.

THE KITCHEN GARDEN.

JAMES CARTER & Co., SEEDSMEN,

238, HIGH HOLBORN, LONDON,

CONTINUE to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.* J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* and *post paid* upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine, or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. Parties not customers of E. G. H. & SON, but desirous of this Catalogue either for reference or otherwise, will have it forwarded to them FREE, on applying by letter, stating their address, &c.

Messrs. E. G. HENDERSON & SON beg to announce that the following NEW PLANTS will be sent out by them during the spring and autumn, the prices and full descriptions of which, with the names of the raisers and other particulars, will be found at the end of the above Catalogue.

Ardisia Sieboldi
Camellia Jenny Lind
Geranium Fairy Nymph
" Mountain of Snow
" Countess of Bective
" Lady Turner
" Indispensable
" Lady Smythe
" Aurora
" Duchess of Kent
" Mr. Lawton
" Bridal Ring
Echites Houteana
Aralia Sieboldi
Begonia picta
" Cinnabarina hybrida
" Zanthina argentea
Calceolaria Rosy Morn
" Shirley
" Little Dorrit
" Ethel Newcome
" Don Saturnino
" General Pelissier
" Don Francisco
" General Canrobert
Dianthus albo-nigricans
Delphinium delicatum
" Belle Alliance
" Mrs. Gerard Leigh
Rhododendron Mrs. Dargan
" Countess of Rosslyn
" Earl of Burlington
" Lord Bolingbroke
" Duchess of Cleveland
" Duke of Hamilton
Verbena Lady Camoys
" Mrs. Archer Clive
" Lady Kerrison
" Viscountess Emlyn
" Nosegay
" Countess of Oxford
" Mrs. Hosier Williams
" Moonlight
" Imperialis
" La Stella
" Lady Harcourt
" Countess of Dunmore
" purpurea magnifica
Azalea Bride
" Louis Napoleon
Fuchsia Emperor Napoleon
" Venus de Medici
" Donna Joaquina
" Countess of Burlington
" Volcano di Aqua
" Charlemagne
" Ranunculæflora
Gynerium argenteum
Gloxinia Jacqueline
" Ferdinand
" Caterina
" Battista
" Bletso
Potentilla coccinea flore-pleno
" grandiflora maculata
" lutea flore-pleno
Epacris Mrs. Pim
" Princess Royal
" Lady Panmure
" Carminata
" Lady Alice Peel
" Viscountess Hill
" Lucifer

N.B. *The above List of New Plants, with descriptions, will be forwarded to the* **TRADE** *in a few days.*

Wellington Nursery, St. John's Wood, London.

NEW AND GENUINE SEEDS.

JAMES CHARTRES AND CO. beg to announce that their unrivalled Stock of SEEDS is now arranged, and comprises every novelty of the season. Catalogues may be had on application.

Seed Warehouse, 74, King William Street, City, London.

TO MELON GROWERS.

MONRO'S CRYSTAL PALACE HERO, AND MONRO'S GOLDEN GAGE MELONS, which gained the two first prizes in June last at the Crystal Palace Exhibition, the "Hero" the first prize for the heaviest Persian Hybrid Melon, the "Golden Gage" the first prize for the best flavoured Melon; both of which prizes were awarded to J. MONRO, Colney House, St. Alban's. Two seeds of each sort taken from the same fruits which gained the prizes, with a packet of 12 seeds of other first-rate sorts, for 2*s.* 6*d.* To the trade 12 packets for 1*l.*—May be had by applying to W. F. EAWOOD, Salesman, 13, Tavistock Row, Covent Garden, London.

DOWLING'S PLUMS.—These three varieties of New PLUMS having fully sustained the character that was given them by gentlemen and growers that have fruited them this season, H. DOWLING can confidently recommend them as the most Prolific, Hardy, and high Flavoured of any in cultivation.

Good Strong Trees can be had from the grower at very low prices; from Mr. CHARLES TURNER, Royal Nurseries, Slough; or Mr. HENDERSON, Pine-apple Place, London.

Southampton, January 12.

JOSEPH EVANS, NURSERYMAN, London Road, Cheltenham, returns his grateful acknowledgments to the nobility, gentry, and public for the liberal support he has experienced during the last 31 years, and begs to inform them that he has retired in favour of his Son-in-law, CHARLES BURGESS, on whose account he respectfully solicits a continuance of those favours so long accorded to himself.—Jan. 12.

CHARLES BURGESS, NURSERYMAN, London Road, Cheltenham, having succeeded to the Business and Stock in Trade of every description of his Father-in-law, Mr. Joseph Evans, humbly solicits a continuance of those favours so long enjoyed by his predecessor, and hopes that the fact of his having assisted in conducting the above business for the last 16 years will be favourably received as a guarantee that all orders addressed to him as above will be promptly executed, and ever have his most grateful and assiduous attention.—Jan. 12.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer a NEW BIOTA, which is quite distinct from the others, and is warranted particularly hardy.

BIOTA MELDENSIS, good plants £1 15 0
" " very strong 2 10 0

This fine Coniferous plant will be shortly figured in Verschaffelt's "Illustration Horticole."

A. V. also directs attention to his Journal L'ILLUSTRATION HORTICOLE, which is one of the best Floricultural works on the Continent. The last Number (12th Number of the second Vol.) is out, and contains:—

1. Genetyllis tulipifera.
2. Rose Perpetual Panachée d'Orléans.
3. Clematis campaniflora.
4. Dion edule (fruits of).
5. Dion edule (site in its natural country).

The Work can be seen and obtained of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Price 12*s.* a year.

NEW STRIPED ROSE, MADAME DÉSIRÉ GIRAUD (VAN HOUTTE), Perpétuelle, hybride remontante, white striped with pink, carmine, and maroon. Price 4*s.*—Apply to Mr. R. SILBERRAD, Harp Lane, Great Tower Street, London. Also,

RHODODENDRON PELARGONIÆFLORUM (DELMOTTE), hybrid between a Rhododendron maximum and a Ghent Azalea, exceedingly pretty. Hardy. 21*s.*

LYCHNIS SIEBOLDI (VAN HOUTTE), quite hardy Japan perennial, large white flowers, in corymbs, form and flowers of the Lychnis Coronaria, but twice larger. 1*s.* 6*d.*

THE TRADE SUPPLIED.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Jan. 12.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	12*s.* to 18*s.*
DWARF STANDARD DO.	18*s.* to 24*s.*

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6-inch pots, for forcing, exhibition, or greenhouse culture, 24*s.* per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CONIFERÆ.

WILLIAM WOOD AND SON having a good stock of well grown plants of the following are desirous of offering them at reduced prices, particulars of which will be furnished on application.

Cedrus Deodara, 3 and 4 feet.
Cupressus Goveniana, 2, 3, and 4 feet.
Libocedrus chilensis, 1½, 2, and 3 feet.
Cupressus funebris, remarkably fine and bushy, 1½, 2, and [3 feet.
Cedrus africanus, 2 and 3 feet.
Juniperus recurva, 3 and 4 feet.
" squamata, 2 and 3 feet.
" Wittmaniana, 2 and 3 feet.
Cryptomeria japonica, splendid plants, 2, 3, and 4 feet.
Taxodium sempervirens, 2, 3, and 4 feet.
Thuja aurea, nice bushes, 1 foot.
Pinus excelsa, very fine, 2, 3, 4, and 5 feet.
Cupressus thyoides variegatis, Gold-striped Cedar, 9 to [18 inches.
" ericoides, very bushy, 15 inches.
Common Yews, 2, 3, 4, and 6 feet.
Irish Yews, very fine, 3, 4, and 6 feet.
Portugal Laurels, bushy, 2, 3, 4, and 6 feet.
Do. do., standards, with splendid large heads, 4 and 6 feet.

The above have been regularly transplanted every season, and will remove with perfect safety.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

GARDEN SEEDS SENT CARRIAGE FREE BY

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, according to the following scale:—*All orders above £1 will be sent carriage free to any Railway Station between Plymouth and Paddington.*

All orders above £2 will be sent carriage free to any Station on the Broad Guage Railways, to any market town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.

All orders above £5 will be sent free of carriage to any Railway Station in England and Wales, and to any Port in England, Wales, Scotland, and Ireland.

For further particulars see "RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY," to be obtained from WM. E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 63, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	d.
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen... 12*s.* to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
Fine Pampas Grass, each, 3*s.* 6*d.*; or, per dozen ...	30	0
6 new sorts Mimulus, very fine early flowering	6	0
Cinerarias, fine sorts, to flower early, per dozen... ...	12	0
Fine New Double White, Pink and Blush Pæonys, p. doz.	8	0

New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.

FRUIT TREES.

	s.	d.
Fine standard and dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, and Cherries, grown for pot culture, per dozen	18	0

A large stock of fine Transplanted Scotch, Larch, and Spruce Firs, also Evergreen Shrubs of all kinds.

Albion Nursery, Stoke Newington, London, Jan. 12.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained.

All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 12, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 3.—1856.] SATURDAY, JANUARY 19. {Price Fivepence. Stamped Edition, 6*d*.

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Feathers, treatment of ..... 45 a
Ferns, sexes of ..... 37 b
Filter, Cheavin's ..... 39 a
Finger and toes ..... 42 a
Fish breeding..... 36 a
Food, molasses as..... 44 c
Gooseberry caterpillars ..... 39 b
Griffith and Henfrey's Micrographic Dictionary ..... 39 c
Grapes, Scotch White Cluster.. 38 c
Heckfield Place Gardens ..... 39 c
Highland Agri. Society ..... 44 b
Hooker's (Dr.) Botany of Antarctic Voyage ..... 39 b
Horticultural Society ..... 38 b
Land, to salt ..... 44 a
Lawes' (Mr.) address ..... 43 b
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Mangel Wurzel ..... 44 a
Molasses as food ..... 44 c
Parks, London ..... 35 c
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Pears, seedling .....36 c—39 a
— ripening of ..... 40 c
Plants, new ..... 36 b
Pumpkins..... 37 c—40 c
Rainfall and drainage..... 38 c
— in Hants ..... 39 b
Roots, anbury in ..... 42 a
Salmon breeding ..... 36 a
Salt for land ..... 44 a
Seeds, vitality of ..... 39 a
Squashes ..... 37 c
Statistics, agricultural ..... 44 b
Steam culture, ... 43 a
Superphosphate..... 45 a

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Members held on Wednesday the 16th inst. for the election of Three Pensioners, the following was the result of the Ballot:—

CANDIDATES.

Name.	Application.	Age.	Votes.
John Blacke	Sixth	81	605
William Thacker	Sixth	68	61
Charles Charlton	Fifth	71	316
Joseph Jeffrey	Fifth	83	142
John Kent	Fifth	73	576
George Kidd	Fifth	70	634
John Lawson	Fourth	77	52
James Smith	Fourth	70	55
Ann Arnold	Third	64	238
Frederick L. Burnet ...	Third	54	258
William Dungate	Third	70	62
Alexander Gregory ...	Third	63	523
William Jackson	Second	67	49
John Davy	First	69	57
Mary Anne Farquharson ...	First	69	53
Elizabeth Pope	First	70	64

The Meeting then declared George Kidd, John Blacke, and John Kent, as having the greatest number of votes, duly elected Pensioners of this Charity. E. R. Cutler, Sec.

19th Jan. 14, Tavistock Row, Covent Garden.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—John Kent returns his most grateful thanks to those kind friends who have so liberally supported him to a successful issue, and heartily wishes prosperity to the Institution.

ROYAL GARDENERS' BENEVOLENT INSTITUTION.—The Friends of GEORGE KIDD and JOHN BLACKE beg to offer their most sincere thanks to those ladies and gentlemen who kindly assisted them with their Votes and Interest, and are most happy to inform them that these poor men were this day elected pensioners upon the funds of this most excellent charity.—Jan. 16.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

FRASER, RICHARDSON, and GOAD beg respectfully to announce that their Premises are now open, and orders will be thankfully received and promptly executed. Their Catalogues are published, and will be forwarded gratis on application.—82, Bishopsgate Street Within, Jan. 19.

SEED POTATOES.

SUTTON and SONS, Seed Growers, *Reading, have a large Stock of the early kinds of Potatoes very true and free from disease. Prices, &c., will be sent post free on application.*

RED BEET SEED.

EDWARD SANG and SONS, Nurserymen and Seedsmen, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full-grown roots. The sort is very superior, producing well-shaped medium-sized roots of remarkably fine quality and colour. Prices on application.—Kirkcaldy, Jan. 19.

STRONG OAKS.

MESSRS. D. and J. GAITSKELL, Nurserymen and Seedsmen, Whitehaven, have for Sale a fine stock of the above, 1½ to 4 feet high. Prices on application.

WANTED in the Trade, about Four Sacks of Warranted True ASH-LEAF POTATOES.—Apply, lowest cash price, B. D., Mr. Parish, Crosby Hall Chambers.

OSIERS! OSIERS!

TO BE SOLD, from 20,000 to 50,000 Sets of the True ITALIAN OSIER.—Apply to Mr. Stubbins, Brigg, Lincolnshire.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

DOUBLE WHITE CAMELLIAS.

TO BE SOLD, 500 fine bushy home-grown plants of DOUBLE WHITE CAMELLIAS, and 150 of FIMBRIATA and IMBRICATA, with good foliage, and full of healthy flower-buds, at 24*s*., 27*s*., and 30*s*. per dozen.—Apply to W. Sanford, opposite the "Golden Fleece," Edmonton, Middlesex.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,
SUTTON'S AMATEUR'S GUIDE. Published by Longman, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.
Sutton & Sons, Seed Growers and Merchants, Reading.

RENDLE'S PRICE CURRENT and GARDEN DIRECTORY for 1856 *can now be obtained from the undersigned, or through any Bookseller in town or country.* Price 6*d*., free by post.
For the Contents of this popular Work, see *Gardeners' Chronicle* December 29th.
William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season will be published in a few days, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

SEEDS, THE FINEST IN CULTIVATION.

BASS and BROWN'S 25th Annual Edition of their SEED CATALOGUE supplied on application.
It contains everything which may be desired of the choicest new and other Vegetable and Flower Seeds, superb imported German Seeds, also Lists of splendid Bulbs and Roots for spring planting.
Catalogues for the season complete by the present time for three penny stamps.
Seed and Horticultural Establishment, Sudbury, Suffolk.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.
Seed Establishment, 181, High Holborn, London.

PETER LAWSON and SON, Seedsmen, Nurserymen, and Wood Foresters to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.
Peter Lawson & Son beg to intimate that their Prices, ists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.
7, Great George Street, Westminster.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

JOHN DOBSON and SON will be happy to forward their NEW CATALOGUE of VEGETABLE SEEDS, which contains none but the best and most popular kinds, post free on application. Also their DESCRIPTIVE CATALOGUE of PELARGONIUMS will be sent post free on application.
Woodlands Nursery, Isleworth.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.
James Carter & Co., Seedsmen, 238, High Holborn, London.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—Jan. 19.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

KENNEDY and KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. Kempton, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. James Carter, of Holborn.—Address Kennedy & Kempton, Bedford Conservatory, Covent Garden, London.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

SEEDS FOR WALES.—*Arrangements have been made by the undersigned for the speedy transit of all orders for* WALES. *Seeds can be forwarded from Bristol direct by Steamer, or by the South Wales Railway, via Gloucester.*
William E. Rendle & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

GARDEN SEEDS FOR IRELAND.—*Plymouth is situated in close proximity with* CORK, DUBLIN, BELFAST, and LIMERICK, *and Steamers call every week at the Great Western Docks, so that purchasers in our sister country will find their orders attended to with promptness and despatch, on application to*
William E. Rendle & Co., Seed Merchants, Plymouth.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

THE READING ONION *is very superior to the sort called White Spanish, which is usually supplied for it.*
Sutton & Sons, Reading, Berks, can supply genuine Seed at moderate price, according to quantity required.

TO THE WHOLESALE SEED TRADE.

MESSRS. PLATZ and SON, Seed Growers, Erfurt, Prussia, supply from their extensive Stock the very best Flower and Vegetable Seeds, the growth of 1855 through their agent, Mr. R. Kennedy, Bedford Conservatory, Covent Garden, London.

SPLENDID SEEDLING HERBACEOUS CALCEOLARIAS.

WILLIAM BARNES has now ready to send out at 5*s*. per dozen a few of his unrivalled CALCEOLARIAS. They are very beautiful healthy strong plants, and are now quite ready for their permanent shift into large pots.
W. B. can recommend them with the greatest confidence, as they have been saved only from the most beautifully marked and finest shaped varieties, and if potted now will make splendid blooming plants.—Camden Nursery, Camberwell, London.

COSMIDIUM BURRIDGEANUM.

W. THOMPSON, Tavern Street, Ipswich, begs to offer Seeds of the above remarkably beautiful NEW ANNUAL, the stock of which is exclusively in his possession. The colour of the flower-heads is a deep blackish purple, with a narrow border of bright orange, a contrast of tint which, combined with elegant foliage, renders it one of the most desirable annuals in cultivation. Price 1*s*. per packet.

CHOICE VEGETABLES WANTED.
CUCUMBERS, MUSHROOMS, | ASPARAGUS, FRENCH BEANS,
CHOICE FLOWERS, &c.
Forward to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.
"Terms—Cash."

HOLLYHOCKS! HOLLYHOCKS!

JOHN CHATER and SON have a large stock of the leading sorts of Hollyhocks, in 3½-inch pots, well established. List with price on application. Best mixed Hollyhock Seed, 200, 1*s*. 6*d*.; Improved Sweet William, 600, 1*s*. The trade supplied on liberal terms.—Nursery, Haverhill.

MELON AND CUCUMBER SEEDS.

W. H. WHEELER, Florist, Hendon, Middlesex, begs to state that the best for early growth are the Victory of Bath Melon and Wheeler's Improved Sion House Cucumber, seeds of which may be had, at 1*s*. 3*d*. per packet (genuine), as above.

CYPRIPEDIUM MACRANTHUM, Sw.

L. VAN HOUTTE, of Ghent, Belgium, offers the above very scarce and hardy SIBERIAN CYPRIPEDIUM, at 42*s*.—Apply as above, or at his Agent's, Mr. R. Silberrad, Harp Lane, Great Tower Street, London.

CHARLES SHARPE and Co., Seed-Growers, respectfully acquaint the Trade that they have a large stock of Agricultural and Horticultural Seeds, and will have pleasure in forwarding prices on application.
N.B. A large quantity of two years' Seedling and Transplanted Quick, price on application.—Sleaford, January 1856.

CHRYSANTHEMUMS.

W. HOLMES offers for Sale large Flowered and Pompone varieties at 5*s*. per dozen. The Large Flowered varieties include Stafford, August Mie, Hermine, Albion Godereau, and the whole of the best show flowers. The Pompones include Bob, Brilliant, Berrol, Requiqui, &c.
W. Holmes, Florist, Well Street, Hackney.

PINE APPLES WANTED.—Forward immediately to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.
"Terms—Cash."

RARE FERNS.—The OPHIOGLOSSUM LUSITANICUM and GYMNOGRAMMA LEPTOPHYLLA, and other Ferns may now be had by way of exchange from C. Jackson, Cordier House, Guernsey.—Jan. 19.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

GENUINE FLUKE KIDNEY POTATO.

FRANCIS and ARTHUR DICKSON and CO., Seed Merchants, 14, Corporation Street, Manchester, offer the above very prolific and hardy Potato, carefully picked for sale. Price may be had on application.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Jan. 19.

TO MELON GROWERS.

MONRO'S CRYSTAL PALACE HERO, AND MONRO'S GOLDEN GAGE MELONS, which gained the two first prizes in June last at the Crystal Palace Exhibition, the "Hero" the first prize for the heaviest Persian Hybrid Melon, the "Golden Gage" the first prize for the best flavoured Melon; both of which prizes were awarded to J. MONRO, Colney House, St. Alban's. Two seeds of each sort taken from the same fruits which gained the prizes, with a packet of 12 seeds of other first-rate sorts, for 2*s.* 6*d.* To the trade 12 packets for 1*l.*—May be had by applying to W. F. ERWOOD, Salesman, 13, Tavistock Row, Covent Garden, London.

NEW STRIPED ROSE, MADAME DÉSIRÉ GIRAUD (VAN HOUTTE), Perpétuelle, hybride remontante, white striped with pink, carmine, and maroon. Price 4*s.*—Apply to Mr. R. SILBERRAD, Harp Lane, Great Tower Street, London. Also,

RHODODENDRON PELARGONIEFLORUM (DELMOTTE), hybrid between a Rhododendron maximum and a Ghent Azalea, exceedingly pretty. Hardy. 21*s.*

LYCHNIS SIEBOLDI (VAN HOUTTE), quite hardy Japan perennial, large white flowers, in corymbs, form and flowers of the Lychnis Coronaria, but twice larger. 1*s.* 6*d.*

THE TRADE SUPPLIED.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Jan. 19.

DWARF FRUIT TREES.

H. WALKER, Londonderry, offers the following Fruit Trees on dwarf stocks, for early bearing, suitable for pots, borders, walls, and espaliers: lists on application:—

1000 One-year-old Pears on Quince stocks.
2000 Two-year-old dwarf standard do, do.
1000 Two-year-old dwarf Apples on the Paradise do.
500,000 Two-year-old Hawthorn from seedling beds.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

CHOICE FLOWER SEEDS.

W. THOMPSON, Tavern Street, Ipswich (author of the "Gardening Book of Annuals," favourably noticed in the *Gardeners' Chronicle* for August 18, 1855), begs to offer a select assortment of ANNUAL and PERENNIAL FLOWER SEEDS, comprising every novelty of the season, and some rare Seeds; of which a descriptive priced Catalogue, arranged according to the Natural System, will be sent post paid, on application. The following quotation of prices cannot fail to be appreciated:—

	s.	d.		s.	d.
Ageratum conspicuum ...	0	6	Lupinus subcarnosus ...	0	6
Alonsoa Warczewiczi ...	0	6	Salvia Römeriana	0	6
Calceolaria chelidonioides	0	3	Silene Bergeri	0	3
Coreopsis coronata	0	3	" squamigera	0	3
Gypsophila muralis... ...	0	6	Tithonia tagetiflora	0	3
Helichrysum brachyrhynchum	0	4	Whitlavia grandiflora ...	0	6

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that they have taken the premises, 82, Bishopsgate Street Within, where they intend carrying on the SEED BUSINESS in all its branches and trust by great assiduity and strict attention to merit an extended share of patronage. They confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality.—London, Jan. 19.

ABIES OR PICEA GRANDIS (TRUE).

HUGH LOW AND CO. have consigned to them for sale a small parcel of Seeds of the true Picea or Abies grandis. It is unnecessary to enter into any description of this noble Fir, which is well known to be one of the finest, as it is unquestionably the rarest in Collections, of the Conifers of Northern California. The Seeds have been recently collected, are perfectly fresh, and, to suit amateur purchasers, will be offered by the hundred. When delivered the Seeds will be at buyer's risk.

Per 100 Seeds, 2*l.* 10*s.*; per 500 Seeds, 10*l.*; per 1000 Seeds, 15*l.*

In addition to the above H. Low & Co. have received Seeds of the undernamed Oregon plants:—

Abies Douglasi, two varieties, per 100 seeds ... ... £1 5*s.*
Abies species, probably Abies taxifolia of Jeffrey, per 100 Seeds ... ... £2 10*s.*
Cornus Nuttali, described as a splendid ornamental Tree, producing white flowers as large as Magnolia tripetala, per 25 Seeds ... ... £1.

Clapton Nursery, London.

GERMAN FLOWER SEEDS.

S. AND J. RINZ, NURSERYMEN, Frankfort-on-the-Maine, beg to call the attention of the trade to the following Seeds, all warranted of first-rate quality.

GERMAN STOCK, in collections of from 10 to 30 varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each collection, containing 100 Seeds of each variety.

GERMAN ASTERS, dwarf, bouquet, globe, pyramidical, and others in collections, from 10 to 20 varieties, at 1*s.* 6*d.* to 2*s.*

PÆONY ASTERS, the beautiful new varieties in collections, from 6 to 12 varieties, at 2*s.* to 4*s.*; the same in packets, mixed, 1*s.* each.

All orders will be promptly executed and forwarded to the care of their London Agents, Messrs. BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer a NEW BIOTA, which is quite distinct from the others, and is warranted particularly hardy.

BIOTA MELDENSIS, good plants £1 15 0
" " very strong 2 10 0

This fine Coniferous plant will be shortly figured in Verschaffelt's "Illustration Horticole."

A. V. also directs attention to his Journal L'ILLUSTRATION HORTICOLE, which is one of the best Floricultural works on the Continent. The last Number (12th Number of the second Vol.) is out, and contains:—

1. Genetyllis tulipifera.
2. Rose Perpetual Panachée d'Orléans.
3. Clematis campaniflora.
4. Dion edule (fruits of).
5. Dion edule (site in its natural country).

The Work can be seen and obtained of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Price 12*s.* a year.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—*Celebrated and invaluable for its earliness, coming into use early in February, a full-sized handsome head of excellent quality, but a shy seeder,* 1*s.* 6*d.* *per packet, or* 12*s.* *per ounce.* Good Seed can be had in sealed packets of the following Agents in London:—MINIER, NASH, & NASH, Strand; DAWE, COTTRELL, and BENHAM, Moorgate Street; HURST and MCMULLEN, Leadenhall Street; CHARLWOOD and Co., Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON'S Seed Establishment, Truro, Cornwall.

From numerous unsolicited Testimonials we select the following:—

To Messrs. Mitchinson and Co., Seed Merchants, Truro, Cornwall.

"Sirs,—I have enclosed 18 postage stamps for a packet of your Penzance Broccoli Seed, the same kind as you sent me last year. I hope I am not too late, for I am anxious to procure it, if possible, for I can bear testimony to its value as a new, early, and a superior Broccoli, for I have been cutting upwards of 30 heads every week from the beginning of February.

"Dorking, Surrey, April 6, 1854. "W. UNDERWOOD."

To Messrs. Mitchinson and Son, Seedsmen, Truro, Cornwall.

"Sirs,—I enclose you 1*s.* 6*d.* worth of stamps, and hope you will send me a small packet of the Early Broccoli you advertised last year. I have beat all my neighbours this year with your Broccoli, which has been very fine and true, and stood the winter well. "GEORGE PENDER."

"Sandgate, Kent, April 10, 1854."

To Mr. Mitchinson, Seedsman, Truro.
(Enclosed with Specimen.)

"Sir,—I beg to forward you this Broccoli, one of the sort after your own name. I have had a splendid crop of them this season, many of which measured 3 feet in circumference, and quality excellent. Cut the first on the 11th of February. If seed is scarce, be kind enough to save two packets.—T. BICE, Gardener, Grampound, Cornwall. April 7, 1854."

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th,* 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading.
Mr. C. Turner, Royal Nursery Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine, or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The following List of FLOWER SEEDS are recommended for their superior beauty and novelty, with the exception of those marked with an asterisk, which we merely name that our customers may be aware we have them in our List, and can supply them at the stated prices, but we ourselves do not recommend them as possessing any superior merits either in beauty or novelty of appearance to many of our well known favourites.

	s.	d.
Abronia umbellata	0	6
Acroclinium roseum, new	1	0
*Ageratum conspicuum	0	6
Alonsoa Warscewiczi	0	6
Arctotis breviscarpa	0	4
Argemone platyceras grandiflora...	0	6
*Browallia abbreviata	0	4
Balsam, dwarf scarlet	0	6
" new orange	0	6
" " sulphur	0	6
*Calceolaria scabiosæfolia	0	6
*Campanula stricta	0	4
*Centauridium Drummondi... ...	0	6
Chrysocephalum arenarium ...	1	0
Collinsia bartsiæfolia alba (new, bicolor alba, incorrectly named by some).		
Convolvulus minor fl. pleno ...	0	3
Calliopsis coronata (Coreopsis) ...	0	4
" marmorata	0	4
*Cynoglossum Hayni...	0	3

	s.	d.
Clintonia pulchella alba	0	6
" " atroviolacea ...	0	6
*Dianthus Garnerianus	0	6
" Hendersoni fl. pleno ...	0	6
*Delphinium cardiopetalum... ...	0	3
Eutoca alba, new	1	0
*Erigeron Beyrichi	0	6
*Gomphrena globosa Haageana ...	0	4
*Guternezia zymnospermoides ...	0	6
*Gypsophila muralis	0	6
Godetia alba, new	1	0
Gynerium argenteum (Pampas Grass	10	6
*Helichrysum bractirynchum ...	0	4
* " bracteatum, white ...	0	3
* " " yellow ...	0	3
* " macranthum nanum	0	3
* " compositum maxim.	0	6
Ipomœa limbata	0	6
" violacea alba (mexicana alba)	1	0
Leptosiphon aureum	1	0
Linum grandiflorum rubrum ...	1	0

	s.	d.
Lupinus subramosus (a fine bedding plant)	0	6
Lobelia ramosa nana, new	0	6
*Morina elegans	0	6
Myosotis palustris (Forget-me-Not)	0	4
" azorica	0	4
Maurandya, in 6 varieties, each ...	0	6
Nepeta Meyeri	0	6
Phlox Drummondi atrococcinea ...	0	6
" " oculata alba ...	0	6
" " Victoria regina	1	0
*Palafoxia texana	0	6
Perilla Nankinensis...	0	6
Saponaria calabrica (beautiful bedding plant)	0	6
Sunflower, new Californian ...	0	6
Sabbatia campestris	1	0
Sweet William, double	0	6
*Trifolium aurantiacum	0	6
Tropæolum Triomphe de Gand ...	1	0
*Whitlavia grandiflora	0	6

SELECT GERMAN SEEDS, in Collections,

And other Choice Flower Seeds, for which our Establishment is particularly noted.

	s.	d.
Asters, Truffaut's French pyramid, the finest of all the China Asters, in packets of 12 varieties	3	6
Aquilegia, various colours, fine, in packets of 12 sorts ...	3	6
Balsams, the finest Camellia flowered, ditto 6 sorts ...	2	6
Hollyhocks, select named varieties, ditto 12 sorts	2	6
" " " mixed	1	0
Larkspurs, beautiful Hyacinth flowered, in pckts. of 8 sorts	2	0
Marygold, distinct varieties, ditto 10 sorts	2	0
Phlox Drummondi, beautiful and distinct, ditto 5 sorts ...	2	6
Poppy, in distinct showy varieties, ditto 6 sorts	1	0
Salpiglossis, new and beautiful colours, ditto 8 sorts ...	2	6
Senecio, or Jacobœa, distinct and showy, ditto 7 sorts ...	1	6
Stocks, new large flowered German, finest of all, do. 12 sorts	3	0
" new Giant Brompton, ditto 4 sorts	1	6
Wallflower, fine double varieties, ditto 6 sorts	2	6
Zinnia elegans, brilliant colours, ditto 12 sorts	3	6
Ornamental Grasses, beautiful varieties, ditto 25 sorts ...	5	0
" foliage plants for bedding, ditto 12 sorts ...	3	6

	s.	d.
Calceolaria, from the largest & finest spotted flowers, 5*s.*, 2*s.* 6*d.*, 1*s.*		
Cineraria, from the finest named varieties... ... 2*s* 6*d.*, 1*s.*		
Carnations, finest double, also Picotees and Tree Carnations, each	2	6
Geraniums, from the finest show and fancy varieties, each	2	6
" bright scarlet, cerise, rose, &c., separate or mixed, each	1	0
Heartsease, or Pansy, from a splendid named collection ...	1	0
" " fancy varieties, striped, &c.	0	6
Lobelia St. Clair, Insignis, Queen Victoria, &c., &c., each	0	6
Mimulus, or Monkey Flower, beautiful varieties, mixed ...	0	6
Petunia, splendid mixed, equal to named flowers	1	6
Portulacas, scarlet, yellow, white, striped rose, crimson, purple, &c., each	0	6
Pinks, from the finest collection grown	1	0
Primula sinensis fimbriata, white and red mixed, true, saved from the finest collection known	2	6
Verbenas, mixed, from the best named flowers	1	0

CUCUMBER NAPOLEON III. is the finest in cultivation. In packets, each, 3*s.* and 5*s.* 6*d.*

Messrs. E. G. HENDERSON & SON beg to draw attention to the following new VEGETABLES, descriptions of which will be seen in the Catalogue:—

French Bean—Haricot d'Alger, or Beurré blanc.
" Tall Zebra.
Dolichos sesquipedalis, called the Asparagus Kidney Bean.
Phytolacca esculenta
Turnip hâtif of Paris
Radish, China Rose
Cauliflower, Early Paris
Beet Crapaudine, or Rough Skin
Carrot, Brussels Red Winter improved Horn.
" new white transparent.
Couve Tronchouda, or Portuguese Cabbage.
Beet Long Orange, very sweet
Brussels Sprouts, imported
Savoy, Early Dwarf Ulm
Pea, Denver's Early prolific
Green Marrow.
Early Dwarf Erfurt.

Messrs. E. G. HENDERSON & SON beg to announce that the new Plants to be sent out this year are given at the end of their Seed Catalogue, with full descriptions, prices, &c.

Plants of Gynerium argenteum, or Pampas Grass, 2*s.* 6*d.* each; 20*s.* per dozen; 7*l.* 7*s.* per 100.
Plants of Petunia imperialis, new double white, 3*s.* 6*d.* each; 30*s.* per dozen.

Wellington Nursery, St. John's Wood, London.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

CHARLES DALY AND SON, NURSERYMEN, Coleraine, have now about one million of two-year THORNS to sell, at 2s. 6d. per 1000; fine do., 3s. 6d.; one-year do., 9 to 18 inches, and very strong, 3s. 6d. per 1000. Irish Yews, 1½ to 2 feet, 10s. per 100; Portugal Laurel, 1 to 1½ feet, 6s. per 100; Holly Berries, 4s. per bushel; Haws, 2s. per bushel; one-year seedling Larch, fine, 1s. 6d. per 1000; one-year do. Ash, do., 1s. 6d. per 1000; for cash only. Orders taken by Messrs. HURST & M'MULLEN, of London, or here. List of prices free by post.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5s. each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SEED ESTABLISHMENT, HIGHGATE, LONDON.

WM. CUTHBERT AND SON beg to inform their Patrons and the Public generally that they have received this season their usual Fine Stock of VEGETABLE and FLOWER SEEDS from their growers in the best condition imaginable.

Collections can be made up at the same prices as those advertised by other firms, but advise their customers to make their own selections, which is found to be the cheapest and best in the end. Catalogues free on application.

GOODWIN'S YORK EARLY WHITE CELERY.

JAMES BACKHOUSE AND SON can now supply SEED of this valuable CELERY. It is compact in habit, and not liable to run to seed, solid, crisp, and of fine flavour. It may be had in perfection earlier than any other variety known to us, and has for several years past taken first prizes at the York Horticultural Exhibitions in 6th and 7th months. Packets 2s. 6d. each, free by post, may be had either from HURST and M'MULLEN, 6, Leadenhall Street, London, or direct from ourselves.—JAMES BACKHOUSE & SON, York Nurseries, Jan. 19.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following superb FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet
ANTIRRHINUM, from 100 striped and spotted vars.,	0s. 6d.
PANSY, from 100 best Show Flowers	1 0
DOUBLE DAISY, from 60 best varieties	0 6
VERBENA, from 100 newest and best varieties	1 0
CINERARIA, from the newest and best varieties	1 0
MIMULUS, from the largest and best varieties	0 6

67, High Street, Battle, Sussex.

CHOICE SEEDLING SHRUBBY CALCEOLARIAS.—Thirty plants fit to pot singly, post free for 10s., saved from those varieties so highly praised by Mr. Glenny in *Lloyd's* paper, for August 12th and 19th. Fine new Verbena seed; 300 seeds 2s. 6d.

Post-office Orders to J. NASH, Coleford, Gloucestershire.

TO CUCUMBER GROWERS.

SUTTON'S BERKSHIRE CHAMPION is not only one of the most prolific Frame Cucumbers, as shown by several correspondents of the *Gardeners' Chronicle* (as see *Gardeners' Chronicle*, page 693), but is also of fine flavour, and so handsome that it invariably takes the Prize when exhibited in competition with other leading kinds. Seed can be supplied 1s. 6d. per packet (if ordered immediately); other fine sorts 1s. per packet, as see Catalogue, which may be had post free.

SUTTON & SONS, Reading, Berks.

TO THE TRADE.

NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

CAMELLIAS, ETC.

MESSRS. CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, Wandsworth Road, London, have for sale fine healthy plants of CAMELLIAS, well set with flower-buds, at 30s. and upwards per dozen. Chinese Azaleas, Hardy Greenhouse Plants, Geraniums, and a great variety of Ferns for ases; also Kitchen Garden and Flower Seeds; prices moderate.

CORNWELL'S VICTORIA RASPBERRY CANES, 15s. per 100; NEW MONTHLY AUTUMN FRUITED, 12s. per 100; WHITE, 10s. per 100; the usual allowance to the Trade. To be had of GEORGE CORNWELL, Market Gardener, Barnet.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6s. per dozen. FLUKE KIDNEY POTATO (true), 4s per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.

Catalogues now ready.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

VAN PARCEL TRAINS *are now running on the Great Western and the other Broad Guage Railways, so that Seeds can now be sent from* DEVONSHIRE *with as much regularity and despatch as from any other county in England.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, Devonshire.

SEEDS FOR THE KITCHEN GARDEN.

SEEDS FOR THE KITCHEN GARDEN *can be obtained from* DEVONSHIRE, *through* Messrs WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. *All orders carriage free.*

See their "PRICE CURRENT AND GARDEN DIRECTORY" just published.

SEAKALE AND ASPARAGUS PLANTS.—TO THE TRADE.—ONE MILLION *fine strong plants of Seakale and Asparagus are now growing by the undersigned. Wholesale prices on application.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

SUTTON'S MONSTER LETTUCES, THE BEST FOR HORTICULTURE OR FOR AGRICULTURE.—The largest and quickest growing Lettuces are "SUTTON'S SUPERB WHITE COS," and "SUTTON'S SUPERB GREEN COS." The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—"This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce." And of the other he says—"SUTTON'S SUPERB GREEN COS: This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use."

Seeds may be had (if ordered immediately) in packets 1s. each, post free.—Address, SUTTON & SONS, Seed Growers and Merchants, Reading, Berks.

EXCELLENCE—ECONOMY—CONVENIENCE.

SUTTON'S

COLLECTIONS OF KITCHEN GARDEN SEEDS,

CARRIAGE FREE TO ALL PARTS AS STATED BELOW.

	£	s.	d.
A COMPLETE COLLECTION of KITCHEN GARDEN SEEDS for a LARGE GARDEN, for one whole year's supply (with instructions on cultivation)	3	0	0
A COMPLETE COLLECTION of Ditto, in quantities proportionately reduced	2	0	0
A COMPLETE COLLECTION of Ditto, ditto	1	10	0
A COMPLETE COLLECTION of Ditto, ditto	1	0	0
A SMALL AND CHOICE ASSORTMENT for a SMALL GARDEN	0	15	0
A Ditto ditto	0	10	6

The sorts of Vegetables included in these Collections are those which have proved to be the most prolific, best flavoured, and most worthy of general cultivation. The No. 1 Collection contains 20 quarts of the best sorts of Peas, 10 quarts Garden Beans, 5 pints French or Kidney Beans, the best sorts of Broccoli, Lettuces, Cauliflowers, Cabbages, *and all other vegetable seeds in due proportion.* The quantities contained in the other collections are stated in a Paper entitled "Contents of Sutton's Collections," which will be sent post free on receipt of two penny stamps.

INSTRUCTIONS ON CULTIVATION ARE SENT WITH THE SEEDS.

N.B. If any of the above articles are not required they should be named when giving the Order, and INCREASED QUANTITIES OF OTHER SORTS will be given in lieu of those omitted. Purchasers joining together, and taking four of the above Collections, of either size, to be sent in one day, will receive them at reduced rates, as under:—

Four No. 1 Collections (3l. each)	for £11	0	0	Four No. 4 Collections (1l. each)	for £3	10	0
Four No. 2 ditto (2l. each)	7	0	0	Four No. 5 ditto (15s. each)	2	12	0
Four No. 3 ditto (1l. 10s. each)	5	5	0	Four No. 6 ditto (10s. 6d. each)	1	18	0

CHOICE NEW FLOWER SEEDS.

Ladies and Gentlemen requiring showy kinds of Flower Seeds are respectfully recommended to leave the selection of sorts wholly or partly to us, and we will supply those which we know to be really worthy of cultivation. Should the purchaser have any preference for certain kinds, they should be named in giving the order, that we may include them, or should any sorts be already possessed, they should be named, that we may omit them.

COLLECTIONS OF FLOWER SEEDS TO BE SENT FREE BY POST.

The best 100 sorts of Flower Seeds, hardy, half-hardy, and tender, with instructions	£1	1	0
The best 50 sorts ditto, with instructions	0	10	6
The best 36 sorts ditto	0	7	6
The best 24 sorts ditto	0	5	0

The great satisfaction given by these Collections in former seasons, is testified by the recommendations given by our customers to their friends; as also by the numerous letters we receive, from which we present the following:—

From the Rev. W. H. Roach, Whiteshill Parsonage, Stroud.
"I am more than satisfied with the assortment of Seeds you made for me, and with the quantity you sent; and I consider that I have done better by leaving the choice to you than selecting for myself."

From Charles Lawrence, Esq., Cirencester.
"I never recollect having received such a numerous collection of Seeds from any house so good in quality."

From the Rev. John Kirwan, Withycombe Rectory, Taunton.
"I was so much pleased with the selection of Seeds sent by you, that I recommended two of my friends to take parcels from you."

From Alexander Cathcart, Esq., Knockdolian Castle, Girvan, N.B.
"I have had much satisfaction in recommending your Seeds to various friends, as I find they are much pleased with them; and you may depend upon my continuing to do so as long as I find the articles you send are good and reasonable in price."

From the Rev. G. E. Walker, Shareshill, Wolverhampton, Feb. 23.
"Mr. Walker cannot but compliment Messrs. Sutton & Sons on the quality of the Seeds sent last year, as they were by far the best he ever purchased."

From the Rev. J. Lawson Sisson, North Walsham.
"Your Seeds are decidedly superior to those I can procure in this neighbourhood.

From Mr. William Moor, Gardener, the Rectory, Stoke.
"I never had (previous to your's last year) a lot of Seeds which have all turned out so satisfactory."

From Mr. Bone, Gardener to A. H. Troyte, Esq., Huntsham Court, November 8, 1855.
"I was so much pleased with your collection of Seeds last year that I leave it to your selection again this year, both for the Kitchen and Flower Garden.

From Mr. Robertson, Gardener to A. Pollock, Esq., Lockfine, N.B., July 30, 1855.
"I must say that your Seeds have been liberal as to quantity, and excellent as to quality."

From the Rev. C. T. Farley, Moor Hill, Stourport, July 23, 1855.
"Your Seeds are the very best my Gardener ever made use of, and gave the highest satisfaction."

From J. Lloyd Jun., Esq., Dinas, Brecon, March 2, 1855.
"The Garden Collection of Seeds has hitherto been most judiciously selected, and of the best description."

Also, Natural Grasses, for Lawns & Meadows, Fine Mangel Wurzel, Turnip, and other Agricultural Seeds.

SEEDS SENT CARRIAGE FREE AS SEE BELOW.

All Packages of the value of 20s. and upwards are delivered free to any Station on the Great Western, and Berks and Hants Railways, or of not less than 20s. value, the Parcel will be sent free to any Station on the following Railways:—South Western, South Eastern, Great Western, Oxford, Worcester and Wolverhampton. And Packages of 40s. value and upwards are delivered free, not only on the above-named Railways, but also to Edinburgh, Glasgow, Liverpool, and all Stations of the North Western, Great Northern, and Midland Railways.

When Goods to the value of 5l. and upwards are ordered, they will be delivered free in Dublin, Cork, or Belfast.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, JANUARY 19, 1856.

How is it, we are asked, that the LONDON PARKS, of which we boast so much, are such miserable representatives of the beautiful and varied exotic vegetation which the last 30 years have been spent in collecting. Why, says a correspondent, do I see in singular beauty all manner of trees of a noble aspect, and many-fashioned, many-tinted foliage in the public and private gardens near London, while Hyde Park, the Green Park, and St. James's Park exhibit little except the eternal Elms and Plane trees, which represent the arboriculture of QUEEN ANNE's time?

These are questions very often put to us, and we can only answer that we do not know. There seems no reason why the London Parks should not contain whatever in private gardens have been found to thrive, unless it be that trees of modern introduction are not planted there.

It may be true that until Lord PALMERSTON's Smoke Consuming Act shall not only have been extended, but more strictly enforced, London soot will prove an effectual barrier to the cultivation of many evergreen trees. But that seems a bad reason why the public should be condemned to a dull monotony which deciduous trees would so readily break; and we cannot but think that adequate knowledge in selecting and skill in planting would

in a few years change the whole aspect of these great places of public resort. If London were Paris an attempt would at any rate have been made long since.

Certain it is that a sooty atmosphere is the only enemy to be encountered. The impurities incessantly poured into the air from the million chimneys of a huge coal-burning metropolis, falling on leaves and impeding respiration, are injurious to vegetable health, if not fatal to vegetable life. When leaves remain permanently on branches they eventually become so encrusted with soot as to be incapable of fulfilling their destiny, the result of which is the death of the tree that bears them.

But a large number of deciduous trees are not clothed with leaves for more than five months at a time, after which the exhausted foliage falls away, and the tree remains at rest for 7 months more, during all which time it is indifferent to the state of the atmosphere, or if not wholly so, at least is able to endure a very foul one. On the west of London the enemy of the Parks is the easterly wind which, blowing for 3 or 4 months with little intermission, brings with it a canopy of soot. It is only, however, towards the end of that time that trees begin to leaf, and as soon as the East winds of spring are over trees have little to fear from London chimneys. To us, therefore, it seems that if a little care were taken in selecting deciduous trees which leaf late, or which have polished leaves to which soot cannot readily adhere, there ought to be such a reasonable probability of their thriving, at least in the western Parks, as would justify an attempt on the part of Government to beautify those scenes of public recreation.

We may be told that such attempts have been made, and have failed; but until we know all the circumstances attending the failures, if any there have been, we must be permitted to retain our present opinion. Undoubtedly if no care has been taken in preparing the soil, if loose contracts have been made, and contractors have been permitted to use all sorts of smoke-dried nursery rubbish, well nigh dead when planted, we should refuse to admit the experiments to have been conclusive. We have not yet forgotten Victoria Park, or Kennington Common.

That we may not be accused of entertaining an exaggerated theoretical view of this matter, we shall conclude these remarks by a case. No tree in this country is more beautiful than the Deciduous Cypress. Look at it at Kew and Syon in summer with its towering stem loaded with pale green delicate airy foliage, or observe it in autumn when changing to rich brown. There is not a more noble object. It is said to have been introduced above two hundred years ago. Is it to be found in any of the Parks? We have never been able to find it there. That at least cannot have arisen from London air having disagreed with it; for not a hundred yards from where the old Crystal Palace stood in Hyde Park, there still exist, in a private garden, two flourishing specimens, probably sixty or seventy years old. Now in both Hyde Park, and Kensington Gardens, and St. James's Park are situations in which this glorious tree would thrive under intelligent superintendence. And so with other things.

Should these remarks chance to meet the eye of the Right Hon. Baronet who now fills the office of Chief Commissioner of Woods, &c., we trust he will cause some inquiry to be instituted into a subject with which he is himself familiar, and which we venture to assure him is well deserving official investigation.

WE learn from the Comptes rendus that the operation of RESTOCKING WITH FISH the fresh waters of France is going on so rapidly and with such perfect success that an abstract of the last report cannot fail to be interesting to many in this country. We need not revert to the occasional notices relating to this important subject which have occasionally appeared in our own columns. It must now be well known that by the ingenious discoveries of GOLSTEIN, LACÉPÈDE, BOCCIUS, GEHIN, and REMY, and others, the artificial fecundation of fish spawn has become an operation of perfect certainty and simplicity; so that there is no apparent reason why the owners of rivers, rivulets, and ponds should not have them stocked with whatever hardy fresh-water fish they may desire.

It seems that M. COSTE has more especially achieved great success in his experiments with trout and salmon. Artificially fecundated eggs, brought from the Swiss lakes, and the Rhine, hatched in his apparatus at the College of France in Paris, and afterwards brought up in a narrow "stew" set apart for the purpose, have already begun to breed. A lake trout (*Salmo lemanus*) 2½ years old, 13 inches long, and weighing rather more than 1½ lb., spawned lately on a bed of pebbles prepared for her. The number of eggs removed from time to time with a pipette was 1065, and were spontaneously impregnated with the milt of a common trout (*Salmo Fario*), only 19 months old. Only 17 out of this number of eggs missed. In the same place are at this moment a salmon trout (*Salmo trutta*), a common trout, and a lake trout, the oldest not 3 years old and the youngest only 18 months, which are also ready to spawn. Six males, among which are a couple of common salmon (*Salmo salar*), are ready to milt, and have already mated with the females.

This striking result seems to prove that there is no practical difficulty in breeding fish artificially, but that on the contrary they may be domesticated as easily as any other animals or even as plants. It proves moreover that the practical men who maintained that certain kinds of fish can only breed in running water were quite mistaken; for these Salmonids, bred and kept in a tank, where the water is merely renewed from time to time, not only multiply spontaneously, but gain weight so fast that they are just as fit for food and marketable in a given time as if they were wild.

It is stated that the experiments of M. COSTE are entirely confirmed by what is going on in the new waters of the Bois de Boulogne. Not long ago 50,000 young Trout, Salmon Trout, lake Trout, Charr (*S. Umbla*), Salmon, and *Salmo Hucho*, were put in, all hatched at the College of France; most of them are already between 4 and 5 inches long, and there seems every reason to believe that they will continue to thrive there, provided they are not neglected in winter and destroyed by frost. It is perfectly evident, at all events, that they have found in the Bois de Boulogne all the conditions requisite for their perfect nourishment.

We shall endeavour to find room, at an early period, for Mr. ASHWORTH's interesting account of the artificial propagation of Salmon at Stormontfield.

New Plants.

160. CEANOTHUS INTEGERRIMUS. *Hooker and Arnott in Beechey's Voyage*, p. 329.

This is at present little known in shrubberies, although quite hardy and sub-evergreen. It forms a slender-branched tall shrub, with the habit of C. thyrsiflorus, azureus, and pallidus. The leaves are thin, oval, three-ribbed, and almost entirely destitute of pubescence. The flowers are pure white, in narrow terminal panicles. The species was originally found in California by the

botanist attached to Captain Beechey's voyage in H.M.S. Blossom; at a later period Hartweg found it in the valley of the Sacramento. The specimen here figured was obtained from the garden of the Horticultural Society where it had been raised from seeds received from Mr. Robert Wrench, as a Californian shrub, "resembling the Lilac, but more showy, with white Plum-like flowers." Although we may not indorse this statement of Mr. Wrench's correspondent, we can say that it is a handsome plant, well worth cultivation.

C. verrucosus, quite a different species, is sometimes called *integerrimus* in gardens.

VEGETABLE PATHOLOGY.—No. CIV.

352*. CARPOPTOSIS† (*Shedding of Rice*).—Several diseases with which the Rice crops are affected in Italy are enumerated by Ré, but for the most part with so little precision and so few details that it is difficult to form a correct judgment as to their nature. I have already had occasion to allude to two of these; that before us is so singular as to deserve a distinct notice. Every thing seems apparently to go on well up to the formation of the seed; but no sooner is that accomplished than the adhesion to the partial peduncles of the panicle is so imperfect, that the slightest agitation, or the smallest breath of air, will cause the seeds to fall. The seeds themselves are at the same time of a reddish colour and very imperfect, their albumen ill developed, and their taste extremely disagreeable. Where this dreadful malady makes its appearance, it is not confined to a few individuals, but is spread far and wide, and induces immense loss to the cultivator, sometimes amounting to a third of the produce. The diseased seeds, as is the case occasionally with Ergot, are not deprived of the power of vegetation. So far from this being the case, their vitality, or at least their term of vitality, seems to be increased, as they sometimes lie in the ground one or two years before they germinate, and the plants which spring from the diseased seeds are endowed with the same constitutional peculiarity as the parents, insomuch that the disease is certainly propagated, and the only remedy is a complete change of cropping, as every seed which remains in the ground has the power of infecting neighbouring plants. It is much to be regretted that no examination has been made of the infected grains, for whether the disease be due to the presence of some fungus analogous to that which produces Ergot, or whether it consists merely in some modification of the tissues of the seeds and their contents, the subject is of great interest. Ré remarks very judiciously that though the disease at present has appeared only in the Rice, it may possibly be found on other aquatics, and I would therefore recommend such botanists as are interested in Vegetable Pathology to watch for indications of it in our Water Grasses. There is a disease in the Rice plants also mentioned by Ré, which may possibly depend upon the same cause, though the phenomena are not quite the same. In this malady which Ré calls Selone, a word of local origin but uncertain derivation, the seed is very imperfectly formed if at all, and so the whole or part of the panicle is sterile, the integuments alone being formed without any farinaceous matter. This affection is said to occur in cold wet summers, or when cold winds are prevalent, especially when the seed has been long in the ground before germinating, or where it has been sown late, but if it be true that it can be prevented by early sowing there may be some doubt as to the correctness of the notion.

411. *b.* EXTERNAL OR ACCIDENTAL.* *Functional.*—I have hitherto considered those diseases which arise from internal or constitutional causes which are inappreciable to the observer, and are known only by their effects. A few cases meanwhile have been introduced evidently belonging to the same generic divisions, though their causes have been different. I now come to a large class of diseases in which the causes are no less appreciable than the effects, at least where they are satisfactorily ascertained. In some cases however where constitutional disease already exists, the causes may act more intensely, or may be so obscured or modified as to make the diagnosis doubtful. These causes are of various kinds, consisting either of atmospheric conditions injurious to or incompatible with the health of the particular plant which may be the subject of disease, direct poisons, actual injuries, or the presence of insects or parasitic fungi, inducing alterations of structure and to a greater or less degree consequent unproductiveness. The latter especially give rise to the greater part of the diseases which make the production of corn and some other objects of cultivation so precarious. It is fortunate however that the nature and effects of these are now well understood, and in more than one ins ance remedies can now be applied with almost complete certainty of success. The due appreciation of this has done away with many of the crude notions which assimilated the diseases of plants to those of men which bore an external resemblance to them, while on the other hand Animal Pathology is every day acquiring greater precision from the light thrown upon it by the accurate investigation of parasitic fungi. *M. J. B.*

ON SEEDLING PEAR TREES WHEN THEY FIRST COME INTO BEARING.

THE raiser will now be in possession of a number of seedlings from the finest fruits, both as regards form and flavour, which have been produced by some of the new and improved varieties. To each of these seedling plants he will take care to fasten with zinc wire a leaden label, bearing, together with the letter S., the number of the variety from which the seedling has been obtained. This label must never afterwards be removed. These young trees, trained either as dwarf or tall pyramids, according to the directions given in a former

† From καρπος, fruit; and πτωσις, the act of falling.

article, should be managed so as to come into bearing as quickly as possible. The successive selection will have been made at each transplantation according as the trees appeared promising. Planted at a sufficient distance apart, the trees will have been regularly disbudded, and the shoots thinned out, before midsummer, where too numerous on the upright stem. Towards the end of the second flow of sap (last week in September or beginning of October), care will have been taken to shorten the shoots, and also the vertical stem, more or less according to their vigour, in order to give greater firmness to the parts left. Firmly established in the soil by well subdivided roots, the seedling will begin to exhibit a tendency to bear fruit in its upper part. It is at the time of coming first into bearing that a seedling requires particular attention. It must be observed at the periods of blossoming, when the fruit sets, and when the latter is swelling off. Its vigour having been ascertained, it is necessary to prove its hardiness, which can be easily done by its produce, and its fertility by the number of fruits. The observations made on these points can only be considered as temporary; their correctness must be tested by the produce of successive years, in which the characters are more strikingly brought out.

When these points are settled the next proceeding is to thin the fruit where there are too many set on the same corymb, leaving on a strong spur of the stem only two fruits; on a branch spur one fruit, and on an elongated spur, (*brindle*) two at most. The fruits which ought to be taken off should be cut horizontally through the middle so as not to injure the parts left. This operation is performed in dry weather, or in a dry day, towards the end of May or in the first fortnight in June. The fruits regularly distanced in this manner on the different parts of the tree become better developed, and acquire a more perfect form and more characteristic properties. We do not say its definite form, nor all its qualities, because that form is frequently not settled till after four or five years' fruiting, and because the qualities become better as the tree acquires greater strength and vigour, is more firmly rooted in the soil, and as it arrives at the period of mature growth. The same remark applies to Pear trees grafted for dwarfs near the ground on the Pear stock with scions taken from trees which have been in bearing for several years. The young stocks influence the graft; they retard the formation of fruit buds, and from their wood not being old enough the fruit does not possess its proper form and flavour. On the contrary, a strong stock, grafted at the height of 6 or 7 feet with a scion taken from a part of a tree in a bearing condition, will in three or four years produce fruit of the same form and flavour as that produced by the tree from which the scion was taken. This is solely owing to the age of the stock and the condition of the scion itself. In support of this many proofs could be adduced. By trying this practice it will be found that these assertions are founded on facts ascertained by experiments. Let us now return to the seedling in bearing. Presuming that it is growing in a soil that is neither too light nor poor, yet if prolonged drought occur in summer the tree will suffer, and the growth of the fruit will consequently be checked. This may, however, be prevented by the following mode, which is applicable to all recently planted trees. When the tree is finally planted where it is to remain, two earthenware pipes are placed perpendicularly in the earth at 2½ feet distance from each side of the tree. These pipes are from 1½ foot to 2 feet in length, and 4 inches in diameter. They are made to rest on brickbats in order to allow the water to escape at the bottom. Their upper end is an inch above the surface of the soil, and covered with a paving tile, 8 inches square, and 1 inch thick. If excessive drought prevail in summer, these long pipes are filled in the evening with rain water, mixed with a little cow-dung. Water supplied in this manner to the lowest roots enables the suffering tree to recruit its forces during the night, and next day its vegetation exhibits fresh energy. The fruit is thus prevented from being checked in its growth, and from dropping. Even the watering of the surface of the ground is useful, but is not sufficiently effectual. These waterings are given every other day, and so long as the drought renders them necessary.

With respect to a seedling, the training of which has been properly managed, the branches well established, and which has arrived at a bearing state, pinching and summer pruning should be performed with great care, and but sparingly, as at the winter pruning, the shoots by these operations are generally left longer or shorter according to the vigour of the tree.

When a seedling Pear tree comes into bearing it ceases to produce over-luxuriant shoots. Its energy is then employed in producing fruit, and in the formation of organs for fructification in succeeding years. We shall pass over summer and early autumn fruits, as they are not the object of our researches. For the late autumn, winter, and spring fruits our observations are carried to the last fortnight of September. If the seedling is planted in a light soil, it will, about that time, indicate its maturity by signs which the practical man can recognise, such as the colour of the fruit itself, or that of the leaves. The most certain sign of all is when by pressing the stalk of the fruit it parts from the spur at its point of junction with the latter. Whatever may be the influence of the moon with respect to the period of gathering, it is certain that a great number of keeping Pears gathered towards the period of the full moon in September keep well in the fruit-room, ripen in succession, and there acquire their full flavour. It is thus that we have kept till the middle of February fruit of the Beurré Diel and Passe Colmar, the usual period of the ripening of these being December and January. In colder and heavier soil, keeping Pears do not require to be gathered till the succeeding full moon. However, the maturity of the fruit on the tree and the period for gathering depends greatly on the aspect, the nature of the soil, and the greater or less warmth of the season. This subject has been treated at greater length in an article in your volume for 1854, p. 676.

As soon as the fruit of a seedling Pear is gathered a small wooden label, on which is written the number of the tree which has borne the fruit, as well as the letters A. B. C., is tied to the stalk; and further, to avoid all confusion or doubt, a duplicate of such label is tied to the tree. On the other side of the label attached to the fruit is written the date of the gathering, whether first, successional, or final, as the case may be. After having seared the end of the foot-stalk by dipping it slightly in melted rosin, the fruit is placed on a dry cloth on a shelf of a room, the air of which is rather dry than otherwise. Five or six days afterwards the fruit is placed in the fruit-room, where it is watched until it appears to be ripe. It should then be placed in a small Willow basket, and daily inspected till the time of tasting. Previously, however, to doing so the fruit should be cut in half, longitudinally, or from the eye to the stalk, but without injuring the seeds, which, if the fruit prove first-rate, will be required for the purpose of resowing. The outline of the fruit is then traced on a piece of white paper, in order that the exact form may be preserved. In tasting, the fruit should be chewed but without swallowing the smallest portion. The slices, which should be small and thin, ought to be placed between the palate and the tongue, this being the infallible touchstone of taste. The properties in the fruit having been discovered with skill and impartiality, no feelings of paternity being allowed to interfere with our judgment, they are successively noted down on the paper on which the outline of the fruit and its stalk is traced. If the fruits borne on different parts of the tree continually present the same properties, good or bad, the raiser will note them down. The first notes, dated, will serve for reference in following years, when the fruit again comes to be tasted from the same tree. If the raiser discover that either of those productions possess superior qualities, he will submit the fruit to the judgment of connoisseurs well known to be impartial. Then, when assured of the merits of the variety, he will submit the fruit to Pomological Committees. He will collect the opinions given. If all are uniformly favourable, there is still a final proof wanting, and the most important, that is, whether the seedling possess all the other properties requisite in a new variety in full bearing, in the open air. This may be ascertained in the last fortnight of August.

Finally, the raiser will cause a correct drawing of the fruit to be made, according to its average size and general form; and he will also describe it. He will collect all the information relative to the tree and its fruit, together with the means of preserving the former in its full vigour, hardiness, and fertility, according to experiments made in different soils, situations, and aspects.

By adopting this rational mode of proceeding, the raiser of a new and improved variety of fruit will merit well the thanks of those interested in the cultivation of fruit trees, sparing both amateurs and nurserymen troublesome experiments, which frequently result in grievous disappointment. *J. De Jonghe, Brussels.*

HAVE FERNS SEXES?

PERHAPS you may recognise the great clumsy hand of me who wrote to you many years ago. I am still only an under-gardener; but that's not my object in this letter.

You must know I took a great fancy to your "New Distribution of the Vegetable Kingdom," as you propounded it in your "Elements of Botany," of which I managed to obtain a second-hand copy. I made a sort of a circular chart or map of your eight classes, comprehending all plants and vegetables now discovered by the human mind, and the assistance of microscopes to boot. I painted the different divisions to help my memory, and then I took the card-board map and hung it up in the tool-house by way of being handy for me. I found that we had examples in England, natives I mean, of seven classes out of the eight; and by degrees I got that I could classify most plants I met with without running into the tool-house. A few months ago I was coming along with a bunch of Ferns in my hand, of course thinking they belonged to the great esexual division (or State II.) at p. 230 of your Elements, in the year 1841 edition. I sometimes talk aloud to myself, for I find I remember things better when I hear myself saying them plain out. And so I was doing about the bunch of Ferns; when up starts the head gardener from behind a large sweet Bay tree that everybody admires, and the cook steals lots of leaves from, and says he, "Mr. Jolly, let me tell you that Ferns don't belong to that division; you've clapped them on the wrong side of the hedge." And then he pulled out the last edition of Mr. Francis's British Ferns, edited by Professor Henfrey, of St. George's Hospital, and read in that book as how Ferns have sexes, and lead quite as comfortable and respectable a married life as other flowering plants. At least the head-gardener told me as much out of the book.

My stars and elastic garters! Am I to alter that cardboard chart in the tool-house, and make a mess o' all my fine coloured divisions! To say nothing of the confusion that will take place in my own head for some months. I was told that some sharp fellow had watched the marriages of Ferns with an enormous microscope, and had made affidavit of it. "But," said I, "suppose some half-dozen other sharp fellows watched too, and didn't see 'em." At which I thought the head-gardener would have died, for he laughed consumedly; and, apparently, at my expense.

Now, dear Editor, you long ago answered a letter or two of mine with much courtesy and affection; may I beg one line in your answers to correspondents saying whether Ferns have sexes, or whether they may still keep their place in the esexual state on my coloured chart in the tool-house, in spite of the head-gardener, who is a most respectable gentleman. Yours to command, *Giles Jolly.*

Postscript to Giles Jolly's Letter.—It may be that all the question in my letter has been settled in some of your late works, but I can't afford to be flush up with all new ideas and discoveries; and I live in a remote district, and for the most part keep company with vegetables and insects during six days of the week, and am compelled to ask for information short and pithy from learned heads and kind hearts (like yours) in a way that won't touch my poor pocket. You will see, without spectacles, that I don't mean you to publish my letter, but to look upon it as intended for your private refreshment, and the means of settling the moral condition of a large parish of plants; and of my being placed in a position to speak with authority about Brackens and Ferns, and all those beautiful green garlands and sheeny chaplets with which Queen Nature adorns her magnificent brow. For the present, "Giles Jolly" wishes a happy new year to Dr. John Lindley, and so farewell.

[It is true that Ferns have two sorts of organs, which may possibly be sexual: but upon this point we must ask our good friend Giles to consult our columns next week.]

PUMPKINS AND SQUASHES.

The following communication from Dr. T. W. Harris, of Cambridge, Massachusetts, to the Pennsylvania Farm Journal, furnishes much desirable information respecting the origin, qualities, and uses of his several varieties of these vegetables:—

In September, 1834, Mr. John M. Ives, of Salem, Massachusetts, exhibited in Faneuil Hall, Boston, a new Squash, to which he subsequently gave the name of the "Autumnal Marrow Squash." This fruit, thus introduced, and brought into notice, soon became a great favourite, and has ever since been extensively cultivated for table use, as a sauce and for pies, in the vicinity of Boston. So popular has it become in the market of Boston, that it may well be called "the Boston Squash," though I never heard that name applied to it. Mr. Ives, in his description of it, called it a variety of Cucurbita melopepo, which is an error. If not a mere variety of Commodore Porter's Valparaiso Squash, it doubtless descended from the same stock as the latter. It must not be confounded with the kind cultivated in England under the name of "Vegetable Marrow"—a very poor vegetable, as I am assured by friends who have eaten it in London—and apparently one of the sorts which in New England would be called summer Squashes. The "Autumnal Marrow" is eaten only when fully ripe; the "Vegetable Marrow," like "Cymlings," is eaten only in an unripe state. The former comes into eating in September, but may be kept with care till March. When pure or unmixed by crossing with other kinds, it is considered as the very best autumnal and winter Squash in New England. Many cultivators have allowed it to degenerate or become mixed with the larger and grosser Valparaiso, so that we do not often find it in entire purity in our markets. It generally has only three double rows of seeds.

The Valparaiso Squashes, of which there seem to be several varieties, known to cultivators by many different names, some of them merely local in their application, belong to a peculiar group of the genus Cucurbita, the distinguishing characters of which have not been fully described by botanists. The word Squash as applied to these fruits is a misnomer, as may be shown hereafter; it would be well to drop it entirely, and to call the fruits of this group Pompions, Pumpkins, or Potirons. It is my belief that they were originally indigenous to the tropical and subtropical parts of the western coast of America; they are extensively cultivated from Chili to California, and also in the West Indies, whence enormous specimens are sometimes brought to the Atlantic States. How much soever these Valparaiso Pumpkins may differ in form, size, colour, and quality, they all agree in certain peculiarities that are found in no other species or varieties of Cucurbita. Their leaves are never deeply lobed like those of other Pumpkins and Squashes, but are more or less five-angled, or almost rounded, and heart-shaped at base; they are also softer than those of other Pumpkins and Squashes. The summit or blossom end of the fruit has a nipple-like projection upon it, consisting of the permanent fleshy stile. The fruit stalk is short, nearly cylindrical, never deeply five-furrowed, but merely longitudinally striated or wrinkled, and never clavated or enlarged with projecting angles next to the fruit. With few exceptions, they contain four or five double rows of seeds. To this group belong Mr. Ives' autumnal marrow Squash (or Pumpkin) before named, Com.

Porter's Valparaiso Squash (Pumpkin), the so-called Mammoth Pumpkin or Cucurbita maxima of the botanists, the Turban Squash or Acorn Squash, Cucurbita piliformis of Duchesne, the Cashew Pumpkin, Cole's Connecticut Pie- quash, Stetson's Cuba Squash, and his hybrid called the Wilder Squash, with various others.

The variety introduced from Valparaiso by Com. Porter became known to me about the year 1830, since which time it has been more or less cultivated in New England, both for the table and for stock. It is of an oblong, oval shape, of a pale reddish yellow colour externally when ripe, nearly smooth, and very slightly furrowed, and often grows to a large size. It readily mixes with the autumnal marrow, but is inferior to it in quality. It may prove better and more valuable in the Middle and Southern States than in New England.

The Turban, sometimes called the Acorn Squash, because when the fruit is small it resembles somewhat an Acorn in its cup, seems to be the Cucurbita piliformis of Duchesne. It sometimes grows to a large size, measuring 14 or 15 inches in transverse diameter, and looks like an immense Turkish turban in shape. Specimens raised in my garden in 1851 were little more than 10 inches in diameter, and weighed 10 lbs. or more, having very thick and firm flesh, but a small cavity within. They proved excellent for table use, equal in quality to the best autumnal Marrows. They keep quite as well as the latter.

The plants of the foregoing Valparaiso, or Potiron group, are more tender and less hardy than those of the common Pumpkin, or Pepo group; they are also much more subject to the attacks of worms or borers (Ægeria cucurbitæ) at the roots. Their fruits, compared with common Pumpkins and winter Squashes, have a thinner and more tender rind, and finer-grained, sweeter, and less strongly-flavoured flesh, on which accounts they are preferred by most persons for table use.

The New England "Crook-neck Squash," as it is commonly but incorrectly called, is a kind of Pumpkin, perhaps a genuine species, for it has preserved its identity, to our certain knowledge, ever since the year 1686, when it was described by Ray. It has the form and colour of the Cashew, but is easily distinguished therefrom by the want of a persistent stile, and by its clavated and furrowed fruit-stem. Before the introduction of the autumnal Marrow, it was raised in large quantities for table use during the winter, in preference to Pumpkins, which it almost entirely superseded. Many farmers now use it instead of Pumpkins for cattle, the vine being more productive, and the fruit containing much more nutriment in proportion to its size. It varies considerably in form and colour. The best kinds are those which are very much curved, nearly as large at the stem as at the blossom end, and of a rich cream colour. Some are green, variegated with cream-coloured stripes and spots. Some are bell-shaped, or with a very short and straight neck, and are less esteemed than the others; for the neck being solid and of fine texture, is the best part of the fruit. These crook-necks can be kept all the winter, if not exposed to frost, and I have eaten of them when a year old. On account of its hardiness, its fruitfulness, and its keeping qualities, this is perhaps the most valuable variety to the New England farmer. It is said to degenerate in the Middle and Southern States, where, probably, Porter's Valparaiso or some kindred variety may be better adapted to the climate.

The early Canada Squash seems to be a precocious and dwarfed variety of the common Crook-neck. It is smaller, with a short and often straight neck, and is of a dark and dirty buff colour externally. It comes into eating early, quite as soon as the autumnal Marrow, and was, indeed still is, much esteemed as a table vegetable.

The Custard Squash or Pumpkin is an oblong, deeply-furrowed, and prominently 10-ribbed fruit, with a pale buff and very hard (but not woody) rind, and fine, light yellow flesh, much esteemed in the making of pies and puddings. From seeds received from Paris, under the name of Patagonian Squash, I raised a fruit exactly like the Custard Squash in form and size, but of a dark green colour externally, and entirely worthless as an article of food. Nevertheless I infer that the Custard Squash is merely an improved variety from the same original stock.

The fruits belonging to this second group probably originated in the eastern or central parts of the two Americas. They were cultivated by the Indians, and were found here in their gardens and fields by Europeans on the first settlement of the country. Pumpkins, or bell-shaped Squashes (as New Englanders would now call them), were found as far north as Saco, by Champlain, in 1605 and 1606. A similar variety was cultivated by the Iroquois Indians, and still bears their name in France. Pumpkins were found by Raleigh's colony among the Indians in North Carolina, and by early voyagers in the West Indies. There are indigenous kinds in Brazil, and we have seen that even Patagonia has added another to the common stock. Cultivation has, doubtless, improved their qualities, and has caused them to sport in numerous varieties, so that it is now difficult, if not impossible, to determine which of the known kinds are typical species and which are mere varieties.

A third group remains to be described. The representatives of it are the Cucurbita melopepo, verrucosa, and ovifera, of Linnæus. It includes all those kinds called in New England summer Squashes, because they are eaten only during the summer while they are soft and tender, and in an unripe state. These are the only two Squashes, if regard be had to the origin of the name, derived from the language of the Massachusetts Indians, by whom, according to Roger Williams, this kind of fruit was called "Askutasquash, which the English from them called Squashes." From the same authority, and from other sources, we learn that the Indians of New England cultivated this kind of fruit or vegetable, and used it for food; that some of their Squashes were "of the bigness of Apples, of several colours," while others are represented by Champlain as being considerably larger, turbinated, and more or less puckered on the margin, and of the same form as that which in France is called *Bonnet de prêtre*, probably the prototype of our scalloped Squash, or Cucurbita melopepo. Bartram found a Squash-vine growing wild in the interior of East Florida, climbing to the tops of the trees, and bearing little yellow Squashes of the form and size of an Orange. Mr. Nuttall informs us that the warted Squash, Cucurbita verrucosa, was "cultivated by the Indians of the Missouri to its sources." It has generally been supposed, on the authority of Linnæus, that the Egg-squash, Cucurbita ovifera, was a native of Artrachan in Tartary. On turning to the account of it given by Dr. Lorche, from whom Linnæus received his specimens, I find it included in the list of plants not natives of the vicinity of Astrachan, but cultivated only in gardens, where it is associated with such exotics as Indian Corn or Maize, with which it was probably introduced directly or indirectly from America. We also learn from Lorche that this species varied in form, being sometimes Pear-shaped, that it was sometimes variegated in colour with green and white, and that the shell served instead of little boxes. Here we have plainly indicated the little Gourd-like, hard-shelled, and variegated Squashes that are often cultivated as ornamental plants. From these and similar authorities, we conclude that summer Squashes were originally natives of America, where so many of them were found in use by the Indians, when the country began to be settled by Europeans.

Under the name of Cucurbita melopepo is to be included what in New England is called scalloped Squash, and in the Middle and Southern States, Cymlings; perhaps the patty-pan Squash is another synonym for the same. This melopepo is a very broad and thin or compressed fruit, with scallop edges, and more or less warted surface; it measures often 10 or 11 inches in transverse diameter, and 3 or 4 from stem to blossom. It varies in form, being sometimes much thicker, and more or less turbinated or top-shaped, when it takes the name of *Bonnet de prêtre*, or Priest's cap; perhaps this is really its original form. Other varieties, nearly round, are sometimes seen. *The Year-Book of Agriculture.*

Home Correspondence.

Horticultural Society.—I was pleased to read (p. 22) the remarks of "F. H. S.," in reference to the past, present, and future of this Society. Undoubtedly upon such men, and the friends alluded to, depends in a large degree the stability and progress of scientific associations. They cultivate science for its own sake, and it is well that the Horticultural Society can number many minds of this stamp. But I distinctly differ from "F. H. S." in his conclusions regarding exhibitions, and the proposals of the Council to hold them in London. It appears to me that a large and inviting field is open for early summer and autumnal shows. If a large hall could not be got I am of opinion that a series of rooms would be equally interesting; rooms show off plants first rate. Then there might be the Orchid room, the Rose room, and so on. The show in such a place could easily be kept open at least two days. If liberal prizes were offered, "the Society" might count on a grand exhibition and plenty of visitors. The love of flowers and fruits will never die. Who can estimate the amount of good which the horticultural shows have imparted? If the value of scientific associations is to be estimated according to the happiness they confer on the human kind, then may "F. H. S." and his friends rejoice that they have aided so excellent an institution. Look at the number of offshoots which have sprung from the parent society. Why Sydenham, the Botanic, &c. &c., are only imitators, and yet there is room for them and more. Mark, too, their quickness of action. It is but as yesterday that the Vice-Secretary of the Horticultural Society gave expression to the idea that Roses might be grown and exhibited in pots; prizes were offered, and the beautiful and grand results are already patent. The capital expended in this one direction alone must be considerable. I might expatiate on the encouragement these meetings have given to the introduction of new and rare plants, but for which many must have "blushed unseen." Those glorious groups of Orchids, too, might not in this generation have been witnessed; the banks of Roses untouched with the scorching ray might never have inspired heavenward thoughts; the beautiful Pelargoniums with the unique "fancies" must have been lost to the many, and the lessons of the humble Heartsease, so circular in form, velvety in substance, decided in colour, fine eye, well defined in its markings, and withal so pure, might not have been learnt had it not been for the Horticultural Society. Perchance, too, without such associations, those gorgeous specimens of plants and fruits from every clime might not have told of the tireless energies, the vast riches, and the advancement of England in the culture of the arts of peace, whilst the recreative, the refining, elevating, and instructive tendencies of such magnificent gatherings of the people extending far beyond the scene of enjoyment could not have been so demonstrated. Apart then from much good which the Society has effected in other directions, I fancy that no small share of its large "capital" for usefulness may be traced to its strenuous support of the exhibitions. I hasten to reply to an error of "F.H.S." involved in the following sentence:—"People no longer exhibit their productions for honour or for the sake of horticulture, but purely and simply for the money they can make." Granting this to be true, "F. H. S." must know that the abuse of an institution is no good reason why it should be abolished. But I think I can prove that a large majority of the exhibitors not only do not make money but lose it. Take what some say is the best-paid section, viz., fruit. The Botanic has had the reputation of being most liberal. The highest award offered is for the collection of fruit; some of those who compete in this class "put up" 8, 12, and 16 dishes each, and last season there was one competitor entered 30 dishes. For this the gold medal is awarded, value 7*l*. Several of the principal exhibitors have to travel upwards of 80 miles, and some double that distance. To "come in" you must send one or two men, who must stay two days and two nights in London. By this it will be seen at a glance that even the successful competitor cannot make money. True, the Society allows a kind of moiety for carriage, and some employers also pay expenses; but many do not. I repeat that more lose than make money, and I need not tell even successful exhibitors that exhibiting is the hardest kind of work. Councils and managers may think they are very generous (and perhaps they are, and offer as much as they can afford); but "F. H. S." may take it for granted that exhibitors make greater sacrifices than any connected with exhibitions, and that something else than money incites them to action. *Geo. M'Ewen.*

The Scotch White Cluster Grape.—This was distributed by the Horticultural Society some years since; it is a robust grower and very hardy, with large leaves, but slightly lobed; a most abundant bearer, and rather earlier than the Muscadine; its berries are much crowded in the bunches, and require severe thinning. It is an old Dutch variety; I have received it from Holland under the name of "Vroege Vanderlaan," and "Vanderlaan Précoce." *T. R.*

Rain-fall and Drainage.—At the end of another remarkably dry year, it may be useful to inquire whether there is any likelihood that the general average of the rain-fall may have been disturbed by any cause; and whether, therefore, we may look for a less average for the future. Will any of your meteorological correspondents inform us if, in their judgment, such a cause may exist in the extensive drainage works of the last few years? In "Prout's Bridgewater Treatise" (p. 337, edit. 1834) I find two estimates of the relative quantities of the total rain-fall due to evaporation from the surface of the land on the one hand, and "drawn from the seas that encircle our shores" on the other. Dr. Thomson (who estimates the mean fall of rain throughout Great Britain at 36 inches) attributes only 4 inches to this latter source, while Dr. Dalton gives 13 inches as the quantity of "water flowing off by the rivers in England and Wales," leaving 23 inches to be evaporated from the surface of the land. These two estimates are wide enough apart to show that at that period not much was known accurately on the subject. Has any more definite knowledge been gained since? Would not the drainage of late years, by withdrawing the water more rapidly from the surface, decrease the amount of evaporation and increase that of the water flowing off by the rivers; thus cutting off a portion of that which, according to either estimate, is the main source of our supply of rain? Doubtless many meteorologists have considered this subject, but I do not remember to have met with any discussion of it. Any information or remarks would, I think, prove interesting. *A Cheshire Subscriber.*

Cucumber Disease.—The experience I have had of this malady leads me to think that it is in a great measure brought on by improper treatment and an injudicious application of stimulants. I allude to plants under glass. The evil first appeared in ridge Cucumbers here soon after a thunder-storm and a heavy fall of rain, which saturated the ground about the roots, and to which at the time I solely attributed the cause of the disease; but in the case of plants under glass this may be obviated. Three years ago I had several pits and boxes, and all the plants in them were doing as well as could be desired, bearing fruit abundantly and of the best quality; but on the amount of attention required being reduced to giving air, &c., merely when I happened to pass that way, and perhaps two hours later than it should have been given had I had to depend on them for a crop, the distemper manifested itself quite as boldly as on those ridges, attacking the fruit in all its stages. Close by I had some more pits in bearing order, but duly attended to, and out of these I continued cutting quantities of fine fruit till the middle of November, and let it be observed, those were cuttings taken off the diseased plants previous to its appearance; and more, they were grown in a portion of the same soil. Ever since its appearance has, therefore, given me little concern, as I conceive that the evil is brought on by neglect. Every blue apron ought, therefore, to be ashamed of it; we generally are of mildew, and we ought to be the same of this disease. *Angus M'Leod, Whitfield, near Hereford.*——In June last I placed two plants of "Walker's Rambler" in one of the vineries here, planting them close to the front parapet, to be trained up under the glass. Both plants grew luxuriantly, and

set well and abundantly; but while one maintained its vigour, producing large and well-formed fruit, the other had its fruit quite deformed, ceased to swell, and became discoloured at various stages, from 6 to 10 inches in length; in fact, I never cut a single fruit from it, the leaves were slightly spotted, but not generally over the plant. I certainly could not perceive that there existed any difference in the soil, nor were the plants more than 4 feet apart. The disease is not much felt in this part of the country as yet; but I am led to conclude that this must have been an instance of it. *Angus M'Intosh, Castlerea, Ireland.*

Cheavin's New Patent Filter.—I went the other day to Spalding, where Mr. Cheavin lives, and bought one of his 4*l.* 10*s.* size, which certainly is at present an extraordinary thing. In two minutes the water trickles; by the time it has been three minutes at work it pours its full stream, and that runs at the rate of a gallon in two minutes and a quarter. This would be something like 640 gallons in the 24 hours, and the filtered water is perfectly satisfactory. I am sorry to say that I have bored three times and thought I must be permanently dependent on my neighbours after all for drinkable water. It is of the colour of ditch water; but the filter, if it will last, has set me up. *Iota.*

Vitality of Seeds.—Permit me to send you three seeds of some Coniferous plant, and also part of the cone for your inspection. About a month back I had seven seeds given me by Mr. Brown, gardener to — Millers, Esq., Alpha Road, who has had the cone in his possession upwards of nine years, and previous to that it formed an ornament for many years in a gentleman's hall in Yorkshire. It is probably 40 years since it was gathered from the tree. About three weeks ago I sowed seven seeds in a small pot, in a mixture of loam, peat, and sand, but previous to sowing them I cut a notch through the shell of each seed. They have all vegetated, and were potted off to-day in small and thumb pots. Perhaps it may be as well to state that I always cut the rind of all the thick skinned seeds I may save to sow. *Edwin Fancourt, Pine-apple Place, Edgeware Road.* [The seeds and cone are those of Pinus Pinea, the Stone Pine.]

Cloacine.—That the fecal matter known under this name is capable of communicating a fœtid odour to vegetable productions is quite certain, from the fact that Agaricus picaceus, when growing from ground highly impregnated with that substance, is so undisguisedly filthy that it is a very unpleasant task to examine it, much more to prepare specimens for the herbarium. It might indeed, under such circumstances, be as justly denied admittance into the house as some species of Coprosma were in Ross's antarctic expedition. Since this is the case, it is quite credible that agricultural crops may sometimes suffer in quality where the dressing is too strong, though there is perhaps no more valuable manure than cloacine where it is properly administered, especially to cereals, to which it is considered by good authority as more adapted than to pastures. Of the good effects of such manure, and the total absence of any offensive taste or odour in the produce, we can speak from personal knowledge, where proper pains have been taken to mix it well with the general produce of the farm-yard, or, as the popular phrase is, to kill it, by the admixture of soil in such quantities as may absorb the gaseous matter, and to a certain extent deodorise the mass. One of the best and most successful cultivators, and at the same time one of the most observant, with whom it has been our chance to have intimate relations, set the greatest store by his night cart, which traversed the country far and near, the contents being mixed in the course of the season not only with the manure of the straw yard, but with road scrapings and the rejectamenta of a neighbouring river, which afforded an immense mass of matter, consisting of river weeds mixed more or less with sand, mollusca, and other animal productions. Not the slightest inconvenience was ever experienced, and the produce of the farm was superior in quality to that of most of his neighbours, and far more abundant in quantity, though either fact might, perhaps, in some measure be accounted for by the intrinsic excellence of the soil. Without proper admixture, like guano, such manure is in most cases too strong, but even where plants like Roses are greedy of such coarse nutriment, it does not follow as a matter of necessity that the fœtor of the manure should be communicated to the vegetable. We have never heard that Roses when so treated are less delicately scented. *M. J. B.*

Seedling Pears.—The interesting communications of M. de Jonghe will probably induce some of your readers to try their hands at raising Pear seedlings. It is scarcely to be expected that our amateurs will be endowed with the zeal of Van Mons, and devote whole acres to raising many thousand trees in the hope that some few may reward their toil, and I would therefore throw out for their consideration the following suggestion, namely, that a dozen plants, raised from well hybridized seed, may give better results than hundreds of chance seedlings. Let us consider what is the great desideratum—I should say, a really fine spring Pear. For winter use, nothing can be expected to exceed, or even to equal the Winter Nelis. Suppose then we cross the Easter Beurré, a handsome hardy productive and good keeping variety but deficient in flavour, with the pollen of Winter Nelis, or else make use of the Leon le Clerc de Laval as the female parent. This last Pear, though a baking variety, is all but a dessert sort, and its keeping properties deserve especial notice. If I could induce only a dozen of your readers to hybridize and ripen off only one fruit of the varieties above specified, I feel convinced that with very little trouble to themselves, they will, in all probability, confer a great boon on the public. If any one were desirous to extend their experiments to autumn Pears, I would suggest that the universal favourite, Marie Louise, is somewhat deficient in flavour, and that this might be given by the pollen of that most excellent sort called Thompson's. While on the subject of Pears, I may mention that the eating varieties, when not too ripe, are most delicious baked, and far better than ordinary baking pears. Speckled and inferior specimens may thus be most usefully turned to account. *G. S.* [We are of the same opinion.]

Endive.—You give a receipt for Endive as a vegetable. In Holland no table is without it, and almost no day in the year. It is the most universally popular dish in the country, and the most savoury morsel I ever tasted. But the method of preparing it is somewhat different from that given by your correspondent. Take two good Endives, not blanched, separate the leaves, and boil them in two waters (to extract the bitter). If still bitter use a third water, but ten minutes before they are ready throw in a handful of Sorrel leaves. When ready take them out and strain them, and put them back in the saucepan with a piece of butter the size of a Walnut, pepper and salt, q. s., and a table-spoonful of any rich gravy. Shake them well over the fire till all is incorporated, and send them in hot. On no account chop the leaves. *Iota.*

Gooseberry Caterpillars.—This is the season in which I take an easy method of destroying these pests that caused so much loss last year in different localities. About 12 years ago, finding my trees repeatedly attacked, I learned that after the caterpillars had done feasting they dropped on the ground, and forming cocoons lay until the warmth of spring caused the fly to emerge, whose females depositing their eggs on the leaves, the young brood were soon hatched. It occurred to me that if the old ones were buried I should be free from them altogether, and so it has proved; therefore, before annually manuring the trees, I have about an inch of the surface earth, to the extent of the branches, carefully taken off and laid aside; then a few inches more of the earth to make room for the manure; but before putting it on all the surface with the cocoons is thrown in, and thus buried under the manure and the remaining few inches of earth. Since I adopted this plan, except a few trees one or two years which I had reason to think were neglected, I have been free from the caterpillars. A few weeks since I was in a distant part of the country where I had recommended five or six years ago my "burying plan" to a lady whose trees were spoiled, and she told me that since she had adopted it they were quite free from the insects; but added, "I take care that it is properly done." *John Abell, Limerick.*

Rain at Itchen Abbas, Hants, in 1855:—

	Ins.	Wet Days.		Ins.	Wet Days.
January	0.41	11	Brought forward	13.31	117
February ...	1.37	15	September ...	2.03	12
March	2.26	21	October	7.13	23
April	0.67	7	November ...	0.73	13
May	2.65	20	December ...	2.02	10
June	1.57	13			
July	1.87	17	Total ...	25.22	175
August	2.51	13			
Carried up ...	13.31	117	Average of six years ...	28.11	166

—*W. W. Spicer.*

Ailanthus glandulosus.—Mr. Godsall's account of the quality of the timber of this tree is nearly the same as that given me by our carpenter. I shall, therefore, now merely give you the dimensions of the tree and its probable age. At 1 foot from the ground it measures 2 feet 11 inches in diameter; at 14 feet, 1 foot 9 inches, where it branches into two arms to the height of 15 feet more, where each arm measures about 9 inches in diameter; it carried a splendid top to 20 or 30 feet higher, which when made into common faggots numbered about 36. My employer considered the tree to have been planted from 90 to 100 years ago. *Robert Addiscott, Elmham Hall, Norfolk.*

Notices of Books.

The Botany of the Antarctic Voyage. Part III. *Flora of Tasmania.* By J. D. Hooker, M.D., F.R.S. 4to. Lovell Reeve.

DR. HOOKER in this work enters upon the third and last portion of his great undertaking to illustrate the vegetation of the southern Regions visited by him while under the command of Sir James Ross in the antarctic voyage of the Erebus and Terror. With what care and skill the previous volumes were written and illustrated we pointed out at the time of their publication. In no degree is that which has now begun to appear inferior to its predecessors in execution, while it exceeds them in general interest. To a great extent the Flora of Van Diemen's Land or Tasmania is that of all Eastern Australia, as high as Sydney, and therefore, when completed, the volume before us will be almost as welcome to the naturalists of the mainland as to those of Tasmania itself.

The materials for the new undertaking are derived not only from the author's own observations on the spot, but from the contributions of his friends, among whom must be most especially mentioned Mr. Ronald Gunn, who with untiring zeal and great acuteness has spent no small part of a busy colonial life in exploring the vegetation of the country in which his lot has cast him. At every step we meet with evidence of the wonderful activity of Mr. Gunn, whose name is now most deservedly and imperishably associated with those of the first great investigators of Tasmanian Botany. Nor is it to colonists only that this work possesses interest of the highest order. Our gardens abound with plants from Van Diemen's Land, some of which are hardy enough to bear our hardest winters. Every packet from Hobart Town brings in little consignments of seeds, and many a horticultural eye watches eagerly the growth of the antipodean strangers. But when it is wished to ascertain beforehand what manner of plant may be expected to spring from seeds whose names are unknown in gardens there has been no book to which the inquirer could refer. Is *Cryptandra pimeleoides* for example worth the care which is bestowed upon it? or *Leptocyamus tasmanicus?* None but a few experienced botanists could heretofore reply. The answer is now within the reach of all who can gain access to a good private, or a well supported public library.

The part before us extends from Ranunculaceæ to the beginning of the great Tasmanian order of Leguminosæ, contains 80 closely printed pages, and is illustrated by 20 of Mr. Fitch's admirable drawings.

Griffith and Henfrey's Micrographic Dictionary (Van Voorst) to which we have adverted on former occasions, is now completed in the shape of a solid 4to vol. of more than 700 pages, with 41 plates and 816 woodcuts. To the general reader it will prove a very useful book of reference; and even the professed naturalist will often consult its pages with advantage. Its great fault is that the authors never give their authority for their representations of microscopical objects, although by far the greater part are not their own; this, which is hardly fair to those whose figures are used, is more especially embarrassing to those who use the volume; and who, when they fail to discover the structure indicated, naturally wish to know whether they are at variance with the observations of trustworthy examiners, or are merely in the presence of some of those writers who possess the faculty of seeing what does not exist. For example, we would ourselves ask from whom the figure of the starch grains of Barley is taken, it being neither in correspondence with our own eyesight nor with that of Mr. Lennard, a skilful and conscientious artist who drew Pereira's plates. Another circumstance to which we must draw the authors' attention is that when figures are *parvified* instead of *magnified* they do not say so, as in the case of *Clathrus cancellatus;* this may be of no consequence to the experienced naturalist, but must be embarrassing to a student. Let us hope that all such matters will be rectified in another edition.

Garden Memoranda.

HECKFIELD PLACE, HANTS, THE SEAT OF THE RIGHT HON. THE SPEAKER.—This delightful residence is situated about eight miles from Reading, on the Great Western, and five miles from Winchfield, on the South-Western lines of railway. On two sides of the house is a raised terrace garden, which in summer is a blaze of floral beauty, and in winter is rendered interesting by means of different kinds of evergreens, with which the beds are at present well furnished. Beyond is a beautifully undulated park, in the bosom of one of whose valleys is a piece of ornamental water with two islands in it planted with Rhododendrons and other American shrubs, which serve to beautify and vary the foreground, and which when viewed from the terrace and windows of the mansion have a striking and excellent effect. In the park, which is about 350 acres in extent, are some fine Oak, Elm, Beech, and other timber trees. Larch, too, seems to succeed admirably here, fine specimens of it being scattered everywhere throughout the pleasure grounds, and we also observed some good Tulip trees. It is, however, to the kitchen garden and forcing grounds that we wish more especially on this occasion to direct attention. The magnificent forced Strawberries which have graced the exhibition tables at Chiswick from this place have astonished everybody, and the Pears and Apples which are annually shown at the Horticultural Society's meetings in Regent Street in autumn are not less remarkable. Some account therefore of the kind of gardening by which such results are obtained may not be without its use.

Pine Apples and Grapes are here, as at Frogmore, fit for table nearly all the year round, though, of course, in less quantity. At present there is a large vinery here in which there are still numbers of admirable bunches of Black Hamburghs in a good state of preservation. This house is as dry inside as it can possibly be kept, and in order that the outside border may not get wet it has been covered with Croggon's asphalte, fastened on shutters each 2½ feet in width, and of a length corresponding with that of the border. Under these the surface soil is as dry as dust, and Mr. Tillyard, who is gardener to the Speaker, is of opinion that for purposes of this kind nothing could answer better. With attention late Grapes may be kept in this way almost till new ones come in. From this house bunches weighing 4 lbs. 1 oz. have been cut. The sorts are the common and Mill Hill Black Hamburghs, the former of which has been found to keep sound much longer than the latter. On one Vine we counted 15 bunches, each of which looked as if they might weigh a couple of pounds. The hot-water pipes with which

this house is heated were covered with sulphur and clay, which had been used to keep down red spider when the leaves were on the Vines. An early Muscat house has just been started. The rods are broken in dung stea n.

The most forward Peach house will soon be in bloom. Standard trees for the upper portion of the roof are planted inside the house, but the roots of those for the lower part are in a border outside, over which there is a gravel walk. Notwithstanding this, however, the trees produce excellent crops, from 60 to 80 dozen of fine fruit being gathered from them every year. Figs are trained on the back wall of this house, and Strawberries are grown on a shelf along the top.

Against one of the garden walls is a kind of orchard house, which is, however warmed by hot-water pipes. On the back wall of this house are Apricots, along the centre standard Plums with their branches bent down umbrella fashion, and in the front Peaches. From this house, which is 70 feet long, an amazing quantity of fruit is annually gathered. Heat sufficient to bring it in a little before that on the open walls is given and no more, and owing to the house being thoroughly ventilated it is excellent in flavour, and hangs a long time on the trees.

For the first crop of Strawberries Cuthill's Black Prince is used, and on plants of this variety on a shelf in an early Vinery there is now ripe fruit of good size. Those for early work are from runners taken from plants that have been forced. Keens' Seedling and Ingram's Prince of Wales are grown to succeed the Black Prince. Out of doors Strawberry plants are wintered here in ridges, in which the pots laid on their sides are piled up and buried in ashes, the tops of the plants being at the same time protected by a coating of sedge with which the ridges are covered, and in this way frost is effectually kept from them.

Potatoes are stored here in a pit under an arched brick roof, and shelves put up in the same place afford accommodation for other root crops, which are laid in dry sand. Excellent early Rhubarb is also obtained from this cellar. Roots of it brought in from the open ground produce tops fit for use in about three weeks after they have been introduced.

Early Potatoes and Asparagus are forced in brick pits on beds of 2 feet deep of leaves put in dry, and for surface heat 2-inch pipes are employed. Although no dung is mixed with the leaves they soon generate sufficient warmth. French Beans and other early crops of this kind are also grown in the same way, and in Vineries and all other houses where there is enough heat.

In a large greenhouse with Vines on the roof were some beautiful Orange trees well furnished with fruit, which at this season is highly ornamental. These trees, which were beginning to get into bad condition, had had all the soil shaken from their roots last March, when they were retubbed, and since then they have thriven satisfactorily. We understand that a handsome new Orangery is about to be erected for them by Messrs. Gray & Ormson.

Heliotropes are cultivated here in the form of standards, some of which are nearly 6 feet in height. They are taken out of the open beds in autumn and wintered under glass; in spring they are pruned into single stems, started into growth, and removed out of doors when all danger of frost is over. Treated thus, after the manner of Fuchsias, they form objects of universal admiration both in summer and autumn.

The fruit room is still well stocked with beautiful specimens of Pears and Apples in excellent preservation. They are arranged on shelves on straw, covered over with paper. Among the Pears were Winter Nelis, Passe Colmar, Duchesse d'Angoulême, Old Crassane, Napoleon, Vicar of Winkfield, Délices d'Hardenpont, and even Knight's Monarch and Seckel. Apples also keep well in this house, whose walls are built of hollow bricks, and ample means are provided for well airing it.

In the kitchen garden we noticed a bed of the American Cranberry near a cistern, from which it can be flooded. It grows in peat, and yields fruit in abundance, which is said to set all the better for being well watered when it is setting.

The borders and walls of the kitchen garden are well stocked with healthy trees. The walls have within the last few years been greatly improved. Where they were too low they have been heightened, and they have been everywhere washed over with the following composition, which has not only filled up nail holes, but has had, it is thought, a tendency to keep down insects. It consists of Portland cement, gray lime, and copperas. This is applied with a painter's brush. It can be made of a lighter or darker tint by adding a little more or less yellow ochre to it.

By the sides of the approaches to the house and in the vicinity of the latter we remarked many thriving young trees of the better kinds of Conifers, which when they shall have grown up will greatly improve the appearance of the ornamental grounds. Some of the Deodars are already beautiful specimens. One in particular measured 36 feet in height and 27 through the branches near the ground. Of Taxodiums and Cryptomerias there are also good examples, but some of the latter lose their tops here during winter.

Miscellaneous.

Cannibalism in the South Seas.—The Feejee Islands are said to contain nearly 200,000 inhabitants, and those not yet under missionary care are savages of the worst character. They are cannibals to a fearful extent; habitually feeding on human flesh, not from revenge or from necessity, but because they prefer it to other food. They eat their enemies or prisoners when they can; but if unsuccessful in catching these, their lawful prey, they will cook their own wives or children. Not long ago a case occurred at Feejee, when a wretch ordered his wife to heat the oven, and when she had heated it, she asked him "Where is the food?" "You are the food!" was the savage reply, as he instantly clubbed her, and then cooked her for himself and party! The captain of our vessel tells me that the last time he was in Feejee, in 1847, he saw 100 human bodies laid out at one time ready for cooking, at a great feast. Sometimes they cook a man whole (which they call a "long-pig"), then put him in a sitting posture, with a fan in his hand, and ornamented as if alive, and thus they carry him in state, as a grand head dish for a feast. Others chew little bits of raw human flesh (as sailors chew tobacco), and put them into their children's mouths. *Extract from a letter from Dr. Harvey to Mr. N. B. Ward.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—When it is found necessary to water the beds of this house choose a fine morning for the operation and give enough to well moisten the soil, using lukewarm water for the purpose, and be careful to guard against damp for a few days afterwards by giving air, or when this cannot be done, use sufficient fire-heat to secure a gentle circulation of the atmosphere. Go carefully over the plants every morning, and remove any decaying leaves or flowers as soon as they are perceptible, for no amount of floral display will render a house agreeable unless accompanied by cleanliness and neatness. And as soon as the beauty of any of the pot specimens is over remove them to suitable quarters elsewhere, and supply their places with others in full flower. Do not excite Stove plants at present; wait for longer days and more light.

FLOWER GARDEN AND SHRUBBERIES.

With the exception of pruning or thinning, and wheeling when the weather is frosty, little can be done in these departments at present. Any of the shrubbery borders which may require a dressing of fresh soil or manure should, however, be attended to, whenever the weather is favourable for such work. Any alterations that may be in hand involving the removal of a considerable bulk of soil, cutting walks, or anything which can be judiciously done now should be pushed forward as expeditiously as possible, in order to have the hands at liberty for the ordinary routine of spring work, which will soon be demanding attention. When out-door operations cannot be profitably proceeded with see to getting an ample stock of stakes made and painted; also pegs, labels, brooms, &c., and put them aside ready for use when wanted. The preparation of these things is sometimes omitted until they are wanted for use, and then it is generally difficult to spare time for such tedious work, therefore see that there is a sufficient stock of all such things in readiness before the busy season arrives.

FORCING DEPARTMENT.

PINERIES.—Cold changeable weather will necessitate the use of a considerable amount of fire-heat, particularly where a high temperature is being maintained with the view of inducing the plants to show fruit, and in the case of swelling fruit, see that a proportionate amount of atmospheric moisture is secured, for accommodating as the Pine must be admitted to be, it is by no means benefited by a warm parched state of the atmosphere; see that none of the stock is allowed to suffer for want of water at the root. For succession plants a temperature of from 50° to 55° by means of fire-heat will be sufficiently high, but it should not be allowed to fall below 50°. VINERIES.—The early house will now require careful attention, and as the Vines in some places will probably be in bloom, the night temperature must not be allowed to fall below 60°, and 70° should be secured during the day. Maintain a healthy growing atmosphere by sprinkling the floors, &c., as may be necessary, and admit fresh air whenever this can be safely done. Also attend carefully to the border, and if fermenting material is used do not allow the heat to decline, and where this is not used see that whatever covering is employed is efficient.

HARDY FRUIT AND KITCHEN GARDEN.

The pruning of orchard trees is a matter which is too frequently neglected, and the result is that the heads of the trees get so crowded with wood as to render a crop of fruit, except upon the extremities of the outer branches, not to be expected; and the thicket of worse than useless spray, which the trees have to support, is injurious both to the size and quality of the fruit, and also to the general health of the tree. Where this state of things has been allowed to prevail hitherto, advantage should be taken of the first opportunity of sparing time from other work to give the trees a careful pruning, thinning out the inner branches severely. In the case of large branches being cut off, the surface of the wound should be neatly trimmed off with a sharp tool, and covered with a coat of paint, to prevent the wet soaking into and rotting the wood. Prepare soil, &c., that may be wanted for planting young trees, and get it laid down where it will be needed. Also proceed with the pruning of fruit bushes, &c., when the weather admits. See to the protection of Lettuces, Cauliflowers, &c., under glass, by guarding them from frost; but take every opportunity of exposing such things to light and air. Attend to keeping up a succession of French Beans, and use the syringe freely on those growing in the forcing houses, as they are particularly liable to the attacks of red spider, which, if once allowed to gain a footing in a house, soon spreads and becomes troublesome. Also introduce roots of Asparagus, Seakale, and Rhubarb into heat at regular intervals, so as to make sure of a constant supply. Rhubarb and Seakale do perfectly well on a shelf, or the floor of the Mushroom house, where they are probably less troublesome than elsewhere.

COTTAGERS' GARDENS.

Those who possess even very small gardens will have to follow much of the routine business contained in the Kitchen Garden and Orchard division of the Calendar. The Apricot, the Cherry, or the Pear tree against the gable will require of course the same kind of handling. Gooseberry and Currant pruning must be completed as soon as possible. After pruning it is well to top dress the bushes a little. To accomplish this draw a little of the surface soil away with a hoe, then apply the manure, and, finally soil the whole over about 2 inches deep. If the weather be mild and the soil in a mellow state, the Cabbage plot may be hoed through, and if a stock of August plants is at hand on such soils gaps may be filled up. Early sprouting Potatoes are better in the ground than on the shelf, and therefore all who have ground to spare should plant such forthwith, taking care to cover them with soil at least 6 inches deep.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 17, 1856, as observed at the Horticultural Gardens

Jan.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday	11	4	30.071	29.756	36	28	32.0	41½	43	N.E.	.00
Satur.	12	5	30.522	30.291	36	21	28.5	41	42½	N.E.	.00
Sunday	13	6	30.657	30.544	39	20	29.5	39	41½	N.E.	.00
Mon..	14		30.305	30.029	37	19	28.0	38½	41	N.E.	.00
Tues.	15	8	29.954	29.922	41	26	33.5	38	41½	W.	.00
Wed.	16	9	29.936	29.839	42	35	38.5	38	40	S.W.	.01
Thurs	17	10	29.593	29.46	50	44	47.0	40	40	S.	.12
Average			30.145	29.981	40.1	27.5	33.8	39.4	41.2		.03

Jan. 11—Clear and frosty; cloudy and cold; frosty.
— 12—Cloudy with clear intervals; occasional sunshine; frosty.
— 13—Clear and frosty; fine; sharp frost; barometer remarkably high.
— 14—Dry air and frosty; clear, cold, and dry; cloudy; frosty.
— 15—Sharp frost; clear; fine.
— 16—Fine; slight rain; foggy; cloudy at night.
— 17—Overcast; cloudy; fine; rain at night.

Mean temperature of the week 2½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Jan. 26, 1856.

Jan.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	20	41.5	30.4	35.9	11	0.65 in.	4	6	5	1	5	6	2	1
Mon.	21	43.3	32.5	37.9	13	0.48	—	4	5	1	7	7	4	2
Tues.	22	43.5	33.1	38.3	11	0.37	2	4	1	5	3	10	2	3
Wed.	23	44.1	33.2	38.6	11	0.57	1	3	2	3	5	10	2	4
Thurs	24	43.3	32.3	37.8	13	0.51	3	3	2	1	3	12	5	1
Friday	25	44.1	33.2	38.6	15	0.90	1	3	3	1	4	11	4	3
Satur.	26	44.8	31.8	38.3	12	0.34	1	4	3	3	1	11	4	3

The highest temperature during the above period occurred on the 23d, 1834—therm. 58 deg.; and the lowest on the 20th, 1838—therm. 7 deg.

Notices to Correspondents.

BATATES: *T F W.* Siebold & Co., Leyden.

FLORICULTURISTS: *Teignmouth.* A good trade list will be found in Edwards's Almanack.‡

MISELTOE: *W. H.* When ripe insert the glutinous seeds into a slit or cleft on the *under* side of the branch. The reason why you fail no doubt is that birds eat the seed before it germinates; they cannot get at it if on the under side.‡

NAMES OF FRUITS: *C Pennill.* 1, the name you have for it in your locality, viz., the "Old Man," is the only one by which it appears to be known; 2, Golden Noble; 3, Reinette du Canada. —*P M C.* Beurré Diel; as it has not become melting it should have been kept in a warm place. ‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J B.* 1, Cyathea dealbata; 2, Asplenium lucidum; 3, Goniopteris pennigera; 4, Pteris serrulata. *S.*—*A B.* For "Gompholobium," see p. 24, read "Goniophlebium." *S.*—*W W S.*—1, Phymatodes crassifolia; 2, Lomaria lanceolata; 3, Pteris crenata; 4, Phymatodes pustulata; 5, Lastrea decomposita; 6, Blechnum gracile; 7, Asplenium Adiantum-nigrum. *S.* We must beg the number not to exceed 4.—*M C.* 1, Lycopodium denticulatum; 2, L. helveticum.—*G B.* Senecio scandens.

PEARS: *Enquirer.* The periods at which these arrive at maturity vary in different seasons, and in different situations, so that the exact order in which the varieties named in your list will follow in succession is uncertain; but will be nearly as follows: —Louise Bonne (of Jersey), Marie Louise, Beurré de Capiaumont, Duchesse d'Angoulême, Brown Beurré, Althorp Crassane, Beurré Diel, Hacon's Incomparable, Napoléon, Crassane, Beurré d'Aremberg, Winter Nelis, Glou Morceau, Chaumontel, Old Colmar or d'Auch, Passe Colmar, Knight's Monarch, Ne Plus Meuris, Easter Beurré, Beurré Rance. The Beurré Diel, Chaumontel, and Ne Plus Meuris will become more melting in a temperature of 55° or 60° than in one of 45°—50°. It is not too late to root-prune. It is to be presumed you have tried the effects of judicious summer pruning.

PUMPKINS: *J S H.* The French peasants eat them boiled like Turnips, or mashed, or, which is more common, as the foundation for soup. For this purpose your people had better be told to peel and boil a piece of the gourd till it can be easily mashed down; then to add Onions or other vegetables, some milk, pepper, salt, and a little sugar if they can afford it, and boil the whole till well done. Of course it would be better to substitute good bone broth for milk, if they can obtain it. Sliced and baked with Apples Pumpkins also make a nice pie. When a Pumpkin is begun it should be kept as dry as possible, so that it may not get mouldy; it will then be cut and come again for weeks.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol; or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—ANTONY GIBBS & SONS.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

TURNIP AND CORN SOWING.

BONE MANURE (either half-inch or dust), SUPERPHOSPHATE OF LIME, SULPHURIC ACID, &c.—These valuable and genuine Manures may be had in any quantity, of JARED TERRETT HUNT, Lambeth Wharf, Upper Fore Street, Lambeth, London, delivered to any Wharf or Railway Station in London, in sacks or otherwise.

J. T. H. earnestly recommends to the attention of the nobility and gentry his PULVERISED BONE-DUST for the renovation of Lawns, Meadows, Parks, &c.

Also, his PREPARED BONES, for the dressing of Vine Roots, Asparagus Beds, Fruit Trees, &c.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINAGE OF LAND.

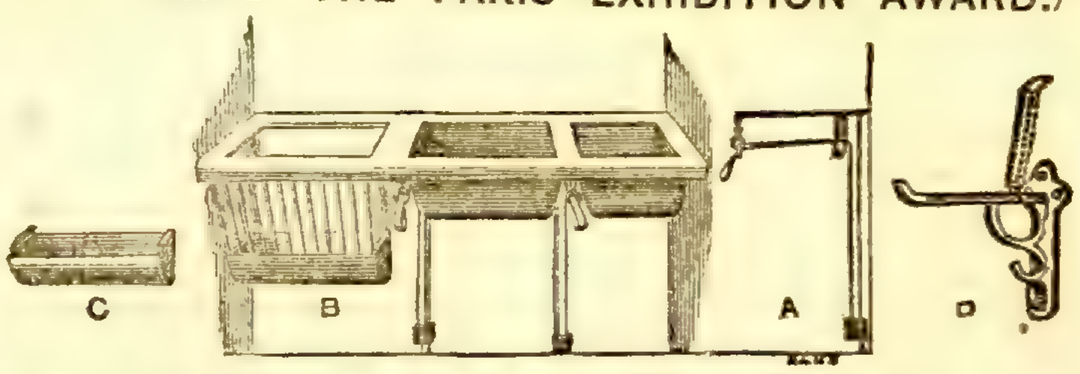
MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the Improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected: Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.
(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN.

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

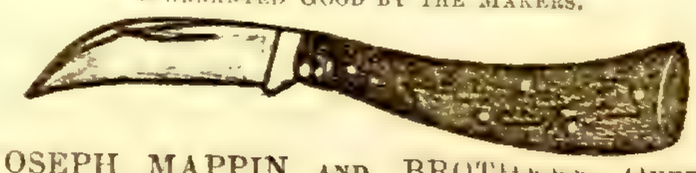
WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture,* including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

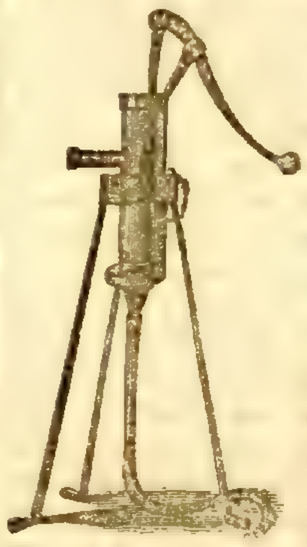
MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30*s.*; cast iron 35*s.* each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.
Address BARTON'S Iron Works, 370, Oxford Street, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

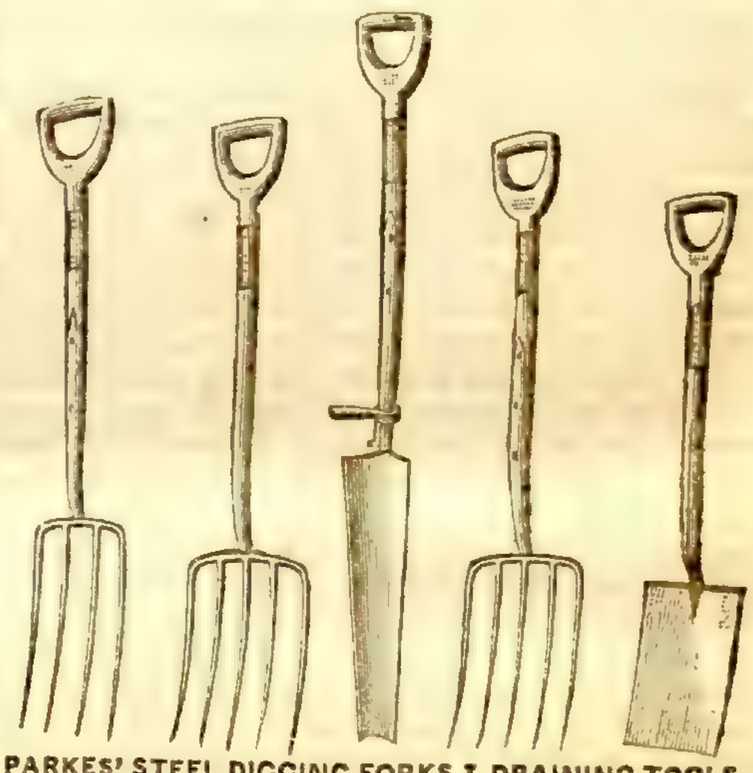
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2¼ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2¼ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, London.

OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL, AND OTHER FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. SUTTON'S *Priced List,* which may be had, post free, on application, Addressed SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Agricultural Gazette.

SATURDAY, JANUARY 19, 1856.

WE fear that the words "AGRICULTURAL CONSTANTS," suggested by Mr. MARTYN ROBERTS, are a misnomer. The engineer can quote his "Constants" with confidence, knowing that there is a certain fixity of character about the materials with which he has to deal. The weight of the atmosphere, the strength of cast-iron, the fluidity of water—all

these vary within known limits, which are separated by an interval not so very wide—and accordingly they and many other similar items with which he has to deal furnish him with *constants* in the formulæ which he applies to the varying circumstances that he has to take advantage of, or over which he seeks to triumph. But in the case of agriculture, where is the continual recurrence of the same experience?—the constant occurrence after similar causes of the same effects? Take any series of particulars of one class, whether of causes or effects, and see how widely separated are the maxima and minima among the individuals. What is an English winter or an English summer?—what is the annual rain-fall?—what is harvest weather here? It varies 100 per cent.—any one of them—in any feature of the character you shall give it. What is a clay, a marl, a sand? The word applies to 50 very different things. Or, to take the illustration of his meaning which Mr. Martyn Roberts gives—what is "farm-yard dung?" It may be the poorest stuff that ever figured as "organic matter" in the analysis of a worthless fertiliser—or it may be the standard of which some chemists say that 100 of it are equivalent to 5 of Peruvian guano! We fear that Mr. Roberts will not find his "constants" in the manure market. The superphosphate with which he seeks to compare this farm-yard dung is itself the most variable of things. We have Mr. Grady contending for 2 or 3 per cent. of soluble along with an abundance of the neutral or his "semi-soluble" phosphate in his compost, while other makers issue 15 soluble and 15 neutral in the hundred. And Mr. Lawes, we are told, has reached 25 or 30 per cent. of the soluble biphosphate in *his* "superphosphate"—and yet this name applies to *all*.

Shall we find the constancy which Mr. Roberts seeks in the soil, the air, or water, out of which farm produce grows—experience even of the second and the third of these particulars is against us. The irrigator knows how variable is the last in its effects in different places, and country life is full of evidence that the air itself, more especially as regards its watery part, is full of change in its character as an agricultural agent. Shall we find it in the *life* by means of which constancy in the character of these external agents would then exhibit itself in a uniform experience of growth? Plants and animals both vary in that vigour of constitution, according to which their food becomes assimilated. We have Potato diseases, mildews—blights—evidence on every hand in plants that there is no constancy here any more than in the external circumstances to which these vegetable affections are generally attributed. And as to animal vitality we have health in every stage of energy down to mere existence and disease and positive decay, in our live stock, proving that our agricultural constants are not to be sought for in the foldyard or the feeding house. And if we go to the results of our operations, and see them in the butcher's shop, at the seedsman's, or at the miller's—ask for any one of the articles turned out, and you shall have it of half-a-dozen different qualities and of as many different prices. Or look at them in the tables of our theorists and scientific men—in that enumeration of equivalents by which the relative values of our produce is attempted to be indicated—and you will find that half a dozen different authorities will give as many different statements.

If then Mr. Roberts is correct in denominating what he wants as "constants," it must be understood that that degree of variation which is permitted in the "constants" of the engineer or architect is 100-fold increased in those with which the farmer has to deal. They really are not constants, and the inquiries into their nature which have been suggested must be directed rather to the extent of their variations than to any attempted definition of themselves. With this modification, then, of Mr. Martyn Roberts's suggestion we gladly second his desire: and, as an instance, should be exceedingly glad of any information which our correspondents could give us tending in any degree to answer the question which he puts—What price per ton can we afford to give for farm-yard dung on the land to equalise it with guano at 13*l.*, and superphosphate at 8*l.* per ton?

Having described Finger and Toe in our last year's Volume, and shown how different it is in its nature and origin from Anbury, the causes of which have also been pointed out, it may be well in this place to sum up the main differences between these two affections.

1st. Finger and Toe:—

a. A branched or forked method of growth of roots, the branches gradually lessening downwards.

b. Common to all root crops — Parsnips, Carrots, Mangel Wurzel, Turnips, both common and Swedish.

c. Caused by degeneration in growth, as good agricultural forms arise from advancement by cultivation.

d. Results from bad seed, bad farming, and all other circumstances which tend to degeneracy.

e. Finger and Toe does not necessarily follow in Carrots and Turnips in the same soil that inevitably produces Anbury in Turnips.

f. Soil liable to produce Finger and Toe is not necessarily subject to Anbury.

g. Finger and Toe is most prevalent on poor soils.

2d. Anbury:—

a. Irregular swellings or nodular appendages upon the main root or its rootlets, being tumour-like excrescences having no determinate outline.

b. Peculiar to the Brassica tribe, to which belong Cabbages and Turnips.

c. The result of insect attacks—giving rise to various kinds of galls.

d. The different forms of malformation arising from different species of insects.

e. Different species of insects and consequently different forms of Anbury mark peculiar soils.

f. Good seed as liable to Anbury as the reverse.

g. Is most common in good rich soil, especially if void of lime.

As regards the methods to be adopted in preventing these two affections of roots, it must be confessed that we are considerably in the dark, a circumstance not to be wondered at when we consider how they have always been confounded; hence, when we first pointed out the nature of Finger and Toe as it exists on the limestone tracts of the Cotswolds, many friends on soils not calcareous pointed out that liming was the best method of prevention, but it will now be seen that whatever tends to good cultivation, that is, whatever treatment different from their growth in wild nature we can place roots under, the greater will be their change; and thus their change of habit, as when seaside plants growing in places where their seed has been accidently scattered are taken to an inland habitat, both seed and soil duly prepared by cultivation and the plants being looked after (during growth), it results in the enlarged cultivated bulb instead of the smaller wild one. Having thus attained this position neglect of the conditions by which it was arrived at necessarily produces degeneracy or a reversion to the wild form. Here, then, the prevention of finger and toe will be seen to depend upon observing the laws of development of good roots and keeping them subject to such laws; but inasmuch as anbury is totally distinct from it and is wholly caused by insects, we must carefully inquire into the forms of insects which give rise to anbury, and narrowly watch their habits and instincts—that is, study their natural history before we can arrive at sound principles upon which to base our operations.

Now inasmuch as this still remains to be done, we must for the present content ourselves with merely commenting upon the treatment of anbury by lime, which is adopted by the practical farmer. Lime is held to be a specific for true anbury, that is its fingered form; and if we bear in mind that the warbles and clubbing, which we described in our last Paper as attacking the surface of the bulb, are universally found to prevail in limestone soils, we may conclude that that soil has a decided influence upon the existence of the insects by which these malformations are caused; and, inasmuch as the true anbury eschews lime as not suitable for the development of the insects by which it is caused, so therefore the use of lime prevents the ravages of these insects in non-calcareous or anbury soils.

However, as before hinted at, we want much observation before anything like a specific can be mentioned for anbury, especially if, as we think, it is caused by several forms of insects. We shall therefore, for the present, rest content with having shown that much discrepancy of opinion must necessarily have arisen upon the subject, from the fact of the forking of roots by mere digitation (finger and toe) having been confounded with the malformations caused by insects (anbury, clubbing, &c.)

We may safely conclude that neither finger and toe nor anbury can result from isolated patches of manure,* manure of all kinds being most effective in preventing the kind of degeneracy by which finger and toe is produced, poor soils being the most liable to produce it; and if manure at all affects the anbury it certainly is not by making the small fibres grow into large branches, though it is possible that some manures may be found to offer a nidus for some of the insects in one or other of their stages of development.

From these remarks we may conclude that the subject of malformations of root crops is one of considerable interest in a pathological and physiological point of view, besides being one of vast importance in the economy of agriculture; indeed, however we look at it we cannot help concluding that it will well repay much more careful and extensive investigation than it has yet received, and we therefore feel justified in inviting communications upon the subject from our numerous readers, in all which we would beg to offer the following suggestions as a basis for the inquiry:—

1st. Accurate description and distinction of Finger and Toe and Anbury in all stages of development.

2d. In the case of the former, state how often the crop has been cultivated in the same soil, and offer any facts connected with the seed.

3d. In both, point out the nature and composition of the soil, in reference to its geological structure and method of cultivation, *climate*, &c.

4th. Observations should be made of the various insects by which galls, protuberances, and other malformations may be caused.

* See some excellent remarks upon this subject under the head of Vegetable Pathology in the *Gardeners' Chronicle*. The whole of this series of papers should be read, as the most valuable contributions we possess on diseases and malformations of plants.

ON FARM BAILIFFS.

I observe in the *Agricultural Gazette* of the 5th inst. "A Novice" is very anxious to know who farm bailiffs are, and what they ought to be. He has answered the first question pretty fully himself, only that among the several classes he mentions there is hardly one that comes up to the mark. I shall only make a remark on those he mentions as I pass them, and then say what I think they ought to be. Perhaps each class is good in its place, as there are varieties of situations for them; only the highest, as he seems to think them, have no proper place on the farm, either as farmers for themselves or others. This evil of the frog swelling himself to equal the ox is now too common among all classes, although all complain of it. But nowhere is excess of delicacy more out of place than on the farm; even the farmer's wife and daughters if fine are considered out of character; so I think we must agree to throw this class overboard, and banish them from the list of agriculturists, however well they may talk of all the new things of the day. And if it is true that their idea of economy is to keep down the labourer's wages, they may as well try how it fits themselves. As to the Scotch ones, who he says are numerous, but who, though knowing ones at home must serve an apprenticeship in the south, I shall admit the truth of the assertion; but it is true of every one when from home, perhaps more so in farming than any other calling. But if they are well informed in their business generally, they will soon adapt their methods to the circumstances. And they have this advantage over their southern friends—that they have never been wedded to their own parish, which is a sad drawback to improvement in the south. Instead of living in the same parish, or even county, in their own country, they are like the journeyman tradesman, who acquires the most perfect knowledge of his business after his indentures are expired. He has learned that the plans of his native place may not be all the best, and when once this piece of knowledge is acquired, he will then be open to conviction. By seeing that different operations may produce the same effect, he learns to make the most of what comes under his charge.

Respecting the hybrid-floriculturists, each occupation requires too close attention for any one to excel in both, and where the attempt is made failure in one or both must follow. I believe the flower department will be the loser, for few will like to be confined to the garden after tasting the open air in the fields.

The next class of broken-down farmers I have little to say about; but they may make good managers for others, as they have learned the position of many shoals and rocks to be avoided. And I think there is no experience so valuable as that which has been paid for; it may have been too late for their own use, but may be worth something to others.

But now for the last class, the working bailiffs, whom "A Novice" seems to think are after all the right men, and which I do not deny; neither do I deny that farms under their management are as well managed as by others. But is this because they wear a smock frock, or are not so well educated? The former has nothing to do with the matter, and the latter no one, I suppose, will think to be of any advantage. Why may they not be able to talk about steam engines, herd books, &c., combined with a knowledge of holding the plough, feeding or threshing machines, and guiding a reaping machine? And might they not have as much philosophy as teach them to perceive and understand the feelings, and, if you will, the infirmities of those they may have to superintend, which is the most important machine after all. Might not they have education enough to know themselves, and give them the tact to manage others without the employment of that tyrannous and overbearing manner which we so often see in the conduct of the ignorant. Why should they not be intelligent men, and treat others as men? And however well this class may manage fields, they are not fit to be over the whole farm if they have not some education.

I think a bailiff and farmer too ought to have served his time to the profession, and, as all eminent men have done, get a knowledge of his business by manual experience more or less. They ought to be able to lay their hand to any work, if not in the best manner, at any rate so as not to be laughed at by those they are over. They may not be the best ploughmen or mowers, but they ought to be able to handle each thing in a workmanlike manner; such qualifications will do more to secure the respect of those under them than many of what are

called accomplishments. They ought not to assume a forward and haughty bearing towards any, as that will make them be looked upon by the more intelligent with contempt and ridicule, and treated with fawning flattery by the mean and cringing. They ought to act in a firm and tolerant manner towards all, not disdaining to hold counsel with any. It is a great point to make any one feel that you find them superior in some one qualification, as all are. Of course, a bailiff ought to be master between the proprietor and the labourer, but by a firm and prudent management he will find no difficulty in upholding his authority without parading it. Again, in their dealings with others, they ought not to assume too much, but rather prove by their tact that they do know what they are about. And there is a little, a very little, point they ought to attend to—not to use the egotistical *I* so much as they often do; the editorial *we* is far more suitable. As to taking lessons over the hedge, let them do so by all means, and make no secret of the matter; for we must be ever learning, and he who learns most will go ahead. But a man cannot acquire instruction unless he has been taught in his youth how to teach himself, for that is the use of our early teaching. It teaches people to teach themselves; to cut their coat according to their cloth; to turn all their opportunities to the best account; to adapt their work to the circumstances under which they are placed. Those who reside constantly upon their property may have one with little education to manage for them, and such may and do make good farmers in the locality to which they are accustomed; if not there, they are at sea without a compass. For prejudice, the sure companion of ignorance, will stand between them and success under different circumstances. In short, an intelligent working bailiff who can lay his hand to anything when necessary without being laughed at for his awkwardness, is the right man for the right place; and your correspondent may hence discover why so many of them are from the north. *G. S.*

A STEAM-CULTURE REVERIE.—No. II.

ARRIVED within the precincts of my friend's domain, I marvelled at the transformations which had there taken place. The whole surface of the estate was skinned of every vestige of what had formerly occupied it; and only the old contours and inequalities of ground extending between the same woods and landmarks, remained uneffaced. A new arrangement of fields, fences, and crops bewildered my gaze; and instead of the great gabled barn with its tributary buildings, and the cozy farm-house near its sheltering rookery, long factory-like erections spread in wings and offsets over a large breadth of ground, with a lofty chimney reared from their centre.

The stubbles through which I passed were laid out in strips, like those I have seen at Lois-Weedon, while the crops of roots and green food struck me as prodigiously bulky and luxuriant. Swedes I saw with most colossal bulbs, and the Cabbages were already grown into enormous bushes. On the mown portion of one plot of astonishing Rye-grass a party of workpeople were squirting liquid from a hose-pipe, just as they do at Tiptree. Approaching the buildings—the "works" rather than the "farmstead"—I did not observe any ragged chickens fed on "medicated grain," or detect the smell of chlorine gas employed in bleaching black sheep white, novelties which distressed and nearly suffocated "Mr. Punch" in a "Chemical Farm-yard;" but making my way round a series of well filled rick-sheds, and disturbing abundant coveys of plump poultry, soon found my friend in his foreman's "office."

Truly enough he had wonders to show in the form of more than one experimental steam-cultivator; but my first inquiries having been directed to the novel system of husbandry he had adopted, I must devote this preliminary paper to his explanation.

"I am testing," said he, "a new theory, which I can best enunciate in a few observations. Agriculture comprises two distinct arts or processes, namely, the raising of vegetable produce out of the soil, and the converting of vegetable into animal productions: both supplying food and raw materials for a consuming and industrial population. Now, one must suppose that to be a very imperfect art which would use up a large proportion of its own productions in order to spare a remnant for market; and if this be true our present practices of fattening live-stock with grain which is good human food, and of decomposing into a manure a great bulk of straw and other vegetable substances which might be employed as cattle-food are both make-shift expedients, and not founded upon an enduring principle. When by a series of slow labours in the field a portion of human food has been evolved from the earth, let it not be again wastefully buried for the purpose of maintaining the soil's fertility, but barter it for some inedible, unofficinal commodity, some organic refuse, or some otherwise useless mineral, which you may legitimately sow in its only proper matrix—the earth—to procure a future vegetable abundance. I practically acknowledge this principle when I substitute a steam-engine that feeds on coal for horses that eat up so much of my cropping; and surely farming will arrive at a normal and matured state only after what horses would consume has been saved, that which the more hungry soil devours has been saved also. Then as to the other point: why need we lavishly pamper our cattle upon substances which with great pains we have manufactured into human food, when the animals will thrive on provender that man cannot eat? To carry out my theory, therefore, I am endeavouring to economise all the products of my farm, so as to consume most of what is lowest, and export most of what is highest in the scale of value. Every atom of my vegetable produce is sold or eaten: all the grain being sent to market; and beef, pork, and mutton, made only of straw, Grasses, roots, and such sorts and parts of cropping as are least wanted by human beings. I purchase linseed, oilcake, and other feeding stuffs which can be cooked for no man's table; I get sewage manure from towns; fertilisers from the fisheries, and from factories, where they are compounded out of the refuse of the three natural kingdoms. Thus I produce cattle food from manure, and human food from both of them, without a retrograde conversion of the higher into the lower class of commodities.

"Subordinate to this main object I am conducting various minor experiments. On some fields you see the Weedon system: cereal crops following year after year; the deep tillage being accomplished by my newly-contrived implements. But the chief part of the land is under rotation; the green crops being manured and irrigated by steam-pumps, and thus made to some extent independent of a fluctuating rainfall. The drainage of the farm, with an occasional stream from the hills, feeds the reservoir from which I mix and distribute my manure. My sheep and beasts, except a few grazing on two good pastures, are all housed; so that not a particle of manure is exposed while being manufactured to a scorching exhausting sun, or washing and wasting floods of rain; though I can moisten and ferment it at pleasure. By the bye, a friend of mine is making a 'double-silicate' for Wheat, which is likely to supplant the 'marvel of Peru.'

"From all I have now told you I am by no means sure that ultimately the growth of corn and the production of meat will not become two distinct occupations. So that on some descriptions of land we may have whole farms of green crops; no part of the vegetable produce being sold, but all consumed in vast cattle-feeding and manure-making establishments. In other localities, every acre would be under corn every year; not a single head of stock being kept, but all the straw either sold for manufacturing purposes, or with stover and inferior produce of all kinds disposed of to the meat farmers in exchange for portable manure. Indeed, farming threatens to become so elaborate a business that the man whose habits and qualifications fit him for the refined operations of tillage, or for the delicate processes of chemical manuring, will be quite incapable of judging cattle, sheep, and live stock in general; of selection and watchfulness in breeding and rearing; of solicitous care in fattening; of roughing it in the fair and market: in short, husbandry includes such a multifarious cluster of occupations, from the management of steam machinery to the breaking of a colt, from the geology and chemistry of the field to the suckling, milking, and poultry-keeping of the yard, that no one man can be genius enough to master the whole. Depend upon it, when a proper division of labour shall be made, agriculture will march with quite an epic progress, leaving all other arts at a shame-faced or indignant distance."

* * * * While my friend was thus delivering himself, considerably to my enlightenment as well as surprise, we had drawn towards the house; and now, after due introductions, &c., there, we sallied forth for a peep at the "cultivators." *I. A. C.*

MR. LAWES OF ROTHAMSTED.

WE gave some months ago an abridged report of the address given by Mr. Lawes on the occasion of the presentation to him of the testimonial on the 19th of July last. The following is a fuller account of Mr. Lawes's remarks on that occasion:—

"Gentlemen, I will now just explain to you to what purpose we propose to devote your building, in doing which I will point out in what way and to what extent science is most likely to be beneficial. The great chemists who lived in the early part of this century were generally of opinion that science would do very little to improve the practice of agriculture. Sir Humphry Davy, one of the most eminent of them, wrote a book on agricultural chemistry; but I am not aware that it resulted in any improvement of the practice of the day. And if you consult the works devoted to agriculture up to about 1840 you will find no mention of the scientific terms so common in all works on the subject at the present day. The French and German agricultural chemists made great progress in the application of the science of chemistry to agriculture; but little attention was paid to the subject in this country until the publication of Baron Liebig's work in 1840. That work thoroughly roused the attention of agriculturalists, and from that time there has been a constantly growing opinion amongst them that their practice might be greatly benefited and improved by the application of science. Some of the writers on the subject of agricultural chemistry have, however, misconceived and mis-stated the mode of its applicability to practice, so that they have thus rather retarded the progress of the science which they wished to advance. Looking at the great advantages which science has conferred on the manufactures of this country during the last half century, they have predicted that similar advantages would result from the application of science to agriculture. We must not suffer ourselves to be dazzled by such delusive predictions. There is an essential difference between manufactures and agriculture, which it is necessary for us to bear in mind. The success of our manufacturers arises from a combination of skill and capital with an abundance of such things as iron and coal. I am not prepared to deny that our agriculturists possess equal skill and equal capital; but where is the abundance of their raw material? Where are our guano beds in Great Britain? We have large deposits of phosphate of lime; but we are deficient in that very important article—ammonia. If science could give us an abundance of necessary manures, at very low prices, it would create as great a revolution in agriculture as it has done in manufacture. But even then there would still remain a great distinction in favour of manufactures. Give the manufacturer a great and continued demand for his goods, and there is no limit to his productive powers. He can erect fresh buildings; he can construct new steam engines; he can obtain the assistance of more factory girls. But even if we had an abundance of excellent manures at a cheap rate, our productive powers would still be limited by climate. The sun is our steam engine; the showers are our factory children. These are not at our command—they will not do our bidding; and, therefore, with all the advantages that science can give us, we must not expect the productive powers of agriculture to increase in the same ratio, and with the same certainty, as the productive powers of manufactures. Agriculture as practised in Great Britain in the present day, is a very different process, requiring more skill and capital, to agriculture as practised in other nations. In those countries where land is cheap and abundant, and where a man has merely to cast his seed into the earth, without any previous preparation, and pay no more attention to it till the harvest time, when he may go and reap 40 bushels of Wheat or 100 bushels of Indian corn per acre, it would be a mockery to offer the assistance of science to agriculture. But in a country like this, where land is scarce and commands high rents, where the land requires a great deal of preparation, and where labour is dear, the application of science is absolutely necessary. The explanation of the exhaustion of land by corn cropping, and of the effect of various manures, is involved in the science of agricultural chemistry; and the knowledge on these subjects which is to be obtained from that science should enable us to conduct our operations with certainty and success. I have often received visits from practical agriculturists, some of whom have come from a great distance, and very glad I have been to see them. One question however, they invariably put, but which I would they should not put. It generally comes out where the finest crop is found; the question is—"Does it pay?" Of course I cannot say "yes," but if I give a negative, then my friend, whoever he may be, is apt to think, "Ah, it's all very well for you, who have got a little money to spare for such pursuits; but it is nothing to me." But I must explain to you, that the object of these investigations is not exactly to put money into my pocket, but to give you the knowledge by which you may be able to put money into yours. Science is not to do away with a rotation of crops; but to enable you to judge of the properties of all your several crops in rotation; and whether it would be better under certain circumstances to grow a second, third, or even fourth crop on the same land, or to follow your usual course. Science will not enable you to grow two grain crops in one year, but it may give you such information respecting the principles of manures as will enable you to turn over your capital in a much smaller space of time than you do at present. A great deal of your capital is placed in the land, where it lies dormant for a long time; but science may correct that evil, by enabling you to put the right manure in the right place. It is sometimes said that farmyard manure possesses an advantage over artificial manures, in its great lasting qualities; this is a fallacy. The lasting qualities of farmyard manure are (in a commercial sense) not an advantage; for it is getting back your money by instalments, instead of getting it all at once. What is your farmyard manure, but so many tons of oil-cake and Turnip? If a man owed you 1000*l.* would you prefer having it all at once, or in ten instalments of 100*l.* a year? The artificial manure pays ready money; but the farmyard manure pays by instalments. The application of science to feeding presents only another sphere of its utility. We give you that knowledge which will enable you to pursue that course which will be most profitable to you. It is not the object of science to interfere between landlord and tenant; but science will impart to the landlord a good knowledge of the qualities of his own land, and it will enable the tenant to turn to the best account the floating capital which he has embarked in the soil."

Home Correspondence.

Land Drainage.—In reply to the observations of C. F. Humbert, on the effects of drainage, it does not seem to me necessary that a porous substratum underlying a thick superstratum of clay is supplied with the whole of the water it contains by percolation through the clay. In several instances in my own draining operations, which have extended over nearly 1000 acres, I have found the clay to overlap a porous substratum when a change of the superstratum occurred from stiff clay to more permeable material. It is clear that the rain which falls on this will, on reaching the porous substratum, charge the whole of this with water as far as it extends. In mining operations, if you enter a stratum of coal which is porous and water-holding with a mine, so as to draw off the water at its lowest level,

you drain the bed of coal to the distance which it extends without interruption, even for miles. I am by no means asserting that stiff clays are impermeable to water; in the instance I have described, of clay overlying a substratum charged with water the clay will absorb moisture from beneath, by capillary attraction, to the height of 2 to 3 feet; (I do not precisely recollect to what height water is drawn by capillary attraction) but to such height the clay will always be saturated. Now when the rain which falls on the surface percolates the clay it will soon charge it to the full. If you drain this land without reaching the porous substratum you get rid of the surface water, but not of that in the substratum. The same rule will equally apply if the superstratum of clay extends over the whole of the porous substratum, and in which case the water is supplied by rain falling on the surface, and passing through the clay. I have also drained land occasionally irrigated from a rivulet which likewise supplies the water-wheel of my corn-mill, and can only use the water for irrigation when there is a surplus beyond what the miller requires. The stream on such occasions is usually muddy, sometimes thickly so, and when thrown over the land, which is in permanent Grass, I invariably observe the water issue from the outfalls much discoloured. Yet it does not occur to me that this has filtered through the soil, I rather attribute it to its finding some crevice through which it escapes into the drain without filtration. Indeed I have some proof of this; the water having found a crevice has by degrees worn this until the effect was visible by the sod over the drain sinking. On one occasion particularly, where a main drain was laid at a depth of more than 7 feet through elevated ground, over which an irrigating channel passed, I was surprised to find a great chasm more than a year after the drain had been made, effected evidently by the process I have described, the soil below having been gradually washed away until the surface, being undermined, fell in. It required many loads of soil to refill this chasm. The drains in this irrigated land are at a depth of 4 feet upwards; the subsoil varies, a considerable portion of it being clay. On filling the drains the greatest care was taken to solidify the soil. That this was the case may be inferred when I state that the whole of the soil taken out was again replaced, leaving the surface quite even. If I were to cut a test-hole where the water does not reach at a distance of 4 feet from the part of the ground covered with this muddy water, I should expect it to fill with clean water to the level of the muddy water. I think I recollect having on several occasions observed this. Those who practice irrigation may easily apply a similar test. *Thomas Horsfall, Burley Hall, Ot'ey, Yorkshire, Jan.* 9. Since the foregoing remarks were written I have ascertained by means of a spirit level the exact height the water saturates by capillary attraction by measuring the distance between the surface of the water of the river Wharf, and the strongly defined line to which the moisture rises, as shown on the banks, in several places where the river is making inroads on the land. In each of these the distance from the surface of the water to the line of saturation is 2 ft. 5½ ins., the soil is a rich alluvial loam. I do not recollect to have seen any precise observations on this; it would be of interest to ascertain whether the power of capillary attraction varies under different circumstances of soil, external temperature, and as to the height to which it saturates the soil. *T. H.*

A Crop of Mangel Wurzel—on deep flat ground, previously under Potatoes, drills 3 feet asunder, ridges thrown up high, and seed dibbled at 16 inches apart, four or five seeds together after having been steeped till there were signs of germination; done in March. I ordered a parcel of the very largest roots which could be found after digging to be laid apart; another parcel of same number of roots from the smallest; and double of these in number from the middle-sized. The average of the best, 10⅓ lbs.; worst, 6⅓ lbs.; middling, 8⅔ lbs. Produce in roots per English acre:—At 10⅓ lbs. per acre, 50 tons, 4 cwt.; at 6⅔ lbs, 30 tons, 4 cwt.; at 8⅔ lbs., 42 tons, 2 cwt.; besides an immense crop of leaves, the lower leaves being plucked as they got full and large. Plants at 16 inches distant give 3 to 4 feet, and a yard in width for drills will be—

ft. ft. feet plants ft. plant.
4 × 3 = 12 ÷ 3 = 4 to 1

or 10,890 plants per acre. The dibbled tufts were thinned by hand when tolerably well grown, so as to show which plants were strongest.

plants		lbs. total weight			cwt.	tons.
10,890	× 6⅓	= 68,970	÷ 112	=	604	= 30.4

J. W.

Farm Bailiffs, who they are, &c.—Farm bailiffs have always been considered fair game for attack, by some openly, by others secretly, and by some like "Novice" covertly, and under the guise of inquiry. It matters little who "Novice" is; his object is to bring into contempt a body of men than whom in their calling I may venture to say there does not exist a more intelligent, more upright, more hardworking, and, I am sorry to add too, a more ill requited class of men in any profession, except indeed poor curates, who always stand *par excellence* at the very top of the list of ill requited labourers. "Smock frock bailiffs" will no doubt suit your correspondent best, on the same principle that, at the time of the discussion of the late Sir Robert Peel's act for instituting a new police force, the "old Charleys" were belauded as "so competent" for their duties, and withal "so cheap." *One of the Attacked.*

The Best Way of Applying Salt to Land.—I read lately with much pleasure an article on "Salt, its Properties and Uses as applied to Agriculture," and the more so as it has long been a favourite theory and subsequent practice of mine; but although your correspondent admits salt to be highly beneficial to the farmer, he neglects to point out its application. My practice has been to largely mix it with tan, sawdust, or any vegetable matter that will absorb the salt in quantity, but tan has proved the most successful, which after a few months laying up and turning over may be put into the land, yielding its properties gradually but permanently up to the end of your growth. Now, if only a top-dressing is given of salt unmixed its properties are yielded to the plant only in its early growth, and when the plant most requires the stimulative action, it is found to have subsided or washed through the land. In making up the dung heap salt should largely be mixed, for while it hastens vegetable decomposition the dung is kept from fermentation, a larger proportion of ammonia is retained. Thus tan and salt must be beneficial for most soils, for while in light it stimulates the plant, and promotes the retention of moisture, in heavy it kills insects, and digests the vegetable matter. *J. K. R.*

Societies.

Highland and Agricultural Society, *Jan.* 7, *Half-yearly General Meeting.*—The Duke of Buccleuch in the chair.

Agricultural Statistics.—Mr. J. Hall Maxwell read the report on this subject. It announced the successful termination of the statistical inquiry for 1855, and proposed that Government having requested that the society should continue the work of collecting the agricultural statistics of Scotland, the society should express its willingness to continue the same co-operation and assistance as it has hitherto afforded, so long as this does not interfere with the original and special objects of the society. The Earl of Eglinton moved, "That the meeting, having heard the report of the directors, sanction the continued co-operation of the society in obtaining the agricultural statistics of Scotland so long as this does not interfere with the original and special objects of the society." His lordship remarked that there could be but one opinion as to the utility of the statistics which had been furnished to Government through the Highland Society; and there could be but one opinion as to the zeal and ability with which their worthy secretary had carried out the inquiry—a zeal and ability which he was justified in saying had distinguished all his acts since the society had been fortunate enough to secure him as their secretary. He could not help adverting to the readiness with which the farmers of Scotland had come forward to give the information which had been asked of them. Their conduct in this matter was most creditable to them; and altogether he thought it was honourable not only to the society and the farmers, but to Scotland itself, that they should have taken the lead in this most useful investigation.

Lord Kinnaird seconded the motion. He quite agreed with the noble earl who had last spoken, that the farmers of Scotland had in this matter set a right example to their brethren in England. The statistics which had been furnished were most valuable, and the only thing which he desiderated was that, previous to the harvest, a preliminary estimate of the crops should be taken, in addition to that at a later period. He thought that before agreeing to this resolution they should hear Mr. Maxwell as to whether he was quite satisfied that the proposal of the Board of Trade would not interfere with the business of the society.

Mr. Hall Maxwell said there were practical ways of testing whether, during the last three years—the period over which the statistical inquiries had extended—the society's superintendence of these inquiries had been in any way inconsistent with or detrimental to its interests. In the first place, he did not think that any one would say that during the period to which he had referred the society had lost position, credit, or influence. He conceived, on the contrary, that it had established an extent of influence which could scarcely have been credited. If they took as a test the number of its members and the state of its funds they found that the funds were most flourishing, and that the accession of members to the society had at no former period been so large. He might also allude to another test: three or four years ago, before statistics were taken up, their general shows were to take place only once in three years. Now, they had actual arrangements made for three shows in three consecutive years. In that respect, therefore, there was a great revival instead of a falling off. Some misapprehension might perhaps exist in the minds of the public how far the official staff of the society had their attention engrossed by the statistical returns. The directors had nothing to do with them; the various committees of the society never had their time taken up with them; and there is a separate and independent staff of clerks for the returns. The whole matter, therefore, resolved itself into a question as to the time which he himself devoted to statistics. Now, this inquiry was conducted between May and November, and as almost the whole business of the Highland Society took place between November and May, although statistics did take up a large portion of his time, it was that time formerly his own, and no section of the society's business was in any way interfered with.

Lord Kinnaird was desirous that the society should receive the explanation which had been given, because he had observed a letter in the *North British Agriculturist*, attributing the inefficiency of the journal to the time of the secretary being taken up in collecting the agricultural statistics; and he wished to show that in no way were the interests of the society interfered with by these statistics.

Mr. Finnie (Swanston) wished to embrace this opportunity of acknowledging, on behalf of the enumerators and members of committee who had aided in the statistical inquiry, their sense of the very flattering manner in which Government had been pleased to notice their services in this great national matter. It was far from his intention to say that no credit was due to them, but it might truly be asked what advantage either landlord or tenant could derive from refusing Government the information asked of them? Were not their rents patent to every parochial board throughout the country? Could not their neighbours and servants number the bestial upon their farms, and estimate their crops as well as they could do themselves? Could not the intelligent observer, who travelled the roads which bounded or intersected their farms, form as just an estimate as farmers themselves of the nature of the land and the produce likely to be obtained from it? And at every fair and market throughout the country were there not sheep-farmers and shepherds who could, within a perfect trifle, estimate the number of sheep kept upon the unmeasured wilds and unexplored ranges of mountains? No advantage could therefore be gained by refusing the necessary information; but notwithstanding this, they might be justly proud that the intelligence of the rent-paying portion of the agricultural community had kept some proportional advance with other improvements throughout the country. But he must add, on behalf of the whole agricultural community that the success of these inquiries had depended in a great measure, he might almost say exclusively, on the able generalship of Mr. Hall Maxwell. With regard to what had been said as to the time occupied in this inquiry, he would assure the meeting, having been a director both before and since these inquiries were commenced, that no part of the society's affairs had been neglected in consequence of them, and the agricultural portion of the community conceived that it was the most legitimate way in which the society could employ its time.

Calendar of Operations

JANUARY.

Farm near Hexham, *Jan.* 14.—From the 5th to the 14th of last month we had a regular snow storm, and after a few fine days a keen black frost set in, of which we have had another week, and now again the ploughs have been stopped for some days. The winter has, however, been so far seasonable, and work was well forward before these frosts set in; and as we have still abundance of hard weather work before us—manure carting out, compost laying on, road repairing, &c.,—we can very well do with "John Frost's" company a little longer. Stubbles are pretty generally turned over and a pretty good breadth of Turnip land sown with Wheat, and that in excellent order, there having been very little rain to interfere with sowing. Some of our more pushing neighbours have got a portion of their lea for Oats ploughed. Cattle in the yards have been doing remarkably well, and find a ready market. I have been using Moodie's Pulper and find it answers a good end. Sheep have also done well except during the hard weather.

Notices to Correspondents.

Agricultural Statistics: *Cor.* Mr. Finlay Dun, in *Bell's Messenger*, has of course completely demolished the very weak and foolish argument attempted to be raised against such inquiries by a correspondent of that paper. The argument, so far as coherent at all, amounts to this, that because God provides for human wants, therefore it is impious in man to attend to them.

Ammonia Water from Gas Water: *A. H.* We should apply it direct on Grass land. If it contains 40 lbs. of ammonia per ton then it is worth about 10*s.* per 100 gallons. But it varies very much in quality according to the coal.

Averages: *Clericus.* It appears from a letter just published by Mr. Willich that the corn averages for seven years past at Christmas last are 6*s.* 6*d.* a bushel for Wheat, 3*s.* 8*d.* for Barley, and 2*s.* 7*d.* for Oats. Each 100*l.* of tithe rentcharge for 1856 will thus amount to 93*l.* 18*s.* 1¼*d*, which is a little more than 4 per cent. above last year's value. The average of the 20 years since the passing of the Tithe Commutation Act is 98*l.* 12*s.* 7¼*d.*

Breeding Sow: *Youngster.* Give her the wash from the house, and a couple of bushels of grains a week mixed with it, and if more food be wanted let her have some steamed Swedes, and towards the time when her litter is expected give her a double handful of "sharps" with each meal. She should be fed three times a day.

Garden Refuse: *Four Years' Sub.* You should mix some farm or stable manure with your garden refuse, lawn sweepings, &c., so as to make it good manure for Potatoes.

Guano: *Stranraer.* The case was this:—Guano warranted as Saldanha Bay was bought and sowed with Turnip seed, at rather more than the usual rate. The Turnips turned out a failure. They were ploughed down and Wheat was sown on the land, which also turned out a failure. The agent was accordingly not only refused payment, but was applied to for compensation for the loss and damage sustained. It was also proved that the floor of the guano stove was the natural sand of the seashore on which it was built! Mr. Sheriff Rhind, in giving judgment, alluded to the sand obtained from a small sample of the stuff which, with the fact of the crop being a total failure, was a proof that the article had been adulterated to a disgraceful extent. He therefore held that the purchaser was not only not liable in the price of the article sold, but that the seller was clearly liable in the purchaser's loss arising from the sale of it, and decided accordingly.

Italian Rye-grass: *A S.* Sow 35 to 40 lbs. per acre broadcast on a loamy soil when it is damp, and brush it in with light seed harrows towards the end of April. This will ensure you good food in autumn of the same year, and an abundant crop in the following season. If sown after a green crop as Turnips pulled, it will not need manure. Or it may be sown about two bushels per acre with a crop of Barley, just as other Grass seeds. —*N B O.* Sow it any time in April or May; or again after harvest, provided the land is moist and with a sufficient tilth.

Molasses as Food for Cattle: *Exeter.* Now that treacle costs 4*d.* a pound its use is out of the question. When it could be

purchased for 1¼*d.* to 1¾*d.* per lb. it would make good straw equal for feeding purposes to good hay at less cost than the difference in the market value of the two, and of course it was then profitable to use it. Mr. Birkett, of Suffolk, has related his experience under those circumstances. He says that the experience of farmers in the eastern counties proves molasses to be a safe and economical method of feeding bullocks, sheep, young stock, and cart horses, and for milking cows to a certain extent. Bullocks have been kept in equally good fattening condition by using 1 lb. of treacle per day with cut straw, thereby saving 1¼ bushels of roots. It is considered best used with roots, cut small, and a little meal, well mixed together, with cut straw or inferior hay; and it is thought more economical to spend a shilling on a fattening bullock after the following scale—4*d.* roots, 5*d.* corn or cake, 3*d.* treacle and chaff—than to give either more root or corn. The main object should be to make straw or inferior hay equal in quality to good hay by means of molasses, and last year as prices then stood the account stood thus:—

450 lbs. of good hay		£1 2 0
450 lbs. of good Wheat straw ...	£0 18 0	
72 lbs. of treacle, at 1¾d.	0 10 6	
Expense of cutting the straw into chaff, and mixing the treacle ...	0 1 0	
		0 19 6
Difference		£0 2 6

Or about 12*s.* 6*d.* per ton in favour of the use of molasses.

MOULDY HAY: *X Y.* All that steaming will do is to make it palatable; but of course that is a great deal. It will not make it more nourishing than it was, but what nourishment the hay possesses can thus be made available; while as long as the hay was refused by the cattle it was of course absolutely useless.

ONE-HORSE CARTS: *Reader.* Mr. Hannam's paper describes correct practice, but defends it upon altogether untenable grounds. His arguments for the use of one-horse carts may be sound enough, but his description of the way in which the load upon the shaft horse may be avoided is altogether based on a misconception of the case.

ROTATION OF CROPS: *Essex.* The case related was this:—In 1850, Michaelmas, a field having on it a half plant of Swedes and Poppies was grubbed up and raked off before Christmas; sown again with Swedes in June, 1851, with 20 loads of muck per acre. The crop was abundant; all drawn, and the field sown with Barley in February, 1852; produce, 119 coombs. In October sown with Beans, which decayed in the winter; was resown with Oats in February, 1853; produce, 162 coombs and 2 bushels. Ten loads of muck per acre were then put on, and the field sown with Payne's Rivet Wheat; produce, 103 coombs 2 bushels. The same quantity of muck was again put on, and the field sown with Red Wheat (1854), which was much injured by the severe frost, and produced 72 coombs 3 bushels. *Alpha, in an Essex paper.*—The field is to be Mangels this year. It is said to be clean, and it certainly has been very productive. Rotations of crops are a scheme for maintaining the fertility of land without extraneous manure. Imported manures enable us in great measure to dispense with them.

SALT AND NITRATE OF SODA: *T B P.* Both, like all soluble manures, should be applied just as the crop is coming into active growth. One cwt. of the latter is enough, and 2 cwt. of the former is generally enough per acre. The former will render the growth luxuriant, the latter will rather check excessive luxuriance. It is well to apply the two together to grain crops—and we should apply in wet weather one half the acreable dressing at a time, at intervals of a month.

SAWDUST: *Scotus.* Try soaking it with putrid urine and turning it over once or twice. If that fails to do it you must get it charred, and use in that state. It is used largely as litter for cattle, and might be turned to account in that way as well as in any other.

SHROPSHIRE DOWNS: *Walsall.* They have maintained their reputation this year, as an increasing demand for them proves. At the sale of Mr. Foster's stock near Stourbridge, shearling rams were sold at 30 guineas, 27*l.* 6*s.*, and other high prices; 25 sheep were sold for 10*l.* 6*s.* 4*d.* each. At Lord Aylesford's sale rams were sold at 11*l.* 10*s.* and under. At the Shropshire great ram fair 20 rams, bred by Mr. Juckes, sold for 16*l.* each, the highest price being 33*l.* 12*s.* At Mr. Masfen's sale near Walsall, 30 rams were sold at 11*l.* 10*s.* each. At Mr. Adney's sale at Harley, 27 rams were sold at 13*l.* 10*s.* each. At Mr. Horton's sale at Harnage, the highest priced ram sold was 33*l.* 12*s.*, the lowest, 9*l.* Last October Mr. Roberts, of Bromford, sold 15 yearling Shropshire rams, at an average of 19*l.* each. These prices rival those of Southdown ram sales and prove that the breed is rising in estimation. We take them from a paper on the subject in the *Midland Counties Herald.*

SOW: *An Old Sub.* She should have two litters a year, and may be put to the boar in 7 or 8 weeks after littering.

SUPERPHOSPHATE OF LIME: *Superphosphate.* The analysis given is that of a good superphosphate. It contains per ton, 400 lbs. of organic matter, containing 22 of ammonia, worth £0 11*s.* 0*d.*

330 lbs. of superphosphate, at 4*d.*	5	10	0	
350 „ „ neutral phosphate, at ¾*d.*	1	1	10½	
156 „ „ alkaline salt (?) worth		?		
134 „ „ silica	0	0	0	
450 „ „ water	0	0	0	
380 „ „ gypsum	0	3	1½	
	7	6	0	

What the alkaline salt may be is not stated. If it be mixed carbonates of soda and of potash, it is worth at least 1*l.* more.

THROWING OUT OF WHEAT: *Subscriber.* The effect is shown in the plant being seen upon the surface with the root exposed, of course to die as soon as the sun has power to wither it. The frost appears to be the cause. It will operate in this way on wet lands, and probably especially when frost succeeds frost with an interval of thaw. The lower end of the root is then still fast in original frost, and the expansion consequent upon the second breaks the fibres so held below.

TO RENDER FEATHERS FIT FOR USE FOR BEDS, PILLOWS, &c. *Subscriber of Eleven Years.* The feathers from land birds, such as turkeys, fowls, &c., should be kept by themselves, and those from water birds, as geese, ducks, &c., may be put together also. These latter are much the best, having the most down, and being softer and more elastic, and it is consequently advisable to use these for pillows; both kinds, from land and water birds, should go through the same process in preparation for use. As soon as convenient, after they are plucked from the birds, they should be put in strong paper bags, and these placed in the oven as soon as the bread comes out, and remaining there till the next day, they will be sufficiently dry to prevent the animal juices decomposing and causing a most disagreeable smell. After this they should be "picked," all passing through women's hands for this purpose, who should strip the feathery part from the quill of all those whose points are sufficiently strong for pressure to cause their piercing the bed-case, and this will be found to be troublesome, even though the closest material may be used, if the feathers are not well "picked." It is not recommended to use a large proportion of the wing or tail feathers, as they are not so elastic, but some of the softest may be cut off the quills with a pair of scissors; the smaller ones may be more quickly stripped with the fingers after "picking." They should be again put in the oven for 12 hours to render them quite sweet and safe from moth, whose eggs might possibly have been deposited among them. They are then fit for filling beds, pillows, cushions, &c. The land and water-birds' feathers may be mixed, which makes rather better stuffing than the former alone, though this is very good for beds if properly prepared. The price as piece-work is from 4*d.* to 6*d.* per lb, the feathers being weighed after being brought home picked and ready for use.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

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TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

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All orders above £2 will be sent carriage free to any Station on the Broad Guage Railways, to any market town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.

All orders above £5 will be sent free of carriage to any Railway Station in England and Wales, and to any Port in England, Wales, Scotland, and Ireland.

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Broughtoni	Iveryana	Exquisite
Optima	Magnificent	Triumphans
Variegata	Delecta (Ryder's)	Perryana
Gledstanesi	Duke of Devonshire	Symmetry

Also all the newest varieties in cultivation, either on their own roots or grafted, 30*s.* to 42*s.* per doz., if 12 or more are taken, viz.:

Vesta	Chelsoni	Criterion
Julianus	Perfection	Beali
Maria (True)	Admiration	Barclavana
Beauty of Europe	Extranesi	Cuspiflora, &c. &c.

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Are now prepared to supply the annexed new and beautiful ANNUALS and BIENNIALS, which have been selected from their general Stock of novelties for the present season.

	Per packet.—*s.*	*d.*
Abronia umbellata, new, beautiful half hardy Annual, rose-coloured trailer ...	1	0
Ageratum conspicuum, new, very handsome ...	2	6
Alonsoa Warscewiczi, new, splendid half hardy Annual, of graceful habit, adorned with scarlet flowers, borne in spikes ...	1	0
Arctotis breviscarpa, new, pretty dwarf Annual, bright orange and dark brown ...	1	0
Anthoxanthum gracile, new, ornamental Grass ...	1	0
Browallia abbreviata, new, fine, very free flowering ...	2	6
Calceolaria californica, new, very pretty ...	1	6
„ scabiosæfolia, new, very handsome ...	1	6
Campanula stricta, new, very profuse flowering variety, extremely pretty ...	1	0
Centauridium Drummondi, new, orange composite flower, very showy ...	1	0
Chrysocephalum arenarium, new, handsome Australian Everlasting ...	2	6
Collinsia bicolor alba, new, pure white, very pretty ...	1	6
Convolvulus bicolor, fl. pl., new, handsome Climbing Annual	1	6
Coreopsis coronata, new, very showy ...	1	0
Cuphea Pellieri, new ...	2	6
Cynoglossum cœlestinum, new, light blue, extremely pretty	2	6
„ Hayni, new, blue, very fine ...	2	6
Delphinium cardiopetalum, new, dark blue, very beautiful	1	0
Dianthus Garnierianus, new, beautiful, very showy ...	1	6
Erigeron Beyrichi, new, pretty composite flower ...	1	6
Erysimum Arkansanum, new, pale yellow, handsome, sweet scented ...	1	6
Gomphrena Haageana, new, beautiful orange-coloured half hardy species, very fine ...	2	6
Gutiernezia gymnospermoides, new, very pretty ...	2	6

	Per packet.—*s.*	*d.*
Gypsophila muralis, new, dwarf, very pretty Annual, with small glossy foliage, covered with deep pink flowers, suitable for edging of beds and rock work...	1	6
Helichrysum brachyrhynchum, new, beautiful Everlasting	1	6
„ bracteatum, dwarf yellow, new ...	1	6
„ „ dwarf white, new ...	1	6
(Both the above varieties are much superior to the old bracteatum.)		
„ macranthum manum, new, very desirable variety ...	1	6
„ compositum maximum, new, large flowered, double, of many colours, from bright yellow to scarlet ...	1	6
Ipomœa limbata, new, purple, with broad white margin, very free flowering (we received this most lovely Climber from our collector, Mr. J. Henshall, who discovered it in Java; this we can strongly recommend) ...	2	6
Ipomœa Mexicana alba, new, very fine ...	2	6
Linum grandiflorum rubrum, new, the true bright crimson large flowering species from Algeria, new and very beautiful ...	1	6
Lypochæta texana, new, handsome ...	2	6
Morna elegans, new, very handsome Everlasting ...	1	0
Nepeta Meyeri, new, very fine ...	1	6
Palafoxia texana, new, fine ...	1	0
Phalacræa cœlestina, new, beautiful light blue ...	1	6
Sabbatia campestris, new, a splendid half hardy Annual, of graceful habit, glossy foliage, and bright rosy pink yellow-centred flowers, very fine and full flowering ...	1	6
Silene Bergeri, new, very pretty ...	1	0
Trifolium aurantiacum, new, free flowering and pretty ...	1	6
Tropæolum Lobbi puniceum, new, dark-blood red, splendid	2	6
Whitlavia grandiflora, new, splendid, very large dark bell-shaped flowers ...	1	6

IMPORTED GERMAN SEEDS, in Collections.

Messrs. WILLIAM ROLLISSON & SONS can now supply the undermentioned German Flower Seeds, which are all in assorted colours, and sent out in sealed Collections, as received from the first German growers in Germany. Our supply of German Flower Seeds we can with every confidence recommend, from the universal satisfaction which they have given for many years. Their superiority over English saved seeds consists in the greater variety and beauty of their colours, and the much larger proportion of double Flowers which they produce.

	Per collection—*s.*	*d.*
Asters, dwarf double German, in 18 splendid varieties ...	4	6
„ quilled double German, in 20 splendid varieties ...	5	0
„ globe-flowered double, in 12 splendid varieties ...	3	0
„ globe pyramidal flowered, double, in 20 splen. vars.	5	0
„ new dwarf bouquet pyramidal double, in 12 splendid varieties ...	4	0
„ Truffaut's new superb French pæony-flowering pyramidal, in 10 finest varieties ...	4	0
Balsams, Smith's superb double Balsams. The flowers are large, extremely double and well formed, of good habit, and of distinct and striking colours. In sealed packets, containing 6 vars. separate ...	2	6
„ Camellia-flowered, double, in 10 new varieties ...	3	0
Larkspurs, double dwarf rocket, in 12 splendid varieties ...	3	0
„ double tall, in 8 splendid varieties ...	3	0
„ new Hyacinth flowered, in 8 splendid varieties ...	3	0

	Per collection—*s.*	*d.*
Stocks, dwarf 10-week, in 12 most distinct and beautiful colours ...	3	0
„ new dwarf large flowering 10-week Stocks, in 12 distinct colours, very fine ...	3	0
„ Autumn flowering, in 12 beautiful varieties ...	3	0
„ Summer branching, in 12 finest varieties ...	4	0
„ Summer Wallflower leaved, in 16 fine varieties ...	4	0
„ Brompton, in 12 fine sorts ...	3	0
„ Emperor, in 12 very beautiful varieties ...	5	0
„ Emperor, new large flowering Stocks, in 4 very beautiful varieties ...	4	0
„ Giant Cape, in 6 splendid varieties ...	3	0
Phlox Drummondi, in 12 beautiful varieties ...	6	
Poppy, in 12 fine double varieties ...	3	0
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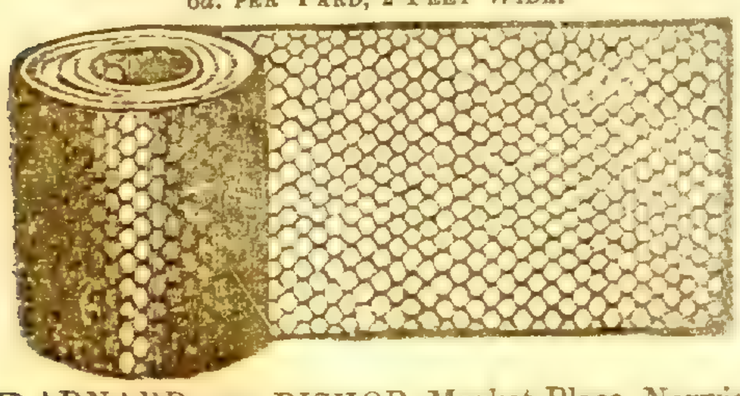

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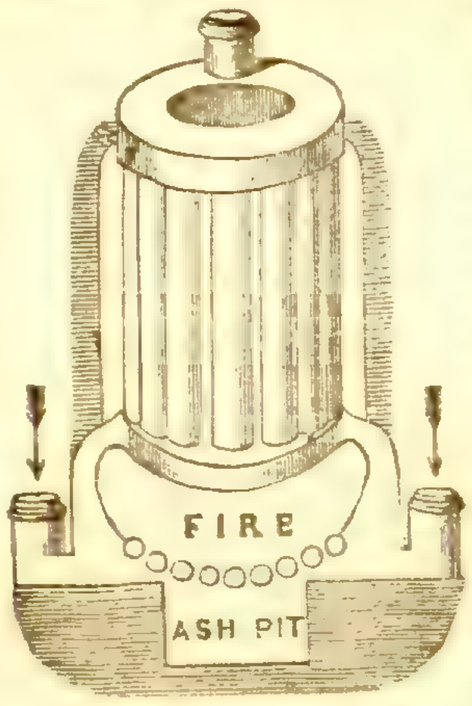

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7¼	"	5½	"	8	"	6	...	... 13	0
8½	"	6½	"	9	"	7	...	... 13	6
9½	"	7½	"	10	"	8	...	... 13	6
10½	"	8½	"	11	"	9	...	... 14	0
12	"	9	"	13	"	9	...	... 14	0
10	"	10	"	10½	"	10½	...	... 14	0
11	"	10	"	11½	"	10½	...	... 14	0
11	"	11	"	11½	"	11½	...	... 14	0
12	"	11	"	12½	"	11½	...	... 14	0
13	"	11	"	13½	"	11½	...	... 14	0
13	"	12	"	13½	"	12½	...	... 16	0
13½	"	13½	"	14½	"	13½	...	... 16	0
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Cistus guttatus, very dwf.	0	6	" imperialis, very double ...	0	6
Clintonia pulchella ...	0	6	And others.		
" elegans	0	3	Didiscus cæruleus ...	0	6
Cockscomb, dwarf scarlet	0	6	Eucharidium grandiflorum	0	3
Cuphea, all the kinds ...	0	6	Eutoca viscida	0	3
Cineraria, selected from the latest new kinds ...	1	0	Egg plant, white	0	3
Commelina alba	0	3	" purple	0	3
" cœlestis ...	0	3	Eschscholtzia, 3 sorts ...	0	3
Carnation, from named flowers	1	0	" new, white	0	6
Clarkias, all the varieties	0	3	Erysimum Perofskianum	0	3
Coreopsis, new marbled ...	0	6	Fuchsia from named sorts	0	6
" tinctoria ...	0	3	Gaillardia picta	0	6
" Drummondii ...	0	3	" Josephus, new	0	6
" nigra (new) ...	0	3	" Richardson ...	0	3
Candytuft, new crimson...	0	3	" aristata	0	3
" purple	0	3	Gaura Lindemani	0	6
" white	0	3	Globe Amaranthus, of sorts	0	3
" sweet-scented .	0	3	Geum splendens	0	6
Convolvulus major	0	3	Geranium, from fine sorts	1	0
" minor	0	3	Gilia, of sorts	0	3
" do. new dark	0	3	Grahamia aromatica ...	0	6
			Gramnathes gentianoides	0	6
			Godetia, all the new sorts	0	3
			Heartsease, from first-rate prize flowers	0	6
			Humea elegans	0	6
			Helichrysum macranthum	0	6
			" bracteatum album	0	3
			Heliotropium peruvianum	0	6
			" Voltaireanum	0	6
			Hibiscus, of sorts	0	3

FLOWER SEEDS.

Per packet.—	*s.*	*d.*	Per packet—	*s.*	*d.*
Heliophila araboides ...	0	3	Papaver marcelli	0	3
Helianthemum, Rock Cistus	0	3	" nudicaulis ...	0	3
Hollyhock, Chinese ...	0	6	Poppy, carnation, mixed	0	3
" fine mixed ...	0	3	Peas, sweet, all the colours, separate or mixed ...	0	3
Ipomœa coccinea	0	6	Pentstemon, of sorts ...	0	6
" Burridgi	0	6	Perilla nankinensis ...	0	6
" quamoclit ...	0	6	Phlox Drummondi ...	0	6
Ipomopsis elegans ...	0	6	" " white	0	6
Isotoma axillaris	0	6	" Leopoldi (new) ...	1	0
Jacobæa, double crimson...	0	3	" new, scarlet ...	0	6
" " purple ...	0	3	" oculata	0	6
" new lilac ...	0	3	" perennial mixed ...	0	6
" yellow	0	6	Picotee, from named flowers	1	0
Kaulfussia ameloides ...	0	3	Platystemon californicus	0	3
HANDSOME ORNAMENTAL GRASSES ..... per paper, 6*d.*			Potentilla	0	3
Larkspurs, 12 distinct Per pkt.			Polyanthus, fine mixed ...	0	6
German vars.	2	6	Portulacca splendens ...	0	6
" mixed dwarf			" Thellusoni ...	0	6
Rocket ...	0	3	" grandiflora ...	0	6
Leptosiphon densiflores ...	0	3	" striata alba ...	0	6
" androsaceus	0	3	" Gilliesi ...	0	6
" luteum ...	0	6	" yellow ...	0	6
Loasa aurantiaca	0	6	Primula sinensis (white fringed) ...	1	0
Limnanthes grandiflora ...	0	6	" lilac	1	0
" Douglasi ...	0	3	" large crimson ...	1	0
" rosea ...	0	6	" cortusoides ...	0	6
" sulphurea odorata ...	0	6	" rubra striata ...	2	6
Linum grandiflorum album	0	6	Rhodanthe Manglesi ...	0	6
" " rubrum	0	6	Salpiglossis, new scarlet,	1	0
Lobelia heterophylla major	0	6	" fine mixed...	0	6
" ramosus alba ...	0	6	" new yellow ..	0	6
" " rosea ...	0	6	Salvia Rameria	1	0
" gracilis alba ...	0	6	Salvia, of sorts	0	6
And others ...	0	6	Sanvitalia procumbens ...	0	3
Lotus Jacobæus	0	3	Saponaria calabrica ...	0	6
" nova sp.	0	6	" ocymoides ...	0	6
Lupinus Hartwegi ...	0	3	" multiflora ...	0	6
" " roseus	0	6	Schizanthus Hookeri ...	0	6
" nanus	0	3	" Grahami ...	0	6
" Cruikshanki ...	0	3	" retusus alba	0	3
" affinis	0	3	" humilis ...	0	3
" monogynia ...	0	6	" Priesti ...	0	3
Lychnis, of sorts	0	3	" venustus ...	0	3
Malope grandiflora ...	0	3	Schizopetalon Walkeri, very sweet	0	6
Mallow, new zebra ...	0	3	Sphænogyne speciosa ...	0	3
Malva miniata	0	3	Streptocarpus Rexi ...	0	6
Madaria corymbosa ...	0	6	Silene pendula alba ...	0	6
Marvel of Peru	0	3	" Schafta	0	6
Marigold, dwarf pigmy French	0	6	" compacta	0	6
Other varieties	0	3	Stock, white pyramidal ...	0	6
Maurandya, new white ...	1	0	" Buck's Intermediate, 16 out of 20 will come double ..	0	6
Mesembryanthemum tricolor	0	6	" Chapman's Scarlet Ten-week ...	0	3
Mignonette, new large, per oz.	0	6	" Shepherd's White ...	0	3
Mignonette, per oz. ...	0	6	" " Purple ...	0	3
Mimosa sensitiva... ...	0	6	Sedum cæruleum, for rockwork	0	6
Mimulus, from 12 distinct named varieties ...	0	6	Sultan, yellow	0	3
" moschatus ...	0	3	" white and purple .	0	3
Martynia fragrans ...	0	6	Tagetes signata	0	
Myosotis palustris (Forget-me-not)	0	6	" lucida	0	
Nasturtiums, of all sorts	0	3	Thunbergia (*see* Climbers).		
Nemesia floribunda ...	0	6	Tropæolum (*see* Climbers).		
" vesicolor, new ...	0	6	Tropæolum speciosum ...	1	0
" compacta, new ..	1	0	Viscaria oculata	0	3
Nemophila insignis major	0	3	" new dwarf ...	0	6
" insignis alba	0	6	" white	0	6
" discoidalis ...	0	3	Violet, Russian (ever-flowering	0	6
" maculata ...	0	3	Verbena, a mixture of best sorts	0	6
" aurita alba ...	0	6	Wallflower, blood red ...	0	3
" striata ...	0	6	" Double German	0	6
Nierembergia splendens	0	6	" changeable ...	0	6
" violacea ...	0	3	" 8 vars. of imported German	2	6
" fine mixed	0	6	Zinnia elegans coccinea ...	0	6
Nolana atriplicifolia ...	0	3	" purpurea	0	6
" paradoxa	0	3	" aurea	0	6
" grandiflora alba...	0	6	" mixed from 20 separate varieties ...	0	6
Nycterinia selaginoides ...	0	6			
" capensis ...	0	6			
Œnothera Drummondi ...	0	6			
" macrocarpa ...	0	6			
And others...	0	3			

Ornamental Trees and Shrubs of all descriptions.
Cedrus Deodara, Cryptomeria japonica, Taxodium sempervirens, 2*s.* 6*d.* to 10*s.* 6*d.* each; all the new Pinus.
Named Double Anemones and Ranunculuses; Gladiolus Brenchleyensis and gandavensis; Tigridia pavonia and conchiflora, with many other flowering Bulbs, and Herbaceous Plants, which may be planted out till the middle of May.
Carnations, Picotees, and Pinks, per pair, from 1*s.* to 3*s.* 6*d.*
All the better named Heartsease from 6*s.* to 30*s.* per dozen.
Fine named Dahlias, per dozen, 12*s.*
" Chrysanthemums, new kinds, 12*s.*
Standard Dwarf and Climbing Roses, 1*s.* to 2*s.* 6*d.* each.
Rivers' Miniature Fruit Garden, with directions for culture and root pruning, 2*s.* Rivers' Orchard House. 2*s.*
Rivers' new edition of the "Rose Amateur's Guide," 3*s.* 6*d.*
Rivers' new Fruit Catalogue, 6*d.* [should distribute to cottagers.
Paxton's "Cottage Calendar," 3*d.*, which ladies and gentlemen
Collections of 24 Annuals, mixed, recommended by Dr. Lindley as suitable for Shrubberies, 5*s.* [on the most liberal terms.
Seeds for distribution by gentlemen to their tenants and cottagers,
Seeds selected and carefully packed for Australia, North and South America, India, and New Zealand, in the most secure way to arrive safe at any of the above places.

Ladies and gentlemen relying upon the judgment and experience of JOHN KERNAN, instead of being supplied (as is often the case) with what is neither useful nor ornamental, may depend upon having a selection of the most useful and indispensable Vegetables to any amount named, by the parties forwarding him their orders. The same economy will be observed in the choice of Flower Seeds. J. K. feels it almost needless to observe that the liberality of discount will be with the amount.

Old Meadow Turf, which will take a considerable time to decompose and char by the regular or natural means, may be produced by the following simple and short process:—Place four bricks raised two on two above 3 feet distance from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine, and allowing your Turf o remain until charred it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin of the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other *until October.*

SEEDS SELECTED AND CAREFULLY PACKED FOR ALL CLIMATES.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 19, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 4.—1856.] SATURDAY, JANUARY 26. { Price Fivepence. Stamped Edition, 6*d*.

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CRYSTAL PALACE. — The FIRST GRAND EXHIBITION of the present year of FLOWERING PLANTS and FRUITS will be held at the Palace, on SATURDAY, May 24th. The Rules, Schedule of Prizes, and form of requisition for space, may be obtained on application to the Secretary. (By Order) G. Grove, Secretary.
Crystal Palace, January 26.

HORTICULTURAL MEETINGS AT THE GARDENS OF THE BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—The Meetings for the approaching season will be held at these Gardens, on THURSDAY, 5th June, and THURSDAY, 28th August, when nearly 400*l*. will be distributed in Prizes.—Schedules of the Prizes may be obtained on application to the Honorary Secretary, Clifton.

BRITISH POMOLOGICAL SOCIETY.—An Extraordinary Meeting of the British Pomological Society will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, the 4th of February, at 1 o'clock, to compare and determine the merits and qualities of Fruits, for the election of Members, and for general business.

It is hoped that all who take an interest in the cultivation of FRUITS and FRUIT TREES will forward to the meeting specimens of such varieties as they can obtain, correctly named, and otherwise assist in promoting the objects of the Society.

Persons desirous of becoming Members are requested to make application to the Secretary on or before the day of meeting. Members are elected at all the Meetings of the Society; and 10*s*. entrance fee, with 10*s*. annual subscription, constitute membership.—Robert Hogg, Secretary.

GEOLOGY.—King's College, London.—Professor Tennant, F.G.S., will give a COURSE OF LECTURES ON GEOLOGY. To commence on FRIDAY MORNING, January 25th, at 9 o'Clock, and to be continued on each succeeding WEDNESDAY and FRIDAY, at the same hour.
R. W. Jelf, D.D., Principal.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

TO THE TRADE.
NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

CHOICE SEEDLING SHRUBBY CALCEOLARIAS.
J. NASH, Coleford, Gloucestershire, offers 30 fine Plants post free for 10*s*., or 4*s*. 6*d*. per dozen.—They will bloom beautifully in May and June, and are warranted to produce first-rate flowers. Fine Verbena Seed 2*s*. 6*d*. per packet.

CUCURBITA PERENNIS.
W. J. EPPS offers Asa Gray Seeds of this extraordinary new Plant, which is fully described in the *Chronicle* of Dec. 22d, page 836, and can be supplied genuine at 5*s*. to 10*s*. per packet.—W. J. Epps, Seed Merchant, Maidstone.

CYPRIPEDIUM MACRANTHUM, Sw.
L. VAN HOUTTE, of Ghent, Belgium, offers the above very scarce and hardy SIBERIAN CYPRIPEDIUM, at 42*s*.—Apply as above, or at his Agent's, Mr. R. Silberrad, Harp Lane, Great Tower Street, London.

RARE HARDY FERNS.
WILLIAM HUSSEY has to offer a few of the undernamed at 5*s*. each, viz.:—Asplenium Germanicum and Woodsia hyperborea. These are now in small pots, but can, if required, be taken out and packed in a tin box, and sent post free for 6*d*. per plant extra.—Horticultural Gardens, Norwich.

CHOICE PELARGONIUMS.
WILLIAM HUSSEY begs to offer the undernamed Collection of fine healthy plants for 30*s*., package included, viz.:—Regalia, Kulla Cordelia, Carlos, Virginia, Mary, Zeno, Leonora, Majestic, Magnet (Hoyle's), Empress (Beck's), Rhoda, Rosa, Phaeton, Seriskia, Lucy, Attraction, Jessica, Queen of May, Optimum (Foster's), Duchess of Wellington (Turner's).
Horticultural Gardens, Norwich.

LILIUM GIGANTEUM SEED.
FRANCIS and ARTHUR DICKSON and SONS, Upton Nurseries, Chester, having this last Autumn ripened a considerable quantity of Seed of this noble LILY (the flower stem of which was fully 10 feet high), beg to offer packets containing 50 selected Seeds, at 2*s*. 6*d*. per packet, free by post, on receipt of 30 postage stamps.—Jan. 26.

DOUBLE ITALIAN TUBEROSE ROOTS. 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Cobbett's Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

GLADIOLUS, LILIUM LANCIFOLIUM, RANUNCULUSES, AND OTHER CHOICE BULBS FOR SPRING PLANTING.—SEE SUTTON'S LIST just published, which may be had post free.—Address Sutton & Sons, Seed Growers and Merchants, Reading.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1856 *can now be obtained from the undersigned, or through any Bookseller in town or country.* Price 6*d*., free by post.
For the Contents of this popular Work, see *Gardeners' Chronicle*, December 29th.
William E. Rendle & Co., Seed Merchants, Plymouth.
Established 1786.

KITCHEN GARDEN AND FLOWER SEEDS.
JOHN CATTELL'S CATALOGUES of the above are now ready, and may be had on application.
Westerham, Kent.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.
Seed Establishment, 181, High Holborn, London.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season will be published in a few days, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

JOHN WEEKS (F.H.S.) AND CO., Seed Merchants and Nurserymen, King's Road, Chelsea, beg to announce that their ANNUAL CATALOGUE of Select VEGETABLE, AGRICULTURAL, and FLOWER SEEDS, comprising in each department such kinds, and such only, as they can recommend, is now published, and may be had on application, or will be sent through the post free.
It has been their wish and intention to transmit a copy to each of their numerous patrons, but, as it is more than possible that, in so numerous a connection, some oversights may occur, they respectfully ask that intimation of such may be made to them through the post to one of their establishments.
King's Road, Chelsea.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

ROBERT M. STARK begs to intimate that his Catalogues for the Spring are now ready, and may be had on application. He would more particularly direct the attention of his friends to those containing Vegetable and Flower Seeds, Hollyhocks, and other Florists' Flowers, Herbaceous Plants, Ferns, &c., as they contain in addition to old established favourites every article of recent introduction really useful and likely to interest the Horticulturist, Florist, or Botanist.
Edinburgh: Edgehill Nursery, Dean, and 145, Princes Street.

COSMIDIUM BURRIDGEANUM.
W. THOMPSON, Tavern Street, Ipswich, begs to offer Seeds of the above remarkably beautiful NEW ANNUAL, the stock of which is exclusively in his possession. The colour of the flower-heads is a deep blackish purple, with a narrow border of bright orange, a contrast of tint which combined with elegant foliage, renders it one of the most desirable annuals in cultivation. Price 1*s*. per packet.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

PINE APPLES WANTED.—Forward immediately to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. "Terms—Cash."

CAMELLIA BLOOMS
AND OTHER
CHOICE CUT FLOWERS.
LUCOMBE, PINCE, AND Co. have now a large quantity of fine Camellia Blooms, and Forced Flowers in great variety, which can be so packed as to travel safely to any part of the kingdom. Bouquets for Weddings and Balls made up on the shortest notice and in the most elegant style. Orders will receive prompt attention addressed to them
Exeter Nursery, Exeter.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s*. The Trade supplied.
T. F. Winstanley, Seed Merchant, Manchester.

WHEAT FOR LATE AND SPRING SOWING. Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to M. H. Raynbird, Basingstoke.

GLENNY'S IMPROVED BALSAM SEED from double flowers 3 inches over, in six classes, 37 stamps, mixed 13 stamps. Six hundred references. Geranium and Pink saved with the same care, 37 stamps each. Aster, Stock, and a few other seeds that may be depended on.—George Glenny, Horticultural Agent, Dungeness House, Fulham.

HOLLYHOCKS! HOLLYHOCKS!
JOHN CHATER AND SON have a large stock of the leading sorts of Hollyhocks, in 3½-inch pots, well established. List with price on application. Best mixed Hollyhock Seed, 200, 1*s*. 6*d*.; Improved Sweet William, 600, 1*s*. The trade supplied on liberal terms.—Nursery, Haverhill.

CHRYSANTHEMUMS.
W. HOLMES offers for Sale large Flowered and Pompone varieties at 5*s*. per dozen. The Large Flowered varieties include Stafford, August Mie, Hermine, Albion Godereau, and the whole of the best show flowers. The Pompones include Bob, Brilliant, Berrol, Requiqui, &c.
W. Holmes, Florist, Well Street, Hackney.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

CHOICE VEGETABLES WANTED
CUCUMBERS, MUSHROOMS, | ASPARAGUS, FRENCH BEANS,
CHOICE FLOWERS, &c.
Forward to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool
"Terms—Cash."

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (TRUE).
CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s*. 6*d*. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

FRASER, RICHARDSON, AND GOAD beg respectfully to announce that their Premises are now open, and orders will be thankfully received and promptly executed. Their Catalogues are published, and will be forwarded gratis on application.—82, Bishopsgate Street Within, Jan. 26.

SEED BARLEY FROM THE CHALK.
MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

RED BEET SEED.
EDWARD SANG AND SONS, Nurserymen and Seedsmen, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full-grown roots. The sort is very superior, producing well-shaped medium-sized roots of remarkably fine quality and colour. Prices on application.—Kirkcaldy, Jan. 26.

CEDARS.
A. PAUL AND SON offer for Sale CEDRUS DEODARA, 1 foot to 8 feet, from 1*s*. 6*d*. to 31*s*. 6*d*. each. CEDRUS LIBANI, 3 feet to 10 feet, 3*s*. 6*d*. to 31*s*. 6*d*. each. Magnificent specimens of the above and every intermediate size, *frequently removed*, may be had in any quantity, carriage free to London, from A. Paul & Son, Nurseries, Cheshunt, Herts.

THOMAS MOORE, Nurseryman and Seedsman, Kingsbridge, Devon, has a quantity of ILEX OAKS, ENGLISH YEWS, and GREEN EUONYMUSES, 2½ to 3 and 3½ feet high, fine bushy plants, to be sold cheap.

TRANSPLANTED ASH.
WANTED TO PURCHASE, about 15,000 GOOD STIFF TRANSPLANTED ASH, 3 feet, or 3 to 3½ feet. Apply, with lowest price, to Francis & Arthur Dickson & Sons, Upton Nurseries, Chester.—Jan. 26.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

TO BE SOLD, several Thousands of the LANCASHIRE LAD GOOSEBERRY TREES (surplus stock), at Warren's Gardens, Isleworth. Price 5*l*. per thousand.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6*s*. per dozen. FLUKE KIDNEY POTATO (true), 4*s*. per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.
Catalogues now ready.

THE FLUKE KIDNEY POTATO (TRUE).
JOHN HOLLAND, Middleton, near Manchester, is now sending out the above excellent Potato, which, having been raised in Middleton, may be depended upon as genuine, and from the original stock. May be had of a medium size for planting at 4*s*. per bushel of 56 lbs.; 7*l*. per ton.

GENUINE FLUKE KIDNEY POTATO.
FRANCIS AND ARTHUR DICKSON AND CO., Seed Merchants, 14, Corporation Street, Manchester, offer the above very prolific and hardy Potato, carefully picked for sets. Price may be had on application.

TRUE LANCASHIRE FLUKE POTATOES may still be had at 4*s*. 9*d*. per bushel of 80 lbs., or 6*l*. 6*s*. per ton, of Thomas Bell, Seedsman, Wigan, Lancashire.

SEED POTATOES.
SUTTON AND SONS, Seed Growers, *Reading, have a large Stock of the early kinds of Potatoes very true and free from disease. Prices, &c., will be sent post free on application.*

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball and all other first-class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

POTATOES.—Fluke Kidneys, 3*s*. 6*d*. per bushel of 56 lbs., or 6*l*. per ton; Early Short Top Ashleaf Kidneys (true), 6*s*. per bushel; Early Ashleaf Kidneys (true), 8*s*. per bushel; sacks 6*d*. All orders to be accompanied by a remittance.
Humphrey Chamberlain, Kempsey, near Worcester.

GARDENERS' CHRONICLE ONE PENNY NEWSPAPER

CUCUMBERS—CUCUMBERS.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, begs to offer the following fine varieties, which having been thoroughly proved have given the greatest satisfaction to growers generally. The best and most productive varieties for winter cultivation are as follows:—General Canrobert, 2*s.* 6*d.* per packet, very hardy and free setter, always growing one equal size from stem to point; will keep well for many days after it is cut. Captivation, 2*s.* 6*d.* per packet. Gordon's White Spine, 1*s.* per packet. Lord Kenyon's (true), 2*s.* 6*d.* per packet; a most useful variety. I have seen more than a dozen varieties under the above name, but not one has been the true sort as sent out by me. First-rate varieties for summer growing and exhibition. Sir Colin Campbell, 2*s.* 6*d.*, one of the finest black spine Cucumbers ever yet sent out, most productive, and very handsome, length from 20 to 28 inches, well proportioned in size from stem to point. Phenomenon, 2*s.* 6*d.* per packet, a most excellent variety, the true kind being very scarce, as it is very rare that it ever produces seed. Ipswich Standard, a very fine Cucumber for exhibition, 2*s.* per packet. Three packets of any of those marked 2*s.* 6*d.* for 6*s.*

All the following fine old varieties true, 1*s.* per packet:—Victory of Bath, Hunter's Prolific, Mills' Jewess, Cheltenham Surprise, Manchester Prize, Sion House, Cuthill's Black Spine, Incomparable, Conqueror of the West, Godfrey's Black Spine, Allen's Victory, Lynch's Star of the West.

MELONS,—The best in cultivation at 1*s.* per packet:—Golden Drop, Golden Perfection, Golden Ball, Golden King, Windsor Prize, Scarlet Flesh, Scarlet King ditto, Green Flesh varieties, Bromham Hall, Incomparable, Bailey's Green Flesh, Blackhall's ditto, Camerton Court, Bowood, Beechwood, Gordon Castle, Emperor, Trentham Hybrid, Hampton Court, Chichester Prize, Fleming's Hybrid Cashmere.

Any three of the packets of either Cucumbers or Melons priced at 1*s.* per packet will be served for 2*s.* 6*d.* the three packets.

PRIMULA SINENSIS, saved from all the best coloured fimbriated varieties, 1*s.* 6*d.* per packet.

DIGITALIS, or FOXGLOVE SEED, saved from 20 of the most superb striped and spotted varieties, 1*s.* per packet.

HOLLYHOCK SEED, saved from all the best varieties in cultivation, 1*s.* per packet; if required a packet containing 24 distinct sorts, all to name, will be sent for 5*s.*

Unequalled quilled GERMAN ASTER, 1*s.* per packet.

FRENCH ASTER, or PÆONIFLORA TRUFFAUT, about 20 of the most striking varieties, 1*s.* per packet.

CINERARIA SEED, saved from all the best named varieties, 1*s.* per packet.

BALSAM SEED, saved from the most superb distinct varieties, 1*s.* per packet.

Very superior DWARF LARKSPUR, 6*d.* per packet.

A remittance must accompany every order by cash or penny postage stamps, when the whole or any part (as the case may be) will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, 14, Abbey Church Yard, Bath, Somerset.

SEED ESTABLISHMENT, HIGHGATE, LONDON.

WM. CUTBUSH AND SON beg to inform their Patrons and the Public generally that they have received this season their usual Fine Stock of VEGETABLE and FLOWER SEEDS from their growers in the best condition imaginable.

Collections can be made up at the same prices as those advertised by other firms, but advise their customers to make their own selections, which is found to be the cheapest and best in the end.—Catalogues free on application.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.

BASS AND BROWN beg to offer the following of fine and strong growth Plants:—

ROSES.

100 Standards,	in 100	splendid vars.	...	...	£7	0 0
100	"	50	"	...	...	6 0 0
100 Dwarfs,		100	"	...	...	3 0 0
100	"	50	"	...	...	2 5 0
100	"	100	"	the whole perpetual bloomers ...		5 0 0
100	"	50	"	"	...	4 0 0

Choice Selections, per dozen, Standards, 15*s.* to 24*s.*; Dwarfs, 6*s.* to 18*s.*; Short Standards, on 1½ to 2 feet stems, 9*s.* to 21*s.*

DWARF TRAINED FRUIT TREES.

A very fine lot of strong well grown two and three year trained Fruit Trees. Gentlemen requiring first-rate trees for planting will not be better supplied:—

Apricots, Peaches, Nectarines ... ... fine, 3*s.* 6*d.* each; extra, 5*s.* each.

Plums, fine, 2*s.* 6*d* each; extra, 3*s.* 6*d.* each.

Other FRUITS, all of choicest sorts, see Catalogue.

Hardy Herbaceous Plants, 100 distinct and showy vars., 30*s.*, or 50 for 17*s.* 6*d.*

Ditto, 100 superior and newer vars., 50*s.*, or 50 for 30*s.*

Hardy and Flowering Ornamental Shrubs, 20 fine vars., 18*s.*; 20 fine newer vars., 24*s.*

Hardy Climbing Plants, 20 fine sorts, 20*s.*

Camellias, choice assortments, per dozen, well set with flower buds, 30*s.* to 60*s.*

RHUBARB.—Bailey's Early Monarch, each 2*s.* 6*d.*; Salt's Crimson Perfection, 3*s.* 6*d.* These two varieties are very similar, and the earliest grown.

Ditto, Victoria Giant, 7*s.* 6*d.* per doz.; Myatt's Linnæus, a good early sort, 7*s.* 6*d.* per doz.

SEAKALE, strong, for Forcing, 10*s.* per 100.

Catalogues, Nos. I., II. and III., for the present Season, forwarded complete for three penny stamps.

Goods carriage free (not under 20*s.*) to all the London terminus, and all Stations on the Colchester line between London and Norwich.

Seed and Horticultural Establishment, Sudbury, Suffolk.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand: do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 9 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana, " compacta, " pygmæa, Abies pumila, " diffusa, " Gregori — All dwarf varieties of the Spruce Fir.

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

NEW FLOWER SEEDS.

MESSRS. WILLIAM ROLLISSON & SONS

Are now prepared to supply the annexed new and beautiful ANNUALS and BIENNIALS, which have been selected from their general Stock of novelties for the present season.

	Per packet.—*s.*	*d.*
Abronia umbellata, new, beautiful half hardy Annual, rose coloured trailer	1	0
Ageratum conspicuum, new, very handsome	2	6
Alonsoa Warscewiczi, new, splendid half hardy Annual, of graceful habit, adorned with scarlet flowers, borne in spikes	1	0
Arctotis breviscarpa, new, pretty dwarf Annual, bright orange and dark brown	1	0
Anthoxanthum gracile, new, ornamental Grass	1	0
Browallia abbreviata, new, fine, very free flowering	2	6
Calceolaria californica, new, very pretty	1	6
" scabiosæfolia, new, very handsome	1	6
Campanula stricta, new, very profuse flowering variety, extremely pretty	1	0
Centauridium Drummondi, new, orange composite flower, very showy	1	0
Chrysocephalum arenarium, new, handsome Australian Everlasting	2	6
Collinsia bicolor alba, new, pure white, very pretty	1	6
Convolvulus bicolor, fl. pl., new, handsome Climbing Annual	1	6
Coreopsis coronata, new, very showy	1	0
Cuphea Pellieri, new	2	6
Cynoglossum cœlestinum, new, light blue, extremely pretty	2	6
" Hayni, new, blue, very fine	2	6
Delphinium cardiopetalum, new, dark blue, very beautiful	1	0
Dianthus Garnierianus, new, beautiful, very showy	1	6
Erigeron Beyrichi, new, pretty composite flower	1	6
Erysimum Arkansanum, new, pale yellow, handsome, sweet scented	1	6
Gomphrena Haageana, new, beautiful orange-coloured half hardy species, very fine	2	6
Gutiernezia gymnospermoides, new, very pretty	2	6

	Per packet.—*s.*	*d.*
Gypsophila muralis, new, dwarf, very pretty Annual, with small glossy foliage, covered with deep pink flowers, suitable for edging of beds and rock work	1	6
Helichrysum brachyrhynchum, new, beautiful Everlasting	1	6
" bracteatum, dwarf yellow, new	1	6
" " dwarf white, new	1	6
(Both the above varieties are much superior to the old bracteatum.)		
" macranthum manum, new, very desirable variety	1	6
" compositum maximum, new, large flowered, double, of many colours, from bright yellow to scarlet	1	6
Ipomœa limbata, new, purple, with broad white margin, very free flowering (we received this most lovely Climber from our collector, Mr. J. Henshall, who discovered it in Java; this we can strongly recommend)	2	6
Ipomœa Mexicana alba, new, very fine	2	6
Linum grandiflorum rubrum, new, the true bright crimson large flowering species from Algeria, new and very beautiful	1	6
Lypochæta texana, new, handsome	2	6
Morna elegans, new, very handsome Everlasting	1	0
Nepeta Meyeri, new, very fine	1	6
Palafoxia texana, new, fine	1	0
Phalacræa cœlestina, new, beautiful light blue	1	6
Sabbatia campestris, new, a splendid half hardy Annual, of graceful habit, glossy foliage, and bright rosy pink yellow-centred flowers, very fine and full flowering	1	6
Silene Bergeri, new, very pretty	1	0
Trifolium aurantiacum, new, free flowering and pretty	1	6
Tropæolum Lobbi puniceum, new, dark-blood red, splendid	2	6
Whitlavia grandiflora, new, splendid, very large dark bell-shaped flowers	1	6

IMPORTED GERMAN SEEDS, in Collections.

Messrs. WILLIAM ROLLISSON & SONS can now supply the undermentioned German Flower Seeds, which are all in assorted colours, and sent out in sealed Collections, as received from the first German growers in Germany. Our supply of German Flower Seeds we can with every confidence recommend, from the universal satisfaction which they have given for many years. Their superiority over English saved seeds consists in the greater variety and beauty of their colours, and the much larger proportion of double Flowers which they produce.

	Per collection—*s.*	*d.*
Asters, dwarf double German, in 18 splendid varieties	4	6
" quilled double German, in 20 splendid varieties	5	0
" globe-flowered double, in 12 splendid varieties	3	0
" globe pyramidal flowered, double, in 20 splen. vars.	5	0
" new dwarf bouquet pyramidal double, in 12 splendid varieties	4	0
" Truffaut's new superb French pæony-flowering pyramidal, in 10 finest varieties	4	0
Balsams, Smith's superb double Balsams. The flowers are large, extremely double and well formed, of good habit, and of distinct and striking colours. In sealed packets, containing 6 vars. separate	2	6
" Camellia-flowered, double, in 10 new varieties	3	0
Larkspurs, double dwarf rocket, in 12 splendid varieties	3	0
" double tall, in 8 splendid varieties	3	0
" new Hyacinth flowered, in 8 splendid varieties	3	0

	Per collection—*s.*	*d.*
Stocks, dwarf 10-week, in 12 most distinct and beautiful colours	3	0
" new dwarf large flowering 10-week Stocks, in 12 distinct colours, very fine	3	0
" Autumn flowering, in 12 beautiful varieties	3	0
" Summer branching, in 12 finest varieties	4	0
" Summer Wallflower leaved, in 16 fine varieties	4	0
" Brompton, in 12 fine sorts	3	0
" Emperor, in 12 very beautiful varieties	5	0
" Emperor, new large flowering Stocks, in 4 very beautiful varieties	4	0
" Giant Cape, in 6 splendid varieties	3	0
Phlox Drummondi, in 12 beautiful varieties	6	
Poppy, in 12 fine double varieties	3	0
Wallflowers, in 12 fine double varieties	6	0
Zinnia elegans, in 12 splendid double varieties	3	0

Messrs. WILLIAM ROLLISSON & SONS will be happy to forward their general CATALOGUE of SEEDS, post free on application, and have much pleasure in saying their Seeds for the Kitchen Garden will be found to be of superior merit, as most of the kinds most difficult to obtain true, as Lettuce, Beet, the Brassica tribe, &c. &c. are saved by themselves; four of their Nurseries being situated at some considerable distance one from the other, afford facilities for this purpose which, under ordinary circumstances, cannot be adopted. We may here remark that one article most difficult to get really first-rate is Beet; Rollisson's Crimson Beet has been pronounced by all growers to be the first in cultivation. Rollisson's Victoria Cabbage Lettuce is also a very superior article; it stands longer without running than any other variety.

Messrs. W. R. & Sons beg to draw attention to their splendid Collection of Dwarf, Standard trained, and other Fruit Trees, which are this season unusually fine, to the cultivation of which alone they have several acres devoted. They have also a splendid lot of fruiting plants in pots of Peaches, Nectarines, and Apricots, which they can with confidence recommend.

The Nurseries, Tooting, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

CHOICE SORTS OF VEGETABLES.

TRUE READING ONION SEED.—This favourite mild White Onion can only be obtained in perfection from seed grown in or near Reading, in which case the crop is fully equal to imported Spanish Onions. Price of Seed, 6*d.* per ounce, or 5*s.* per pound.

SUTTON & SONS have annual demands for large quantities of Seed from all parts of the kingdom.

Mr. JAMES M'INTOSH, *Gardener to the Duke of Buccleuch, at Drumlanrig, whom we have the honour to supply annually, says*—"*Your Onion is particularly fine.*"

Also SUTTON'S superior Solid CELERY, 1*s.* per packet; SUTTON'S IMPERIAL CABBAGE, and SUTTON'S Superb LETTUCES, 1*s.* per packet, post free.

Mr. NEWTON, *Gardener to the Lord Chief Baron Pollock, says:*—"SUTTON'S White Cos Lettuce is the best I have seen; it was fit for table 10 days in July before Ady's Cos, Paris Cos, Old Drumhead, or Bath Cos. All had the same care. It grows upright, and wants no tying. Six Lettuces, grown in the space of one yard, weighed on the average 4 lbs. each."

SUTTON'S Superb Green Cos is equally fine; and our Berkshire Brown Cos *was* also a splendid Lettuce, but we regret that having employed others to grow it for us, *this* has by some means become degenerated.

Mr. NEWTON also grew Cabbages on a large scale for market a few years since, and in a letter to us said:—"I tried about 20 of the best old and new kinds of Cabbages, which were treated all in the same way, in order to see which was the best. SUTTON'S Imperial was the best Cabbage to cut early; it is large, mild in flavour, and, if left, will cut a good second crop in summer."

SUTTON & SONS have also the pleasure of publishing the following:—

From Mr. PERRY, *Gardener to E. Wells, Esq., Wallingford.*

"I cannot speak too highly of your Solid White Celery; it surpasses others under the same treatment, in quickness of growth and solidity."

From Mr. BUTLER, *Gardener to R. Mangles, Esq.*

"The Celery in particular was very fine. The like was never seen here before."

CUCUMBER SUTTON'S BERKSHIRE CHAMPION.

Mr. THOMAS POLLINGTON, *Gardener to Wm. Hervey, Esq., Bradwell, Grove.—To the Editor of the Gardeners' Chronicle, October 20th*, 1855, *page* 693.

"From a last year's plant of SUTTON'S Berkshire Champion, growing in a small two-light pit, 8 feet by 9 feet, the plant occupying but one light, I have cut, from May the 4th of this year, 112 feet of fine fruit; and there are six growing on the plant at the present time, that measure 11 feet 2 inches in length. The pit is heated by dung linings only."

SUTTON'S LAWN GRASS SEEDS, 1*s.* per lb., 20*s.* per bushel.

From Professor LINDLEY.

"Messrs. SUTTON,—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. "JOHN LINDLEY.

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING PARKS, PASTURES, AND MEADOWS.—Many old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses in which case we are in the practice of furnishing such sorts only as are wanting; if the seeds are sown early in the season, the improvement in the Pasture will be very considerable, and at a small expense. Quantity of Seed required, 8 to 12 lbs. per acre. Price reduced to 9*d.* per lb., or 80*s.* per cwt.

From C. F. THRUSTON, Esq., *Tulgarth, August* 9, 1855.

"Your Seeds have answered admirably. Turnips, Mangel Wurzel, Carrots, and Parsnips, are superb. Your Grass Seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The After Grass is remarkable; Clover and other Seeds springing up where nothing but the poorest pasture had been previously, and I think that a field of 9 acres sown with your Renovating Mixture is now one of the finest in our neighbourhood."

From Sir DAVID CUNYNGHAME, *Wellesbourne House, Warwick.*

"The Meadows that were renovated with your Seeds are looking very well. I cut nearly 2 tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre. The Garden Seeds I have had from you exceed by far any that I have bought elsewhere."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow, 26th* 11, 1855.

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pastures. At the time I took the farm the 10 acres of Meadow was almost useless. I have now a most excellent pasture."

SUTTON & SONS *have been often requested to appoint Agents for the sale of their Seeds in different localities; knowing, however, that Agencies seldom prove satisfactory, they have adopted the practice of* PAYING THE CARRIAGE *to most parts of England. By this arrangement, gentlemen residing in those parts of the kingdom where Seeds are not grown can be supplied with genuine new* SEEDS DIRECT FROM THE GROWERS, *whereby much disappointment and loss of crops may be avoided.*

N.B. All the above named Vegetable Seeds are included in SUTTON'S Collections of Kitchen Garden Seeds for one year's supply, as see *Gardeners' Chronicle*, January 19th, page 35.

Address SUTTON & SONS, Seed Growers, Reading, Berks.

DOWLING'S PLUMS.—These three varieties of New PLUMS having fully sustained the character that was given them by gentlemen and growers that have fruited them this season, H. DOWLING can confidently recommend them as the most Prolific, Hardy, and high Flavoured of any in cultivation.

Good Strong Trees can be had from the grower at very low prices; from Mr. CHARLES TURNER, Royal Nurseries, Slough; or Mr. HENDERSON, Pine-apple Place, London.

Southampton, January 26.

CONIFERÆ.

WILLIAM WOOD AND SON having a good stock of well grown plants of the following are desirous of offering them at reduced prices, particulars of which will be furnished on application.

Cedrus Deodara, 3 and 4 feet.
Cupressus Goveniana, 2, 3, and 4 feet.
Libocedrus chilensis, 1½, 2, and 3 feet.
Cupressus funebris, remarkably fine and bushy, 1½, 2, and [3 feet.
Cedrus africanus, 2 and 3 feet.
Juniperus recurva, 3 and 4 feet.
" squamata, 2 and 3 feet.
" Wittmaniana, 2 and 3 feet.
Cryptomeria japonica, splendid plants, 2, 3, and 4 feet.
Taxodium sempervirens, 2, 3, and 4 feet.
Thuja aurea, nice bushes, 1 foot.
Cupressus thyoides variegatis, Gold-striped Cedar, 9 to 18 in.
" ericoides, very bushy, 15 inches.
Common Yews, 2, 3, 4, and 6 feet.
Irish Yews, very fine, 3, 4, and 6 feet.
Portugal Laurels, bushy, 2, 3, 4, and 6 feet.
Do. do., standards, with splendid large heads, 4 and 6 feet.

The above have been regularly transplanted every season, and will remove with perfect safety.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Jan. 26.

W. FULLER, FLORIST, Newton Bushel, Devon, formerly Gardener to the late W. H. Story, Esq., of Whitehill, begs to inform the Trade and the Public generally that he will be prepared to send out the first week in May strong plants of the following beautiful new FUCHSIAS, all raised by Mr. Story.

GEM OF WHITEHILL.—This flower is hitherto unrivalled in form and quality; the sepals are of a rich carmine, remarkably long and reflex elegantly, giving the flower a bell-shaped appearance, corolla deep violet, very free bloomer and good habit. 7*s.* 6*d.* each.

PILOT.—Long scarlet tube, sepals well reflexed, large double dark corolla, very attractive. 5*s.* each.

STAR.—Tube rather short, sepals well reflexed, beautiful large double corolla. 5*s.* each.

DANDIE DINMONT.—Stout scarlet tube and sepals well reflexed, deep violet corolla. 5*s.* each.

GLORIOSA SUPERBA.—Beautiful scarlet tube and sepals of great substance beautifully reflexed, so as to resemble in shape the Turk's Cap Lily; deep violet corolla, very attractive, a good flower for exhibition; 5*s.* each, or the set for 1*l.* 1*s.*, where Gloriosa Superba will be given in to compensate for carriage.

UNEQUALLED NEW MELONS.

THE TWO MOST SUPERB VARIETIES THAT HAVE EVER YET BEEN SENT OUT.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2*s.* 6*d.*

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon; it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit; flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2*s.* 6*d.*

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each will be charged 4*s.* A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

CHARLES S. BARKER'S Seedling Florist Flowers for the Spring of 1856:—

VERBENAS.—Beauty of Godalming, blue slate colour, large pips, and of excellent form. *Florist, Oct.* 1855.—Ailey Moore, purple and slate curiously shaded, carmine eye, a novel pleasing flower. *Florist, Oct.* 1855.—Rosetta, rose, carmine eye, pip large and of exquisite form.—Maid of Honour, bright pink, centre rich vermillion, truss large, habit fine.—Quakeress, silvery lilac, centre bright rosy purple, fine form, habit good.—King of Sardinia, rich purple plum colour, pip large, and of fine form, truss large, habit good.

C. S. B. begs to assure his friends and the public that the Seedling Verbenas he now offers far surpass in form, habit, and colours anything of the kind ever sent out. Plants will be ready about the 21st April, at 5*s.* each, or the set of six for 20*s.*—Verbena Barker's Ravenswood, the best of all the dwarf scarlets for baskets and vases, in April, 6*s.* per dozen.

VARIEGATED GERANIUM.—The Maid of Orleans, a great improvement on Flower of the Day, foliage large and perfectly flat (planted out in 1855, leaves were produced 5 inches over) white margin, dark horseshoe, flowers beautiful cerise scarlet, truss good and well above the foliage. Plants in May 5*s.* each.

TROPÆOLUM (Perpetual Flowering).—Triomph de Godalming, flowers large and circular, fringed, golden yellow, with five large crimson blotches, abundant bloomer. The plant commenced flowering when only 6 inches high, and has continued to produce flowers in succession from the axil of any leaf. The one with a free blooming character, colour golden yellow, and bright crimson blotch on all five petals, is the most novel and superior to anything in its way at present in cultivation. *Florist*, Nov. 1855. Plants 21st April, 5*s.* each.

Godalming Nursery, Jan. 26, 1856.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	12*s.* to 18*s.*
DWARF STANDARD DO.	18*s.* to 24*s.*
CLIMBING AND NOISETTE ROSES, named	9*s.* to 12*s.*
CLIMBING ROSES, mixed, for covering banks	4*s.*
DWARF ROSES, on own roots, mixed, not named	4*s.*

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6-inch pots, for forcing, exhibition, or greenhouse culture, 24*s.* per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

PAMPAS GRASS (CYNERIUM ARGENTEUM) AND DOUBLE WHITE CHINESE PRIMROSE.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that he has a nice healthy stock of the above beautiful Plants to dispose of at the following prices:—

PAMPAS GRASS (Seedlings 6 to 8 inches high), 3*s.* each, or 25*s.* per dozen, post free.

DOUBLE WHITE CHINESE PRIMROSE, 18*s.* per dozen, hamper and package included.

CALCEOLARIA SEED, saved from H. M.'s Fine Flowers, 2*s.* 6*d.* per packet, or 3 packets, 5*s.*, post free.

Orders must be accompanied by a remittance, or they cannot be attended to.

Mr. MAJOR'S Annual Descriptive List of new Shrubby Calceolarias will shortly be ready, of which due notice will be given.

NEW HARDY WINTER GREEN.
"THE COTTAGER'S KALE."

GEORGE PRIOR, GARDENER, Adbury House Newbury, Berks, begs to recommend this very valuable new Vegetable, which is much hardier than Brussels Sprouts, Scotch Kale, and Asparagus Kale, is of first-rate quality, and a very heavy cropper. If sown in March and planted out early, it will yield an enormous crop, and in good soil the plants should be fully a yard apart. It should be in every garden where space is limited, and quality and quantity desirable.

It is particularly worthy the attention of Clergymen—who are desirous of benefiting their poorer parishioners by distributing among them seed of this most useful vegetable.

Parcels of 20 packets, post free, for 1*l.* 1*s.*; do. 10 do., 11*s.*; single packets, 1*s.* each, or post free for 14 stamps.

Can be had also of Mr. CHARLES TURNER, Royal Nursery, Slough. A liberal allowance to the trade.

NEW CELERY—COLE'S DEFIANCE—RED.

WILLIAM COLE, NURSERYMAN, SEEDSMAN, AND FLORIST, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a decided improvement on his well known Celery, Cole's Dwarf Solid Red, being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, 2*s.* each. A liberal allowance to the trade.

W. C. can also supply seed of his well known Cole's Crystal White Celery, and Dwarf Red, true, at 6*d.* per ½ oz. packets.

WILLIAM COLE begs also to intimate that the business hitherto carried on under the firm of "Thorneley, Cole, & Co." will for the future be carried on by himself, and respectfully solicits the support of his friends and the public. W. C. also invites attention to his extensive stock of Hardy Trees, Shrubs, Fruit Trees Roses, Stove and Greenhouse Plants, Florists' Flowers, and Soft-wooded Plants of every description, Catalogues of which can be had post free on application.

DICKSON'S "EARLY FAVOURITE PEA."

FRANCIS AND ARTHUR DICKSON AND SONS have great satisfaction in again calling attention to this distinct and truly valuable EARLY PEA (sent out by them for the first time last season), which is admitted by all who have grown or seen it to be the MOST PROLIFIC and BEST Early Pea ever introduced. It comes in very few days after the *earliest* varieties, and the flattering testimonials which they have received from some of the first Gardeners in the kingdom who grew it last season (see *Gardeners' Chronicle* of Jan. 12th, 1856), will, they think, be sufficient guarantee for its EXTRAORDINARY PRODUCTIVENESS and general EXCELLENCE.

Price 2*s.* 6*d.* per quart, or 1*s.* 6*d.* per pint, in sealed parcels.

VEGETABLE, FLOWER, and AGRICULTURAL SEEDS of every description, of *select* and *superior* quality, detailed CATALOGUES of which will be forwarded on application.

The Old Established Seed Warehouse, 106, Eastgate Street, Chester.—January 26, 1856.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & CO., Seedsmen, 238, High Holborn, London.

SEAKALE AND ASPARAGUS PLANTS.—TO THE TRADE.—ONE MILLION *fine strong plants of Seakale and Asparagus are now growing by the undersigned. Wholesale prices on application.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, JANUARY 26, 1856.

IT is now well known that the roof of WESTMINSTER HALL is not constructed with wood of the Spanish Chesnut as has been long believed, but with the Sessile-fruited Oak (*Quercus sessiliflora*). We have long had specimens in our possession proving this fact. But it was a question whence such Oak timber was brought, *Qu. sessiliflora* now being unknown in a wild state near London. Nor does it seem to have been common when old London Bridge was built, as is said, at the end of the twelfth century, for the piles on which that ancient structure stood were certainly from *Q. pedunculata*, the Oak still common here, as is proved by a specimen for which we are indebted to Mr. JOHN MURRAY, the eminent publisher. It would be extremely interesting with reference to this point to know what the Oak was, which CASWALLON or CASSIBELAUNUS employed in order to

render the fords of the Thames impassable by the troops of Cæsar. Mr. Charles Knight, in his new "History of England," tells us that these stakes, described by Bede, and formed of the bodies of young Oak trees, remain to this day, after a lapse of more than 1900 years, in the bed of the river near Oatlands, at a place called Coway Stakes. Surely it would be worth while to draw one of those stakes for the sake of determining what the Oak of Surrey was 54 years before the Christian era.

It now appears to be shown that the Oak timber used in constructing the roof of Westminster Hall had a very different origin from what has been usually suspected; and that so far from having any English origin it came from Ireland.

At a recent meeting of the Royal Institution of the Royal Architects of Ireland, Mr. M'Curdy is reported (in the *Builder*) to have brought under notice a record in St. Michan's Church, and verified by "Hanmer's Chronicle," in the Library of Trinity College, Dublin, which states that the roof over Westminster Hall was constructed with timber procured from the site of this church; and he further stated that clumps of trees were found during recent excavations. The following is a copy of the record:—

"Stanihurst findeth that, anno 1095, there came certaine Easterlings to the north side of Dublin, adjoining to the Liffie, and seated themselves there, so that of them to this day the place is called Ostomontowne, and corruptly Oxmonton, and the parish Saint Michans, of one Michanus, a Dane and a bishop, which founded the church, unto whom Murchard or Moragh, King of Leynster, gave that parcell of land to that use. The faire greene or commune, now called Ostomontowne-greene, was all wood, and hee that diggeth at this day to any depth shall finde the ground full of great rootes. From thence, anno 1098, King William Rufus, by license of Murchard, had that frame which made up the roofe of Westminster Hall, where no English spider *webbeth or breedeth to this day*."

It is to this account, we suppose, that allusion is made in Ned Ward's London Spy, quoted by Mr. Peter Cunningham, where he speaks of "the vulgar belief that it was built of a particular kind of wood (Irish Oak) in which spiders cannot live." In this instance, as in so many others, it would now seem that tradition, or as it is called vulgar belief, was true.

We are aware that some antiquaries doubt whether the present roof of Westminster Hall is that constructed in the reign of Rufus, because the walls were raised in the time of Richard II. And if their conjecture is well founded the Irish origin of the timber would be still apocryphal. But it is improbable that such a magnificent roof, constructed with the care and skill which characterised the works of the Norman architects, would have been found so decayed in 300 years, the time which elapsed between the original construction about 1097 and the alterations in 1397, that it could stand no longer. It is rather to be conjectured that what was called the "new roof, constructed according to the design of Master Henry Zeneley," was some alteration of the old one.

Be that as it may this important question at least remains to be answered: Why did Rufus send to Dublin for the timber for his Hall? when he could so easily have felled timber in the neighbouring forests. The only explanation that occurs to us is that the adjoining woods contained then, as now, no Oak fine enough for the construction of a roof with so great a span; and that he was obliged to fetch the sessile-fruited Oak from even so great a distance as the banks of the Liffey.

Some light would probably be thrown upon these speculations were we in possession of authenticated examples of ancient Oak from Leinster.

The Mormons have founded a Horticultural Society. We have before us the *Deseret News* of Oct. 3, 1855, which shows that the love of gardening is implanted in the nature of even the most eccentric of civilised men. It appears that a meeting was held at the Great Salt Lake City on the 14th of last September, to form a constitution and bye-laws for this association. W. Woodruff (President), W. C. Staines (V. President), Thos. Bullock (Secretary), Geo. D. Watt (Corresponding Secretary), Sam. W. Richards (Treasurer), and Edwd. Hunter, Jno. Nebeker, Chas. H. Oliphant, Jesse Little and Samuel Sprague were present on the occasion. We give the names of these gentlemen in case they should be known to some of the readers of the *Gardeners' Chronicle*. The following is a condensed report of what took place on this occasion. The meeting opened with prayer by the President, after which a constitution was adopted, in which, *inter alia*, we find the following laws:—

Any citizen of this territory can become a member by paying one dollar and annually thereafter one dollar. The Presidents of County Horticultural, or Agricultural Societies, or a delegate from each, shall *ex-officio* be members. The Treasurer shall keep the funds of the Society, and disburse them on the order of the President or a Vice-President, countersigned by the Home Secretary, and shall make a report of the receipts and expenditures at the annual meeting; he shall also distribute or preserve all seeds, plants, books, &c., which may be transmitted to this Society. There shall be an annual meeting of the Society on the second Monday of August, in Great Salt Lake City, at which time all the officers shall be elected by a plurality of votes of the members present. This constitution may be amended by a vote of two-thirds of the members attending any annual meeting.

The first meeting was held in the Social Hall on Thursday, 20th Sept. 1855, at 7 P.M. Peaches seem to have been the only objects of exhibition. Of these the reporter gives the following account:—"A large glass jar of Peaches preserved in brandy sent by Professor A. Carrington, some of which were 8½ inches in circumference. A similar sized jar, containing 'the Deseret Beauty,' by Dr. S. L. Sprague; who presented about 100 of his delicious rareripe Pear Peaches, and other varieties spread around on glass dishes. Mr. W. Woodruff presented over 200 of his Prolific and rareripe Peaches, which hung in festoons in the centre and on the sides of the stage, also a basket of Prolifics and several plates of his delicious Mountain Sweets and Crimson Peaches. Mr. Thos. Bullock also presented a bunch of fine dark red Rareripes, hung in the centre of the stage, also a fine sample of 'the Maiden's Blush.' Mr. John Nebeker presented over 150 of his delicious varieties, which showed the advanced stage of his method of cultivation. Mrs. John L. Smith sent a sample from her garden, cultivated by herself, while her husband is absent preaching the gospel. Mrs. Van Cott sent a dish of pale varieties, also to show what a woman can do while her husband is preaching and publishing the gospel in Denmark. Mrs. Sessions donated nine Peaches, as a sample of her orchard, estimated to gather over 75 bushels this season. Mrs. Farnham presented a basket of splendid Peaches, which measured 7 or 8 inches in circumference, cultivated while her husband is in Australia. And though last not the least, we observed a sample from the orchard of Mr. George D. Watt, the smallest weighing over 4 ounces and measuring over 7½ inches in circumference. Mrs. N. K. Whitney sent a sample of her 'Kirtland Exile' Peach, very large and delicious." We are told that "The whole appearance of the stand was sufficient to excite the epicurean taste of the most refined, and was a feast never before equalled in these vast mountain regions." After agreeing to the constitution prepared for adoption, Elder Woodruff, the president, exhorted all present to improve their time in planting seeds, for all that was presented this evening were but seedlings, not inoculated fruit, and they would bear comparison with seedlings in Philadelphia, New York, Liverpool, or any other portion of country. This he thought was proved by what he had himself done in the way of raising fruit trees. Elder P. P. Pratt stated that the knowledge of raising fruit was one of the first articles of theology to our father Adam. Better specimens than those exhibited could not, he thought, be found on the earth. "The spell," he exclaimed "is broken; 31 years I have been setting out fruit trees, but never tasted the fruit of my labour until this season. It is better to live partially on fruits than wholly upon meats and vegetables. We can now go to work and multiply fruits by grafting, &c., and we ought to have an orchard in every good place." The *Honourable* Geo. A. Smith was rejoiced to see the fruit of the labours of his brethren. He had planted fruit trees in New York, Ohio, Missouri, Illinois and Iowa, and in this city, and Parowan, and Provo, but had not yet tasted the fruits of his labours. He hoped that gardeners would give them instructions *how to plant fruit trees*. Another Honourable—E. T. Benson—"knew the fruit was delicious, for he had tasted some at Elder Woodruff's. This meeting would instil an energy into the various communities to go ahead to raise fruits, and then you will see a healthy people with rosy cheeks." More Honourables followed in the same strain.

The Honourable E. Hunter desired to be a coworker. When the Mormons first came there, it was doubtful whether they could raise fruit or cereals. Dr. Darlington and many other botanists declared they must have rain to sustain the trunk and stem. We presume he intended to add, what is not reported, that at the Great Salt Lake plants do not require rain.

The fruit was then distributed by the committee to all in the hall. Thirty-three members gave in their names, and the Society adjourned for a fortnight.

We shall be curious to observe the further operations of this body, consisting as it evidently does of people ignorant of gardening; for they believe that Peaches, Plums, and Cherries can be grafted on Whitethorns. There they are in a plain where rain is said to be of rare occurrence, and where the soil does not promise a quick return for even skilled labour. All that the information which has reached us shows is that the place suits Peaches on their own roots; at least this would seem to be the case from the proceedings above described.

We are authorised to state that the Horticultural Society has now received a sufficient number of seeds from Mr. Botteri, to make a small distribution among such of its Fellows as shall signify their desire to receive them. They are lying in Regent Street for this purpose, where also some packets of Gynerium or Pampas Grass seed may be had. As Mr. Botteri's seeds are all from the neighbourhood of Orizaba in Mexico, it will be as well to consider that they require a greenhouse until some further knowledge shall have been gained concerning them.

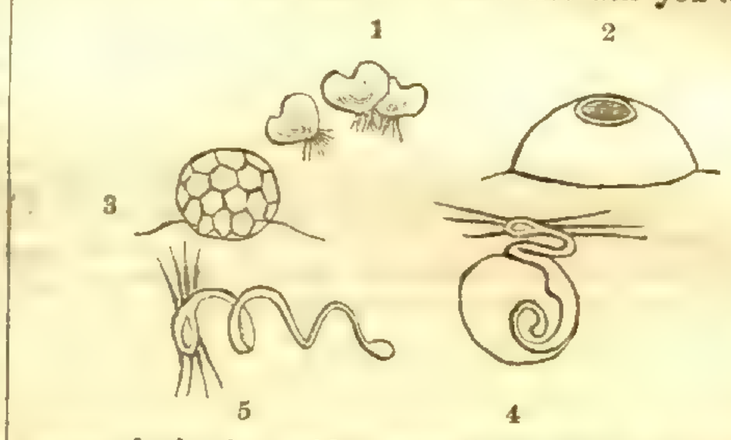
New Plants.

161. Ansellia gigantea, *Reichenbach f. in Linnæa, vol.* xx., *p.* 673.

This rare plant has just flowered in the garden of Wm. Wilson Saunders, Esq., at Wandsworth. It is extremely like *A. africana*, except that the flowers are smaller and paler than usual, and the middle lobe of the lip narrower. We entertain great doubts about its being specifically distinct from *A. africana*. What gives it much interest is its coming from Port Natal, on the other side the continent and some 33° further to the southward. It is moreover, we believe, the only true epiphytal Orchid yet brought from Natal.

FAMILIAR BOTANY.—HAVE FERNS SEXES?

Our fathers believed that when a Fern produced its seed, the little brown grains at the back of a Fern-leaf were all that nature had provided for the purpose. Linnæus thought so, and so did everybody else till a quick-eyed Polish gentleman, Count Leszczyc-Suminski, found out the mistake. I will not ask you to pro-



nounce both the noble naturalist's names, for letters arranged like these are unfamiliar to our English mouths; but it is proper that so great a discoverer should enjoy such immortality as the *Gardeners' Chronicle* can confer. This great event happened in the year 1848, when it was made known to His most gracious Majesty King Frederick William IV. of Prussia.

The reason, or at least one of the reasons, why nobody saw before what Count Suminski saw in 1848 was that nobody began at the beginning when they studied the nature of Ferns. It is indeed to be doubted whether many people, even in this enlightened age, know what the beginning is. Let me endeavour to make this clearer.

If you look upon the damp ground where Ferns shed their seeds, you may find it covered with tiny green scales not very unlike the spots called hearts in a pack of cards, only with a few hairs, for roots, sprouting from near the pointed end (see Fig. 1). The easiest place to find them in is the surface of a garden pot or of an old wall in a damp and shaded fernery. There they lie flat upon the ground, looking like infant Liverworts. They are the beginnings of Ferns, as you will presently see.

Lift carefully one of these bodies and place it under a microscope (one of Smith and Beck's educationals will do) the underside upwards; you will find that it is a little convex, and on the convexity stand a few very small projections looking like blisters, but of two sorts. One sort has a hole in the end (fig. 2), the other is something like a netted ball (fig. 3). They have received various names; let us call the first a *pistillid*, the second an *antherid*.

Here we have what are now styled the sexes of Ferns. The pistillid is the lady, the antherid is the gentleman; strange ladies and gentlemen it must be confessed.

Mrs. Pistillid is only a nest, with a little egg hidden at the bottom. Mr. Antherid is a sort of pimple. You may see the egg by looking into the nest; but when you cast your eyes upon the pimple you will probably see nothing except a netted surface. But if you squeeze it, out come little transparent bags, in each of which is rolled up spirally a sort of vegetable worm. In time the worm uncoils, gets out of his bag and shows

himself. In fig. 4 he is seen half extricated; fig. 5 you have him wriggling about. And a very surprising fellow he is with a tail like a corkscrew, and a head furnished with a bristly beard.

When the worm aforesaid sets out upon his travels he moves over the surface of the Fern-scale in search of a nest (pistillid), and when he finds one he gets in if he can; at least so says Count Suminski. That feat being accomplished a wondrous change takes place. The egg grows up into a perfect Fern leaf; at the same time the green beginning shrivels and disappears. When a start has once been made the leaf becomes longer and longer, and broader and broader, another leaf unfolds from its bosom, in its turn to give birth to more, till at last all are old enough to bear brown grains upon their back or edge. And then the destiny of the Fern is accomplished.

It is out of one of these grains that the seed falls which sprouts into a new beginning such as I first described (fig. 1).

Is all this really true? A good deal of it certainly is. Acute observers since Suminski's time have so far verified his statements that no doubt exists about the antherids, and the pistillids, and the crawling vegetable worms, and the uprising of a perfect Fern-leaf from the nest-like pistillid. Such things are however extremely difficult to see, and can only be witnessed by well trained eyes, armed with well made achromatic microscopes, in the hands of dexterous observers. They must be taken on trust, as are mountains in the moon, by those who have no telescopes. What is really doubtful is whether the worm crawls into the nest, and how it gets there. Men, however, have come to believe in the phenomenon; and we cannot contradict them, for it is hard to prove a negative.

And these are what are now called the sexes of Ferns. *R. E.*

NOTES ON PEARS.—No. II.

THE Beurré Giffard or Giffart, the last of the trio of very early Pears, is a new variety exceedingly good; it follows closely on Citron des Carmes in ripening about the second week in August. It is a little below the medium size, very juicy and agreeable, with a slight Noyau flavour. On the Quince stock it succeeds well, but does not form a handsome pyramid; it is therefore better cultivated as a bush or espalier. It does not come so quickly into bearing even on the Quince as the Doyenné d'Eté (which often bears the second year from the graft), but does not generally bear till four or five years old. There are two early American Pears, the Bloodgood and Dearborn's Seedling, which ripen in August, but they are very inferior in our climate. Our old favourite Pear the Jargonelle succeeds the above. This is so well known as scarcely to deserve a place here, but a few words about it may perhaps be of use. It succeeds on the Quince and comes rapidly into bearing, but it does not form a handsome pyramid, making gross irregular shoots; as a dwarf bush when removed biennially it makes a prolific tree. This treatment keeps its fibrous roots to the surface and prevents canker, to which it is so liable; and if under this treatment it makes vigorous shoots they should be pinched in in June; on the Quince its fruit is not so large as when grafted on the Pear stock, and they ripen earlier. As a standard in most soils it cankers terribly; but it is grown in perfection in this form in the valley of the Thames near Rotherhithe, where both climate and soil seem to suit it. It is, however, not the climate alone that affects this variety so much as the soil, for I remember hearing from a friend, living at Garforth, near Leeds, that he knew of an orchard of Jargonelle Pears in that neighbourhood in a most healthy and fertile state. As a general rule it should have a wall; an east or south-east aspect suits it well.

Williams's Bon Chrétien, in France "Poire William," in America the "Bartlet;" perhaps no Pear has so widely extended a reputation for its excellence as this variety of English origin; but its parentage is entirely unknown. In France, to quote a celebrated pomologist, "c'est incontestablement la meilleure des poires d' été;" in America, quoting Downing in his "Fruits and Fruit Trees of America," "This noble Pear is justly one of the most popular of all the summer varieties. Its size, beauty, and excellence entitle it to this estimation." It is not, I think, so highly appreciated in England—with the exception of the fruit sellers in the streets of London—as it ought to be, owing to its being suffered to hang too long on the tree and then becoming dry and insipid. It is better to err by gathering it too soon rather than too late, for in the former case it merely slightly shrivels, but when placed in the fruit room for a week or so it is full of juice and highly flavoured; it should as a rule be gathered just as it commences to become yellowish at the stalk, its season may however be prolonged for three or four weeks by commencing to gather some before even that appearance of ripening, and thus make three stages of gathering at intervals of a week; it is quite worthy such attention, for no Pear when properly managed is so melting, so juicy, and agreeable.

The tree is always healthy and does not seem to know how to canker; it bears well as a standard, as an espalier, and as a pyramid on the Pear stock, and on the Quince profusely; it ought not to be planted against a wall, at least here in the south, for its fruit suffer in flavour. On the Quince stock it forms a nice compact pyramid, well adapted for small gardens, and its fruit is generally larger than from trees on the Pear stock, ripening rather earlier. A pyramid of this Pear on the Quince stock when studded with large clear fruit is most ornamental; there is, however, some little attendant inconvenience, for one is loth to gather the fruit, they become too ripe on the tree, or suffer in flavour. Closely following Williams's Bon Chrétien we have Beurré d'Amanlis, one of our largest, handsomest, and best early autumn Pears. This is also liable to suffer from being permitted to remain too long on the tree, and should always be gathered before it becomes yellow. It is never a highly flavoured or perfumed Pear, but is simply very juicy, melting, and agreeable if suffered to ripen in the fruit room; the tree is remarkable for its fruitfulness, and equally so for its vigorous growth when grafted on the Quince stock. It seems to grow more vigorously on the Quince than on the Pear; it seems also to arrive at a good age on that stock, for some trees in the *potagerie* (kitchen garden) at Versailles are fifty years old or thereabouts and still healthy and abundantly productive. It forms a large loose growing pyramid and a good prolific bush; as an espalier also it bears well, but should not be planted against a wall in the south of England unless perhaps against a north-east or eastern aspect, where it would not be likely to ripen too rapidly. As a standard for orchard culture it bears abundantly and will probably become a popular market Pear; on standards on the Pear stock its fruits are not so large as on trees on the Quince and not so liable to suffer from our autumnal gales. *T. R.*

VEGETABLE PATHOLOGY.—No. CV.

412. DESICCATIO* (*Sunstroke, Withering, &c.*).—Since plants derive the greater part of their nutriment from the fluid contained in the soil, and conveyed from thence to the inmost tissues by means of the spongelets, and since these fluids part with a portion of their oxygen in their passage through the tissues, which finds an exit by means of the leaves, and it is needful for the due elaboration of the sap that it should pass through those organs, which at the same time in all probability fulfil other important functions, as for example the placing the inmost tissues in connection with atmospheric air, anything which affects the vital energies of the spongelets so that they will no longer imbibe or convey moisture, or withers up the leaves so as to stop entirely those functions which depend upon their integrity, must be extremely injurious to the plant if it does not prove fatal. If, for instance, from intense heat the soil cracks and admits the hot dry air to the rootlets, so that their delicate tissue becomes flaccid and at length withers, or the supply of water is cut off and similar consequences ensue; or where, as in spring-planted trees, the spongelets, in consequence of the direct injury of many, are not sufficiently numerous for the necessities of the plant under a scanty supply of moisture; or where, again, the external heat is so great that the balance between the supply of nutritive fluid and evaporation is disturbed, the rootlets not sending on the stream quick enough to remedy the outward stress, the necessary consequence is great damage to the plant if not complete destruction. In the one case, provided the injury is confined to the spongelets, and a change of weather soon takes place, the upper portions may be so little injured that there is strength enough in the plant to cause the formation of a sufficient number of new rootlets to supply the present necessity; or, on the other hand, if the leaves alone be injured, a new supply may be rapidly formed from the axillary buds, as where the whole foliage has been destroyed by insects. If however the unfavourable circumstances are of long duration no such healing process will take place, and in some plants, especially those which have highly divided roots, as in many Cape shrubs, a few hours' dryness of the soil, without any extraordinary heat, is absolutely fatal.† Where the roots have been injured by transplanting, and there has been no time to form new rootlets, a few weeks' drought is quite sufficient to destroy the healthiest trees, and on this account no cautious forester will trust to spring-planting, a practice which should be avoided as much as possible, even in the garden, where constant care can in some measure supply the deficiency. Even in autumn-planted trees, where they are of considerable size, it is necessary sometimes to guard against the effects of drought by mulching, or by placing blocks of stone round the base of the tree to shade the ground from the direct rays of the sun. This is a practice which was recommended long since by Virgil for the protection of the roots of Vines, which sometimes suffer materially from heat in southern climates, and it is still adopted occasionally. In Madeira, where the heat is often excessive on the Vine slopes, the same end is obtained by deep planting. Where the soil is naturally stony, the stones mixed up with it should on no account be removed without due consideration, as they will retain moisture when the earth around them is too dry for the purposes of vegetation, a fact of which many a cultivator has been painfully convinced by the withering of his corn, where the soil is shallow and the bottom such that it easily parts with its moisture.

413. Where moisture has been long withheld from a plant the vitality is sometimes so low that it is unable to endure a sudden or extreme change. If under such circumstances water is too rapidly admitted it is apt to stagnate, and thereby impair those supplies on which the development of buds or adventitious roots depends, or it may cause decomposition‡ or carry with it noxious matter from the decayed rootlets in such abundance as to act as a putrefactive ferment upon tissues already in a weak and languid condition, and if the foliage flags the powers of evaporation will at the same be diminished. Hence it is often more needful to shade newly transplanted vegetables than to supply abundant water to the roots, and on the same principle it is not desirable to water plants already flagging while the full sun is shining on them. In trees which have been long removed from the soil Mr. Knight found that shading and moistening the bark was better than supplying water directly to the roots. The bark when young and tender in some measure performs the functions of the leaves and indeed in some succulent plants supersedes them. By judicious moistening, the vitality of the cellular tissue was thus gradually restored to its former strength, and the consequent formation of new roots at length enabled the plant to sustain itself under the ordinary circumstances of cultivation.§ In the garden, where from unavoidable circumstances, fruit trees have not been planted till spring, and the weather proves dry, close pruning is absolutely necessary to effect the healthy expansion of the buds. If the head be left unpruned, though the buds should push at midsummer, they frequently prove so weak and diseased, that the tree is to the last unhealthy if it survives.

414. In hot countries bulbs such as Hyacinths, Onions, Garlic, &c., frequently dry up and wither in consequence of the destruction of the roots. Where there is reason to fear such consequences especial care must be taken to encourage the descent of the roots as deeply as possible, and to protect the bulbs themselves by a sufficient covering of soil. Above all, the bulbs when first placed in the ground must be planted as far down as may be consistent with their full development. *M. J. B.*

* From desicco, to dry up.

† In garden practice, where so many plants are necessarily grown in pots, as the active portion of the roots is generally in contact with the walls in which evaporation is constantly taking place, and which from drying winds or other causes, are liable to considerable change, the spongelets may suffer either from depressed temperature due to evaporation or from drought. A remedy for this consists in plunging the pots in the soil. This, however, is not always convenient; but in plants of great susceptibility it is a good plan to place the pot which contains the plant within another, filling the intermediate space with wet moss.

‡ In the first instance the functions of the cells alone are affected. Further change takes place after the vitality is destroyed.

§ See Lindley's "Theory of Horticulture."

PROPAGATION OF SALMON.

THE following paper on this subject was read by Mr. Edmund Ashworth, of Egerton Hall, near Bolton, to the British Association at Glasgow:—It is, comparatively speaking, within a limited period that the subject of the artificial propagation of fish has received that attention which it eminently deserves. Though the process has been known for nearly a hundred years, there have been few attempts to give it a commercial application. The circumstances under which the recent experiment at Stormontfield has been made are sufficiently interesting and important to warrant a description of the means by which the end in view has been attained. Continental naturalists have long been acquainted with the subject. In 1758 a note, descriptive of the process adopted by Mr. Jacobi in the artificial fecundation of ova, was transmitted by Count Goldstein to M. de Fourcroy, and ultimately published in 1773 by Duhamel du Monceau in his "Treatise on Fishes." Prior to that date, in 1763, a minute account of Mr. Jacobi's experiments during a period of 30 years was inserted in the Journal of Hanover, and in the following year an analysis of his proceedings, compiled by M. Gleditsch, was enrolled in the Memoirs of the Royal Academy of Berlin.

The efficiency of the process therein described was tested at Nortelem, in Hanover, with the most satisfactory results. In more recent times, attention on the continent has again been drawn to this interesting subject by the two fishermen of Bresse, MM. Gehin and Remy. An official inquiry into the nature of their experiment resulted, on the recommendation of M. Coste, Professor at the College of France, in the foundation of a model establishment at Huningen, and the report presented to the French Minister of Agriculture and Commerce by Mr. Coste, on the 7th of February, 1853, bears abundant testimony to the complete success which has attended the institution. In our own country various individuals have experimented on the artificial fecundation of the ova fish. Thomas Garnett, Esq., of Clitheroe, may be instanced as one of the earliest who promoted inquiry into the subject, through the *Gardeners' Chronicle* in 1832. The curious and interesting experiments of Mr. Shaw of Drumlanrig have found an honourable record in the Transactions of the Royal Society of Edinburgh. But it is chiefly to the exertions of Mr. Robert Ramsbottom, of Clitheroe, that we are indebted for the practical development of this science. Originally instructed by Mr. Garnett, he devoted himself to the acquisition of that intimate knowledge of the habits of fish which is all important in artificial fecundation. Long-contiued application has rendered him eminently successful. At Knowlmere, the residence of Jonathan Peel, Esq., in 1852, about 5000 salmon ova were placed in boxes by Mr. Ramsbottom, which was the first successful attempt with salmon ova in England. In the following year, at Outerard, in Ireland—where for the first time in the United Kingdom it was attempted, by Messrs. Edmund

and Thomas Ashworth, to render the science of pisciculture subservient to commercial purposes—20,000 salmon were hatched under Mr. Ramsbottom's careful manipulation. On the 19th July, 1852, a meeting of the proprietors on the Tay was held at Perth, for the purpose of considering a letter on the artificial propagation of the salmon, written by Dr. Esdaile. On that occasion Mr. Thomas Ashworth, of Poynton, explained to the meeting the nature of the operations which had been carried on at Outerard by his brother and himself, and strongly recommended the adoption of similar measures in the Tay, under the direction of Mr. Ramsbottom. The proposals of Mr. Ashworth were agreed to, and a committee was appointed to fix upon a suitable locality for planting of boxes and construction of ponds. The Earl of Mansfield, who was chairman, and who has shown much interest in the success of these experiments, gave permission to the committee to make a selection of any portion of his extensive estates on which to carry out their operations. The situation selected was at Stormontfield Mill, near his lordship's residence. A gentle slope from the lade which supplies the mill offered every facility for the equable flow of water through the boxes and pond. Three hundred boxes were laid down in 25 parallel rows, each box partly filled with clean gravel and pebbles, and protected at both ends with zinc grating to exclude trout and insects. Filtering beds were found at the head and foot of the rows, and a pond for the reception of the fry was constructed immediately below the hatching ground. On the 23d of November, 1853, operations were commenced, and by the 23d of December 300,000 ova were deposited in the boxes. The fish were taken from spawning beds in the Tay. The process of fecundation will be best understood by a quotation from Mr. Ramsbottom's pamphlet, in which he describes the means employed in impregnating the ova at Outerard. "So soon as a pair of suitable fish were captured, the ova of the female were immediately discharged into a tub one-fourth full of water, by a gentle pressure of the hands from the thorax downwards. The milt of a male was ejected in a similar manner, and the contents of the tub stirred with the hand. After the lapse of a minute the water was poured off, with the exception of sufficient to keep the ova submerged, and fresh water supplied in its place. This was also poured off, and fresh substituted, previous to removing the impregnated spawn to the boxes prepared for its reception." The ova were placed in the boxes as nearly similar to what they would be under the ordinary course of natural deposition as possible, with, however, this important advantage:—In the bed of the river the ova are liable to injury and destruction in a variety of ways. The alluvial matter deposited in times of flood will often cover the ova too deep to admit of the extrication of the young fry, even if hatched. The impetuosity of the streams when flooded will frequently sweep away whole spawning beds and their contents.* Whilst deposited in boxes, the ova are shielded from injury, and their vivification in large numbers is thus rendered a matter of certainty, and the young fish reared in safety. On the 31st of March, 1854, the first ovum was observed to be hatched, and in April and May the greater portion had come to life, and were at large in the boxes. In June they were admitted into the pond, their average size being about an inch and a half in length. From the period of their admission into the pond, the fry were fed daily with boiled liver rubbed small by the hand. Notwithstanding the severity of the winter, they continued in a healthy condition, and in the spring of the present year they were found to have increased in size to the average of 3 or 4 inches in length. On the 2d May, 1855, a meeting of the committee was held at the pond, to consider the expediency of detaining the fry for another year, or allowing them to depart. A comparison with the undoubted smolts of the river then descending seawards with the fry in the ponds, led to the conclusion that the latter were not yet smolts, and ought to be detained. Seventeen days afterwards, viz., on the 19th May, a second meeting was held, in consequence of great numbers of the fry having in the interim assumed the migratory dress. On inspection it was found that a considerable portion were actual smolts, and the committee came to the determination to allow them to depart. Accordingly the sluice communicating with the Tay was opened, and every facility for egress afforded. Contrary to expectation, none of the fry manifested any inclination to leave the pond until the 24th of May, when the larger and more mature of the smolts, after having held themselves detached from the others for several days, went off in a body. A series of similar emigrations took place, until fully one half of the fry had left the pond and descended the sluice to the Tay. It has long been a subject of controversy, whether the fry of the salmon assume the migratory dress in the second or third year of their existence. So favourable an opportunity of deciding the question as that afforded by the Stormontfield experiment was not to be overlooked. In order to test the matter in the fairest possible way, it was resolved to mark a portion of the smolts in such a manner that they might easily be detected when returning as grilse. A temporary tank, into which the fish must necessarily descend, was constructed at the junction of the sluice with the Tay; and as the shoals successively left the pond about one in every 100 was marked by the abscission of the second dorsal fin. A greater number were marked on the 29th May than on any other day, in all about 1200 or 1300. The result has proved highly satisfactory: within two months of the date of their liberation—viz., between May 29 and July 31, 22 of the young fish so marked when in the state of smolts, on their way to the sea, have been in their returning migration up the river recaptured, and carefully examined. The conclusions arrived at are most gratifying, and proved what has heretofore appeared almost incredible, namely, the rapid growth of the young fish during their short sojourn in the salt water. This fact may be considered as still further established by observing the increased weight according to date of the grilse caught and examined; those taken first, weighing 5 to 5½ lbs. then increasing progressively to 7 and 8 lbs. whilst the one captured 31st July weighed no less than 9½ lbs. In all these fish, the wound caused by marking was covered with skin, and in some a coating of scales had formed over the part. Although 22 only are mentioned, the taking of which rests on indubitable evidence, nearly as many more are reported from distant parts; the weights and sizes of these have not been forwarded. The foregoing fully bears out the conclusions arrived at by Mr. Andrew Young, of Invershin, as reported in his valuable work on the "Natural History and Habits of the Salmon," in which he says, he marked a number of smolts in April and May, and in the course of June and July following caught them in grilse, still showing the marks, and varying from 3 to 8 lbs. in weight. To the great interest taken in the success of this experiment at Stormontfield by Robert Buist, Esq., of Perth, and the information he has supplied, we are indebted for many of the foregoing particulars. And to the close observations and attentive suggestions of Mr. Walsh, of the firm of Paton and Walsh, eminent gun-makers at Perth, we are indebted for the specimens of young fish now produced, of various ages and sizes, as well also for his valuable information of the present condition of the ponds and the young fish at Stormontfield. The experiment at Stormontfield has afforded satisfactory proof that a portion at least of the fry of the salmon assume the migratory dress and descend to the sea shortly after the close of the first year of their existence; and what is far more important in a practical point of view, it has also demonstrated the practicability of rearing salmon of marketable value within 20 months from the deposition of the ova. A very interesting question still remains to be solved. At what date will the fry now in the pond become smolts? Hitherto they have manifested no disposition to migrate, and if the silvery coat of the smolt be not assumed till the spring of 1856 a curious anomaly will present itself. Some of the fry as smolts will for the first time be descending seawards of the average weight of 2 oz., some as grilse will be taking their second departure to the sea, and others still more advanced will even have completed their second migration, and return to the river as salmon 10 or 12 lbs. in weight. It is much to be desired that the experiment at Stormontfield could be continued for a year or two longer, till the links in the chain of evidence now wanting to complete the natural history of the salmon should be obtained. All praise is due to Lord Mansfield for the liberal manner in which he has aided the carrying out the operations to this time, and from which he can reap little advantage beyond the satisfaction to an enlightened mind of promoting the interests of science and the welfare of the community. But in another point of view, looking to the advantage of individuals, and even nationally, too much importance can scarcely be attached to a scheme by which the now diminished value of our river fisheries may be restored to a state much beyond their once profitable condition, and a large amount of food provided for the people; so long, however, as we see the wholesale destruction of salmon and grilse in the mouths of the rivers, permitted by law, as at present constituted, it is hopeless to expect any general effort for artificial propagation. The nets now permitted will take any fish 3 lbs. in weight, and the improved skill in their application renders them year by year more destructive to the owners of the rivers inland, who are thus deprived of their due share of fish; and not until the salmon are reduced to a still smaller amount will the conflicting interests of the various owners bring them to a sense of the importance of legislative regulation. Salmon fishing with the rod is yearly becoming of more value, and it would not be difficult to suggest a mode whereby the present rentals for fisheries might be paid, and the sport of the anglers greatly increased. Since arriving in Glasgow, I have received a communication from my friend Mr. Buist, in which he says, "In my opinion you have kept your statements within the truth, as I have got satisfactory evidence of 22 marked grilse being taken, besides others which have been reported, and I have no doubt many have been thrown in the heap without being noticed by the careless fishermen. There is at present a mystery as regards the progress of the young salmon: there can be no doubt that all in our ponds are really and truly the offspring of salmon; no other fish, nor even the seed of them, could by any possibility get into the ponds; now we see that about one half have gone off as smolts in their season as grilses. The other half remain as parrs, and the milt in the males is as much developed in proportion to the size of the fish as in their brethren of the same age, 7 to 10 lbs. weight, while these same parrs in the pond do not exceed 1 ounce in weight. This is an anomaly in nature which, I fear, cannot be cleared up at present. I hope, however, by proper attention, some light may be thrown upon it from our experiments next spring. The female parrs in the pond have their ova so undeveloped that the granulations can scarcely be discovered by a lens of some power. It is strange that both Young and Shaw's theories are likely to prove correct, though seemingly so contradictory, and the much disputed point settled, that parrs (such as ours at least) are truly the young of the salmon."

The bottle with specimens of the young salmon at different ages was handed round the room, and created considerable interest. There were young fish with all the marks and evidences of fully developed parr, only 2 inches long, and others of the same age 5 inches long; with a specimen of a smolt taken out of the pond by Mr. Walsh, in May, all derived from the same hatching of ova. The grilse which had been caught returning from the sea 5 to 9 lbs. in weight, were also of the same age as these in the bottle.

Some important discussion followed, in which a very general opinion was expressed, that the chief difficulty to be encountered in experimenting in the artificial propagation of the salmon was the fact that fish was common property, and those at the expense of experimenting were not secured any advantage from their labour. Legislative interference was deemed necessary, if these experiments were expected to prove successful and advantageous.

From the interest exhibited by the members of the section then present, it was decided to appoint a committee to carry out the investigation for another year, and to report the result to the next meeting of the Association to be held at Cheltenham.

The committee was accordingly appointed, consisting of Dr. Fleming, the Chairman, Sir William Jardine, Bart., and E. Ashworth.

* These causes, in addition to the great destruction of ova as well as young fry by wild fowl, fish, and insects, all tend to limit the natural increase of the salmon.

Home Correspondence.

Horticultural Society.—As one of the vast number who share in the regret of Mr. M'Ewen that the exhibitions at Chiswick are about to be discontinued, allow me to say that I cannot agree with him that "F. H. S." is in error when he states "people no longer exhibit their productions for honour or for the sake of horticulture, but purely and simply for the money they can make." Although Mr. M'Ewen may be perfectly correct in declaring that many gardeners exhibit at a loss to themselves, yet it is notorious that there are a very many who have but the one object in view, as mentioned by "F. H. S." They calculate their expenses to a shilling, and if these are likely to exceed the value of the prize for which they intend to exhibit, they say at once, "I must stay at home, this won't pay me." In fact, are not plants hawked about from one exhibition to another by gardeners on the same principle as the country showman takes his paraphernalia from one fair to another? Whatever may have been the motive, it is clear to the commonest observer that gardeners have not done their best to support the shows at Chiswick; but, on the contrary, they have gone to the Botanic and Crystal Palace, simply because the amount of money was greater and more easily obtainable. *X., Battersea, January* 23.

The London Parks.—I have walked through these parks for these last 35 years, and have often regretted their apparently much neglected state in reference to the introduction of a greater variety of ornamental trees. Now, in this age of professed general improvements, why should our metropolitan parks not have the advantages of such trees as would beautify and improve the scenery—such as Purple Beech, Crimson, Scarlet, and 30 other varieties of Thorns (Cratægus), Laburnums, Scarlet Horse Chesnuts (one of the most showy trees known, and it grows well in smoky districts), the common wild Cherry, Weeping Birch, Elm, and Ash, Turkey Oak, Limes, some of the most showy sorts of Salix, Variegated and Purple Sycamore, and in the most sheltered places Acacias, Deciduous Cypress, Ailanthus glandulosus, Purple-leaved Elm, Pyrus Pollveria, &c.; and for clumps such plants as Lilacs, Snowballs, Double Whin (Furze), common Rhododendrons, Honeysuckle, Pyrus japonica, red and white, Halesia tetraptera, Syringas, Viburnums, Spiræas, Mezereons, &c. Now, I am quite aware of the difficulty of getting trees to grow in smoky atmospheres, and also in public places to prevent flowering trees and shrubs from being cut or broken by mischievous people; but nothing has a greater tendency to civilize, as it were, such persons than cultivating or beholding the beauties of nature in the forms of fine trees and beautiful flowers. I, like yourself, trust that the Government will in future pay some attention to this important and long-neglected subject; the cost would be trifling, the advantage great and lasting. *William Barratt, St. John's Nursery, Wakefield.*

Cloacine.—In reply to your leading article on this subject, I beg to acquaint you that I have for several years practised emptying cloacine from the vaults early in winter into the alleys between Asparagus beds, and from thence after being mixed with the earth it is moved with the spring dressing on to the beds. I also water several times during the season from a tank (into which the water-closets empty themselves). Asparagus and other vegetables are thus increased in size, without injury to their quality or flavour. *W. C. C.*—Under certain circumstances many kitchen garden "stuffs" may be affected by strong manures, for instance, Asparagus, Seakale, &c., when forced on dung, partake more or less of its flavour. Potatoes, as all know, when

grown in rich manured and undrained soils, are very inferior in quality to those grown in poor and dry situations, and so with many other things. Our cloudy sky and damp atmosphere may also be an argument against the use of large doses of manure, yet from some experience and observation I believe that the rankness and tendency to disease in vegetation generally—by repeated applications of liquid manures—may be so modified if not destroyed by due attention to thorough drainage, by mixtures of charred materials to secure healthful action of the soil, and by giving full expansion to the foliage as to increase the produce of the ground to almost an incalculable extent. *G. M'Ewen.*

Growth of Pinuses at Esher Place, Surrey.—

	March 1849.		January 1856.		Total growth.		Rate per Year.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Cedrus Deodara	7	4	17	6	10	2	1	5
Cryptomeria japonica ...	2	4	15	8	13	4	1	11
Larix pendula	5	5	14	11	9	6	1	4
Pinus Coulteri	6	2	23	5	17	3	2	5
	May 1854.		January 1856.					
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
Araucaria imbricata ...	6	7	8	11	2	4	1	2
Pinus Devoniana	4	11	7	4	2	5	1	2
" Pinsapo	8	2	11	3	3	1	1	6
" Pyrenaica	5	8	9	5	3	9	1	10
Taxodium sempervirens ...	13	5	14	5	1	0	0	6

—*W. W. Spicer.*

Cucumber Disease.—Your correspondent (see p. 24) seems to think that wherever there is disease under glass there must have been neglect. Now, without questioning the writer's experience and ability as a skilful grower, there are doubtless many gardeners who, like myself, believe that there are other causes besides neglect which engender disease, though they may not be susceptible of satisfactory explanation or easily understood, even after careful investigation. Are not our best Cucumber growers troubled sometimes by disease even with the best means of preventing it, if that were possible, at command? For instance, last February I planted 10 healthy plants of Walker's Improved Manchester from five years old seed in a properly prepared bed in a large Cucumber-house. They progressed satisfactorily, with the exception of one plant, and bore abundance of fine fruit up to the middle of November; the plant which failed flourished with the others until the fruit was 7 or 8 inches in length, they then began to turn up at the ends, exude a glutinous juice or gum from several places, both on the fruit and plant, the parts affected turning black, and the leaves exhibited yellow spots. Now, this plant received exactly the same treatment as the others up to the time when disease manifested itself. Surely this, therefore, could not be attributed to neglect. Perhaps some of our most experienced growers will kindly answer the following questions:—Have they ever been troubled with the Cucumber disease, and do they attribute it to mismanagement? Also, what is the best method of counteracting it when it does break out? *T. R., Thetford, Norfolk.*

Ailanthus glandulosus.—Your remarks respecting this being introduced here in 1751 from the north of China, have induced me to inform you that the original, together with many other giant exotics for which this place was early famed, have been cut down, owing to the great amount of shade they produced too near the mansion. Suckers of the Ailanthus spring up here in all directions, making 6 or 8 feet shoots the first season, where the soil has been moved to any depth. Our largest tree now girths (some feet from the ground) 3 feet 6 inches, while its height is upwards of 50 feet. The soil is a light sandy loam, and in the lower grounds the air is humid, having ponds there many acres in extent, and springs within a few feet of the surface, where the Ailanthus grows fast. Young plants on the hills suffer from the effects of winter, more or less, the first three or four years, unless they are sheltered or have a few leaves thinned out from the summer shoots in August to check late and excessive growth. This care is not required in the valley where they grow like weeds. *H. Bowers, Busbridge, Godalming.*

Treatment of Bedding Plants.—Will you favour me with a few comments on the following case. I took possession of this place, (as gardener) about the middle of November last. A great many of the bedding plants were either dead or in a dying state. I should (had I acted prudently) have thrown them away at the time, had it not been that other work of a more pressing nature took my attention from the matter. It happened a few days ago that my master and mistress inspected the pit in which they are in (this, and two frames, 2 and 3 lights respectively, is all the glass I possess), and said "that they feared all the Verbenas were dead; also that the seedling Hollyhocks looked badly." Now with regard to the Verbenas, there were not more than 30 cuttings "put in," seemingly late in October, none of which struck root; to make amends for this neglect, the rooted branches had been hacked off the old plants, and the roots crammed into small pots with some soil pressed upon them. The branches were neither reduced nor cut back to compensate for the loss of roots, &c.; some old plants shared a similar fate, for the ostensible purpose (it would appear) of making a display for a few weeks, afterwards to wither and die. Had I suspected at the time that this injudicious system had been carried on, I might have remedied the evil by potting them afresh, and cutting back the branches, but I did not discover it until I had occasion to throw some of them away. Now for the Hollyhocks. The seeds had been obtained from London, and were sown late in September or early in October in pots placed in a pit, which must inevitably be heated by a flue, in order to exclude frost. The walls of the pit are high, so that no amount of covering on the glass would keep the plants secure without the aid of fire-heat, as the frost would penetrate the wall (4-inch brickwork). There were two rough leaves on each plant when I took possession (I did not remove them, well knowing that they were sown months too late, and if placed under the most auspicious circumstances would not stand over the winter. Independent of this, the pit is badly constructed, the walls being high enough to admit of a path all round the inside. I have frequently not been able to uncover this pit (if I except the back, which I tilted on all available occasions, placing bunting over the openings to exclude frost and winds, the plants being contiguous to the glass), during the space of 12 days or a fortnight. The mats being frozen to the woodwork and covered with snow, I was aware at those times that some things must have been suffering, but I could not administer to their wants, and I concluded that I had better lose a few plants than the whole; the means of having access to the inside would have obviated this anxiety and mortification. Wintering plants in this district (the north of Durham) is very precarious, where frost and snow are so intense and of long duration. What necessity is there for sowing Hollyhock seed in a pit where fire-heat is unavoidable, and in October too? It was stated a few years ago that "gardening had got to its climax;" surely such a statement must have been wrong when such innovations on common practice are coming to light. It would have been better to have said (if we take the above mode of treatment as a standard) that gardening is retrograding instead of advancing. *J. B.*

Retrospective Criticism.—The article on the *Clou de Girofle* (p. 7) is a confusion of terms. Girofle or Garofalo, Garofano, &c., are corruptions of Caryophyllus, the name of the spice, applied secondarily to various Dianthi, &c., as having the same perfume. The Clou chiodo, or clavus, is the nail head, so called from its shape, and is the clove or bud of the spice plant itself, and only added to Caryophyllus, &c., as one may speak of a clove of Garlic or any other knob-shaped vegetable. 2. The Lupine (p. 8), cultivated in the south of Europe, is not our Lupinus albus, but L. Thermis. [We believe the seeds were certainly those of L. albus. Some are of opinion that L. albus and L. Thermis are not specifically distinct.] 3. What Oaks did your correspondent find in Brazil? (p. 5.) [It was stated that we could not correct M. Pinel's names.] 4. I once had Chinese Dodder (p. 6); it tied all the plants in the greenhouse together, and was a good riddance. *S.*

Pipe Flues.—I have a hot-house in my grounds which I cannot get heated because of the unseemliness of the smoke ascending in front of my house, as well as being somewhat annoying to my neighbours. To obviate this I propose conducting the smoke from the hot-house by 6 or 8 inch clay pipes similar to drain tiles underground, a distance of about 70 yards, to a point where it could escape without any annoyance. There is a slight elevation the whole way. Now what I should like to know is whether such a scheme is practicable; that is, will the flue work by being led so far underground? Perhaps you may know if such a plan has been adopted about the neighbourhood of London. *W. M.* [Can any one answer this question?]

Rain at Alverton for Five Years.—

	1851	1852	1853	1854	1855
First Quarter...	18.85	11.32	9.79	9.94	8.48
Second Quarter	6.50	10.93	9.10	7.94	9.69
Third Quarter	7.95	10.79	9.73	4.36	6.00
Fourth Quarter	11.38	25.01	14.30	10.88	10.54
Annual Total	44.68	58.05	42.92	33.12	34.71

The fall appears to have been little more than three-fourths of the average quantity that falls here, and the very low state of the springs is confirmatory of the deficiency. My guage is onthe ground. *W. M. Truro.*

Notices of Books.

A Treatise on Electricity in Theory and Practice. By A. De la Rive. Vols I. and II., 8vo. Longmans. (Translated by C. V. Walker, F.R.S.)

This elaborate work will when finished, for there is yet a volume to come, exhibit in a systematic form the present state of knowledge on the subjects of which it treats in electricity, magnetism, and their application. With the exception of the well-known treatise by M. Becquerel, there is not we believe any work of similar pretensions, although the incredible advance made in our knowledge of these subjects of late years has rendered a complete and systematic view of them almost indispensable to the student of natural philosophy. In the two volumes now before us the author has completed the theoretical part of his subject, which he has divided into five parts. The first part is introductory, containing those preliminary notions which are necessary to the study of electricity and also a description of such apparatus and instruments as are essential for the same purpose. In the 2nd, 3rd, and 4th parts we have an exposition of the laws of electricity and of magnetism. This naturally occupies the greater portion of the work, so far as it is completed. The reader will here find a minute and very perspicuous account of the laws of attraction and repulsion, of the distribution of electricity, of magnetic phenomena, of magnetism and electric currents, electro-dynamics, induction, the propagation of electricity, of its calorific, luminous, chemical, and physiological effects. The fifth part treats of the sources of electricity, viz., heat, mechanical action, and chemical action. Some idea may be formed of the fullness with which these topics are treated, from the fact that the fourth and fifth parts, on the transmission and sources of electricity, alone occupy nearly the whole of the second volume, consisting of more than 900 pages.

The 6th and 7th Parts, which are not yet published, will be devoted to an examination of the relations of electricity to natural phenomena, and to an explanation of its practical applications either to the art of healing or to the chemical or mechanical arts. Although the author goes into great detail, and explains and examines the theories which have from time to time proceeded from those who like himself have made these matters the object of their especial study, he has, by transferring to supplemental notes at the end of each volume all abstruse mathematical calculations, adapted his work to the wants of non-mathematical inquirers. At the end of each chapter the reader will find a full list of the principal works relating to the matters treated upon in it, and the text is throughout amply illustrated by wood engravings. In short, no effort has apparently been spared either by the author or the publisher to render the work in every way complete. In the chapter on the physiological effects of electricity an account will be found of the experiments made with regard to vegetation by Giulio on *Mimosa sensitiva, M. pudica, M. asperata,* and *Hedysarum gyrans,* and by MM. Dutrochet and Becquerel on *Chara.* From these it appears that there are notable differences between the action of heat and of electricity, in respect to the manner in which their action is exerted, and that electricity acts in a way peculiar to itself. The physiological effects of electricity on vegetation have however been but little studied and our knowledge on this head is very limited; so far as they are known they appear to be of scarcely any importance. So that the vegetable physiologist may, for the present at least, as we have often asserted, disregard electrical action in considering the nature of the vital forces which he has to study. Moreover, the nonsense talked about electrical agriculture some years ago may be finally regarded as wholly undeserving further discussion.

Upon the whole the translation seems to be well executed; but we must venture to remind Mr. Walker that the French word *nœud* is not equivalent to the English word *knot,* nor *foliole* to *follicle*; nœud is the joint of a plant, and foliole a leaflet.

There is no index at present; but we hope that when the work is completed its valuable contents will be made more accessible than they usually are in the works of foreign authors.

Garden Memoranda.

CLIVEDEN, NEAR WINDSOR, ONE OF THE SEATS OF HIS GRACE THE DUKE OF SUTHERLAND.—In a former article we alluded to some of the alterations which had been made by the noble possessor of this fine place. The handsome mansion in the Italian style, then in course of erection, is now completed. It is approached on the north side by a straight carriage drive, 460 yards in length, and 40 feet in width, the broad grassy margins on either side sloping abruptly to the road. There is also a private drive to the house of a winding character, on each side of which are planted here and there fine masses of American plants, chiefly Rhododendrons which when in bloom produce a magnificent display. On the south side of the house immediately along its base is a fine terrace walk about 360 feet in length, and 26 feet in width, from which an extensive view of the surrounding country and of the windings of the Thames, which sweeps past on the west side of the mansion, can be obtained. Flights of steps lead from this elevated position to a walk 18 feet wide below the terrace just mentioned, whose wall is 25 feet high and richly ornamented with Magnolias, Roses and Climbers. To the south of this is open lawn in the shape of a fine piece of table land on the top of a hill which rises suddenly from the Thames to a height of nearly 300 feet. This noble piece of Grass has recently been greatly altered in form. A broad green terrace walk has been made all round it and a little inwards from the base of the sloping banks of this delightful promenade is a series of triangular beds, which form a border all round and which, when full of flowers, must have an excellent effect, both from the different terraces and the windows of the mansion. It need scarcely be added that these raised walks, sloping banks, and flowery borders are all in good keeping with the style of the mansion, and that the floral design is on a scale commensurate with the different objects with which it is associated. The beds, which are formed round grassy centres, are edged on the outside with Privet and Spruce Fir in the shape of a close hedge some 9 inches in height. The outlines are thus well defined, and the whole design is rendered conspicuous even when viewed from a distance. The steep bank between this elevated Italian garden as it may be termed and the river is thickly covered in with Yew and other trees, among which

quiet woodland walks wind in all directions, and form agreeable retreats in summer.

Under the noble terrace close to the house above alluded to are the Orangeries, which contain some magnificent trees in excellent health. A few of the largest of these measure as much as 10 feet through the head, and have stems quite 2 feet in circumference. These trees are taken out of their hybernatory in the beginning of summer, and placed so as to form a beautiful avenue on the lower terrace walk.

On the east side of the house is a small flower garden, the beds in which are mostly Pear-shaped, and are at present planted with bulbs, Pansies, Forget-me-Nots, and other spring flowers, among which not the least interesting was stated to be the Forget-me-Nots, both blue and white, which apart from the associations connected with them, are reported to make extremely showy and effective beds. On one side of this little garden are the conservatories, which are at present gay with Camellias, Azaleas, Luculias, and spring Heaths and Epacrises. From the roof were suspended baskets of Chinese Primulas and other things now in flower, surrounded by plants of a drooping character. These fill up gaps where the ordinary conservatory plants could not be placed, and serve in an eminent degree to vary and ornament a house which we need scarcely say should be kept as gay as possible at all seasons, and which without some contrivance of this kind is not always easy to accomplish. We also remarked in one of the passages here some ornamental screens covered with Ivy, planted in zinc trays or troughs, which are enclosed in handsome china boxes, made by Minton. These boxes are kept continually full of flowering plants, whose pots fit into sockets made to receive them, the whole being concealed from view by a covering of Moss, and arranged in this manner quantities of them are employed in the dining and other rooms of the mansion with excellent effect. Behind the conservatory some important alterations are being carried on, among which a large Vinery which had fallen into bad repair is being renewed. Against the south wall of a small square kitchen garden contiguous to this spot is a long range of narrow forcing houses chiefly filled with Peach trees and Vines. These we understand are, however, soon to be taken down, and Mr. Fleming's (of Trentham) contrivance for covering walls with glass put up in their place. A portion of this wall indeed is already faced with this description of house, which has an upright glass front about as high as that of the wall opposite which it stands, and it is closed in at the top by a slightly raised span-roof, one-half of the lights of which are made to move up and down for the purpose of admitting air. These sashes, as well as the upright front ones, are made to move all at one time by means of a clever mechanical contrivance made for the purpose, and thus little or much air can be given as may be desirable, and with the greatest possible facility. The width of this case is 5 feet, and in front, immediately inside the glass, is a trellis of the same height, on which Peaches are trained; while, at convenient distances apart, Vines have been planted which, after running up the front, are carried over the pathway in the form of an arch, and have their points trained down the back wall. The latter in the present instance is wholly devoted to Peach trees, which looked in excellent condition, and it is stated that they produce fruit in abundance, and that the five feet trellis in front which is also well covered with young Peach trees does not shade the back wall in the least. By this arrangement therefore the most is made both of the front and back of the house, while under ordinary circumstances the latter part, we need not say, is so shaded as to be of comparatively little value. Lettuces and other early vegetables might with advantage be produced in the borders of a house of this description, and as the front can be entirely removed should that be required, all operations connected with renewing the soil, planting, &c., can be conducted with comfort. Experience so far is entirely in favour of this kind of house, which when well heated with hot water as this is, promises to effect all it was ever intended it should do and even more.

The early Peach house is at present in full bloom, and the first Vinery is also just coming into blossom. On the back walls are Figs, which are reported annually to ripen excellent crops, with the exception perhaps of the White Brunswick, which is stated to be scarcely so fruitful as Lee's Perpetual. On the floors of nearly all the cooler houses were great quantities of Scarlet Geraniums laid in thickly in leaf-mould, and when kept dry they winter well in this way, but when they happen to unavoidably get wet they become yellow and sickly. Strawberries are also grown in the early houses. Cutbill's Black Prince is the sort preferred for the first crop, and already many plants of it are in full bloom. In a pit were Raspberries and Cherries in pots beginning to push, as were also Roses, Laburnums, and other plants put in to force. Potatoes, Radishes, and Asparagus are also brought in here under glass. French Beans, Melons, and Cucumbers are likewise grown extensively. The last have just been planted out.

Turf pits have been found extremely useful here as elsewhere for many purposes, and amongst others for wintering bedding plants in. We noticed one filled with young Calceolarias pricked out, and thus the use of pots is dispensed with. These and other plants are said to winter well in this way, and in places like Cliveden, where great quantities of such things are wanted, such contrivances are absolutely necessary. They also answer for keeping Strawberries in, and Violets are said to flower freely in them.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In pruning and training the climbers in this and other houses, some regard must be paid to the time when it is desirable the plants should bloom. Thus with stove climbers not required to flower before autumn, pruning may be deferred for some time yet; but for earlier display it should be done at once. Passion flowers, Bignonias, and similar plants, which make long annual shoots, should only have their branches thinned and slightly shortened, while others, as Combretums, for instance, may be spurred in. Much depends upon the space allowed for their growth. Kennedyas will now be showing bloom, and what training they require should be done at once; but the pruning of these should not take place till after they have done flowering. Where Orange trees are grown to decorate the flower garden in summer, care should be taken to prevent their beginning to push previous to their removal to the open air, and this more especially if the trees are wintered in a dark roofed house. Where such happens the young leaves have always a thin flabby appearance, and soon turn brown after the plants have been set out of doors; whereas, if growth is prevented till the trees are in the open air, the foliage will bear any amount of sunshine and still look green and healthy.

FLOWER GARDEN AND SHRUBBERIES.

Little can be done here at present beyond what was recommended last week. Those who are fortunate enough to have the command of a gravel pit should get a good supply of this provided whenever the weather is favourable for that kind of work. Let everything in the shape of in-door operations which can be done now to save time in spring be attended to. See to having plenty of soil prepared for striking cuttings in, as also for potting off, and have plenty of draining materials prepared and sorted out in sizes. Where the stock of bedding out plants is short, the strongest stove plants should be selected and placed in a moist growing temperature, keeping them as near the glass as possible in order to secure strong growth and obtain good cuttings. If the plants are well rooted, it will be advisable soon to give them a shift, using rich soil; for it is of great importance to obtain strong cuttings, as they are not half the time becoming established plants as when weakly dwindling shoots have to be used for that purpose.

FORCING DEPARTMENT.

VINERIES.—Discontinue syringing Vines that are showing fruit; but secure sufficient moisture in the atmosphere by frequently sprinkling the passages, &c. Be satisfied with as low a temperature at night as will be safe under the present condition of the Vines, but take advantage of sunshine to raise it considerably in the daytime, and be cautious how cold air is admitted where the Vines are in leaf. As the Grapes are cleared from late houses, prune and wash the Vines with soft soap, and a little soot and lime, also thoroughly clean the woodwork, glass, &c., and have everything clean and ready for next campaign. PEACH HOUSE.—Discontinue syringing where the blossoms are beginning to open, but secure a nice, moist, healthy state of the atmosphere by sprinkling the passages, &c., as may be necessary, but avoid anything like dampness while the trees are in bloom. Maintain a steady night temperature of 50° to 55° while the trees are in flower. Take every possible opportunity of admitting fresh air, and where the external air can be made to pass over the heating apparatus, so as to get warmed before coming in contact with the plants, a gentle circulation should be constantly kept up until the fruit is fairly set. Avoid the admission of currents of dry cold air, however, which would be most injurious to the trees. FIGS.—See that trees planted out are properly moist at the roots, and also keep those in pots and tubs carefully supplied with water, for any excess as respects the presence or absence of moisture at the root is very dangerous after the appearance of the fruit, and is the frequent cause of its dropping off. Maintain a moist atmosphere, and if necessary to water the border, use tepid water, giving enough to nicely moisten the whole of the soil. Let the temperature range from 50° or 55° at night to 60° or 65° by day, giving air whenever it can be done with perfect safety.

HARDY FRUIT AND KITCHEN GARDEN.

Where orchard trees are infested with insects or Moss, the bark should be well scraped with a blunt tool to remove as many of the larvæ of the insects as possible, after which the parts should receive a coat of the following composition, viz, hot lime and soot in equal quantities, mixed with cow's urine until it attains the consistency of thick paint. This composition should be well rubbed into the crevices of the bark, in order to make sure of its reaching every hiding place of the enemy, and if a little cow manure was worked up in the composition, it would be useful in causing it to adhere better. It is a tedious process to properly cover large old trees with this, but its effect in clearing them of insects will repay the trouble, and an occasional coat to young trees will be useful in keeping them clear. Where early sown Peas are likely to be a failure, a quantity should be sown in strips of turf, and raised in a gentle heat, to be hardened off and planted out towards the end of next month. Also make a successional sowing of an early variety on a warm border as soon as the state of the weather permits. Sangster's No. I. is the earliest variety we know of. Likewise get in some early Mazagan Beans, and a sowing of some variety of Pea of good quality, as Champion of England, should be made in order to have these in as early as possible.

COTTAGERS' GARDENS.

Plant Horseradish, Jerusalem Artichokes, Seakale and Rhubarb. The Artichokes will do in any waste corner, or as a boundary screen to protect tender things. Make cuttings of choice Gooseberries and Currants, also Honeysuckles, in the same manner, and Irish Ivy for covering naked buildings. Lose no time in planting a good breadth of Potatoes, especially Kidneys; if the first sprout is lost from these they are of little use. If planted in well managed beds, Drumhead or other Cabbages may be planted in the alleys, and will come in very serviceable for the cow. Get some ground trenched for Parsnips. Make a slope and sow a little Horn Carrots; throw a little Radish or Brown Cos Lettuce amongst them. Run the hoe through Cabbages and soil them up a little.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 24, 1856, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 18	11	29.461	29.417	51	38	44.5	42	40½	S.W.	.08
Satur. 19	12	29.250	29.192	51	44	47.5	43	41	S.W.	.10
Sunday 20	13	29.103	29.034	50	42	46.0	44	42	S.	.16
Mon.. 21	14	29.071	29.026	51	37	44.0	45	43	S.W.	.36
Tues. 22	○	29.515	29.296	42	37	39.5	44	43	N.E.	.04
Wed. 23	16	29.344	29.220	54	45	49.5	45	43½	S.W.	.12
Thurs. 24	17	28.992	28.928	52	39	45.5	47	44	S.W.	.13
Average .		29.248	29.159	50.1	40.3	45.2	44.3	42.4		.59

Jan. 18—Slight rain; rain with brisk wind; cloudy and fine.
— 19—Rain; heavy clouds; fine at night.
— 20—Heavy clouds; slight rain; cloudy.
— 21—Foggy; overcast and mild; heavy rain at night.
— 22—Densely clouded; rain at night.
— 23—Low clouds from S.W., bright sun at intervals; boisterous, with rain at night.
— 24—Densely clouded and boisterous; vivid lightning at night.
Mean temperature of the week 8 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Feb. 2, 1856.

Jan. and Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	43.5	32.1	37.8	15	0.43 in.	2	4	4	—	4	12	4	—
Mon. 28	44.6	31.5	38.0	16	0.17	2	4	2	—	—	12	7	3
Tues. 29	45.2	31.8	38.5	12	0.32	4	4	—	1	2	9	3	5
Wed. 30	44.0	31.7	37.8	13	0.38	2	3	3	3	3	8	7	1
Thurs. 31	44.1	31.6	37.8	14	0.38	3	5	1	2	9	6	3	1
Friday 1	43.0	31.5	37.2	12	0.52	5	6	1	2	3	7	2	4
Satur 2	43.8	30.7	37.2	12	0.75	2	6	4	3	2	7	4	2

The highest temperature during the above period occurred on the 1st, 1855.—therm. 57 deg.; and the lowest on the 2d, 1831—therm. 13 deg.

Notices to Correspondents.

BOOKS: *Janus.* G. Lindley's Guide to the Orchard has never yet been excelled for sound useful truly practical information concerning the best of our standard fruits. If you merely seek for novelties you must search elsewhere.

FLUES: *W M.* What we should fear in a pipe flue 70 yards long carried almost horizontally is that it would not draw in cold weather unless you had at the extremity some means of setting up a draught, such as kindling a fire there. We have no experience of such a plan; and therefore insert your inquiry in another column, in the hope that something satisfactory may be communicated by others.

FOREIGN PRODIGIES; *Truro.* We have lately adverted to this adventurer on several occasions (see pp. 22 and 24). Of course you don't believe one syllable of the man's statements.

HEATING: *A Sub.* Use a 4-inch iron pipe and hot water. It is much better than a flue for propagation, though not so unexpensive; and it is more easily managed than troughs. If, however, you like to try the experiment you may employ Rendle's tank by adapting a small boiler to a wooden trough furnished with a movable lid.

INSECTS: *W W.* The little beetles are Ptinus hololeucus. The species was imported some years ago from Russia in a cargo of dried hides. We should be glad if you could ascertain upon what the larvæ feed. *W.*

MEALY BUG: *Reader.* Continual brushing, sponging, and washing with a mixture of tobacco-water and soft soap is perhaps the best mode of getting rid of this pest. For Peach trees try hot water, varying in temperature from 150° to 160°.‡

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Plds.* It seems to be the "Key" fruit of some variety of the Common Sycamore; but we cannot match it in our herbarium. We will take care of the Keys, in the hope that you will send us leaves next July when they are full-grown.—*Arthur.* Why should not a genus be named after a poor gardener as well as a rich gentleman? We cannot admit the justice of your criticism. Assuredly Linnæus, who was sparing enough of compliments, would not have agreed with you.—*R H Pape.* The mere flowers of the Calanthe will not enable us to answer your inquiry: but we believe them to belong to Masuca; if the leaves are hairy on the under side it will be purpurea. Oncidium suave.—*Exoniensis.* Apparently Myrica quercifolia. There was only one leaf.

NAMES OF FRUITS: *S B.* Your Pear is certainly not the Louise Bonne (of Jersey). It resembles the Rouse Lench.‡

PINUSES: *Z.* The following may possibly answer your purpose, viz, P. tenuifolia, filifolia, oöcarpa, leiophylla, Orizabæ, Teocote, Ayacahuite, Abies Brunoniana, religiosa, and Juniperus bermudiana and thuritera.

RHODODENDRONS: *L L L.* The best substitute for peat is a mixture of loam, silver sand, leaf mould, and cowdung, the two latter thoroughly rotted down; about equal parts of each. But we fear you will have no success with these plants upon calcareous soil.

VINES: *Cotswold.* You should not have planted Oldaker's St. Peter in such company. The rest are right. Exchange it for the Cannon Hall Muscat, or the Black Damascus.—*C H.* If you renew your Vine border now, and plant again in well prepared loam, &c., to do your Vines justice, you must not take a crop from them this year.‡

XANTHORHŒA HASTILIS: *J B.* This flowered at Kew in the spring of 1853, and is figured in the Botanical Magazine, t. 4722. We have not heard of its blooming elsewhere.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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PERUVIAN GUANO.—As Agents of the Peruvian Government for the Importation and Sale of this valuable MANURE, we think it right, for the protection of consumers and respectable dealers, to apprise them that the adulteration of the article is still extensively practised, and to recommend them to apply either to ourselves; to our agents, Messrs. Gibbs, Bright, & Co., of Liverpool and Bristol; or to dealers of established character, in whose honesty and fair dealing they can place implicit confidence.—ANTONY GIBBS & SONS.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY'S NITRO-PHOSPHATE OR WHEAT MANURE FOR AUTUMN SOWING.—This Manure, composed of blood, animal matter, and dissolved bones with silicates, is most strongly recommended to the notice of Agriculturists. It contains from 7 to 8 per cent. of nitrogen, in a form yielding ammonia by slow decomposition, and is therefore particularly adapted for Wheat. The quantity required is 2 to 3 cwt. per acre drilled in with the seed. Price, per ton, 7*l.* 10*s.* in London.

PERUVIAN GUANO, FISHERY SALT, and every other MANURE on best terms, strictly warranted.

40, Bridge Street, Blackfriars. E. PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURE.—Price delivered in London:—For Corn or Hops, 7*l.* 10*s.* per ton; for Roots and Grass, 6*l.* 10*s.* per ton, bags included. 1350 lbs. Blood in each ton, and a large per centage of Phosphates. Use from 2 cwt. to 3 cwt. per acre. For local and all further information apply to the Offices, 21, Cullum Street, City, London.

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BONE MANURE (either half-inch or dust), SUPERPHOSPHATE OF LIME, SULPHURIC ACID, &c.—These valuable and genuine Manures may be had in any quantity, of JARED TERRETT HUNT, Lambeth Wharf, Upper Fore Street, Lambeth, London, delivered to any Wharf or Railway Station in London, in sacks or otherwise.

J. T. H. earnestly recommends to the attention of the nobility and gentry his PULVERISED BONE-DUST for the renovation of Lawns, Meadows, Parks, &c.

Also, his PREPARED BONES, for the dressing of Vine Roots, Asparagus Beds, Fruit Trees, &c.

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HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

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OWNERS OF SETTLED ESTATES and OTHERS desirous of availing themselves of the various recent Acts of Parliament, by which they may charge their Estates with money expended in the Improvement, Conversion, and Reclamation of Land, by Drainage, Irrigation, Embanking, Inclosing, making Farm-roads, Clearing, the erection of Farm-buildings and Machinery, Planting and other Agricultural Improvements, are respectfully informed that Messrs. HEWITT DAVIS & FRANCIS VIGERS undertake to advise and furnish Plans and Estimates, and if required, will contract to do the works, and dispose of the Rent charges.—3, Frederick's Place, Old Jewry, London.

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1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

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WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

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1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

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WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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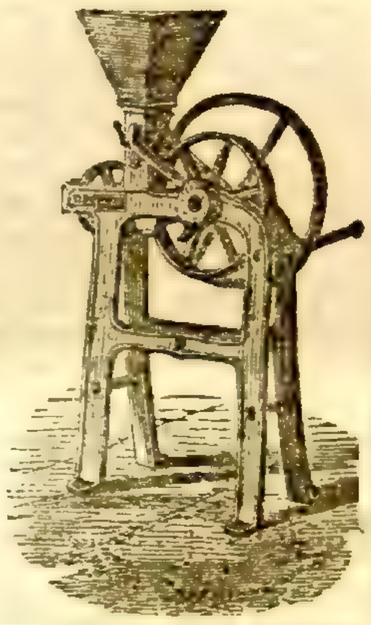
This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



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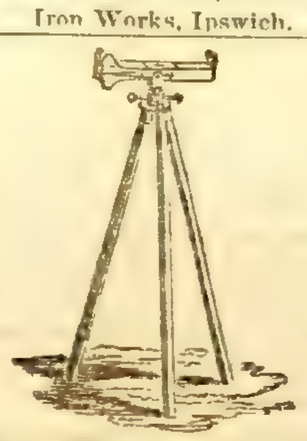

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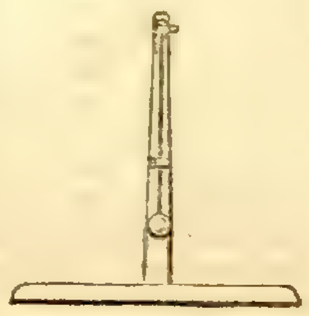
Price 30*s.*; Case, 1*s.*
Requires no graduated staff or computation. Any labourer can use them.



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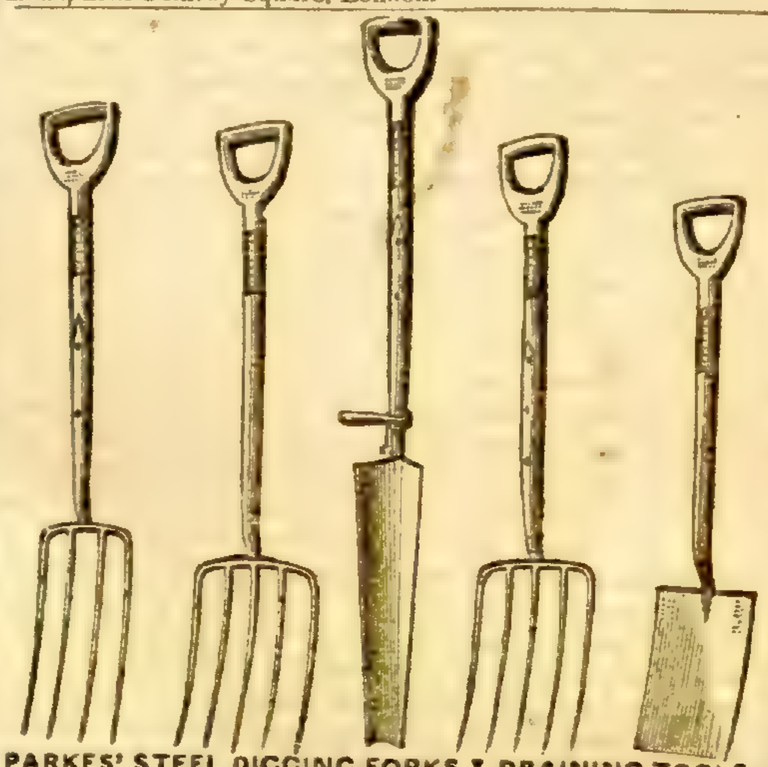

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MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

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SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any Nurseryman or Seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7*d.* per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Toubridge Place, New Road, King's Cross, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

H. AND R. STIRZAKER, NURSERYMEN, Lancaster, have to offer from 500,000 to 600,000 TRANSPLANTED YOUNG TREES; they are particularly healthy and of hardy growth. Any one purchasing largely will be liberally dealt with.

	per 1000— *s.*	*d.*		per 1000— *s.*	*d.*
Alder, 1½ to 2 feet ... from	12	6	Spruce Fir, 1 to 2 ft., from	12	6
Ash, common, 2 to 6 ft. „	10	6	Hazel, 2 ft. ... ... „	20	0
„ mountain, 2 to 4 feet .. ... „	20	0	Hornbeam, 2 to 4 ft. „	17	6
Beech, 1½ to 3 ft. ... „	17	6	Oak, English, 2 to 4 ft. „	20	0
Birch, true weeping, 1½ to 2 ft. ... ... „	17	6	Pine, Weymouth, 1½ to 2 ft. ... ... „	10	6
Box edging, dwarf ...	6	0	Poplar, Black Italian, 2 to 6 ft. ... ... „	25	0
Elm, Wych, 2 to 3 ft. „	15	0	Poplar, White Lombardy, 2 to 6 ft. .. „	25	0
„ English, 2 to 4 ft. per 100 „	15	0	Sycamore, 2 to 4 ft. „	14	0
Larch Fir, 1½ to 3 ft. „	10	6	Willow, Norfolk, and Huntingdon, 3 to 4 ft. „	25	0
Scotch do., native, 1 to 1½ ft. ... ... „	10	6	Limes, fine, 3 to 5 ft. „	15	0

Giant Asparagus roots, 15*s.* per 1000; Seakale roots, 3*s.* 6*d.* per 100; Gooseberries and Currants, fine, 12*s.* 6*d.* to 15*s.* per 100.

Pears, Plums and Apples, dwarf trained fine sorts, from 24*s.* per dozen; Peaches and Nectarines, 42*s.* per dozen.

A few tons of the true Fluke Kidney Potato, 3*s.* per bushel of 56 lbs; Ash-top Kidney Potatoes, true, 5*s.* per bushel of 56 lbs.

TO THE TRADE.

WILLIAM E. RENDLE AND CO. have several Tons of the following Seeds to dispose of *at the lowest market prices.*

LONG RED MANGEL WURZEL | YELLOW GLOBE do.
RED GLOBE do. | WHITE BELGIAN CARROT
ORANGE JELLY FRUIT.

Prices on application to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

All NEAT *and in the same condition as received from the Growers.*

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL, AND OTHER FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. SUTTON'S *Priced List*, which may be had, post free, on application, Addressed SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Agricultural Gazette.

SATURDAY, JANUARY 26, 1856.

MR. GRADY, of the Superphosphate Compost Company, and Mr. SUMMERS, a Dorsetshire farmer, differ as to the value of soluble phosphate in a superphosphate compost. It so happens that a very luminous and instructive decision of the difference between these gentlemen was given lately in a lecture at Plymouth before the West of England Agricultural Society, by Professor VOELCKER, of the Agricultural College. And we may shortly say that Professor VOELCKER agrees with Mr. SUMMERS, and decides against Mr. GRADY.

It is plain that while the first thing determining the value of a fertiliser is its fitness as food for plants, the second is its accessibility and availability for that purpose. The solubility of phosphate of lime is the measure of its value. If it were altogether insoluble in rain or land water it would be absolutely valueless, and it is just as it is readily dissolved that it is useful. One cwt. of an easily soluble phosphate

will have as much influence on the current crop as one ton of a phosphate of one-twentieth its solubility, just because a year's rain will dissolve no more food out of the latter than out of the former. And if the former should wholly disappear in this way while nineteen-twentieths of the latter remain in the soil for use in the growth of future crops, still it is a great economy to spend annually just enough to meet the annually recurring wants of the soil rather than to lay out at once enough to last for twenty years. Nineteen, eighteen, seventeen, twentieths remain thus useless in the land during the succeeding years; and in the one case a large investment is long of yielding fruit, while in the other a small one annually more than repays itself.

The question as to the permanance of a soluble biphosphate in the presence of the lime and other substances in the soil is of little moment. The solubility of the substance is retained, although in other respects its nature changes. Neutral phosphate of lime, as it occurs in bones, is soluble in rain water, although comparatively slowly, but this slowness is owing to the form in which it is there presented. Let it ferment and crumble down in a heap with wetted ashes, and its solubility and efficiency increase. Dissolve it in sulphuric acid and distribute it so among the roots of plants—never mind although the form in which this treatment leaves it is lost as soon as it enters the land, the state of division in which the solution leaves it renders it so much more accessible to a solvent that the original solubility of the bone earth is wonderfully increased, and rain water passing through 2 cwts. per acre of the bone earth treated thus will really *come in contact with* and take up as much phosphate of lime in its passage to the roots of plants as if it passed through 10 times the quantity of crude bone earth. The more biphosphate, then, that a superphosphate compost holds within it, the greater is its agricultural value. A superphosphate compost which contains only 2 or 3 per cent. of biphosphate of lime, is not in our opinion deserving of its name. Farmers should look for at least 12 or 15 per cent. of biphosphate along with as much neutral phosphate in any manure professing to be a superphosphate of lime.

THE papers which have appeared in this Journal on Anbury and Finger and Toe in the Turnip have opened up the whole subject of injuries received by bulbous rooted crops. It matters little to the farmer whether the crop be worthless because the plant has inherited a bad habit of growth, or because it has been injured by the attacks of insects. These are rarely under his immediate control; but there is another class of injuries which are so obviously the result of mere mismanagement that they ought certainly to be avoided. A crop has been obtained, but is often lost by carelessness. And as it is one prolific source of loss, coming under this cause, it becomes important to inquire whether the system of leaving roots exposed in the ground to long winter frosts is advisable. That the eating off of roots on the land is a part of the hitherto recognised system of some farmers is quite true, and without discussing its merits in the milder seasons, which leave roots fit to be so eaten, it must be a matter for serious consideration whether they should be so exposed after the wide-spread examples of decayed Swedes in 1853, which were only aggravated in 1854. It is probably too late now to take any steps for the safety of crops which have already stood a winter's frost. We expect that the abrupt changes of the temperature of the last two months have already done much mischief in our Turnip fields. This may perhaps induce attention to this subject for the future, and all the questions bearing on it should be studied carefully.

Besides the increased severity of winter of late years, it is probable that as the sorts of Turnips increase, and as they are stimulated in their growth by artificial manures, and become liable to insect attacks to a greater extent each year, the very constitution of the plant may become less able to bear up against severity. Then again as far as insects are concerned, the larvæ of these eat their way out to pass into a further stage, thus leaving a wound for the action of frost and other atmospheric causes of injury. Both of these considerations render the subject one of increased importance, and the relative economy of the various methods of preserving roots ought therefore to be carefully considered. If on an average of years one-fifth of the crop left in the land is rendered worthless by the frost, the question arises whether one-fifth of an average crop of Turnips is worth the expense of pitting the whole of it—whether 3, 4, or 5 tons of Turnips, as the case may be, are worth the cost of harvesting 15, 20, or 25 tons of roots. There can be no doubt as to the answer to this question. The most costly mode of carrying home the heaviest crop of roots does not amount to 6*d.* or 8*d.* a ton—it amounts to less per ton as the crop is an abundant one—and supposing one ton saved in every five, the roots are cheaply bought at half-a-crown a ton. But on this subject we invite the communications of our correspondents. The practice of pitting root crops in the field is rapidly extending, perhaps the discussion of it here may accelerate its general adoption.

WHO OUGHT FARM BAILIFFS TO BE?

"A NOVICE" thinks they ought to be "smock-frock men." I am not, Mr. Editor, fortunate enough to occupy a situation of the highest class he mentions, but still I am one of the condemned as "hybrids," if he like it. My qualifications do not exactly come up to the standard he has set down—that of reducing the labourers' wages 15 per cent. My greatest crime amongst those who "look over the hedges" is that I employ too many labourers, and pay them too much; they declare "it never can pay" to grub up a "lug" wide under the hedges that had for years been the receptacle of filth, where Couch and stones and Docks and Thistles had for years been indiscrimately thrown and grown; that it cannot pay to spend so much time in getting out the "hitchers" that have for ages broke up the implements that happened to penetrate more than 2 or 3 inches into the soil; they swear it "will never pay" to burn great heaps of clay and ditch parings, &c., and that it is "the worst foolishness in the world to tear up the nasty subsoil" even a single inch deeper than it was always ploughed; but when I began to underdrain a water meadow, I had in their opinion carried absurdity to its climax. I did not become a farm bailiff by choice but from necessity; my chief hobby was horticulture and its relations, and for the purpose of fostering this hobby I eagerly caught at everything instructive I could afford; thus Loudon, Lindley, Mackintosh, Glenny, and many others who are still held in ridicule by the "uneducated smock-frock men," put ideas into my head opposed to many of the practices of those gentlemen in the gowns, for while I laboured hard in the fields of horticulture I often took a peep over the hedges into the broader fields of agriculture and arboriculture. Thus I took a lesson from "Morton's Soils," both practically and theoretically, for I was not one day's march from Whitfield, and asked a few questions from Stevens, Low, Johnson, Liebig, Lawes, Way, Bousingault, Smith, Parke, Bailey Denton, Mr. Pusey, and a host of other authorities. I studied the herd of Lord Ducie and the flocks of the Duke of Richmond and Mr. Webb, and the magnificent specimens of the woolly tribe of Messrs. Garne and Lane, and while studying the *Gardeners' Chronicle* I never slighted the *Agricultural Gazette.* In my boyhood I had a little practical experience. My father had strayed from the labyrinths of horticulture, and placed me at a farm-house, the head of which belonged to the old school; he was a most rigid economist, his bacon was the thickest and fattest, and his cheese the hardest and leanest I ever saw: no soul in the house had any repose after 3½ A.M. winter or summer; he helped to milk and fodder his cattle, and to save 1*s.* 6*d.* would stick all day long at the plough-tail, which was drawn always with as many as four and sometimes six horses. He very carefully avoided the "nasty subsoil" or the 10-yard "meres" under his hedges; he had the character of being the most hard-working industrious farmer in the neighbourhood, and was particularly noted for his moderation at market, and much despised by that most important functionary the "ostler." His cattle yard was placed on the side of a hill; it had a pond at the bottom of the yard, in which was a very small spring, all the washings of the yard passed into the pond and out of the pond down the ditch; he regarded dung almost as a nuisance, and would haul it to the side of the lane to get two or three years more washing before putting it on his land; he always sowed 3 bushels of Wheat, 5 bushels of Barley, and 6 bushels of Oats per imperial acre, being a true believer in the doctrine of the more you sow the more also shall ye reap; and when we consider that in many instances the seed was calculated by the survey measure of the field and 2 acres in 10 taken up with meres and hedgerows, we see that the waste of seed is enormous. This old gentlemen was a thorough hater of books, book-makers, and book knowledge, and I am sorry to say is a true type of some of the "uneducated" smock-frock men still lingering in the south of England. Is this what "A Novice" recommends for farm bailiffs? I said before I am a farm bailiff from necessity. Some seven or eight years back there happened to fall in some straggling farms which had been managed on the smock-frock principle till the late occupiers declared they would "ruin any man in England at 2*s.* 6*d.* per acre rent," and everybody who looked at the land declared "they would not have it at a gift," till the lot fell to your humble servant to till it. But of course I did everything wrong. I "ploughed too deep," I "bought too much stock," I "spent too much on labour," I sowed "too little seed," I "laid out too much money on artificial food and manures," I kept the sheep too much in fold to please the shepherds, and was "too particular about a pound or two of meal" for the herdsman, and yet with all this mismanagement I ruined nobody. I have made it pay 1*l.* per acre rent, and a fair interest for money spent, while those very persons who "would not have it at a gift," have been pressingly bidding for the refuse of it. But there is a class which is a much greater curse to the land than the "hybrid" or the "uncoated" farm bailiff. I allude to those who have usurped the place of stewards; far too many of these worthies are taken from the ranks of unemployed lawyers' or auctioneers' clerks, and hold their sinecures not by merit but patronage. With them the "uneducated smock-frock men" are great favourites, because they possess a degree of "crouching servility" peculiarly grateful to empty craniums, while the man that can talk a little about science or "place a finger artistically" on the good points of an animal are to them eyesores to be got rid of at any cost. I have in my rambles peeped over the hedges on many pieces of land, ay, and whole estates, which plainly show the right man is not in the right place. I have seen charity land, college land, government land, and corporation land in such a state of filth, poverty, and mismanagement as to be a disgrace to the times we live in, a curse on the land we live in, and a reproach to the managers, or I would rather say mismanagers, who I generally find to be the empty gentlemen above alluded to by the gownsman. *Hy. Cox, Longford.*

A STEAM-CULTURE REVERIE.—No. III.

I KNEW that my friend had been for many months engaged in constructing some novel machinery,—employing not only founders and millwrights in his own neighbourhood, but also several of our nationally distinguished firms of engineers and implement-makers; and the object of all this costly machine-making was to try practically all the schemes which had ever been proposed for superseding the plough-team,—in short, to do justice to bygone as well as cotemporary inventions, and thus experimentally establish the best principles, or guard future inventors against impracticable ideas. He had embodied in metal and wood all the "power" cultivators, &c., he had ever heard of; they were now collected together for the first private trial; and it was to witness the working of some of these strange engines that my friend and myself proceeded briskly down the farm,—walking alongside a light railway which led by diverging "loops" and "junctions" to the various inclosures.

* * * * Surely the pothery smoke from yonder field comes of no genuine Couch-fire; there is now and then a sooty tinge about it too suggestive of coal; and the whiter wreaths of vapour, instead of fading into a blue haze over the fallow, break off in fragments like watery clouds. And now as I draw nearer, I hear instead of the low crackle of burning Couch, the short snorting cough that tells me—'tis a steam-engine. Behind that bushy hedge, then, are congregated the real implements and apparatus which I have for years longed to see actually working; perchance, among the number may be found that triumph of rural mechanics, an efficient economical steam cultivator. This was clearly no moment for going round by gates, for who would not fight through the toughest Quickset when the thrill of such expectancy emboldened him? Taking a short cut, then, through a stout bullfinch hedgerow, I stood in open view of the assembled machines; and in describing what I saw, both then and on several succeeding days of experiment, I will proceed chronologically, noticing each invention in the order of its birth, without an attempt at classification. One or two diggers and a steam-plough besides were actually at work before my eyes; and as I had previously supposed such inventions to be rare, guess my astonishment at beholding not only several but scores of tillage machines intended to be worked by steam power.

It is a mistake to suppose that substitutes for common ploughing and digging are of very modern suggestion, or even few in number, for the sixth English patent ever granted was for "Engines and other inventions to plough grounds, whether inland or upland, and to fertilise barren peat and sea sands;" the date being Jan. 17, 1618, and the patentees D. Ramsey and (unfortunate cognomen!) Thomas Wildgoose. In 1623, Alexander Hamilton took out a patent for "ploughing."

On Aug. 6, 1627, W. Brouncker and others patented an "Engine for earing, ploughing, and tilling land by the labour of two men, without the aid of oxen or horses;" and on 17th July, 1634, W. Parham and others patented "Engines for ploughing land without the use of oxen or horses." But what these schemes were we are unable to divine, no "specifications" having been inrolled or deposited in any public office.

The earliest invention represented in my ingenious and indefatigable friend's collection is that patented by Van Thornhoff, Jan. 28, 1785, consisting of a machine for digging up ground by manual labour; interesting only as being the first digging machine of which we have any account, and as containing a principle subsequently followed in other inventions. It consists of a couple of spades united side by side by a cross-handle joining the two shafts at top, and having a block of wood working with a joint between the shafts just above the shoulder of the spades. Upon this block the workman sets his foot, thrusting the spades almost vertically into the soil; then pulling the top handle backward and downward, the blades of the spades are raised, the wooden block acting as a fulcrum. The spit of earth broken off is cast forward; and the operator then steps backward for another stroke. For the convenience of turning the tool round at the end of what may be called the furrow, a stem carrying two small wheels is attached by a hinge to the foot block. The inventor seems to have done with the spade what Newington has done with the dibble, united two or more tools together in a frame, and engaged both foot and hand in working them. Van Thornhoff (a city merchant, to whom the

invention was communicated when abroad by a foreigner) says that by this machine 36 square rods or poles of land may be dug by one man in the space of 12 hours; but the work when done I must say is far inferior to that of a single spade; the soil being loosened and divided, but the spits not inverted, or at least very imperfectly turned. I certainly prefer the action of the "caschrom" or crooked spade used in the Hebrides; at any rate, where the digging is not very deep.

I should here observe that my friend has not forgotten to assemble both horse and hand implements likely to suggest the ideas for which he is searching. I saw the Indian and Chinese ploughs, the antique Egyptian sarcle, and other scratching tools, the mattock or adze, the breast-plough, the caschrom, a variety of spades and forks, and a multitude of ploughs with convex or concave mould-boards, skim-coulters, &c., and there was no lack of subsoilers and cultivators of every description.

My attention was next directed to a group of contrivances patented as "agricultural machines," by Major Pratt, Feb. 26th, 1810. These, however, were only in model, my friend having discriminated between inventions obviously impracticable and such as might be worth an actual trial.

One of Pratt's designs is interesting as being the earliest known proposal for ploughing by means of endless chains and pulleys. In this arrangement, a number of frames mounted upon carriage wheels, and each carrying a horizontal pulley, are stationed at certain distances down the field, the endless chain worked by a motive power on the head'land, passing from one pulley to another. Ploughs are drawn backward and forward between one pulley frame and the next; and are hauled into the carriages in order to be shifted sideways to the next line of furrow.

Another scheme consists of a machine actuated by any motive power ("steam or windmill" being mentioned by the inventor), propelling itself by means of revolving rakes or toothed anchors attached to an endless-chain apparatus upon the carriage. These hooks or anchors lay hold of the ground in succession, the machine thus pulling itself onward without the liability to slipping inseparable from the method of driving by the carriage wheels. The ploughs or other implements are attached behind.

A novel proposition in this patent is for ploughing small semicircular furrows by means of laterally curved ploughs arranged about a vertical axis, and made to revolve by any motive power. An inclined plane lifts the ploughs out of work during one-half of a revolution, and drops them into the ground during the other half. And in one form of the invention these rotating ploughs are applied to a locomotive carriage so as to act as propellers, the implements passing through the soil in the opposite direction to that in which the carriage travels, and thus operating like the paddles of a steamboat. Here we see the first application of the principle upon which Usher's steam plough is based, only acting with a horizontal instead of vertical motion. However, the clumsiness of the movement, together with the defective kind of tillage resulting from it, precluded any attempt at trial with full sized machinery; and, indeed, a first glance had fully satisfied my friend as to the futility of all the contrivances—ingenious though some of them are—which are united in Pratt's patent. *I. A. C.*

IMPROVEMENT OF SETTLED ESTATES.

IN the midst of a costly war and increasing taxes; with the price of Wheat varying between 90*s.* and 100*s.* the price of the 4 lb. loaf ranging between 9*d.* and 11*d.*; whilst the agricultural labourer with 12*s.* per week wages is worse provided for than he was in 1850 with wages at the rate of 9*s.* per week; when it is remembered that in our own island, in the immediate proximity of roads, canals, and railways, affording the most complete and ready means of transit that any country has ever before produced, there are at this moment thousands upon thousands of acres (out of the twelve millions of acres of land under arable culture,) capable of yielding 40 bushels of Wheat to the acre, but which, notwithstanding our wealth, our reputed industry and energy, and the aids so freely offered by science do not yield us 20 bushels, I believe the truth of the following statement, by Sir John Sinclair, from his essay "On the Means of Improving the Agricultural State of a Country," written in the beginning of the present century, will strike every thinking member of the community with peculiar force.

"It is certainly better to let agriculture alone than to establish injudicious regulations respecting it. But if a government will make such inquiries as may enable it to judge of what can be done with safety and advantage, and will promote agricultural industry, not only by removing every obstacle to improvement, but by granting positive encouragement, agriculture will prosper with a rapidity, and will be carried on to an extent, which is hardly to be credited, and in a much superior degree, than by the 'let alone system' under the torpor of which ages might pass away without accomplishing what might be effected in the course of a few years under a judicious system of encouraging regulations."

An age has passed, science and trade have advanced with giant strides, but agriculture, certainly to an Englishman the most interesting of all pursuits, if not to his country, as politicians have unfortunately assumed, the most important of arts, has only advanced with the feeble and irregular pace of decrepitude.

I am quite aware that hundreds of instances may be cited of extensive and judicious improvements in agricultural affairs; and I am free to admit that much has been done, and that much is doing, to develope the resources of our uncultivated and our half cultivated lands. But I must maintain that not one half of what ought to have been done has been attempted; and I think it will be granted that inasmuch as we have able-bodied agricultural labourers living upon the poor-rates and large tracts of land that with capital and labour would produce no inconsiderable portion of the corn which we are now buying from foreign countries, the result of our legislation since the days of Sinclair has not been quite what he, good man, pleaded for.

Legislation cannot embellish the minds of our cultivators of the soil; but time, with slow and certain hand, is accomplishing that. Legislation cannot convince a landlord that his only hope lies in pursuing a liberal and generous course with competent and enterprising tenantry, but the spirit of the age is, I believe, accomplishing that; legislation will not, I confidently hope, ever be permitted to interfere between landlord and tenant—its province lies in removing obstructions, &c., no less in granting positive encouragement.

Much has been done, and many obstructions have been removed. Tithes have been commuted; wastes can be enclosed; copyholds can be enfranchised; four millions of money have been advanced for draining. But one other great and munificent boon may now be accorded to the community by the removal of the obstructions to the improvement of limited and encumbered estates, by simply allowing any owner of land to lay out money in the improvement of it, under the direction and at the discretion of the Inclosure Commissioners, and to charge the cost of the improvement in the form of a rentcharge (to endure 25 years) upon the estate; so that, so long as the owner may live, he will annually diminish the charge. When he dies his successor will take the estate with the improvements, and will pay the remainder of the rentcharge.

All this can now be done, but only by a circuitous and expensive procedure. But I am inclined to believe that no inconsiderable portion of what has been done by our Government, is due to information obtained from private sources and through private societies, rather than to any systems adopted to obtain information, to be used as the basis of legislation, to foster and encourage agriculture. And I fear that at no time has our Government thought it worth while to "make such inquiries as may enable it to judge of what may be done with safety and advantage." Although correct information upon the yield of our harvests has been on all hands admitted to be essential to the guidance of our legislature, no effective means have, up to the present time, been adopted to obtain it. To know how far, during the coming year, we shall be dependant upon foreign countries for the chief article of our daily food, is surely a question of national interest and utility; and yet, because it offered some practical difficulties, it has never been encountered by our legislators.

A century ago England had corn enough and to spare, and she exported and sold out of her abundance to her neighbours. But now she is wonderfully deficient, and she is actually buying from foreign countries more than nine millions of quarters of corn a year.

Of course population has increased; and possibly one class of politicians will say to this, that it matters not what we buy, so long as we have the means of paying. I say that it is a question of the utmost moment to all, from the landowner to the labourer; for we are buying millions of quarters of corn annually that we might grow at home; the price paid for which now goes into the pockets of foreigners, and it should and might under the fostering care of a considerate legislation be paid to the English farmer, to be divided between himself, his landlord, and his labourers.

I have assumed that there are thousands upon thousands of acres of arable land producing not half the quantity of corn that they are capable of producing, for want of the outlays required to be made by the owners in permanent improvements, as in draining, in new and improved homestalls, and otherwise in fitting the land for the occupation of that superior class of tenants who happily are now to be obtained wherever an occupation is worthy of their attention; and my assumption is a moderate one. But we have no data for obtaining exact information on this point; if we had, I suspect we should be startled indeed at the enormity of the waste we are annually committing, and that with shame and sorrow we should acknowledge ourselves unprofitable stewards. *Charles Humbert, Watford.*

Home Correspondence.

Hedge Cutting Machines.—W. G. Abernethy has misunderstood my suggestion. In railway hedges I think it would be of great advantage to have a machine to cut at the same time both sides of the hedge; obviously there would be no cross fences on one side, and the wheel on the other would not be difficult to get over ordinary cross fences by various easy contrivances: for instance, portable inclined planes or bridges, a lever with a fulrum upon a post, &c. I should certainly not recommend the construction "W. G. A." describes with "four iron pillars," &c.; as, in the first instance above all things simplicity and cheapness of make, and the application of the most direct mechanical action and power are the great elements to success. Under this impression I should say for a machine to cut one side only at a time it would be better to make thus:—To the axle or nave of the travelling wheel next the hedge I would fix at a suitable distance a convex arm, from which should project immovable smaller arms with a sheer cutting edge, radiating at proper angles; these would form the fixed knives of the shears, and would advance among the twigs to be amputated as the machine moved forwards. Between these arms and the travelling, that is the carrying wheel, I would fix an axle with radiating knives; this axle and knives being made to revolve along with the travelling wheel, and so of course with the same velocity, would form shears with the others which are fixed, and thus the twigs would be cut. This would be the same action as a chaff-cutting machine, but I should strongly recommend that on the revolving axle or nave there should be placed rods radiating, but moving a few inches in advance of the cutting knives, and the twigs being thus bent down over the edge of the fixed arms or knives, the cut would open as the cutting knives amputated the twigs, reducing, if not freeing, the operation of cutting from friction. The machine as here described would only trim the hedge perfectly perpendicularly, and to make it do so at an angle so that the hedge should be of the most advisable form, viz., a wedge-shape, the axle or nave with the cutting knives would have to be adjusted to revolve at a determined angle either by a "Hook's joint" and a directing shoulder, or on an axle inclined at right angles to that of the hedge. Such a machine would require no "pillars or groin work" further than two shafts (to yoke the horse in) attached to an axle, on which would revolve two ordinary cart wheels of suitable diameter if the inclined axle for the cutting knives was chosen, as then all that would be wanted would be a simple pin as a driver from the travelling wheel acting upon the one with the revolving cutting knives. If the "Hook's joint" with a directing shoulder be preferred, then the travelling wheels would have to be fixed to their axle, which would then revolve. The only advantage in this last plan would be the greater certainty of the cutting knives revolving equitably, in consequence of both wheels giving them their driving power. The practical data given by W. G. Abernethy are valuable, and it would be, I have no doubt, very acceptable to your readers if many of your practical readers would be kind enough to publish similar data of cost, &c., of cutting hedges by hand in various parts of the country. *W. Wooler.*

To Destroy the Wireworm.—As great complaints are constantly made of the ravages of this enemy to the farmer, they will find by applying sulphate of magnesia, about 1½ cwt. per acre, sowed as a top-dressing in spring, that it will completely destroy this plague and add greatly to diminish the grub, having made use of it for some years in top-dressing Potatoes and all other crops where these pests abound. Refuse sulphur of magnesia is much cheaper than soda ash so frequently recommended. The London Manure Company supply this dressing at 5*l.* per ton. Salt and lime is an economical dressing for the land, and will greatly assist in destroying these annoyances to successful agricultural pursuit, being an excellent stimulant to growing crops. *Amicus, Snelsmore, near Newbury, Bucks.*

Superphosphate of Lime.—I am charged with mystifying this subject. My paper has been read by many who consider it clear and conclusive. I am sorry the subject should be considered of so little moment as to be treated in a flippant manner. I feel obliged to Mr. Summers for the spirit of inquiry with which he has approached it. I wish to discuss it in the same spirit, although after this communication I must decline the contest, as my time is fully occupied. Mr. Summers thinks that neutral necessarily means insoluble, and that there cannot possibly be any intermediate state. Now, most unfortunately for this doctrine, chloride of sodium or common salt is a neutral salt, and yet it is the most soluble of all salts; therefore if any mistake about the word "neutral" has occurred, it rests with Mr. Summers, not with me. I am quite willing to adopt the two states of phosphates against bi-phosphate and neutral only, and to take Mr. Summers's own doctrine, where he says, "bones exercise a more permanent action than the best superphosphate." Now Mr. Summers must be well aware that the phosphate of bones is, as it is commonly called, neutral. If then neutral necessarily means insoluble, it is difficult to tell how these bones exercise their influence. The fact is there are few if any substances really insoluble, and the inference of most scientific men is that silica, mica, earthy phosphates, and oxides, were rendered soluble slowly by the carbonic acid of the soil, or decaying carbonic compounds; therefore it is a natural inference that substances rendered available for the nourishment of vegetable life must be naturally in a neutral state (or which I should call a semi-soluble state, *i. e.* neither soluble nor insoluble), unless we infer that mica contains free soluble potash, or soils generally contain iron in a soluble form, which it is well known is not the case. But your correspondent "X." not only cuts down his own argument but that of Mr. Summers as well as of Baron Liebig and Mr. Lawes on the doctrine of superphosphate, for he says "that superphosphate, if soluble, added to the soil on meeting with carbonate of lime and sufficient moisture, becomes neutral," therefore (according to "X.'s" theory) useless; so that he would infer that all soils contain sufficient carbonate of lime to make all soluble phosphates neutral. Why then make them soluble at all? But when we reflect that an acre of soil 6 inches deep is computed to weigh 1,344,000 lbs., and that it seldom contains less than 10 per cent. of carbonate of lime, while 336 lbs. of superphosphate of lime is deemed sufficient for an acre; if this doctrine is sound Mr. Summers must be wrong when he says bones and sulphuric acid are better than bones alone, for it follows that the small quantity of sulphuric acid meeting with so much carbonate of lime would set the carbonic acid at liberty, forming sulphate of lime, and leaving the free phosphoric acid to

associate with the surrounding lime or iron to form neutral phosphate of lime or iron, or any other congenial compound. Lastly, neither of your correspondents appears to have paid much attention to the power of assimilation which plants possess, although they must be aware of the remarkable fact that the materials absorbed or inhaled by a plant during the period of its growth are in chemical combination, form, and qualities altogether different from the substances we meet with in the body of the plant. We never find in the soil the substances which communicate the green colour to the leaves, nor is the starch which occurs in both seeds and roots found in the ground where they grow. The plant has therefore the power of assimilating the materials absorbed by it, and this applies as much in respect of their chemical combination as their external forms. *S. Grove Grady.*

Land Draining.—A reader of the *Agricultural Gazette* of the 19th inst., who has not at hand that of the 5th, might be led by the remarks of Mr. Horsfall to imagine that I laid it down as a necessary consequence that "a porous substratum underlying a thick superstratum of clay, is supplied with the whole of the water it contains by percolation through the clay." Now, if Mr. Horsfall will do me the justice to read my paper again, he will find that I said nothing of the kind. My object was to show, that, inasmuch as tapping the underlying or water bearing stratum had drained the strong clay superstratum, that superstratum could not have been impervious and that it might have been drained by parallel drains placed in it. The drains used in the "Keythorpe system" are cut expressly to act upon the porous stratum, in draining which they have, as was desired, drained also the clay lying above it. They could not have effected this if the clay had been so impervious as to be unsusceptible of drainage. The surface water which now falls on the clay must percolate through it and into the porous stratum, and pass off by the drains. By simply giving an outlet to this porous substratum, or natural reservoir, or spring, Mr. Trimmer has caused it to render most essential service, and whether all the water found in it, or any portion of it, was due to percolation through the clay is a question that bears in no way upon the argument. Certain it is that a portion, or even the whole, may have descended through the clay; or the supply may be entirely due to other sources. But I have not seen the land drained; nor have I even read all that has been written on the "Keythorpe system." *Charles H. Humbert, Watford, Herts. Jan.* 22. [The Keythorpe system avails itself of porous beds *on* the clay, not *under* it.]

Manual Agricultural Labour remunerative.—We learn from various quarters that the free use of steam threshing machines is beginning to cause misgivings and discontent amongst agricultural labourers, inasmuch as their services will not be required in the barn during the spring months as heretofore. This circumstance, though true to a certain extent, is counterbalanced by the price of Corn being checked, from being raised at the present time to a fearful height, and need not cause any alarm on that head (want of employment) whilst Parkes's steel digging forks, or similar implements, are exant. No able-bodied men nor lads need, nor ought, to stand still, as the constant use of those forks, either between advancing crops, or preparatory for any crops to be sown or planted in February, March, or April, will always repay, or doubly pay the employer, and the employed will be more satisfied with the ease and pleasure in performing this labour with them, than by the constant bore and comparative slavery of beating out the corn on the barn floor with his old "stick and half-stick." Eight rods per day for men, and four rods for strong lads, may be easily, perfectly, and effectually performed by those famed forks in one day, and 3*d.* a rod may be considered a fair compensation now between master and man, whereas to perform the same work effectually by the common spade would cost double the amount of labour and expense. As there is much land yet to be sown in cereals, &c., we earnestly entreat our agricultural friends to avail themselves of the opportunity of preparing, during the dead month of January, with these admirable implements, either Parkes's or Dray's (for they are similarly made and both in repute), as much land as they possibly can, for sowing with Corn, Potatoes &c., in February, March or April, with not more than 1 bushel per acre of seed Corn, in as uniform a manner as possible, and their expectations of a remunerative crop will be fully realized, thus all the labourers will be employed to the advantage and satisfaction of both master and man. If cottagers and allottees would sow one-third of their plots with Corn, and the remaining two-thirds with Potatoes of an early kind, alternately, viz., in beds one yard Corn and two yards Potatoes and after crops, we vouch for them abundant and lucrative crops far beyond their sanguine expectations. *Hardy and Son, Seedgrowers, &c., Maldon, Essex.*

Crops in County Down.—I am now enabled to express an opinion relative to "the yield of the past harvest" in an agricultural district of considerable extent, in the baronies of Ards and Castlereagh, which may be relied upon as well founded, being the result of actual proof on the lands cultivated extensively by my brothers and myself, and of minute inquiry from many farmers who have already threshed largely of their crops. I may state, then, that the Wheat crop has been one of the most productive within our experience. We have instances of very large produce indeed, exceeding in some cases even 27 cwt. of 112 lbs. per statute acre, and very commonly amounting to full 20 cwt. This produce may fairly be stated to be 25 per cent. above an average. Of Oats the produce is very defective in quantity, and the quality also inferior. The deficiency cannot be less than 20 per cent. and is generally estimated more highly. Barley is not extensively cultivated in this district. It may have been about an average. Potatoes, though short of what would have been considered an average before the commencement of the disease, have proved by very much more productive and more free from taint than in any year since 1846; and having been extensively planted, are affording a large supply of food, which is very much diminishing the consumption of the cereals, even though the export of the article is going on to a large extent, and the price of Potatoes is thereby supported at a rate, which, but for the export, would soon be largely reduced. Reports generally admit that the produce of Potatoes is fully double that of late years. *John Andrews, Comber.*

A Case of Mismanagement.—The comparative state of waste in which many large estates are kept by their want of improvement is a loss to the country of considerable magnitude, and much good may be done by your exposing such an instance as I am about to relate, and which the experience of many of your readers who have to deal with church or college estates will say is not singular. The Dean and Chapter of Windsor are owners of extensive farms let to tenants on leases for 21 years, which leases it has been the custom to renew every seven years at a low rent on payment of a proportionate fine. The general bad condition of properties so held is notorious. These gentlemen not only set their faces against parish improvements, to which they may be asked to contribute, and upon this much may be said, but it will appear they are such enemies to innovation that they not only refuse to assist their tenants in improving their farms, but will not even give them the opportunity of doing so at their own cost. I am the lessee of a large farm of theirs in Oxfordshire which might be made very productive, but which is now almost a waste, and I am debarred from improving by its want of draining; I therefore lately applied to their steward to aid me in obtaining a Government loan to drain it, expressing my willingness to pay the whole of the rentcharge during my occupancy of 21 years. It may be necessary to explain that the Government advance money for draining to be repaid by an annual rentcharge of 6½ per cent. for 22 years, but to obtain this a leaseholder for 21 years must get the lessors to join in the application. One would think that as I am the lessee at a nominal rent for 21 years, and the money is to be expended in the permanent improvement of the land to at least the extent of the rentcharge, the lessors would be most happy to join in an application by which they would get their land permanently benefitted at the expense of the tenant to at least the extent of the outlay, namely, about 5*l.* per acre—I say to at least the extent of the outlay because it is only on condition that the draining shall benefit the land to this extent that the Government advance is to be obtained; and in addition to the benefit from the draining, the land would further have the advantage of the other improvements which the draining would lead to, but which its present wet state is a bar to. But no; the steward sees the possibility of the Deans and Canons having to pay the rentcharge for one year at the end of 21 years, and does not see that by that time the estate will have been benefited by my having made 21 payments out of 22, and that I am desirous of incurring the rentcharge for 21 years from seeing that the farm must each year be benefited more than the additional rent I undertake to pay, and at the end of my lease the lessors would come into the improved rent my outlay would have created at the cost of one year's payment; and so by this refusal I must continue to hold the land in its present unimproved condition for 21 years, and the Deans and Canons will at the end of my lease find their farm remaining in its present comparatively valueless condition, and thus their future representatives are being deprived of the improved rent which their joining in the application would secure them. But perhaps it may be said, seeing the advantage is so great, "Why do I not lay out the money myself?" To this there is this unfortunate objection—were I to do so, when the time comes, seven years hence, to renew my lease, the same steward would be the first to assess the farm at the improved rent my outlay would have created, and I should thus increase the fine I should have to pay by my own act, and this, I think, every one in my position would decline doing. You are doubtless aware that the consumption of corn by this country has now attained to that amount that we require the assistance of about 11 millions quarters per annum of foreign growth, and such being the case, "Is the production of the large estates vested in trustees for the public advantage to be kept down in this way by their worse than ignorance of their duty to their tenants, to their successors, and to the nation?" I think you will see in this a subject of general importance, and I trust I need not further apologise for troubling you and asking you to insert this in the *Agricultural Gazette.*—I remain, Sir, your obedient servant, *J. F. B. C., Aynho, Northamptonshire,* 11 *Jan.* [This letter has been forwarded to us for insertion. It appeared in the *Times* a few days ago.]

Farmers' Clubs.

WADEBRIDGE, *Jan.* 7.—At the annual meeting of this society Mr. R. Pollard read the award of the judges for farm prizes. Messrs. Mark Guy, 27 points; Henry Symons, 28 points; W. Menhinnick, 26 points; Hart Key, 26 points; R. Pollard, 24 points; H. Pollard, 22 points; T. Olver, 35 points; A. Hambly, 20 points; and R. Grose, 23 points. The subjects considered by the judges in awarding the farm prizes, are—extent of green crops, weeds, manure, fences, stock, implements, crops, and improvements. The health of "The Successful Competitors," was acknowledged by Mr. Olver and Mr. H. Symons. Mr. Olver said:—"The farm I occupy is about 600 customary acres,* 200 of which are upland coarse pasture land, about 100 are what I call second or third class grazing land, and the remainder is arable. I endeavour as much as I can to carry out the system recommended by this club, and which I believe is most beneficial generally—though there may be exceptions in this neighbourhood—the alternate system. On these 300 acres of arable I grow 100 acres of Wheat, and 50 acres of green crops; and in carrying out the alternate system I adopt what is commonly called the six-course shift. For many years after I came into this neighbourhood I adopted the five-course shift; but I found that to be too frequent; I believe I can now produce a greater amount of corn and cattle by the six-course system than I could by the five-course; and of course there is a great saving of labour, which is a very important item at the present day, and one that we ought not to lose sight of. I find (alluding to the judges' report), that I stand at perfection with regard to green crops. With regard to weeds, I stand somewhat low. And here I would observe that for the last two or three years, for certain reasons, I have not adopted the plan I now recommend in the alternate system; I have neglected it, and consequently I have some fields that contain more Couch-grass than I wish. With regard to manure, I apply nearly the whole of my farm-yard manure generally on the second year's Grass; I think it more profitable to apply it in that way than in any other; you get an abundance of Grass, and the land is ploughed down to Wheat, without further manure. Then, as regards my green crops, they are manured with artificial manures—guano and superphosphate. I also manure my spring crops as well as my Turnip crops; I think it is necessary when we draw from the land a greater amount by artificial manures, to supply an additional quantity of manure for the succeeding white crop. That being the case, I stand high with regard to white crops; as might be expected from my manuring. If I could not grow superior crops by this extra manuring, I should of course be *minus* by the transaction. This alternate system, you must be aware, is an expensive one; but at the same time it affords a great quantity of food, and I stand high as to my stock. If I did not stand high in that respect, if I did not feed more stock than my neighbours do who do not carry out that system, I should be a loser. Then as regards implements, I stand somewhat high; and implements are of great importance to us at present. Labour is very expensive, and it is our duty to economise in every possible way. This can be done by using implements; and by that means too we also economise food, for by using the drill there is a great saving of grain. But there are some places, I find from experience, where the drill cannot be used profitably. I grow pretty much Rape; and of course the land then goes into Wheat again. Now I find it desirable to sow that land wet; and when the land is wet, it is not in a fit state to apply the drill, and there I find it better to sow broad-cast. In order to use the drill advantageously the land should be tolerably dry; but if I were to sow Wheat, after Rape, into land sufficiently dry for the use of the drill, I should find a falling off in the spring. It has been observed by Mr. Robartes that we are now, as agriculturists, enjoying a prosperous state. Whatever be the state of agriculture in other parts of England, I have no hesitation in saying that the whole body of farmers in Cornwall this year will not put by a shilling. I know there are thousands of acres which will not produce two bushels † of corn per acre. We are making a tolerably good price of our cattle; but our Turnip crop was deficient, our summer was short of Grass, and our hay was nearly all destroyed. Our representatives think agricultural statistics very desirable, I believe they would if they could be accurately obtained; but that I believe, *is impossible*; and I am very much inclined to believe that that which appears from Scotland will be found to be very inaccurate indeed. Certainly we do know something of the number of inhabitants in a country; and it is also known what about is the amount of food consumed by them. But if this statement from Scotland be true, I believe the country must be *minus* indeed, and we cannot consume anything like the quantity it has been generally supposed we do consume. There was one observation that dropped from Mr. Kendall. He said we should have great fluctuation in the price of our produce in time of peace, and that therefore it was our interest and duty to have some greater foresight into these matters, and that the merchant is better versed in them and knows when to sell and buy, and that it would become our duty to watch the markets. Now, I would observe that this is a matter of impossibility with us—we cannot always sell when we wish. For instance, there are many of us who, within the last two months, would readily have sold corn at 30*s.* to 32*s.* per bushel: but we could not thresh it; we had no water; and even if we had had water, that was a time when we are generally employed in preparing for the next year's crops. Again, our cattle have to be provided with food during winter. Mr.

* The Cornish acre is 5760 square yards.
† The Cornish bushel is three imperial bushels.

Kendall observed that the French are wiser than ourselves; and I believe Mr. Kendall said the French had more foresight than ourselves, because last year they bought wheat at 45*s.* while we bought at 70*s.* I would ask if *we* did not benefit by that. Mr. Kendall was addressing us as a body of farmers; if we had had to sell at 45*s.* instead of 70*s.* we should not have been so well off as we are now. That was a little mistake of the honourable member's, I believe. But what I wish to observe is that we cannot sell when we would at all times, and that we have not the control which the merchant has."—Mr. Olver then referred to the liberal and highminded character of his landlord, the late Sir William Molesworth.

Calendar of Operations

JANUARY.

WESTER ROSS, *22nd January.*—The weather has been very seasonable, although very variable. There has been "a little of everything, and nothing much." We had a few mild days in which the Wheat plant made rapid progress, and the earlier sown fields look thick and healthy. This has been a suitable season for thin sowing—the ground has been so dry, and the weather so mild that every grain of seed sown seems to have brairded. By mistake we had about 8 acres sown with 2 bushels 3 pecks per acre, and to the surprise of all it looks as thick as that which received the usual quantity—4 bushels per acre. But this reduced quantity will appear enormous in the eyes of those whose good fortune it is to cultivate the rich fields in the genial climate of merry England. Now an intense frost has set in, which has put the ground into a suitable state for having the remainder of the manure carted over it to the most suitable places for further distribution, as we have not yet adopted the mode of distributing it in a liquid state. We are taking advantage of the winter months, whilst workmen are not so regularly employed, for having several acres of waste land improved. It is trenched to the depth of 15 inches, and the trenching costs 8*l.* an acre; and as little drainage is required, each acre is prepared for a crop at an outlay of about 10*l.* The soil is pretty good, and at present prices the outlay would shortly find its way back to the pocket; and, moreover, a few acres rent free might help a farmer through years very different from those we have now seen, and in which otherwise he might be in danger of upsetting. The peace pipe has again sounded, and the farmers in the north do not seem so much alarmed as was alleged they would, or as might have been anticipated. They were endeavouring to make the most of their opportunity, and now they seem not disinclined to step back into the good days of peace and plenty.

Notices to Correspondents.

AGRICULTURAL SOCIETY OF ENGLAND: *A H F C.* The address of the Secretary is 12, Hanover Square, London. You had better apply to him. If any acquaintance of yours is a member his introduction will suffice.

DISEASED POTATOES: *Ewell Castle.* If grated we should suppose they would only rot the faster. The steaming process would be less costly, perhaps, if done continuously. Steamed Potatoes may be piled up and mashed together in a heap, and will keep.

FLOOR FOR COW-HOUSE: *D.* asks if any of our correspondents can give information on this subject. We shall, therefore, be much obliged for answers to the following questions from any who may have used the Portland Cement Floor. Whether the action of the urine affects it? Whether the constant standing of the cows in one spot causes it to sink into holes? Whether the cows are apt to slip on it? What thickness they used the material? How long they have had it in use? What it cost per foot?

GAS WATER: *G M.* We should apply it over the dung-heap, or over any porous absorbent, and apply it in compost. If you have any in store in spring you could apply it then directly, as plants in vigorous growth will use it as soon as applied. It should, however, be very dilute, containing not more than one per cent. of ammonia, and had better be applied during rain.

GLYCERINE: *M S.* It is in a certain sense a *refuse* of the candle manufacture, being that part of natural fatty matters the separation of which is one of the objects of the manufacturer. Its non-illuminating power renders its presence undesirable, and its uses for other purposes make its separation a doubly important consideration. Among its uses is said to be its fitness for pig feeding, which is being tested in Edinburgh in comparison with cod liver oil. All this, and much very interesting matter beside, was related in connection with the manufacture of candles by Mr. Wilson, of Price & Co.'s Candle Company, at the Society of Arts last Wednesday.

LITTER OF PIGS: *W T Bullock.* It may be well to save the best of the five, as the parts may become developed hereafter. If they do not descend from the abdomen they will not be fully developed. *W C S.*

MOULD AND SALT: *S T.* It depends on the number of acres on which you intend to apply the mould. If you apply your 60 loads on 6 acres you may mix 12 cwt. with them first with advantage.

ONE-HORSE CARTS: *Ewell Castle.* You will find the subject stated in the article in "Blackie's Cyclopedia." Mr. Hannam's paper is erroneous where he describes a scheme for avoiding the load upon the horse's back by leaving the central part of the framework of the cart vacant, so that under no variation of up and down shall any part of the hinder load come in front of the axle. Besides, the load on the horse's back, which he would avoid, is one of the *advantages* of the cart over the waggon.

POND MUD: *Essex.* The mud is generally useful as forming the bulk of a compost of which the more valuable parts are the things added to it. You had better take it out and let it drain in a heap. When partly dry turn it over and mix it with dung, and apply it on the Grass next autumn.

SEED WHEAT: *H T W.* Two years old Wheat will generally germinate perfectly well. Some people prefer it, on the alleged ground that the produce is free from smut. Whether the vitality of the germs of this disease is as lasting as that of the Wheat itself we cannot say; but it can easily be destroyed by washing or soaking in certain solutions, and we should greatly prefer recently harvested Wheat as seed.

SEWAGE MANURE: *B D T.* We imagine your best plan is to issue a prospectus, and urge it thus and personally upon capitalists and others. We may frankly say, however, that we have not the least faith in your scheme, and this we may say without knowing it.

VARIETIES OF SEED: *A.* New varieties are obtained by hybridising. Crosses between previously existing varieties are continually occurring by natural or accidental mixtures, when such varieties grow near one other, but they may also be obtained artificially. The parents should not be chosen of very different characters; they should both possess desirable qualities, and the vigour of those qualities is likely to be increased by the cross. Mr. Maund, of Bromsgrove, and Mr. Raynbird, of Basingstoke, have both been successful in this way.

WHEAT: *A B.* It may follow Beans, root crops, or Clover, or bare fallow. It is this last which it follows in the Lois-Weedon system, which is erroneously described as a Wheat after Wheat succession. In the North Oats are generally taken after Clover.

WHEAT AND SEEDS: *C Clifton.* Seeds may generally be grown with Wheat quite as safely as with Barley. We have grown 40 acres per annum thus for many years with perfect safety.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S

Twenty-fifth Annual Edition of their SEED CATALOGUE

IS VERY SELECT, AND CONTAINS EVERY THING WHICH CAN BE DESIRED OF THE CHOICEST NEW AND OTHER VEGETABLES.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These are particularly recommended to the notice of Amateurs not keeping regular Gardeners. The collections furnished from this establishment have met with the highest approval, and will be found on trial such as will not be surpassed. Supplied as usual as follows, for which see full particulars in Catalogue:—

No. 1, £3 ... No. 2, £2 ... No. 3, 25*s.* ... Collections for Small Gardens, 10*s.* 6*d.* and 15*s.*

A few Choice New PEAS.—Descriptions see Catalogue.

Harrison's Glory	per quart	5*s.*	0*d.*
" Perfection	"	5	0
Epps' Lord Raglan	"	3	6
" Monarch	"	3	6
Denyer's Prolific Marrow	per quart	3*s.*	6*d.*
Dickson's Favourite	"	2	6
Waite's King of the Marrow	"	3	0
Fairbeard's Nonpareil	"	1	6

All the choicest Broccoli, Lettuce, Cabbage, Cucumber, and other Vegetables, including many new approved kinds.

CHOICE FLOWER SEEDS.

The varieties of Flower Seeds now sold have become far too numerous. Our aim has been annually to turn our attention to the growing of such only as are the most desirable for their beauty, odour, or other particular attractive properties; and our List will be found to contain as select a collection as can be brought into a catalogue, with all the neat gems of the season. The usual arrangement of colours, heights, time of flowering, hardiness, duration, the Climbers also specified, and embracing every necessary information for purchasers. Useful instructions for the culture and growth of Seeds are supplied with each order.

FLOWER SEEDS IN ASSORTMENTS.—We beg strongly to recommend these assortments, for which, see Catalogue.

IMPORTED GERMAN SEEDS.—Superb collections of these (see Catalogue).

SMITH'S NEW BALSAMS, so highly spoken of by Dr. Lindley and the National Floricultural Society. In sealed packets, of six separate colours, for 2*s.* 6*d.*; packets of mixed, 2*s.* each.

BULBS AND ROOTS FOR SPRING PLANTING.

Very splendid collections of Ranunculus, Anemones, Gladiolus, Iris Germanica, and Primula, Lilium lancifolium, and other superb Lilies, Tigridias, Oxalis, and a great variety of other Roots. For Spring Planting, see Seed Catalogue.

ACHIMENES AND GLOXINIAS.

Several superb new Continental varieties, (including 10 beautiful erect flowering Gloxinias), tubers of which are now ready, and will make fine flowering plants this season, for descriptions of which, see the last page of Seed Catalogue.

SEED CATALOGUES SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20*s.*) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

Seed and Horticultural Establishment, Sudbury, Suffolk.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine, or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The following List of FLOWER SEEDS are recommended for their superior beauty and novelty, with the exception of those marked with an asterisk, which we merely name that our customers may be aware we have them in our List, and can supply them at the stated prices, but we ourselves do not recommend them as possessing any superior merits either in beauty or novelty of appearance to many of our well known favourites.

	s.	*d.*
Abronia umbellata	0	6
Acroclinium roseum, new	1	0
*Ageratum conspicuum	0	6
Alonsoa Warscewiczi	0	6
Arctotis breviscarpa	0	4
Argemone platyceras grandiflora...	0	6
*Browallia abbreviata	0	4
Balsam, dwarf scarlet	0	6
" new orange...	0	6
" " sulphur	0	6
*Calceolaria scabiosæfolia	0	6
*Campanula stricta	0	4
*Centauridium Drummondi... ...	0	6
Chrysocephalum arenarium ...	1	0
Collinsia bartsiæfolia alba (new, bicolor alba, incorrectly named by some).		
Convolvulus minor fl. pleno ...	0	3
Calliopsis coronata (Coreopsis) ...	0	4
" marmorata	0	4
*Cynoglossum Hayni...	0	3
Clintonia pulchella alba	0	6
" " atroviolacea ...	0	6
*Dianthus Garnerianus	0	6
" Hendersoni fl. pleno ...	0	6
*Delphinium cardiopetalum... ...	0	3
Eutoca alba, new	1	0
*Erigeron Beyrichi	0	6
*Gomphrena globosa Haageana ...	0	4
*Guternezia zymnospermoides ...	0	6
*Gypsophila muralis	0	6
Godetia alba, new	1	0
Gynerium argenteum (Pampas Grass	10	6
*Helichrysum bractirynchum ...	0	4
* " bracteatum, white ...	0	3
* " " yellow ...	0	3
* " macranthum nanum	0	3
* " compositum maxim.	0	6
Ipomœa limbata	0	6
" violacea alba (mexicana alba)	1	0
Leptosiphon aureum	1	0
Linum grandiflorum rubrum ...	1	0
Lupinus subramosus (a fine bedding plant)	0	6
Lobelia ramosa nana, new	0	6
*Morina elegans	0	6
Myosotis palustris (Forget-me-Not)	0	4
" azorica	0	4
Maurandya, in 6 varieties, each ...	0	6
Nepeta Meyeri	0	6
Phlox Drummondi atrococcinea ...	0	6
" " oculata alba ...	0	6
" " Victoria regina	1	0
*Palafoxia texana	0	6
Perilla Nankinensis...	0	6
Saponaria calabrica (beautiful bedding plant)	0	6
Sunflower, new Californian ...	0	6
Sabbatia campestris	1	0
Sweet William, double	0	6
*Trifolium aurantiacum	0	6
Tropæolum Triomphe de Gand ...	1	0
*Whitlavia grandiflora	0	6

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And other Choice Flower Seeds, for which our Establishment is particularly noted.

	s.	*d.*
Asters, Truffaut's French pyramid, the finest of all the China Asters, in packets of 12 varieties	3	6
Aquilegia, various colours, fine, in packets of 12 sorts ...	3	6
Balsams, the finest Camellia flowered, ditto 6 sorts ...	2	6
Hollyhocks, select named varieties, ditto 12 sorts	2	6
" " " mixed	1	0
Larkspurs, beautiful Hyacinth flowered, in pckts. of 8 sorts	2	0
Marygold, distinct varieties, ditto 10 sorts	2	0
Phlox Drummondi, beautiful and distinct, ditto 5 sorts ...	2	6
Poppy, in distinct showy varieties, ditto 6 sorts	1	0
Salpiglossis, new and beautiful colours, ditto 8 sorts ...	2	6
Senecio, or Jacobœa, distinct and showy, ditto 7 sorts ...	1	6
Stocks, new large flowered German, finest of all, do. 12 sorts	3	0
" new Giant Brompton, ditto 4 sorts	1	6
Wallflower, fine double varieties, ditto 6 sorts	2	6
Zinnia elegans, brilliant colours, ditto 12 sorts	3	6
Ornamental Grasses, beautiful varieties, ditto 25 sorts ...	5	0
" foliage plants for bedding, ditto 12 sorts ...	3	6
Calceolaria, from the largest & finest spotted flowers, 5*s.*, 2*s.* 6*d.*, 1*s.*		
Cineraria, from the finest named varieties... ... 2*s.* 6*d.*, 1*s.*		
Carnations, finest double, also Picotees and Tree Carnations, each	2	6
Geraniums, from the finest show and fancy varieties, each	2	6
" bright scarlet, cerise, rose, &c., separate or mixed, each	1	0
Heartsease, or Pansy, from a splendid named collection ...	1	0
" " fancy varieties, striped, &c.	0	6
Lobelia St. Clair, Insignis, Queen Victoria, &c., &c., each	0	6
Mimulus, or Monkey Flower, beautiful varieties, mixed ...	0	6
Petunia, splendid mixed, equal to named flowers	1	6
Portulacas, scarlet, yellow, white, striped rose, crimson, purple, &c., each	0	6
Pinks, from the finest collection grown	1	0
Primula sinensis fimbriata, white and red mixed, true, saved from the finest collection known	2	6
Verbenas, mixed, from the best named flowers	1	0

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Messrs. E. G. HENDERSON & SON beg to draw attention to the following new VEGETABLES, descriptions of which will be seen in the Catalogue:—

French Bean—Haricot d'Alger, or Beurré blanc.
" Tall Zebra.
Dolichos sesquipedalis, called the Asparagus Kidney Bean.
Phytolacca esculenta
Turnip hâtif of Paris
Radish, China Rose
Cauliflower, Early Paris
Beet Crapaudine, or Rough Skin
Carrot, Brussels Red Winter improved Horn.
" new white transparent.
Couve Tronchouda, or Portuguese Cabbage.
Beet Long Orange, very sweet
Brussels Sprouts, imported
Savoy, Early Dwarf Ulm
Pea, Denyer's Early prolific Green Marrow.
Early Dwarf Erfurt.

Messrs. E. G. HENDERSON & SON beg to announce that the new Plants to be sent out this year are given at the end of their Seed Catalogue, with full descriptions, prices, &c.

Plants of Gynerium argenteum, or Pampas Grass, 2*s.* 6*d.* each; 20*s.* per dozen; 7*l.* 7*s.* per 100.

Plants of Petunia imperialis, new double white, 3*s.* 6*d.* each; 30*s.* per dozen.

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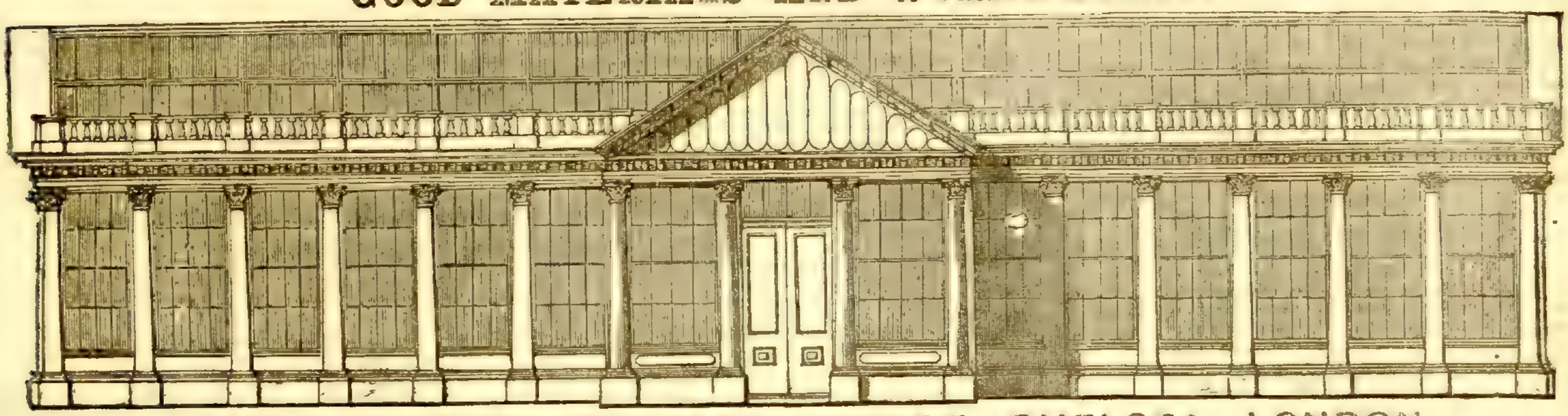

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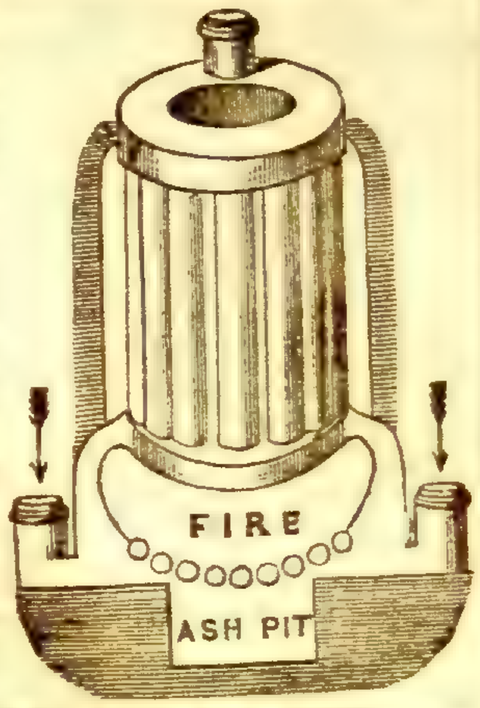
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



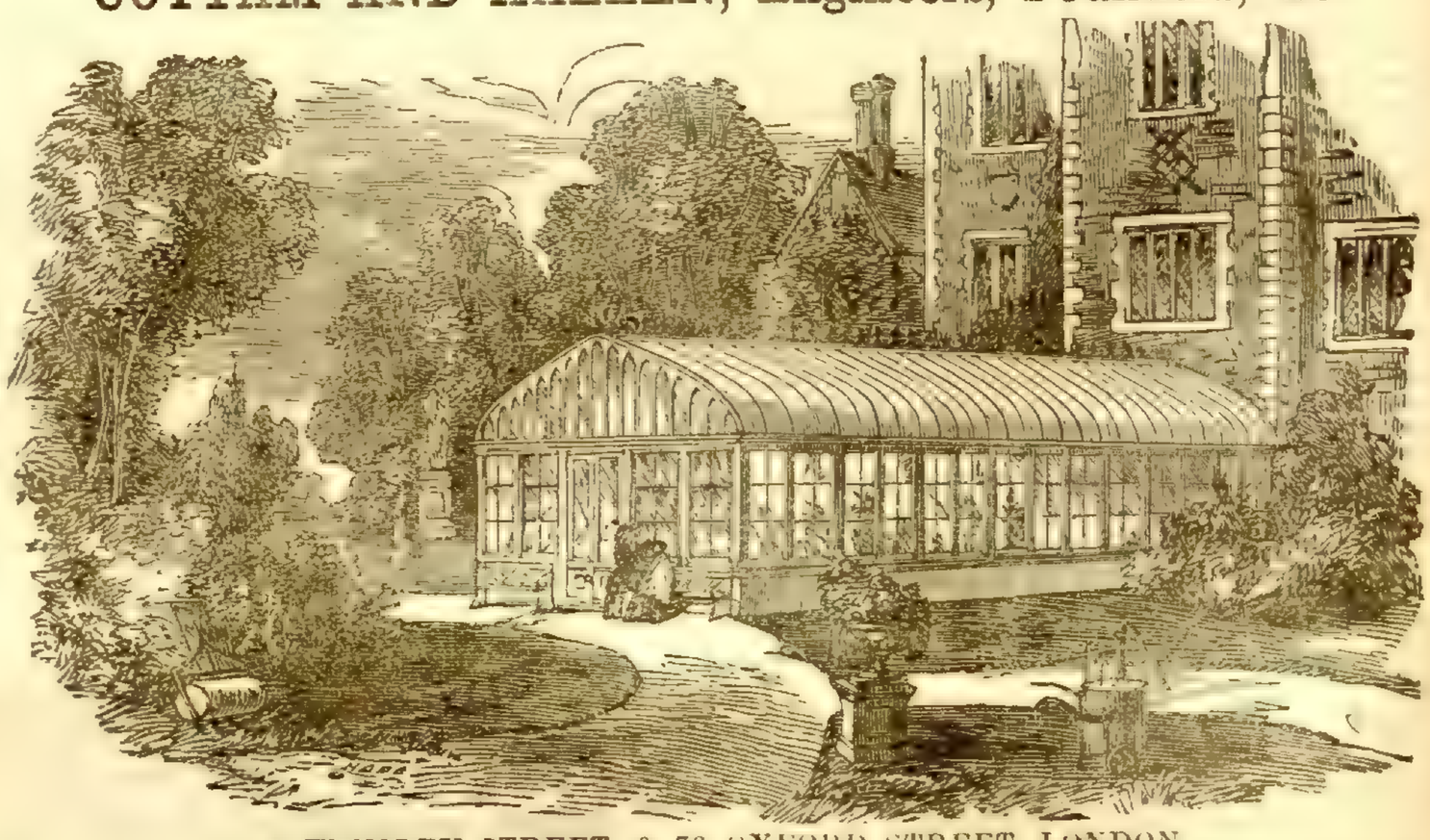
The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.

JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,

WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

POULTRY, ETC., SHOWS.

PORTABLE WIRE PENS FOR POULTRY AND PIGEONS, furnished on hire by THOS. P. HAWKINS, General Wire Worker, 27, Dale End, Birmingham. Game Netting and Wire Goods of every description.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.

HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5s. 3d. each.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12s. | 8 by 6, and 8½ by 6½ ... 13s. 6d.
7 by 5, and 7½ by 5½ ... 13s. | 9 by 7, and 10 by 8 ... 13s. 6d.

AT 14s. PER 100 FEET

12 by 9, 13 by 9, 14 by 9, 15 by 9, 16 by 9.
12 by 10, 13 by 10, 14 by 10, 15 by 10, 16 by 10.
12 by 11, 13 by 11, 14 by 11, 15 by 11, 16 by 11, 17 by 11, 18 by 11.

AT 16s. PER 100 FEET.

13 by 12, 14 by 12, 15 by 12, 16 by 12.

AT 18s. PER 100 FEET.

17 by 12, 18 by 12, 19 by 12, 20 by 12, 14 by 13, 15 by 13, 16 by 13, 17 by 13, 18 by 13, 19 by 13, 20 by 13, 20 by 15.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz. from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HARTLEY'S PATENT ROUGH PLATE GLASS.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

Foreign Sheet Glass, in cases of 200 feet 34s., 38s., 40s., and 42s. per case.

Fern Cases with Ferns complete, suitable for the Drawing-room, from 25s. each.

Aquariums with French polished stands, from 10s. each. Vase shaped ditto, on Glass stand, 25s.

Perforated Glass for Ventilation, from 1s. 6d. per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium, 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12s. 0d.
6½	"	4½	"	7	"	5	...	... 12 6
7½	"	5½	"	8	"	6	...	... 13 0
8½	"	6½	"	9	"	7	...	... 13 6
9½	"	7½	"	10	"	8	...	... 13 6
10½	"	8½	"	11	"	9	...	... 14 0
12	"	9	"	13	"	9	...	... 14 0
10	"	10	"	10½	"	10½	...	... 14 0
11	"	10	"	11½	"	10½	...	... 14 0
11	"	11	"	11½	"	11½	...	... 14 0
12	"	11	"	12½	"	11½	...	... 14 0
13	"	11	"	13½	"	11½	...	... 14 0
13	"	12	"	13½	"	12½	...	... 16 0
13½	"	13½	"	14½	"	13½	...	... 16 0
15½	"	13½	...	...	...	...	...	... 16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application. Established more than 100 years.

WATERPROOF PATHS. BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

THE PRIZE ROOT PULPING AND MINCING MACHINE.—PHILLIPS's is the only Root Pulping and Mincing Machine which has received the Prizes of the Royal Agricultural Society. Made only by WOODS, Suffolk Iron Works, Stowmarket. Delivered carriage free in London, Peterborough, Hull, Gainsborough, Newcastle-upon-Tyne, and any station on the Eastern Counties Railway. Illustrations, Descriptions, and Prices forwarded post free on application.

PRIZE MEDAL, 1851, and Notice by Jury of considerable artistic merit in ARCHITECTURAL and GARDEN DECORATIONS, &c., in PULHAM'S TERRA COTTA, granulated to imitate stone of any tint, or to match with his Stone-colour Cements, requiring no artificial colour or paint. Having been tested 30 years, durability is guaranteed by J. PULHAM, Broxbourne.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

ELECTRO-PLATED SPOONS AND FORKS.

MR. MECHI, 112, Regent Street, informs his friends and the public that his NEW SHOW ROOM, extending into Glasshouse Street, is now open for the sale of the above articles, together with an extensive stock in the newest and most approved designs of Electroplated Dinner, Tea, and Coffee Services, Liquor Frames, Salvers, Toast-racks, Spoons, Forks, &c.; also a large assortment of the best London and Sheffield made Table Knives.—112, Regent Street, London.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

CLOSE OF HOLIDAYS.—The return of youth to their respective Boarding-Schools induces a solicitude from Parents and Guardians for their personal comfort and attraction, and ROWLANDS' MACASSAR OIL, for accelerating the growth and improving and beautifying the hair, ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions, and ROWLANDS' ODONTO, or Pearl Dentrifice, for rendering the teeth beautifully white, and preserving the gums, are considered indispensable accompaniments for the attainment of those Personal Advantages so universally sought for and admired. Beware of spurious imitations. The only genuine of each bears the name of "ROWLANDS" preceding that of the article on the wrapper or label.—Sold by A. ROWLAND & Sons, 20, Hatton Garden, London; & by Chemists and Perfumers.

GAS CHANDELIERS AND BRACKETS.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12s. 6d. (two light) to 16l. 16s.

THE PERFECT SUBSTITUTE FOR SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18s.	26s.	32s.
Dessert Forks "	30s.	40s.	46s.
Dessert Spoons "	30s.	42s.	48s.
Table Forks "	40s.	56s.	64s.
Table Spoons "	40s.	58s.	66s.

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12s.	28s.	30s.
Dessert ditto and ditto ... ... "	10s.	21s.	25s.
Tea ditto ... ... "	5s.	11s.	12s.

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5s. 6d. per gallon.
Palmer's Candles, 10d. and 10½d. per lb.
Patent Camphine, 4s. per gallon.

The alterations and additions to these extensive premises (already by far the largest in Europe), which occupied the whole of last year, are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, and Turnery, Lamps and Gaseliers, Iron and Brass Bedsteads and Bedding), so arranged in Sixteen Large Show Rooms, as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established 1820.

SISAL CIGARS, SISAL CIGARS, SISAL CIGARS!

GOODRICH'S CIGAR, TOBACCO, AND SNUFF STORES (Established 1780), removed to 407, Oxford Street, near Soho Square. A Box, containing 14 fine Sisal Cigars for 1s. 9d.; post free for 27 stamps. None are genuine unless signed "H. N. GOODRICH."

MARK YOUR LINEN.

THE PEN SUPERSEDED.—The most easy, permanent, and best method of marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, or anything else, is with the PATENT ELECTRO-SILVER PLATES. By means of this novel invention a thousand articles can be marked in ten minutes. Any person can easily use them. Initial Plate, 1s.; Name Plate, 2s.; Set of Numbers, 2s.; Crest Plate, 5s. Sent free to any part of the kingdom (on receipt of stamps), by the inventor and sole patentee, T. CULLETON, Heraldic Engraver to the Queen and Royal Family, 2, Long Acre, one door from St. Martin' Lane.

HOLLOWAY'S OINTMENT AND PILLS CERTAIN REMEDIES FOR SORE LEGS.—Mr. Johnson, Chemist, of Great Howard Street, Liverpool, informed Professor HOLLOWAY that Mrs. Jackson, residing near his establishment, had suffered many years from an ulcerated Leg, during which time she was applying remedy after remedy without any permanent benefit; consequently, as a last resource he recommended her to try HOLLOWAY's Ointment and Pills, and these medicines have been the means of effecting a complete cure, to the great satisfaction of herself and others, who had considered her leg as incurable.—Sold by all medicine vendors throughout the world; at Professor HOLLOWAY's Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

RICE of all descriptions at Wholesale Prices, delivered direct from the Queen's Bonded Warehouses in original packages, for Farm Stock, Poultry, &c., from 11s. 6d. per cwt. Samples sent post free.

THOMAS MOSS & Co., 147, Fenchurch Street, London.

LOCUSTS (SUGAR PODS)

FOR FATTENING CATTLE, SHEEP, &c.

ROSLING AND ASHBY beg to inform Feeders of Stock that they have some tons of the above for disposal at 12l. per ton. They have been proved to be superior to Oil-cake for fattening purposes.

Corn Exchange and Bull Stairs Wharf, Blackfriars, London.

TO SEEDSMEN AND CORN MERCHANTS.

TO BE LET, in the town of Monmouth, the PREMISES of a very old and lucrative SEED and CORN TRADE, with an excellent front Shop.—Apply to Messrs. DYKE & Co., Monmouth.

TO BE LET ON LEASE, at Pawlett, near Bridgewater, a large ARABLE FARM. The above, from the high quality of the Land and its proximity to both Water and Rail communication, is deserving the notice of Agriculturists. —The Farm will be pointed out by GEORGE NEATH, Pawlett, Bridgewater.

TO BE LET, a NURSERY, situate near the principal markets, consisting of Dwelling House and Seed Shop, 10 Greenhouses, Pits, Frames, &c.—For further particulars apply to H. F., 5, Ifield Terrace, Lansdowne Grove, Stockwell.

VALUABLE FARMS TO LET.

THE PROPERTY OF THE RIGHT HON. THE EARL OF BURLINGTON.

TO BE LET, and entered upon immediately, all those TWO FARMS called PIT FARM and WINDERMOOR, in the parish of Cartmel, in the county of Lancaster, late in the possession of Mr. John Thompson, deceased.

PIT FARM consists of 277 acres of Arable, Pasture, and Meadow Land, and 273 acres of Hill Pasture. The Arable Land is a good dry Turnip soil, and the Hill Pasture lies upon limestone. It adjoins the town of Cartmel. The House and Buildings are in a good state of repair.

The WINDERMOOR FARM consists of 152 acres of Arable, 12 acres of Meadow, and about 360 acres of Salt Marsh Land.

When the Ulverstone and Lancaster Railway (now in progress) is completed, the Carke Station will be within 1½ mile of either of the Farms.

Mrs. Thompson will send a person to show the Farms. Conditions and further particulars may be known on application to Mr. DREWRY, of Holker.—Holker, Jan. 26.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE SOLD, the LEASE of GROUND, near town, with Greenhouses, Pits, &c., well stocked with Plants. Rent 10l. per annum.—Apply to Mrs. SUTHERLAND, Florist, Kilburn; or to Mr. GODDARD, 14, Great Portland Street, Cavendish Square, London.

TO BE SOLD, 20 Brace of Tame PHEASANTS.—Address, in the first instance, to "Avis," at the Office of this Paper.

Sales by Auction.

FANCY POULTRY.

THE STOCK OF H. D. DAVIES, ESQ., OF SPRING GROVE HOUSE, HOUNSLOW.

MR. J. C. STEVENS is favoured with instructions to announce for Sale by Auction at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, 30th January, at 12 o'clock precisely, the whole of Mr. Davies' renowned Stock, excepting only such as are reserved for breeding; it consists of Spanish, Dorkings, Brahmas, White Cochins, Rangoons, Toulouse Geese, and Rouen and Aylesbury Ducks. The well known high character of the Yard renders all comment superfluous. Catalogues which will be ready one day before the sale may be had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

IMPORTANT SALE OF DRIED PLANTS.

MR. J. C. STEVENS has received instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 29th January, at 1 o'clock precisely, all the VALUABLE COLLECTIONS OF DRIED PLANTS, which have been formed by the Travellers employed by the Horticultural Society of London during the last 40 years. The Herbaria consist of the collections formed by Douglass, Hartweg, Fortune, Forbes, Geo. Don, Parkes, Potts, and others, in North America, Mexico, Peru, Brazil, Chili, and other parts of the globe. —Catalogues may be had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CONSIGNMENT FROM GHENT FOR ABSOLUTE SALE.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, February 1st, at 12 o'clock, about 500 fine Double Camellias, and 600 Indian and New Ghent Azaleas, consisting of all the approved kinds well furnished with bloom buds; also 400 strong roots of Lilium lancifolium rubrum, album, and superbum, with a fine assortment of American Plants, comprising fine Hybrid Rhododendrons, Kalmias, Andromeda floribunda, &c., beautifully set with bloom buds.—May be viewed the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual, of first-rate quality.* It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,

SUTTON'S AMATEUR'S GUIDE. Published by LONGMAN, Paternoster Row. Price 6*d.*, or free by post 7*d.*, in penny stamps.

SUTTON & SONS, Seed Growers and Merchants, Reading.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Jan. 26.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

PETER LAWSON AND SON, SEEDSMEN, NURSERYMEN, and WOOD FORESTERS to the Queen's Most Excellent Majesty; and to the Highland and Agricultural Society of Scotland, Edinburgh, and London.

PETER LAWSON & SON beg to intimate that their Prices, Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.

7, Great George Street, Westminster.

KENNEDY AND KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. KEMPTON, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. JAMES CARTER, of Holborn.—Address KENNEDY & KEMPTON, Bedford Conservatory, Covent Garden, London.

SPLENDID SEEDLING HERBACEOUS CALCEOLARIAS.

WILLIAM BARNES has now ready to send out at 5*s.* per dozen a few of his unrivalled CALCEOLARIAS. They are very beautiful healthy strong plants, and are now quite ready for their permanent shift into large pots.

W. B. can recommend them with the greatest confidence, as they have been saved only from the most beautifully marked and finest shaped varieties, and if potted now will make splendid blooming plants.—Camden Nursery, Camberwell, London.

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that they have taken the premises, 82, Bishopsgate Street Within, where they intend carrying on the SEED BUSINESS in all its branches and trust by great assiduity and strict attention to merit an extended share of patronage. They confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality.—London, Jan. 26.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to offer a NEW BIOTA, which is quite distinct from the others, and is warranted particularly hardy.

BIOTA MELDENSIS, good plants £1 15 0
" " very strong 2 10 0

This fine Coniferous plant will be shortly figured in Verschaffelt's "Illustration Horticole."

A. V. also directs attention to his Journal L'ILLUSTRATION HORTICOLE, which is one of the best Floricultural works on the Continent. The last Number (12th Number of the second Vol.) is out, and contains:—

1. Genetyllis tulipifera.
2. Rose Perpetual Panachée d'Orléans.
3. Clematis campaniflora.
4. Dion edule (fruits of).
5. Dion edule (site in its natural country).

The Work can be seen and obtained of his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Price 12*s.* a year.

DWARF ROSES ON THE MANETTI.

GEORGE CLARKE begs to offer his unrivalled stock of DWARF ROSES (6-inch stems, budded on the Manetti), consisting of all the leading kinds of Hybrid Perpetuals, Bourbons, &c., at 12*s.* per dozen; very superior, 18*s.*; fine strong plants, and beautiful fibrous roots, well adapted for pot culture, or forming beds in the flower garden.

G. C. respectfully solicits an inspection or trial of the above, which would doubtless clear away the prejudice which now exists with many towards this truly valuable stock the Manetti.

Standard Roses, in 12 distinct varieties, 18*s.* to 24*s.* per dozen; Climbing and Pillar Roses, fine strong plants, 12*s.* per dozen; Dwarfs in pots, on their own roots; also the late new French Roses.

N.B. Where two dozen or more are ordered, plants in proportion will be added to compensate for distant carriage.

Streatham Place Nursery, Brixton Hill, Surrey.

SEEDS FOR THE KITCHEN GARDEN.

SEEDS FOR THE KITCHEN GARDEN *can be obtained from* DEVONSHIRE, *through* Messrs WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. *All orders carriage free.*

See their "PRICE CURRENT AND GARDEN DIRECTORY" just published.

VAN PARCEL TRAINS *are now running on the Great Western and the other Broad Guage Railways, so that Seeds can now be sent from* DEVONSHIRE *with as much regularity and despatch as from any other county in England.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, Devonshire.

SEEDS FOR WALES.—*Arrangements have been made by the undersigned for the speedy transit of all orders for* WALES. *Seeds can be forwarded from Bristol direct by Steamer, or by the South Wales Railway, viâ Gloucester.*

WILLIAM E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

GARDEN SEEDS FOR IRELAND.—*Plymouth is situated in close proximity with* CORK, DUBLIN, BELFAST, and LIMERICK, *and Steamers call every week at the Great Western Docks, so that purchasers in our sister country will find their orders attended to with promptness and despatch, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS FOR IRELAND, SCOTLAND, AND WALES.

SUTTON AND SONS having many customers in North and South Wales, Scotland and Ireland, whom they have supplied with Agricultural and Horticultural Seeds for many years, are well acquainted with the sorts which thrive best in each locality.

SUTTON & SONS *deliver their Goods Free of Carriage to the Seaports, and many other parts of Ireland, Scotland, and Wales.* For particulars, address

SUTTON & SONS, Seed Growers, Reading, Berks.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.

THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "SUTTON'S *Complete Collections for one year's supply,*" *particulars of which may be had on application, addressed—*

SUTTON & SONS, Seed Growers and Merchants, Reading.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Jan. 26.

SEED POTATOES.

CHARLES SHARPE AND CO. have the pleasure of offering the following varieties of Potatoes, all of which have been grown by themselves, and are of fine quality.

Per bushel of 4 stones:—

	s.	d.		s.	d.
Kidney, Early Ash-leaved ...	6	0	Foxe's Seedling	5	0
" Jackson's ...	6	0	Emperor	6	0
" Fluke	5	0	Cockney	6	0
Martin's Globe	5	0	Hen's Nest	5	0
Early York	5	0	Oxford	6	0
" King's	6	0	American Native ...	5	0
" Round frame ...	5	0	White Rough	5	0
			Regent	5	0

Nursery and Seed Establishment, Sleaford, January, 1856.

CHOICE FLOWER SEEDS.

W. THOMPSON, Tavern Street, Ipswich (author of the "Gardening Book of Annuals," favourably noticed in the *Gardeners' Chronicle* for August 18, 1855), begs to offer a select assortment of ANNUAL and PERENNIAL FLOWER SEEDS, comprising every novelty of the season, and some rare Seeds; of which a descriptive priced Catalogue, arranged according to the Natural System, will be sent post paid, on application. The following quotation of prices cannot fail to be appreciated:—

	s.	d.		s.	d.
Ageratum conspicuum ...	0	6	Lupinus subcarnosus ...	0	6
Alonsoa Warczewiczi ...	0	6	Salvia Römeriana	0	6
Calceolaria chelidoniöides	0	3	Silene Bergeri	0	3
Coreopsis coronata	0	3	" squamigera	0	3
Gypsophila muralis... ...	0	6	Tithonia tagetiflora	0	3
Helichrysum brachyrhynchum	0	4	Whitlavia grandiflora ...	0	6

GERMAN FLOWER SEEDS.

S. AND J. RINZ, NURSERYMEN, Frankfort-on-the-Maine, beg to call the attention of the trade to the following Seeds, all warranted of first-rate quality.

GERMAN STOCK, in collections of from 10 to 30 varieties, 1*s.* 6*d.* to 2*s.* 6*d.* each collection, containing 100 Seeds of each variety.

GERMAN ASTERS, dwarf, bouquet, globe, pyramidical, and others in collections, from 10 to 20 varieties, at 1*s.* 6*d.* to 2*s.*

PÆONY ASTERS, the beautiful new varieties in collections, from 6 to 12 varieties, at 2*s.* to 4*s.*; the same in packets, mixed, 1*s.* each.

All orders will be promptly executed and forwarded to the care of their London Agents, Messrs. BETHAM & BLACKITH, Cox's and Hammond's Quays, Lower Thames Street.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

DWARF-TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in offering some of the finest Dwarf-trained PEACHES and NECTARINES in the Kingdom; in short W. W. & SON feel convinced they are not to be surpassed in the trade. Price 5*s.* per plant.

N.B. Having a large stock of the above W. W. & SON are disposed to deal liberally with the trade, and will furnish wholesale prices on application.

Fine Pyramidal Pears on Quince, 18*s.* to 24*s.* per dozen.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THOMAS WILD, of Ipswich, is now sending out his celebrated SEEDS:—Orion Melon, 1*s.* 6*d.* per packet; Ipswich Standard Cucumber, 2*s.* 6*d.*; Latter's unrivalled Primulas (two new colours), scarlet and purple, 2*s.* 6*d.*; Hollyhocks, 24 show varieties, 100 seeds, 1*s.*; Pansies, from Hine's exhibition bed, 1*s.*; the whole free by post, 7*s.* 6*d.*

Descriptive Illustrated Catalogue, Testimonials, Latter's Hints on the Growth of Primulas, &c., free by post to all Subscribers.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l.* to 5*l.* The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.

Seed Warehouse, 28, Market Place, Manchester.

TO MELON GROWERS.

MONRO'S CRYSTAL PALACE HERO, AND MONRO'S GOLDEN GAGE MELONS, which gained the two first prizes in June last at the Crystal Palace Exhibition, the "Hero" the first prize for the heaviest Persian Hybrid Melon, the "Golden Gage" the first prize for the best flavoured Melon; both of which prizes were awarded to J. MONRO, Colney House, St. Alban's. Two seeds of each sort taken from the same fruits which gained the prizes, with a packet of 12 seeds of other first-rate sorts, for 2*s.* 6*d.* To the trade 12 packets for 1*l.*—May be had by applying to W. F. ERWOOD, Salesman, 13, Tavistock Row, Covent Garden, London.

GOODWIN'S YORK EARLY WHITE CELERY.

JAMES BACKHOUSE AND SON can now supply SEED of this valuable CELERY. It is compact in habit, and not liable to run to seed, solid, crisp, and of fine flavour. It may be had in perfection earlier than any other variety known to us, and has for several years past taken first prizes at the York Horticultural Exhibitions in 6th and 7th months. Packets 2*s.* 6*d.* each, free by post, may be had either from HURST and M'MULLEN, 6, Leadenhall Street, London, or direct from ourselves.—JAMES BACKHOUSE & SON, York Nurseries, Jan. 26.

CUCUMBERS.

JAMES DICKSON AND SONS beg to offer the following much esteemed varieties of Cucumbers, in sealed packets containing six seeds, for 1*s.* 6*d.* each packet, post free. "They should be grown by all Cucumber growers."

MODEL OF PERFECTION.—Has a fine white spine, remarkably prolific and early; the fruit is 20 to 24 inches long when fit for table, and is very handsome.

TELEGRAPH.—Black spine, rather smooth, great bearer, very early handsome fruit.

The following lists are published, and will be forwarded prepaid on application:—

Vegetable and Flower Seeds	Fruit Trees
Roses	Forest Trees.

102, Eastgate Street, Chester; and Market Place, Manchester.

GREENHOUSE AZALEAS.

A. PAUL AND SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s.* the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s.* the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s.* and 30*s.* per dozen. A few larger plants 3*s.* 6*d.* to 5*s.* each. Carriage free to London.—Nurseries, Cheshunt, Herts.

NEW EARLY MARROW PEAS.

HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

DOUBLE WHITE CAMELLIAS.

TO BE SOLD, 500 fine bushy home grown plants of DOUBLE WHITE CAMELLIAS, with good foliage, and full of healthy flower-buds, at 24*s.*, 27*s.*, and 30*s.* per dozen; a few extra plants at 36*s.* and 42*s.* per dozen.—Apply to W. SANFORD, opposite the "Golden Fleece," Edmonton, Middlesex.

For early sowing, a few packets of Seed saved from the Seedling Calceolarias which received the Prize at the Exhibition at the Crystal Palace at 5*s.* and 10*s.* 6*d.* each.

"AUTUMNAL MARROW SQUASH."

THE Advertiser, who is a Gardener, has brought with him from America seeds of the above fruit, a full account of which is given in the *Chronicle* of last week. He has also three sorts of VEGETABLE MARROW, which will be found an acquisition where this vegetable is much used. Seeds of the whole will be sent on receipt of 30 Postage Stamps, or the SQUASH may be had alone for 13 Stamps.—Direct A. B., 6, Munden Street, Hammersmith, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, January 26, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 5.—1856.] SATURDAY, FEBRUARY 2. { Price Fivepence. Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY.—An Extraordinary Meeting of the British Pomological Society will be held at the Rooms, 20, Bedford Street, Covent Garden, on MONDAY, the 4th of February, at 1 o'clock, to compare and determine the merits and qualities of Fruits, for the election of Members, and for general business.

It is hoped that all who take an interest in the cultivation of FRUITS and FRUIT TREES will forward to the meeting specimens of such varieties as they can obtain, correctly named, and otherwise assist in promoting the objects of the Society.

Persons desirous of becoming Members are requested to make application to the Secretary on or before the day of meeting. Members are elected at all the Meetings of the Society; and 10*s*. entrance fee, with 10*s*. annual subscription, constitute membership.—Robert Hogg, Secretary.

HORTICULTURAL MEETINGS AT THE GARDENS OF THE BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—The Meetings for the approaching season will be held at these Gardens, on THURSDAY, 5th June, and THURSDAY, 28th August, when nearly 400*l*. will be distributed in Prizes.—Schedules of the Prizes may be obtained on application to the Honorary Secretary, Clifton.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

FRASER, RICHARDSON, and GOAD beg respectfully to announce that their Premises are now open, and orders will be thankfully received and promptly executed. Their Catalogues are published, and will be forwarded gratis on application.—82, Bishopsgate Street Within, Feb. 2.

TO THE TRADE.

NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

SEAKALE AND ASPARAGUS PLANTS.—TO THE TRADE.—ONE MILLION *fine strong plants of Seakale and Asparagus are now growing by the undersigned. Wholesale prices on application.*

William E. Rendle & Co., Seed Merchants, Plymouth.

THE READING ONION *is very superior to the sort called White Spanish, which is usually supplied for it.*

Sutton & Sons, Reading, Berks, can supply genuine Seed at moderate price, according to quantity required.

LILIUM GIGANTEUM SEED.

FRANCIS and ARTHUR DICKSON and SONS, Upton Nurseries, Chester, having this last Autumn ripened a considerable quantity of Seed of this noble LILY (the flower stem of which was fully 10 feet high), beg to offer packets containing 50 selected Seeds, at 2*s*. 6*d*. per packet, free by post, on receipt of 30 postage stamps.—Feb. 2.

CHOICE SEEDLING SHRUBBY CALCEOLARIAS.

J. NASH, Coleford, Gloucestershire, offers 30 fine Plants post free for 10*s*., or 4*s*. 6*d*. per dozen.—They will bloom beautifully in May and June, and are warranted to produce first-rate flowers. Fine Verbena Seed 2*s*. 6*d*. per packet.

PESHAWUR MELON SEEDS.—Four Seeds of this the best of INDIAN MELONS for 2*s*. 6*d*.—Address as under, G. M. Elliott, Ripley, Yorkshire.

HOLLYHOCKS! HOLLYHOCKS!

JOHN CHATER and SON have a large stock of the leading sorts of Hollyhocks, in 3½-inch pots, well established. List with price on application. Best mixed Hollyhock Seed, 200, 1*s*. 6*d*.; Improved Sweet William, 600, 1*s*. The trade supplied on liberal terms.—Nursery, Haverhill.

W. H. WHEELER, Florist, Hendon, Middlesex, can still supply Seeds of Victory of Bath Melon, and Wheeler's Improved Sion House (genuine) Cucumber, the best for flavour and early growth, 1*s*. 3*d*. per plant each. A few Cucumber Plants left at 1*s*. each.

TO THE SEED TRADE.

G. TABER, Seed Grower, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,

SUTTON'S AMATEUR'S GUIDE. Published by Longman, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.

Sutton & Sons, Seed Growers and Merchants, Reading.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.

Seed Establishment, 181, High Holborn, London.

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It contains everything which may be desired of the choicest new and other Vegetable and Flower Seeds, superb imported German Seeds, also Lists of splendid Bulbs and Roots for spring planting.

Catalogues for the season complete by the present time for three penny stamps.

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Peter Lawson & Son beg to intimate that their Priced Lists of Seeds, Plants, &c., for the present season are in course of Publication, and will be sent free by Post on application.

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AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Feb. 2.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

FRAME CUCUMBERS.

WOOD and INGRAM offer the following well known kinds at 1*s*. per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
„ White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
Improved Sion House	Manchester Hero
Sir Colin Campbell	Conqueror of the West
	Snow's Horticultural.

Huntingdon Nurseries, February 2.

WILLIAM WOOD and SON are offering SEEDLING FOREST TREES as under. Prices will be furnished on application.

1 year Pinus austriaca.	1 year Thorns.
1 year „ pinaster.	1 year Birch.
2 year Scotch Firs.	1 year Ash.
2 year Hollies.	1 & 2 year Ailanthus.
1 year Alder.	1 year Chinese Arborvitæ, &c.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"CUCURBITA PERENNIS" "ASA GRAY."

SEEDS of this extraordinary New Plant, which is fully described in the *Chronicle* of Dec. 22d, page 836, can be supplied genuine by the Subscriber 5*s*. to 10*s*. per packet. Seeds of Sir Colin Campbell, Sagg's Royal Exhibition, and Lord Kenyon's Favourite, Improved Cucumbers, at 1*s*. per packet.

W. J. Epps, Seed Merchant, Maidstone.

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MARTIN and SON offer the above, quite new and distinct, colour shaded crimson, very large flower, with an immense cream-coloured eye in the way of an Alpine Auricula, an excellent bedding and show variety. Mr. Glenny says it is worthy a place in the best collection; plants in April, 5*s*. each; when six are taken, a liberal allowance made.—Nurseries, Cottingham, Hull Branch Junction Street.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Cobbett's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

NEW PLUMS (DOWLING'S.)

YOUELL and CO. have to offer a fine Stock of the undermentioned new and very superior Plums, viz.:—

ANGELINA BURDETT, strong dwarf trees	2*s*. 0*d*.	each
„ „ „ „ trained	3 6	„
WOOLSTON BLACK GAGE, strong dwarf trees,	2 6	„
„ „ „ „ trained,	5 0	„

Royal Nursery, Great Yarmouth, Norfolk.

CHOICE VEGETABLES WANTED

CUCUMBERS,	ASPARAGUS,
MUSHROOMS,	FRENCH BEANS,

CHOICE FLOWERS, &c.

Forward to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. "Terms—Cash."

WANTED TO PURCHASE, 10,000 Strong ASH, 4 to 5 feet, delivered at any Station of the Great Western Railway.—State price, &c., to Robert J. Darby, Nurseryman, Cirencester.

PINE APPLES WANTED.—Forward immediately to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. "Terms—Cash."

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

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WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

STRONG OAKS.

MESSRS. I. and J. GAITSKELL, Nurserymen and Seedsmen, Whitehaven, have for Sale a fine stock of the above, 1½ to 4 feet high. Prices on application.

TO THE TRADE.

JOHN GRIGOR and CO., Nurseries, Forres, N.B., begs to offer Strong One Year Seedling LARCH, and Two Year Native Scotch PINE, &c. Prices on application.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

TO BE SOLD, Specimen Hybrid RHODODENDRONS, from 4 feet to 12 feet in height; the largest of them have upwards of a hundred flower-buds upon them. To be seen at Gaines's Nursery, Surrey Lane, Battersea.

Lists of Geraniums, Azaleas, Fuchsias, Stove and Greenhouse, &c., can be obtained at the above address.

OSIERS! OSIERS!

TO BE SOLD, from 20,000 to 50,000 Sets of the True ITALIAN OSIER—Apply to Mr. Charles Stubbins, Brigg, Lincolnshire. Allowance made for distant carriage.

TO BE SOLD, several Thousands of the LANCASHIRE LAD GOOSEBERRY TREES (surplus stock), at Warren's Gardens, Isleworth. Price 5*l*. per thousand.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6*s*. per dozen. FLUKE KIDNEY POTATO (true), 3*s*. per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.

Catalogues now ready.

THE FLUKE KIDNEY POTATO (TRUE).

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now enabled to offer the above excellent POTATO, which, having been raised in Middleton, may be depended upon as genuine, and from the original stock. May be had of a medium size for planting, at 3*s*. per bushel of 56 lbs.; 6*l*. per ton.

SEED POTATOES.

WOOD and INGRAM beg to offer the following, warranted true, per bushel:—

Ashleaved Kidney	8*s*.	Martin's Globe	7*s*.
Jackson's do.	8*s*.	British Queen	5*s*.
Golden Dew do.	7*s*.	Lapstone Kidney	5*s*.

Huntingdon Nurseries, February 2.

TRUE LANCASHIRE FLUKE POTATOES may still be had at 4*s*. 9*d*. per bushel of 80 lbs., or 6*l*. 6*s*. per ton, of Thomas Bell, Seedsman, Wigan, Lancashire.

GENUINE FLUKE KIDNEY POTATO.

FRANCIS and ARTHUR DICKSON and CO., Seed Merchants, 14, Corporation Street, Manchester, offer the above very prolific and hardy Potato, carefully picked for sets. Price may be had on application.

POTATOES.—Fluke Kidneys, 3*s*. 6*d*. per bushel of 56 lbs., or 6*l*. per ton; Early Short Top Ashleaf Kidneys (true), 6*s*. per bushel; Early Ashleaf Kidneys (blue) 9*s*. per bushel; sacks 6*d*. All orders to be accompanied by a remittance.

Humphrey Chamberlain, Kempsey, near Worcester.

SEED POTATOES.—Mutches Early is considered the best here for general cropping; it is inferior in quality to no Potato grown the year round; very prolific, 8*s*. per bushel of 70 lbs. Also Lapstone Kidney, Ashtop Kidney, Hopeton's, at 6*s*. per bushel; York Regent, 4*s*.—Martin & Son, Nurseries, Cottingham, Hull Branch Junction Street.

TO GENTLEMEN ENGAGED IN PLANTING.

YOUELL AND CO.

BEG RESPECTFULLY TO INVITE THE ATTENTION OF GENTLEMEN ENGAGED IN PLANTING TO THE FOLLOWING

LIST OF RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS, &c.,

Which they can supply in good healthy well-grown plants. They would also mention the fact that owing to their Nursery being situated on the most eastern point of England, and fully exposed to the cutting north-east wind from the North Sea, the advantage that will be obtained by planting from such a district cannot be otherwise than evident.

CONIFERÆ.

	Each s. d.	per doz s.
Abies Archangelica ...	2 0	20
„ Clanbraziliana ..	5 0	
„ Douglasi, 6 to 9 in.	2 0	20
„ „ 1 foot ...	2 6	24
„ „ 2 feet ...	5 0	48
„ Jesoensis ..	21 0	
„ Menziesi, 1 to 1½ ft.	2 0	20
„ „ 2 to 2½ feet	2 6	25
„ morinda, very hardy and ornamental, 2 years		4
„ „ 9 to 12 inches	1 0	9
„ „ 12 to 18 inches	1 6	12
„ „ 4 to 5 feet ..	3 6	
„ orientalis, strong	2 6	
„ pichta	2 6	
„ pumila (Waterer's var.), very bushy	3 6	30
„ pygmæa, ditto ...	3 6	
„ taxifolia	15 0	
„ Whittmannia, 4 to 6 inches ..	3 6	
Araucaria imbricata—6 to 9 inches	2 0	18
„ „ 9 to 12 inches	2 6	24
„ „ 15 to 18 inches	5 0	42
„ „ 2 to 2½ feet ...	10 6	
„ „ 3 feet ...	21 0	
„ „ fine specimens, 3½ to 4 ft., 42s. to	63 0	
Biota glauca	5 0	
Cedrus Atlantica, 9 to 12 inches ...	2 0	
„ „ 1½ foot ..	2 6	
„ Deodara, 2 to 3 feet	3 6	36
„ „ 4 to 5 feet ...	7 6	72
„ „ 6 feet	21 0	
„ „ 7 feet	31 6	
„ „ robusta, 5s. to	10 6	

	Each s. d.	per doz s.
Cedrus Deo. viridis, 5s. to	10 6	
„ Libani, 2 to 2½ feet	2 6	
„ „ 3 feet	3 6	
„ „ 4 to 5 feet ..	5 0	
Cedar, red, 1yr., 5s. p. 100		
Cephalotaxus Fortuni, male ... 7s. 6d. to	25 0	
„ female . 7s. 6d. to	25 0	
Cryptomeria japonica, 1 foot	1 6	18
„ „ 2 to 3 feet	2 6	24
Cupressus Corneyana, 6 to 9 inches	2 6	
„ elegans, 6 to 9 inches	2 6	
„ „ 2 feet ...	5 0	
„ funebris, 4 to 6 in.	0 9	6
„ „ 1 to 1½ foot	2 0	18
„ „ 1½ to 2 feet	2 6	24
„ Goveniana, 1½ to 2 ft.	2 0	20
„ „ 3 feet...	3 6	
„ Lambertiana, 9-12in	1 6	15
„ „ 2 to 3 feet	3 6	
„ Langoldi	7 6	
„ macrocarpa, 6 to 9in.	1 6	15
„ „ 1½ foot ...	2 6	
„ „ 2 to 3 feet ..	3 6	
„ majestica, 6 to 9 in.	2 6	
„ sempervirens, 1 yr. ex. India, very hardy, 6 inches ...	0 9	6
„ „ 1 to 1½ foot	1 6	12
„ Thujoides var. ...	2 6	
„ torulosa, 9 to 12 in.	0 9	6
„ Uhdeana, 2 to 2½ ft.	2 6	
„ Whitleeana, 2 to 3 ft.	5 0	
Dammara Australis, 2 to 3 feet	5 0	
Dacrydium Franklini, 6 inches	2 0	18

	Each s. d.	per doz s.
Fitzroya Patagonica, nice plants	3 6	
Juniperus Bedfordiana, 9 to 12 inches ...	1 6	12
„ dahurica nana ..	3 6	
„ dealbata	5 0	
„ echiniformis, bushy	3 6	
„ ericoides, 9 inches to 1 foot ...	2 6	
„ excelsa, 6 inches ...	1 6	15
„ „ 1 foot	2 6	24
„ „ 1½ to 2 feet ..	5 0	
„ fastigiata, 4 to 6 in.	2 0	
„ flagelliformis ...	3 6	
„ fragrans	3 6	
„ glauca, 6 to 9 inches	2 6	
„ Hibernica, or Irish, 9 to 12 inches	0 9	6
„ „ 12 to 18 inches	1 0	9
„ „ 2 to 2½ feet ...	1 6	15
„ prostrata, 6 to 9 in.	1 0	9
„ „ 1½ to 2 feet	1 6	15
„ pseudo Sabina ..	3 6	
„ recurva, 1½ to 2 feet	2 6	
„ religiosa	5 0	
„ sabina elegans ...	2 6	
„ „ variegata .	2 0	
„ Scholli	2 6	
„ sinensis, 9 to 12 in.	1 6	
„ „ 2 to 3 feet	3 6	
„ Smithiana, 6 inches	2 6	
„ squamata, 4 inches	1 6	
„ „ 6 to 9 inches	2 6	
„ stricta	3 6	
„ tamariscifolia ...	...	15
„ thurifera, 6 to 9 in.	2 6	
„ Virgin. Red Cedar, 1 year, 4s. per 100		
Larix Griffithi	7 6	

	Each s. d.	per doz s.
Libocedrus chilensis, 4 to 6 inches	2 0	20
„ „ 9 inches ...	3 6	
„ „ 1 foot ...	5 0	
„ Donniana ...	5 0	
Picea amabilis, 6 inches	7 6	
„ Cephalonica, 1 to 1½ ft.	2 6	
„ „ 2 feet...	3 6	
„ Fraseri, 9 to 12 in.	2 6	
„ Hudsoni	7 6	
„ nobilis, grafted, 9 to 12 inches ...	5 0	
„ Nordmaniana, from cuttings, 6 to 9 in.	5 0	
„ „ stout seedlings, 1 ft	31 6	
„ Pindrow, 2 years, 25s. per 100.		
„ „ 9 to 12 inches	1 0	9
„ „ 1 to 1½ feet ..	2 6	
„ Pinsapo, 1 year, 40s. per 100.		
„ „ 6 to 9 inches,	2 6	
„ „ fine specimens, 2½ to 3 feet ...	25 0	
„ „ „ 3½ to 4 feet	31 6	
„ taxifolia, 12 to 15 in.	2 6	
„ Webbiana, true, 1yr.	...	6
„ „ 9 to 12 inches	2 6	
„ „ 1 to 1½ feet .	3 6	
Pinus Abchasica ..	5 0	
„ Australis	...	15
„ Austriaca, 1 to 1½ ft.		
„ „ 6 in., 6s. per 100.	...	6
„ ayachuite, 1½ to 2 ft.	2 6	
„ Benthamiana, 1 ft.	5 0	
„ canariensis, 2 to 2½ ft.	5 0	
„ Cembra, 1 foot ...	6 0	
„ „ 1½ foot ...	9 0	
„ cembroïdes, 1½ foot	3 6	

	Each s. d.	per doz s.
Pinus Edgariana, 2 ft...	10 6	
„ excelsa, 1 year ..		4
„ „ 2 years ...		6
„ „ 9 to 12 inches	1 0	9
„ „ 3 to 4 feet	1 6	12
„ Fremontiana ...	21 0	
„ Hamiltoniana, 1 to 1½ foot	3 6	
„ Gerardiana, very hardy, not injured by the late winter, 1 to 1½ ft, 75s. p. 100	1 6	12
„ insignis, 4 to 6 in...	2 0	
„ „ 1 foot ...	3 6	
„ „ 1½ foot ...	5 0	
„ „ 2 to 2½ feet	7 6	
„ Jeffryana	10 6	
„ „ 1 yr. seedlings		42
„ Lambertiana, 1½ ft.	5 0	
„ „ 1 yr. seedlings		42
„ longifolia	3 6	
„ maritima, in pots, 1 to 1½ foot ...	...	9
„ „ 6-inch, 8s. per 100		
„ Massoni, 2 years ...	5 0	
„ Montezumæ, 1½ ft.	15 0	
„ Monticola, 2 years .	5 0	
„ „ 4 inches	7 6	
„ muricata, 15 inches	7 6	
„ ponderosa, 4 to 6 in.	5 0	
„ „ 2 feet...	21 0	
„ pyrenaica, 1 year...		4
„ „ 2 feet ...	3 6	
„ radiata, 9 to 12 in.	7 6	
„ Sabiniana, from seed, 4 to 6 inches	3 6	
„ „ 6 to 9 inches	5 0	
„ taurica	...	9
„ Teocote, 1 foot ...	3 6	

	Each s. d.	per doz s.
Pinus tuberculata, 1 yr.	3 6	36
„ Uncinata	...	9
Podocarpus totara, 1 to 1½ feet	2 6	
Saxe-Gothœa conspicua	3 6	
Taxus (Yew) adpressa, 6 to 9 inches	1 6	12
„ „ 9 to 12 inches	2 0	
„ baccata (com. Yew) 6 to 9 inches	...	4
„ „ 1 to 1½ ft., 30s p. 100		
„ „ 2 to 2½ ft., 50s. p. 100		9
„ Dovastoni, 6 to 9 in.	1 0	9
„ „ 1½ to 2 feet	2 0	
„ elegantissima, 6-9in	1 6	
„ „ 1 foot ...	2 6	
„ „ 1½ to 2 feet	5 0	
„ fastigiata (the Irish Yew), 9 to 12 in.	...	6
„ „ 1½ to 2 feet...	1 0	9
„ „ 2 to 3 feet ...	1 6	15
„ „ 4 to 5 feet ...	2 6	
„ gold striped, 6 to 9in.	1 6	
„ „ 1 foot .	2 6	
„ Harringtoni, 1 foot	3 6	
„ japonica	3 6	
„ pyramidalis, 9-12in.	...	9
„ silver striped ...	5 0	
Taxodium sempervirens	2 6	
Thuja aurea, 6 inches	1 6	12
„ „ 9 inches	2 0	
„ „ 15 inches	5 0	
„ „ 1½ foot .	7 6	
„ flagelliformis ...	3 6	
„ gigantea, 10s. 6d. to	15 0	
„ pendula, 2 feet ...	5 0	
„ sinensis, 1 year, 5s. per 100	...	9

HARDY ORNAMENTAL SHRUBS AND CLIMBERS.

	each s. d.	per doz s.	per 100 s.
Alaternus, silver striped ...	1 6		
Althæa frutex, in 6 sorts ...		9	
Arbutus Andrachne ...	3 6		
„ crispa	3 6		
„ futinifolia	3 6		
„ hybrida	2 6		
„ integrifolia ...	3 6		
„ Milleri	3 6		
„ Unedo, 6 to 9 in. ...		5	
„ „ 1½ to 2 ft. ...		9	
„ „ 2 to 3 ft. ...		12	
Aucuba japonica		6	35
„ „ 6 to 9 inch			14
Azalea pontica, 1 foot ...		6	
Bays, sweet		4	25
Bignonia radicans superba	1 6		
„ major	1 6		
Berberis Aquifolium, 1½ ft.		3	25
„ „ 6 inch ...			4
„ cuneata	2 6		
„ Darwini, good pts.	1 6	12	
„ „ smaller do.	1 0	9	
„ dealbata... ...			
„ dulcis, strong 3 ft.		6	
„ Fortuni	1 6	12	
„ Nepalensis ...	7 6		
„ tenuifolia ...	3 6		
„ trifoliata	3 6		
Buxus (Box) balearicus, 1 to 1½ feet		9	
„ the Tree, 1½ to 2 ft.		4	
Calycanthus macrophyllus	3 6		25
Caprifolium Nepaulense ..	2 6		
Catalpa syringœtolia, 3 to 4 f.		6	
Ceanothus azureus... ...	1 6		
„ dentatus	1 6		
„ divaricatus ..	1 0		
„ integerrimus ...	3 6		
„ papillosus ..	1 6		
„ rigidus	1 6		
Cerasus ilicifolia	2 6		
Chimonanthus fragrans ...	1 6		
Cistus ladanifera (Gum Cistus	1 0	9	
Clematis azurea grandiflora	1 6		
„ Florida	1 0		
„ Helena	5 0		
„ Hendersoni ...	1 6		
„ flammula, strong	1 0		
„ monstrosa ...	5 0		
„ Montana, strong	1 6		

	each s. d.	per doz s.	per 100 s.
Clematis nova species, yell.	2 6		
„ Sieboldi	1 6		
„ tubulosa	0 9		
Clianthus magnificus ...	2 6		
„ puniceus ...	1 6		
Cotoneaster microphylla .	1 0	9	
Cratægus (Thorn), standards, dbl. pink, scarlet, and rigidus	1 6		
„ crenata	2 6		
Daphne collina	1 6		
„ latifolia	2 6		
„ Delahayana ...	2 6		
„ Fioniana	2 0		
Deutzia crenata	1 6		
„ gracilis, strong ...	1 0	9	
„ Heyeri	2 0		
„ scabra	0 9		
„ staminea	1 6		
Empetrum nigrum	1 6		
Erica arborea	0 9		
„ Allporti	1 0		
„ codonoides	1 0		
„ ciliaris	0 9		
„ cinerea purpurea ...	0 9	6	
„ herbacea	0 9		
„ Mediterranea... ...	0 9		
„ tetralix alba	0 9		
„ vagans	0 9		
„ „ rubra	0 9		
„ vulgaris alba	0 9	6	
Escallonia macrantha ...	1 0	9	
„ Monte Videnses ...	1 0		
„ organensis	1 6		
„ pterocladon	2 6		
Euonymus Jap. var., 9 to 12 inches			9
Eugenia Ugni	2 6		
Fabiana imbricata	1 0	9	
„ violacea	2 6		
Forsythia Viridissima, 2 to 3 ft.	1 0		
„ „ 3 to 4 feet	1 6		
Garrya elliptica	1 6		
Genista tinctoria plena ...	0 6		
Gynerium argenteum (Pampas Grass	2 6	24	
Hedera (Ivy) Regneriana...	1 0		
„ palmata	0 9	6	
„ the Irish	0 9	6	
„ variegated silver ...	1 6		

	each s. d.	per doz s.	per 100 s.
Hydrangea hortensis, fl. pl.	10 6		
„ japonica... ..	1 6		
Ilex (Holly) aquifolia, common evergreen, 2 to 2½ ft.		6	30
„ „ standard weeping	3 6		
„ „ variegated, 1½ to 2ft.		9	
„ Castaneæfolia ..	2 6		
„ cornuta...	5 0		
„ diapyrena	3 6		
„ furcata...	5 0		
„ heterophylla	1 6		
„ latifolia, 1 foot ...	1 6		
„ „ 2 to 3 feet ...	3 6		
„ „ 3 to 4 feet ...	5 0		
„ latispina	2 6		
„ laurifolia	1 6		
„ Maderensis, fine ...	1 6	12	
„ microcarpa ... 5s. to	10 6		
„ minorca		9	
„ myrtifolia		12	
„ monstrosa	2 6		
„ nobilis	1 6		
„ opaca		18	
„ recurva	1 6		
Ilax Sheppardi, fine ...	1 6	12	
„ Tarago...	5 0		
Jasminum fruticosum ...		9	
„ nudiflorum ...	1 0		
„ Ochroleucum ...	1 6		
„ officinale	1 0	9	
„ „ grandiflorum	1 6		
„ revolutum ..	1 6		
„ Wallichianum ...	1 6		
Kalmia latifolia		9	
Lardizabala biternata ...	3 6		
Laurus Cerasus, common evergreen, 2 to 2½ ft.		4	2
„ „ 2½ to 3 ft.		6	30
„ Portugal, do., 2-2½		6	40
„ „ 2½ to 3 ft.		9	60
„ regalis	3 6		
Leycesteria formosa ...		9	
*Ligustrum Japonicum, true	1 6	12	
„ lucidum	1 0	9	
„ ovalifolium ...	1 6		
Liriodendron tulipferum (Tulip tree)	1 0		
Lonicera (the Honeysuckle)			
„ brachypoda ...	1 6		
„ early red ...	0 9	6	

	each s. d.	per doz s.	per 100 s.
Lonicera white	0 9	6	
„ flexuosa	1 0		
„ floribunda ...	1 0		
„ late red	0 9	6	
„ scarlet trumpet...	1 6		
Maclura aurantica, 1 year from seed			20
Magnolia purpurea... ...		9	
Menziesia polifolia alba ...		9	
„ „ stricta ...	2 6		
Neillia thyrsiflora	1 6		
Pæonia Moutan, tree Pæony	2 6		
„ papaveracea ...	2 6		
Passiflora cerulea	6 0		
Paulownia imperialis ...	1 6		
Periploca græca		9	
Pernettya ciliaris	2 6		
„ angustifolia ...	1 6		
„ phillyræfolia ...	1 6		
„ speciosa	1 6		
Peumus fragrans, small ...	3 6		
Philesia buxifolia	10 6		
Philadelphus Gordonianus	1 0		
„ Mexicanus ..	1 0	9	
„ Sp. California	1 6		
Piptanthus Nepalensis ...	1 6		
Pyracantha, red berried ...	1 0		
„ crenulata... ...	2 0		
Pyrus Japonica	1 0		
Quercus agrifolia ... 5s. to	7 6		
„ Ballota...	3 6		
„ Black Oak, new ..	31 6		
„ Confertifolia	2 6		
„ Fordi, 12 to 18 inch ...	1 6		
„ „ 2 to 3 feet ...	3 6		
„ „ 3 to 4 ft. fine 5s. to	7 6		
„ glabra	3 6		
„ Ilex (com. evergreen)			
„ „ 1½ to 2 feet ..		9	
„ „ 2 to 3 feet ...		12	
„ „ 3 to 4 feet ..		18	
„ „ Humei	2 6		
„ „ variegata ...	3 6		
„ inversa...	10 6		
„ lanata	3 6		
„ Lucombiana, or evergreen Lucombe, 2 to 3 ft.		18	
„ „ 3 to 4 feet ...		24	
„ „ 4 to 5 feet ...		30	
„ rotundifolia	2 6		

	each s. d.	per doz s.	per 100 s.
Quercus Sclerophylla ...	10 6		
„ Sempervirens grandifl.	3 6		
„ Striped Turkey ...	3 6		
Rhododendron altaclerense	3 6		
„ barbatum	5 0		
„ Falconeri	5 0		
„ fastuosum plenum ...	3 6		
„ hirsutum			9
„ ignescens	3 6		
„ lancifolium	5 0		
„ nobleanum	2 6		
„ Queen (Jackson) ...	3 6		
„ robustum	5 0		
„ Russellianum... ...	2 6		
„ Smithi tigrinum ..	3 6		
„ Thompsoni	5 0		
„ fine Sikkim varieties .			60
Ribes albidum			6
„ aureum			6
„ sanguineum			4
„ „ flore pleno..			9
Roses, climbing			4
„ Williams' Evergreen	2 6		
Salisburia adiantifolia ..	1 6		
Skimmia japonica	10 6		
Solanum crispum	1 6		
„ jasminoides	1 6		
Sphærostemma grandiflora	5 0		
Spiræa callosa	1 6		
„ ariæfolia	1 0		
„ Douglassi	1 0		
„ prunifolia fl. pleno ...	1 0		
„ pubescens	1 6		
„ Reevesi	1 0		
„ Reevesi flore pleno ..	3 6		
Stauntonia latifolia ...	2 6		
Ulex (the Furze) double ..			6
Viburnum Dauricum ...			
„ grandiflorum	3 6		
„ macrocephalum ...	10 6		
„ species India			
„ suspensum	3 6		
Virginian Creeper ..	0 9		
Wistaria sinensis 1s. 6d. to	2 6		
„ alba	7 6		
Weigela amabilis	1 6		
„ rosea	1 0		
Yucca californica	10 6		
„ gloriosa superba, 2s. 6d.	5 0		
„ recurva ... 2s. 6d.	5 0		

COMMUNICATIONS BY STEAMER AND RAILWAY TO ALL PARTS OF ENGLAND, IRELAND, & SCOTLAND, AS WELL AS TO THE CONTINENT.

All Orders of 2l. and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

NEW CELERY—COLE'S DEFIANCE RED.

WILLIAM COLE, NURSERYMAN, SEEDSMAN, AND FLORIST, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a great improvement on his well known Celery, "Cole's Dwarf Solid Red," being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, free by post, 2*s.* each. A liberal allowance to the trade.

W. C. can also supply seed of his well known "Cole's Crystal White Celery," and "Dwarf Solid Red," true, in ½ oz. packets, free by post, 6*d.* each.

WILLIAM COLE takes this opportunity of intimating to his friends and the public that the business hitherto carried on under the firm of "Thorneley, Cole, & Co." will in future be carried on by himself as above, and respectfully solicits a share of their patronage and support. He would also invite attention to his extensive stock of Hardy Trees, Shrubs, Fruit Trees, Roses, Stove and Greenhouse Plants, Florists' Flowers, and Soft-wooded Plants of every description, Catalogues of which may be had post free on application.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).
Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.
Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s.* 6*d.* to 21*s.*
Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).
Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.
Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.
Libocedrus gigantea, 10*s.* 6*d.*; about 2 feet, 31*s.* 6*d.*
Pinus Cembra, 3 to 4 feet, 5*s.*
" Douglasi, 3 to 4 feet, 3*l.* 3*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*
" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).
" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.
Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.
Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to
Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*
Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.
Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.

Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l.* per 1000.
" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.
" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.
" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.
" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.
Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s.*, to 24*s.* per dozen.
Hardy Heaths, superior collection, 35*s.* per 100.
Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. WATERER feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

UNEQUALLED NEW MELONS.

THE FOUR BEST SUPERB VARIETIES THAT HAVE EVER YET BEEN SENT OUT.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2*s.* 6*d.*

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon; it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit; flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2*s.* 6*d.*

Also Monro's Crystal Palace Hero. This was awarded the first prize for the best and heaviest hybrid Persian Melon; 2*s.* 6*d.* per packet.

Monro's Golden Gauge Melon was awarded the first prize for the best flavoured Green Flesh variety at the Crystal Palace; 2*s.* 6*d.* per packet.

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each of the four varieties will be charged 7*s.* 6*d.*, or two packets of either kind for 4*s.* A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

CHOICE PLANTS, ETC.

YOUELL AND Co., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants in large and small 48 sized pots, at 12*s.* and 15*s.* per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, ignescens, Lateritia grandiflora, Conqueror, Emily, Decora, Rosea punctata, carminata.
CAMELLIAS, in choice new kinds, without bud, 21*s.* per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per doz.; smaller ditto, 9*s.*
ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen. A list of these will be found in our advertisement of Dec. 1.
GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*
EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.
STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen.
CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.
PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.
PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 3*s.* 6*d.* each.
PANSIES, a fine collection of all the new and first-rate flowers, 9*s.* per dozen.
DEUTZIA GRACILIS, fine strong plants for forcing, 9*s.* per doz.
LILY OF THE VALLEY, strong for forcing, 5*s.* per 100.
PÆONIES, a choice collection of 20 new varieties for 20*s.*
ROCKETS, double crimson (strong), 9*s.* per dozen; the old double pure white ditto, 3*s.* per dozen.
HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds including those adapted for rock work, 6*s.* per dozen; 30*s.* per 100.

CHOICE FRUITS, WARRANTED TRUE TO NAME.

APPLES,	Standard,	in best selection,	good heads,	9*s.*	per dozen.
"	Dwarf	ditto	ditto	6*s.*	"
"	Trained	ditto	ditto	30*s.*	"
PEARS,	Standard	ditto	ditto	12*s.*	"
"	Dwarf	ditto	ditto	8*s.*	"
"	Trained	ditto	ditto	30*s.*	"
PLUMS,	Dwarf	ditto	ditto	9*s.*	"
"	Trained	ditto	ditto	36*s.*	"
PEACHES,	dwarf trained,	in fine strong plants,		36*s.* to 60*s.*	"
NECTARINES,	Dwarf trained		ditto	36*s.* to 60*s.*	"
APRICOTS,		ditto	ditto	36*s.* to 60*s.*	"
CHERRIES,	standard,	in fine variety,	ditto	12*s.*	"
"	dwarf	ditto	ditto	9*s.*	"
"	trained	ditto	ditto	36*s.* to 42*s.*	"

GOOSEBERRIES, 25 of the finest varieties by name (good bushes) selected for size and flavour, 30*s.* per 100; 4*s.* per doz.
CURRANTS, improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4*s.* per dozen; Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6*s.* per dozen: these are the most desirable kinds in cultivation, and are highly recommended.
RASPBERRY FASTOLFF (TRUE), strong well-rooted canes, 15*s.* per 100; Large White Raspberry, 24*s.* per 100; New Monthly Fruiting, 20*s.* per 100; Belle de Fontenay, 6*s.* per doz.

ASPARAGUS, Giant, 2 years	2*s.* 6*d.*	per 100
" " 3 years	3 6	"
" " extra strong, for forcing	5 0	"
RHUBARB, Myatt's Victoria	8 0	per doz.
" " Linnæus	8 0	"
" Mitchell's Royal Albert	8 0	"
" Hawke's Champagne, new & fine, 2*s.* each	18 0	"
SEAKALE, strong, 2 years	6 0	per 100
" extra for forcing	10 0	"

All Orders of 2*l.* and upwards are delivered Carriage free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

NEW AND CHOICE SEEDS.

FREE BY POST OR CARRIAGE PAID.

	Per packet—*s.*	*d.*
Cauliflower, Lenormand's extra large Paris, very fine	2	0
Carrot, Early Scarl. Horn, best for forcing imported, of the same kind as are imported to the London markets ... per oz.	1	0
Snake Cucumber, per pkt.	0	6
Abronia umbellata ...	0	6
Ageratum conspicuum, new	1	0
Alonsoa Warczewiczi, new	1	0
Arctotis breviscapa ...	0	6
Browallia demissa ...	0	6
" abbreviata, new, 12 seeds	1	6
" elata	0	6
Calendrinia umbellata ...	0	6
Calyxhemenia chilensis, new	0	6
Cannabis gigantea (Giant Hemp for lawns) ...	0	6
Campanula stricta ...	0	6
Centaurea cyanus, double new, blue striped ...	0	6
Centauridium Drummondi, new	0	6
Centranthus macrosiphon albus, new	1	0
Cineraria, from fine named sorts	1	0
Clintonia pulchella ...	0	6
Cockscomb, Giant-headed, new, brill. crimson red	1	0
Collinsia bicolor alba, new	1	0
Convolvulus minor, double	0	6
Dianthus imperialis, extra fine double, from scarlet to white	0	6
Egg-plant, new striped ...	0	6
Eschscholtzia tenuifolia, new	0	6
Euchnide bartonioides ...	0	6
Eutoca viscida alba, new, 25 seeds	1	0
Grammanthes gentianoides	0	6
Gomphrena Haageana, new beautiful orange Compositæ	0	6
Gutierrezia gymnospermoides, new	1	0
Gypsophila muralis, red, very pretty for rockwork or edging...	0	6
Helianthus argophyllus ...	0	6
" Californicus, fl. pl., splendid dble. Sunflower, orange ...	0	6
Helichrysum brachyrhinchum	0	6
" compm. maximum, double everlasting flower, white to orange red	0	6
Ipomœa limbata, violet blue bordered white, 12 seeds	1	0
" rubro-cœrulea, light blue changing to crimson, 4 seeds ...	1	0
Lamarckia aurea (Ornamental Grass)	0	6
Leptosiphon aureus, new golden yellow	1	0
" luteus, bright yellow	0	6
Linum decumbens, blue ...	0	6
" grandiflorum rubrum, splendid vermilion crimson	1	0
Lisianthus Russellianus, 100 seeds...	1	0
Lobelia ramosa, new dwarf	1	0
Mimulus, from the finest named Scarborough vars.	1	0
Nemesia compacta elegans, new	1	0
Nepeta Meyeri, new ...	0	6
Nyctarinia capensis, new	0	6
Palafoxia texana, new ...	0	6
Perilla nankinensis, ornamental purple leaves ...	0	6
Phlox Drum. Leopoldi ...	0	6
" " oculata, white with crimson eye	1	0
Physostegia speciosa, new	1	0
Podolepis auriculatus, new	0	6
Portulaca, mixed	0	6
Sabbatia campestris, new splendid, pink with yellow centre, 100 seeds ...	1	6
Schizopetalum Walkeri...	0	6
Silene Bergeri, new ...	1	0

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, and Zinnias, from 2*s.* 6*d.* to 7*s.* each. A general List of Seeds may be obtained free on application. A General Catalogue of Plants (priced) ditto. Post Office Orders are requested to be made payable at Kingston-on-Thames. Small amounts may be remitted in postage stamps.

THOMAS JACKSON & SON, Kingston-on-Thames.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S COLLECTIONS OF GARDEN SEEDS,

THE BEST YET OFFERED.

KITCHEN GARDEN SEEDS.

		£	*s.*	*d.*
No. 1.	A complete Collection for one year's supply of a large Garden	3	0	0
No. 2.	A complete Collection, in smaller quantities ...	2	0	0
No. 3.	Ditto ditto ditto ...	1	10	0
No. 4.	Ditto ditto ditto ...	1	0	0
No. 5.	Ditto ditto ditto ...	0	15	0
No. 6.	Ditto ditto ditto ...	0	10	6

A List of the sorts and quantities contained in each Collection will be sent Post Free in return for one postage stamp; and if some of the sorts are already possessed, increased quantities of others will be given in lieu of those to be omitted.

HARDY AND SHOWY FLOWER SEEDS (POST FREE),
Which may be sown where they are intended to bloom.

A Collection of the best 100 sorts known...	£1	1	0
A Collection of the best 50 sorts known	0	10	6
A Collection of the best 36 sorts known	0	7	6
A Collection of the best 24 sorts known	0	5	0

BOKHARA CLOVER, BORAGE, AND OTHER SEEDS FOR BEES.

Carriage Free by Rail to almost all parts of the Kingdom.

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

IMPORTANT TO PURCHASERS OF SEEDS.

JAMES CHARTRES AND CO. beg to announce that their unrivalled Stock of SEEDS is now arranged, which contains every novelty of the season; they are now prepared to supply their collections of Seeds, which for many years past have given universal satisfaction:—

No. 1.	Choice collection of Kitchen Garden Seeds... ...	£2	10*s.*
" 2.	" " one half of the above	1	5
" 3.	" " a smaller selection	0	15
" 4.	" " " ...	0	10

Contents of No. 1 collection:—16 quarts of Peas, 12 best sorts; 2 quarts Improved Windsor Beans, 2 quarts Wonder Longpod ditto; 2 quarts French Beans, four sorts; 1 quart Scarlet Runners; 1 oz. Dwarf Blood Red Beet; 1 oz. Borecole, fine curled; 1 oz. Brussels Sprouts (imported); 4 ozs. Brocoli, 8 sorts; 6 ozs. Cabbage, 6 sorts; 12 ozs. Carrots, 3 sorts; 2 ozs. Celery, 2 sorts; 1 quart Mustard; 1 quart Cress; 1 pint Curled do.; 3 packets Frame Cucumbers; 1 packet Fine Ridge Cucumber; 3 packets Melons; 1 oz. Green Curled Endive; ½ oz. Batavian Endive; 1 oz. Savoy; 1 oz. Musselburgh Leek; 2 ozs. Lettuce, 4 sorts; 12 ozs. Onion, 4 sorts; 2 ozs. Parsnip; 2 ozs. Parsley, finest curled; 1 pint Radish, 3 sorts; 1 quart Round Spinach, 1 quart prickly do.; 12 ozs. Turnip, 4 sorts; Vegetable Marrow; Chardoon; 8 papers Sweet and Pot Herbs; Corn Salad; 1 oz. Scorzonera; 1 Salsafy; Love Apple. Bag included.

A Descriptive Priced Catalogue may be had on application.
Seed Warehouse, 74, King William Street, City, London.

CEDRUS DEODARA.

YOUELL AND Co. beg to offer fine healthy well grown Plants of the above, admirably adapted for Cemetery planting, &c., at the following prices, viz.:—Fine handsome well furnished Plants, 2 to 3 feet, 3*s.* 6*d.* each, 36*s.* per dozen: ditto, 4 to 5 feet, 7*s.* 6*d.* each, 72*s.* per dozen. The above were all transplanted last season, and will remove with perfect safety.

Their CATALOGUE of Rare and Hardy Conifers and other Ornamental Hardy Evergreen and Flowering Shrubs, may be had on application. Railway Carriage and Freight by Steamers very reasonable.—Royal Nursery, Great Yarmouth, Norfolk.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 2, 1856.

THE daily papers contain, as usual, distressing accounts of a sad accident caused by IGNORANCE OF COMMON THINGS. It is the old story over again. One plant is mistaken for another; a poison is cooked for dinner, and the partakers perish. There is never a year in which such cases are not recorded. The crop is as annual as harvest or haysel.

It appears that the Provost of Dingwall having invited some friends to dinner, the cook sent a rustic to fetch Horseradish from the garden. The man dug up Monkshood, a deadly poison; the cook not knowing the difference between Monkshood and Horseradish, scraped the former, sent it to table, and poisoned the guests, three of whom died in an hour or two.

This comes of people being barbarously instructed. We talk of the education bestowed upon the poor; the Scotch more especially are proud of what they do in this direction; and yet, in the county of Ross, in the midst of much real intelligence, it has never occurred to anybody that servants want to know something beyond reading, writing, and cyphering. Surely it is quite as useful for a boy or girl to be taught how to avoid poisoning either their masters or themselves, as to know how to write a letter.

We are no advocates for over-education; we should never propose to teach a ploughman to be a botanist, or a servant girl to be a poetess. But neither can we approve of under-education. The first branch of knowledge which the lower orders require is the use of the common things which surround them; that is of more importance to them than even reading and writing, and if it were impossible to teach the two last we would be satisfied with the first. All three however go well together. We would have lessons in natural history in every parish school in the country. The children should be taught a few simple truths, and no more; but then they should be taught well. Among such subjects, of course, the uses of common plants, and the art of knowing one from the other would find a place. The rural clergy would surely be able to direct such studies as these; although they might be more than the village schoolmaster could grasp at first. In the reform of the studies of the Universities this ought to be insisted upon. No one should be allowed to take orders unless he could pass a good

examination in so simple a matter as the differences between common plants, the properties they possess, and the purposes for which their parts are provided by nature. Were this required, with the addition of a little medicine, surgery, and chemistry, and some small acquaintance with other branches of natural history, we should hear no more of such terrible accidents as that now recorded. Such subjects would to many men be far more agreeable than some of the usual studies which, however ornamental, are worthless for the purposes of active life; and we doubt not would be eagerly pursued by the rising generation, which already holds in scanty reverence the attainments insisted upon by an age having little in common with our own.

But to induce the students of our Universities to occupy themselves with the physical sciences, something more is required than a reluctant acquiescence in popular demands or a faint approval. Substantial advantages must be offered by way of encouragement, such as throwing open Fellowships and assigning a certain number of them to those branches of learning which may have been introduced into the curricula of study. Unless some endowments are applied to the encouragement of physical science, we do not see that much is likely to be gained by making its study permissive, as it is at present.

Let us hope that this point will be well considered by the Oxford Commissioners; for if the Fellowships are not thrown open, it is to be feared that what may be given to the sciences will be lost to classical literature, a result which those who are most anxious for the spread of physical science would regard as unfortunate. The Commissioners have it in their power to advance the progress of modern literature and modern science without at all discouraging the ancient studies of the University, and thus to confer the most important benefit both upon Oxford and upon the cause of education in general. The opportunity may never again occur, and certainly, if neglected by the Commissioners, cannot at any future time be seized upon by the actual members of the colleges, fettered as they all are by the obligations they have contracted to adhere to the statutes of the founders.

We cannot doubt that the academical body of Oxford, although it must not originate, would acquiesce in such arrangements as are hinted at. We have seen lately how the chair of Chemistry was resigned by Dr. Daubeney, who doubtless believed that the University was in earnest in its endeavours to render physical science an integral part of its system of study. That being so it would have scarcely become any one to continue to teach two important branches. We have therefore a right to assume from this circumstance that the general body would not murmur at any enactments which are palpably necessary to give a reality and life to its own recent regulations. It is obvious, indeed, that so long as empty honour alone is to be gained by cultivating science, while a provision for life may be secured by clinging to the classics, the former can never have fair play in the University against the latter.

Unless we are misinformed, one of the colleges at Oxford (Magdalen) has already of its own accord rendered the elections to fellowships and scholarships purely dependent on attainments, restored the college lectureships, thus providing instructors in physical science, and founded exhibitions for the encouragement of the student in the purer branches of education. But this is little, we imagine, to what might be done, if old statutes did not stand in the way; and the public naturally looks to the Commissioners, who are not shackled like the colleges themselves, to complete the work which has been commenced.

Last Tuesday the Herbaria belonging to the Horticultural Society were brought to the hammer. They consisted of various collections formed by the travellers who have been from time to time employed by the Society to procure seeds and plants in foreign countries. The Horticultural Society, not being incorporated for botanical investigation, caused these herbaria to be formed in order that its officers might be able to ascertain the names and value of the seeds which were sent home by its collectors. That purpose served they became mere records of past discovery, of very great botanical interest but with no further bearing upon the objects of their owners. It was, in fact, in great museums only that they could be studied with advantage and convenience. In such places they would possess the immense advantage of being the identical plants published by various botanists during the last 30 or 40 years. Out of the materials here to be found was drawn much of the information upon which the authors of the *Flora Boreali-Americana*, the *Niger Flora*, the *Botany of Beechey's Voyage*, the *Botanical Register*, and of numerous minor works relied for the facts they made known or the conclusions which they drew. Nor perhaps can be found anywhere more complete information concerning the plants of Oregon, California, some provinces of Mexico, Guatemala, Chile, Ceylon, St. Helena, Penang, and the British possessions on the west coast of Africa. So that no one was surprised to find extraordinary interest taken in the sale both by continental as well as resident botanists.

The first lot which excited much competition was No. 7, Douglas's collections, formed in North-west America and California. These were fastened on fine paper the size of that used at the British Museum, and amounted to somewhere about 500 species; bought by the British Museum for 32*l.* Hartweg's collections in California and Mexico, a very complete set, produced 20*l.* 10*s.*; they are understood to have been purchased for Professor Agardh; as these plants already existed in all the large Herbaria of this country, their transfer to Sweden is a scientific advantage. Macrae's collection in the Sandwich Islands was bought by the British Museum for 9*l.* The same collector's Chilian set was knocked down to Dr. Planchon for 9*l.*, as also were Griffith's Bootan (11*l.* 10*s.*), Fortune's Chinese (9*l.* 5*s.*), Forbes's Delagoa plants (9*l.*), and a large lot from Prince of Wales's Island (25*l.*); these were purchased in part for Baron De Lessert, and in part for the Museum of Natural History at Paris. The following were obtained by the British Museum, viz., Macrae's Ceylon collection (21*l.*), and George Don's ill-dried specimens from the West Coast of Africa (12*l.* 10*s.*). The whole collection realised rather more than 250*l.*

New Plants.

162. Oncidium microchilum, *Bateman, in Bot. Reg.* 1843, *t.* 23. *Lindley, Folia Orchidacea* (Oncidium) *p.* 8, *No.* 21.

We seldom see this fine species, although it is easy to grow and its appearance is very striking, notwithstanding the absence of gaudy colours. From a tuft of thin broad leaves, not unlike those of *Odontoglossum grande*, rises a long branching flower stem covered with a singularly glaucous bloom; on this appear in long succession laterals bearing 9 or 10 closely packed fleshy fragrant flowers which have the merit of remaining for a long time in perfection and are about an inch and half across. In cultivation their sepals are olive green, with

a pale brown middle and many spots of a similar tint; the petals are brighter purple with a clear yellowish green border; the lip which is ivory white with some yellow and crimson near the centre is much smaller than the other parts, 3 lobed, and about twice as broad as long. But all these colours are much deeper and brighter in its native country. In the wings of the column is to be found a portion of the evidence which seems to show that these organs are abortive stamens; for we usually find at their tip a well marked gland which it is scarcely possible to doubt is a rudimentary anther.

We owe the introduction of the species to Mr. Skinner, who found it in Guatemala growing on a bare rock into the interstices of which its roots had penetrated. There it flourished in the full sunshine, having no more shade than was afforded by a neighbouring ledge of rock for an hour or two in the day; and when it was afterwards met with in other localities it still basked in the sunshine of those tropical regions. It probably experienced, as a general rule, at least 70° of temperature, alleviated, however, by nocturnal radiation.

THE PÆONY.

There is such a charm about spring flowers that we hail the Christmas Rose and the Snowdrop with gladness, promising, as they do, a harvest of flowers forthcoming of which they, pale and lowly, are the first fruits. When the storm has cut off the autumn blooms, such as those of the Dahlia, the Hollyhock, and the Chrysanthemum, the very shortest days seem long, and the winter tedious, till the season returns for buds to open and rosy petals to unfold. The Dahlia and the Chrysanthemum have lengthened our days of bloom in the handsomest manner possible as far as the autumn is concerned, and this being now a feat accomplished it behoves us to try our skill at the beginning of summer, and see if we can lengthen the flowering season a little in that direction.

The Pæony surpasseth the Dahlia and the Hollyhock in the gaudy splendour of its flowers, and coming as it does in the changeful days of April, and continuing through May and even into June, we gain a month or more upon our chief flowering plants, for the species and varieties of Pæony are now hybridised and got into such good working order as to give gigantic flowers of the most delicate shades of colour long before the Roses have been able to show a bloom, and where as far as blaze of flowers is concerned winter still reigns, unless in the few favoured spots where peat abounds and Rhododendrons bloom to herald the advent of summer.

Tall-growing flowers would not be suitable for spring work, since our climate at that season is generally interlarded with storms; but who does not recollect with delight those sharp and bracing days of blue sky and bright sunshine, when shadows steal over hill and dale with giant strides cast down from clouds driving aloft laden with the stray baggage of the retiring winter! It is to gladden the garden at this time that something showy is particularly wanted, something that will grow in any garden without heat. The Pæony is not now the coarse single-petalled flower that it formerly was, but double as the Ranunculus, to which family it belongs, and some of the species at least are fragrant as the Rose.

When we look at the tiny button of the beautiful Ranunculus, we feel sorry that it is not taller than it is, but here we have one of the family with flowers as large as wool mops and mounted on stems 4 feet high, garnished with shining foliage of the most picturesque character. I do not allude to the shrubby Moutan and its varieties, but to the herbaceous kinds which run up to 3 feet or more in a few weeks from shoots about as long as one's finger.

It is frequently complained of, and that not without good grounds, that persons purchasing costly plants find that after a long time and very long bills they have after all little left for their pains. It is not so with the collector of the species and varieties of Pæony, for although it takes some years to get the specimens large, when they are so it is for a lifetime. I recollect an herbaceous Pæony in my father's garden jammed into a Gooseberry bush that supported its slender flowering shoots; how long this had been established before I was born I never inquired, but I know it to flower annually for 20 years.

No one ever seems to think of potting a Pæony in this country, although no plant could be better suited for exhibition either at home or at public shows, and yet it is a notorious fact that the Chinese have been driving a trade in Pæony plants for forcing for ages past, carrying them to market sometimes a thousand miles, with little or no earth about them, much after the fashion of our Hyacinth bulb growers in Holland. The lovers of bright flowers at Canton and Shanghae are annually replenished with dry roots of Moutans from the provinces of Central China, where we are told this plant is indigenous on the mountains.

The Tree Pæony has engraved on its physiognomy a high and dry place, whereas the herbaceous Pæonies are from their very nature and appearance equally the children of the swamp, for their deep fleshy roots forbid the idea of their inhabiting either dry or stony ground; they are not only natives of this country, but of the swamps of Siberia, the gulleys and flats among the hills in Switzerland, along with heaps of the blue Gentian. The herbaceous Pæonies are also found in Spain, Sicily, and the south of Europe, as well as in China, where Mr. Fortune tells us the Chinese graft scions of Moutans on roots of the herbaceous kinds, and thus increase and propagate their stock for market.

The Tree Pæony, like the China man of high caste, is uncommonly slow in all its movements; beginning to shoot soon after Christmas it will hardly get into full bloom for four months, during which time if it has pushed a couple of inches of wood it is good work, for it has something else to do than produce wood—it has

to ripen it when it is grown, and after that to rest it. It cannot be hurried by heat, and will not flower the second year in the south of China. It is this stately and dignified character dragged through the dreary winter months that makes all tree Pæonies tender in this country, whereas the herbaceous kinds keep snug underground during that season, and rise rapidly in spring, making as much growth in one month as the other does in three. It is only about 70 years since Sir Joseph Banks got the first Tree Pæony into Kew Gardens from China, and it has since spread far and wide; individual specimens forming a semi-globe 9 feet in diameter, and bearing 300 flowers in a season; and in Loudon's works we read of one that was said to be 30 years old, and that bore some years nearly a thousand blooms. This plant is quite a gem for compactness; it is therefore easily protected where that is necessary, and does not like most showy plants soon outgrow its bounds, for a good-sized gig umbrella would be a perfect tent for a Moutan for 20 years.

Herbaceous Pæonies flower early, and carry a great deal of foliage, and that upon rather slender stems; in order, therefore, to strengthen these and yet not to erect a forest of masts by tying each flower stem to a separate stick, I had some iron rings made about 30 inches in diameter, of ⅜-ths of an inch wire, and placed these under the foliage, supported on three iron rods with hurdle claws; this ring is raised as the plants grow, and the flowers are thus supported, leaning gracefully over their own foliage.

Pæonia Moutan, var. papaveracea, is no doubt the normal form of the Tree Pæony, and all the beautiful double-flowered varieties of P. Moutan are evidently the offspring of this paternal stock, and since it has sported so freely into beautiful varieties in this country there can be no doubt that the beautiful kinds which Mr. Fortune and other parties tell us are grown at Shanghae have mostly sprung from the same parent stock. It is highly important, in future improvements of this genus by hybridization, that shrubbiness of character should be secured, if possible, by one of the parents being P. Moutan v. papaveracea; the deep colours of the late-flowering herbaceous kinds might be selected, and plants possessing them, if necessary, forced to get pollen early enough to fertilise with. This would secure high colour in the offspring, and if the fragrance of some could eventually be extended by crossing to all, we should at no very distant day possess such a blaze of bloom in May (a month before the Roses) as is nowhere to be seen except in the American garden at that season; and notwithstanding the great beauty of some of the so-called scarlet Rhododendrons, I know of none that would not look pale if placed by the side of a scarlet Pæony.

Let no one imagine that we have to wait for hybridising for plants to produce a Pæony garden now. The plants are already got and actually offered for sale in all our best nurseries, and the whole of the species and varieties that could be obtained are now growing here, and flowered last year in the highest perfection; it is because parties well versed in flower growing were quite taken by surprise to see that Pæonies could produce such effect that I have made notes for my own use from them whilst growing, and have now endeavoured to draw public attention to the subject. *Alex. Forsythe, St. Mary's Church, Torquay.*

VEGETABLE PATHOLOGY.—No. CVI.

415. Congelatio (*Freezing*).—That different plants are endowed with very different powers of enduring heat and cold is plain to every one who has eyes to appreciate the simplest appearances which are presented in the natural world. While in some instances, as the Potato, a few degrees of cold are certainly fatal, in others the fluid contents of the cellular tissue may be completely frozen without any evil consequences. It is manifest, therefore, that in the first instance the functional powers of plants are alone affected, and that decay or rupture are due to the total suppression of vitality or to increased intensity of cold, though serious lesions may take place where the cold is not sufficient to destroy life. The same plant may sometimes be subjected to the action of frost several days in succession, the tissues recovering their normal condition every morning, and yet no permanent injury ensue, as we have had occasion to notice in the common winter Aconite. Even in cases where death is consequent on freezing without manifest fissures in the common stem, the walls of the individual cells are found to be entire. At a later period they may be discoloured or give way from decomposition, or one portion of a plant may be killed while the other retains its vitality, and ultimately recovers.

416. As in most instances of depressed or apparently suspended vitality perfect recovery depends upon the change of condition not being too abrupt. If the plant therefore is thawed too rapidly, or under exposure to strong light, death is generally the consequence. Plants then and fruit which have been frozen should if possible be kept in a dark room while thawing, and if so, the injury may be trifling. In herbaceous plants and smal twiggy shrubs the effect of frost is seldom partial, at least as regards what is above the surface of the soil, but in trees of considerable size, a portion of the trunk from various causes may be affected while the other remains sound. We have therefore occasionally decayed patches in the bark or alburnum (as in the case figured in De Candolle's "Organographie"), traces of which may be found in the tree a century or more afterwards, insomuch that seasons of peculiar severity may be traced with certainty from the number of layers of new wood which have been deposited since the injury. In some instances the decayed part will dry up and there will be no further evil, especially when it is cut off from external influences by means of the covering of new wood. Sometimes, however, if the conditions are unfavourable, decay will be communicated from the dead matter inwards, and the tree will ultimately die or become worthless. If the injury moreover takes place when vegetation is active, a comparatively small degree of cold may prove fatal, as was the case with the cold frosty winds of May 1809, which destroyed almost every Plane tree in many parts of England. Though many of the trees were lopped, and in some instances a few latent buds were developed into tolerable shoots, the general vitality was so depressed that the trees ultimately failed, as was the case, amongst a thousand other instances, with a whole* avenue of Planes in Northamptonshire, of the destruction of which we have a distinct recollection. Sometimes under stress of frost, even though life may not ultimately be sacrificed, the strain is so great that fissures take place in the trunks of trees, traces of which remain so long as the centre of the trunk is perfect. This phenomenon has of late been studied accurately by Dr. Caspary in Prussia, where it is far more common than in England. It certainly does not arise from the expansion of the fluid contents on freezing, since it takes place under intense cold, and though on first freezing the protoplasm will expand, as ice contracts on an accession of cold after the first expansion, the original dimensions will be restored, and then, as the degree of cold increases, proportionally diminished. The external rings then are colder in proportion than those within, and therefore contract more as they are nearer to the circumference, while perhaps the internal rings may not be affected at all; the consequence is that the external layers are no longer able to cover the internal, and a fissure takes place, and when once a fissure exists, though closed for a time and overgrown by new rings, circumstances may arise in which either from the expansion of fluid accidentally admitted from some wound, or contained in the decayed matter with which its walls may be lined, the old wound is opened, a circumstance which may be repeated several times at distant intervals. Frost splits, however, take place more frequently at points where the tissue is weakened from neighbouring decay, as beneath the old wounds of fallen or amputated branches, though they may occur under intense cold in trees perfectly free from any anterior lesion. Dr. Caspary has described a curious formation of ice under particular circumstances in herbaceous plants, an account of which will be found in this Journal, 1854, p. 739. The rupture of the bark in such plants and the formation of fibrous plates of ice takes place at far slighter degrees of cold than those which produce frost splits, new matter being constantly supplied from behind by the rising sap, in consequence of which the mass assumes a peculiar structure, the outer frozen surface being constantly pushed forward as the tips of the rising thread-like columns freeze. This curious formation takes place only when a vigorous flow of sap is suddenly arrested by the first comparatively severe night, though the temperature may be only a few degrees below freezing. The formation will of course cease when the upward flow of sap is entirely arrested.

417. The upper portions of a shrub are often destroyed annually while the root retains its vitality, and new shoots are sent up from the base which is yet uninjured; if, however, the frost is so severe as to injure the bark just above the origin of the root, the vitality of the root is seldom so great as to remedy the injury.

418. Frost is more injurious when the atmosphere is saturated with moisture in consequence of the tissues of plants being gorged with fluid, which ought to pass away in a great measure by evaporation. Some plants which come from a country generally overcast with clouds suffer materially from that frost of radiation to which we are so subject in England. The difficulty of the cultivation of the Sikkim Rhododendrons in the open air depends greatly on this circumstance. The peculiar destructiveness of such frost arises partly from its being attended by the deposition of dew which freezes on the surface of the leaf, and partly from the subsequent exposure when the sun rises to its unclouded rays. *M. J. B.*

AFTER TREATMENT OF A VIGOROUS SEEDLING PEAR TREE, WHICH HAS BORNE FRUIT FOR SEVERAL YEARS.

A vigorous seedling which has borne fruit for three or four years, excessive production having been prevented by judicious thinning of superfluous fruit, will successively arrive at its full degree of development. Year after year it will acquire more and more excellent characters. The spines on the upper branches become fruit spurs, and it loses that appearance which is generally considered a sign of wildness, but which, in reality, is only a favourable indication of the delicacy and late keeping of the fruit.

When the fruit of a seedling has been finally tried, and deemed first-rate, the owner will be anxious to take the tree out of the nursery and plant it in his collection, among other meritorious varieties; is it prudent to make this final plantation or not? In general we think it is preferable to allow the tree to remain where it first fruited; nevertheless it is by no means impossible to transplant a strong seedling, even if it is 15 or 20 years old. But to insure success, certain precautions must be taken. A fortnight before planting, a hole at least 4 feet square and as many feet deep should be dug on the spot where the tree is to be planted. It should then be filled up to the depth of 2 feet, with good light vegetable mould. As soon after the ripening of the fruit as the ends of the shoots are properly matured, the tree should be carefully taken up, so as neither to break nor wound the roots. The latter are then pruned in the manner pointed out in the article on planting, (see Vol. for 1854, p. 740). It may here be remarked that a seedling which has been already two or three times transplanted, and has its roots well divided, bears a final transplantation better than a tree which has been, at most, only once removed.

All the small straggling fibres are cut off, and the roots being spread out, and placed in the hole so that their upper part may be 3 inches below the surface, the hole is filled up with good mould taken from the surface of a kitchen garden, mixing it with a barrow-load of thoroughly decomposed hot-bed dung. Before the roots are finally covered up, two pails of water should be poured into the hole in order to firm the earth about the roots, and a sufficiency of moisture being thus supplied, fibrous roots are produced, even before the winter solstice; and the re-establishment of the tree is thus ensured.

In order to protect the roots from frost in winter, they are covered with earth to the depth of 6 inches additional. Lastly, three stakes are placed round the tree, so as to form a triangle at the base, and uniting round the stem at top in a circle which should leave sufficient play for the stem of the seedling to follow the sinking of the earth in the hole, and at the same time support it against the strong winds of winter. The branches are not cut back in winter, nor in the following spring. In the next autumn, however, at the fall of the leaf, they are shortened back, not on the current year shoots, but on those of the previous year. When a strong seedling is finally transplanted, the extremities of the shoots produced after the August flow of sap are cut off.

The final transplantation limits the production of fruit in the following year, when not more than one-fifth of the fruit set should be allowed to remain on the tree. If too many be left before the roots are firmly established, the fruit will be imperfectly nourished, and the tree itself will be weakened, under a load of fruit which it is not yet well able to bear. Afterwards, the tree must be carefully pruned, on scientific principles, for 4 or 5 years; it may then be left to itself, with the exception of supplying proper nourishment to recruit its exhausted powers, and giving it every year a moderate thinning. The tree must also be carefully freed from insects if such there be, for insects do not readily attack vigorous trees, in which diseases are rarely to be observed; and wounds in such trees are promptly healed. *J. De Jonghe, Brussels.*

Home Correspondence.

Occidental Plane.—You would confer a great obligation on all lovers of arboriculture if, through some of the many intelligent correspondents of the *Gardeners' Chronicle*, you would enlighten them upon the subject of a tree well known about London, which commonly goes by the name of "Occidental Plane," by which is intended to be understood the American Platanus occidentalis. About London every one must be familiar with two very different kinds of Plane tree, and in this neighbourhood (Kew) there are many fine old trees of both kinds; the one with very spreading lax branches, the mass generally broader than the tree is tall, with deeply lobed leaves and narrow elongated segments, which every one acknowledges to be Platanus orientalis; the other with an upright habit, less elongated branches, the mass taller than broad, with much less deeply divided leaves, truncate or more or less cuneate at the base, and with broad acute segments, and which frequently (I believe indeed as frequently as the other is called orientalis) goes by the name of Platanus occidentalis.* I was first led to believe this latter could not be the true Platanus occidentalis of America from the absence of the "thick down which covers the under surface of the leaves when they first expand, and which becomes gradually detached from them in the course of the summer" (most copious indeed on our native specimens in the Herbarium). "This down is so abundant on the American tree," Michaux tells us, "that the inhabitants regard it with dread, as they think that detached or floating in the air it has a tendency to produce irritation of the lungs, and finally consumption." Still, it must be confessed that the general form of the leaf comes very near that of P. occidentalis, but the base of the latter, instead of cuneate or only truncated, is broadly cordate, having a more or less deep sinus where the stalk is inserted, as shown in Michaux's figure (N. Am. Sylva, ed. Paris, vol. ii., tab. 63.) Another circumstance which led me to think this could not be the P. occidentalis is the fact related by Loudon and other writers of this tree; viz., that in the year 1809 a severe frost killed back the young shoots of many of the largest plants of this species in England, "particularly those in Richmond Park, at Kew, at Syon House, at Stowe,

* Large trees suffered more than small ones, and the Occidental Planes perished when the Oriental escaped. The preceding spring had been unusually mild, and the sudden check to the luxuriant buds was so great that the trees never recovered their vitality, though they made a few ineffectual attempts in that and the succeeding season.

* The general form of the leaves of these two is well represented in Loudon's "Arboretum Britannicum," vol. iv., p. 2093 n. 1952, ff. *a. b.*

at Paine's Hill, and at Claremont;" and this so far injured the trees throughout all the summer that in the spring of 1810 they almost all died,* especially the older ones. And again Loudon says, the severe winter of 1813-14 destroyed a number of the Occidental Planes which escaped the severe frost of 1809, so that the tree is now comparatively rare throughout Great Britain. If such were really the case there must have been a third kind of Plane in this part of the great valley of the Thames equally hardy with the P. orientalis, namely, the one in question; of which I can point to a noble specimen at the north end of the dell called the "Holly Walk," in the pleasure grounds † of Kew. I now became anxious to ascertain if this dubious Platanus were described under any of the varieties of the two universally acknowledged species; but I little expected to find what best agrees with it in Loudon under the P. orientalis, or Loudon's first var. acerifolia of Hort. Kew., ed. 1, vol. iii.; not indeed that there is any character given by which it can be distinguished from P. occidentalis (for the leaves cannot be said to differ from that species in form), and he adds that "in general appearance, habit of growth, and every other particular it closely resembles P. orientalis;" but, in confirmation as it were of this, he refers us to his figure of Mr. Salvin's tree, vol. viii., tab. 72A,‡ which is a most faithful and correct portrait of our tree, and if any one will compare that with the figure of P. orientalis, it is quite clear that the "general appearance and habit of growth" are really very different from that species. He seems to speak of it as not a generally known plant: "There are vigorous young trees in the Horticultural Society's Garden, and a fine specimen in the grounds of A. Salvin, Esq., at Finchley." Few, or perhaps none, of your readers will be disposed to agree with M. Spach, who says (Hist. Nat. des Végétaux, vol. xiii., p. 77), "Nous avons acquis la conviction, par suite des longues recherches, que les deux (ou de Willdenow quatre) pretendus espèces des auteurs doivent être toutes considérées comme variétés de l'espèce suivante; Platanus vulgaris, Spach!" Of this he has four varieties, and his third is our plant, in all probability "acerifolia, Spach" (wholly disregarding Aiton), whose name he adopts, as must be clear to any one, for he quotes S. acerifolia, Willd., which is nothing more, as Willdenow tells us, than "P. orientalis acerifolia, Ait." He quotes further P. cuneata, Tenore (an Willd.?) though he describes the leaves, "à base rentrante ou tronquée;" and, still more remarkable, he quotes Platanus occidentalis of Michaux, Fl. Bor. Am., and states the plant to be a native both of Southern Europe and America! As a cultivated plant, however, in France, what he states of it tallies with our tree in England: "la plus commune de toutes les variétés dans les plantations." The Platanus occidentalis, figured by Michaux, fils, and in Catesby's Carol. 1., p. 56, and Duhamel, ed. nov. 2, tab. 1., is Spach's var. angulosa, "qui est rare dans les plantations, et parait propre à l'Amérique." I am aware that plants of the true P. occidentalis are in nurseries, and we have young ones at Kew: that is such as exhibit the very copious down on the young leaf shoots, and while young looking very different from what we here take for acerifolia. The questions, then, to be determined are:—1. Do any old trees possessing all the characters of P. occidentalis of Linnæus and American authors exist in England? Are the trees mentioned by Loudon as still remaining in the Chelsea Garden, in the grounds of Lambeth Palace, Deepdene, &c., really that species? 2. Is the so-called "acerifolia" specifically distinct from P. occidentalis? (for it seems idle to refer it to P. orientalis), and if it is, of what country is it a native? Is there any authority for its being a native of Spain? The result is of some interest, for it is this tree which is found best to bear the atmosphere of London, and in conjunction with the English Elm is almost solely employed for ornamenting the suburban parks. The trees should be studied in spring before the full development of the leaf, while the down is still upon the P. occidentalis, as well as in summer and autumn, when the leaves and flowers are in perfection. *W. J. Hooker.*

Victoria Park.—You ask if the Deciduous Cypress has been tried in any of the London parks. It has been growing here these four years, and I may add that it appears to be doing well. Mr. Barratt, I observe, makes some remarks upon the absence of ornamental trees in the metropolitan parks, which he says he has walked through for 35 years. The next time he is in London if he will pay a visit to this park he will find, with one or two exceptions, all the trees and shrubs he names, and many others equally good and much more rare. The collection of trees and shrubs here is large and varied, but is necessarily confined in a great measure to deciduous kinds. Conifers do not grow at all, on account of the smoke. Of Cratægus there are upwards of 50 species or varieties; and in Pyrus, Cerasus and other ornamental trees the collection is equally rich, and additions are continually being made of such as are likely to thrive. The situation is very much exposed to the east winds, not the least shelter, and the west wind covers everything with soot, causing the growth of many trees to be slow, and it may ultimately even prove destructive to many of them. *C. Walton, Victoria Park, South Hackney.*

Late Sown Flower Seeds.—Allow me to bring under your notice a species of fraud which is carried on by some seedsmen. Walking round a garden this morning, a lady pointed out some borders which were sown with annuals, biennials, and perennials at the end of last October, but none of which had made their appearance, with the exception of a few Antirrhinums. She asked me if there was not a possibility of their germinating shortly. I told her no, for they were sown at an improper season, being too late. She assured me that she purchased 5*l.* worth of different seeds at a seedsman's in London, with directions to sow them in the end of October. Now, what was the object in giving directions to sow all those seeds so late?—he must have known that it would lead to disappointment. This system cannot be too much reprehended, as it not only gets the gardener into disrepute, but causes disappointments to purchasers. This case is not solitary, as I could enumerate many. *Rusticus, Newcastle.*

Hoitzia Coccinea (see p. 104, 1854).—After two seasons' experience I find this to succeed best in a stove or intermediate house. I had two plants of it in 9-inch pots, with upwards of 100 spikes of bloom on each, the tallest spikes about 9 inches long. The soil I grew them in was a mixture of loam, peat, leaf-mould, pit land, and old cow dung. I shifted them three times, and contiually kept stopping them till the middle of July. They require frequent syringing, as they are very subject to red spider. I tried this plant in the greenhouse and open air, but I find that it does not succeed well in either situation. When they have done flowering I throw away the oldest, and cut the youngest close in, and after they have made shoots about 1 inch long, I shake them out, prune their roots a little, and repot them in the same soil as above. *J. Archbell, Feltwell Rectory, near Brandon, Norfolk.*

The Horticultural Society.—Permit me, by way of reply to "X." (p. 54), to remark that I am not surprised that he attempts establishing, or rather only reiterating, the narrow views (applied by another in reference to gardeners), when he contents himself with saying "it is clear to the commonest observer that gardeners have not done their best to support the shows at Chiswick; but, on the contrary, gone to the Botanic, &c., simply because the amount of money was greater." The records of the Society will prove that this is untrue, and that some of the classes were even better paid than those of the Botanic; but a very "common observer" might have seen that though the Horticultural Society had doubled the amount of awards, and brought all the gardeners in England, that that would not have commanded the success required to justify the continuance of the exhibitions at Chiswick. It has been apparent for some years that the situation of Chiswick was unfortunate, and that no generalship, however skilful, could combat successfully against the opposition which has been for many years accumulating. Take, for instance, its proximity to Kew, so vastly improved—its distance from London—the remarkable unfortunate weather on the fête days—the very convenient and favourable position of the Botanic Society—the increasing inducements which Sydenham is holding out; take into account, too, the sameness which has marked the Botanic and Chiswick shows, making a visitor who sees the one careless of seeing the other, and the wonder will not be how Chiswick has given up, but rather how it has been able to maintain its place so long. "X." admits "that many gardeners exhibit at a loss to themselves;" but adds, "it is notorious that many have the one object in view; they calculate their expenses to a shilling, and if these are likely to exceed the value of the prize, they say at once, 'I must stay at home, this won't pay.'" Why "poor Richard" could not give a better advice. Does "X." and his coadjutors think that all gardeners are such fools as to work hard and lose into the bargain? Where are the lecturers or teachers on any subject who do not or ought not first to count the cost of expenses, and why expect gardeners to do more than they? Think you that that van of plants which you say is "hawked about" was produced by magic? Is it not a fact that 12 months—aye, and oft as many years—of increasing watchfulness, of mental and physical toil, was daily and nightly spent upon them before they were fit for exhibition, and not by one man only, but by a staff of hard working, ill remunerated, but willing and generous minded servants? No, no, if exhibitors have erred at all, it has been in making their services too cheap. Allow me again to touch on the practicability of the shows proposed by the Council. It is evident that the early and late periods of the season spoken of will give rise to the improved culture of a new kind of exhibition plants, as Camellias, and a host of others, which have never yet been fairly represented. Then instead of collections of plants, which take up an immense space, have single specimens, say a plant of Rose Coupe d'Hébé, or the old or improved Moss; there would be then no "make-up" plants, nor expensive carriage expenses, and of course, with prizes in proportion, which might suffice to combine novelty, beauty, and economy. Perhaps even the present "horticultural rooms," which have about them so many interesting associations, might be made available. One thing is certain—that there are thousands in your great city who will thankfully pay, and not grudgingly, for furnishing such means of instruction and enjoyment, particularly at the spring meetings, whilst "the Society" will be continuing to give an impetus to horticulture, and opening up new channels of usefulness. *Geo. M'Ewen.*

Beurré d'Amanlis Pear.—Mr. Rivers, I observe, speaks well of this Pear, but says "it is never highly flavoured or perfumed." A pyramidal tree of this kind on the Quince stock I had from him in 1853 bore this last year 14 large fruit, the first I had ever seen of the kind, and I can assure you they were as high flavoured as a good Jargonelle, and very like it in taste though very different in appearance. In fact it was the highest flavoured Pear I have tasted this season; though that does not say much, as generally I have found them below the mark, not only those of my own growth but in Covent Garden Market. The Jargonelle thrives in our deep rich soil in the marsh of North Lincolnshire perfectly, and does not canker. One that I grafted myself 18 years ago, near the banks of the Humber, on a sucker of an old Pear stock that came up against the house, speedily spread over two of the walls and bore (and bears I believe) large crops without a trace of canker. *Iota.*

Peas.—In this locality Fairbeard's Surprise takes the lead with many gardeners. From my own experience, for second, third, and late crops it is superior to any, being of clean growth, not subject to mildew, and the flavour partakes more of the Marrowfat than the extreme sweetness of many of the wrinkled varieties. *John Soden, Middle Barton, Oxon.*

Felling Beech.—A landed proprietor having seen in some periodical that the best time for cutting Beech is the summer, at which period the wood does not become worm-eaten, as it invariably does in a little time when cut in the winter, tried the plan by cutting a tree and having it used as a beam in an old cottage, having the date cut in—1830. It has never been painted or white-washed, and is now as fresh and sound as if just put up. *Y. Z.*

Pipe Flues.—It is doubtful whether the smoke from a flue could be conveyed underground in earthenware pipes to the distance of 70 yards. The smoke would become colder and heavier in proportion to its distance from the flue; so that by the time it reached the base of the shaft it would be as dense as the air about to enter the furnace and would balance it, so that there would be little or no draught. A draught, however, would be certainly insured by the heat from a very small fire situated at or near the base of the shaft, and so as to communicate with its interior. *R. T.*——During the last six or eight years I have heated my greenhouse on the Polmaise system, which has answered my purpose very well. The furnace is outside on the south, and finding the smoke an annoyance, I took down the chimney and connected with the stove a glazed earthen pipe, which I carried underground at a level upwards of 40 feet, where I erected a chimney of the same sort of pipe. I have found during two winters that it draws very well, and the supply of heat to the house is increased; about the middle of its length it has a sudden bend, and passes through two frames which it keeps warm. I think I have seen at Maidstone a chimney, I believe belonging to paper works, at perhaps 200 or 300 yards from the works, used with success. *Diamond.*——Permit me to inform your correspondent "W. M." that I have now in operation a flue which proceeds from an engine boiler about 90 yards in a horizontal position, and afterwards rises about 6 inches in a yard for 90 yards further to the foot of the chimney: and also another similar flue which proceeds about 100 yards at a rise of about 2 inches in a yard to the foot of the chimney. These flues draw perfectly without any such assistance as is alluded to by you, viz., the creation of a draught by an auxiliary fire. I have availed myself of the opportunity of growing crops of early Potatoes and other vegetables upon these flues. *T. H.*——Of the practicability of conveying the smoke of a hothouse fire by means of an underground pipe flue for about 70 yards there can be no doubt. The plan has been adopted here for some years with perfect success and satisfaction, and I may add that advantage is taken of the ground over the flue for growing early vegetables, from whence they are gathered at least a week earlier than on any other part of the garden. *Colo.*——I would advise your correspondent to build a proper flue for the conveyance of his smoke, as he will always have clay pipes breaking from the heat of the fire; if he will build a good brick flue he may heat his house by running it 70 yards underground as effectually as if it was closer at hand. I have built and heated two houses upon the same plan, running the flues 50 yards underground, and yet they answered perfectly. The flues enter the houses at the east end, pass along the front and the west end, and go out at the back wall; they were then conducted 50 yards underground to the garden wall. I constructed a range of pits for bedding out plants over the flue, which furnished a little dry heat for the whole range. The top underground should be made so that it will throw off as much water as possible, as dampness is unfavourable to a good draught. *J. D. N. W.*——I have no hesitation in stating that your correspondent's flue will draw quite well led underground the distance he mentions. As a case in point, I may mention that the smoke from the kitchen fire in the mansion at this place is conducted underground for about 150 yards, rising in a chimney in the grounds behind. The natural elevation of the grounds behind the house is, however, rather considerable. Likewise in the case of two of the Vineries here that are connected together, each about 15 yards long, the smoke after traversing over 60 yards of flue under each house—the flues being

* "There are, however, still large trees," Loudon says, "in the Chelsea Garden, in the grounds of Lambeth Palace, at Deepdene, and various other places."—But, query, are these the true P. occidentalis, or our tree?

† Two equally fine specimens of their kind, P. orientalis, may be seen in the Botanic Garden, one close by the Temple of the Sun in the old Arboretum, the other close by the gate leading into the palace ground, opposite the west end of the Orangery.

‡ In this plate it is called Platanus acerifolia, the Maple or Spanish Plane tree.

all on a level and running backwards and forwards four times underneath the floor of the houses—is conducted by one tunnel to a chimney a considerable distance to the rear of the sheds at the back of the Vineries. In both these instances, however, the smoke is conveyed by a regular flue large enough to be properly swept, to facilitate which operation there are places at convenient distances in the route where access is had to the flue, by digging down and removing a paving stone fitted for the purpose at such places, for the convenience of removing soot when swept. I do not see how "W. M." is to manage the sweeping of the clay pipes, of which he proposes to make his flue, without taking them up, and they would most certainly soon get choked with soot. If "W. M." will have a proper brick or stone flue constructed underground from his hothouse (it should not start lower than the highest flue in the house), as he has a slight elevation in the ground he may conduct his smoke to any distance. *W. Hudson, Bridge Hill, Belper.*——The scheme proposed by "W. M." is quite practicable. The plan has been in operation here for the last four years. The following conditions are necessary:—do not allow any dip in the gradual ascent to the shaft. Lay the pipes in a cemented drain so as to prevent the contact of damp, otherwise your pipes may act as a drain for water rather than a dry flue for smoke. The height of the chimney stalk will depend on circumstances; if there are trees or high buildings near, it must be of a considerable height "to draw," and it may be well to make provision at the base of the shaft for lighting up a fire of shavings or such like to clear the chimney of heavy air, and thus cause a draught; this will not be required when the fires are in constant operation. Attend also to making, at convenient distances, openings for the cleaning of the flues. In our case it is a flue within a flue; but for the purpose spoken of I think the pipes proposed will answer. I may also add that the distance here is 75 yards, and almost level; but the greater the ascent the better. *G. M.*——"W. M." can have no difficulty in carrying his flue where he wishes if he does not let it dip. In the valleys of the north we find that the flues from the engine boilers of mills are often carried a considerable distance, and often terminate in a beautiful column on the top of a neighbouring hill, the mill being far below by the water side. Many instances may be seen in the once lovely vale betwixt Todmorden and Halifax, so highly praised by Cobbett, who had a good eye for scenery. *Tyro, Manchester.* [We have selected the above as the best among many answers for which we are indebted to the courtesy of correspondents.]

Notes on Pears.—"T. R.'s" remarks upon August Pears were so good that I have been anxiously looking for his further promised communications. A sadly too short notice appeared last week, and unless he completes his list of really desirable Pears very shortly, we shall not be able to profit by it this year. So far he may be implicitly followed by all who wish to have good Pears, except that I think Beurré d'Amanlis better in all ways upon Pear stocks than Quince. It is, however, desirable to have both, as they ripen at different times. What I took up my pen for, however, was to ask all Pear growers in the kingdom at once to send their lists of best Pears, mentioning soil and climate. No fruit varies so much, and no fruit is so well worth growing in our climate, or is so little trouble or expense. Every garden that can produce a Gooseberry bush can have a Pear tree bush, and whether we look at its value to cook, to eat, or to sell, it will beat any fruit, except perhaps a very good Apple for the first and last, though it would be difficult to beat Williams's Bon Chrétien or Beurré d'Amanlis even in these points. *W. O. F.*

Roof of Westminster Hall.—A person must be very ignorant indeed of Gothic architecture who supposes that any part of the present roof of Westminster Hall could have existed in the time of Rufus. The hall of Rufus had a nave and two aisles like a church, so that it is impossible that any timbers of that roof exist at present. Some of the smaller pieces may; no simple roof of anything like the span of Westminster ever existed in Rufus's time, or till long after in England. *Somerset.*

Cucumber Disease.—If your Whitfield correspondent will minutely examine two Cucumbers, the one attacked by disease the other ruined by neglect (but which he confounds together), he will find traces of the destructive power of the former very dissimilar to that of the latter. All decaying and decayed specimens that I have seen have exhibited symptoms of an attack apparently constitutional, as the following evidence will testify:—Last February I commenced to cut fruit of a Black Spine and the Improved Sion House varieties, from plants turned out the previous October, in a house devoted exclusively to their culture. The plants throughout assumed a habit of vigour encouraging the idea that they would be well able to support a successive crop of good fruit; but, to my disappointment, one apparently healthy plant began to flag, upon the first symptoms of which I examined the stem minutely immediately below the surface of the soil, when the evil became visible. On the stem at this jointure numerous small excrescences had formed, and by the aid of a lens I ascertained that juice was exuding from them, which confirmed my fears that the upward current of sap to the leaves was impeded in its course. Imagining that the evil would be contagious, I instantly removed the invalid; but in three days after another plant fell a sacrifice to the malady, and was apparently victimised under precisely the same circumstances as the former; however, at the expiration of a fortnight, there were but four plants remaining out of the 14 planted, and which up to the time attacked so highly flattered my expectations. From the remaining four I secured a luxuriant and robust growth, and cut some good fruit; and this share of Fortune's bounties I attribute to my method of after treatment. During the time I was sustaining the loss of my plants, I procured some quick lime and flour of sulphur, well mixing the two ingredients together, and after laying bare to the roots the stems of the four plants, I raised a hillock round each stem to the height of wind and water, after which I carefully replaced the soil, and kept the stem and materials in proximity as airy as means would allow. Thus was I enabled to cut abundance of fine fruit at a season when my neighbours were suffering from the visitations of this incomprehensible calamity. *J. R. T., Gr. to G. S. Wintle, Esq., Hucclecote Gardens, near Gloucester.*

Rain at Dorwards Hall, Witham, in 1855.—

	Inches.		Inches
January	1.30	Brought forward ...	6.33
February	1.13	July	5.13
March	0.95	August	1.54
April	0.17	September	0.90
May	2.27	October	4.14
June	0.51	November	1.05
		December	1.15
Carried up	6.33	Total	20.24

Henry Dixon.

Societies.

Botanical, of Edinburgh, *December 13th.*—The President in the chair. On this occasion, office-bearers for the ensuing year were elected, and several new members were added to the list. Professor Balfour exhibited specimens of Arum italicum, sent by A. J. Hambrough, Esq., from Steephill Castle, Isle of Wight, accompanied by the following note:—"I have been watching the plant these last two years; it is certainly wild, and richly spread through the whole of the Undercliff of this island. If the plant is not the genuine Arum italicum of Koch, it is very different in almost every respect from Arum maculatum. It is now in full fruit, whereas A. maculatum fruited in the early part of summer. The spadix is bright yellow, the lobes of leaf more divergent than in maculatum, and more or less veined with yellow. The plant in flower is frequently over 2 feet in height, and the berry rarely contains more than three seeds, whereas the fruit of A. maculatum contains eight or ten of a much smaller size. The plant grows among Ivy and rocks, throughout the rough ground under the cliff between Bonchurch and Niton." In a subsequent note from Mr. Hambrough it is observed—"It is certainly very extraordinary that the Arum italicum should be found so far north as the Isle of Wight, as I believe the Tyrol has hitherto been considered its northern limit. Dr. Salter has seen it with me in the wildest spots in this neighbourhood, and is, I believe, satisfied of its being indigenous. Many years ago, when walking with Dr. Bromfield, I recollect his noticing an Arum in leaf, and mentioning his doubts as to its being A. maculatum, and asking me to keep a lookout for A. italicum. This was shortly before he left England for the last time, and he had no opportunity of seeing the plant afterwards, either in flower or fruit, nor had I until last year, when I found the plant in abundance all through the Undercliff, in spots quite remote from any dwelling, and in rough ground, which could never have been cultivated. It is more common here than A. maculatum, and has doubtless until now been mistaken for that plant, as the leaf is never so strongly veined as in the cultivated A. italicum, and might escape the notice of even a botanist. I was not satisfied with its distinction from A. maculatum until after examining the seeds of both plants." The following papers were read:—1. Report on the state of the Society's Herbarium, by the curator. 2. Notes of a Botanical Trip, with Pupils, to Ben Lawers and other Mountains in Perthshire, in August, 1855, by Professor Balfour, and others.

Entomological, *January 7.* J. O. Westwood, F.L.S., V.P., in the chair. Mr. Samuel Stevens exhibited some very fine species of Lucanidæ recently collected by Mr. Wallace at Sarawak, interesting for the remarkable series of varieties in the development of the mandibles of the opposite sexes. Mr. Stainton exhibited a specimen of the beautiful Tiger moth, Callemorpha Hera (not previously admitted into the British fauna), captured by Mr. Henry Cooke at Newhaven, accompanied by notices of other specimens taken or seen on the southern coast. Mr. Shepherd exhibited a specimen of the very rare Lebia crux minor, taken by the Rev. Mr. Livesay, near Selborne. Mr. J. A. Turner, of Manchester, exhibited some beautiful specimens of Coleoptera, from Texas, as well as specimens of both sexes of the extremely rare Goliathus giganteus, from the river Gaboon. Mr. Frederick Smith exhibited an extensive series of the nests of various species of Hymenopterous insects, from Natal; some of these were of papyraceous and others of earthen material; amongst the former were some species with combs formed of circular, and others entirely of hexagonal cells. Mr. Foxcroft exhibited a fine series of varieties of the beautiful Œcophora Linneella, taken near London. The following papers were read:—Descriptions of three new Australian species of Pseudormorphæ, by Mr. Newman. Descriptions of a number of species of Entomostracous Crustacea, from the Atlantic ocean, including 23 new species, by J. Lubbock, Esq. A Monograph on the Australian genus Cryptodus, by Mr. Westwood; Notes upon Hygrotus bisulcatus and Apion Curtisi, by Mr. Janson; and Descriptions by Mr. Stainton of three species of Indian microlepidoptera, reared by Mr. Atkinson.

Notices of Books.

Of foreign works we have before us the following. *Flora Andina*, part 2, by Mr. Weddell; this important work is still occupied by Composites.—*Begoniaceen Gattungen und Arten* (Berlin, 4to, with 12 excellent plates), by Prof. Klotzsch. In this work the learned author proposes to form no fewer than 41 genera at the expense of the old genus Begonia; that some of his genera are good will be readily admitted, but we regret to see others founded upon characters of the slightest possible texture. The work indicates much patient research among the materials to be found in Berlin, but they appear to be very scanty as regards the vegetation of India.—From M. L. R. Tulasne we have a *Monographia Monimiacearum*, taken from the eighth volume of the Archives du Museum. This admirable treatise is illustrated by 10 plates executed with the consummate skill for which M. Charles Tulasne, the learned author's brother, is so deservedly celebrated. M. Tulasne unites Atherosperms to this order.—M. Planchon has published a learned thesis upon the Hermodactyl of the ancients, a potent drug, now fallen into disuse (*Des Hermodactes au point de vue Botanique et Pharmaceutique*, Paris, Martinet, 4to.) He shows that the true Hermodactyl was in all probability the modern *Colchicum variegatum*, and that its virtues were in every respect the same as those of the Colchicum autumnale now in use. It became neglected, and its value was ultimately disbelieved, in consequence of unskilful commentators having fancied that it was an Iris, or a Narcissus, or a Cyclamen, or even the common Trapa natans, instead of the powerful but dangerous drug employed by the ancients.

FLORICULTURE.

The Cineraria.—We admire this flower because of its usefulness, being available nine months out of every twelve as a conservatory or greenhouse plant, and in the absence of better, it does well for cut flowers or bouquets. But the great mass of cultivators fail to grow it well. I am happy, however, to know and acknowledge that many do cultivate it successfully, annually producing magnificent plants, the sight of which is charming to all lovers of flowers. In giving a few brief hints how the Cineraria may be successfully grown, let us suppose that some good sorts were cut close down to the soil in the pot about the end of April when they had done flowering, either planted out or placed behind a wall. In July these will be found to have commenced to grow; it will be evident that a plant may be divided. Now, a great blunder is often committed by cutting the plant into four or six pieces, retaining many of the old roots, and then potting them in 5-inch pots. This is a bad beginning; still it must be propagated by division of the root by single slips. Just take the finger and thumb and slip off the young shoots when they have new white roots about the size of cats' teeth: let there be no old roots at all. Pot the slips singly in 3 or 4-inch pots, the soil consisting of loam, peat, and sand. Then place them in a close frame for a few days, shading of course when the sun shines. The size and demands of the place will determine the number to be propagated, but it is wise to have a superabundance. In a short time these young plants will fill their pots with roots, and cover the soil with leaves. To make them robust and healthy, they should be placed out of doors, on the north side of a house, wall, or hedge, and remain there till about the first or second week of September. And now is the time to give them a liberal shift and generous food. The pots, 8-inch ones, should have been previously washed and dried. Let about 2 inches deep of broken pots or bricks be used for drainage, and where these cannot be had use gravel, which answers admirably for draining pot-plants. The most important thing in the cultivation of the Cineraria is the use of proper soil. Hundreds of gardeners use a mixture of loam, leaf-mould, and sand, in about equal proportions; but this does not answer well, for in such the plants grow too tall and bare at the bottom. The mixture I recommend is composed of loam and dung from an old Mushroom bed in about equal quantities, with a handful of charcoal, all well bruised together and put through a sieve. Rotten leaves should never be used for Cinerarias, and very little sand, for if sand be employed the plants are apt to shed their bottom leaves and thus disfigure themselves. I don't say that the mixture I have recommended is the best possible, or that fermented horse-droppings is better than cow-dung. All that I mean to say is, that if the mixture of soil and horse-manure be used, hardly anybody will fail to grow, to say the least, respectable specimens of Cinerarias. The plants after being potted should be placed very near the glass on the north side of the centre of a span-roofed greenhouse. If the house is glazed with Hartley's glass they will thrive and grow fast on the south side. About December the best plants will require their final shift. In January and February the flower stems should be staked or tied out as widely as possible, and after this is done but little more will be necessary. Of course air and water are always given when required. I forgot to mention that it is sometimes necessary to pinch the points of flower

stems in the autumn to keep the best plants from blossoming too soon. The second and third-rate plants may be allowed to bloom when they like, from which cut flowers may be obtained. To get Cinerarias in the autumn it is necessary to sow seed in April and May, and when the plants are up they are pricked off in boxes or pots, and placed in the shade. During the summer they are potted as they may require it, and should be always kept out of doors, behind a wall or hedge. When cuttings or slips cannot be got in July and August, seeds may be sown in June, which will produce as large plants—but then we cannot be sure of getting good and beautiful varieties. Though the rays of the sun are hurtful to the leaves of Cinerarias, I have planted them out and seen them flower gaily in the borders, but they do not last long. *P.*

Miscellaneous.

Prodigious Potato.—The *Independance Belge* informs its readers that "in the Belgian Colony of St. Thomas a Potato has been grown weighing more than 50 lbs." Good Bye, Big Gooseberries.

Californian Woodpeckers.—Mr. Murray stated (see Proceedings of the Royal Physical Society, Nov. 22, 1854) that he had received information on the habits of one of the Californian woodpeckers, which appeared to him both sufficiently new and interesting to be worthy of being made generally known to naturalists; and although the information is imperfect, and may possibly turn out to be incorrect, he was bold enough to communicate it to the Society. The statement is, that a particular woodpecker in California lays up a store of acorns in autumn for its spring consumption, and does so by hammering out small holes in the bark of trees, into each of which it places an acorn. His informant was his brother, Mr. William Murray. He resides at San Francisco; but when home on a visit last year, he mentioned the habit of the woodpecker which has just been related. Shortly after his return to California, he received from him the piece of bored bark which he exhibited to the Society, and at the same time communicated the following information which he had picked up. He says:—"I was talking to Simson the other day about the curious custom the woodpeckers here have of boring holes in the bark and storing them with acorns, when I mentioned that I had told you of it, and that you had refused to credit the fact, not of the acorns being there, but of their being put there by woodpeckers, because I was unable to say I had seen them put there. 'Well,' said he, 'you can tell him that I've seen them. I have seen them bore the holes, put in the acorns, and hammer them well in, and I've seen them taken out again in spring;' and he went on to tell me that on one occasion, in the time of the great flood (some years ago), he had witnessed an amusing scene among them. His party were camped on a kind of island that had been left dry; and, having nothing better to do, watched the operations of these birds. There were six or eight of them at work on a tree in which there was a squirrel, who had made his house in a hollow at the root of a branch. The squirrel would pop out his head and look at them; and the moment the coast was clear he would run out and scratch away at these things, and tear away the bark; and when the birds would see him, they would all attack him, and he would run like lightning down the tree, and up the other side, and into his hole again, and then peep out and watch another chance to do the same, evidently having great fun. This continued for about three days, till at last one of the party knocked the squirrel's head off with a rifle-ball, and rid them of their persecutor." In a subsequent letter his brother gives the following additional information. He says—"Newland, a Scotchman, told him he had often seen the woodpecker storing the acorns, and that it was a black bird with a red head; but Simson, he said, would introduce me to Dr. Trask, author of a geological report, and that he would be able to say positively. The doctor stated that the provident woodpecker is the black one with the red head and yellow throat; that he had observed them repeatedly; and further asserted that they eat acorns, and that he had seen them do it. In confirmation of the possibility at least of their being vegetable feeders, Simson tells me that in the western country the farmers frequently clear the woods by cutting the communication of the bark of the trees, and that, where that is done, these red-headed woodpeckers appear in the clearings in perfect swarms, and destroy Apples and Peaches in these districts to such an extent that it is impossible to have any fruit. I do not know whether they eat the acorns or the grub that may be in them, but it is most certain that they bore holes in the bark, and hammer in the acorns so firmly that you can hardly pick them out again, and afterwards break them open, and eat something that is within the shell. The native Californians are so well acquainted with the fact that they say when the woodpeckers commence early it is a sign that we shall have a severe winter. They keep boring the holes all the summer, and are all ready for harvest when the acorns are ripe." My brother adds that Mr. Simson came across Mexico with John Audubon (he presumed the son), who watched them, stuffed their skins, and knows all about them. They first observed these acorn deposits in Chihuahua. Mr. Murray was inclined to think that the evidence contained in these letters would be sufficient to satisfy the Society, as it had done himself, that there is good ground for believing that *bonâ fide* acorn deposits are in California stored up for future consumption by a woodpecker. *Edinburgh New Philosophical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatories, &c.—All manual operations here should of course be performed as early in the morning as possible, in order that the family may enjoy their rambles amongst the plants without obstruction in an agreeable atmosphere and on clean floors. Orange trees in tubs are liable to be affected by a black fungus on the leaf, having the appearance of soot. This should at all times be thoroughly cleaned off; a little soap suds warm, with some sulphur mixed with them and applied with asponge, is a good remedy. All decaying flowers or unsightly plants should be constantly removed, and the places of the latter filled with things in blossom brought from other departments. This structure where proper means are allowed should now be getting gay; hybrid Rhododendrons, Camellias, &c. which should be in flower, make a fine display. Large plants of the above that have been some time in their pots or tubs will require much water, more than people commonly imagine, and tepid liquid manure may be given more occasionally with advantage. Stove-heat may soon be indulged in here on sunny days by shutting up early after a thorough ventilation. To obtain this, keep a rather lively fire from seven in the morning until eleven o'clock, from which time it may decline until the following morning. By taking the air entirely away an hour afterwards, and watering floors or other temperate surfaces, (not pipes or flues) a delightful atmosphere will be created. Begin to repot Orchids, taking them exactly in the order in which they bud; be sure that your material is scalded or half charred to destroy insects. Keep the plants well elevated, and use plenty of charcoal in lumps of considerable size, fastening the whole at last, so that the plant cannot be loosened by agitation. Sphagnum or other Moss pegged on the top makes a good finish, and is to be recommended in houses which are unavoidably deficient of atmospheric moisture. Syringe plants on blocks occasionally. Let the temperature be 60° by night, 65° by day, rising to 70° on sunny afternoons.

FORCING DEPARTMENT.

Pineries.—Where the bottom-heat is maintained by means of fermenting materials such beds as may have been recently renewed should be carefully watched, and if the heat at the bottom of the pots is found to exceed 90° the pots should be slightly raised in order to prevent injury to the roots. It is not usual now to subject the roots of Pines to a temperature of 110° or more, as we have seen growers of the old school quietly doing, but it is still too common a practice to allow the bottom-heat at times to become too strong, throwing the plants prematurely into fruit or otherwise injuring them. Indeed we believe that more harm is done to Pines by too much bottom-heat than by any other cause, and success cannot reasonably be expected while the roots are occasionally subjected to a baking heat. Maintain a steady bottom-heat of about 85° during the growing season, but depend upon it that 90° cannot be exceeded with safety. See that the soil about the roots of growing plants is not allowed to become too dry, and secure a moist state of the atmosphere, but use the syringe carefully, until the sun becomes more powerful to dry the hearts of the plants. Vineries.—Careful attention will be necessary with houses where the Vines are fairly in leaf. Take every opportunity to admit fresh air to strengthen the shoots and foliage, &c.; but do this cautiously, and by small openings near the heating apparatus, and shut up early in the afternoon letting the thermometer rise to 80°. Where the Vines are in bloom, let the night temperature range between 60° and 65°, raising it 10° by day, and Muscats need hardly be expected to set well unless they can be kept some 5° warmer; but it will be better in every case to let the temperature sink a few degrees on sharp nights than to over-heat the pipes, and render the atmosphere unhealthy. While the syringe cannot be used the evaporating pans must be kept at work, and the floors, &c., sprinkled in the morning or as often as may be necessary to secure a moist state of the atmosphere; for unless this is attended to, red spider will be very apt to make its appearance. But, perhaps, the great cause of red spider is an unhealthy root action, producing thin, weakly foliage, which despite the most careful inside management is sure to be attacked by this pest, therefore use every means to secure a dry, warm state of the borders. Give Vines in pots a liberal supply of manure-water in a tepid state.

HARDY FRUIT AND KITCHEN GARDEN.

Push forward all kinds of wheeling while the ground is in a favourable state for such work. Soils of a heavy tenacious character are improved for working the more they can be exposed to the action of frost, and some persons dig such ground a second time, turning in the frozen surface, in order to expose a farther portion to the action of the weather; but where it may be desirable to do this the frozen part should not be dug in deep. Look well to the protection of Lettuce, Cauliflowers, &c., under glass, and take every opportunity of exposing such things to air. Some of the strongest roots of early Rhubarb might be covered with pots or boxes, and sufficient leaves and stable litter to produce a gentle warmth; this would save injuring the roots by removing them for forcing, but where there is a good stock of roots this is of little importance, and is hardly worth the trouble and litter which it causes. Get ground prepared by heavy manuring and trenching for fresh plantations of Rhubarb, Seskale, and Asparagus, and remember that the ground for these things can hardly be made too rich.

COTTAGER'S GARDEN.

The cottager's leisure hours should be occupied in collecting together all ditchings, road scrapings, and other refuse matters to improve his soil. What other folks call rubbish will be to him a valuable manure, if husbanded aright. He should take care that his dung heap is secure at bottom by means of puddling or otherwise; and an escape drain should be provided at one end (the lowest) with a perfect stopper, so that in the case of abundance of manure water, through rains or otherwise, the cottager could draw off the surplus into a sunken pit (water proof) and by means of a water barrow apply it to his crops. Consult the Kitchen Garden Calendar for information on other matters.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Jan. 31, 1856, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 25	18	29.432	28.993	50	31	42.5	46½	44	W.	.00
Satur. 26	19	29.473	29.398	51	36	43.5	46	44	S.W.	.14
Sunday 27	20	29.811	29.636	47	20	33.5	44	43½	N.W.	.02
Mon.. 28	21	29.737	29.621	42	24	33.0	44	43½	S.W.	.08
Tues. 29	22	29.696	29.694	36	19	28.5	40	43	N.W.	.00
Wed. 30	(	30.031	29.730	38	21	29.5	38	42	N.W.	.10
Thurs. 31	24	30.179	30.075	37	19	28.0	38	41	N.W.	.00
Average .		29.765	29.593	43.3	24.8	34.0	42.3	43.0		.34

Jan. 25—Overcast; fine.
— 26—Fine; very fine; cloudy; rain at night.
— 27—Fine; cloudy; sharp frost at night.
— 28—Frosty; fine; overcast; thick hail shower in afternoon; frosty
— 29—Clear and frosty; fine; sharp frost at night.
— 30—Frosty; fine in forenoon; cloudy and cold; frosty.
— 31—Clear and frosty; cloudy and cold; frosty at night.
Mean temperature of the week 4 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Feb. 9, 1856.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	44.1	31.1	37.6	14	0.35 in.	2	4	4	2	2	11	3	2
Mon. 4	44.5	33.2	38.8	14	0.31	3	4	3	1	6	7	4	2
Tues. 5	44.6	32.8	38.7	12	0.39	2	3	2	2	3	9	4	5
Wed. 6	45.6	32.8	39.2	15	0.25	2	3	3	3	4	5	7	3
Thurs. 7	46.4	32.4	39.4	16	0.29	2	2	3	—	4	10	6	3
Friday 8	45.3	33.1	39.2	16	0.67	1	3	3	1	4	11	4	3
Satur 9	45.1	31.5	38.3	12	0.40	—	5	2	2	1	12	5	3

The highest temperature during the above period occurred on the 9th, 1851—therm. 62 deg.; and the lowest on the 9th, 1847—therm. 4 deg.

Notices to Correspondents.

Arboriculture: *H D.* We must beg to be excused offering an opinion upon what appears in a contemporary.

Azaleas: *W M A.* We do not believe it to be possible to ascertain the number of varieties that have been imported from China; certainly all the sorts having well marked habit were among them. Some very good ones have been obtained here, no doubt, but they are much more like the Chinese varieties than the latter are like each other.

Italian Orange Trees: *Tyro.* If they are really as dry as firewood they will not revive. If there is any life in them it may be excited by planting them in a smart bottom-heat.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*C R C.* Pawlovnia imperialis.—*Miss Murray.* The fungus on the leaf of some Solidago gathered in North America is Rhytisma Solidaginis, *Schweinitz.* *M J B.*—*W. Barnes.* It seems to be a small state of Polystichum Lonchitis. Who may be to blame for your not receiving answers we cannot say—but we suspect yourself. You have been twice written to privately, but as you give no other address than Birmingham, it is possible that the letter-carriers cannot find you. To send money for your papers, and in the same letter to ask for the name of a plant can only result in disappointment. Those who sell newspapers know nothing about the matter, even if they had time to attend to such inquiries.—*Enquirer.* 1, Custard Apple; 2, some Cassia; 3, rotten; 4, unknown; 5, do., dead. The three first are not worth having.

Names of Fruits: *Old Sub.* 1, Quite worthless and not known; 2, Cornish Gilliflower, one of the richest Apples; bears at the extremity of the shoots—a peculiarity which should be borne in mind in pruning the tree.—*W C W.* 1, Easter Beurré; 2, Beurré Diel; 3, Passe Colmar; 4, Beurré Rance; 5, Bezi de Caissoy; 6, Winter Nelis. Apple No. 1, Lemon Pippin; No. 2, King of the Pippins; the others are unknown and worthless, except perhaps for cider.‖

Pampas Grass: *T S Woodcock.* It is a female; but rather too young. Some seeds are good; but many are unripe.

Smoke: *Misokapnos.* Nothing resists better than Sycamores, Hazel, Planes, and Elms; the Fir tribe, Oaks, and Ashes detest it. We are unable to answer the inquiry about Beech-mast.

Transplanting: *Newstede.* We presume that the plants you speak of are in pots. That being so they may be removed at any time you please, but they should not be planted out finally till the dry north-east winds of spring are over. If they have to be taken out of the ground before travelling to a great distance we should, in our own case, wait till the end of August or beginning of September; then lift them carefully into baskets, well water their roots, wrap the whole in mats or cloth, so as to hinder evaporation, and plant them as soon as they arrive in holes previously made ready. That is what we should do in our own case. But if you dislike the expense, or are afraid of the risk, then the sooner you remove them the better, provided your place is well screened from north-east winds. In all operations of this kind there is some risk. You will find the details of transplanting fully explained in the *Theory and Practice of Horticulture* (Longmans, 1855), page 451, &c.

Vinegar Plant: *W C.* It is the spawn of a fungus called Penicillium glaucum.‡

Weeds; *Hockly.* We would advise you to try the effect of one of Mr. Fleming's salt-hotwater machines. Of all places a carriage drive is the best for testing its efficiency.‡

Woodlice: *D H.* Trap them by means of tiles laid over Cabbage leaves, Bean stalks, or any other dry hollow material into which they can crawl. A toad or two will also be found to thin their numbers.‡

Misc: Full price will be given for Nos. 7, 1847; and 27, 1851.

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3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Watercourses, Reclamation, Farm Roads, Clearing, Erection of Farmhouses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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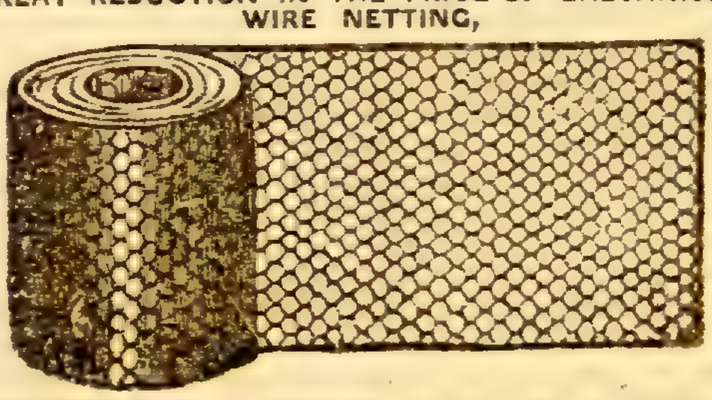
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING,



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE, Manufacturers of the celebrated Exhibition Prize PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c. These articles are Warranted to stand any kind of work, and to carry the keen edge of a razor without requiring to be sharpened so frequently as is usually necessary to obtain that sharp edge so requisite for the comfort and use of the practical gardener. The blades are also warranted to wear through to the back. They are used by all the eminent gardeners in England, Ireland, and Scotland, and can be purchased of any Nurseryman or Seedsman in the three kingdoms. Those who may not have used them are respectfully solicited to give them a trial. The Great Exhibition Prize Medal of 1851, and the Prize Medal of the Horticultural Society of Manchester, at their Show of 1854, was awarded to SAYNOR & COOKE for their superiority of material and workmanship. Established 1738.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City, and the Royal Mills, Wandsworth, Surrey; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 6*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ " long	3 " 3 "		1	14	0
3 " ditto	3 " 6 "		2	8	0
3½ " ditto	3 " 6 "		2	12	0
4 " ditto	3 " 6 "		3	3	0
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PRESENT PRICES OF FARM SEEDS.
THE CROPS OF SWEDE TURNIP, MANGEL, AND OTHER FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. SUTTON'S *Priced List*, which may be had, post free, on application, Addressed SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Agricultural Gazette.

SATURDAY, FEBRUARY 2, 1856.

THE paper upon Steam Cultivation read by Mr. FOWLER of Bristol before the Society of Arts last Wednesday, which we have reported in another page, was followed by an animated discussion. Letters were read from gentlemen unable to be present, indicating the channel in which experiments on the subject ought to be made, and the views of it generally which the writers took. Several of those who had

actually incurred expense and devoted energy and time to the solution of the problem spoke before the meeting. Among others, Mr. Smith, of Woolston, referred to in Mr. Fowler's paper, described the ingenious tillage implement by which, under that gentleman's direction, he had been able with a seven-horse engine to cultivate four acres a day. His experience was the most favourable described. The steam engine employed is seven-horse power when the steam is at 45 lbs. pressure on the inch. The machine is worked to and fro upon the surface of the land by 15 lbs. pressure, and it is worked to and fro beneath the surface with the pressure at 35 lbs. It then leaves the land tilled as by a scarifier or grubber. It is worked by wire ropes from a stationary engine; this being the plan that Mr. Fowler advocates.

It is a curious illustration of the way in which one invention enables or assist another—that Mr. Fowler attributes what success he has yet attained, to the substitution of wire rope for chain in the draught of his machine. So great is the friction of chain upon the land that one able to transmit 20-horse power requires, so Mr. Fowler tells us, more than 20 horses to trail a mile of it along an ordinary ploughed field. And of course the heavier the chain the weaker in this sense it is, seeing that weight, on which friction depends, is proportioned to solid contents, thus increasing with the cube of linear dimension, while strength depending on the transverse section increases only with the square of linear dimension. A chain doubled in length and in the diameter of its material would increase in weight, and therefore in difficulty of draught eight times, but in strength or ability to withstand that draught only four times. The invention of wire rope, which being almost cylindrical creates but little friction, thus facilitates the conveyance of power to a distance, and that is the principle on the application of which our hopes of cultivation seem now generally to be built.

Our readers will find in another page an abridged report of Mr. Fowler's paper.

A question was asked the other day by a correspondent of this Journal which many columns would not fully answer, but to the principles involved in which we may here shortly refer—"Which is the best manure?"

Perhaps more misconception prevails on this subject as the result of the phraseology employed in its attempted explanation, than exists from any other cause. We continually hear the "properties" of a manure spoken of, as if the whole substance had a character apart from that of its constituent parts. Such a manure, it is said, loses so much of its valuable "properties" if treated in such and such a manner. If farmers would look upon manure simply as the building material of their crops, a great deal of light would at once be thrown upon the subject. A plant is a structure, the actual materials of which in all their weight and quality already exist at the very time the seed is committed to the ground. Some of them exist in the air, and are brought down in the rain or sucked in by the leaves of plants—others exist in a more or less accessible form in the soil—and others are added in the manure. Some of them are so abundant naturally that no artificial supply of them is needed; others of them, though present naturally in quantity sufficient for the natural growth of plants, are not abundant enough for that increased growth at which art aims. "The best manure," then, is in one sense that which supplies to the growing plant most completely, and in the form in which the plant can most readily make use of them, *all* those substances which it needs as building material. In the other and more accurate sense "the best manure" is that which most efficiently, abundantly, and cheaply supplies those particular portions of the building material of plants in which the natural supply is especially deficient.

Now there are many things needed by the plant of which Nature unaided by art is in many soils a scanty source: such especially are the nitrogen and phosphoric acid which, in such forms of combination as are capable of absorption and assimilation by the plant, are undoubtedly the most powerfully fertilising elements of manures. And the easiest answer to our correspondent's question will be given by indicating the cheapest sources of these two substances.

Certain it is that the great demand for artificial additions to the supplies of the farmyard leads to so many spurious and deceitful offers of assistance that sound knowledge on this substance is most important to the farmer. There are so many artificial manures in the market now-a-days that it is more than ever necessary to bear in mind that ammonia and phosphoric acid are the two ingredients on the presence of which the value of a manure claiming general usefulness alone must rest.

A correspondent, writing from Bagnalstown, asks us to throw some light on an advertisement which appeared the other day announcing a wonderful *chemical* manure at only a few shillings a ton. It appears to us that this is just a case in which the ignorance of the reader is the hope of the advertiser. Nitrogen in ammonia costs at least 50*l.* a ton, and phosphate of lime in its two varieties of form from 10*l.* to 20*l.* a ton, and these, or their equivalents, are, as we have said, really the only foundations on which the reputation of any manure can be safely built, so that we are not curious as to any sort of manure which may be offered for 17*s.* a ton. No doubt, seeing that good stable dung is to be bought for 5*s.* to 8*s.* a ton, a good useful manure may be made for 17*s.*; but an advertisement in a London paper is intended for all the counties, and no one sends for farmyard dung out of his own. Besides, it is a chemical gentleman who advertises thus to all the counties, and we may suppose that this professes, therefore, to be a concentrated fertiliser, one whose carriage per acre will not be a very heavy sum. Whatever it may profess to be, we can confidently assert that if it contains ammonia and phosphate of lime in the relative proportions in which good guano has them present in it, there are not more than 1 per cent. of nitrogen and 2 or 3 per cent. of bone earth in its composition. The success of the so-called "economical manure" was based upon the popularity of the sentiment that, in the long run, cost is true economy. The manure in question appeals to the more common prejudice in favour of cheapness. It is plain, however, that if an article be valueless, it is a loss to its purchaser, however low priced it may be. Rational agriculturists well know that so long as guano costs 12*l.* a ton, any sort of manure which is to rival it must cost at least as much.

AGRICULTURAL STATISTICS.

No one can question the ability displayed, and sound sense inculcated, in the leading article of the *Gazette* for Jan. 7th. No doubt statistics do occupy the place in man's civilisation which the talented writer of that article assigns to them. One must admit the cogency of the arguments put forward, and the question of the importance of statistics being settled, we have only to deal with the method of their collection.

Under this head it is essential to consider the feelings, the prejudices if you like so to call them, of the class from whom the information is to come. It is the misfortune of farmers generally, from the nature of their business—their acquaintance solely with physical causes, and minute and often isolated facts—that their powers of observation are quickened at the expense of those of perception and reflection. They do not readily perceive the bearings of a question, and thus are led to stem the tide which they should direct, or aim their blows at a general truth which are only intended for a particular application of it. Thus it was with the corn laws, and it may be clearly perceived in this case that the agriculturists as a body are not opposed to the advocates of statistical information, but to certain proposed or imaginary modes of collection. Ask the least informed person in the agricultural body, without reference to the present question, if it be not pertinent to his business to ascertain the average yield of corn and quantity in hand in his own neighbourhood? He will answer, "Yes, to be sure." Why, the farmer is trying to gain statistics every day of his life. What questions more important at market than the oft repeated ones:—"Is your yield an average? Have you threshed much? Shall you sell to-day?" &c. Is it possible that the farmers of England are averse to have that knowledge placed on a firm and sure foundation as a guide to their most important transactions! But it is easy to foresee that much annoyance might arise from covetous and interfering landlords, as from malicious neighbours, if the exact yield of corn on each respective farm were known in the immediate neighbourhood. A tax on industry and talent, in the shape of an augmented rent, probably might be one result, whilst penury and negligence would be shielded; for it is certain that we do lay too much stress on the natural fertility of land, whilst under the new order of things large crops depend much more on judicious and liberal management. It is not essential that the yield of any particular farm should be known, and an arrangement which did not obviate this difficulty would be, therefore, a wilful violation of individual interests. The following is the summary of a plan which might be adopted in outline.

Proposed: that the overseer of every parish, when collecting a rate, should deliver to each occupier of an acre and upwards two forms for him to fill up; one to be a return without the signature of the returner, the other to be a declaration with the signature that a correct return had been made. The above to be deposited at some convenient place, and by a certain day, named in the form. To avoid recognition the returns might be made on one or more forms.

The same object would be accomplished if the returners were to forward their papers directly to some office for the purpose in London; the communication of names to be strictly confidential.

The return should be made as simple as possible until it becomes habitual; if too great an amount of information is sought the object will fail. Let us enter calmly and fearlessly on a discussion as to the best means of introducing a measure which the progress of time has matured, and which is likely to exert as much influence on agriculture as any of the important movements of the past half century. We shall then be prepared for any results. *Edward E. Agate, Kingston, near Arundel.*

COVERED YARDS AND BOX FEEDING.

The general introduction of under-cover feeding, which is gradually superseding the ordinary open farmyards with untroughed buildings, renders it necessary to consider the matter with reference to the health of our animals. The heavy losses from disease prove that at present there are many points affecting the sanitary condition of our animals that require inquiry and amendment; I purpose stating my own experience and some other facts, in the hope that my brother agriculturists will communicate their views and practice on this important question. I say all important, because I believe that when we get statistics of the number of all animals lost by disease on each farm, it will show a formidable sum-total of deduction from the farmers' profits. For many years I have kept my bullocks, sheep, and pigs on open boarded floors, and with complete success, never having in any instance had a complaint amongst them, although sometimes from 300 to 400 pigs, 200 sheep, and 30 to 50 bullocks have been placed in close quarters.

Although I cut up a great quantity of straw for consumption by my animals, still, owing to the large bulk I now grow, I find I cannot get rid of it all in that way. I, therefore, converted my large barn into a covered yard, and have had therein at various times three lots of bullocks, none of which turned out satisfactorily, either as regarded the animals or the manure, although they were well littered down with clean straw every day. I suspected that the cause of this was the heating of the manure under them, which became so intensely hot although moist, that on removing the upper layer volumes of steam would rise to the top of the barn. One week was sufficient to render it as hot as a Cucumber bed, and in five or six weeks the dung became "fire fanged" and undecomposed. Knowing how many covered yards succeed and having observed the dung from these removed in a rich cool "spitting" condition, and knowing too how discrepant have been the various results of box and under cover feeding, I instituted inquiries into the cause, and received from one whom I consider the father of covered yards, a most lucid explanation. I had for many years seen in the covered homestalls of the Rev. Mr. Cooke, of Semer, near Hadleigh, many fine beasts in perfect health and condition on manure from 2 to 4 feet thick. To him, therefore, I applied for explanation and information. "Well," he said, "like yourself in my early days I found my cattle unhealthy, and perceived that the cause was a too liberal supply of straw as litter; the air being thus admitted, set up violent fermentation and the heating process. I therefore allowed the 'pudding' or solid manure to accumulate, scattering by hand very thinly merely as much straw as would make a pasty mortar bed of thick doughy consistence, the result being the exclusion of air and perfect coolness. It would be better to run the risk of the animals being somewhat dirty than that there should be an active fermenting mass."

This explanation of Mr. Cooke's I consider so valuable that I think it an agricultural duty to make it known. By only applying as much straw as will tread into and amalgamate with the manure, it is preserved in that condition in which it may be ploughed in for roots, without the process of dung heaping. We all know practically that if pigs are permitted to lie on fermenting or hot manure they will have the "heaves," a lung disease as fatal as the pleuro-pneumonia in cattle. The whole question of under-cover feeding thus resolves itself into one of so proportioning the straw to the manure that the mass shall be sufficiently pasty to remain cool. I have known pig feeders (not farmers) who having no straw, successfully fatted their hogs, although wallowing in and bedaubed with cool manure, whilst others who permitted too free a use of straw got heat and disease.

The natural tendency of a farm-yard labourer is to litter abundantly, nor can we wonder at it, when we know the thorough washing which farm-yards receive by heavy rains and water from untroughed buildings. There is no fear of too much heating here. Still, in a warm dry spring I have known cattle attacked with lung disease by lying on dense masses of manure in open yards, the internal heat of which was fatal to their health. We must never forget that the liquid manure is thirteen times more in weight than the solid. If so, how great must be its loss in sloping open yards.

Thinking this matter a very important one, I have sent a copy of this letter to several agricultural periodicals. *J. J. Mechi, Tiptree Hall, Kelvedon, Essex, Jan.* 31.

P.S. Mr. Lawrence, of Cirencester, keeps his farm horses in boxes, removing the manure once in six or eight weeks. He cuts his straw into 4-inch lengths. In our eastern counties straw is generally more glassy and reedy than in moister districts. Mr. Randall, in the vale of Evesham, manages his sheep in winter under cover by placing them upon burned clay, or brick-dust, in fact. He has been for many years a great clay burner, and wheels daily (I believe) one

barrowful, morning and evening, to every six large sheep. The result is perfect health and appetite, and a most valuable compost, producing great crops of roots. I can, from my own experience, strongly recommend burned clay for this purpose.

AGRICULTURAL CONSTANTS.

It is a fearful thing to differ from an editor, yet as I well know your desire is the elucidation of truth, I venture to reply to your comments on my agricultural "constants."

It is quite true there is no mathematical certainty in any of man's productions or manufactures, and the examples you quote of engineers' "constants" are liable to great variations; for instance, the strength of iron varies considerably with the temperature and humidity of the atmosphere during the making of the iron from the ore, with the materials put into the furnace, with the care of the maker, and a thousand other contingencies, and yet it is found convenient that a certain number be the exponent of the average strength of cast iron. So also in farm-yard dung; this varies in composition from numerous causes, yet an average quality may be reckoned upon—nay is; for it is very usual to say 8 loads of dung is a small, 15 a moderate, and 20 a good dressing for an acre of land. Therefore it is conceded among farmers, that for all practical purposes dung may, in calculation, be reckoned as of an average quality.

Again, as to guano, what is sold by respectable dealers is of pretty even composition; it would be more precise no doubt to substitute for the term guano a certain percentage of ammonia, phosphates, &c., but all these attain a fair average value in Gibbs's guano. When we come to bone dust we have, perhaps, a more certain composition than in guano, but when a learned professor of agricultural chemistry points out this as worth thirty times its weight of farm-yard dung, he has endeavoured to give us a "constant;" but which (as I before shown) appears to be an erroneous estimate, and had I been entirely ignorant of chemistry or unused to calculations, I might have taken this statement of Dr. Madden's as correct, and acted upon it to my loss. It is therefore the discussion of such comparisons in your pages that I desire, in order to settle facts, or "constants," on such a basis, that practical farmers may safely act upon them. One very important question to settle is the comparative value of dung of average quality, and guano or superphosphate of average quality. Another important question to ventilate would be—"What amount (in value) of manure is left by sheep on land for every ton of Turnips eaten by them on the field?"

I have used the word "constants" for conciseness, and not with the idea that any agricultural facts are of exactly constant recurrence, but I think they vibrate about a normal line within a limit, variable no doubt, but yet appreciable and rateable by the intelligent farmer. Notwithstanding, if any concise term more suitable than "constants" can be named I will willingly adopt it, for the really important point is to have certain sequences in farming practice to be as clearly defined as possible. *Martyn Roberts.*

DIARY OF A DAIRY FARM.

January and February.

As every thing in connection with dairy proceedings should be conducted with great cleanliness, it is well at this season of the year to make preparations for the commencement of cheese-making and the management of the cheese, first by cleansing the dairy lofts, &c., from any remains of the former year's operations. That is to say, all cheese which remains unsold should be removed from the rooms intended to receive that of this year's making, to allow of white-washing, looking well to all encroachments made by mice, which a little mortar with pounded glass mixed with it, has been found effectual in preventing. The shelves and floors should be thoroughly cleansed from mites, which are generally to be found after cheese has remained on them through the winter, however attentive the dairymaid may have been in regularly wiping, and if they are not thoroughly destroyed, they will do much injury to the appearance of the new cheese, by preventing what is called the blue coat from rising on it, which marks the richness of the cheese, which is often estimated much by its appearance. Sometimes in order entirely to destroy these little enemies if they have been allowed to increase, it may require more than one washing with hot-water and soda to ensure the entire extirpation of them, and if any of the last year's cheese remains, and the mites require destroying, the best mode of doing so is by rubbing the cheeses well with sweet oil applied with a woollen cloth, and if necessary by repeating this process. This has been found an effectual remedy. A north aspect is considered the best for a dairy, also for cheese lofts where it is desirable that there should be as much air as possible admitted in the summer; but convenience should be provided for excluding it at different seasons of the year, when it proves injurious to the cheese by causing it to crack, therefore shutters are required, or in some situations casements of glass, whereby the light may be admitted without the air; the windows should be formed of wire lattice, sufficiently fine to hinder the intrusion of mice and birds. Stands formed so as to take several rows of shelves each side are the best for keeping the cheese upon, as it generally dries better upon them than on the floor or on those fixed round the walls, both of which are, however, generally necessary to make the space requisite for the cheese.

February.—It being always an advantage to the cheese that the rennet should be prepared some time before it is wanted for use, it should be made in February, and as large a quantity should be provided as can be conveniently done consistent with the size of the dairy. Large Olive jars have been found very useful, some of which will hold 30 gallons, and a hole can be made at the bottom to draw the rennet from, which is much better than disturbing it at the top by dipping out, and a wooden tap should be used, as the acidity of the liquid would have an injurious effect upon a metal one; it has been found a convenience to have a piece of board with holes perforated in it put into the jar under the vells to prevent their getting to the bottom, and so preventing the liquid from running out by their getting against the tap; these little items, though so very simple, affect the convenience of a dairymaid greatly. The rennet should be prepared by first making a brine strong enough to bear an egg, it should then be boiled half an hour, and when quite cold put into the jar, and to every two gallons should be added six vells, and one Lemon sliced, which does away with any disagreeable smell; an ounce of saltpetre to every two gallons also should be added; it is very desirable that this essential part of cheese-making should be provided two months before required for use, because it is thus more likely to check the tendency which the early cheese has to heave. By being made in a large quantity, the dairymaid is not obliged to be often testing the strength, which is the case when the rennet is made in small quantities, and it is liable sometimes to be too strong, thereby causing the milk to become curd too quickly, which should be carefully avoided. While, on the other hand, if not of sufficient strength, the curd will be tender, the cheese not so good, and cause great waste by a considerable portion of the soft curd passing through the sieve, and forming a sediment at the bottom of the whey lead which ought to be in the cheese, and this with good management is not likely to occur. Therefore it is of great importance to attend to the above directions for making the rennet, which, if acted upon, will enable the dairymaid to go on for months with regularity as regards the first part of the process of cheese-making: and this has great influence upon the other branches of the business. Irish vells are generally preferred, and they are not bought until old enough for use. Sometimes the butchers who buy the calves in dairy districts are required to return the stomachs for the use of the dairy; they are considerably larger than the Irish ones, and whenever this is the case they should be salted and kept at least 12 months before they are used, or they will injure the cheese.

Home Correspondence.

Floors for Cow-sheds.—In reply to your inquirer, I gave through the *Agricultural Gazette*, many years ago, the particulars of a floor I had found very serviceable for this and various other purposes—viz., three parts coal ashes (those from the blacksmiths' forges to be preferred) and two parts gas lime from gas works, to be thoroughly mixed, and then made into a mortar with gas tar. If the gas tar come from gas works where the ammoniacal liquor is not separated, it will be sufficiently mixed for the purpose; but if the latter be separated, and the tar be thick, it will set quicker if about one fourth part of water be mixed thoroughly with the tar when used. For the floors of cow-sheds, this should be laid about 3 inches thick in one layer, on an even surface of gravel, or stone broken very small with a sprinkling of gravel over, and rolled down. The mortar may be laid on with a common shovel, and merely patted down flat. In dry, warm weather, if the mortar has been carefully made, the floor will set firm in a few days. For any ordinary outhouse, half the thickness will make a permanent floor. I have found this floor successful for everything but pigs; but daily moisture of a pig stye, and sweeping, with the great and persevering power of the snout of large pigs, beat me, from being too sparing, I believe, in thickness for such a trying purpose. About four years ago I removed this asphalte from the pig styes, and adopted the Portland cement as recommended by J. B. White and Brothers, Millbank Street, Westminster, whose advertisement appears continually in the *Gazette*. This has completely posed even the pigs. I have used it with perfect success, not only for pig styes, but for dairies, cottage floors, &c. Much depends in all these matters upon careful manipulation; failure in them can only result from want of attention to the directions given, and carelessness. *C. Lawrence.*

Cutting Hedges.—I observed a few weeks ago at Wolsingham in Durham a man cutting down an old Whitethorn hedge, the stumps of which varied from 3 to 10 inches in thickness; they had often been cut at about 2 feet from the ground, and in consequence had branched at that height, forming a good fence above, whilst below (the Thorns evidently having originally been planted too far apart) the hedge was quite open; to remedy this it was being cut down to within a few inches of the ground. I asked the man if the cutting could not be more speedily and cheaply performed by two men and a cross-cut saw, to which he did not dissent, but stated that if sawn down the thorns would not sprout anything like so freely as when chopped with the axe, as he was doing, and suggested I should go to the other side of the field and look at some which had been sawn down, and how badly they had sprouted; he and I find other workmen believe the advantage of the chopping to be from the shaking the roots get! Is there any valid foundation for this belief? *W. Wooler.*

Farm Bailiffs, &c.—With reference to your correspondent, "One of the Attacked," I will only say that it appears possible (as is ably proved by your correspondent "G. S.") to answer all my inquiries with suitable and sensible remarks, without misconstruing the clearly expressed motives of an unprejudiced person. I think that the few lines in your correspondent's letter, wherein he speaks of "smock-frock bailiffs," and draws a sort of comparison between them and watchmen, contain more of personality and envious feeling towards one class of those of whom I wrote than all the attacks put together *A Novice.*

Moles, Partridges, Pheasants, and Ants.—An old, learned, and quaint writer begins a book in this way:—"We cannot but know," he writes, "and be assured that to encounter a vulgar error is more than to grapple with a monster or to enter the lists with an Anakim, especially since what is commonly received is currently credited by the major part of the world, who take all upon trust which they hear from such as they esteem wiser than themselves, and drinking it in without the least reluctancy." Pliny has also the same sentiment, and doubtless many others besides him. "Men," he writes, "do not anywhere more readily err than where they follow a guide whom they presume they may safely trust." Now, when God created the world he established a balance among the animals in it, causing one kind, namely, beasts and birds of prey, to balance the required numbers and kinds to be preyed upon; thus beasts and birds of prey in general are but few in number, living chiefly but not wholly in pairs, as lions, tigers, eagles, kites, hawks, ravens, &c.; whilst cattle, sheep, rabbits, and most kinds of birds congregate in vast numbers and multiply extremely fast. Now, in all this the thoughtful man sees the wisdom of God; he sees that the beasts and birds of prey are just as useful and even as necessary, or more necessary, for the good of the whole, than are the beasts and birds that are preyed upon. But man destroys this salutary and wise balance, and by so doing brings great evils upon himself and on his fellow men. Thus the incalculably useful and innocent mole is everywhere barbarously killed, and the same nearly may be said of partridges and pheasants, and sometimes, as I shall show, of ants; and I may add of many other living creatures created by a merciful and wise Providence for man's sole benefit, but which man wantonly and barbarously destroys. If you ask a farmer why he kills, or causes to be killed, moles—what is his reply?—why, in the first place, it is exactly that complained of by the old English and the old Roman writer above, namely, he does it because others do it, and he inquires no further. Beyond this he has no answer to give; he never asks himself whether they do him good or harm. "But come, let you and me reason a little time together: you pay a man, Mr. Greening, to destroy your moles." "Yes, sir, I do; and I always will." "Do you know what it was intended when that little, beautiful, industrious, and truly interesting and innocent creature was created, that he should do?" "No, I do not, nor do I care; I hate to see molehills on my farm, and so, as others do, I kill all the moles I can." "Did you ever ask yourself what they lived upon?—what they were after when they showed you, by the exhibition of those hills you complain of, that they were at work in your fields?" "No, I never did." "Did you read in the Journal of the Royal Agricultural Society that in one year, and every year, full 60,000 bushels of seed Wheat, equal at this time to nearly 30,000*l.* worth, are destroyed by wireworms? You will find in that work, I think for 1845, the statement I have just above made of the wonderful destruction made by wireworms, for remember, if 60,000 bushels of seed were destroyed, full 720,000 bushels of crop was prevented, equal in value, at this time, to upwards of 300,000*l.* a year! Now do not be angry; I tell you, without fear of refutation, that if farmers, instead of killing moles, partridges, and pheasants, would protect them, 720,000 more bushels of Wheat would go every year into the English markets; but the creature designed, as I have said, by a kind Providence to perform the chief part of this immense good is the mole which you and your friends destroy. But come, sir, keep your seat, and let us reason together a little further. Some years since I had two fields, one of which was full of wireworms, and the other was infested with them to the extent of more than one third part of it. My crops failed for the first two or three years the land was in my possession, but every year afterwards they improved, and at length rapidly. What plan then did I pursue, Mr. Greening? Why, the reverse exactly to your plan; I bought all the live moles I could obtain, first at 3*s.* a dozen and then at 2*s.*, and turned them down in my fields; and one year in which I had 3 quarters of Barley on an acre and nearly 7 quarters of Wheat the moles were at work all the summer, and in such numbers that, as I walked among the growing crops, the ground under my feet was like a honeycomb; but that was the last year I had a mole on my land; their work being done, their food—the former pests to my crops—being all consumed, the little innocent workmen, Mr. Greening, who had performed for me a service beyond the powers of all the men in my parish, migrated to my neighbours to perform for them the same kind of benefit they had for me; but, of course, death met them at every move, and soon the whole colony was destroyed. I will add that now I will allow all the farmers in this county to

turn upon the glebe I myself occupy all the moles from their farms they can bring, being convinced they would do me no injury; but, if I happen to have a wireworm, they would by destroying him do me good."—"But has not a noble duke, through that wonderful steward of his, compelled his tenants to destroy all the moles on their farms?" "He has, sir, I admit, and the same two wizards would, some few years since, have inserted the same kind of clause for the destruction of rooks; but shame, I conclude, and not knowledge, protects the birds. Of course, his Grace can insist upon what covenants he pleases; the laws allow thus much; but a noble landed proprietor ought not to check but promote improvement, and there can be no improvement where farms are cultivated on the plan of the duke's leases. What would our manufactures have been had a law for them been enacted such as the duke's leases? At this time they would have been what they were in 1756, and so must have remained. But if you can bring to your aid this noble duke and his steward, who in reality are but one man, there are on my side ranged in defence of Providence and its creatures three of the wisest heads and the most scientific pens I know—I mean Talpa himself, Falcon, and Mr. Burcham—either of whom singly, if placed in the balance opposite to the duke and his steward, if scientific knowledge has weight, would cause the two feathers to kick the beam. You observe, therefore, that wireworms do an immensity of harm; and that moles, partridges, and pheasants, but particularly moles, do an immensity of good; and with this remark, sir, we will shake hands and end our discourse, to resume it, however, on some other occasion." *George Wilkins.*

Societies.

Society of Arts, *Jan.* 25.—*On Cultivation by Steam.*—Mr. Fowler this evening read a paper on this subject, from which we extract the following passages:—Mr. Fowler first stated the problem as twofold—First, the application of steam to field operations; second, to the carting and harvest operations of a farm; and then referred to the history of such attempts as had been made towards its solution:—

We have, at least, 12 schemes patented in the last few years for rotatory cultivators, worked by locomotive engines, all varying only in detail; and it has been the favourite subject of many of our agricultural writers; but I believe a little consideration would have spared them all much pains and expense, as, if there is one point more difficult than another from which to approach our subject, it is in this direction. The enormous weight of engines required in which an ordinary farm pressure of steam is used, and the weight necessary to give sufficient strength to the drums and frames; the difficulty of steering such a great load to the nicety for field operations; the yet unknown difficulties that may meet the rotatory cultivator, though, at first sight, I confess it appears well adapted to the work, to say nothing of the power wasted in moving such a weight over arable land, and up ever so slight an incline, might well deter the most sanguine from any attempt of this kind; but it seems, from the records of the Patent Office, such a monomania at the present moment, that I do not think it will be waste of time to endeavour to direct the energies of my brother inventors to a different channel. For field operations we have, then, but two plans that can be considered as coming into competition, both of which have, in common, the important consideration of proposing to use any ordinary portable farm engine; both propose to drag any given field implement that may be attached to them, such as a combination of ploughs, harrows, drills, &c., but they differ in the means by which they accomplish this end in this respect. The one draws the implement by the direct traction of a wire rope, and the other by conveying the power from the engine to a windlass by an endless rope, the windlass winding itself up and down the field by winding up and paying off from two drums a wire rope, anchored at each end, or winding along a wire rope, as may be found best. I must premise my remarks on the merits of these plans by saying that I am myself a patentee of one of them, and had I not thought mine the best, I should not have entered on the competition, and I must leave you to judge of their respective merits. After giving you the reasons that led me to that preference, we will first consider the plan of travelling the windlass up and down the field. A small hemp rope is passed round the fly-wheel of a portable engine, placed in one corner of the field, one end being carried round a pulley at the opposite end of the same headland, and again round a pulley at the top of the furrow to be ploughed. It is then taken to the bottom of the field round another pulley at the bottom end of the same furrow, and again brought up the field to the top of the furrow, where passing round another pulley, it is attached to the other end of the rope, passing round the fly-wheel in its passage up or down the field; it conveys power to a windlass by its friction on a pulley or series of pulleys mounted upon it, and being set in motion, turns one or two drums mounted on the windlass, and either winds up or pays off two wire ropes, or winds up and pays off a single rope, winding along that rope of friction. The rope that conveys the power is supported at intervals by carriages, and in order to convey the necessary power must be made of hemp, and from its great length and the difficulty of supporting it, requires to be very small. As lightness is necessary, speed is also a requisite. Any derangement of the pulleys would, of course, at that high speed, consume any amount of power. The windlass, if made strong enough to wear well, with the drums and gear necessary to reduce the speed, cannot weigh less than 30 cwt., and the power required to draw that weight over the land cannot be less than one-horse draft; assuming the friction of engine, pulleys, and windlass at half horse-power, we have one-and-a-half horse-power consumed in keeping the machine in motion. Some experiments I have lately made on the friction of wire rope on the land show that rather less than two-horse power is required to drive engine, windlass, and wire rope enough to work 20 acres of land (nearly a mile in length), the rope travelling at 2½ miles per hour, and being strong enough to pull up a 10-horse engine at that speed. The disadvantage of the windlass travelling up and down the field is very great, though the plough may be attached to either end of it, and ploughing may be thus easily performed; yet, if you wish to pull any other farm machine when you get to the headland, you have no means of getting the implement to the opposite side of the windlass, and going back except by the assistance of horse-power, and this, as will be seen, does not apply to the simple rope by which the implement can be easily turned. I think with these disadvantages, the plan of traction by winding up a wire rope is greatly preferable, and it is much simpler, having fewer wearing parts, is less liable to derangement, and more easily managed. The wear and tear on a hemp rope at such a speed, and exposed to all sorts of weather, is a point on which I am not competent to form an opinion, but former experience would lead to considerable doubt on this point. Before proceeding to describe the two plans for traction, to which I shall call your attention, it will be well to consider what have been the causes of failure in the previous attempts of Heathcote, in 1837, Osborne, and Lord Willoughby d'Eresby. In the experiments that Mr. Parkes, the well known draining engineer, tried for Mr. Heathcote, the difficulty experienced was, to procure any material that would convey the requisite power without entailing too much weight and consequent friction on the land. Lord Willoughby d'Eresby, in the use of chain for that purpose, effectually prevented the possibility of success in his efforts, as the friction of chain on the ground is so great that it would consume almost more power than it is capable of bearing, when of any great length. The present perfection to which the manufacture of wire-rope has obtained, has, however, entirely overcome the difficulties that beset them; and in Mr. Williams's and my own plan, wire-rope is the only material with which we propose working. Mr. Williams proposes to mount an ordinary portable engine on a frame, on one of which two barrels are fixed turned by the engine, by one of which a wire rope is carried up, and by the other passed off; by the other, one end of this wire rope passes straight down the field, and the other passing along the frame at right angles to the drum for some distance, and then down the field again, running along the frame enclosed at the bottom, and meeting the other rope. The implement to be drawn is fixed between the rope, and alternately pulled backwards and forwards by these ropes, the two frames being moved along the headlands as the work progressed. My own plan is to mount two drums on a frame, fixing them in one corner of the field, the portable engine being set so as to drive them with a short rope or chain working in pulleys. The ropes are led off the drums to opposite corners of the field, and there passed round pulleys, anchored on a chain stretched between two posts or anchors, and the drums being alternately set in motion, wind the wire rope backwards and forwards between the two pulleys, which are moved up the field by being allowed to slip along the chain as the work progresses, the engine and windlass remaining stationary until the whole field is completed. I may be allowed to add that one of my windlasses has been at work for the last six weeks at Mr. Smith's, of Woolston, near Fenny Stratford, who will be able to give you the results of his experience. I believe either of the above three plans is capable of solving the problem of the application of steam to field operations, and Mr. Smith's experience would fully justify me in saying that it may be done at a saving of 40 per cent. over horse labour. Mr. Smith's calculations are as follows:—4 men and boy will plough an acre in 2½ hours, or 4 acres a day. This is only the same number of men required for horse labour, consequently we have all the horse labour saved, from which deduct the cost of 7 cwt. of coal, gives a saving of nearly half, as the wear and tear will hardly exceed the wear and tear of eight horses. Another advantage he considers must not be lost sight of, is that the land is not injured by the treading of the horses in wet weather, and, consequently, he can work it when he otherwise would be at a stand-still. Having thus, I think, arrived at the conclusion that any given implement may be drawn over the land by an ordinary portable engine, it will be necessary to consider what implements are likely to be best adapted to be used with this tackle, so as practically to make it most serviceable. Ploughing, of course, is the ordinary operation of a farm, and a series of four or five ploughs, fixed in a frame, will at any rate best meet the present wants and prejudices of the farmer. Mr. Williams has invented a series of ploughs that have very considerable merit, and I have no doubt that but little difficulty will be found in adapting ploughs to meet the requirements of the farmer. I think there is every probability that some other implement will, to a great extent, supersede the plough, and to this attention ought now to be turned. Mr. Smith is now, and has been for some years, moving with horse-power a sort of grubber instead of the plough, and with, I hear, the best results. But I must confess I see no way of effectually and thoroughly turning over the soil, which is often necessary, both to expose it to the air and bury the stubble and weeds, but by the use of the plough. Still this operation can hardly be necessary very often in a year, and, I believe, a machine may be made which will take the soil up on a platform to a certain height, then, passing it through revolving harrows, leave it at once in a perfect tilth, and which may be worked by traction. This would be a great advantage, as the soil is often, when broken up, in a fit state to pulverise, but, after the sun's rays have heated it for a few days, it is quite impossible to break it. The sets of implements that may be found best for different soils and circumstances to be worked by steam-power, will be numbered by hundreds; and it is impossible for me to estimate the changes to which the application of steam may give rise, nor will my limits permit me to dwell longer upon it. It is worthy of serious and careful attention, and, I think, deserves at once to be the subject of extended experiments. Having thus drawn your attention to what appear to me to be all the most practicable schemes and experiments for performing field operations by steam, I now have to refer to the other branch of our subject, the cartage of material to and fro on a farm. A large team of horses will still be necessary on a farm to do the necessary carting, going to market, &c., but during harvest every available horse is often required, especially on large light land farms. Can our windlasses be made available for harvest work; if so, the number of horses might safely be reduced two-thirds. The practice of ricking in the field is now common, and where this is the case, there can be no difficulty in using the windlass to bring the corn to one spot. You might fix the windlass in the morning and clear an 80 acre field with it in a short time. It can be removed and fixed again with ease in two hours. The windlass could be also used for carting Turnips, but if a traction locomotive could be made available, it would be far better suited to the work. A tramway down the centre of the farm, using the windlasses to the right and left to bring material to the barn, would reduce the horse work to a minimum, but whether the locomotive could not be made to do the carting work of a farm is well worthy of attention. The great difficulty met with by Hancock and others, on common roads, was the speed at which they travelled, but for this purpose three miles an hour will be a sufficient speed. I belive that a few experiments would lead to a successful solution of this problem. One essential to its success is, however, the use of very high pressure steam, so as greatly to reduce the weight of the engine, and the consumption of as little water as possible. Possibility of driving two wheels is now overcome by a very simple contrivance, which I am not at liberty to describe to you, and this is a great step in the right direction. Boydell's wheels also may form an important auxiliary in certain states of the weather, though I think they would hardly do in constant wear. Were I to attempt the solution of this question, I should use wheels to which Boydell's rail could be attached, whenever the state of the weather demanded. Thus there are three directions in which in my judgment it would be well to make some experiments, 1st, in implements, adapted to be worked with the steam windlasses; 2d, in a rotatory cultivator, worked by a portable engine, with endless band; 3d, in a locomotive used for traction to do the cartage of a farm. I feel confident that a few well-directed experiments in either or all of these directions would bring out good practical results in the course of a few years: but I would ask you whether it is right that the carrying out of these experiments should be left to chance—whether, when so important a matter is involved as the rapid development of steam cultivation, it would not be wise to enlist the public in the endeavour to bring them to some practical solution. If left in private hands it may, and probably will, take many years to arrive at any real results, and at the cost of loss and disappointment to many of a deserving but unfortunate class of men, whereas I feel confident that with public assistance a short time would enable us to solve all the three questions that at present seem most to claim attention, and others that no doubt would arise in the course of prosecuting these inquiries.

Belfast Flax Society, *Jan.* 18.—At the annual meeting held this day Mr. W. Charley related his experience in Flax culture as follows:—"Every year I keep an account of the produce of my ground sown with Flax, and a few statistics are especially valuable. Last year, at this society, I think I mentioned that some farmers had been telling me that they lost a good deal of money by cultivating Flax in place of other crops. I said to the society, in some remarks that I made, that my crop brought me in a profit of 3*l.* an acre. I got, I remember, a good rating for saying that my profit was so small; and this year I selected a small part of a field; I had it carefully sown and attended to; and my profit on the crop is so very much increased that it is very pleasant to me to state the amount. Last year my profit was only 3*l.* an acre; this year my profit is 14*l.* 13*s.* per acre—being an increase of 11*l.* 13*s.*

Flax Grown in 1855, on Mr. Charley's Farm, 1a. 0r. 2p., Statute Measure.

Expenses.	£	s.	d.
One ploughing, heavy furrow	0	12	0
Seed, 2½ bushels	1	16	0
Harrowing, picking off stones, sowing seed and rolling	0	10	0
Weeding	0	6	3
Cutting Rushes, and making ropes of same ...	0	7	0
Pulling and binding	0	16	5
Carting to yard, and ripling under cover ...	0	18	4
Carting to water, and fixing in same	0	7	6
Lifting out of water, and drawing to Grass ...	0	5	6
Spreading on Grass...	0	11	8
Lifting off Grass and stooking	0	5	10
Carting to stack-yard, stacking, and thatching	0	8	1
Loading and drawing to scutch-mill	0	4	6
Carting from mill and marketing expenses ...	0	6	3
Drying Flax bolls at corn mill	0	3	3
Cartage, &c., of bolls	0	3	8
Rent and taxes, 1a. 0r. 2p....	2	5	0
Scutching and stricking 53 stones Flax, at 1s. 2*d.*	3	1	10
Total expenses	13	9	1

Receipts.	£	s.	d.	£	s.	d.
For Flax fibre, 4 stone, at 10*s.* 3*d.*	2	1	0			
For ditto, 49 ditto, at 10*s.*	24	10	0			
For scutching tow, 84 lbs.	0	4	10			
For 60 bushels bolls for feeding ...	1	10	0			
				28	5	10
Profit...				14	16	9

Or, 14*l.* 13*s.* 0*d.* per acre!

"The accounts comprise," Mr. Charley added, "every expense that I could think of; and my land-steward, I should say, is not very favourable to the growth of Flax, so that everything charged is put down at the highest figure."

Reviews.

The Keythorpe System of Land Drainage: its Principles, Efficiency, Economy, and Opponents. By Joshua Trimmer, F.G.S. W. P. Metchim, 20, Parliament Street.

We recommend those of our readers who have gathered their impressions from our columns of the way in which Lord Berners' estates have been drained, to procure this pamphlet and see how the practice which his lordship found efficient grows in Mr. Trimmer's hands from a mere instance, at first, we presume, of accidental success into a *system*—hinging on geological facts of very general occurrence and capable of course of as general an application. How generally those observed facts of the geologist on which the Keythorpe system hinges may hold true we do not know, but they are, it would seem, characteristic of large districts, and demand therefore the earnest attention of land drainers. This, it is plain, they have not yet received, or we should not have Mr. Humbert speaking of the Keythorpe drainage as if it were identical with the old methods of Elkington. The Keythorpe system does not act by drains cut into a porous bed *below* the clay soil which is to be drained. It acts by drains cutting through the porous beds lying *over* the clay subsoil. These are natural drains—furrows in the surface of the subsoil filled up by porous material—but they cannot act as drains for want of an outfall; this Lord Berners gave them by his cross cut conduits, which not only act as drains themselves, but set in operation whatever facilities for land drainage nature has herself provided.

The following extract from the pamphlet explains the thing at length:—

"If we examine any recent railway cutting we shall see that the junction of the soil with the subsoil is very irregular, that in some places the subsoil comes within a foot or so of the surface, and in others sinks to the depth of several feet. The same appearances are exhibited in sections of gravel, sand, and clay pits; and we have in them this advantage for observation, that in extending the works a considerable extent of the soil is sometimes carefully cleared for the use of the farm or garden without disturbing the subsoil. We then see that the irregularities which we had observed in section are the transverse sections of certain natural subterranean ridges and furrows. It must be obvious that the rain which falls on the surface will sink downwards till checked by the clay. It will then collect in the subterranean furrows, and if they have any declivity will work its way along them through the porous soil, breaking out or forming wet spots at the points of least resistance. Now comes the Keythorpe drainer, and cuts his drains across the subterranean watercourses diagonally, crossing them at such an angle as still to maintain sufficient fall and to prevent the water from playing those pranks, in getting in and out of drains, which we sometimes hear ascribed

to it by the advocates for making the direction of the drains correspond in all cases with the line of greatest descent."

Calendar of Operations

JANUARY.

BORDER OF THE FENS, *January 28th.*—During the wet, short, and changeable days of mid-winter it is a difficult matter with the aid of machinery and all other appliances to turn a full complement of labourers to a profitable account in ordinary farm operations. They cannot all work under cover, nor any of them always under cover, and it is pretty certain that in January, and often in February and December, if it does not rain, "it freezes," and as the season advances it is quite probable that most of the odd jobs are done out of hand, and therefore until spring seeding commences labour is devoted to manure, draining, and hedging; to these a rainy day is not exactly fitted, both master and men are unwilling to lose the day, and a wet jacket and wet shoes result, often laying the foundation of rheumatism, and sometimes cold and cough occurs, to end in ague. There have been a few complaints in some districts of want of employment lately, chiefly from severe or unfavourable weather; but as soon as a few dry days ensue, the complaints are on the other side for more labourers. Wages continue at 14*s.* and 15*s.* per week; women, 1*s.* to 1*s.* 3*d.* a day; and boys are much sought for, those at 14 to 16 years old earning 1*s.* a day; smaller boys at from 6*d.* to 8*d.* Water, being once more in abundance, must have attention; the brooks and ponds have again risen to the level they were as three years ago, if not higher now than they have been for many years; all tunnels are more or less choked up with weeds and mud, and the frequent frost has loosened the soil on the sides of ditches, and soon accumulates an obstruction to the flowing stream. This has been a heavy month for roads of all kinds, and will prove the value of good hard materials, and of careful men to scrape and form a good crown for thorough drainage and equal wear. Turnips are disappearing fast, and sheep improving, except in price, which has lately had a downward tendency. Young Wheats look well and strong, as we have had rain enough to settle the soil firmly round the plant. We have sown less seed than usual per acre this year, and the growing crop looks thick enough in all reason. We begin to think that thick seeding too often serves to cover defective cultivation, and that thin seeding, if it has no other merit, will be considered a test of good farming, as if it produces a plentiful crop the quality may also be expected to be fine, although last year on "drummy" or skirty land neither seed nor anything else was a criterion of good management. The damp weather has been very adverse for threshing, nevertheless with yards full of beasts straw must be provided, and every favourable interval seized for this necessary process. Many samples have been lessened in value considerably by the condition to which they have been reduced by the prevalence of rain; this cannot always be guarded against, as if the engine or machine has to be hired it may be bespoke when frost promises fair, but by the time it is brought on the farm everything may be changed by thaw and downfall; something must always be hazarded, as if the farmer waits until he is sure of escaping these chances he would probably not be able to thresh at all. *J. W., Peterborough.*

Notices to Correspondents.

GRASS LANDS POACHED: *Cor.* You need not fear the present cut-up appearance of the land. Roll it in March, and bush harrow a week or two afterwards. Life and spring weather will soon hide all the present apparent faults of the field.

HORSE FOOD: *A Subscriber.* Ten lbs. weight of Oats, and 20 lbs. of cut chaff, with steamed Turnips, will suffice. But such a question receives so many answers according to the size and work of the animal, that any one answer is true only of the circumstances proper to it.

MANURE IN GRASS FIELDS: *R S.* It is not necessary to spread the droppings now, but in the comparatively dry weather of summer it is advisable to send a man over the fields once a week for that purpose.

MR. PHILIPPS: *Brandon.* A public dinner was given here last week by the agriculturists of West Norfolk to Mr. Philipps, of the Hall Farm, near Brandon, in acknowledgment of his services in the invention and the introduction of his lever harrow and weed extirpator.

PLOUGHING LEA: *Old Subscriber.* If the land is very light you may as well use, besides the skim coulter on the plough, a presser following it. This will push every green thing beneath the surface, and firm the whole body of moved earth, so that at seed time you may sow 3 or 4 bushels of the Oats broadcast, and they will fall into the lines of the furrows and come up as if drilled. You may as well after sowing and harrowing lengthwise with the furrows spread 20 bushels per acre, out of carts, of recently slaked lime, and then finish the harrowing. This may *perhaps* check the wireworm.

POUDRETTE: *X.* It is the dried and disinfected contents of sewers, privies, &c., disinfected at Paris by the addition of sulphate of zinc and chloride of calcium until no sulphuretted hydrogen can be detected. It is carried in casks to the works, where it is emptied on to a large heap, and dries naturally. They make many thousand tons a year, and it sells for something like 50*s.* a ton.

QUALIFICATIONS OF A BAILIFF: *E H W.* Thank you; the subject seems to be nearly exhausted. We have still several communications in type upon it. There is no such thing as an unprejudiced person. No doubt bailiffs, like other people, have to cut their coat according to their cloth, and are often blamed for a result which was due not to want of energy or judgment, but to want of means.

STEAMING APPARATUS: *Sub.* Many makers offer them:—Stanley of Peterborough; Richmond & Chandler of Salford; Robinson of Lisburn.

STRAW: *Subscriber.* Oat straw is best as fodder. It is generally cut greener than either Barley or Wheat straw, and is sweeter accordingly.

SUPERPHOSPHATE: *K.* Plaster and puddle a floor of clay, and let it dry. Lay thereon a ton of bone-dust—say 7 or 8 quarters; it should not be coarse, but need not be literally dust; if boiled or burned, so much the more favourable for the efficiency of the after operations. Pour water on the heap for a day or two as long as any is absorbed—then flatten it down and lay a lot of ashes round the edge. Pour on gradually 6 or 7 cwt. of sulphuric acid—four or five of the ordinary carboys. It should be poured into jugs, and thrown from the jugs on to the bones. The slowness of this plan, as well as its safety, is a recommendation. It will boil, and fume, and effervesce, and you had better stand to windward of it. Before night it will be quiet, and, if still very wet it should have the ashes closely packed around it. They may be mixed with the heap in a day or two, and it will be fit for the drill in a fortnight. The nitro-phosphate manure consists in the use of blood instead of water to wash the bones with, before the acid is added.

THE BEST MANURE: *W Gerard.* The remarks in the leading column will assist you. We believe that guano is the best manure in the sense in which you probably ask the question. The various forms of nitro-phosphate, and of the so-called urate, come near to it. As to application, the plan is to get it just below the surface of the land in moist weather as soon as possible. For application to corn crops therefore sow broadcast, and harrow or hoe soon afterwards. For green crops, sow broadcast previously to the last harrowing or drilling up so as to hinder actual contact with the seed.

"AUTUMNAL MARROW SQUASH."

THE Advertiser, who is a Gardener, has brought with him from America seeds of the above fruit, a full account of which is given in the *Chronicle* of last week. He has also three sorts of VEGETABLE MARROW, which are bell-shaped, look very nice on the table, are less watery than the old variety, and of superior quality. No Seed order should be sent, and these absent. Seeds of the whole will be sent on receipt of 30 Postage Stamps, or the SQUASH may be had alone for 13 Stamps.—Direct A. B., 6, Munden Street, Hammersmith, London.

W. FULLER, FLORIST, Newton Bushel, Devon, formerly Gardener to the late W. H. Story, Esq., of Whitehill, begs to inform the Trade and the Public generally that he will be prepared to send out the first week in May strong plants of the following beautiful new FUCHSIAS, all raised by Mr. Story.

GEM OF WHITEHILL.—This flower is hitherto unrivalled in form and quality; the sepals are of a rich carmine, remarkably long and reflex elegantly, giving the flower a bell-shaped appearance, corolla deep violet, very free bloomer and good habit. 7*s.* 6*d.* each.

PILOT.—Long scarlet tube, sepals well reflexed, large double dark corolla, very attractive. 5*s.* each.

STAR.—Tube rather short, sepals well reflexed, beautiful large double corolla. 5*s.* each.

DANDIE DINMONT.—Stout scarlet tube and sepals well reflexed, deep violet corolla. 5*s.* each.

GLORIOSA SUPERBA.—Beautiful scarlet tube and sepals of great substance beautifully reflexed, so as to resemble in shape the Turk's Cap Lily; deep violet corolla, very attractive, a good flower for exhibition; 5*s.* each, or the set for 1*l.* 1*s.*, when Gloriosa Superba will be given in to compensate for carriage.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that they have taken the premises, 82, Bishopsgate Street Within, where they intend carrying on the SEED BUSINESS in all its branches and trust by great assiduity and strict attention to merit an extended share of patronage. They confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality.—London, Feb. 2.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—
Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine, or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The following List of FLOWER SEEDS are recommended for their superior beauty and novelty, with the exception of those marked with an asterisk, which we merely name that our customers may be aware we have them in our List, and can supply them at the stated prices, but we ourselves do not recommend them as possessing any superior merits either in beauty or novelty of appearance to many of our well known favourites.

	s.	d.
Abronia umbellata	0	6
Acroclinium roseum, new	1	0
*Ageratum conspicuum	0	6
Alonsoa Warscewiczi	0	6
Arctotis breviscarpa	0	4
Argemone platyceras grandiflora...	0	6
*Browallia abbreviata	0	4
Balsam, dwarf scarlet	0	6
" new orange	0	6
" " sulphur	0	6
*Calceolaria scabiosæfolia	0	6
*Campanula stricta	0	4
*Centauridium Drummondi... ...	0	6
Chrysocephalum arenarium ...	1	0
Collinsia bartsiæfolia alba (new, bicolor alba, incorrectly named by some).		
Convolvulus minor fl. pleno ...	0	3
Calliopsis coronata (Coreopsis) ...	0	4
" marmorata	0	4
*Cynoglossum Hayni...	0	3

	s.	d.
Clintonia pulchella alba	0	6
" " atroviolacea ...	0	6
*Dianthus Garnerianus	0	6
" Hendersoni fl. pleno ...	0	6
*Delphinium cardiopetalum... ...	0	3
Eutoca alba, new	1	0
*Erigeron Beyrichi	0	6
*Gomphrena globosa Haageana ...	0	4
*Guternezia zymnospermoides ...	0	6
*Gypsophila muralis	0	6
Godetia alba, new	1	0
Gynerium argenteum (Pampas Grass	10	6
*Helichrysum bractirynchum ...	0	4
* " bracteatum, white ...	0	3
* " " yellow ...	0	3
* " macranthum nanum	0	3
* " compositum maxim.	0	6
Ipomœa limbata	0	6
" violacea alba (mexicana alba)	1	0
Leptosiphon aureum	1	0
Linum grandiflorum rubrum ...	1	0

	s.
Lupinus subramosus (a fine bedding plant)	0 6
Lobelia ramosa nana, new	0 6
*Morina elegans	0 6
Myosotis palustris (Forget-me-Not)	0 4
" azorica	0 4
Maurandya, in 6 varieties, each ...	0 6
Nepeta Meyeri	0 6
Phlox Drummondi atrococcinea ...	0 6
" " oculata alba ...	0 6
" " Victoria regina	1 0
*Palafoxia texana	0 6
Perilla Nankinensis...	0 6
Saponaria calabrica (beautiful bedding plant)	0 6
Sunflower, new Californian ...	0 6
Sabbatia campestris	1 0
Sweet William, double	0 6
*Trifolium aurantiacum	0 6
Tropæolum Triomphe de Gand ...	1 0
*Whitlavia grandiflora	0 6

SELECT GERMAN SEEDS, in Collections,

And other Choice Flower Seeds, for which our Establishment is particularly noted.

	s.	d.
Asters, Truffaut's French pyramid, the finest of all the China Asters, in packets of 12 varieties	3	6
Aquilegia, various colours, fine, in packets of 12 sorts ...	3	6
Balsams, the finest Camellia flowered, ditto 6 sorts ...	2	6
Hollyhocks, select named varieties, ditto 12 sorts	2	6
" " " mixed	1	0
Larkspurs, beautiful Hyacinth flowered, in pckts. of 8 sorts	2	0
Marygold, distinct varieties, ditto 10 sorts	2	0
Phlox Drummondi, beautiful and distinct, ditto 5 sorts ...	2	6
Poppy, in distinct showy varieties, ditto 6 sorts	1	0
Salpiglossis, new and beautiful colours, ditto 8 sorts ...	2	6
Senecio, or Jacobœa, distinct and showy, ditto 7 sorts ...	1	6
Stocks, new large flowered German, finest of all, do. 12 sorts	3	0
" new Giant Brompton, ditto 4 sorts	1	6
Wallflower, fine double varieties, ditto 6 sorts	2	6
Zinnia elegans, brilliant colours, ditto 12 sorts	3	6
Ornamental Grasses, beautiful varieties, ditto 25 sorts ...	5	0
" foliage plants for bedding, ditto 12 sorts ...	3	6

	s.	d.
Calceolaria, from the largest & finest spotted flowers, 5*s.*, 2*s.* 6*d.*, 1*s.*		
Cineraria, from the finest named varieties... ... 2*s.* 6*d.*, 1*s.*		
Carnations, finest double, also Picotees and Tree Carnations, each	2	6
Geraniums, from the finest show and fancy varieties, each	2	6
" bright scarlet, cerise, rose, &c., separate or mixed, each	1	0
Heartsease, or Pansy, from a splendid named collection ...	1	0
" " fancy varieties, striped, &c.	0	6
Lobelia St. Clair, Insignis, Queen Victoria, &c., &c., each	0	6
Mimulus, or Monkey Flower, beautiful varieties, mixed ...	0	6
Petunia, splendid mixed, equal to named flowers	1	6
Portulacas, scarlet, yellow, white, striped rose, crimson, purple, &c., each	0	6
Pinks, from the finest collection grown	1	0
Primula sinensis fimbriata, white and red mixed, true, saved from the finest collection known	2	0
Verbenas, mixed, from the best named flowers	1	6

CUCUMBER NAPOLEON III. is the finest in cultivation. In packets, each, 3*s.* and 5*s.* 6*d.*

Messrs. E. G. HENDERSON & SON beg to draw attention to the following new VEGETABLES, descriptions of which will be seen in the Catalogue:—

French Bean—Haricot d'Alger, or Beurré blanc.
" Tall Zebra.
Dolichos sesquipedalis, called the Asparagus Kidney Bean.
Carrot, Brussels Red Winter improved Horn.
" new white transparent.
Couve Tronchouda, or Portuguese Cabbage.

Phytolacca esculenta
Turnip hâtif of Paris
Radish, China Rose
Cauliflower, Early Paris
Beet Crapaudine, or Rough Skin
Beet Long Orange, very sweet
Brussels Sprouts, imported
Savoy, Early Dwarf Ulm
Pea, Denyer's Early prolific Green Marrow.
Early Dwarf Erfurt.

Messrs. E. G. HENDERSON & SON beg to announce that the new Plants to be sent out this year are given at the end of their Seed Catalogue, with full descriptions, prices, &c.

Plants of Gynerium argenteum, or Pampas Grass, 2*s.* 6*d.* each; 20*s.* per dozen; 7*l.* 7*s.* per 100.
Plants of Petunia imperialis, new double white, 3*s.* 6*d.* each; 30*s.* per dozen.

Wellington Nursery, St. John's Wood, London.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed. Collection No. 1, 3*l.*; No. 2, 2*l.*; No. 3, 25*s.* Choice collections for small Gardens, 10*s.* 6*d.* and 15*s.* For Lists of the above Collections, see Catalogue.

6 vars. Peas, newest sorts, 1 qrt. each, 18*s.*; 1 pint each, 8*s.* 6*d.*
17 „ „ 1 quart each, very superior, 18*s.*; 1 pint each, 10*s.*
10 „ „ 1 quart each, „ 10*s.*; 1 pint each, 6*s.*
8 „ „ 1 quart each, fine sorts, 6*s.*; 1 pint each, 3*s.* 6*d.*
10 „ Broccoli, in packets of finest for succession, 5*s.*
6 „ Lettuce, in packets of finest, 2*s.*
6 „ Cabbage, 1 oz. each, finest sorts, 3*s.*
6 „ Onions, 1 oz. each, finest sorts, 4*s.*

Very choice Beet, Imported Brussels Sprouts, Cauliflowers, and all other finest Vegetables. See Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

Each per packet 6*d.*, except those priced.
Those marked * have not been inserted in the Catalogue.

Hardy and Half-hardy Annuals.

Alonsoa Warczewiczi, splendid,
Aster, Bishop's prize, ex. [1*s.*
Calceolaria chelidonioides (californica)
Collinsia albiflora, new pure white, 1*s.*
Cynosurus cynosuroides (or Sarmarkia aurea), fine grass
Escholtzia tenuifolia, very dwarf and neat
Gilia californica, fine
Godetia alba, beautiful new white, pink stamens, 1*s.*
Grammanthus gentianoides
„ do. luteus
Gypsophylla muralis, beautiful glossy foliage, covered with red flowers, fine for bedding, 1*s.*
Larkspur, dwarf Italian, Hyacinth-flowered, 3*d.*
Leptosiphon luteum, 4*d.*
„ aureum
Limnanthus sulphurea odorata
Linum grandiflorum rubrum, 1*s.*
Lobelia erinus rosea
„ ramosus alba
„ „ major
„ „ rosea
Lupinus monogynia, fine light and deep purple, variegated
*Nasturtium, new dwarf scarlet and crimson vars., 1 foot high, with a mass of flower round the stem
Nemesia bicolor, very attractive and beautiful, 4*d.*
Nemesia versicolor compacta, 1*s*
Nemophila, new white edged, 4*d.*
Pennisetum longistylum, new Grass
Pavetta nankiensis, striking dark purple and violet foliage
Pink, Imperial Indian, 3*d.*
„ Indian white, 4*d.*
Stock, Victoria, fine scarlet, 3*d.*
„ Chamoy's fine yellow, 3*d.*
Tropæolum minus coccineum
Viscaria oculata nana, 3*d.*
Whitlavia grandiflora, very fine, and a general new favourite.

Greenhouse and Tender Annuals.

Balsam from several choice imported and others, ex.
*Balsam, Smith's new vars. so highly spoken of by Dr. Lindley and the Nat. Flor. Soc.; 6 vars. separate, 2*s.* 6*d.*; larger packets mixed, 2*s.*
Gomphrena aurantiaca, 1*s.*
Ipomœa (Pharbitis) limbata, 1*s.*
„ violacea (rubra cerulea), 1*s.*
Phlox Drummondi, fine mxd., 3*d.*
„ do., fine scarlets
Phlox, do. superb hybrids from Leopoldi and others
„ do. alba oculata, white, dark eye, beautiful
Portulaca, 8 superb vars, separate, 3*s.*
„ fine mixed vars.
Rhodanthe Manglesi
Salpiglossis atrosanguinea
„ new yellow
Schizanthus retusus alba
„ Grahami carnea
Thumbergia, 6 fine vars. sep., 3*s.*
„ mixed vars.

Hardy Perennials.

Abronia umbellata
Antirrhinum, ex., from best striped and others, 1*s.*
Cistus, rock vars, ex., 1*s.*
Dianthus Dunnetti, superb dark new Sweet William, 1*s.*
Dianthus superbus nanus, a pretty dwarf fringed pink, in vars., mixed, 1*s.*
Dianthus maculata, fine spotted
Gladiolus, fine mixed hybrids
„ choice, ex. from named vars., 1*s.*
Hollyhock, choice, 1*s.*
Lindheimeria texana, 1*s.*
Lupinus magnificus, fine variegated, 4*d.*
Pansy, choice, ex., 1*s.*
Phlox, choice, from our large collection
Potentilla, splendid mixed, 1*s.*
„ from our newest vars., ex. ex, 2*s.* 6*d.*
Sweet William, fine scarlet

Greenhouse Perennials.

Acacia lophantha
„ verticillata
Bossæa heterophylla, 1*s.*
„ bilosa stenophylla, 1*s.*
Calceolaria, very choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
Calendrinia umbellata
Cineraria, choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
Cobœa scandens
Geraniums, choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
„ finest scarlets, 1*s.*
„ finest fancys, 1*s.*
Gloxinia, choice, 6*d.*
„ ex. ex., saved from new, 2*s.* 6*d.*
Heliotrope, fine mixed
Lotus Jacobæus luteus
Nyctarinia saliginoides
Platylobium triangulare, 1*s.*
Primula sinensis fimbriata, 1*s.*
„ „ „ alba, 1*s.*
Verbena, mixed, choice, 1*s.*
„ ex. ex., from new, 2*s.* 6*d.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Including a quantity of the before-named, free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	*d.*
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8*s* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	s.	*d.*
30 superb vars. dwarf German Stock, 5*s.*: 15 vars. ...	3*s.*	0*d.*
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony flowered French do. (Truffaut's) ..	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonea aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.

Post Office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

DICKSON'S "EARLY FAVOURITE PEA."

FRANCIS AND ARTHUR DICKSON AND SONS have great satisfaction in again calling attention to this distinct and truly valuable EARLY PEA (sent out by them for the first time last season), which is admitted by all who have grown or seen it to be the MOST PROLIFIC and BEST Early Pea ever introduced. It comes in very few days after the *earliest* varieties, and the flattering testimonials which they have received from some of the first Gardeners in the kingdom who grew it last season (see *Gardeners' Chronicle* of Jan. 12th, 1856,, will, they think, be sufficient guarantee for its EXTRAORDINARY PRODUCTIVENESS and general EXCELLENCE.

Price 2*s.* 6*d.* per quart, or 1*s.* 6*d.* per pint, in sealed parcels.

VEGETABLE, FLOWER, and AGRICULTURAL SEEDS of every description, of *select* and *superior* quality, detailed CATALOGUES of which will be forwarded on application.

The Old Established Seed Warehouse, 106, Eastgate Street, Chester.—Feb. 2, 1856.

PAMPAS GRASS (CYNERIUM ARGENTEUM) AND DOUBLE WHITE CHINESE PRIMROSE.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that he has a nice healthy stock of the above beautiful Plants to dispose of at the following prices:—

PAMPAS GRASS (Seedlings 6 to 8 inches high), 3*s.* each, or 25*s.* per dozen, post free.

DOUBLE WHITE CHINESE PRIMROSE, 18*s.* per dozen, hamper and package included.

CALCEOLARIA SEED, saved from H. M.'s Fine Flowers, 2*s.* 6*d.* per packet, or 3 packets, 5*s.*, post free.

Orders must be accompanied by a remittance, or they cannot be attended to.

Mr. MAJOR's Annual Descriptive List of new Shrubby Calceolarias will shortly be ready, of which due notice will be given.

STOVE PLANTS.

E. P. DIXON begs to announce that he has a fine Stock of the above, consisting of Allamandas, Aphelandras, Ardisias, Begonias, Coccocypselum discolor, Hexacentris, Hoyas, Impatiens, Ixoras, Sciadocalyx, Warsewiczi, Achimenes, and the ERECT flowering Gloxinias, &c. &c., which he offers in collections (left to his own selection) of 20 varieties for 30*s.*, 50 for 50*s.*, 100 for 90*s.* Also a fine Stock of young Geraniums, consisting of all the leading kinds, from 9*s.* to 30*s.* per dozen. The annual Nursery Catalogue will be ready in a short time. The Seed Catalogue may now be had gratis on application.

Seed Establishment, Hull Nursery, Air Street, Sculcoates.

AZALEA INDICA.

GEORGE CLARKE is prepared to offer nice bushy plants, well set with flower buds, from 12*s.* and 18*s.* to 24*s.* per dozen, including the kinds enumerated below, which are the much admired collection he exhibited at the Crystal Palace, and received the 10*l.* Award.

Broughtoni	Iveryana	Exquisite
Optima	Magnificent	Triumphans
Variegata	Delecta (Ryder's)	Perryana
Gledstanesi	Duke of Devonshire	Symmetry

Also all the newest varieties in cultivation, either on their own roots or grafted, 30*s.* to 42*s.* per doz., if 12 or more are taken, viz.:

Vesta	Chelsoni	Criterion
Julianus	Perfection	Beali
Maria (True)	Admiration	Barclayana
Beauty of Europe	Extranesi	Cuspiflora, &c. &c.

Nursery, Streatham Place, Brixton Hill, near London.

CHARLES S. BARKER'S Seedling Florist Flowers for the Spring of 1856:—

VERBENAS.—Beauty of Godalming, blue slate colour, large pips, and of excellent form. *Florist, Oct.* 1855.—Ailey Moore, purple and slate curiously shaded, carmine eye, a novel pleasing flower. *Florist, Oct.* 1855.—Rosetta, rose, carmine eye, pip large and of exquisite form.—Maid of Honour, bright pink, centre rich vermillion, truss large, habit fine.—Quakeress, silvery lilac, centre bright rosy purple, fine form, habit good.—King of Sardinia, rich purple plum colour, pip large, and of fine form, truss large, habit good.

C. S. B. begs to assure his friends and the public that the Seedling Verbenas he now offers far surpass in form, habit, and colours anything of the kind ever sent out. Plants will be ready about the 21st April, at 5*s.* each, or the set of six for 20*s.*—Verbena Barker's Ravenswood, the best of all the dwarf scarlets for baskets and vases, in April, 6*s.* per dozen.

VARIEGATED GERANIUM.—The Maid of Orleans, a great improvement on Flower of the Day, foliage large and perfectly flat (planted out in 1855, leaves were produced 5 inches over) white margin, dark horseshoe, flowers beautiful cerise scarlet, truss good and well above the foliage. Plants in May 5*s.* each.

TROPÆOLUM (Perpetual Flowering).—Triomph de Godalming, flowers large and circular, fringed, golden yellow, with five large crimson blotches, abundant bloomer. The plant commenced flowering when only 6 inches high, and has continued to produce flowers in succession from the axil of any leaf. The one with a free blooming character, colour golden yellow, and bright crimson blotch on all five petals, is the most novel and superior to anything in its way at present in cultivation. *Florist*, Nov. 1855. Plants 21st April, 5*s.* each.

Godalming Nursery, Feb. 2, 1856.

PRIZE MEDAL, 1851, and Notice by Jury of considerable artistic merit in ARCHITECTURAL and GARDEN DECORATIONS, &c., in PULHAM'S TERRA COTTA, granulated to imitate stone of any tint, or to match with his Stone-colour Cements, requiring no artificial colour or paint. Having been tested 30 years, durability is guaranteed by J. PULHAM, Broxbourne.

THE PRIZE ROOT PULPING AND MINCING MACHINE.—PHILLIPS'S is the only Root Pulping and Mincing Machine which has received the Prizes of the Royal Agricultural Society. Made only by WOODS, Suffolk Iron Works, Stowmarket. Delivered carriage free in London, Peterborough, Hull, Gainsborough, Newcastle-upon-Tyne, and any station on the Eastern Counties Railway. Illustrations, Descriptions, and Prices forwarded post free on application.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7*d.* per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices.—R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures. Catalogues, containing prices and every particular, free by post.

Warehouse, 42, Ludgate Hill, London

HOW TO KILL RATS, MICE, AND MOLES BY HUNDREDS.—A method will be forwarded, with instructions, for 30 postage stamps, which will destroy the above vermin quickly and without trouble. 1000 Acres may be cleared for a few shillings.—GILBERT DYSON, Hoo, Rochester.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.* | 8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 13*s.* | 9 by 7, and 10 by 8 ... 13*s.* 6*d.*

AT 14*s.* PER 100 FEET

12 by 9, 13 by 9, 14 by 9, 15 by 9, 16 by 9.
12 by 10, 13 by 10, 14 by 10, 15 by 10, 16 by 10.
12 by 11, 13 by 11, 14 by 11, 15 by 11, 16 by 11, 17 by 11, 18 by 11.

AT 16*s.* PER 100 FEET.

13 by 12, 14 by 12, 15 by 12, 16 by 12.

AT 18*s.* PER 100 FEET.

17 by 12, 18 by 12, 19 by 12, 20 by 12, 14 by 13, 15 by 13, 16 by 13, 17 by 13, 18 by 13, 19 by 13, 20 by 13, 20 by 15.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HARTLEY'S PATENT ROUGH PLATE GLASS.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

Fern Cases with Ferns complete, suitable for the Drawing-room, from 25*s.* each.

Aquariums with French polished stands, from 10*s.* each. Vase shaped ditto, on Glass stand, 25*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and 6	in. by	4½	in. ...	...	12*s.*	0*d.*
6½	„	4½	„ 7	„	5	...	...	12	6
7½	„	5½	„ 8	„	6	...	...	13	0
8½	„	6½	„ 9	„	7	...	...	13	6
9½	„	7½	„ 10	„	8	...	...	13	6
10½	„	8½	„ 11.	„	9	...	...	14	0
12	„	9	„ 13	„	9	...	...	14	0
10	„	10	„ 10½	„	10½	...	...	14	0
11	„	10	„ 11½	„	10½	...	...	14	0
11	„	11	„ 11½	„	11½	...	...	14	0
12	„	11	„ 12½	„	11½	...	...	14	0
13	„	11	„ 13½	„	11½	...	...	14	0
13	„	12	„ 13½	„	12½	...	...	16	0
13½	„	13½	„ 14½	„	13½	...	...	16	0
15½	„	13½	... ...		...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash, A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 100 feet
	Under 6	by 4	at	1½*d.*	is	£0 12 6
From 6 by 4	„ 7	„ 5	„	2*d.*	„	0 16 8
7 „ 5	„ 8	„ 6	„	2½*d.*	„	0 18 9
8 „ 6	„ 10	„ 8	„	2½*d.*	„	1 0 10
10 „ 8	„ 12	„ 9	„	2½*d.*	„	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
26 oz. „ 3½*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

CUPISS'S CONSTITUTION HORSE BALLS.—To Sportsmen, Agriculturists, Postmasters, and all Proprietors of Horses, these Balls are particularly recommended in all cases of swelled legs, cracked heels, loss of appetite, and vital energy; for Coughs, Colds, Fever or Inflammation, they are the best Medicine that can be exhibited, moreover their operation, though effectual, is so mild, that they require no alteration of diet, and if given with a bran mash on Saturday night, will not interfere with the ensuing week's regular work.

NEAT CATTLE.—The Constitution Balls are strongly recommended by many highly respectable Gentlemen (see Testimonials) for Cows and Oxen as a most valuable medicine in cases of Hove or Blown, Scouring or turning out to Grass, or from bad food, Gargate, Hide Bound, Loss of Appetite, Staring Coat, Distemper, Epidemic, or Influenza. Bullocks fat much faster by occasionally giving a Ball.

Prepared only by FRANCIS CUPISS, M.R.V.C.S., author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss. Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and Treatment of the Horse whilst taking them. Also a Pamphlet of testimonials from many Gentlemen who have used the Balls in various Complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

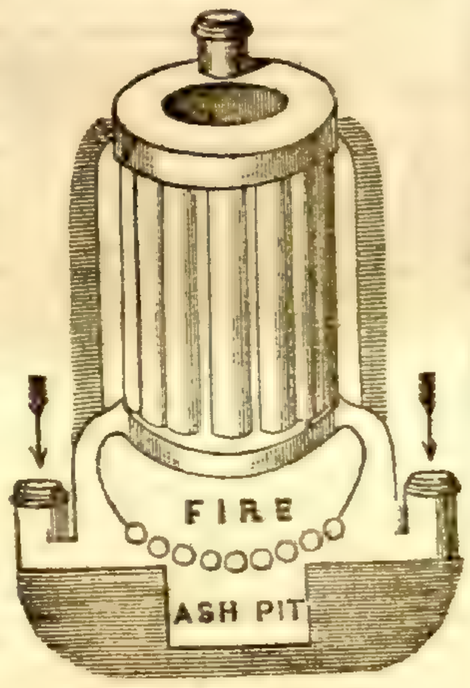
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

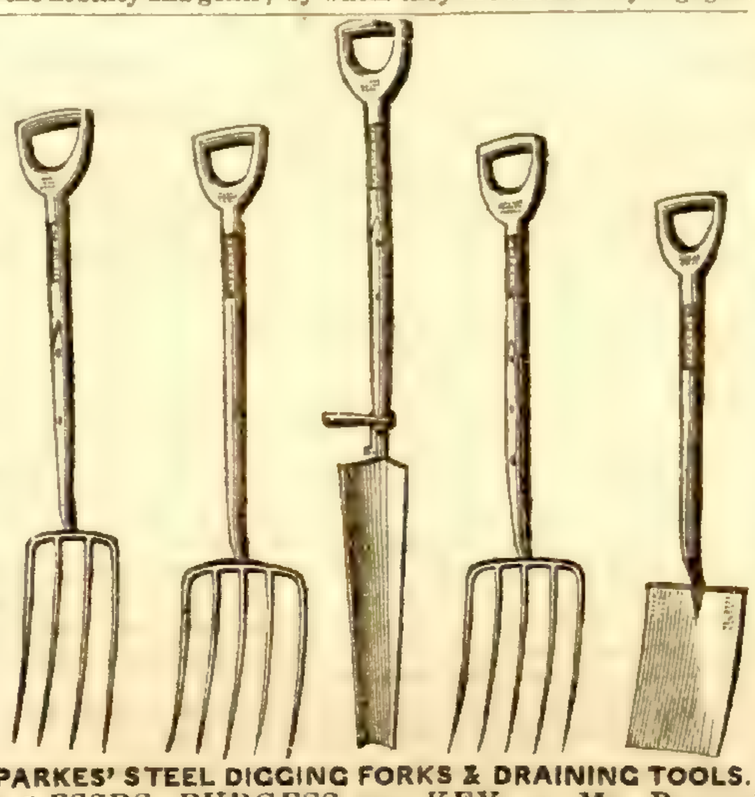
E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

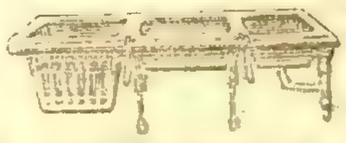


PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture,* including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.



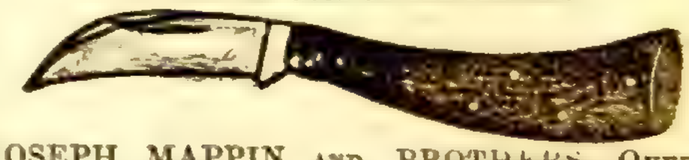
MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30*s.*; cast iron 35*s.* each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

Address BARTON'S Iron Works, 370, Oxford Street, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

GASELIERS IN GLASS AND METAL.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to offices, passages, and dwelling-rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present, for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures, at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12*s.* 6*d.* (two light) to 16*l.* 16*s.*

THE PERFECT SUBSTITUTE FOR SILVER.—The real NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18*s.*	26*s.*	32*s.*
Dessert Forks „	30*s.*	40*s.*	46*s.*
Dessert Spoons „	30*s.*	42*s.*	48*s.*
Table Forks „	40*s.*	56*s.*	64*s.*
Table Spoons „	40*s.*	58*s.*	66*s.*

Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto „	10*s.*	21*s.*	25*s.*
Tea ditto „	5*s.*	11*s.*	12*s.*

LAMPS OF ALL SORTS AND PATTERNS.—WILLIAM S. BURTON invites attention to his season's SHOW of LAMPS. It embraces the Moderateur (the best Parisian specimens of which have been carefully culled), Argand, Solar, Camphine, Palmer's Magnum, and other lamps for candles; and comprises an assortment which, considered either as to extent, price, or pattern, is perfectly unrivalled.

Pure Colza Oil, 5*s.* 3*d.* per gallon.
Palmer's Candles, 9*d.* and 9½*d.* per lb.
Patent Camphine, 4*s.* per gallon.

The alterations and additions to these extensive premises (already by far the largest in Europe), which occupied the whole of last year, are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, and Turnery, Lamps and Gaseliers, Iron and Brass Bedsteads and Bedding), so arranged in Sixteen Large Show Rooms, as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established 1820.

METCALFE, BINGLEY, AND CO.'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6*d.* each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping, and renders the skin soft and agreeable.—Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each tablet bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2*s.* per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

TO HOTHOUSE BUILDERS.

PARTIES are invited to offer CONTRACTS for the BUILDING of a RANGE OF HOUSES 60 feet long, viz: a stove in the centre 20 feet in length, and a geranium and greenhouse at each end; the whole under one span roof. Also for repainting a range of hothouses 100 feet long, with ranges of pits about 180 feet in length. Also for improving, and where necessary altering the heating of the above, they being at present heated by Weeks' boilers, which are found not to answer.—Apply to Mr. Nichols, Oxton House, Exeter.

TO BE LET ON LEASE, at Pawlett, near Bridgewater, a large ARABLE FARM. The above, from the high quality of the Land and its proximity to both Water and Rail communication, is deserving the notice of Agriculturists.—The Farm will be pointed out by GEORGE NEATH, Pawlett Bridgewater.

TO SEEDSMEN.

TO BE SOLD, a bargain, a complete Set of VEGETABLE SEED DRAWERS, with solid mahogany fronts, and labelled with black, on a gilt ground.—For further particulars, apply to WOOD & INGRAM, Nurseries, Huntingdon.

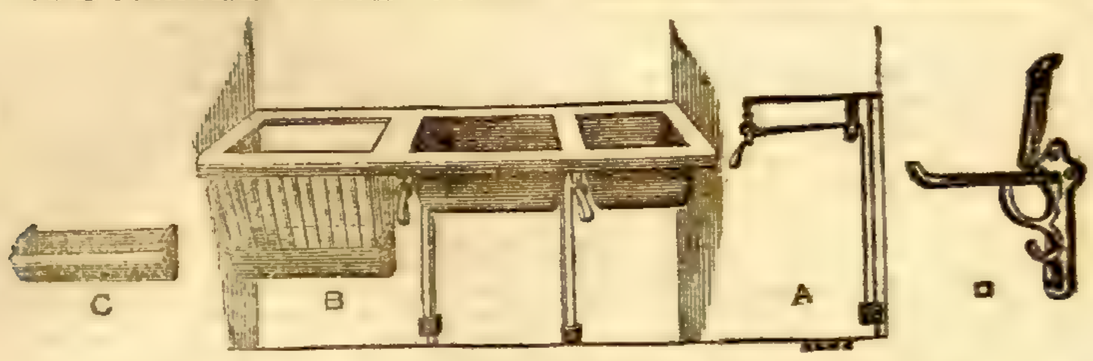
SILVER PENCILLED HAMBURGH EGGS.

MR. EDWARD ARCHER, Malvern, will supply EGGS from the birds stated below at 15*s.* a set of 13, packing box included:—The run contains a Cock and seven choice Pullets. The Cock is two years old, and has taken 1st prize at Birmingham, 1854; the Liverpool Cup, 1855; several first and second prizes since, and 1st at Liverpool, 1856. Four of the Pullets have been exhibited alternately, and have taken the following prizes:—2d at Anerley; 1st at Bridgnorth; 1st at Bedford; 1st at Taunton; 3d at Birmingham; and the Silver Cup at Liverpool, 1856. The three sister Pullets have not been exhibited. Post Office Order must accompany the order for Eggs. The birds may be viewed at any time.—Malvern, Feb. 2.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 5th February, at 12 o'clock precisely, a selection of very choice POULTRY from several Amateur Breeders of First-class Birds, including Spanish bred from First Prize Birmingham and Manchester Birds; coloured Dorkings, the strain of the Rev. J. Boys and Mr. Lewry; Buff, White, and Partridge Cochins, Brahmas, Sebright Bantams from Mr. M. Leno; Pigeons, &c.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.
(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice*. Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

KENNEDY AND KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. KEMPTON, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. JAMES CARTER, of Holborn.—Address KENNEDY & KEMPTON, Bedford Conservatory, Covent Garden, London.

SEED ESTABLISHMENT, HIGHGATE, LONDON.

WM. CUTBUSH AND SON beg to inform their Patrons and the Public generally that they have received this season their usual Fine Stock of VEGETABLE and FLOWER SEEDS from their growers in the best condition imaginable.

Collections can be made up at the same prices as those advertised by other firms, but advise their customers to make their own selections, which is found to be the cheapest and best in the end.—Catalogues free on application.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms. Wholesale orders executed on liberal terms.—Hedenham Rosary, Feb. 2.

TO MELON GROWERS.

MONRO'S CRYSTAL PALACE HERO, AND MONRO'S GOLDEN GAGE MELONS, which gained the two first prizes in June last at the Crystal Palace Exhibition, the "Hero" the first prize for the heaviest Persian Hybrid Melon, the "Golden Gage" the first prize for the best flavoured Melon; both of which prizes were awarded to J. MONRO, Colney House, St. Alban's. Two seeds of each sort taken from the same fruits which gained the prizes, with a packet of 12 seeds of other first-rate sorts, for 2*s.* 6*d.* To the trade 12 packets for 1*l.*—May be had by applying to W. F. ERWOOD, Salesman, 13, Tavistock Row, Covent Garden, London.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

DWARF-TRAINED FRUIT TREES.

WILLIAM WOOD AND SON have much pleasure in offering some of the finest Dwarf-trained PEACHES and NECTARINES in the Kingdom; in short W. W. & SON feel convinced they are not to be surpassed in the trade. Price 5*s.* per plant.

N.B. Having a large stock of the above W. W. & SON are disposed to deal liberally with the trade, and will furnish wholesale prices on application.

Fine Pyramidal Pears on Quince, 18*s.* to 24*s.* per dozen.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO GENTLEMEN ENGAGED IN PLANTING, AND TO NURSERYMEN.

STEPHEN SHILLING begs to offer good Transplanted PLANTS and TREES of the following at very low prices, when a quantity of either sort are taken:—

3,000 Arbor-vitæ, 3 to 7 feet.	1,000 Horse Chesnuts, 8 to 12 ft.
10,000 Spruce Firs, 4 to 10 feet.	5,000 Beech, 6 to 10 feet.
10,000 Tree Box, 2 to 5 feet.	15,000 Rhododendron Ponticum, in variety, 1½ to 4 feet.
1,000 Limes, 6 to 10 feet.	

The whole of the above are well worthy of attention, being good in quality, the Evergreens of good healthy colour and bushy. All applications will have immediate attention.

North Warnborough Nursery, near Odiham, Hants, 2½ miles from Winchfield Station, South Western Railway.—Feb. 2.

TO THE TRADE.

WILLIAM E. RENDLE AND CO. have several Tons of the following Seeds to dispose of *at the lowest market prices.*

LONG RED MANGEL WURZEL | YELLOW GLOBE do.
RED GLOBE do. | WHITE BELGIAN CARROT
ORANGE JELLY FRUIT.

Prices on application to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

All NEAT *and in the same condition as received from the Growers.*

PLANT IN FEBRUARY!

CAREY TYSO, FLORIST, Wallingford, Berks, begs to offer Choice RANUNCULUSES and ANEMONES, suitable for planting at this season, in selected assortments as under:—

RANUNCULUSES,	100 splendid named sorts, 40*s.* to	£4	0	0
"	25 superb new seedlings... ...	1	10	0
"	100 fine mixtures, 8*s.* to	1	0	0
DOUBLE ANEMONES,	50 fine named sorts, 10*s.* to...	0	13	0

IMPORTED GERMAN SEEDS, of the best quality, in named assortments, 1*s.* to 2*s.* 6*d.* each—Asters, Balsams, Stocks, Larkspurs, Poppies, Wallflowers, Zinnias, &c. Choice Annuals, 25 packets per post, 5*s.*

General Descriptive Catalogue of Florists' Flowers and Seeds for 1856 may be had for one label.

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12*s.*

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1*s.* each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1*s.*; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1*s.* per stone of 14 lbs.

100	Fine named Hardy	Herbaceous Plants	£1	10
100	" "	Alpine Plants	1	10
100	" "	Shrubs	2	10
100	" "	Cape Heaths	4	10

Fine blooming plants Epacris, 12*s.* per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Feb. 2.

SEED POTATOES.

CHARLES SHARPE AND CO. have the pleasure of offering the following varieties of Potatoes, all of which have been grown by themselves, and are of fine quality.

Per bushel of 4 stones:—

	s.	*d.*		*s.*	*d.*
Kidney, Early Ash-leaved ...	6	0	Foxe's Seedling	5	0
" Jackson's ...	6	0	Emperor	6	0
" Fluke	5	0	Cockney	6	0
Martin's Globe	5	0	Hen's Nest	5	0
Early York	5	0	Oxford	6	0
" King's	6	0	American Native ...	5	0
" Round frame ...	5	0	White Rough	5	0
			Regent	5	0

Nursery and Seed Establishment, Sleaford, February, 1856.

CONIFERÆ.

WILLIAM WOOD AND SON having a good stock of well grown plants of the following are desirous of offering them at reduced prices, particulars of which will be furnished on application.

Cedrus Deodara, 3 and 4 feet.
Cupressus Goveniana, 2, 3, and 4 feet.
Libocedrus chilensis, 1½, 2, and 3 feet.
Cupressus funebris, remarkably fine and bushy, 1½, 2, and [3 feet.
Cedrus africanus, 2 and 3 feet.
Juniperus recurva, 3 and 4 feet.
" squamata, 2 and 3 feet.
" Wittmaniana, 2 and 3 feet.
Cryptomeria japonica, splendid plants, 2, 3, and 4 feet.
Taxodium sempervirens, 2, 3, and 4 feet.
Thuja aurea, nice bushes, 1 foot.
Cupressus thyoides variegatis, Gold-striped Cedar, 9 to 18 in.
" ericoides, very bushy, 15 inches.
Common Yews, 2, 3, 4, and 6 feet.
Irish Yews, very fine, 3, 4, and 6 feet.
Portugal Laurels, bushy, 2, 3, 4, and 6 feet.
Do. do., standards, with splendid large heads, 4 and 6 feet.

The above have been regularly transplanted every season, and will remove with perfect safety.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	12*s.* to 18*s.*
DWARF STANDARD DO.	18*s.* to 24*s.*
CLIMBING AND NOISETTE ROSES, named	9*s.* to 12*s.*
CLIMBING ROSES, mixed, for covering banks	4*s.*
DWARF ROSES, on own roots, mixed, not named	4*s.*

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6-inch pots, for forcing, exhibition, or greenhouse culture, 24*s.* per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

BEARING TRAINED FRUIT TREES.

THOMAS JACKSON AND SON having the greatest extent of Wall in the trade, are enabled to offer at moderate prices the under-mentioned FRUIT TREES trained for Walls or Houses:—

DWARF TRAINED PEACHES,	7*s.* 6*d* each.
" " NECTARINES,	7*s.* 6*d.* each.
" " APRICOTS,	7*s.* 6*d.* each.
" " GREENGAGE PLUMS,	5*s.* each.
" " MORELLO CHERRIES,	4*s.* each.
STANDARD TRAINED PEACHES,	10*s.* 6*d.* and 15*s.* each.
" " NECTARINES,	10*s.* 6*d.* each.
" " APRICOTS,	10*s.* 6*d.* to 21*s.* each.
" " PLUMS,	5*s.* and 7*s.* 6*d.* each.
" " MORELLO CHERRIES,	5*s.* each.

The above are all set with Flower-buds, and are capable of bearing Fruit this season.

Fine Trained Trees of the usual nursery size, from 2*s.* 6*d.* to 5*s.* each.

STANWICK NECTARINE, Standard Trained, 10*s.* 6*d.* each.
KAISHA APRICOT, Dwarf, 2 Years' Trained, 5*s.* each.

Nurseries, Kingston-on-Thames.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

SEEDS FOR IRELAND, SCOTLAND, AND WALES.

SUTTON AND SONS having many customers in North and South Wales, Scotland and Ireland, whom they have supplied with Agricultural and Horticultural Seeds for many years, are well acquainted with the sorts which thrive best in each locality.

SUTTON & SONS *deliver their Goods Free of Carriage to the Seaports, and many other parts of Ireland, Scotland, and Wales.* For particulars, address

SUTTON & SONS, Seed Growers, Reading, Berks.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.

THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "SUTTON'S *Complete Collections for one year's supply," particulars of which may be had on application, addressed*—

SUTTON & SONS, Seed Growers and Merchants, Reading.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* GARDEN SEEDS *and* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Horticulturists and Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

GOODWIN'S YORK EARLY WHITE CELERY.

JAMES BACKHOUSE AND SON can now supply SEED of this valuable CELERY. It is compact in habit, and not liable to run to seed, solid, crisp, and of fine flavour. It may be had in perfection earlier than any other variety known to us, and has for several years past taken first prizes at the York Horticultural Exhibitions in 6th and 7th months. Packets 2*s.* 6*d.* each, free by post, may be had either from HURST and M'MULLEN, 6, Leadenhall Street, London, or direct from ourselves.—JAMES BACKHOUSE & SON, York Nurseries, Feb. 2.

GLENNY'S IMPROVED BALSAM SEED from double flowers 3 inches over, in six classes, 37 stamps, mixed 13 stamps. Six hundred references. Geranium and Pink saved with the same care, 37 stamps each. Aster, Stock, and a few other seeds that may be depended on.—GEORGE GLENNY, Horticultural Agent, Dungannon House, Fulham.

NEW AND GENUINE VEGETABLE, FLOWER, AND AGRICULTURAL SEEDS.

FRANCIS AND ARTHUR DICKSON AND CO., SEED GROWERS, SEED MERCHANTS, and NURSERYMEN, 14, Corporation Street, (late in Deansgate) Manchester, beg to intimate that the whole of their VEGETABLE, FLOWER, AND AGRICULTURAL Seeds for the year 1856 are now to hand; a detailed Catalogue of which is published, and will be forwarded (prepaid) on application. The greatest possible care having been exercised in the selection of their Seeds, and many of those most difficult to obtain TRUE having been saved by themselves, they are enabled with great confidence to state that their Seeds are TRUE and SELECT in character, and of SUPERIOR quality.—14, Corporation Street.

NEW SEED CATALOGUE.

SAMUEL FINNEY AND CO. beg to invite the attention of their numerous friends and the public to their Catalogue of Seeds for the present season, which is now ready, and may be had on application at their Nursery and Seed Establishment, Gateshead, Newcastle-upon-Tyne.

The Catalogue contains lists with prices to each article of all the most approved kinds of Vegetable Seeds, including many new and choice sorts, and comprises all that is requisite for the Kitchen Garden, together with lists of Flower Seeds, forming a collection of more than 700 select sorts, including all the splendid assortments of Stocks, Asters, Balsams, Calceolarias, &c. &c., which they annually import from France and Germany, and which have heretofore given such general satisfaction; many new and beautiful species and varieties have been added this year. Also a complete list of all the most useful kinds of Natural Grasses, Rye-grass, Clover, Turnip, and other seeds in use in the present improved system of agriculture.

Catalogues of Nursery Stock, Garden, and Agricultural Implements, &c. &c., may be had on application as above.

Gateshead Nursery, Feb. 2.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 2, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 6.—1856.] SATURDAY, FEBRUARY 9. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL MEETINGS AT THE GARDENS OF THE BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—The Meetings for the approaching season will be held at these Gardens, on THURSDAY, 5th June, and THURSDAY, 28th August, when nearly 400*l*. will be distributed in Prizes.—Schedules of the Prizes may be obtained on application to the Honorary Secretary, Clifton.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

FRASER, RICHARDSON, AND GOAD beg respectfully to announce that their Premises are now open, and orders will be thankfully received and promptly executed. Their Catalogues are published, and will be forwarded gratis on application.—82, Bishopsgate Street Within, Feb. 9.

BENJAMIN MALLER, late Gardener at Belmont-Lee, Kent, begs to announce to his friends and the public that he has, with Mr. ROBERT MILLER, of Lewisham, taken the Premises, 5, Granville Terrace, High Road, Lewisham, where they intend carrying on the business of Seedsmen and Florists.

M. & M. will supply every article of the very best description at the lowest possible prices.

THE READING ONION *is very superior to the sort called White Spanish, which is usually supplied for it.*

Sutton & Sons, Reading, Berks, can supply genuine Seed at moderate price, according to quantity required.

SEAKALE AND ASPARAGUS PLANTS.—TO THE TRADE.—ONE MILLION *fine strong plants of Seakale and Asparagus are now growing by the undersigned. Wholesale prices on application.*

William E. Rendle & Co., Seed Merchants, Plymouth.

PINE APPLES WANTED.—Forward immediately to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. "Terms—Cash."

TO THE TRADE.

NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. Waite, Seed Merchant, 181, High Holborn, London.

W. H. WHEELER, Florist, Hendon, Middlesex, can still supply Seeds of Victory of Bath Melon, and Wheeler's Improved Sion House (genuine) Cucumber, the best for flavour and early growth, 1*s*. 3*d*. per packet each. A few Cucumber Plants left at 1*s*. each.

JAMES DICKSON AND SONS, Seedsmen, 102, Eastgate Street, Chester, can offer in quantity to the Trade the undermentioned, of genuine quality and new Seed, at low prices, which will be furnished on application.

Bishop's New Long-podded Peas	Strasburgh Onion
Blue Prussian do.	Portsmouth Broccoli
White Post Onion	Scarlet Runners.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

TO THE SEED TRADE.

G. TABER, Seed Grower, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

LONG YELLOW MANGEL WURZEL.—A Grower has for Sale a few Cwts. of a very superior and selected Stock of the above; growth of 1855, raised from large sized roots. Also a first-rate stock of Orange Globe Mangel at moderate prices.—For price, &c., apply to Mr. W. Taylor, Washenden Farm, Rochester, Kent.

SKIRVING'S IMPROVED SWEDE.

H. K. HEMSTED, Seedgrower, Ridgwell, Essex, has 20 bushels of the above new Seed from large transplanted selected bulbs—as good stock as can be produced—for cash, 42*s*. per bushel, new sacks included, delivered free at Braintree Station, Eastern Counties Railway, any Friday.

Ridgwell, Feb. 9.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1856 *can now be obtained from the undersigned, or through any Bookseller in town or country.* Price 6*d*., free by post.

For the Contents of this popular Work, see *Gardeners' Chronicle*, December 29th.

William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

IMPORTANT TO PURCHASERS OF SEEDS.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.*

Also,

SUTTON'S AMATEUR'S GUIDE. Published by Longman, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.

Sutton & Sons, Seed Growers and Merchants, Reading.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.

Seed Establishment, 181, High Holborn, London.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season will be published in a few days, and may be had gratis on application.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

KITCHEN GARDEN AND FLOWER SEEDS.

JOHN CATTELL'S CATALOGUES of the above are now ready, and may be had on application.

Westerham, Kent.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is Now Ready, and will be sent free by Post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.

Tollington Nursery, Hornsey Road, Islington, London.

CHARLES SHARPE begs respectfully to inform the Trade that his CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS, cultivated and saved under his own management, will be forwarded post free on application.

Seed Growing Establishment, Wisbech, Cambridgeshire.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.

Seed Warehouse, 28, Market Place, Manchester.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s*. The Trade supplied.

T. F. Winstanley, Seed Merchant, Manchester.

PESHAWUR MELON SEEDS.—Four Seeds of this the best of INDIAN MELONS for 2*s*. 6*d*.—Address as under, G. M. Elliott, Ripley, Yorkshire.

HOLLYHOCKS! HOLLYHOCKS!

JOHN CHATER AND SON have a large stock of the leading sorts of Hollyhocks, in 3½-inch pots, well established. List with price on application. Best mixed Hollyhock Seed, 200, 1*s*. 6*d*.; Improved Sweet William, 600, 1*s*. The trade supplied on liberal terms.—Nursery, Haverhill.

"CUCURBITA PERENNIS" "ASA GRAY."

SEEDS of this extraordinary New Plant, which is fully described in the *Chronicle* of Dec. 22d, page 836, can be supplied genuine by the Subscriber 5*s*. to 10*s*. per packet. Seeds of Sir Colin Campbell, Sagg's Royal Exhibition, and Lord Kenyon's Favourite, Improved Cucumbers, at 1*s*. per packet.

W. J. Epps, Seed Merchant, Maidstone.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (true).

CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s*. 6*d*. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

CELOSIA AUREA.

FRANCIS AND ARTHUR DICKSON AND CO., Seed Merchants, 14, Corporation Street, Manchester, offer Seeds of the above very graceful Plant, at 2*s*. 6*d*. per packet.

LILIUM GIGANTEUM SEED.

FRANCIS AND ARTHUR DICKSON AND SONS, Upton Nurseries, Chester, having this last Autumn ripened a considerable quantity of Seed of this noble LILY (the flower stem of which was fully 10 feet high), beg to offer packets containing 50 selected Seeds, at 2*s*. 6*d*. per packet, free by post, on receipt of 30 postage stamps.—Feb. 9.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. Cobbett's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheese.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in Youell & Co.'s Advertisements which appeared last week.

Royal Nursery, Great Yarmouth, Norfolk.

CHOICE VEGETABLES WANTED.

CUCUMBERS,	ASPARAGUS,
MUSHROOMS,	FRENCH BEANS,

CHOICE FLOWERS, &c.

Forward to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. "Terms—Cash."

WANTED, Three or Four Strong BLACK HAMBURGH VINES, in not less than eight size pots, such as will insure 10 or 12 bunches of fruit on each Vine this next autumn, price not an object.—Apply by letter to O. P., Office of this Paper.

CEDARS.

A. PAUL AND SON offer for Sale CEDRUS DEODARA, 1 foot to 8 feet, from 1*s*. 6*d*. to 31*s*. 6*d*. each. CEDRUS LIBANI, 3 feet to 10 feet, 3*s*. 6*d*. to 31*s*. 6*d*. each. Magnificent specimens of the above and every intermediate size *frequently removed*, may be had in any quantity, carriage free to London, from A. Paul & Son, Nurseries, Cheshunt, Herts.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

TO THE TRADE.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., begs to offer Strong One Year Seedling LARCH, and Two Year Native Scotch PINE, &c. Prices on application.

HOWDEN, BROTHERS, Inverness, N.B., offer TWO YEAR SEEDLING NATIVE SCOTCH FIR, and TWO YEAR SEEDLING LARCH to the Nursery Trade at very moderate prices.

WILLIAM WOOD AND SON are offering SEEDLING FOREST TREES as under. Prices will be furnished on application.

1 year Pinus austriaca.	1 year Birch.
1 year " pinaster.	1 year Ash.
2 year Scotch Firs.	1 & 2 year Ailanthus.
2 year Hollies.	1 year Chinese Arborvitæ, &c.
1 year Alder.	

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO BE SOLD CHEAP, ENGLISH YEWS.—Several Hundreds of the above trees from 3 to 6 feet, very fine.—Apply to Mr. Surman, Nurseryman, Lavender Hill, Wandsworth Road.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

TO BE SOLD, several Thousands of the LANCASHIRE LAD GOOSEBERRY TREES (surplus stock), at Warren's Gardens, Isleworth. Price 5*l*. per thousand.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6*s*. per dozen. FLUKE KIDNEY POTATO (true), 3*s*. per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.

Catalogues now ready.

THE FLUKE KIDNEY POTATO (TRUE).

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now enabled to offer the above excellent POTATO, which, having been raised in Middleton, may be depended upon as genuine, and from the original stock. May be had of a medium size for planting, at 3*s*. per bushel of 56 lbs.; 6*l*. per ton.

GENUINE FLUKE KIDNEY POTATO.

FRANCIS AND ARTHUR DICKSON AND CO., Seed Merchants, 14, Corporation Street, Manchester, offer the above very prolific and hardy Potato, carefully picked for sets. Price may be had on application.

TRUE LANCASHIRE FLUKE POTATOES may still be had at 4*s*. 9*d*. per bushel of 80 lbs., or 6*l*. 6*s*. per ton, of Thomas Bell, Seedsman, Wigan, Lancashire.

FLUKE KIDNEY POTATOES, 3*s*. per bushel, 6*s*. per cwt., or in quantities exceeding 1 ton, 5*l*. per ton. Sacks 1*s*. per cwt. All orders to be accompanied by a remittance.

Humphrey Chamberlain, Kempsey, near Worcester.

SEED POTATOES.

WOOD AND INGRAM beg to offer the following, warranted true, per bushel:—

Ashleaved Kidney	8*s*.	Martin's Globe	7*s*.
Jackson's do.	8*s*.	British Queen	5*s*.
Golden Dew do.	7*s*.	Lapstone Kidney	5*s*.

Huntingdon Nurseries, February 9.

BEST POTATOES IN THE WORLD FOR SEED OR CONSUMPTION.

SODEN'S EARLY OXFORD, 200 sacks, to be sold immediately.—Apply to Mr. Mack, Calcot, near Reading.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

SEED POTATOES.—Mutches Early is considered the best here for general cropping; it is inferior in quality to no Potato grown the year round; very prolific, 6*l*. per bushel of 70 lbs. Also Lapstone Kidney, Ashtop Kidney, Hepstons, at 6*s*. per bushel; York Regent, 4*s*.—Martin & Son, Nurseries, Cottingham, Hull Branch Junction Street.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of Sutton's Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leas, Sutton's Renovating Grass Seeds may be sown with great advantage *in all such cases.* Price reduced to **9d.** per pound.

Sutton & Sons *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

GARDEN SEEDS SENT CARRIAGE FREE BY

WILLIAM E. RENDLE and CO., Seed Merchants, Plymouth, according to the following scale:—*All orders above £1 will be sent carriage free to any Railway Station between Plymouth and Paddington.*

All orders above £2 will be sent carriage free to any Station on the Broad Guage Railways, to any market town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.

All orders above £5 will be sent free of carriage to any Railway Station in England and Wales, and to any Port in England, Wales, Scotland, and Ireland.

For further particulars see "Rendle's Price Current and Garden Directory," to be obtained from Wm. E. Rendle & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

NEW SEED CATALOGUE.

SAMUEL FINNEY and CO. beg to invite the attention of their numerous friends and the public to their Catalogue of Seeds for the present season, which is now ready, and may be had on application at their Nursery and Seed Establishment, Gateshead, Newcastle-upon-Tyne.

The Catalogue contains lists with prices to each article of all the most approved kinds of Vegetable Seeds, including many new and choice sorts, and comprises all that is requisite for the Kitchen Garden, together with lists of Flower Seeds, forming a collection of more than 700 select sorts, including all the splendid assortments of Stocks, Asters, Balsams, Calceolarias, &c. &c., which they annually import from France and Germany, and which have heretofore given such general satisfaction; many new and beautiful species and varieties have been added this year. Also a complete list of all the most useful kinds of Natural Grasses, Rye-grass, Clover, Turnip, and other seeds in use in the present improved system of agriculture.

Catalogues of Nursery Stock, Garden, and Agricultural Implements, &c. &c., may be had on application as above.

Gateshead Nursery, Feb. 9.

W. FULLER, Florist, Newton Bushel, Devon, formerly Gardener to the late W. H. Story, Esq., of Whitehill, begs to inform the Trade and the Public generally that he will be prepared to send out the first week in May strong plants of the following beautiful new FUCHSIAS, all raised by Mr. Story.

GEM OF WHITEHILL.—This flower is hitherto unrivalled in form and quality; the sepals are of a rich carmine, remarkably long and reflex elegantly, giving the flower a bell-shaped appearance, corolla deep violet, very free bloomer and good habit. 7*s.* 6*d.* each.

PILOT.—Long scarlet tube, sepals well reflexed, large double dark corolla, very attractive. 5*s.* each.

STAR.—Tube rather short, sepals well reflexed, beautiful large double corolla. 5*s.* each.

DANDIE DINMONT.—Stout scarlet tube and sepals well reflexed, deep violet corolla. 5*s.* each.

GLORIOSA SUPERBA.—Beautiful scarlet tube and sepals of great substance beautifully reflexed, so as to resemble in shape the Turk's Cap Lily; deep violet corolla, very attractive, a good flower for exhibition; 5*s.* each, or the set for 1*l.* 1*s.*, when Gloriosa Superba will be given in to compensate for carriage.

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).
Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.
Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s.* 6*d.* to 21*s.*
Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).
Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.
Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.
Libocedrus gigantea, 10*s.* 6*d.*; about 2 feet, 31*s.* 6*d.*
Pinus Cembra, 3 to 4 feet, 5*s.*
" Douglasi, 3 to 4 feet, 3*l.* 3*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*
" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).
" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.
Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.
Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to
Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*
Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.
Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.
Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l.* per 1000.
" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.
" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.
" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.
" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.
Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s.*, to 24*s.* per dozen.
Hardy Heaths, superior collection, 35*s.* per 100.
Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. Waterer feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

BASS and BROWN beg to offer the following, all of fine and strong growth Plants:—

ROSES.

100 Standards, in 100 splendid vars.		... ...	£7 0 0
100 "	50 "	... ...	6 0 0
100 Dwarfs,	100 "	... ...	3 0 0
100 "	50 "	... ...	2 5 0
100 "	100 "	the whole perpetual bloomers ...	5 0 0
100 "	50 "	" ...	4 0 0

Choice Selections, per dozen, Standards, 15*s.* to 24*s.*; Dwarfs, 6*s.* to 18*s.*; Short Standards, on 1½ to 2 feet stems, 9*s.* to 21*s.*

DWARF TRAINED FRUIT TREES.

A very fine lot of strong well grown two and three year trained Fruit Trees. Gentlemen requiring first-rate trees for planting will not be better supplied:—

Apricots, Peaches, Nectarines ... ... fine, 3*s.* 6*d.* each; extra, 5*s.* each.
Plums, fine, 2*s.* 6*d* each; extra, 3*s.* 6*d.* each.

Other FRUITS, all of choicest sorts, see Catalogue.
Hardy Herbaceous Plants, 100 distinct and showy vars., 30*s.*, or 50 for 17*s.* 6*d.*
Ditto, 100 superior and newer vars., 50*s.*, or 50 for 30*s.*
Hardy and Flowering Ornamental Shrubs, 20 fine vars., 12*s.*; 20 fine newer vars., 24*s.*
Hardy Climbing Plants, 20 fine sorts, 20*s.*
Camellias, choice assortments, per dozen, well set with flower-buds, 30*s.* to 60*s.*
RHUBARB.—Bailey's Early Monarch, each 2*s.* 6*d.*; Salt's Crimson Perfection, 3*s.* 6*d.* These two varieties are very similar, and the earliest grown.
Ditto, Victoria Giant, 7*s.* 6*d.* per doz.; Myatt's Linnæus, a good early sort, 7*s.* 6*d.* per doz.
SEAKALE, strong, for Forcing, 10*s.* per 100.

Catalogues, Nos. I., II. and III., for the present Season, forwarded complete for three penny stamps.

Goods carriage free (not under 20*s.*) to all the London termini, and all Stations on the Colchester line between London and Norwich.

Seed and Horticultural Establishment, Sudbury, Suffolk.

GEORGE SMITH, in offering the following novelties, informs his Patrons and Friends, and the Floral Community in general, that he has purchased the splendid Seedling Verbenas raised by Mr. Weatherill, Gardener to D. M'Neil, Esq. They have been so justly and universally admired at the various Exhibitions of the past season, and have so constantly gained the highest honours, that it is almost unnecessary to enlarge on their extraordinary beauty. G. S. also offers a Seedling of the highest merit raised by Mr. Todman. The above, in combination with the varieties of G. S.'s own raising, will form a collection which he feels warranted in pronouncing to be altogether unparalleled in the annals of floriculture.

VERBENAS.

CRITERION (Weatherill).—A flower of good substance, truss medium, pips large and quite first-rate in quality, smooth on the edge and circular like the outline of a Phlox, colour rosy pink. This variety has received First-class Certificates from the National Floricultural and Royal South London Societies.

SIR COLIN CAMPBELL (Weatherill).—Pip large, smooth and even on the edge, truss of good size, colour white with cherry eye, novel and attractive, first-class in every respect and rewarded accordingly at the Royal Botanic, the National, and the Royal South London Exhibitions.

EUGENIE (Weatherill).—New in colour, delicate lilac or pale lavender, pip large, smooth and even on the edge, truss full sized and of extra fine form. First-class Certificates from the National and the Royal South London Societies bear ample witness to the sterling merits of this variety.

KING OF ROSES (Weatherill).—This noble flower stands forth boldly as preeminent in its class. Colour rosy carmine, with maroon eye; the truss is large and of fine form, and it possesses in a remarkable degree the quality of stoutness. It is further recommended by the possession of the highest honour which the National Floricultural Society can bestow—its Certificate of the First Class.

CEDO NULLI (Weatherill).—Colour rosy blush, of good form, an extra large and constant show flower.

GENERAL SIMPSON (Todman).—A bold and well-shaped flower of extra form and size, colour carmine. This must prove a valuable variety for exhibition. First-class Certificate at the National Floricultural Society.

JOHN EDWARDS (Smith).—Cerise or crimson scarlet, with very large lemon eye. This must be considered the finest Verbena yet introduced, taking all points into consideration: it combines the properties of distinctness, brilliancy of colours, large truss, fine habit either for pots or bedding, freedom of bloom, and exquisite form. The National Society marked its appreciation of this variety by awarding it a Certificate of the First Class.

DANDY (Smith).—Intense red, with white eye, encompassed by dark crimson. It was awarded a Certificate at the National for its novelty in regard both to colour and character.

UNANIMITY (SMITH).—Rosy purple, with a large and conspicuous eye, a very telling and attractive variety. Rewarded with the National Certificate.

Strong Plants of the above will be ready on or about the 20th of April. Price 5s. each. The Set of Nine will be supplied at 35s.

PETUNIA.

HERMIONE.—This beautiful variety was raised in America, and has been exhibited by G. S. at the Royal Botanic Gardens, Regent's Park, at the Shows of the Royal South London, the North London, the National, and the Surrey Amateurs' Societies, at all of which it was considered the most beautiful Petunia yet introduced, and by all of which it was awarded Certificates. The Plant is of dwarf but free habit, and the flowers are large, with good form and substance. The ground colour is blush, curiously but regularly marked and spotted with bright purple. G. S. begs to add that the colours are decided, and that neither under glass nor in the flower border is it liable to lose its attractions. It is a variety absolutely indispensable to every grower of the Petunia.

Plants, 5s. each, will be ready about the 20th of April.

NEW FUCHSIAS.

G. S. begs to recommend the following, which he fully anticipates will give universal satisfaction:—

CONQUEROR (Smith).—Tube and sepals crimson, the latter broad and well reflexed, corolla purple, very large and circular, a free blooming flower, of fine growth and habit, an excellent variety for the purposes of exhibition. Label of Commendation at the National.

GENERAL WILLIAMS (Smith).—Tube stout and rather long, sepals broad and well reflexed, of bright crimson scarlet colour, corolla violet purple, good habit and a fine show flower.

ADMIRAL BOXER (Smith).—Scarlet tube and sepals, the latter broad and well reflexed, corolla large and finely formed of a deep violet hue; a good show flower.

Strong Plants of these Fuchsias, 7s. 6d. each, will also be ready to send out about the 20th of April.

SEEDLING MIMULUS.

LYDIA (Smith).—A very large and distinct flower of dwarf habit. G. S. begs to subjoin the award of the censors of the National Floricultural Society, on the occasion when this Seedling was exhibited, April 26th, 1855: "Certificate of Merit to Mimulus, *Lydia*; large bright yellow, blotched and spotted with crimson, bold and attractive, dwarf habit and good form."

Plants, 2s. 6d. each, will be ready in April.

Tollington Nursery, Hornsey Road, Islington.—Feb. 9.

A CAUTION TO THOSE WHO LIVE IN GLASS HOUSES NOT TO THROW STONES.

MESSRS. E. G. HENDERSON and SON, Wellington Road Nursery, St. John's Wood, London, have been favouring of late the floral world with some important information, the which it is my duty here to digest. After giving descriptions of Banks's New Fuchsias, partly in their own Catalogue and partly in Edwards's National Garden Almanack for 1856, the Messrs. E. G. H. & Son inform the public—in great alarm—that "*other* Seedling Fuchsias raised by the same eminent raiser will be sent out this season, one from a Kentish nursery, another from a nursery in the *vicinity* of London, and that in both cases the varieties so to be sent out are but the *refuse* of a batch of seedlings from which they had made their selection."

As regards the dark Fuchsias I am about to send out, and raised by Mr. E. Banks, I have only to say that refuse or not they will give every satisfaction to all who may grow them, and are offered to the notice of cultivators with an inward feeling of pride at the happy opportunity of again sending out sterling and meritorious flowers, and at a less price than those to be sent into the market by the Messrs. E. G. H. & Son. Without wishing to fall into the tone of boasting adopted by the Messrs. E. G. H. & Son, I think it to be generally acknowledged that I have sent out more good Fuchsias and fewer bad ones than themselves; of this, however, I admit the public to be the best judge. The Messrs. E. G. H. & Son, however, think otherwise, and believe "none like their own," or any one so cute in selecting "as themselves." Read on—*Nous verrons.*

The Messrs. E. G. H. & Son may *perhaps* favour the floral world with some explanation (!), to an assertion made in a weekly contemporary, viz. that a pretty little *white* corolla'd Fuchsia was *substituted* for the real Queen Victoria, the original elegant large variety *of which Andrews's* portrait was published.

Messrs. E. G. H. & Son, with some tirade, recommend their batch of Thirteen (!) New Verbenas also raised by Mr. Banks, and in confirmation of their quality refer to "other seedlings raised by Mr. B. and sent out by them as standing *years in cultivation*, when other raisers' flowers have been discarded." I fear what is here asserted to be *too true* of themselves; they did two years ago send out a batch—yes, a batch, *and all have disappeared* save one beauty, the *only* variety of the batch of *nine* which ought to have been propagated for sale. Have the *eight* been grown for years? Rather were they not discarded before their *first season* had reached its termination?

Messrs. E. G. H. & Son *do* give me the credit for sending out *one* good flower last season. I am proud of it for its proven first-class qualities; with some reason I may claim to good judgment by selecting *the one*—Lord Raglan. If that acknowledged good judgment served me to select *but one* in 1854, the same good judgment last autumn prompted me to refuse *in toto the whole* of the batch from which, after my refusal, the Messrs. E. G. H. & Son selected 13 worthy to be sold to *their* customers.

If I am no very good judge of what I purchase for the gratification and satisfaction of my friends, I am at least, theirs faithfully,

George Smith, Florist,
Tollington Nursery, Hornsey Road, Islington,
in the *vicinity* of London.

SEED ESTABLISHMENT, HIGHGATE, LONDON.

WM. CUTBUSH and SON beg to inform their Patrons and the Public generally that they have received this season their usual Fine Stock of VEGETABLE and FLOWER SEEDS from their growers in the best condition imaginable.

Collections can be made up at the same prices as those advertised by other firms, but advise their customers to make their own selections, which is found to be the cheapest and best in the end.—Catalogues free on application.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD and SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	... 12*s.* to 18*s.*
DWARF STANDARD DO.	... 18*s.* to 24*s.*
CLIMBING AND NOISETTE ROSES, named	9*s.* to 12*s.*
CLIMBING ROSES, mixed, for covering banks	4*s.*
DWARF ROSES, on own roots, mixed, not named	4*s.*

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6-inch pots, for forcing, exhibition, or greenhouse culture, 24*s.* per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

CHARLES S. BARKER'S Seedling Florist Flower for the Spring of 1856:—

VERBENAS.—Beauty of Godalming, blue slate colour, large pips, and of excellent form. *Florist, Oct.* 1855.—Ailey Moore, purple and slate curiously shaded, carmine eye, a novel pleasing flower. *Florist, Oct.* 1855.—Rosetta, rose, carmine eye, pip large and of exquisite form.—Maid of Honour, bright pink, centre rich vermillion, truss large, habit fine.—Quakeress, silvery lilac, centre bright rosy purple, fine form, habit good.—King of Sardinia, rich purple plum colour, pip large, and of fine form, truss large, habit good.

C. S. B. begs to assure his friends and the public that the Seedling Verbenas he now offers far surpass in form, habit, and colours anything of the kind ever sent out. Plants will be ready about the 21st April, at 5*s.* each, or the set of six for 20*s.*—Verbena Barker's Ravenswood, the best of all the dwarf scarlets for baskets and vases, in April, 6*s.* per dozen.

VARIEGATED GERANIUM.—The Maid of Orleans, a great improvement on Flower of the Day, foliage large and perfectly flat (planted out in 1855, leaves were produced 5 inches over) white margin, dark horseshoe, flowers beautiful cerise scarlet, truss good and well above the foliage. Plants in May 5*s.* each.

TROPÆOLUM (Perpetual Flowering). Triomph de Godalming, flowers large and circular, fringed, golden yellow, with five large crimson blotches, abundant bloomer. The plant commenced flowering when only 6 inches high, and has continued to produce flowers in succession from the axil of any leaf. The one with a free blooming charaster, colour golden yellow, and bright crimson blotch on all five petals, is the most novel and superior to anything in its way at present in cultivation. *Florist*, Nov. 1855. Plants 21st April, 5*s.* each.

Godalming Nursery, Feb. 9, 1856.

SEEDS FOR THE KITCHEN GARDEN.

SEEDS FOR THE KITCHEN GARDEN *can be obtained from* DEVONSHIRE, *through* Messrs WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. *All orders carriage free.*

See their "PRICE CURRENT AND GARDEN DIRECTORY" just published.

VAN PARCEL TRAINS *are now running on the Great Western and the other Broad Guage Railways, so that Seeds can now be sent from* DEVONSHIRE *with as much regularity and despatch as from any other county in England.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, Devonshire.

SEEDS FOR WALES.—*Arrangements have been made by the undersigned for the speedy transit of all orders for* WALES. *Seeds can be forwarded from Bristol direct by Steamer, or by the South Wales Railway, viâ Gloucester.*

WILLIAM E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

GARDEN SEEDS FOR IRELAND.—*Plymouth is situated in close proximity with* CORK, DUBLIN, BELFAST, and LIMERICK, *and Steamers call every week at the Great Western Docks, so that purchasers in our sister country will find their orders attended to with promptness and despatch, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

GREENHOUSE AZALEAS.

A. PAUL AND SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s.* the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s.* the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s.* and 30*s.* per dozen. A few larger plants 3*s.* 6*d.* to 5*s.* each. Carriage free to London.—Nurseries, Cheshunt, Herts.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Also, a useful practical Treatise on the Cultivation, &c., of Strawberries.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

DOWLING'S PLUMS.—These three varieties of New PLUMS having fully sustained the character that was given them by gentlemen and growers that have fruited them this season, H. DOWLING can confidently recommend them as the most Prolific, Hardy, and high Flavoured of any in cultivation.

Good Strong Trees can be had from the grower at very low prices; from Mr. CHARLES TURNER, Royal Nurseries, Slough; or Mr. HENDERSON, Pine-apple Place, London.

Southampton, February 9.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Feb. 9.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

FINLAY FRASER, JUN. (lately with Messrs Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that they have taken the premises, 82, Bishopsgate Street Within, where they intend carrying on the SEED BUSINESS in all its branches and trust by great assiduity and strict attention to merit an extended share of patronage. They confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality.—London, Feb. 9.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual, of first-rate quality.* It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS:

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Feb. 9.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

KENNEDY AND KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. KEMPTON, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. JAMES CARTER, of Holborn.—Address KENNEDY & KEMPTON, Bedford Conservatory, Covent Garden, London.

SEED POTATOES.

JOHN SHARPE begs to offer the undermentioned well selected SEED POTATOES, per bushel of 4 stones:—

Early Ashleaved Kidney..	5*s.*	Early York	5*s.* 0*d.*
Jackson's ditto	5*s.*	Emperors	5*s.* 0*d.*
Prolific ditto	5*s.*	White Rough	5*s.* 0*d.*
		Regents	3*s.* 6*d.*

Seed Growing Establishment, Bardney Hall, near Lincoln.

FRAME CUCUMBERS.

WOOD AND INGRAM offer the following well known kinds at 1*s.* per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
„ White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
	Manchester Hero
Improved Sion House	Conqueror of the West
Sir Colin Campbell	Snow's Horticultural.

Huntingdon urseries, February 9.

TO BE SOLD, a large quantity of the following:—

	Feet.		Feet.
100,000 Larch Firs	in. 18 to 3	Lime	10 to 12
10,000 Spruce	... ft. 5 „ 12	Balm of Gilead ...	5 „ 6
10,000 Oak	6 „ 8	American Arborvitæ	6 „ 10
5000 Beech ...	5 „ 7	Green Holly	2 „ 3
1000 Yew	3 „ 5	Tree Box	4 „ 6
Spanish Chesnut ...	8 „ 10	Ditto, variegated ...	4 „ 5
Elm of sorts	8 „ 12	Rhododendrons ...	4 „ 6
Birch	10 „ 12		

And a large quantity of Fruit Trees and Shrubs.

W. HANDSCOMB, Nurseryman, Aspley Guise, near Woburn, Beds.

SUPERB SHOW PANSIES,

FOR POT CULTIVATION,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties for 15*s.*, hamper, package, &c., included. To purchasers having duplicates, other kinds of equal merit will be supplied.

Argo, Paton & Small's	Marchioness of Bath, Wheeler's
Boadicea, Fellowes's	Miss Talbot, Dickson & Co.'s
Charles Turner, Hale's	Nonsuch, Turner's
Chillington, Sadler's	National, Turner's
Emperor, Hale's	Pandora, Hunt's
Father Gavazzi, Holland's	Sovereign, Dickson & Co.'s
Fearless, Schofield's	Satisfaction, Turner's
Lady Carrington, Hunt's	Sir J. Paxton, Betteredge's
Lord Jeffrey, Lightbody's	Sir J. Cathcart, Turner's
Memnon, Turner's	Yellow Climax, Paton & Small's

Very select Pansy Seed, 1*s.* to 2*s.* per packet. Catalogues now ready. Post Office orders to be made payable at Middleton, Lancashire.

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12*s.*

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1*s.* each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1*s.*; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1*s.* per stone of 14 lbs.

100	Fine named Hardy Herbaceous Plants	£1 10
100	„ „ Alpine Plants	1 10
100	„ „ Shrubs	2 10
100	„ „ Cape Heaths	4 10

Fine blooming plants Epacris, 12*s.* per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.—27, Great George Street, Westminster.

TO THE WHOLESALE SEED TRADE.

MESSRS. PLATZ AND SON, SEED GROWERS, Erfurt, Prussia, supply from their extensive Stock the very best Flower and Vegetable Seeds, the growth of 1855, through their agent, Mr. R. KENNEDY, Bedford Conservatory, Covent Garden, London.

STOVE PLANTS.

E. P. DIXON begs to announce that he has a fine Stock of the above, consisting of Allamandas, Aphelandras, Ardisias, Begonias, Coccocypselum discolor, Hexacentris, Hoyas, Impatiens, Ixoras, Sciadocalyx Warscewiczi, Achimenes, and the ERECT flowering Gloxinias, &c. &c., which he offers in collections (left to his own selection) of 20 varieties for 30*s.*, 50 for 50*s.*, 100 for 90*s.* Also a fine Stock of young Geraniums, consisting of all the leading kinds, from 9*s.* to 30*s.* per dozen. The annual Nursery Catalogue will be ready in a short time. The Seed Catalogue may now be had gratis on application.

Seed Establishment, Hull; Nursery, Air Street, Sculcoates.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

PLANT IN FEBRUARY!

CAREY TYSO, FLORIST, Wallingford, Berks, begs to offer Choice RANUNCULUSES and ANEMONES, suitable for planting at this season, in selected assortments as under:—

RANUNCULUSES,	100 splendid named sorts, 40*s.* to	£4	0	0
„	25 superb new seedlings... ...	1	10	0
„	100 fine mixtures, 8*s.* to	1	0	0
DOUBLE ANEMONES,	50 fine named sorts, 10*s.* to...	0	13	0

IMPORTED GERMAN SEEDS, of the best quality, in named assortments, 1*s.* to 2*s.* 6*d.* each—Asters, Balsams, Stocks, Larkspurs, Poppies, Wallflowers, Zinnias, &c. Choice Annuals, 25 packets per post, 5*s.*

General Descriptive Catalogue of Florists' Flowers and Seeds for 1856 may be had for one label.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S COLLECTIONS OF GARDEN SEEDS,

THE BEST YET OFFERED.

KITCHEN GARDEN SEEDS.

No. 1.	A complete Collection for one year's supply of a large Garden	£ 3	*s.* 0	*d.* 0
No. 2.	A complete Collection, in smaller quantities ...	2	0	0
No. 3.	Ditto ditto ditto ...	1	10	0
No. 4.	Ditto ditto ditto ...	1	0	0
No. 5.	Ditto ditto ditto ...	0	15	0
No. 6.	Ditto ditto ditto ...	0	10	6

A List of the sorts and quantities contained in each Collection will be sent Post Free in return for one postage stamp; and if some of the sorts are already possessed, increased quantities of others will be given in lieu of those to be omitted.

HARDY AND SHOWY FLOWER SEEDS (POST FREE), *Which may be sown where they are intended to bloom.*

A Collection of the best 100 sorts known...	£1	1	0
A Collection of the best 50 sorts known	0	10	6
A Collection of the best 36 sorts known	0	7	6
A Collection of the best 24 sorts known	0	5	0

BOKHARA CLOVER, BORAGE, AND OTHER SEEDS FOR BEES.

Carriage Free by Rail to almost all parts of the Kingdom.

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 9, 1856.

UPON what principle is it that in some gardens and great gardens too, the EARTH IN A TUB or pot is allowed to become so hard and filled with roots that it is more like a sun-dried brick than anything for plants to grow in? Is it because men think that plants love soil out of which no nourishment can be extracted? and into which no water can enter? Or is it that they prefer to see plants decrepid instead of vigorous; or may it be ascribed to that reverence for antiquity which refuses to listen to the explanations of science, prefers an old stage coach to a railway, and the post office under the STUARTS to the electric telegraph under QUEEN VICTORIA?

Look at these fine Orange trees with limbs in the full vigour of a green old age, but with foliage in a consumption. Cast an eye upon those young exotics, destined some day to decorate a palace, and intended to be well nursed until the time comes when a fitting place can be found for such valuable rarities; they are already struggling against an unkind destiny; their arms are shrunken, their leaves

parched and dry. How is that? Alas, they have fallen among barbarians who require them to wear a look of happiness in the midst of torture, and to fatten though perishing of starvation. The earth in which they grow is the place whence their meat and drink should come; but its springs are choked and dry, and the food it once contained has long since been exhausted. The roots which nature gave them for mouths are broken, awry, twisted or misshapen; in some the passages through which food should flow upwards in invigorating streams are bent backwards and forwards till no passage remains; in others they have followed the surface of their prison, searching round and round for a scanty beverage till at last they have become spiral, hardened, thickened and incapable of ever regaining flexibility; so that when at last the plants to which they belong are transferred to some fertile spot they are incapable of imbibing their food and perish by degrees, or having lost that power of extension in all directions, which nature gave them, they ultimately quit their grasp of the earth, and allow the trunk to fall over—a hopeless wreck.

This is no exaggeration; no highly coloured picture prepared for mere effect. The language employed, although somewhat figurative, is not untrue; but faithfully represents what was once common among us, and still lingers in ancient places.

Perhaps the true cause of this wretched management, at least in the case of large trees, is that men do not always know how to prevent the hardening of earth crammed from centre to circumference with unhappy roots, by the only remedy, viz., frequent and plentiful repotting, or, as we say when speaking of large specimens, retubbing. To all such we recommend an excellent article by Mr. James Macnab in the *Scottish Gardener*. The health of the Palm trees and other large exotics under this gentleman's care in the Royal Botanic Garden, Edinburgh, is the admiration of all who see them. His precepts, therefore, come recommended by a practice to the success of which we all bear witness. The original paper is illustrated with woodcuts; and it will doubtless be consulted by those who feel a difficulty in understanding such description as we have the means of giving. In the first place Mr. Macnab describes his manner of moving heavy tubs from place to place. Such tubs, he observes, "generally stand on four bricks or stones, so placed as to give a free circulation of air beneath, and at the same time affording facilities for draining off the superfluous moisture, and thus preserving the tubs from early decay. This arrangement also affords the means of easily running the plants from place to place. Three or four iron rollers, four feet long and two inches in diameter, are placed in suitable positions below the tub, and the plant lowered on them by means of pinches or crow-bars; the plant is then speedily run in the required direction."

When placed the operation of lifting the ball of earth high enough to enable the old tub to be pulled away and a new one to be substituted is effected by a pair of strong tressels, upon each which are fixed two moveable hard-wood "cradles," resembling the mould in which the trunnion of a piece of ordnance is made to work. Into these cradles fall a pair of "rollers" or windlasses worked by handspikes; so that the ball of the tree to be retubbed stands in the centre of a square, two of whose opposite sides are formed of tressels and the other two of rollers or windlasses. It is easy to conceive how, by a simple arrangement of this kind, even the largest tubs used in gardening may be quickly and safely raised to any required height.

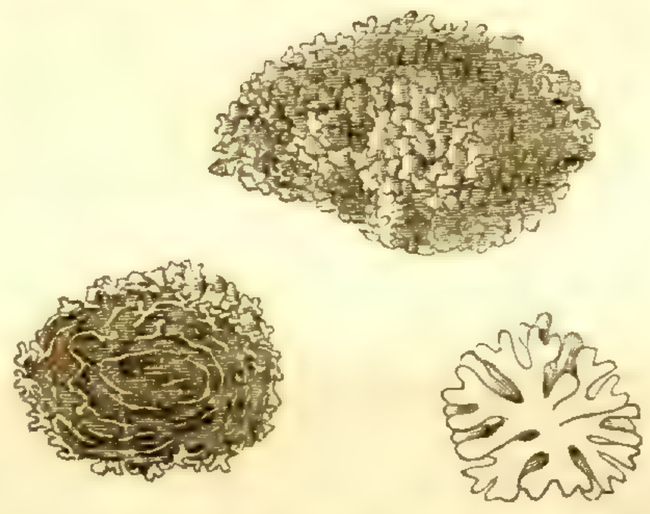
To work an apparatus of this kind we are told that:—"For a weight of 20 or 25 cwt. eight men will be quite sufficient, but if the mass is heavier, it will require twelve men, two being placed at the handspikes at each end of the rollers. After the men are adjusted, two being stationed at each of the guy poles, the plant is raised a few inches by means of the handspikes acting upon the ropes, so as to allow the hoops and bricks to be withdrawn from below, as well as the loose soil and old drainage. Sweep all clean, then continue the raising till the plant is sufficiently high to allow the tub to be run beneath it. This done, the plant must now be lowered very gently into the new tub, taking care to keep it quite upright, and exactly in the centre."

The last matter of importance to which attention has to be paid is the renovation of the soil. This cardinal point is effected thus:—"Previous to filling up the tub with its prepared soil, pots either whole or cracked, 6 or 8 inches deep, are generally placed round the surface of the drainage, the open ends next the roots; and in the case of plants in large tubs, it is the practice to continue the inserting of pots in this way while the tubs are being filled up, care being taken in all cases to keep the open ends of the pots next the ball; sometimes as many as eight or ten pots are introduced in this manner. In after retubbing, these pots are generally found full of beautiful healthy roots. The tub, after being filled up with soil, is allowed to stand a few days before being watered."

After this explanation we hope to hear no more of Orange trees being left to die of hunger because a gardener wants the means of lifting them out of their tubs and renewing the soil. Some cart rope, a little stout timber for tressels and windlasses, with some aid from the wheelwright, will enable any one to do all that is needed, beyond manual labour.

The same simple apparatus is perfectly well adapted for lifting and transplanting trees in the open ground, but to that point we must endeavour to refer on a future occasion.

We took occasion some six years since in the communication of some excellent specimens of the esculent Lichen of Pallas, *Lecanora esculenta*, and the allied species *L. affinis* from Erzeroum, to call attention to its very curious history, and to publish some remarks transmitted by our correspondent there (*Gardeners' Chronicle*, 1849, pp. 612 and 581). It was stated, that though these Lichens, especially *L. esculenta*, are so acceptable in time of scarcity to mix with head corn, they were quite unknown to the shepherds who traverse the great plain which surrounds the city, and that Dr. Heinig, who has rambled much about the neighbourhood, had never met with them. Eversmann had in vain searched for the minutest point of attachment in the allied species *L. fruticulosa*, though he had frequently met with specimens in a very early stage of growth, scarcely exceeding a grain of sand in magnitude. It is manifest that plants of a spherical form, having no attachment to the soil, and of small specific gravity, may be easily blown for miles by the powerful winds



which traverse the wide and open steppes, and that their accumulation, as related by Pallas and others, at the base of rocks is the natural consequence of their nature and the circumstances under which they are placed. The witch-balls, consisting of round compact rolled masses of dead herbaceous stems, present a similar but even more striking instance of the power of the winds in such localities. If these Lichens were known to grow in the country surrounding Erzeroum, we should have an easy solution of the showers of Manna from heaven, of which so much has been said at different times, and which possibly are not more marvellous than the supposed descent of frogs, shells, seeds, &c., from the clouds, of which our journals occasionally give reports.

The power of the wind in lifting up bodies of some size from the earth and carrying them to a distance is occasionally very considerable, even in this country. In an early volume of the Annual Register, to which we have no power of referring at this moment, an account is given of a storm which took place at Oundle, and which was witnessed by the father of the present writer, who completely confirmed the report. Skins were carried from a fellmonger's yard at Oundle, and lodged in the Elm trees in the front of the Hall at Biggin, a distance of two miles in a direct line, and some other circumstances took place still more marvellous. As is usual with such winds, the breadth of the current of air was very small, along which its destructive effect was distinctly visible.

We were not aware that analogous bodies occur in England till a few days since, when specimens of a curious spherical Lichen, which rolls freely on the exposed downs or sheep-walks of Dorsetshire, as at Melbury, were communicated to us by Sir W. C. Trevelyan. It was hoped that they might throw some light upon the mode of growth of Lecanora esculenta; but this unfortunately is not the case, as they are formed on two distinct modes of growth. *Lecanora esculenta* and *affinis*, of the latter of which we give a section in the right hand figure, are essentially centrifugal and increase after a dichotomous manner, as is distinctly marked in L. affinis, but far more decidedly in *L. fruticulosa*, while the specimens before us of which we give a view of the natural size, together with a section, grow concentrically. It is supposed by our excellent correspondent that the Lichen, which appears to be one of those short-lobed forms of the *Parmelia stellaris* group, which often puzzle botanists, and indeed to be a state of P. cæsia, in which opinion we are confirmed by Mr. Babington, is developed in the first instance on rabbit or sheep's dung, which in the process of time is absorbed, leaving a round or elliptic free mass.

We have in vain searched for the slightest trace of the vegetable fibres of which such substances are composed, and the brown matter which simulates them is merely an hypertrophy of the dark root-like bodies which clothe the under surface of so many species of Parmelia. The Lichens of the *Lecanora affinis* group are merely extensions by ramification and radiation of a single individual, whereas the plant before us has arisen probably from many distinct plants, which have formed a solid mass by the contemporaneous growth of many imbricating fronds. The mystery, therefore, of the mode of growth of the esculent Lichen is as impenetrable as ever; but we are greatly obliged to Sir W. C. Trevelyan for the knowledge of this very curious form of *P. cæsia*, of which we can find no trace in any book to which we have access. *M. J. B.*

New Plants.

163. Kœllensteinia Kellneriana. *Reichenbach f. in Bonplandia, Jan.* 15, 1854.

Under this name has been published a terrestrial Orchid nearly allied to Zygopetalum and Warrea, for an opportunity of examining which we are indebted to James Bateman, Esq., who in June 1854 favoured us with a living specimen, produced in his stove under the care of Mr. Sherratt, from one of Warczewicz's Peruvian collections. Professor Reichenbach's plant, gathered by Wagener at Truxillo, 7000 feet above the sea, had previously blossomed in Germany in the garden of Captain Kellner v. Kœllenstein, a German amateur. It was described as being very near *Zygopetalum tricolor*, and to have flowers smelling like many Stapelias. Mr. Bateman describes his plant as having pseudo-bulbs the size of a Cobnut, grassy leaves 1—2 to each, and one or two at base, flower stems 18 inches high, flowers lasting a long time, and having a peculiar disagreeable odour. We found them to be secund and of a dingy violet colour, with a yellow crest at the base of the lip. Professor Reichenbach, to whom specimens have been communicated, considers it identical with his species, which he reports to be very variable. *Zygopetalum tricolor* is certainly a *Kœllensteinia*, and extremely like the species now noticed, but its flowers are not secund, its lip is pure white with thin broken crimson cross-bands, and the crest is neither yellow nor next the base, as here, but white, and in a line with the side incisions. The front lobe is also somewhat smaller than the other; whereas in K. Kellneriana it is larger. The plant is merely of botanical interest.

ON FROST SPLITTING.—By Dr. Robert Caspary

(from the *Botanische Zeitung*.)

The fact that in cold winters several of our hardy trees, both indigenous and exotic, are often split lengthways even to the pith by the frost, is a well known and very interesting phenomenon*, but the precise circumstances under which it occurs and the causes of it have been inquired into by very few persons, and have not yet been satisfactorily ascertained. I have already alluded to some questions connected with frost splitting in a memoir†, in which I gave an account of some observations on the disruption by frost of the tissue in several small plants, chiefly herbaceous exotics, which was accompanied by a curious foliaceous formation of ice. The frost clefts of our trees are, however, very different from that phenomenon both in their causes and attendant circumstances. I shall presently show in what the differences consist. In January and February of the present year (1855) on the coming on of very severe weather, numbers of these fissures showed themselves on trees in and near Berlin, and gave me the opportunity of solving several questions which remained unanswered respecting them, and of investigating more closely their causes. As the accurate knowledge of the meteorological relations at the time the clefts occurred is of great consequence, I will first give the details of the meteorological observations of the period in question, which I owe to the kindness of Dr. Schneider, who has the direction of the station of the Meteorological Institute in the Ritterstrasse in Berlin.

The commencement and middle of the winter 1854-5 till the 13th January was, with the exception of a short cold period in November, unusually rainy. The mean temperature of November 1854 was + 1° 69 Reaum. (about 36° Fahr.); the thermometer was mostly above the freezing point, although the absolute minimum on the 15th of the month was —7° 2 Reaum. (16° Fahr.). In December the mean temperature was + 1° 96 (near 37° Fahr.), and the absolute minimum on the 21st December — 2° 5 Reaum. (26¼° Fahr.) In January 1855 the lowest temperature which occurred before the

* See in regard to the injury done to Oak timber the very instructive work of Häring, "On the Characters of the different Kinds of Oak growing in Germany," Berlin 1853, p. 109, with two figures of frost splits.

† In the *Botanische Zeitung*, 1854, No. 38.

13th was — 0° 9 (30° Fahr.), on the 10th. From the 13th January to the 14th February a more or less severe frost prevailed, which was only interrupted between the 4th and 7th February by a milder temperature, and partly by rain which froze on the ground. But between the 4th and 7th February the thermometer never reached + 1° (34¼ Fahr.), and even during the rain it was generally below the freezing point, so that a real thaw never took place between the 13th January and 24th February.

(Here follow two tables—one of the daily temperatures, degrees of moisture, and direction and strength of wind from the 13th January to the end of February 1855; the other of the daily degrees of moisture from the 1st December, 1854, to the 12th January, 1855.)

There are in and about Berlin a considerable number of trees which show frost clefts that have grown over. I had previously resolved on making observations on frost splitting in the course of 1854-5, and had therefore from the commencement of the winter directed my attention especially to those trees which had overgrown frost clefts. I examined them almost daily, especially when the severe cold set in, towards the middle of January. On the 2d of February I first remarked the reopening of frost clefts on a great number of Lime trees in Charlottenburg, and on the 3d also on a large number of trees in the Park (Thiergarten) which I had not been able to visit on the 2d. Unfortunately I had not for a few days before the 2d visited either Charlottenburg or that part of the Park in which grew the greater number of the trees which I subsequently examined. Although I cannot therefore precisely fix the day when these frost clefts reopened, yet it cannot have taken place earlier than in the night of the 30th to the 31st January; for on the 30th they were certainly not yet open. Probably it was in the night between the 1st and 2d February, when the thermometer in the Ritterstrasse indicated a minimum of —15° 1 (—2° Fahr.). During the whole of the temporary moderation of the cold, from the the 4th to the 7th February, they remained open, and increased on the return of the severe frost. But to my sorrow there were only old overgrown frost splits that burst open, and no new ones formed, with the exception of two trees, one a Lime tree in the Park, the other a Horse Chesnut in the garden of the pupil gardeners' establishment. Of the splitting of the latter tree the nursery gardener, E. Bouché, could even give me the hour when it took place. It was about 11 o'clock at night on the 9th February that it burst with a report which M. Bouché heard plainly in his dwelling situated about 20 paces from it.

(Here follow the detailed observations on the extent, direction, appearance, and other particulars of the frost slits of 33 different trees, Oaks, Sycamores, Limes, Horse Chesnuts, Ashes, Poplar, Alder, and Bird-Cherry, all except five noted down whilst the clefts were still open, and three only of which he had not himself observed all the particulars. The diameter of the stems always taken at 2 feet from the ground, the measurements in Rhine feet and lines (twelfths). The following extracts will show the nature of Dr. Caspary's observations, upon which he founds his arguments.)

1. *Quercus sessiliflora.*—In the Park, close to the Lion's Bridge, three paces from the footpath; stem 23 inches diameter; frost cleft old, overgrown, the border projecting considerably with eight breaks, showing that the fissure had opened and grown over again eight times in eight different years. The cleft was about 15 feet long, under a projecting knot, and extending to the ground; it commences below on the S.E. side and ends above on the E. The direction of the twist is to the left. The cleft opens about four lines, the sides of the fissure are brown and decayed, with the exception of about eight lines of fresh wood and bark where it had overgrown.

2. *Quercus pedunculata.*—In the botanic garden at Schöneberg near a footpath; diameter 17½ inches; two clefts. One is to the east from the ground upwards, of the length of about 18 feet, and ends under the stump of an old branch not overgrown. The frost cleft is old; had been overgrown; opens four lines; the sides are brown and rather decayed. The fresh split wood, where it had been overgrown, is about half an inch thick. The second cleft is on the E.S.E., trends to the S. and then to the S.W. It begins at about 7 feet above the ground, and extends with breaks to the height of about 17 feet; it spans four lines. It ends neither at a knot nor at a decayed branch, but seems to be in connection with a stump about 1½ foot thick, which is about 2 feet above the end of the cleft. Twist to the left. The projecting border shows eight breaks; the cleft had, therefore, burst open and grown over again in eight different years.

7. *Quercus—which species not determined.*—In the Park, not far from the Lion's Bridge; 12 inches diameter. Cleft old; not overgrown; sides brown, paler at the bark; but this is not the consequence of the formation of fresh bark, but because the sides of the cleft had lain closer together by the bark. The cleft extends to below the ground; is about 3 feet long, and spans four lines. It lies to the W.S.W.; no twisting perceptible. No injury occasioning it can be seen; but close over the cleft to the west is a smoother place in the bark, which seems to indicate some injury that has overgrown.

8. *Quercus, species not determined.*—On the road to Charlottenburg, close to the footpath; 28 inches diameter, with two old clefts, one scarred; with a projecting border with eight breaks, showing an eight-fold bursting and overgrowing. Cleft 4 to 5 lines broad, brown on the sides, the fresh split wood 8 lines thick. Twist to the right, aspect towards W.S.S., about 10 feet long in two portions. An irregular spot in the bark at about two-thirds of the height of the cleft discloses an injury, the nature of which cannot be determined. The second cleft is in two portions, about 4 feet long, 6 feet from the ground to the N.E. No perceptible injury in connection with it.

20. *Lime Tree* at Charlottenburg, on the left of the Berlin road.—Stem 26 inches diameter. Frost cleft old, overgrown with a border with several breaks, extends from below about 8 feet up the main stem, is then continued above a large knot up to the fork of two branches, into one of which it is continued for about 4 feet. The cleft in its lower part is 4 or 5 lines broad, higher up it spans from 9 lines to an inch or an inch and a quarter. The young fresh split wood is 5 or 6 lines thick, the sides of the cleft decayed, in the upper part deeply rotted away, so that the overgrown bark forms a border projecting over the inner edge of the cleft. No twisting. Aspect on the main stem to the E.N.N.

22. *Lime Tree* at Charlottenburg, on the Berlin Road.—Stem 21 inches diameter. The cleft extends from the ground up to the stump of a bough sawed off but not overgrown; is continued with a break round the stump and for some distance above it; total length about 12 feet. The cleft spans an inch and a half, and I could insert my rule into it to the depth of 8 inches. The cleft was old and had been partially overgrown, but without a thickened border. The young wood and bark which had been fresh split was only about three lines thick. The sides of the cleft were much decayed and full of dirt, which must have got into it before it was fresh opened this season. Apparently it had remained very long open in the part where it had not overgrown, but where it showed a thickened border on the inner edge formed of young wood and bark. The twist is to the left, the aspect S.S.W. The cleft of this tree leads to instructive conclusions, of which more hereafter.

25. *Bird Cherry.*—In the Park, four paces from a foot-path. Stem 13 inches thick. Frost cleft old, overgrown, under a stump not grown over, about 10 feet long, ceases at about 6 inches from the ground. The fissure opens about 4 lines, is brown, the twist to the right, the aspect from S. to S.S.W. The fresh torn border of overgrowth about 8 lines thick.

29. *Horse Chesnut* (fig. 3*).—At Schöneberg, in the garden of the pupil gardeners' establishment, five paces from a walk. Stem 14 inches diameter. Cleft fresh, having occurred, according to Mr. E. Bouché, on the 9th February, at 11 o'clock at night, with a loud report. It is about 8 feet long, and extends nearly to the ground. Twist to the left, direction to the south below, then by the east to the north. It crosses a black decayed spot on the bark of about 1½ foot in length, lying rather more than half way up the cleft, the decay having extended into the young wood in brown streaks, about 1½ inch deep. The cleft opens to the breadth of 3 or 4 lines.

31. *Ash* (fig. 4).—In Soltmann's Brunnengarten. Stem 18½ inches diameter. The cleft old, overgrown, rising from the ground about 8 feet high to the side of a branch, in a north-west direction. I have not myself seen this cleft open, but according to Hofrath Soltmann and some of the people of the garden, it spans from half to three-quarters of an inch across, and opens every winter, closing over again in summer. The clefts of this and two other Ash trees (32 and 33) were remarkable as having exactly followed the scar of a longitudinal slit in the bark. It was only at the top that the cleft of No. 31 slightly diverged to the left from the scar. These scars had precisely the appearance of those left by the slits that gardeners often make, as they say, to let the tree bleed, or they may have been slit from mere wantonness. By the side of the cleft are the traces of a shorter one, but which I am told does not open in frosty weather.

(*To be continued*).

* The figures will be given at the end of this curious paper.

VEGETABLE PATHOLOGY.—No. CVII.

419. Veneficium (*Poisoning*). — Plants having only very limited powers of choice as regards the matter absorbed by the spongelets, whatever is really held in solution by the water they imbibe must pass with it into the cell cavities, and in those cases where substances such as silex are taken up more freely by one plant than another, the difficulty depends probably on mechanical laws which at present we are unable to appreciate. If, however, the choice of the spongelets is limited, that of the stomates is still less so, so that whatever gaseous matter may be contained in the atmosphere will find a ready admission to the inward parts of the plant. It is obvious, therefore, that as the exigencies of plants are very different, and the same nutritive matter, or rather the same proportions of it, will not suffice for the maintenance of health in all, even under ordinary circumstances, disease may arise from a deficiency or redundancy of particular elements in the soil and atmosphere. The salt steppes of Asia produce only such plants as delight in the particular mineral which abounds in them, or as are able to tolerate it in such large proportions. In land, again, over-manured with guano or other animal matters, health or even vitality cannot be maintained, where the proportion is such as to exceed greatly the wants of the species. Wheat, for instance, will not flourish where there is a total absence of silex, nor Cabbages where the proportion of nitrogenous matter is very small. In some cases, indeed, superfluous matter which could never pass off by the stomates is stored up in the cavities of the cells, as the crystals of oxalate of lime which form such a prominent and interesting feature in the leaf cells of Figs, Hops, and many other plants, the rhaphides with which so many vegetable cells are gorged, or the carbonate of lime in Charads. There is no reason to believe that these matters are deposited with a view to any ulterior use, as is the case with the magazines of starch, &c., which are intended to perform important functions at some future and often distant period. Other matters, however, may be present in the soil or atmosphere which are never requisite for health in any proportion, and which in themselves may be destructive. Different as vegetables are from animals in a multitude of respects, there are species which so closely resemble each other that it is difficult to say to which great division of the organised world they really belong. Both these exhibit vital phenomena, and we may presume therefore that the principle of life, however it may be modified, is essentially the same in each. If proof, however, were wanting in other respects, the identity of the effects produced by many vegetable and mineral poisons upon plants and animals would alone be sufficient. Whether we take the principal organic poisons, as opium, hydrocyanic acid, chloroform, &c., or inorganic, as arsenic, hydrochloric acid, iodine, &c., we find that the effect produced is essentially the same, in some cases affecting the functions, in some the organic structure. Opium, hydrocyanic acid, chloroform, &c., paralyse or suspend the functions of vegetables, precisely as they do those of animals without injuring the delicate tissues; while arsenic, lead, &c., more or less impair their structure. Nor is gaseous matter indifferent; the comparative barrenness of fens, at least as regards the majority of the natural order of plants, depends in all probability on the condition of sulphuretted hydrogen; the impure carburetted hydrogen of gasworks is notoriously injurious to trees, as is also the emanation from certain chemical works, which reduce their immediate neighbourhood to a treeless wilderness.† The mischief may in many cases be purely functional at first, but the suspension of functions, especially if long continued or often repeated, except where it is of the nature of sleep, is apt to induce active disease or the destruction of particular organs, which may in the end prove generally fatal.

420. It is, however, curious what concentrated poison some vegetables are able to endure. Moulds flourish in arsenical and other mineral solutions, which might have been supposed utterly incapable of sustaining any vegetable. One species is the source of great annoyance in electro-typing, as in the Map Office of the United States of Washington. The sulphate of copper is deprived of its copper by the mould, which assimilates the sulphuric acid while the copper is deposited as a thin metallic pellicle on its walls. A fungus again flourishes in the water of tan-pits where no phænogam could exist.

421. Though the action of many poisons upon plants, as opium, prussic acid, chloroform,‡ &c., may be considered by the cultivator as mere matters of curiosity, which can never call for any especial treatment at his hands, it is most important that he should attend to the principle involved in them, for if so he will not over-manure his plants or trees. However beneficial the substance may be when properly administered, he will not use coarse putrid manure as is the fashion with some of treating Vines, the most delicate perhaps of fruits, and the most easily impaired by injudicious treatment, nor will he be indifferent to the quality of air with which his houses are supplied. Ventilation will be of little use if poisonous vapours are constantly rising from beneath, and these are sometimes so intense as to produce at once visible evil.

422. It is very doubtful whether plants are capable of rendering ground noxious by excretion from their sound and entire roots. It is, however, easy to conceive that such plants as Poppies, if ploughed green into the ground in considerable quantities, might prove injurious. *M. J. B.*

† The hydrochloric gas from the works in which carbonate of soda is produced from common salt is one of the most familiar instances. If present in the proportion of $\frac{1}{20000}$, it operates as a deadly poison to vegetables, withering the leaves and ultimately destroying life altogether. The effects of this gas will be familiar to most of our readers from the long and expensive trials to which its pernicious effects have given rise.

‡ A variety of details upon the effects of different poisons in plants will be found in Pereira's "Materia Medica," and in the new edition of Lindley's "Theory of Horticulture." Those of chloroform will be found in the latter place only, as its effects on vegetable life were not well ascertained when Pereira's volume appeared.

TRADE MEMORANDA.

Manchester seems to be doing a great business in the seed line. One order has, we understand, been received for 50 bushels of Swedish Turnip seed and *one hundred weight of Cauliflower seed* as a sample.

By the way who is Mr. Charles Bardsley of that town?

Home Correspondence.

The Occidental Plane.—I have long been inclined to think that a mistake has always existed in this country with respect to this species of Plane, and am much gratified that Sir W. J. Hooker has brought the subject before us. I used to tell my old friend Loudon that he was wrong in his description and identification of it, but I was then young, and I suppose not weighty enough to move him. Allow me therefore to tell all that I know

about it; but let me first premise that I have always been a great lover of the Plane, and I may add of all other trees, for they seem to me when old and grand in their proportions God's temples; and I shall never forget my feelings of admiration and devotion when standing—many years ago—directly under the Panshanger Oak in this county. To look up at its magnificent branches and their admirable disposition seemed to be looking at Divine architecture. Some 30 years since—it may be nearly 40—I remember being much interested by two rows of Plane stools* planted by my grandfather; one of them was called the Occidental Plane, the other the Oriental. The former produced very large leaves, but slightly lobed; it made tolerably vigorous shoots, but they always died back about half way or so in the winter and spring, and the young trees propagated from the stools by layers (this sort would not grow from cuttings) were consequently stumpy and unsightly; still its foliage was so grand that it became a favourite with me, the more so perhaps because it was difficult to cultivate with success. I was, somehow or another, impressed with the idea that this must be the true American Plane, but when I went to the London nurseries (I, then a country youth, thought them grand authorities,) I found quite a different variety under the name of Platanus occidentalis, and I was of course in a pucker of uncertainty. On applying to Loudon he would not agree with me that my favourite was correct, so I thought I ought to be in the wrong, but I felt I was not; I therefore wrote to the United States for some seed of their Buttonwood or wild Plane tree of the woods; I received some, raised some young trees from it, and found them to be in every respect identical with the Occidental Plane of my grandfather. I forget if I ever told Loudon the result of my experiment, but I have since then always felt convinced that the Occidental Plane is not the common Plane tree of the environs of London, and that it is very rare and a most distinct species. I do not remember the "thick down" on its leaves, and I most deeply regret having relaxed in my attachment, neglected, and lost it; but I will (D. V.) procure some young trees from one of my American friends, and put the question at rest. With respect to the so-called Oriental Plane alluded to above, I have since found it to be the Platanus orientalis acerifolia of Loudon. I have received it from France as Platanus macrophylla. This is a most hardy and vigorous growing tree, its leaves are not so deeply lobed as those of the true Oriental Plane, but more so than those of the true Occidental species. It strikes freely from cuttings in some soils, and grows into a large tree very rapidly. I have reason to believe that this variety has given seeds in France, where it seems to be cultivated largely; in some of the French catalogues I find it under the names "Platane à larges feuilles," Latinised into Platanus macrophylla, and as Platane d'Espagne, the Spanish Plane. I have received thence what appear to me to be three seedling varieties of it, viz., P. palmata, P. palmata superba, with large leaves very deeply cut, and P. pyramidalis. These all grow from cuttings freely, are very hardy, and rapidly form large healthy trees; the latter in particular is the hardiest of all, and when young is very fastigiate, becoming more diffuse in its habit as it increases in age, but not spreading at all to the extent of P. acerifolia. It will, I think, form by far the finest tree of all, and grows well in soils unfavourable even to the P. acerifolia. I may as well say why I think the latter and its seminal varieties entirely distinct from the Occidental and Oriental Planes; they are all much more robust and hardy than those two distinct species, they all grow freely from cuttings, whereas scarcely one cutting in a hundred of the Occidental (my Occidental) and Oriental Planes will strike root; the varieties I have named seem to form a race of which P. acerifolia is the type. Is, therefore, the latter the P. vulgaris of Spach, a tree from the south of Europe, and a distinct species? As far as my limited observations have gone it is not P. occidentalis nor P. orientalis; is it a Spanish tree? Can it be "P. hispanica?" under which name I find it in a French catalogue. Some tree lover who has lately travelled in Spain will perhaps be able to furnish information about this very interesting tree. Permit me to add to my usual signature, and to subscribe myself *T. R., Herts.*

Hexacentris mysorensis.—About 15 months ago a healthy young specimen of this beautiful hothouse climber was planted in a quantity of loose soil beneath the north side platform of a large Orchid and Fernhouse here, and trained through the narrow space between the platform and the wall, and then up the roof rafter. During the first eight months it gained considerable strength, exhibiting two or three showy flower-spikes, and progressed in growth during the season of 1855, until by midsummer it had covered the rafter to the extent of 10 or 12 feet. Having then to all appearance arrived at maturity between the above period and the present, it gradually unfolded from 100 to 150 flower-stems, which, as the winter advanced, suffered a partial check by the lower degree of temperature adopted in favour of the Orchids; and though its parti-coloured, drooping, thyrse-like bunches of bloom, gracefully depending from the roof, were objects of general admiration, it was not until the increase of light with the opening of the new year that its extremely gay, golden-yellow blossoms, margined with rich brown crimson, began to assume their florid tints, and at the present time the plant is daily increasing in ornamental effect. There is probably no other plant of recent introduction which deserves more attention than this, producing as it does racemes of flowers as wonderful for their long-continued and progressive development as for their almost unequalled brilliancy of colour and duration of bloom, extending as they do throughout the greater part of the year, gay as the gayest in summer, and without a rival for gracefulness of effect in winter. Some idea of the interest attached to the continued expansion of bloom from the lengthening flower stems may be formed when I state that many of the latter are from 1½ to 2 feet in length, and under the most favourable influences they will even reach the almost incredible length of 3 feet! H. lutea has also expanded bright yellow blossoms, still larger than those of the species now described, and gives great promise of being an equally attractive plant. These species may therefore henceforth be regarded as two of the most valuable second-class hothouse climbers yet introduced to our collections, being equally adapted for pot culture upon artistic wire-work or upon ornamental pillars, or for roof rafters for obtaining a prolonged bloom where good exposure to light and suitable temperature can be ensured. *W. Wood, Backhouse's Nursery, York.*

* These are stumps or stocks from which young shoots are layered or cut for cuttings; it is a nurseryman's term.

Discoloured Granite.—We have here a terrace and flower garden surrounded with white granite, which during the few years it has been in use has remained quite clean and white; but some parts of it I am sorry to say are now beginning to assume a black and green appearance, which is offensive to the eye of my employer. Can any of your correspondents inform me how to restore it and prevent this discolouration? *J. M.*

Arum italicum.—The notice of this plant (see p. 71 *b*), is incomplete in consequence of the omission of the date of Mr. Hambrough's note. "It is now in full fruit," says Mr. Hambrough. But when was now? *Diss.* [The statement was taken from a printed report of Proceedings of the Botanical Society of Edinburgh.]

Californian Woodpeckers.—I really cannot swallow Mr. Murray's account of the woodpeckers and acorns. Woodpeckers do not feed on acorns. The long and supple tongues of these birds are not formed by nature to encounter the hard acorn. The throat of the woodpecker is very straight and ill adapted to gulp an acorn. Woodpeckers only attack unsound bark, already in a state of decay; and in it the woodpeckers find plenty of vermin which form their natural and usual food. The woodpeckers could never bore the holes with an acorn in their mouths; because, when these birds attack the bark, their bills are invariably closed in the first instance, and form a kind of axe in appearance. This being the case, where had they the acorns in the meantime? Did the observer see them apply to an Oak tree for a supply, or pilfer them from some stall where they were on sale, and then convey them to the hole prepared in the bark? It must have been for pastime—not for a provision of food. As woodpeckers are not gregarious, I cannot for the life of me conceive how they managed to assemble in "perfect swarms." Woodpeckers will sometimes certainly feed on soft and pulpy fruits—Peaches to wit. Were I to hazard a conjecture, I should presume that some individuals of the pie tribe had been engaged amongst the acorns. In this case the bill would have been suited to the food, and the food to the bill. *Charles Waterton, Walton Hall, near Wakefield.*

Trees for the Sea Coast.—I want a list of a few of those trees and shrubs which are best calculated for standing great exposure to wind and a saline atmosphere. The object is to plant as a shrubbery, with ornamental trees and shrubs, and principally with evergreens, a steep bank running down to the sea beach, in the neighbourhood of Dover, greatly exposed to wind and storm, and the soil of which is light, sandy, and friable, with small pieces of rock. *Quercus.* [The best answer we can give is the following list of trees and shrubs actually forming the pretty gardens facing the sea at St. Leonard's. Among them are Rhododendron ponticum, Aucuba, Arbutus, Sweetbay, Hydrangea, Ledum latifolium, Yew, Leycesteria, Fuchsia, Sycamore, Holly, Common and Portugal Laurel, Spanish Chesnut, Evergreen and Lucombe Oak, Mountain Ash, China Rose, Laburnum, Tamarisk, English and Turkey Oak, Elm, Pontic Azalea, White Poplar, Laurustinus, Medicago arborea, Atriplex Halimus, Lavatera arbora, Cotoneaster, Erica arborea, all in perfect health.]

Rain Fall and Drainage—Drainage and Capillary Attraction.—Two correspondents under the above separate heads (Jan. 21, 1856) ask questions to which I will venture to suggest answers. As to rain-fall and drainage, reference to the table of rain-fall from 1841 to 1855 inclusive in your Paper, January 7, 1856, will show that there is nothing extraordinary in the rain-fall of the last three years; the amount this year is half an inch above the average. 1852, the year before these, gives the largest fall in the 15 years, and on the four years 4 inches above the average. The truth of averages is quite wonderful, whether we take the barometer, thermometer, or rain-guage; so much so, that having ascertained the mean variation for 20 years, taking 12 months, the majority of these months will be within the limit of that variation. There is no reason to believe that land drainage has any effect on rain-fall. After all, the evaporation from the earth is not very materially lessened by drainage; the whole surface of the earth is continually giving off vapour in those seasons when there is the greatest evaporation. The air will only take up a certain amount of moisture, and when it is in a condition to do so the earth will not fail to give it off. But if this be doubted, whence do our great rains come from, and where do they descend most copiously?—from the S. W. and near the sea, or on the higher lands? What makes the rain-fall in the east of England less than the west? Is it not that the easterly winds bring less rain, and that the south-western rains have expended themselves before they reach the eastern parts? I think it will be found that the easterly rains are heavier in the east than in the west, and *vice versâ*, and hence the mean rain-fall is in the centre of England. This, however, requires confirmation. But depend upon it that the averages will not be affected by drainage. The presence or removal of trees may be a cause; it is said that since trees have been planted in Egypt rain always falls. As to the second question asked by Mr. Horsfall, as to capillary attraction (if what he says amounts to a question which he wishes answered), namely, "Whether the power of capillary attraction varies under different circumstances of soil, external temperature, and as to the height to which it saturates the soil?" from what he says above, "that he had ascertained, by means of a spirit level, the exact height the water saturates by capillary attraction, by measuring the distance between the surface of the water of the river Wharf and the strongly defined line to which the moisture rises," I think that he has not taken the best way to settle the question. I have often observed the line he speaks of; if he were to examine the soil a little within the bank, he would I think find that the soil was more or less charged with water to the surface; as a general rule soils will take up and hold by capillary attraction one-third of their bulk and one-fourth of their weight. As this water is evaporated from the surface, any free water in the soil, namely, that which would pass off by drainage, rises to supply the place of that evaporated (the line on the face of the bank is probably the point where the rapidity of evaporation counterbalances the power or rapidity of capillary attraction); if the face of the bank were sheltered from evaporation it would probably allow the line to rise higher at that point. According to the theory of capillary attraction, water rises in a tube or in the pores of the soil in an inverse ratio of their diameter. Professor Leslie calculates that in gravel, coarse sand, loam or clay, if in the first the gravel were divided into spaces of $\frac{1}{100}$ of an inch, the water would ascend four inches; in coarse sand, $\frac{1}{500}$ of an inch, 16 inches; $\frac{1}{1000}$, 7 feet; and in loam, say $\frac{1}{10000}$, 25½ feet. The moisture so drawn up is only parted with by evaporation. The Professor gives us 25½ feet; I believe there is no limit in clays, except under the action of evaporation. This is of course mainly ruled by the temperature, as the surface dries; the subsoil parts with its free water first, and then in a certain ratio with that which it holds by capillary attraction, and only in a certain ratio, below the point of direct evaporation, so that below that point the soil is only partially dried. *J. C. Clutterbuck.*

Felling Beech.—At p. 70 it is stated that a landed proprietor has tried the experiment of felling Beech in the summer; and that a beam he put up in an old cottage in 1830 is as fresh and sound as if just put up. The Beech is the indigenous tree of the Cotswolds, and if the above statement can be confided in (as not being an isolated case), it would be of immense importance to this country. I would, therefore, beg of "Y. Z." to favour us with more details, *e.g.*, size of tree? what country? was the beam laid in a pond, or prepared in any way? is he aware of any other similar trial, and with what result? Here we lay a Beech plank in water for six months, and then it answers well enough for barn floors. I have a back staircase of Beech, put up about 12 years since, but the wood was well pickled, and thus, I believe, cost more than Baltic timber. If, however, by felling our fine Beech trees in summer we can make them available for in-doors work, the advantage will be great indeed to myself and others. *Cotswoldianus.*

Peas.—About four years ago I procured a variety of Pea, the name of which was Dutch Emperor, and whose pods when eaten young were highly esteemed. I have since searched many seed catalogues, but can find in them no mention of this variety. Perhaps you could furnish me with some particulars respecting it. *T. M. Booth, Perry, Yorkshire.* [They are Sugar Peas, and may be had of any great seedsman.]

Winter Covering.—As it is admitted that gardeners generally require some kind of waterproof covering for the protection of plants in pits, frames, houses, &c., in winter, permit me to direct attention to Mr. Lancaster's "Lignum Textile," an example of which was exhibited at the Streatham Gardeners' Society's Rooms, on Thursday week, and after a discussion of two hours' duration on the subject, it was admitted by all present to be a desirable and useful article. The model submitted for inspection was a "pit," for the covering of which several modes were offered, one in the shape of a shutter, the whole length and width of the light; another divided across the centre, where there was a lap enabling the covering to be drawn off at back and front; a third divided from back to front, and likewise supplied with a lap. The material itself is woven wood or veneer, dressed with some waterproof composition which, after being passed between heavy rollers, and exposed to the atmosphere, is said to become nearly as hard as metal. This material is also intended for the purposes of roofing, &c. &c. *W. G. Turner, the Rookery Gardens, Streatham.* [When we saw this material some months since we thought it promised to be very useful.]

Cucumber Disease.—I certainly cannot understand how this, as has been stated, can be attributable in the majority of cases to mismanagement, but I am of opinion that when once it is discernable, strong measures

should be adopted for its removal. It appears from my own experience, and from that of previous writers in the *Chronicle*, that this so-called disease manifests itself in various forms, for instance Mr. Bailey of Nuneham in the early part of last season complains of an unhealthy root action, producing knotted protuberances, and otherwise engendering in the plant a weakly, debilitated constitution. "T. R." (see page 55) observes that the diseased plant exudes a glutinous juice or gum, both from the plant and fruit, the parts affected turning black, and the leaves exhibiting yellow spots. Now my chief cause of complaint has been mildew, irremovable from the plant affected, even under the most vigilant and careful treatment. Four years ago come Midsummer, I first observed it on plants of the Victory of Bath variety, and some others I do not now remember. I immediately withheld water, increasing the temperature and applying quantities of sulphur; this checked but did not remove the disease. I then cut the plants close in, gradually commencing more liberal treatment, which induced a fast growth, but only to be diseased the same as before. On perceiving this I cleared away every vestige of mildewed Cucumber from the frame yard, in doing which I found but one case of diseased root action, as described above, the remainder being perfectly sound and healthy. In a frame adjoining the rest I had started on the first indication of mildew some strong plants of Cuthill's Black Spine, a most useful and hardy kind (when obtained true); this from its robust habit seemed to resist the disease, and carried good crops throughout the autumn. The following spring I started two frames with Lord Kenyon's Favourite and Cuthill's Black Spine. As soon as the former variety came into bearing, the same traces of mildew exhibited themselves. I directly cleared away the plants (being careful then, as at all times, to have fresh soil), and confined myself during the season to the Black Spine, which produced excellent crops, and quite resisted the disease. Since that time I have principally grown the Black Spine, but last year I tried three or four other sorts including Lord Kenyon's, but fortunately enough without being troubled with the slightest trace of mildew. *John Couldrey, Gardener, Hardenhuish.*

Bees.—As a student and historian of the honey-bee Huber was an enthusiast. He produced a book which has been much read and admired. In writing it he was honest, though frequently in error, doubtless from his trusting to the evidence of his assistants, on whose eyes he had to depend, for his own sight was very imperfect. He once said to a friend, "I am more certain of being correct than you, because you have only your own eyes to depend on, whereas I take the mean of many witnesses." This surely is enough to make a thoughtful man hesitate before he credits all that Huber says. His tale is told in such a straightforward and truth-like way that it is hardly possible to disbelieve it; hence the currency of his errors. On this occasion I will notice one. He says, that in some hives "there are found some working bees that lay eggs;" and he tells us what they are like in his wonderful story about them. Some modern bee books tell the same story. Let me say emphatically that there never was a fertile working bee; and to drive Huber's delusion away, let us ask any of his disciples to produce an egg laid by her. The queen is the only female, and when she is removed from the hive no eggs are laid; and none ever will be laid in her absence. Working bees are neither male nor female; they do all the work, build the combs, gather the honey, foster and feed the young, and pay supreme homage to their queen. And when she, by reason of age, becomes useless, they dethrone her; but before they do this they put an egg in a royal cell, which when hatched takes her place. *A. P.*

Societies.

HORTICULTURAL, *Feb. 5.—A Special General Meeting* was this day convened for the following purposes:—To consider the suggestions made to the Fellows by the Council in their circular letter dated December 24th, 1855; and to authorise the termination of the tenancy of the Garden at Chiswick.

The Marquess of Salisbury took the chair. Among the Fellows present were the Duke of Northumberland, the Earls Grey and Ilchester, Lord Downes, the Hon. W. F. Strangways, Sir Peter Van Notten Pole, Sir W. J. Hooker, Sir John Duckworth, Captain Trevor Clarke, Mr. John Wood, the Rev. L. Vernon-Harcourt, Mr. S. H. Godson, Mr. C. W. Strickland, &c., &c.

The Vice-Secretary read a report from the Council, explaining the circumstances which led to the meeting having been summoned, and the views of the Council as to the mode of carrying on the Society in future. (The most material parts of this have already been given in the circular letters from the Council published in our volume for last year pp. 709 and 853.) Among the additions were the following paragraphs:—

"The Garden had been the great scene of the labours of the Society; it was there and through it that the utility of the Society had been demonstrated to the whole world; it was the field in which it had gained a reputation that was acknowledged wherever the name of horticulture was known; and moreover it was the place upon which what may be almost called the affection of a large body of its Fellows had been fixed. That such a place should be relinquished was a conclusion to which nothing but the most imperious necessity could have conducted the Council; but the necessity seems to exist, and it is in part for the purpose of obtaining the authority of the Society to make so great a sacrifice, or of hearing what other course the Fellows may have to propose, that this meeting is convened."

Adverting to the suggestions they had formerly made, the report went on to say that—"The Council feel that upon these points some difference of opinion must be expected to prevail. In circumstances so difficult as those of the Society it could scarcely be otherwise. The Council do not cling to their own suggestions. The proposals they have made are the best which had occurred to themselves or been suggested by others at the date of their circular of December 24. Should different views, not inconsistent with the financial safety of the corporation, meet with the approval of the present meeting, the Council will do what lies with them to give them effect."

Earl Grey moved that the Council be authorised to terminate the tenancy of the Garden at Chiswick as soon as the lease will permit, and to sell the property therein. The motion having been seconded by the Hon. W. F. Strangways, Mr. Godson moved as an amendment that a committee be appointed to investigate the whole of the accounts and consider what is best to be done as to the continuance of the Society. Mr. Henry Bohn, one of the auditors, seconded the motion. After some conversation, the Duke of Northumberland offered, on the part of the Council, to make room at once for a certain number of Fellows to be selected by the meeting, a corresponding number of the present members of Council retiring. The wish of the meeting, however, appearing to be in favour of the appointment of a committee, Lord Grey withdrew his motion, and the amendment was carried. The committee was then appointed and the meeting adjourned, after passing a vote of thanks to the noble chairman.

LINNEAN, *Jan.* 15.—Prof. Bell, President, in the chair. N. H. Mason, Esq., J. R. Mummery, Esq., and R. J. Shuttleworth, Esq., were elected Fellows. W. W. Saunders, Esq., exhibited several vegetable substances collected by Mr. R. W. Plant in Natal, and made some observations on them. One was evidently the fruit of some Euphorbiaceous plant, and of these it was stated that the husk contained a large proportion of tannin, whilst the seeds yielded a pure oil in considerable quantity. The Rev. C. A. Johns exhibited a drawing and a specimen in spirit of Sphæria militaris, found by him in June last growing upon a chrysalis among dead leaves in Buckleigh Vale, Devon. Mr. W. Matchwick exhibited specimens of the fruit and tracings of the leaf of Paulownia imperialis, gathered by him on the 18th ult. in the neighbourhood of the Champs Elysées, Paris, where the fruit had ripened in the open air, on a tree about 20 feet high. The following papers were read:—1. "Note on Lepidosiren annectens;" and 2. "Remarks on the notice of a species of Mason Wasp, by Dr. G. Buist, in the Proceedings of the Society for June 20th, 1854, by Mr. E. Newman." 3. "A Catalogue of the Dipterous Insects collected by Mr. Wallace in the Malay Peninsula," by F. Walker, Esq., with some prefatory observations by W. W. Saunders, Esq.

Notices of Books.

The Natural History of Pliny. Translated, with copious notes and illustrations, by the late John Bostock, M.D. F.R.S., and H. T. Riley, Esq., B.A. Vols. 1—4. 12mo. Bohn.

This wonderful record of the state of natural science in the reigns of Nero and Vespasian has hitherto been little less than a sealed book to the English reader. We have had indeed Holland's crabbed translation, which is as hard to understand as the original; but the press of this country had produced nothing which could really be said to make the great Pliny known to the unlearned reader, until Mr. Bohn included his work in the very useful *Classical Library.* This was the more to be regretted, not only because of the intrinsic importance of Pliny's Natural History, but because its style is not such as every classical reader can understand; so unusual are the words in many cases, so technical the language, and so brief the descriptions. Like Virgil's Georgics, it requires a reader to be familiar with country work and natural history, as well as Latin, if it is to be really comprehended. Most especially it is necessary to be acquainted with modern commentators if the old and forgotten names employed by Pliny are to be identified with those of the moderns. What, for example, did he mean by Philanthropos, Castor, Aegolethron, Calabrice, Chrysolachanon, and the like? About such matters lexicographers and critics are often so greatly at variance that it is impossible for the reader to judge between them.

The late Dr. Bostock, by whom this translation was commenced, was well fitted for the task; learned, careful, industrious, in direct communication with naturalists, and having himself a considerable knowledge of natural science, he brought an unusual combination of attainments to his task. This is not said for the purpose of drawing an unfavourable comparison with Mr. Riley who succeeded him, but as an act of justice to a departed friend who was esteemed by all who knew him. On the contrary, in our judgment the whole of the translation which has yet appeared evinces the existence of qualities of the same kind, with the exception perhaps of natural history. At least it is evident that in what concerns plants Fée is taken as sufficient authority, and not without reason. There is a singular indication of an unacquaintance with plants on the part of the translator in vol. iv. p. 464, where we are informed in a footnote that the fruit of Delphinium Staphisagria "is formed of three capsules, containing *a* triangular seed of black brown colour, about the *size of a Kidney Bean.*" Pliny's own account is nearer the truth; for he merely says that the follicles contain a *nucleum triangulum*, using indeed the singular for the plural number, but correctly describing the triangular seed of the Common Stavesacre.

We are not however inclined to point out blemishes in a task so difficult of execution, and so useful to even the learned reader. On the contrary we are glad to believe that the work of translation is well done throughout, as it certainly is most conscientiously.

The sterling information to be obtained in this great work can never lose its value, much as it is mixed with superstition and error. In Pliny there was united, to use the words of one of his commentators (Sprengel), "acre ingenium, studium incredibile, summa vigilantia." The work before us is said to have been compiled from two thousand Greek and Roman volumes; and consists of 37 books, those from the 12th to the 27th being occupied with the history of herbs, trees, corn plants, and the whole routine of country affairs, or as it has been called *Res rustica.* One cannot open a page without meeting with something to amuse, if not instruct. Take for example what he says of the Plane tree, concerning which such interesting questions were last week raised by Sir William Hooker.

"The first Plane-trees that were spoken of in terms of high admiration were those which adorned the walks of the Academy at Athens—[in one of which] the roots extended a distance of 33 cubits, and spread far beyond its branches. At the present day, there is a very famous Plane in Lycia, situate in close proximity to a fountain of the most refreshing coolness; standing near the road, with the cavity in its interior, it forms a species of house 81 feet in width. Its summit, too, presents the foliage of a grove, while it shields itself with huge branches, each of which would equal an ordinary tree in size, as it throws its lengthened shade across the fields. In addition to this, that nothing may be wanting to its exact resemblance to a grotto, there is a circle of seats within, formed of stone, intermingled with pumice overgrown with moss. This tree was looked upon as so worthy of remark, that Licinius Mucianus, who was three times consul, and recently the legatus of that province, thought it a circumstance deserving of transmission even to posterity, that he, together with 18 persons of his retinue, had sat down to a banquet in the interior of it. Its leaves afforded material for their couches in the greatest abundance, while he himself, sheltered from every gust of wind, and trying in vain to hear the pattering of the rain on the leaves, took his meal there, and enjoyed himself more than he would have done amid the resplendence of marble, a multiplicity of paintings, and beneath a ceiling refulgent with gold.

"Another curious instance, again, was that afforded in the reign of the Emperor Caius. That prince was so struck with admiration on seeing a Plane in the territory of Veliternum, which presented floor after floor, like those of the several stories of a house, by means of broad benches loosely laid from branch to branch, that he held a banquet in it—himself adding very materially to the shade it threw—the triclinium being formed for the reception of 15 guests and the necessary attendants: to this singular dining-room he gave the name of his 'nest.'"

This may serve, for those who are unacquainted with this old author, at once as an example of Pliny's style and of Mr. Riley's translation.

We ought to have noticed sooner a very useful volume published by Mr. McIntosh and Dr. Kemp, under the name of the *British Year Book for the Country* (12mo, Longmans). It is a rich repertory of matters Agricultural, Horticultural, Floricultural, and Arboricultural, culled from the periodicals of the last year, or written expressly for the work. When two authors of such acknowledged ability combine to produce a book the public is naturally inclined to measure it by a somewhat high standard; and we do not think the public will here be disappointed. We would only hint that more caution might have been advantageous in endorsing the alleged discoveries of fraud so pompously announced by Dr. Hassall, and everywhere now regarded with suspicion.

Garden Memoranda.

ABNEY HALL, CHEADLE, NEAR MANCHESTER.—This is the seat of James Watts, Esq., who has built here a princely mansion, and formed gardens worthy of it. The latter were, we understand, designed and laid out in the first instance by Mr. Skirving of Liverpool, but they were afterwards greatly altered by Mr. Bigland of Manchester, and Mr. Barron has the credit of introducing one of the best things about the place, viz., an avenue of Junipers, which, as seen from the main entrance of the mansion and the windows of some of the principal rooms, is a striking feature and well worth whatever it may have cost; and as the Junipers—large handsome plants—some 10 or 12 feet high, were brought from Elvaston in nearly their present state as to size, the expense must have been something very considerable. The conservatory is an exceedingly handsome structure, forming as it were part of the south side of the mansion, and so arranged that a good view of the plants is obtained from a picture gallery which adjoins it on the north

side; its inmates can also be seen to advantage from many parts of the ground floor, and we know of no instance where the show house for plants is so efficiently and unobtrusively connected with the dwelling-house, and when lighted up at night and thrown open to the drawing-room the effect must be charming. But although it is so well situated, and altogether so excellently arranged, it is unfortunately ill adapted for plants, owing to the want of proper means of ventilation. The south fronts, which rise one above the other after the manner of the Crystal Palace, are altogether some 20 feet in height, and are glazed with large squares of plate glass; the roofs are ridge and furrow, and are glazed with large panes of sheet glass, and with the exception of the entrance doors and small openings in each end communicating with chimneys, no further ventilation has been provided. This part of the arrangement, together with the heating, was entrusted to the late Mr. Sylvester, who was employed to warm the mansion. He appears to have depended on obtaining a sufficient supply of fresh air from gratings in the raised edges of the beds just above the floor, and communicating with a shaft at a considerable distance from the house; but this is found, as might have been expected, useless or nearly so in summer; for the air in the tunnel or shafts under the house being colder than that in the house, is not likely to ascend to displace heated air. Notwithstanding this disadvantage, however, this house is always kept extremely gay with plants in bloom which are brought from houses in the kitchen garden, and as it is found difficult to preserve even the climbers on pillars, &c., in health for any length of time, this is probably the only way in which it could be furnished with plants in good condition. At the present time this house is gay with the various plants which bloom at this season, such as Camellias, Epacrises, some of which measure quite 6 feet high, and nearly as much through; Daphnes in large numbers, Correas, Erica hiemalis in quantity, E. scabriuscula in the form of a large specimen which has made shoots some 2 feet 6 inches long covered with bloom, and when seen in this state it is a really handsome plant, notwithstanding the smallness of the individual flowers and their dingy colour. The gay looking Sericographis was also here in quantity, and also the brilliant Euphorbia jacquiniflora, forced Indian, and other Azaleas, and some of the early flowering hybrid Rhododendrons, which are first-rate subjects for forcing in winter, as they are easily excited into bloom, and their flowers last a long time. Placed amongst the specimen plants we also noticed quantities of variegated Geraniums, such as Flower of the Day, Golden Chain, &c., which had been taken out of the flower garden in autumn, potted, and placed in heat until they got covered with healthy foliage, and then removed here to serve as filling up plants; and they certainly have a very dressy appearance as seen under the large plants, and appear to stand well where very few things could be placed with safety. There is a pair of Acacia decurrens planted out in the beds, one on each side of the centre passage, trained up the pillars, and made to form a circle under the roof, which were loaded with bloom. This is certainly a magnificent plant for situations like this, where it can be afforded plenty of space and light. The delightfully fragrant Luculia gratissima was also in good condition, but L. Pinciana is found here as elsewhere to be difficult to get to bloom. In front of the conservatory is a broad terrace from which the ornamental ground is reached by means of a flight of steps. The flower garden or parterre is in the form of an oblong square divided in the middle by a wide gravel walk, on either side of which are the flower beds, which in summer and autumn are gay with Verbenas, yellow Calceolarias, Ageratums, Golden Chain, Flower of the Day, and other Geraniums, varied by such plants in the centres of the circles as Golden and Irish Yews, Junipers, and things of that sort, which serve to break that sameness of expression which must unavoidably have prevailed had low growing plants wholly been employed. The lawn extends a considerable distance beyond the flower garden, and a small stream runs through it, which is made to fall over a cleverly executed piece of rockwork, which can be seen from all the windows in the south front of the house. On the west side the grounds slope gracefully from the terrace down to a sheet of water in a hollow, and altogether the laying out of the place reflects great credit upon those who have had the management of it. Mr. Watts has, however, not been satisfied to wait for effect from planting small plants; but has enriched his grounds by a great number of Conifers, many of them handsome specimens from Elvaston. Among these the last one or two severe winters have caused some losses: but still there are many fine plants left, more especially an Araucaria on the west terrace, two Picea Pinsapo, some Deodars, Pinus Cembra and excelsa, Irish Yews, and the Chinese Junipers already mentioned. It may be worthy of notice that an Araucaria planted on the low grounds near the brook has been very much cut up by the winters, while another planted on high ground has been but little injured although in an exposed situation—a fact which may serve to indicate the propriety of planting things about the hardihood of which there is doubt on elevated positions.

In the kitchen garden there is a considerable extent of glass, both for fruit forcing and growing plants, all of which is heated with hot water. Some of the plant-houses built under the superintendence of the present intelligent gardener, Mr. Smith, are admirable roomy structures, in fact, just what are required for growing large specimen plants in to supply a conservatory. Here were Azaleas, Heaths, Epacrises, Boronias, and other plants of that kind, all in the finest possible health, and many of them large in size. There is also a good collection of stove plants. The whole of the garden, both indoors and out, exhibited the best of keeping; every part was scrupulously clean and neat—a point so essential to general effect that the best collection of plants is lost unless this is attended to.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Pursue the directions in regard to temperature, &c., laid down in previous calendars. Climbers may be looked over, and if an early display of their beauties is required some of the irregular wood may be pruned away forthwith. Passion flowers and others may receive this treatment; but permanent plants, as Acacias, &c., will of course point out of themselves an exception. At present frequent introductions and frequent removals must be the order of the day here, and of course there must be a corresponding change in the other plant-house departments. Camellias require at this time abundance of water, and keep a sharp eye to Heaths, Epacrises, and other things that are liable to get pot-bound. Stove.—Let all increase of heat take place on bright days, chiefly early in the afternoon; and then accompanied by a somewhat moist air. Get a batch of Gloxinias repotted and placed in bottom-heat, using peat, loam, charcoal, and sand for compost in a fibrous state; stove climbers on trellises in pots or tubs that require to be shifted soon, should be cut in previously to plump buds preparatory to disrooting or shifting. Attend to shifting Amaryllises where requisite; as soon as they show signs of growth let them be introduced to this house and give them a little water, increasing it gradually as leaves unfold themselves. Orchids commencing growth should be immediately attended to; keep them at the warmest end of the house and beware of drip lodging in the young bud. Some of the large specimens that require shifting and that are very dry had better be immersed in tepid water for an hour a day or two previous to shifting. Cold Pits or Frames.—Some calculation should now be made as to how far the inmates of these structures will be able to supply the masses in the flower garden. Frost and damp will doubtless have reduced the numbers of some kinds.

FORCING DEPARTMENT.

Pinery.—Proceed steadily; if pits are at liberty and duly provided with a permanent bottom heat of 80°, it would be a good plan to shift a portion of the stock into fruiting pots, in the expectation of either producing very late or very early fruit. Where a constant succession is required, we take it for granted that the final removal into the fruiting pots should take place successively also, as doubtless this influences in a considerable degree the period of fruiting. The young plants, too, that have thoroughly filled their pots, at least a portion of them, might have a liberal shift, provided as already stated there is pit room at command. Like many other plants an early growth with a long summer before them is important. In all operations of potting use turfy loam, and the rougher the better the plants will like it. Vinery.—Proceed as before recommended; lessen the atmospheric moisture where the Vines are in blossom, and dispense altogether with syringing for a while. Allow plenty of dry heat with a lively circulation of air. Peach-house.—Continue to make slow advances with heat on bright days. Cucumbers and Melons.—Make a successional sowing of each of these for fear of disappointment; any surplus strong plants of the early sowings may be planted in large pots or boxes and placed in a light part of any house in which there is a heat of 70° or thereabouts, and a moist growing atmosphere. All glass frames or pits at work must be kept thoroughly clean; the importance of this in early forcing can scarcely be overrated. Let all covering material be hung on rails to keep it free from dirt. Keep at all times a good stock of fermenting dung and leaves ready for making new beds or linings. Where there is much forcing these should be mixed weekly at this period.

FLOWER GARDEN AND SHRUBBERIES.

Continue to make the necessary preparations for clumps or masses by sweetening or renewing the soil. Plant out things of biennial character in masses, where requisite; in borders the rearrangement of perennials had better stand over till the latter begin to bud in March. Lose no time in finishing the planting of trees or shrubs.

KITCHEN GARDEN AND ORCHARD.

Sow Tomatoes in heat; also Basil, Marjoram, &c. Get hand-glasses ready for Cauliflowers in pots; enrich the stations very much, adding fresh loam if at hand. Turn out four strong plants from the pots—one at each angle; they should be well soaked with weak liquid manure previously. Plant Seakale and Rhubarb for next year's forcing on trenched rich ground. Plant Box edging where required, and thoroughly drain any portion of the garden which exhibits the least appearance of stagnation. Where water is apt to stand on the surface through the puddling properties of heavy rains, try to improve the texture by a dressing of sand, ashes, or lime rubbish, charcoal dust, &c. Plant Horseradish, if not already done; trench it in deeply, placing manure at the bottom of the trench. Get all fruit trees planted as soon as possible and stake and mulch. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard; although Apples and Pears are fond of stiff soils they will never prove profitable where water is allowed to accumulate. Examine all old or overborne trees; many of this character may be improved by applying manure to the extremities of their roots, and also by good top-dressings which should always be applied the moment the leaf begins to fall in autumn.

COTTAGER'S GARDEN.

If not already done a few Broad Beans may now be sown, and also a few Peas, and do not forget a sprinkling of Radish among the Early Carrots; in fact with most broadcast crops a sprinkling of Radish or Lettuce may be put in through the spring. The Thousand-headed Cabbage is a valuable green for the cottager. We saw a crop of an acre or more a few days since, and the quantity and earliness of them were surprising. The proprietor stated that it was quite as hardy as Kale. His plan is to have two or three seed beds; say one in February, another in March, and a third in April. From these he fills every inch of spare ground through the summer, which is not wanted for other crops, and thus he has always a good supply when wanted. A little Spinach may also now be sown and some Mustard and Cress in a warm corner. Plant out a few Red Cabbages for pickling.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Feb. 7, 1856, as observed at the Horticultural Gardens

Feb.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind.	Rain.
Friday	1	25	30.136	30.051	38	29	33.5	38	40½	W.	.00
Satur.	2	26	30.001	29.968	38	28	33.0	38	40	W.	.00
Sunday	3	27	30.025	30.011	44	25	34.5	40	40	S.E.	.00
Mon ..	4	28	29.995	29.952	42	32	37.0	38	40	S.W.	.01
Tues.	5	29	30.137	30.093	52	41	46.5	40	40	S.W.	.12
Wed.	6	●	29.927	29.612	50	47	48.5	42½	40½	S.W.	.02
Thurs.	7	1	29.912	29.662	56	47	51.5	44	41½	S.W.	.06
Average .			30.019	29.907	45.7	35.5	40.6	40.0	40.3		.11

Feb. 1—Light clouds and frosty; overcast; cloudy.
— 2—Overcast; cloudy; frosty.
— 3—Frosty; fine throughout; frosty.
— 4—Low clouds; overcast; slight rain.
— 5—Partially overcast; very fine; cloudy; boisterous.
— 6—Densely clouded; slight rain; boisterous.
— 7—Uniformly overcast; densely clouded; rain.
Mean temperature of the week 2¼ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending Feb. 16, 1856.

Feb.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	10	44.2	29.8	37.0	12	0.52 in.	4	6	2	2	4	7	3	2
Mon.	11	43.0	29.8	36.9	12	0.34	8	4	1	—	5	6	2	4
Tues.	12	44.3	29.5	36.9	12	0.28	3	5	—	—	5	9	6	2
Wed.	13	43.9	29.5	36.7	10	0.30	2	3	4	1	5	8	5	2
Thurs.	14	45.3	31.5	38.4	10	0.50	1	2	3	2	4	9	7	2
Friday	15	46.3	31.0	38.6	10	0.25	3	3	2	—	5	7	7	3
Satur.	16	46.5	30.8	38.6	5	0.23	5	4	1	3	—	8	6	3

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 11th, 1845—therm. 3 deg. below zero.

Notices to Correspondents.

Apples: *E J H.* Your seedlings were too far gone. They resemble some of the good old sorts, and deserve further trial and comparison earlier in the season.‖

Books: *Reader.* Glendinning or Hamilton on the Pine Apple may possibly answer your purpose.‡

Frames: *C M.* Whether you can use the flued frame as a place in which to preserve bedding out plants during winter depends upon the power you may have of keeping down the heat. All that is wanted in such a place is exclusion of frost and damp. A temperature of 35° is high enough. If you keep plants too warm they will grow, unless indeed the earth in the pots is left too dry for the maintenance of that health which is indispensable even when plants are dormant. Again, if you are to use the same frames for striking cuttings in the spring, what will you do with your bedding out plants at that time?

Green Pea Soup: *P P.* The statement is strictly true, and we have been assured by those who were in the habit of tasting the soup that its quality was excellent. We therefore infer that there must be some defect in the manner of preparing it. We take for granted that the leaves and stems were crushed and pressed through a tamise. Of course the flavour will depend upon the quantity of air and light admitted to the Peas when growing.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Baltic.* The common Spruce Fir.—*E L. Tuam.* Solanum pseudocapsicum.—*J S P.* Medicago græca and Coris monspeliensis. If you read Latin consult Koch's Flora Germanica; if not, Maout and Decaisne's new Flore des Jardins et des Champs.

Names of Fruits: *C.* Your Pears are not known. They are scarcely second rate.‖

Pears: *C W M.* The Eyewood, Winter Nelis, Thompson's, Knight's Monarch, Glou Morceau, and Ne plus Meuris will ripen in the blank between December and February, a period which your present stock is not calculated to supply. Your Chaumontel will doubtless be improved by removal from a N.E. to a S.E. aspect; but it ought to do well in your climate as a pyramid, a mode of training which suits this Pear remarkably well. Your St. Germain had better be grafted with the Winter Nelis.‖

Potatoes: *A B* complains that Jackson's patent preparation for the preservation of Potatoes has killed his sets, and he wishes to know whether this is consistent with the experience of others.

Misc.: *W C D.* The cost of your advertisement will be 4*s.* or 4*s.* 6*d.* Remittance is to be made by post-office order, payable to James Matthews, Strand Office.——*A Subscriber.* We supply the *trade* in sheets, and therefore do not fold the paper; pray complain to the *agent* who supplies you.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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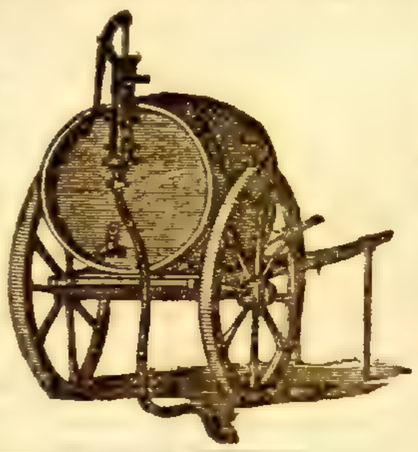

Price of Pump and Union, 50*s.*
1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.
1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

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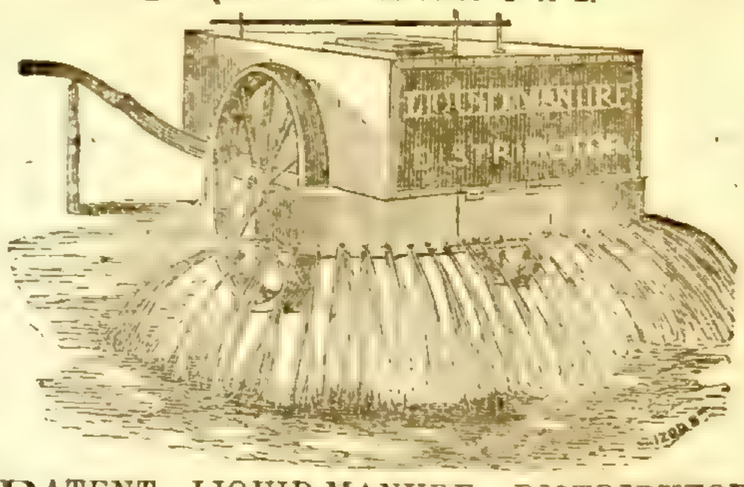
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

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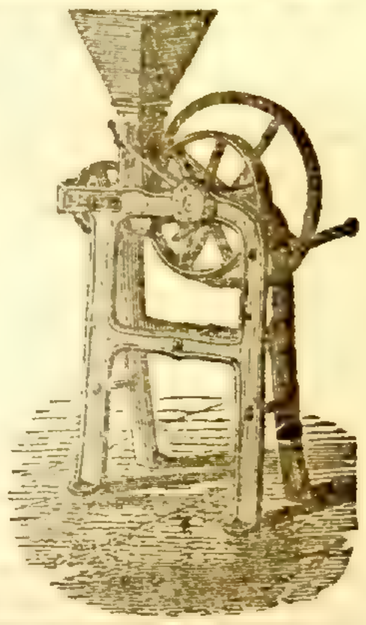

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, FEBRUARY 9, 1856.

THE simply descriptive style, with its substantial and sometimes heavy matter of fact, has hitherto so generally characterised the Journal of the English Agricultural Society that one is almost startled on finding in it a paper written with all the force and brilliancy of a review article. Perhaps some of the strangeness presented by this paper to the accustomed reader of the Journal arises from its being addressed to the advocacy of a policy rather than to the description of a practice—an advocacy on national rather than on exclusively agricultural grounds—a policy, too, to which the English Agricultural Society has not hitherto committed itself.

The subject of agricultural statistics which Mr. HOSKYNS has illustrated with such fullness and such freshness in the concluding article of the present issue of the Journal has, indeed, been hitherto ignored by the Society, or rather refused consideration by it as being beyond its scope. We are glad to hear it now, at length, by the voice of one of its editorial officers, speak so decidedly and so powerfully where formerly its silence, though unintentionally, we believe, was equivalent to opposition.

It is surely infinitely better that it should exhibit the vigour and the energy of youth in its proceedings, with generous confidence in the goodwill even of those who may differ from the views it may commend, notwithstanding these should lead it to the very verge of the field to which it is confined, rather than creep on in the road or rather ruts of precedent by which safety may be secured, but only at the expense of speed and usefulness.

Mr. HOSKYNS commences with an allusion to the oft-quoted simile of the ship with its crew and cargo:—

"*We* are 'bound on a twelvemonth's voyage.' We—consumers of earth's harvests—are the passengers, some the crew may it be

hoped, of such a ship; we touch at no half-way port, nor can we shorten the duration of our voyage. The great centre of light and heat, round which we travel, gives us but one harvest in the year—one opportunity of storing our vessel for her trip; and though (to descend from the astronomical to the national) we are able to import from other shores that supplement of our local deficiency, which the world furnishes from its spare stock; yet not one bushel of corn can we so obtain except for its equivalent in some superadded labour of our own, which still must turn its wages into food, and so become an appendix to the original demand upon the soil. In this reactive effect of imported food, the British corn grower is presented with an annually widening margin, an enlarging front, so to speak, of customers, whose imported supplies are the true measure of an excessive demand, overtaking the produce of his own furrows; and such is, in fact, the condition of husbandry in a country requiring to import, and able to pay for, a large amount of food beyond its own annual produce.

"But what is THAT? Amongst all the strange questions that curiosity or business should still have left, to ask, in a country of the busiest and best statists in the world, in the country of Domesday-Book—the oldest record of land statistics, it is said, in Europe, and of some of the earliest efforts ever made by a government to learn the produce of its harvests—what is more strange than that we have gone on importing corn as well as growing it, in the profoundest ignorance and apathy till the last few years, upon one of the most interesting, and, one should suppose, most primitive questions it is possible for a country to ask itself, and containing within itself the reply, to answer—What, in quantity and kind, is the food produce of our own acres? What is the home-grown portion of that immense consumption, say of corn alone, of which the imported supplement, gathered in every quarter of the globe from fields we did not sow, has now arrived at an annual average of nearly *ten million of quarters?*"

The national interest of such a question is shown, by instances of very recent occurrence, to be made up of the personal bearings it possesses not only on consumers but producers. The harvest of 1846 was sold, much of it under 50*s.* a quarter, some of it over twice that sum—this being the result of ignorance, such as statistical information would have met: and this sudden rise in price took place after most of those who "thresh out their year's corn to pay last half-year's rent—that class whom the Mark Lane phraseology cruelly distinguishes as 'needy sellers'—the same class (for so unhappily it ever is) who 'cannot see what good agricultural statistics can ever do'—had turned their little stock into cash, and the cash over to their landlords."

The national and commercial interests affected by this ignorance are exhibited by reference to the evidence of Mr. LEONE LEVI before the Lords' Committee. Its bearings upon the *science* of agriculture are illustrated by adducing the instances in which large collections of facts have in other sciences resulted in the perception of the general laws whose force and jurisdiction it was the object of those sciences to define. No faith can ever be more fruitful or more wise than that which prompts to the record and accumulation of occurrences and facts. One listens in despair to those who refuse assistance in the collection of such facts on the ground of uselessness. It is not only unphilosophical but impossible to indicate beforehand the knowledge which those facts will furnish—but the history of all human knowledge hitherto proves most incontestably that "laws" are *seen* in facts when massed, which, though operating everywhere, are veiled in the individual instances. A knowledge of such laws is necessarily profitable, for they necessarily operate to the loss of those who ignorantly oppose them: let us then industriously gather the individual facts, assured that the laws of their occurrence will ultimately appear to the great benefit of those whose knowledge of them enables conduct in accordance with them.

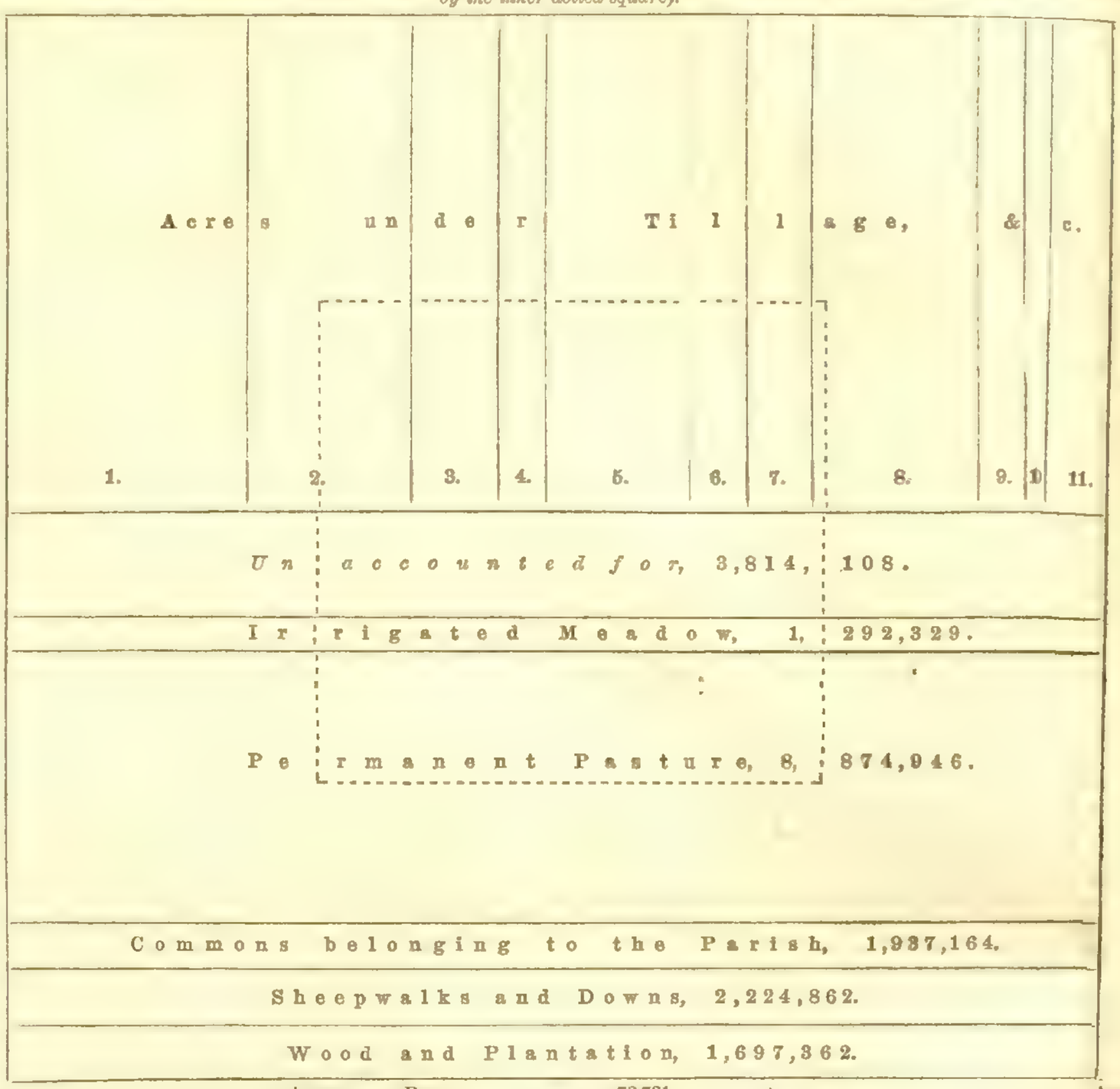
All this is as true of the facts which make up agriculture as of those which make up every other art and science. But let Mr. HOSKYNS state all this in his own characteristic manner:—

"Everything throughout creation is governed by 'law;' but over most of the tracts that come within the active experience of mankind, the governing hand lies so secret and remote that until very large numerical masses are brought under the eye at once, the controlling power is not detected. To an appreciating mind there is something attractively beautiful in the delicacy with which laws of unswerving regularity and resistless force are withdrawn from view, masked behind an apparently inexhaustible variety, an independence and spontaneity of action, and a playfulness of 'accident,' seemingly without control or bounds. It is impossible too much to admire this indulgent feature of creative and administrative power, which permits thus its graciousness to be lost to general sight in the success of the very illusion employed. The whole vocabulary of those who talk of 'chance' and 'luck' attest the matchless lightness and elasticity of gait which disguise the majestic onward tread and movement of natural law. Statistics are the touchstone under which the illusion at once vanishes. Like some potent chemical test it 'precipitates' at once, and exposes to view the latent law so skilfully held in solution. Gathering its facts together and employing them in masses, dealing with Nature wholesale and in the gross, meeting her upon a scale of magnitude, far indeed behind her own, yet in the right path of approach, this science forces out results that never would have disclosed themselves in detail."

Descending from the general interests of science to the more professional aspect of such knowledge as complete statistics of British agriculture would supply, Mr. HOSKYNS illustrates its advantages to the farmer by the parallel influence of similar knowledge in the money market and in commercial operations generally, but here we cannot follow him. A history and critique of the several attempts towards the collection of agricultural statistics are given, and the main facts are represented in the following diagrams:—

STATISTICAL DIAGRAM OF ENGLAND AND WALES.

Agricultural Distribution of the Soil of England and Wales, on the basis of the Returns from 11 Counties, made in 1854 (and shown by the inner dotted square).



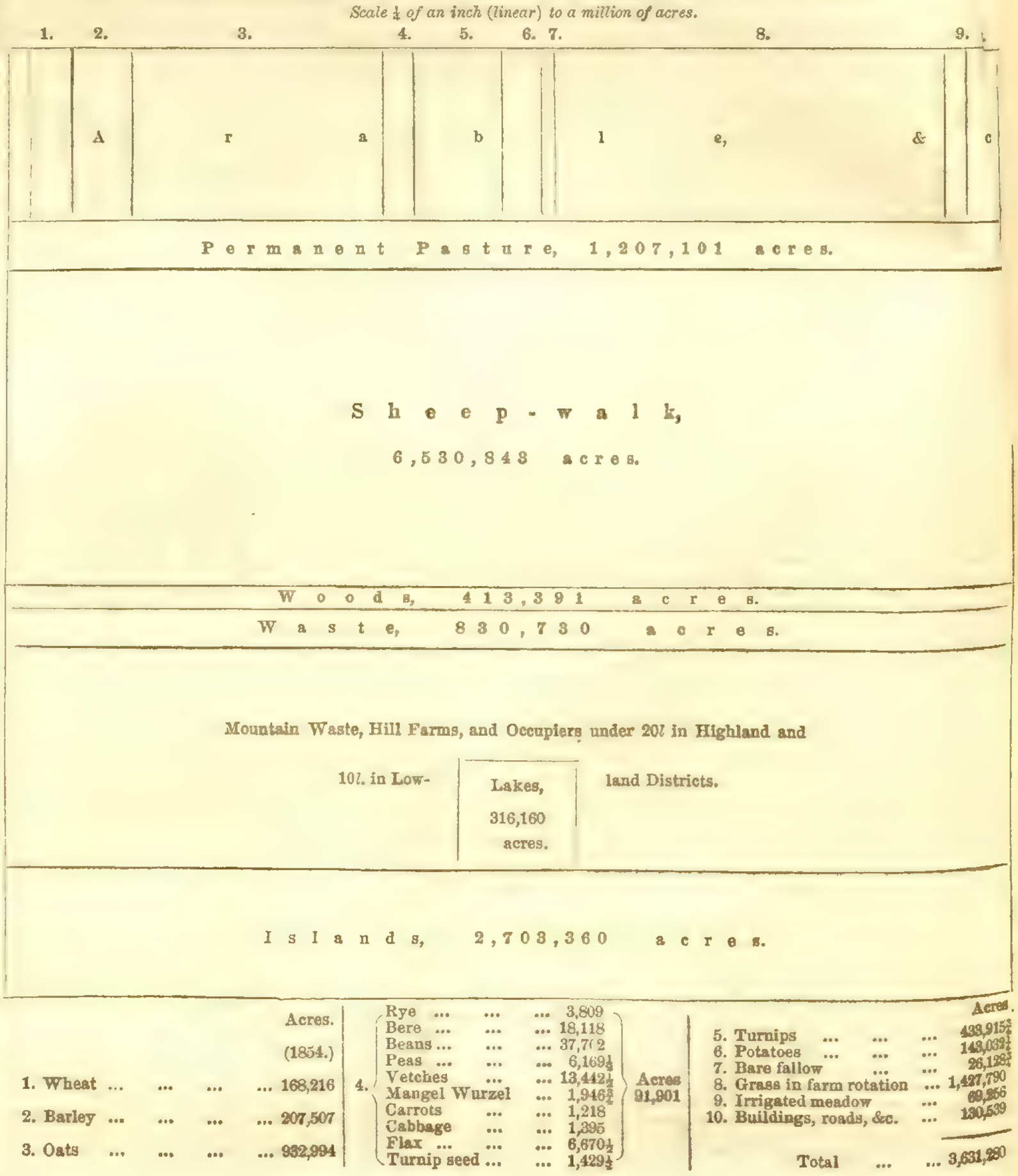
	Acres.
1. Wheat	3,807,846
2. Barley	2,667,776
3. Oats	1,302,782
4. Beans and Peas	698,188
5. Turnips...	2,267,200

6.		Acres
Rye	73,731	802,015
Vetches	218,551	
Mangel Wurzel ...	177,263	
Carrots	12,638	
Potatoes	192,287	
Cabbages, &c. ...	97,334	
Flax	10,156	
Hops	18,976	
Osters	1,079	

	Acres.
7. Bare Fallow	95,969
8. Clover, Lucerne, and Artificial Grasses	20,066
9. Waste attached to the farm	6,658
10. Holdings of less than 2 acres	9,447
11. Houses, gardens, roads, fences, &c.	1,197

STATISTICAL DIAGRAM OF SCOTLAND. [20,047,462 Acres.]

Scale ¼ of an inch (linear) to a million of acres.



	Acres. (1854.)
1. Wheat	168,216
2. Barley	207,507
3. Oats	932,994

4.		Acres
Rye	3,809	91,901
Bere	18,118	
Beans	37,762	
Peas	6,169½	
Vetches	13,442½	
Mangel Wurzel ...	1,946¾	
Carrots	1,218	
Cabbage	1,395	
Flax	6,670½	
Turnip seed	1,429½	

	Acres.
5. Turnips	433,915¾
6. Potatoes	143,032¼
7. Bare fallow	26,128¾
8. Grass in farm rotation ...	1,427,790
9. Irrigated meadow ...	69,256
10. Buildings, roads, &c. ...	130,539
Total	3,631,280

A similar diagram is given of Ireland, to which we shall refer hereafter. We have already taken up much more than the space ordinarily devoted to a single paper in this journal, and must leave to our readers the task of collating and comparing the several items presented in these diagrams. Let them take Mr. HOSKYNS as their guide and study his paper on the subject in detail. The statements regarding Scotland appear as facts—those regarding England are mere estimates founded on observations of a portion only of its extent.

"As far as Scotland and Ireland are concerned, the task is actually accomplished, and a body of the most important evidence has been furnished, which only requires for its completeness—we might almost say for its true utility—the performance of the corresponding task in England and Wales."

"It is a thing too mortifying to believe that the agriculturists of England have ever seriously declined or hesitated to perform their part in this most useful national inquiry. We would rather believe—and we do believe—that 'the attempt, and not the deed, confounded us;' that the mode in which they were appealed to was erroneous."

So concludes Mr. HOSKYNS—a considerable portion of his paper having been directed to a consideration of the impolicy of employing the Boards of Guardians in this work.

Those who are interested in the subject of Agricultural Statistics will find in the paper we have been considering useful information, elegant illustration, and as we believe sound argument—all the more likely to be influential for the intelligent, agreeable, and vigorous manner in which the whole is presented.

IN the year 1847 the then council of the Society of Arts felt that in the absence of a permanent museum of inventions, it would be beneficial to collect annually for public examination for a limited period as many specimens, models, drawings, and descriptions of recent inventions, whether patented, registered, or not as it was possible to obtain the loan of. Succeeding councils have taken the same view; and in accordance with annual custom it is intended to open the eighth annual exhibition of inventions on Easter Monday, the 24th of March next. If any of our readers should propose to be a contributor it is necessary that he should communicate forthwith with the secretary of the Society, Adelphi, London, stating—

1st, the title of the invention.

2ndly, whether the article will be a specimen, model, or drawing.

The articles must be forwarded to the house of the Society on *Thursday the 6th, Friday the 7th, or Saturday the 8th of March.* All articles should be accompanied with a brief description of the invention, a wood block (where possible), and a reference to any publication where a fuller account may be found.

No charge whatever is made for space, and the exhibition is *free.*

We call the attention of our readers to this intimation because many of them must be in a position to further the objects of this annual exhibition at the same time that they benefit themselves, by contributing objects for deposit during its continuance. The Society of Arts is especially deserving such assistance of this kind as agriculturists can bestow, for it has during the past few years done its best to collect and publish, by discussion on agricultural subjects, information useful to the farmer. Among the subjects of last year and of the present session are those of Sewage manure, Steam culture, and Agricultural progress.

Inventions capable of illustration by plan and model, and capable of illustrating any of these subjects, ought to be represented at the forthcoming exhibition. Agricultural implement makers and inventors will, we hope, do their best to render it useful to those who may examine it for agricultural instruction.

THE DUTIES OF BAILIFFS.

THE subject lately introduced through the medium of your columns has already proceeded further than you probably contemplated. I will, however, take the opportunity of enclosing for your insertion a statement of what at the time of publication, in 1822, I considered the qualifications of a farm bailiff; bearing in mind, however, that in the acceptation of the word as I put it, a farm bailiff is a person employed by the owner to take the active management of a farm under the direction of himself as the principal. This person is exactly of that description called by Marshall a bustler, to define him from the manager or bailiff, and is a very proper definition. Your correspondents, however, do not appear to have made this distinction, one nevertheless especially necessary. The steward or manager of an estate or large occupation must be considered to be a man of education, of some practical ability, and fully acquainted with all the new principles of farming. Such a person would expect to be paid for his services liberally, and not to be called upon to enter into any departments of manual labour. His business being that of directing others, and seeing that the work of the farm is properly executed, the whole department of management, as well as of buying and selling of corn and stock being confided to him, it will be needless to expatiate at greater length upon his requirements, for whatever is combined in a first-class farmer would constitute a first-class farm manager, the difference being only that in the one case he works upon his own capital, and in the second upon the capital of his employer.

In the second description, and which is contemplated by the qualifications below, an active, intelligent working man is described who should be thoroughly conversant with the practice of every description of farming work and management, who acting under his employer will not be expected to attend markets, or to buy or sell corn or stock, but to devote his whole and undivided attention to the daily routine of the farm management, the difficulty with such a person being in keeping himself in his proper place, not arbitrarily conducting himself towards the workmen or mixing up and siding with them against the master so much complained of by Marshall, who states:—"July 18, 1774. I this day discharged Thomas Brock, my farm bailiff.—Why? Because I suspected him of smuggling—because he was unequal to the management of the farm, and is too much of a bailiff to be reduced to a bustler. He is hated by the men and despised by the neighbours. He has good hands, but a bad head—a crazy couch dangerous to lull upon—a good implement of husbandry (spoilt by being made into a bailiff), but a bad husbandman."

This is Marshall's definition in 1774 of what his bailiff had been—the reversing it in 1856 will show what a bailiff ought to be. *R. B.*

QUALIFICATIONS REQUIRED IN A FARMING BAILIFF—1822.

He should be industrious, active, intelligent. He should be first in the morning, and last at night. He should not only order men to their work, but lead the way; and should on all occasions move from one department to another without delay, assisting and directing where requisite, but always keeping the adage in view the "Eyes of a master do more than the hands." He should be as the first power to the machine, and the best implement on the farm, and should assist his master "to manage the men, not the men to manage the master." He should be punctual and correct in his accounts, honest in his dealings, and regular in his business. He should every night note down in a book the operations of the day, the labour of the men, the corn and food consumed by the cattle and horses, the corn bought and sold, and having done this, write down what is required to be performed on the following day on the opposite side, which the next night's account will confirm; he should then inspect the premises—see that all the locks are secure, the cattle safely housed, and retire early to bed, as the only certain step to rising early in the morning. By following these directions, he will find next morning no difficulty in carrying out his arrangements and will learn thereby that method and order are the first principles of action; this, by his example, will be communicated to the whole concern. The workmen will be regular and even the horses also will partake of the benefit, working tools, sacks, and implements will be taken care of, "there will be a place for everything and everything in its place;" articles lent to others should be charged to their account, and credit given for them when returned—it is by thus attending to the minutiæ of farming matters that the profit is obtained: "take care of the pence and the pounds will take care of themselves." He will take care at all times to be prompt and decisive with the workmen, and if they are found idle, dissolute, or disorderly, admonish them; if no reform takes place, discharge them. He should on the other hand always treat them with kindness and civility, and will not fail to obtain the same kindness in return—he will never allow them to indulge in abusive or blasphemous language or in drunkenness, much less will he by precept give them encouragement to follow his example, or allow them to suppose he can be guilty of such practices himself, and he will do well to discharge all that are in the continual practice of either. He will endeavour to pay them fair wages, as the only sure mode to have the work well performed, and to encourage his labourers to be honest. He will ascertain what is a fair price for labour by the piece, and give it, and so long as the workman does the work properly, continue to give it. By lowering the price in consequence of their making good earnings he will by so doing check his exertions, and induce them to cheat him on every occasion, for if men at piece work should not be allowed to exceed certain wages weekly, they will always require a great price for their work, which they will by their duplicity make him believe is due for their exertions when their labour is only half bestowed. *R. B.*

Home Correspondence.

Superphosphate of Lime.—In reply to Mr. Grady, I am not aware that I alluded to any other salts than those that enter into the composition of superphosphate of lime, and it was to the salt—phosphate of lime—that I was alluding when I said "neutral and insoluble are one and the same thing." There are not only salts that are soluble and salts that are insoluble, there are salts that have different degrees of solubility which is dependent on the amount of alkali with which the acid is combined. These last mentioned salts are not to be found in superphosphate of lime; we have no other salts in superphosphate save the soluble and insoluble. Many of the phosphates are soluble in water, but not phosphate of lime. All chemists of note support me in this view. Liebig says, "The earthy phosphates (of lime and magnesia) and iron are insoluble in water." Voelcker says, "It is insoluble in water." Other neutral phosphates are soluble in water, such for instance, as phosphate of ammonia, phosphate of potash and phosphate of soda. These salts are sometimes formed in the soil where lime is deficient, when soluble phosphate is applied. Mr. Grady ought to be informed that when chemists speak of any substance being soluble or insoluble in water, they speak of water chemically pure, and not of water containing impurities and charged with carbonic acid—such as the rain water that comes in contact with our manures in the soil. Here, then, Mr. Grady has the key to unravel the difficulty that occurs to him when he says—"If, then, neutral necessarily means insoluble, it is difficult to tell how these bones exercise their influence." Rain-water being charged with carbonic acid and with other impurities, we must look to these foreign ingredients for its solvent action. Mr. Grady says—"But your correspondent 'X.' not only cuts down his own argument but that of Mr. Summers, as well as Baron Liebig and Mr. Lawes, on the doctrine of superphosphate, for he says that superphosphate if soluble, added to the soil, meeting with carbonate of lime and sufficient moisture, becomes neutral, and therefore (according to 'X.'s' theory) useless, so that we would infer that all soils contain sufficient carbonate of lime to make all soluble phosphates neutral. Why then make them soluble at all?" "X." is right, and Mr. Grady is wrong. Does Mr. Grady suppose that any substance with powerful acid properties could enter the delicate organs of plants and cause beneficial effects? Our soils are not strainers, but chemical filters in which the pabulum of plants is prepared. Salts form and reform in the soil before they enter the spongeolets of the roots. Soluble phosphates may safely be applied even to a fallow without any fear of loss resulting from it. In this I am confirmed by Professor Way. It is clear that the superphosphate of lime, when it once becomes incorporated with and dissolved by the moisture of the soil, must meet with lime or other bases and be speedily neutralised. If, indeed, the value of this substance as a manure were in any measure dependent on its retaining its composition and remaining in this highly soluble condition in the soil, we could not expect to see its application productive of any good result on the soils which contain even a moderate quantity of lime, much less on those of the chalk and limestone districts. Professor Liebig, who suggested the use of this manure in the first edition of his "Chemistry of Agriculture," says, in speaking of this point:—"In a few seconds the free acids unite with the bases contained in the earth, and a neutral salt is formed in a very fine state of division." In some cases the neutralising bases may be potash or soda, and then an alkaline and highly soluble phosphate is formed, but the quantity of lime existing in most soils would tend to convert the soluble phosphate of lime wholly into neutral phosphate of the same base. If the view now taken be correct, the sole advantage of adding sulphuric acid to any substance containing phosphate of lime is to produce a soluble compound, not for direct use of the plants but which shall penetrate intimately a large portion of soil and there reproduce the phosphate in a state of the finest subdivision, and more perfectly distributed throughout the particles of earth than it could be by any mechanical process (Way). If we require what are the characteristic properties of the various phosphates occurring in nature as minerals, we shall find that they are all without exception insoluble in water. It may justly excite our surprise that they are absorbed by plants, and our curiosity to know in what manner. This is however easily explained by the presence of the alkaline carbonates, and also by that of ammonia combined with the carbonic acid of the atmosphere, since we find that by the action of these substances upon the phosphates of lime and magnesia (and these occur most frequently in nature), soluble phosphates and insoluble carbonates are formed. Thus, for example, when we bring the insoluble phosphate of lime into contact with the soluble carbonate of potass or carbonate of ammonia, the result is the formation of insoluble carbonate of lime and soluble phosphate of potass or ammonia. A knowledge of this fact is of importance, as it gives us an insight into the action of bonedust when used as a manure (Petzholdt); also of superphosphate of lime. See what Kuhlmann says:—"In order fully to appreciate the effect of ammoniacal salts, it is necessary to point out that they promote the entrance of mineral salts into the plant. Phosphate of lime, phosphate of magnesia, and silica can, by the aid of carbonate of ammonia, become somewhat soluble and absorbable. Every soil contains carbonate of lime, which is rarely free from alkalies, and thus, under the influence of solar heat, will decompose sal ammoniac and sulphate of ammonia, by which means soluble salts of lime and carbonate of ammonia are produced. Hence the ammoniacal salts are not only the chief source of nitrogen for plants, but also the means of facilitating the entrance into the vegetable organism of those mineral salts which are absolutely indispensable to its growth." (Comptes Rendus.) When soluble phosphate is added to the soil it is carried downward by the first rain until it comes into contact with lime, for which it has a great affinity; it is arrested in its progress and forms a neutral salt in that fine state of subdivision in which it can be easily decomposed by the action of the salts of ammonia, chloride of sodium, and carbonic acid along with other salts. The phosphate of lime thus formed gradually forms soluble salts by changing its base, and it is absorbed by the plants perhaps to be again changed in the living organism of the vegetable. *Geo. Summers, Houghton Farm, near Blandford.*

The Suffolk System of Land Draining.—The method of under draining pursued in Suffolk and other parts of the adjoining counties differs widely from that at present in vogue. It is cheap and therefore generally left to be performed by the tenants. It requires to be renewed periodically, and therefore would not be sanctioned by the Inclosure Commissioners and their inspectors in the case of a land-owner who wished to drain an estate in this way and to charge the cost on the estate (see evidence before the Lords' Committee on the improvement of land). Fortunately, however, in consequence of the cheapness of the Suffolk method this is not necessary. Its drains are about 2½ feet deep, and therefore shallow compared with the universal depth prescribed by our draining authorities. On the other hand its drains are of the depth with which Smith of Deanston commenced, and which he for some time

defended against the deeper drains of Parkes. It was even more than hinted in the paper by the late Mr. Pusey on this subject in the Journal of the Royal Agricultural Society, that it was the origin of the Deanston system. The Suffolk method is at variance with all the received canons of land draining, as expounded by our most celebrated authorities, and is supposed to be discarded by the most successful modern practice. Deeper drains I am told, however, have been tried in the district by men who came to the question unbiassed, and having tried these deeper drains having conduits laid with pipes have abandoned them, except under certain conditions, for the cheaper and old established Suffolk method. Are these practical men right or are they wrong? If right, why are they right? If wrong, why are they wrong? What are the conditions of soil and subsoil which render them so, and are the conditions of partial or of general occurrence? Perhaps some of our experienced land drainers and draining engineers will favour us with their views on these points. I am sure you will see the importance of these questions when I add that some of the most strenuous adherents to the Suffolk method of draining do not adopt it indiscriminately on the whole of their land, but on some portions of their farms use deeper drains laid with pipes in those situations which they consider to require them. What, I would ask, are these situations, and do they exist out of Suffolk? These are questions of considerable importance, on which some of your experienced practical and scientific drainers and draining engineers will enlighten us. *E. W.*

Publicity of Old Patents, &c.—It will afford those of your readers interested in patents great pleasure to hear that her Majesty's Commissioners of Patents, impressed with the importance of agricultural mechanics to the public at present, have commenced publishing in a series all the specifications of patents under the old statute for "tilling and preparing land," "ploughs and ploughing," "harrowing, hoeing, and raking," "manuring," and "sowing, drilling, and planting." The series will include all the old patents for steam culture now exciting so lively an interest in the agricultural mind. Under the new statute nearly thirty specifications are printed and in the course of being so, bearing on steam culture. The progress here is interesting:—3 being for 1852; 5 for 1853; 7 for 1854, and 12 for 1855. *W. B.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *Feb.* 6: Colonel Challoner, trustee, in the chair. Thirty-four new members were elected.

Finances.—Mr. Raymond Barker, chairman of the Finance Committee, presented the report on the accounts of the Society, from which it appeared that the current cash balance in the hands of the bankers was 2671*l.* He explained that this general balance included 1200*l.* received from Chelmsford as a subscription towards the reduction of the expenses of the Society's country meeting to be held at that place in the present year. He also laid on the table the quarterly statements of account connected with the several branches of the Society's income and expenditure, assets and liabilities.

Honorary Member.—The Emperor of the French having graciously expressed his consent to the proposal that he should be elected an Honorary Member of the Society, the following resolutions were carried unanimously:—

1. On the motion of Mr. Evelyn Denison, M.P., seconded by Lord Berners:—"That his Imperial Majesty the Emperor of the French be duly elected an Honorary Member of the Royal Agricultural Society of England."
2. On the motion of Mr. Brandreth, seconded by Lord Feversham:—"That a Diploma of the Society, signed by the President, and countersigned by the Secretary, with the Great Seal of the Society attached to it, be forwarded."
3. On the motion of Mr. Thompson, seconded by Mr. Hoskyns:—"That a copy of the sixteen volumes of the Journal of the Society, appropriately bound, be forwarded to his Imperial Majesty, together with the Diploma of his appointment as Honorary Member of the Society."

Standing Committees.—Reports were received from the chairmen of the standing committees of the Society, stating how often their respective committees had met, and how many reports they had made to the Council.

Journal and Library.—Mr. Thompson, chairman of the Journal Committee, laid on the table a copy of the new part of the Journal (XVI., 2), and submitted to the Council suggestions from that committee for arranging, cataloguing, and completing the library of the Society. These suggestions were adopted.

Chemical Lectures.—Sir John V. B. Johnstone, Bart., M.P., reported from the Chemical Committee the suggestion of an alteration in the arrangement of the lectures to be delivered this spring by Prof. Way, the consulting-chemist of the Society, and announced on the 4th of July last. The Council adopted this suggestion, and agreed to the following amended schedule:—

1. On the influence of climate on the action of manures.
2. On the composition of land-drainage water.
3. A review of the progress of chemical science with reference to agriculture at home and abroad.

Guano-Substitute Prize.—On the motion of Mr. Raymond Barker, seconded by Sir John V. P. Johnstone, Bart., M.P., it was carried: "That the period of the Society's liability for the offer of the guano-substitute prize shall terminate with the year 1856."

Chelmsford Meeting.—Mr. Barnett, Vice-Chairman of the Chelmsford Committee, reported to the Council the suggestion of the local authorities and of the Chelmsford Committee, that the period of the Society's ensuing country meeting, to be held this year at that county town, should be fixed for the week commencing Monday the 14th of July. He also reported that the Committee had adopted the plan of the show-yard submitted to them by Mr. Brandreth Gibbs, the Honorary Director of the Show, and had given directions for the commencement of the works. This report was confirmed by the Council.

Agricultural Implements.—Colonel Challoner, as chairman of the Implement Committee, laid the following report before the Council:—

The Implement Committee have taken into their deliberate consideration the subject referred to them by the Council at their Special Meeting on the 10th of December last; namely, such a classification of implements for competitive trials at the future country meetings of the Society, and for which alone in each year prizes shall be offered as shall insure the trial of every description of agricultural implement once in three years. The Committee recommend to the Council the adoption of the following rotation for the ensuing period of three years, namely:—

1856	1857
Tillage and Drainage of Land.	Cultivation & Harvesting of Crops.
Ploughs	Drills
Harrows	Manure Distributors
Cultivators	Horse hoes
Subsoilers	Hay machines
Clod-crushers	Mowing machines
Rollers	Reaping machines
Tile and Brick Machines	Horse rakes
Implements for Drainage	Carts
	Waggons

1858

Preparation of Crops for Market, or Cattle Food.

Engines	Chaff engines
Threshing machines	Mills
Dressing machines	Oilcake Breakers

The Committee accordingly recommend that the Implement Prize Sheet for the Chelmsford Meeting should comprise implements in the first of the above classes; with the addition of special prizes for the best Steam-cultivator and the first and second best Reaping Machines, and of a department for miscellaneous as well as for new implements. The Committee beg to suggest: 1. That implement makers wishing to have duplicate implements in the show-yard may do so for the purpose of showing such implements at work. Stewards are to reserve to themselves the power to arrange such hours as may appear most convenient for the implement makers to exhibit their different implements in motion. The exhibitors to find the materials for such exhibitions. 2. That if any exhibitor shall send machinery away from home, so that it is not possible for it to arrive in time to be admitted into the yard, he shall forfeit the right of the reduced rate of railway transit.

(Signed) C. B. Challoner, Chairman.

The Report having been confirmed by the Council, Mr. Ransome and Mr. Garrett submitted to their consideration a Memorial, signed by a great proportion of the exhibitors of implements at the Society's meeting at Carlisle last year, and conveying their views on the system of offering individual money prizes for competition among the implement makers; their satisfaction at the triennial division for the trial of implements already decided upon by the Council; their desire to have maintained the full severity of the tests for trial, and their strong wish "that the report of the judges in such form as may express their approval, either entire or qualified (as the case may be), should be placed in the hands of the exhibitors before the general exhibition day, in substitution of the individual money prizes as heretofore offered on the Society's prize sheets." On the motion of Lord Berners, seconded by Mr. Evelyn Denison, M.P., this Memorial was read, and received the fullest consideration of the Council.

On the motion of Mr. Thompson, seconded by Sir John V. B. Jonhstone, Bart, M.P., it was resolved:—"That in case of equal merit in two or more implements of the same class, the judges be instructed to divide the prize equally between them."

On the motion of Mr. Brandreth, seconded by Mr. Thompson, the following sums were voted for the respective classes of implements for which prizes would be offered for the Chelmsford meeting (exclusively of the steam-cultivator, 500*l.*; reaping machines, 50*l.*; and miscellaneous awards), viz.:—

For the class of ploughs	£40
" " " harrows	20
" " " cultivators, &c.	20
" " " subsoilers	20
" " " clod-crushers and rollers ...	20
" " " tile and brick machines ...	20
" " " draining implements ...	20
	160

and on this motion it was further resolved:—"That the several sums shall be divided or withheld at the discretion of the judges; and in *no* instance shall a prize be given unless there be deemed sufficient merit."

On the motion of Mr. Brandreth, seconded by Mr. Hoskyns, it was resolved that the following should be the terms in which the Society's Prize of 500*l.* for a steam-cultivator should be offered, viz., "For the steam-cultivator that shall, in the most efficient manner, turn over the soil, and be an economical substitute for the plough or the spade."

Paris Agricultural and Industrial Exhibitions.—On the motion of Sir John V. B. Johnstone, Bart., M.P., seconded by Mr. Thompson, it was resolved: "That the best thanks of the Council are due to those of its members who so ably represented the Society at the International Exhibitions at Paris, for their exertions." Sir John Johnstone explained that it was intended to include in this vote of thanks the Deputation to the International Agricultural Meeting held at Paris in June last, consisting of Mr. Miles, M.P., as President of the Society; Mr. Hudson, as Secretary; Professors Simonds and Way, as Professors; Mr. Garrett, Mr. Hudson (of Castleacre), Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Jonas, and Mr. Milward, as members of Council; Mr. Milward, as the English Juror of Cattle; and Mr. Fisher Hobbs, as the English Juror of Sheep and Pigs, on that occasion; and Mr. Evelyn Denison, M.P. the English Juror of Agricultural Implements, at the Universal Industrial Exhibition held at Paris subsequently in the same year. Mr. Denison, M.P., and Mr. Fisher Hobbs respectively acknowledged the compliment thus paid to themselves and their colleagues. They expressed their entire conviction of the great advantage which could not fail to arise in favour of the two allied countries from the friendly intercommunication so happily subsisting between them.

Foreign Cattle.—Lord Feversham reported that the separate prize-sheet for the foreign cattle prizes, conditions, and regulations, would be submitted to the Council at its next monthly meeting.

Poultry Prizes.—On the motion of Sir Archibald Macdonald, Bart., seconded by Mr. Brandreth Gibbs, the schedule of prizes for farm-poultry proposed by Mr. Fisher Hobbs for competition at the Chelmsford meeting was unanimously adopted.

Foreign Office.—Communications received from the Foreign Office by instructions of the Earl of Clarendon were referred to the Journal Committee, and the best thanks of the Council ordered for them. The Council adjourned to their weekly meeting on the 13th of February.

Miscellaneous.

Proper Time to Manure.—With respect to the proper time or season for putting on farm-yard, artificial, and other manures, that will depend entirely on circumstances and the convenience of the farmer. I remember this question was once put to a very shrewd old Cheshire farmer by a young neighbour, who had a very high opinion of the old man's judgment and experience in farming matters, and after stipulating for a fee in the shape of a jug of ale (which of course was very cheerfully paid), what think you was the old man's reply to the anxious inquirer? Why simply this: "Put it on all the year about." Now although we may not quite agree with the old farmer that all the year about is the best time for putting on manure, yet I think most of us agree with him that a dressing of good manure will seldom do harm at any season; and no doubt by this significant answer the old man meant to impress upon the mind of his young neighbour the very high value he placed upon this right hand friend. In my opinion, the best time for applying manure of any kind (including bone-dust) to permanent pasture is when vegetation is the most active (say in the months of April and September, if the land can be spared); and the old-fashioned custom of putting on manure immediately after the hay is carried off is, I think, a very good one. *Mr. Martin at Chester.*

Calendar of Operations.

FEBRUARY.

Berwickshire Merse Farm, *Jan.* 28.—Just before Christmas we were visited with the most intense black frost known for many years, and, again, the week before last was characterised by similar weather. In both cases, from want of the snowy covering, the frost penetrated to the depth of nearly a foot, so that for several days after the change ploughing was out of the question. That operation is unusually far behind for the season. During the past week, however, much lee way has been made up; for in such circumstances one must break the law against ploughing down a little frost. One good effect of the black frost remains in the ease with which the lea furrow is turned. Little or no Wheat has been sown during these two months, and the greater breadth remains yet to be sown next month. What few fields do show the blade appear to have sustained little damage from the weather. Not so fortunate are the Swedes, however; a large number are rotten, and the whole crop so deteriorated in feeding quality that cattle can be kept improving only by the assistance of artificial food. Hoggs, it would seem, are a hardier race, for they have done well on their cut yellow Turnips in spite of rain and mud, and look very comfortable now that these few days promise drier weather, though drawing more to frost, and a little snow to-day. It is now little more than five weeks till our lambing season comes on, and the ewe flock is daily folded on the Turnip breaks for a few hours, and then run off into a Grass field. Live stock markets have been dull for some time back, but begin to show more animation. Our local grain markets, which had just begun to revive, were completely knocked on the head last week by the panic that emanated from Mark Lane. Business was at a stand-still, and nine-tenths of the farmers drove their corn home again rather than submit to a reduction unwarranted by the circumstances. Short as has been the time, the reaction has already set in, and people begin to see more clearly the results of a peace, a consummation most devoutly to be wished. To judge from the reported drain of her agricultural population, Russia (if she show face at all) is more likely to come as a buyer than as a seller. *J. T.*

West Sussex, *Feb.*—We have still little to report. The changeable and rather damp weather has not been suitable for dung carting, a work that we like to get forward so as to lighten us when the busy time of its application comes. There is a little complaint about the Turnips not having stood the winter well. Among Swedes there are a few bad, but among Turnips none; and perhaps the season will urge on us all the economy of storing them as we now do Mangel, as apart from the saving of those which now rot, we will not have so much difficulty in providing for the sheep when the frost sets in. Lambing goes on well, so far as we have heard, better than usual; and though the land has been very wet, yet as it has been mild they have done pretty well. Our markets have come to a stand, but as there is still a belief that peace will not have much effect upon prices, farmers are holding back. We should think that threshing is about in the same state of forwardness as usual at this time. We shall now have our attention turned to sowing and ploughing up behind the sheep for Oats and Barley as soon as the land is dry enough. Wheat still looks well, having stood the winter without suffering at all; and so with the young Clovers. Our market is well supplied with every kind of meat; beef is from 4*s.* 4*d.* to 4*s.* 8*d.*; mutton the same; and good porkers are 4*s.* 8*d.* per stone. *G. S.*

Notices to Correspondents.

FARM ACCOUNTS. Will our correspondent near Dunse be kind enough to give us his address, which we have lost?

FERMENTATION: *J P.* In order to hasten rotting you should keep it wet and turn it. If wetted with putrid urine, which is itself in a state of fermentation, of course the process of rotting would be accelerated—the urine acting as a leaven or ferment.

FINLAYSON'S HARROW: *Cutaway.* It is a grubber, *i. e.* it is capable of deep work. Scarifier and grubber are synonymous terms.

GORSE: *Cutaway* says: A few years ago, as may be seen by reference to the Royal Agricultural Society's Journals, a great deal was written and thought about the value of Gorse as a substitute for hay. Will you ask your numerous readers if any of them have tried it, and with what results? The essays I allude to are in the fifth and sixth vols. If the statements there are correct, it is astonishing that Gorse is not more largely used than I believe it to be. Will your correspondents be good enough to describe the implements or machinery they use for converting it into fodder?

INCUMBERED ESTATES COURT: *X.* We extract the following from "Allnutt's Irish Land Schedule," in reply to your question.—Produce of public and private Sales up to December 31, 1855:—

Amount of public sales during the year	1850	...	£1,284,471 12	10
" "	1851	...	2,537,359 0	0
" "	1852	...	2 835,340 10	0
" "	1853	...	2,818,861 12	8
" "	1854	...	2,397,265 10	0
" "	1855	...	2,445,296 0	0
Total amount of public sales from commencement of proceedings, reported in Allnutt's "Irish Land Schedule," to Dec. 31, 1855		...	£14,318,594 5	6
Total amount of private sales from commencement of proceedings to Dec. 31, 1855—28,000*l.* will be reported in schedule No. 106 ...		...	3,013,073 19	3
Grand total of public and private sales in the Incumbered Estates Court to end of Dec. 1855, reported in Allnutt's "Irish Land Schedule" ...		...	17,331,668 4	9

IVY: *I A C.* The sheep may be turned in to eat the Ivy with safety.

LUCERNE: *H C C.* Sow 16 lbs. of the seed towards the end of April. It should be sown in rows about a foot apart. The land should be deeply tilled and manured, and if a calcareous loam you will have a first-rate crop. Sow the seed in shallow drills.

MANURE: *Bagnalstown.* It is called natro-calcareous, from which we conclude that salt and lime are its principal ingredients. Six of chalk and one of salt can be provided 20 miles from the chalk pit for 7*s.* or 8*s.* a ton.

PARING MACHINE: *Cutaway.* Glover's paring plough and Bentall's scarifier or broad share are the two best implements for paring. The former for tough old sward, the latter for ordinary arable land.

PLOUGHING: *S W.* You had better not plough in the snow. Better wait till the land is dry. Patience is often as desirable a quality as activity or perseverance.

SALT: *H F Hutton.* Five cwt. of salt is too much to sow at once per acre. If you sow 1 cwt. per acre now and another cwt. per acre a month hence you will have satisfied the plants and run no risk. Five cwt. sown now would not on light land injure Clover seed sown in April, but it might hurt the young Wheat plant.

SEWAGE MANURE: *B D T.* We should be glad to know your plan and see your papers on the subject. Our judgment is not altogether *à priori.*

SULPHURIC ACID: *Marley in Wilts.* You can buy it at 1*d.* per lb. The addition of salt will not be of any service. It would probably be acted on by the sulphuric acid before the bones, and then the solution of the bones would be effected by the muriatic acid set free from the salt. The object is the solution of the bones by any means, and the direct action of the sulphuric acid is the best plan to adopt. If your land would pay for a dressing of salt it should be applied independently or with lime.

SUPERPHOSPHATE: *X* has sent us another reply to Mr. Grady, which however we do not print in full as the matter is already fully disposed of. Mr. Grady, he says, had contended that the bi-phosphate of lime being dissolved in water would go wherever the water went, and be carried away from the land with it. "X" had replied that the superphosphate dissolved in water meeting with carbonate of lime becomes changed into a plain and neutral phosphate, and that soils have the power of retaining both ammonia and the phosphates. Mr. Grady said "X" knocks down both Lawes and Liebig, but the proper question is—Is this true or not? Never mind whose opinions it knocks down; that has nothing to do with the question between Mr. Grady and the writer as to which was right and which was wrong; but in truth it will be found "X's" statement does not cut down any of the arguments as to the advantage of using a soluble phosphate, the superior solubility of which even after committed to the earth is a well known fact. Professor Way considers that though the superphosphate becomes neutral before it is taken up by the plant, yet it is in an infinitely divisible state, and he denominates this state precipitated (not semi-soluble) phosphate. Now whether this theory is correct, or whether the plant takes advantage of the soluble state of the superphosphate before it becomes neutralised, and extracts from it sufficient elements to form neutral phosphate, which appears to be the only state in which it can be assimilated by plants: whichever theory is correct, still the practical advantage is as to the superior effect and solubility of superphosphate of lime over ordinary phosphate however much reduced.

SUPERPHOSPHATE OF LIME: *A Correspondent* asks if the following is correct, as regards the variation of superphosphate in analysis:—"If you go to a bulk of 100 tons of superphosphate, all one quality, and made at one time, send a sample to be analysed, fairly drawn, and find it 15 per cent. soluble phosphate, 15 per cent. insoluble ditto; you go a week afterwards, take another sample the same way from the same bulk, send it to be analysed, it will probably be found—12 soluble phosphate, 18 insoluble ditto; or, it may just as easily be found—18 soluble phosphate, 12 insoluble ditto. I have found so repeatedly that soluble phosphate is such an unstable or changeable article, and the difference between a certain soluble and insoluble phosphate so little, that it would be the height of folly of me to guarantee what I could not, and which no manure manufacturer can do, though some may profess to do so, that is to guarantee superphosphate of lime to a per cent.; it cannot be done without running the risk of continual mischief with one's customers. The superphosphate made by me has always given great and universal satisfaction. My trade and connection and character depend upon that. That is the best guarantee you can have. I shall be happy of your custom, but I will not profess to do what neither I nor any other manure manufacturer can do honestly." Such is the reply he has received, when inquiring if the manufacturer would guarantee the superphosphate ordered from him, according to analysis, noticed here on 19th January. *Superphosphate.* [Superphosphate will not resume the condition of neutral phosphate except on the addition of some alkaline or other base capable of union with the extra proportion of phosphoric acid. And an analysis of a fair sample ought to hold true of the bulk until some real addition is made.]

TURNIPS: *Messrs. Waite.* The plates are admirable representations of the vegetables drawn. Truthful figures of this kind are greatly to be desired—as being far better guides than mere description can be.

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	s.	*d.*		*s.*	*d.*		*s.*	*d.*
Abronia umbellata	0	6	Clintonia pulchella alba	0	6	Lupinus subramosus (a fine bedding plant)	0	6
Acroclinium roseum, new	1	0	" " atroviolacea ...	0	6	Lobelia ramosa nana, new	0	6
*Ageratum conspicuum	0	6	*Dianthus Garnerianus	0	6	*Morina elegans	0	6
Alonsoa Warscewiczi	0	6	" Hendersoni fl. pleno ...	0	6	Myosotis palustris (Forget-me-Not)	0	4
Arctotis breviscarpa	0	4	*Delphinium cardiopetalum... ...	0	3	" azorica	0	4
Argemone platyceras grandiflora...	0	6	Eutoca alba, new	1	0	Maurandya, in 6 varieties, each ...	0	6
*Browallia abbreviata	0	4	*Erigeron Beyrichi	0	6	Nepeta Meyeri	0	6
Balsam, dwarf scarlet	0	6	*Gomphrena globosa Haageana ...	0	4	Phlox Drummondi atrococcinea ...	0	6
" new orange	0	6	*Guternezia zymnospermoides ...	0	6	" " oculata alba ...	0	6
" " sulphur	0	6	*Gypsophila muralis	0	6	" " Victoria regina	1	0
*Calceolaria scabiosæfolia	0	6	Godetia alba, new	1	0	*Palafoxia texana	0	6
*Campanula stricta	0	4	Gynerium argenteum (Pampas Grass	10	6	Perilla Nankinensis...	0	6
*Centauridium Drummondi... ...	0	6	*Helichrysum bractirynchum ...	0	4	Saponaria calabrica (beautiful bedding plant)	0	6
Chrysocephalum arenarium ...	1	0	* " bracteatum, white ...	0	3	Sunflower, new Californian ...	0	6
Collinsia bartsiæfolia alba (new, bicolor alba, incorrectly named by some).			* " " yellow ...	0	3	Sabbatia campestris	1	0
			* " macranthum nanum	0	3	Sweet William, double	0	6
			* " compositum maxim.	0	6	*Trifolium aurantiacum	0	6
Convolvulus minor fl. pleno ...	0	3	Ipomœa limbata	0	6	Tropæolum Triomphe de Gand ...	1	0
Calliopsis coronata (Coreopsis) ...	0	4	" violacea alba (mexicana alba)	1	0	*Whitlavia grandiflora	0	6
" marmorata	0	4	Leptosiphon aureum	1	0			
*Cynoglossum Hayni...	0	3	Linum grandiflorum rubrum ...	1	0			

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Hollyhocks, select named varieties, ditto 12 sorts	2	6
" " " mixed	1	0
Larkspurs, beautiful Hyacinth flowered, in pckts. of 8 sorts	2	0
Marygold, distinct varieties, ditto 10 sorts	2	0
Phlox Drummondi, beautiful and distinct, ditto 5 sorts ...	2	6
Poppy, in distinct showy varieties, ditto 6 sorts	1	0
Salpiglossis, new and beautiful colours, ditto 8 sorts ...	2	6
Senecio, or Jacobœa, distinct and showy, ditto 7 sorts ...	1	6
Stocks, new large flowered German, finest of all, do. 12 sorts	3	0
" new Giant Brompton, ditto 4 sorts	1	6
Wallflower, fine double varieties, ditto 6 sorts	2	6
Zinnia elegans, brilliant colours, ditto 12 sorts	3	6
Ornamental Grasses, beautiful varieties, ditto 25 sorts ...	5	0
" foliage plants for bedding, ditto 12 sorts ...	3	6

Calceolaria, from the largest & finest spotted flowers, 5*s.*, 2*s.* 6*d.*, 1*s.*		
Cineraria, from the finest named varieties... ... 2*s.* 6*d.*, 1*s.*		
Carnations, finest double, also Picotees and Tree Carnations, each	2	6
Geraniums, from the finest show and fancy varieties, each	2	6
" bright scarlet, cerise, rose, &c., separate or mixed, each	1	0
Heartsease, or Pansy, from a splendid named collection ...	1	0
" " fancy varieties, striped, &c.	0	6
Lobelia St. Clair, Insignis, Queen Victoria, &c., &c., each	0	6
Mimulus, or Monkey Flower, beautiful varieties, mixed ...	0	6
Petunia, splendid mixed, equal to named flowers	1	6
Portulacas, scarlet, yellow, white, striped rose, crimson, purple, &c., each	0	6
Pinks, from the finest collection grown	1	0
Primula sinensis fimbriata, white and red mixed, true, saved from the finest collection known	2	0
Verbenas, mixed, from the best named flowers	1	6

CUCUMBER NAPOLEON III. is the finest in cultivation. In packets, each, 3*s.* and 5*s.* 6*d.*

Messrs. E. G. HENDERSON & SON beg to draw attention to the following new VEGETABLES, descriptions of which will be seen in the Catalogue:—

French Bean—Haricot d'Alger, or Beurré blanc.
" Tall Zebra.
Dolichos sesquipedalis, called the Asparagus Kidney Bean.
Carrot, Brussels Red Winter improved Horn.
" new white transparent.
Couve Tronchouda, or Portuguese Cabbage.

Phytolacca esculenta	Cauliflower, Early Paris	Beet Long Orange, very sweet	Pea, Denyer's Early prolific Green Marrow.
Turnip hâtif of Paris	Beet Crapaudine, or Rough Skin	Brussels Sprouts, imported	Early Dwarf Erfurt.
Radish, China Rose		Savoy, Early Dwarf Ulm	

Messrs. E. G. HENDERSON & SON beg to announce that the new Plants to be sent out this year are given at the end of their Seed Catalogue, with full descriptions, prices, &c.

Plants of Gynerium argenteum, or Pampas Grass, 2*s.* 6*d.* each; 20*s.* per dozen; 7*l.* 7*s.* per 100.

Plants of Petunia imperialis, new double white, 3*s.* 6*d.* each; 30*s.* per dozen.

Wellington Nursery, St. John's Wood, London.

BALSAMS.

F. AND A. SMITH, Florists, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. Smith, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. Lindley, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th,* 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. Smith have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.
Messrs. Brown & Austin, Glasgow.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
„ Lambertiana, from seed, 4, 5, and 6 feet.
„ Cembra, 3, 4, 5, up to 10 feet.
„ Montezumæ, fine plants, 4 and 5 feet.
„ macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
„ sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
„ compacta	„ diffusa	
„ pygmæa	„ Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.

Knap Hill Nursery, Woking, Surrey.

TO MELON GROWERS.

MONRO'S CRYSTAL PALACE HERO, AND MONRO'S GOLDEN GAGE MELONS, which gained the two first prizes in June last at the Crystal Palace Exhibition, the "Hero" the first prize for the heaviest Persian Hybrid Melon, the "Golden Gage" the first prize for the best flavoured Melon; both of which prizes were awarded to J. Monro, Colney House, St. Alban's. Two seeds of each sort taken from the same fruits which gained the prizes, with a packet of 12 seeds of other first-rate sorts, for 2*s.* 6*d.* To the trade 12 packets for 1*l.*—May be had by applying to W. F. Erwood, Salesman, 13, Tavistock Row, Covent Garden, London.

UNEQUALLED NEW MELONS.

The Four best Superb Varieties that have ever yet been sent out.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2*s.* 6*d.*

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon; it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit; flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2*s.* 6*d.*

Also Monro's Crystal Palace Hero. This was awarded the first prize for the best and heaviest hybrid Persian Melon; 2*s.* 6*d.* per packet.

Monro's Golden Gauge Melon was awarded the first prize for the best flavoured Green Flesh variety at the Crystal Palace; 2*s.* 6*d.* per packet.

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each of the four varieties will be charged 7*s.* 6*d.*, or two packets of either kind for 4*s.* A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

GEORGE LEE, Market Gardener, &c., Clevedon, near Bristol, has a surplus Stock of the following POTATOES and STRAWBERRIES. The Potatoes are seconds, fit for planting whole (such as he plants himself).

POTATOES.

Grigor's Prolific	Chesterman's Seedling
Early Manley	American Natives
„ King	York Regents
Flour-ball	Lincolnshire White
Nelson's Favourite	Fifty-fold Kidney

The above 14*s.* per sack of 240 lbs.; 7*s.* 6*d.* half sack; 4*s.* quarter sack.

Jackson's Kidney, 20*s.* per sack; 11*s.* half sack; 6*s.* quarter sack.

Potatoes all first-class varieties, both as to quality and productiveness; quarter sacks may be had in two or more varieties.

STRAWBERRIES.

Black Prince	Deptford Pine
Princess Alice Maude	Royal Pine
Myatt's Prolific	Eleanor
Swainstone's Seedling	Nimrod
Trollop's Victoria	Elton
Stirling Castle Pine	

The above 12*s.* per 1000, or 1*s.* 6*d.* per 100.

Patterson's Scarlet Nonpareil, 30*s.* per 100; 20*s.* for 50; smaller plants, 20*s.* per 100. Bonum Magnum, 24*s.* per 100; 15*s.* for 50. Omar Pacha, 40*s.* per 100; 25*s.* for 50. Sir Harry, 50*s.* per 100; 30*s.* for 50.

Post Office Orders payable at Clevedon to George Lee.

NEW AND CHOICE SEEDS.

Free by Post or Carriage Paid.

	Per packet—*s.*	*d.*
Cauliflower, Lenormand's extra large Paris, very fine	2	0
Carrot, Early Scarl. Horn, best for forcing imported, of the same kind as are imported to the London markets ... per oz.	1	0
Snake Cucumber, per pkt.	0	6
Abronia umbellata ...	0	6
Ageratum conspicuum, new	1	0
Alonsoa Warczewiczi, new	1	0
Arctotis breviscapa ...	0	6
Browallia demissa ...	0	6
„ abbreviata, new, 12 seeds	1	6
„ elata	0	6
Calendrinia umbellata ...	0	6
Calyxhemenia chilensis, new	0	6
Cannabis gigantea (Giant Hemp for lawns) ...	0	6
Campanula stricta ...	0	6
Centaurea cyanus, double new, blue striped ...	0	6
Centauridium Drummondi, new	0	6
Centranthus macrosiphon albus, new	1	0
Cineraria, from fine named sorts	1	0
Clintonia pulchella ...	0	6
Cockscomb, Giant headed, new, brill. crimson red	1	0
Collinsia bicolor alba, new	1	0
Convolvulus minor, double	0	6
Dianthus imperialis, extra fine double, from scarlet to white	0	6
Egg-plant, new striped ...	0	6
Escholtzia tenuifolia, new	0	6
Euchnide bartonioides ...	0	6
Eutoca viscida alba, new, 25 seeds	1	0
Grammanthes gentianoides	0	6
Gomphrena Haageana, new beautiful orange Compositæ	0	6
Gutiernezia gymnospermoides, new	1	0
Gypsophila muralis, red, very pretty for rockwork or edging	0	6
Helianthus argophyllus ...	0	6
„ Californicus, fl. pl., splendid dble. Sunflower, orange ...	0	6
Helichrysum brachyrhinchum	0	6
„ compm. maximum, double everlasting flower, white to orange red	0	6
Ipomœa limbata, violet blue bordered white, 12 seeds	1	0
„ rubro-cœrulea, light blue changing to crimson, 4 seeds ...	1	0
Lamarckia aurea (Ornamental Grass)	3	6
Leptosiphon aureus, new golden yellow	1	0
„ luteus, bright yellow	0	6
Linum decumbens, blue ...	0	6
„ grandiflorum rubrum, splendid vermillion crimson	1	0
Lisianthus Russellianus, 100 seeds	1	0
Lobelia ramosa, new dwarf	1	0
Mimulus, from the finest named Scarborough vars.	1	0
Nemesia compacta elegans, new	1	0
Nepeta Meyeri, new ...	0	6
Nyctarinia capensis, new	0	6
Palafoxia texana, new ...	0	6
Perilla nankinensis, ornamental purple leaves ...	0	6
Phlox Drum. Leopoldi ..	0	6
„ „ oculata, white with crimson eye	1	0
Physostegia speciosa, new	1	0
Podolepis auriculatus, new	0	6
Portulaca, mixed	0	6
Sabbatia campestris, new splendid, pink with yellow centre, 100 seeds ...	1	6
Schizopetalum Walkeri ...	0	6
Silene Bergeri, new ...	1	0

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, and Zinnias, from 2*s.* 6*d.* to 7*s.* each. A general list of seeds may be obtained free on application. A General Catalogue of Plants (priced) ditto. Post Office Orders are requested to be made payable at Kingston-on-Thames. Small amounts may be remitted in postage stamps.

Thomas Jackson & Son, Kingston-on-Thames.

VERBENA "TRANBY."

MARTIN AND SON would recommend the above Verbena to every grower. It is one of the most distinct varieties grown, and they do not hesitate to say it will please every one: colour shaded crimson, very large flower, with an immense cream eye in the way of an Alpine Auricula. It was exhibited at the principal shows here and greatly admired, and ordered to a considerable extent, some making whole beds of it. Price 5*s.* each; if taken by the half dozen, 21*s.* Trade supplied liberally.

Our general Nursery List comprises a good assortment of Coniferæ, Forest, Fruit, and Ornamental Trees, Evergreen and Deciduous Flowering Shrubs, Greenhouse and Bedding Plants, Hollyhocks, Chyrsanthemums, Phloxes, and Bulbous Roots, with prices; also a List of Culinary Seeds may be had. Every article before sending out is tested, and can warrant them to grow well. See our List with price, which, no doubt, will induce you to order. Transplanted Swede and other Turnip Seeds from 30*s.* to 48*s.* per bushel: 18 varieties of Flower Seeds, free for 15 stamps.—Nursery and Seed Establishment, Cottingham (A.D., 1788), Hull Branch Junction Street.—Martin & Son, Proprietors.

NEW CELERY—COLE'S DEFIANCE RED.

WILLIAM COLE, Nurseryman, Seedsman, and Florist, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a great improvement on his well known Celery, "Cole's Dwarf Solid Red," being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, free by post, 2*s.* each.

It can also be procured from the following agents:—

Messrs. Hurst and McMullen, 6, Leadenhall Street; Messrs. Noble, Cooper, and Bolton, 152, Fleet Street; Messrs. Minier & Co., 60, Strand; Messrs. Charlwood & Cumming, Covent Garden; Messrs. Nutting & Son, 46, Cheapside, London; Mr. Turner, Slough; Mr. Duncan Hairs, St. Martin's Lane; Mr. Denyer, Gracechurch Street; Messrs. Downie and Laird, Edinburgh; Messrs. F. & J. Dickson, Chester; J. Dickson & Son, Manchester; Messrs. J. & J. Fraser, Lea Bridge, Essex; Messrs. Little and Ballantyne, Carlisle; Messrs. Veitch & Son, Exeter; Mr. J. Veitch, Exotic Nursery, Chelsea; Messrs. Finney & Co., Gateshead; Mr. A. Pontey, Plymouth; Mr. E. Rendle, Plymouth; Mr. Cattell, Westerham, Kent; Messrs. Lucombe, Pince, & Co., Exeter; Mr. Browne, Norwich; J. Cole, Keyfield Nursery, St. Alban's; Garraway & Mayes, Bristol; Drummond & Son, Stirling; J. Dickson & Son, Market Place, Manchester; F. Winstanley, Market Place, Manchester; F. & A. Dickson, Corporation Street, Manchester.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was originally reared in Scotland, and is called by the grower the Scottish Champion, and has again proved to have surpassed all other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s.*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. William Gowland, 4, Crooked Lane, London Bridge, London; or to Thos. B. Atkinson, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"Edward Bennett, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

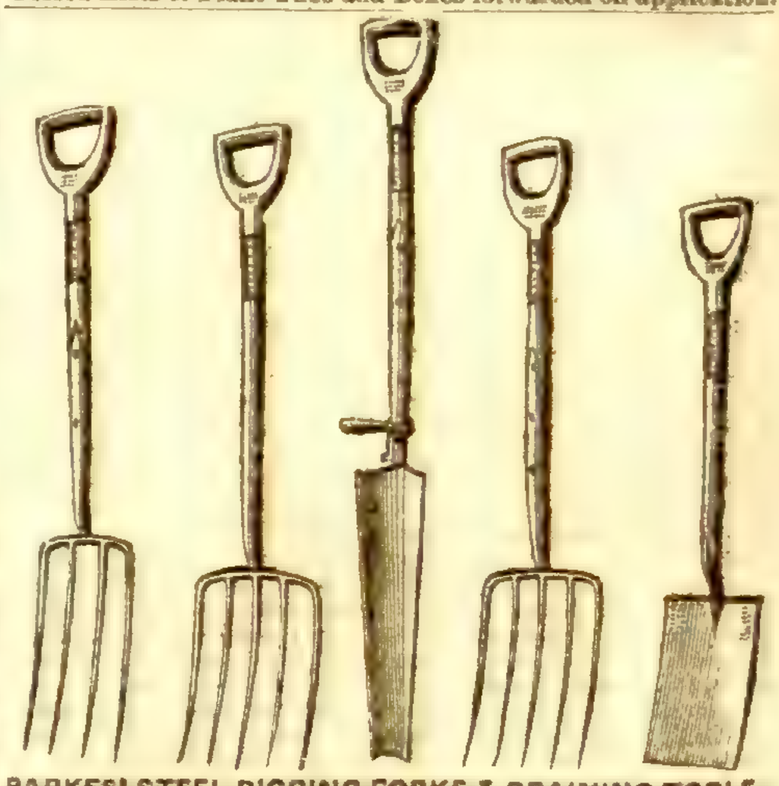
DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK Manufactures in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

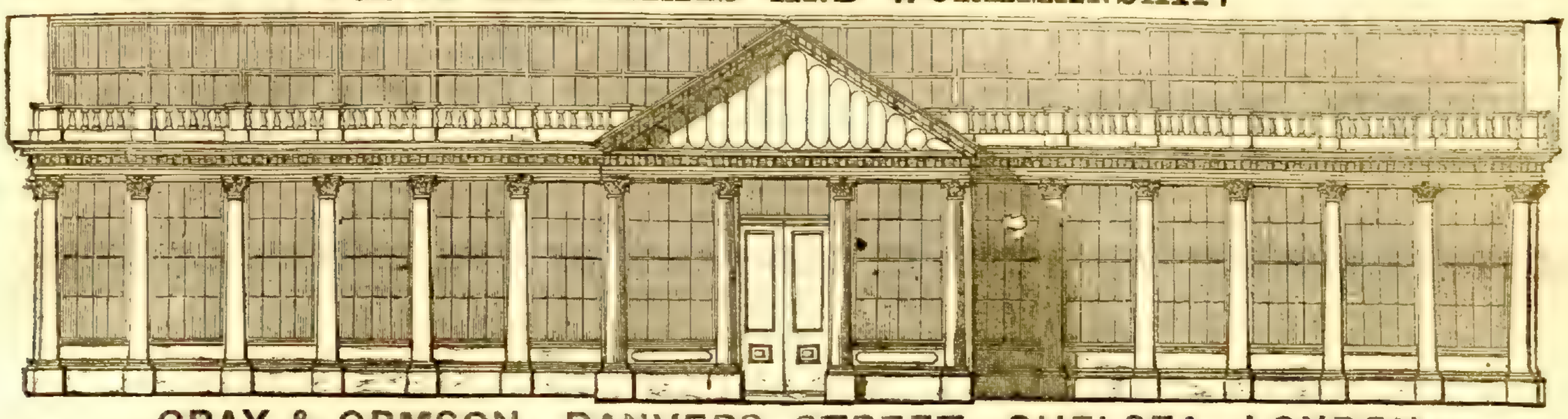
JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

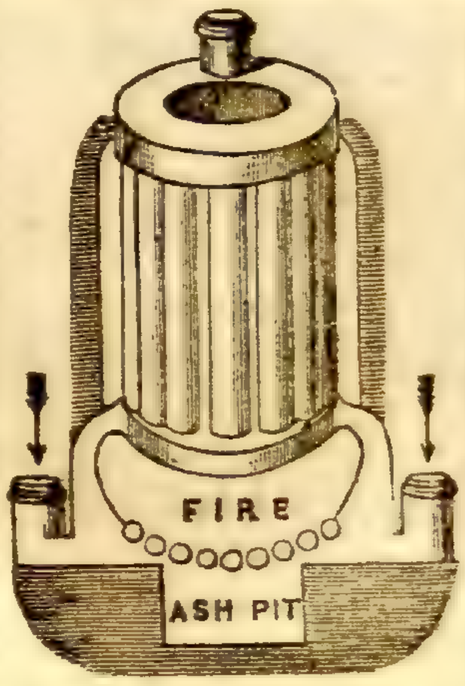
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

W. HURD AND CO., 1, Smith Street, King's Road, Chelsea, beg to inform the Nobility, Clergy, and Gentry, that they have commenced Business as HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS. Having been practically employed many years in the Firm of Messrs. Weeks & Co., Chelsea, they are thoroughly acquainted with every branch of the Business.

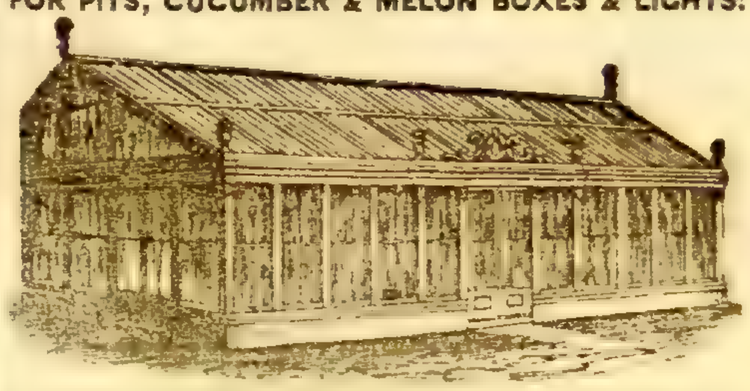
Churches, Halls, Mansions, and Public Buildings Heated by Hot Water. References to Works already executed.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

POULTRY, ETC., SHOWS.

PORTABLE WIRE PENS FOR POULTRY AND PIGEONS, furnished on hire by THOS. P. HAWKINS, General Wire Worker, 27, Dale End, Birmingham. Game Netting and Wire Goods of every description.

TO AGRICULTURAL IMPLEMENT MAKERS.

THE PATENTEE of a very simple, SELF-RAKING, REAPING, AND MOWING MACHINE wishes to Dispose of his right on liberal terms.—R. M., care of Messrs Avery & Co., 32, Essex Street, Strand.

TO SEEDSMEN.

TO BE SOLD, a bargain, a complete Set of VEGETABLE SEED DRAWERS, with solid mahogany fronts, and labelled with black, on a gilt ground.—For further particulars, apply to WOOD & INGRAM, Nurseries, Huntingdon.

TO NURSERYMEN, FLORISTS, AND OTHERS.

TO BE SOLD, the LEASE of GROUND, near town, with Greenhouses, Pits, &c., well stocked with Plants. Rent 10*l.* per annum.—Apply to Mrs. Sutherland, Florist, Kilburn; or to Mr. GODDARD, 14, Great Portland Street, Cavendish Square, London.

TO BE LET ON LEASE, at Pawlett, near Bridgewater, a large ARABLE FARM. The above, from the high quality of the Land and its proximity to both Water and Rail communication, is deserving the notice of Agriculturists.—The Farm will be pointed out by GEORGE NEATH, Pawlett Bridgewater.

TO BE LET, with immediate possession, about 3 acres of Land, well planted with Choice Apple and other Fruit Trees, lately used as a Nursery Garden, together with a comfortable Dwelling-house, and a Vinery attached to the Sitting-room, pleasantly situate about 7 miles eastward of Bath and 6 westward from Chippenham.—Particulars to be had of Mr. G BISHOP, Chippenham, Wilts.

ROYAL BERKSHIRE

SEED ESTABLISHMENT, READING,

UNDER THE PATRONAGE OF HER MOST GRACIOUS MAJESTY THE QUEEN, HIS ROYAL HIGHNESS PRINCE ALBERT, AND THE PRINCIPAL MEMBERS OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND,

FOR SUPPLYING

SUTTON'S HOME-GROWN SEEDS TO ALL PARTS OF THE UNITED KINGDOM.

CARRIAGE FREE (WITH FEW EXCEPTIONS).

SUTTON AND SONS, SEED-GROWERS, READING,

HAVE THE PLEASURE OF OFFERING THE UNDERMENTIONED CHOICE KINDS OF SEEDS WITH THEIR PRESENT PRICES AFFIXED.

AGRICULTURAL SEEDS (CARRIAGE FREE),

WITH PRICES FOR THE MONTH OF FEBRUARY ONLY.

CARROT.

	s.	d.
WHITE BELGIAN, the heaviest cropper and most certain	1	0
ORANGE BELGIAN; more saccharine	1	6
YELLOW BELGIAN	1	0
LARGE RED ALTRINGHAM; large and nutritious ...	1	3
SHORT ORANGE	1	3

MANGEL WURZEL.

FROM SELECTED ROOTS.

YELLOW GLOBE (or Orange Globe), suitable for any soil	0	9
RED GLOBE, suitable for any soil	0	9
LONG RED; this sort requires good deep soil	0	9
LONG YELLOW; very similar to the preceding in shape	0	9

SUTTON'S ELVETHAM LONG RED; this is a very superior new variety. Very scarce.

Mangel Wurzel Seed may be had cheaper in large quantities, if ordered immediately, except "The Elvetham."

EARLY WHITE FIELD PEA.

NEW EARLY RACEHORSE—comes off in good time for Turnips, and is a good cropper, price 12*s.* per bushel.

COW CABBAGE.

	s.	d.
LARGE DRUMHEAD, from fine selected plants (scarce)	4	0
THOUSAND-HEADED, very productive, tall, branching	2	6
SUTTON'S EARLY CATTLE; this, if planted 18 inches asunder, produces a very heavy crop, and in a short time. (Sow in March and August.) ... ... per lb.	6	0

TURNIP SEEDS.

	Bush. s.	Pound s.	d.
GREEN-TOPPED YELLOW SWEDE	48	1	0
ASHCROFT SWEDE, very large, hardy... ...	48	1	0
SKIRVING'S LIVERPOOL SWEDE	45	1	0
PURPLE-TOPT. YELLOW SWEDE (Sutton's fine stock), a heavy cropper, good form, hardy, and stores well	48	1	0
SUTTON'S PURPLE-TOPPED YELLOW HYBRID, the hardiest, largest, and most nutritious of all hybrid Turnips	50	1	2
GLOBE, Red, White, or Green	40	0	10
LINCOLNSHIRE RED GLOBE, a superior var. presented to us by the late Philip Pusey, Esq., M.P.	50	1	2
TANKARD, Red, White, or Green	40	0	10
YELLOW TANKARD, (or Tankard Swede) ...	50	1	2
SUTTON'S EARLY SIX WEEKS, very early and large	40	0	10
GREEN-TOPPED AND PURPLE-TOPPED YELLOW ABERDEEN, each	45	1	0
SUTTON'S IMPERIAL GREEN GLOBE, shape of Matson's, but much larger, and quite hardy ...	45	1	0
SUTTON'S GREEN-TOPPED YELLOW HYBRID possesses same good properties as our Purple-topped Hybrid, but is of quicker growth, and more suitable for poor soils	50	1	2
SUTTON'S CRUICKSFIELD HYBRID		1	6

PARSNIPS.

COMMON CATTLE	Per lb. 1*s.*	0*d.*
NEW LARGE GUERNSEY, altogether a superior kind	1	6

CLOVERS.

Common Red (or broad)
White (or Dutch)
Trefoil (or Hop Clover)
Trifolium incarnatum
Red Suckling (Trifolium minus
Alsike Clover
True Perennial Red Clover

Clovers.—Notwithstanding the scarcity this season, we have succeeded in procuring a fine stock of each of the above kinds of Clovers, which can be warranted genuine unadulterated Seeds. Clovers vary almost weekly, and may be had on application.

RYE GRASSES.

	Per bushel.—s.
FRESH IMPORTED ITALIAN	10 to 12
TRUE ITALIAN ENGLISH SAVED...	9 to 11
DITTO (SUTTON'S IMPROVED) ITALIAN... ...	12 0
DITTO (DICKENSON'S) ITALIAN	12 0
PACEY'S PERENNIAL RYE-GRASS	10 0
ANNUAL RYE-GRASS, or COMMON RAY	5 to 7

MISCELLANEOUS.

Keen's Forty-day Maize
Lucerne (fresh imported)
Furze, for fence and cover
Broom ... ...
Dwarf Rape, or Cole ... ...
White Mustard ... ...
Burnet.—Spurry.—Chicory.
Yarrow, or Millefoil.
Buckwheat.
Field Parsley, for sheep feed.
Potatoes, choice sorts.
Linseed or Flax, clean English
Ditto, Riga, imported.
Giant Saintfoin.
Kohl Rabi.

"Bishop's Last and Best" Pea, for Double Cropping, between the rows of Mangel, Swedes, &c. 12*s.* per bushel.

NOT BOUND BY THE ABOVE PRICES AFTER MARCH 1.

SUTTON'S PERMANENT GRASS SEEDS.

Gentlemen intending to lay down Land to Permanent Pasture, or for one or two years lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable.

OLD MEADOWS DEFICIENT OF THE MOST NUTRITIVE GRASSES AND CLOVERS may be greatly improved by sowing at this season "Sutton's Renovating Mixture" of Seeds, at the rate of 8 to 12 lbs. per acre, price 1*s.* per lb. Our finest LAWN GRASS SEEDS *are highly useful to improve Garden Lawns.*

We have a very extensive stock of Natural Grasses, Perennial Clovers, &c., in our Warehouses, a Priced List of which may be had on application, post free.

*** *Sacks and Bags are charged at cost price only, and the full amount allowed, if they are returned.*

PRICED LISTS OF GARDEN SEEDS AND PLANTS MAY BE HAD POST FREE.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks, Fellows of the Horticultural Society of London; Members of the Royal Agricultural Society of England, and the Bath and West of England Agricultural Society.

DWARF-TRAINED FRUIT TREES.

WILLIAM WOOD and SON have much pleasure in offering some of the finest Dwarf-trained PEACHES and NECTARINES in the Kingdom; in short W. W. & Son feel convinced they are not to be surpassed in the trade. Price 5*s.* per plant.

N.B. Having a large stock of the above W. W. & Son are disposed to deal liberally with the trade, and will furnish wholesale prices on application.

Fine Pyramidal Pears on Quince, 18*s.* to 24*s.* per dozen.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

MELONS, MELONS, MELONS.—Orion, the Winner at Regent Street and Crystal Palace, although not as round, as hard, or as heavy as a cannon ball, is a fruit of great beauty, 4 to 6 lbs. in weight, thin skin, thick flesh of bright green colour, luscious as a melting Peach, fragrant and delicious as a Pine Apple, prolific bearer, and ought to be in the hands of every Melon grower. Six seeds out of the prize fruit for 1*s.* 6*d.* free by post, with Latter's Hints on the Cultivation of Primulas, and a Coloured Drawing of a beautiful Seedling from Latter's true Stock.—Address, Thomas Wild, Ipswich.

HOLLYHOCKS.

Hedenham Rosary, Bungay, Suffolk.

BIRCHAM and WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.—Hedenham Rosary, Feb. 9.

SEED POTATOES.

CHARLES SHARPE and CO. have the pleasure of offering the following varieties of Potatoes, all of which have been grown by themselves, and are of fine quality.

Per bushel of 4 stones:—

	s.	d.		s.	d.
Kidney, Early Ash-leaved ...	6	0	Foxe's Seedling	5	0
„ Jackson's ...	6	0	Emperor	6	0
„ Fluke	5	0	Cockney	6	0
Martin's Globe	5	0	Hen's Nest	5	0
Early York	5	0	Oxford	6	0
„ King's	6	0	American Native ...	5	0
„ Round frame ...	5	0	White Rough	5	0
			Regent	5	0

Nursery and Seed Establishment, Sleaford, February, 1856.

JOHN BELL, Potato Salesman, Covent Garden, offers the following SEED POTATOES, warranted true stock.

	Per bushel—s.	d.		Per bushel—s.	d.
Ashleaf Kidneys ...	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

BEARING TRAINED FRUIT TREES.

THOMAS JACKSON and SON having the greatest extent of Wall in the trade, are enabled to offer at moderate prices the under-mentioned FRUIT TREES trained for Walls or Houses:—

DWARF TRAINED PEACHES, 7*s.* 6*d* each.
„ „ NECTARINES, 7*s.* 6*d.* each.
„ „ APRICOTS, 7*s.* 6*d.* each.
„ „ GREENGAGE PLUMS, 5*s.* each.
„ „ MORELLO CHERRIES, 4*s.* each.
STANDARD TRAINED PEACHES, 10*s.* 6*d.* and 15*s.* each.
„ „ NECTARINES, 10*s.* 6*d.* each.
„ „ APRICOTS, 10*s.* 6*d.* to 21*s* each.
„ „ PLUMS, 5*s.* and 7*s.* 6*d.* each.
„ „ MORELLO CHERRIES, 5*s* each.

The above are all set with Flower-buds, and are capable of bearing Fruit this season.

Fine Trained Trees of the usual nursery size, from 2*s.* 6*d.* to 5*s.* each.

STANWICK NECTARINE, Standard Trained, 10*s* 6*d.* each.
KAISHA APRICOT, Dwarf, 2 Years' Trained, 5*s.* each.

Nurseries, Kingston-on-Thames.

TO THE TRADE.

WILLIAM E. RENDLE and CO. have several Tons of the following Seeds to dispose of *at the lowest market prices.*

LONG RED MANGEL WURZEL | YELLOW GLOBE do.
RED GLOBE do. | WHITE BELGIAN CARROT
ORANGE JELLY FRUIT.

Prices on application to William E. Rendle & Co., Seed Merchants, Plymouth.

All neat *and in the same condition as received from the Growers.*

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

DICKSON'S "EARLY FAVOURITE PEA."

FRANCIS and ARTHUR DICKSON and SONS have great satisfaction in again calling attention to this distinct and truly valuable EARLY PEA (sent out by them for the first time last season), which is admitted by all who have grown or seen it to be the most prolific and best Early Pea ever introduced. It comes in very few days after the *earliest* varieties, and the flattering testimonials which they have received from some of the first Gardeners in the kingdom who grew it last season (see *Gardeners' Chronicle* of Jan. 12th, 1856), will, they think, be sufficient guarantee for its extraordinary productiveness and general excellence.

Price 2*s.* 6*d.* per quart, or 1*s.* 6*d.* per pint, in sealed parcels.

VEGETABLE, FLOWER, and AGRICULTURAL SEEDS of every description, of *select* and *superior* quality, detailed CATALOGUES of which will be forwarded on application.

The Old Established Seed Warehouse, 106, Eastgate Street, Chester.—Feb. 9, 1856.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, February 9, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 7.—1856.] SATURDAY, FEBRUARY 16. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The FIRST SPRING MEETING will take place at the Society's House, 21, Regent Street, on TUESDAY, February 26, from 12 to 4 P.M. The Chair will be taken at 2 P.M. On this occasion the effects of Grafting will be a subject of inquiry and discussion.

HORTICULTURAL MEETINGS AT THE GARDENS OF THE BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—The Meetings for the approaching season will be held at these Gardens, on THURSDAY, 5th June, and THURSDAY, 28th August, when nearly 400*l*. will be distributed in Prizes.—Schedules of the Prizes may be obtained on application to the Honorary Secretary, Clifton.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD. HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

HARDY AZALEAS AND RHODODENDRONS.
H. LANE AND SON have to offer most of the leading sorts of the above, well set with bloom buds.
The Nurseries, Great Berkhamsted, Herts.

ROSES.
H. LANE AND SON, the Nurseries, Great Berkhamsted, Herts, have still on hand a fine assortment of STANDARD ROSES in variety, also DWARFS, both worked and on own roots, consisting of the most popular sorts. Also Roses in pots for immediate forcing.

FRUIT TREES IN POTS.
H. LANE AND SON beg to offer a fine collection of the above, which can be had at the Nurseries, Great Berkhamsted, consisting of Peaches, Apricots, Nectarines, Pears, Plums, Cherries, &c., well furnished with bloom buds, and fit for immediate Forcing. Catalogues may be had on application.
The Nurseries, Great Berkhamsted.

DOUBLE WHITE CAMELLIAS.
JOHN HENCHMAN, JUNIOR, begs to offer fine bushy home-grown Plants, full of flower-buds, at 24*s*., 27*s*., 30*s*., and 36*s*. per dozen; a few extra size at 3*s*. 6*d*. each.
INDIAN AZALEAS, short bushy Plants, full of flower-buds, at 15*s*., 18*s*., 24*s*., and 30*s*. per dozen.
Opposite the Golden Fleece, Lower Edmonton.

TO THE TRADE.
NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.
J. G. WAITE, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

NE PLUS ULTRA LETTUCE.
HART AND NICKLIN, SEEDSMEN, Guildford, offer to the public the above Lettuce. It is a Brown Cos variety, folds and blanches beautifully without tying, is fine of texture and very sweet; worthy of notice by the small or large grower. ½ oz packets, 2*s*. 6*d*., free by post.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s*. The Trade supplied.
T. F. WINSTANLEY, Seed Merchant, Manchester.

FALSTAFF'S RASPBERRY CANES.—Any quantity of the above may be had at 2*s*. 6*d*. per hundred. Liberal discount to the trade. Orders for 500 delivered to any Railway Station in London. Post-office orders made payable to WILLIAM MANN, Post Office, Brentford.—Mogden Lane, Isleworth.

STRAWBERRIES FOR FORCING.
KEENS' SEEDLING, BRITISH QUEEN, thoroughly established plants, in the best possible condition, at JOHN WEEKS & Co., Horticultural Builders, Seed Merchants and Nurserymen, King's Road, Chelsea.

LILIUM GIGANTEUM SEED.
FRANCIS AND ARTHUR DICKSON AND SONS, Upton Nurseries, Chester, having this last Autumn ripened a considerable quantity of Seed of this noble LILY (the flower stem of which was fully 10 feet high), beg to offer packets containing 50 selected Seeds, at 2*s*. 6*d*. per packet, free by post, on receipt of 30 postage stamps.—Feb. 16.

IMPORTANT TO PURCHASERS OF SEEDS.
SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,
SUTTON'S AMATEUR'S GUIDE. Published by LONGMAN, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.
SUTTON & SONS, Seed Growers and Merchants, Reading.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1856 *can now be obtained from the undersigned, or through any Bookseller in town or country.* Price 6*d*., free by post.
For the Contents of this popular Work, see *Gardeners' Chronicle*, December 29th.
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.
Seed Establishment, 181, High Holborn, London.

KITCHEN GARDEN AND FLOWER SEEDS.
JOHN CATTELL'S CATALOGUES of the above are now ready, and may be had on application.
Westerham, Kent.

SEED GROWING ESTABLISHMENT, WISBECH, CAMBRIDGESHIRE.
CHARLES SHARPE begs respectfully to inform the Trade that his CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS, cultivated and saved under his own management, will be forwarded post free on application.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is Now Ready, and will be sent free by Post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.
Tollington Nursery, Hornsey Road, Islington, London.

WESTERN COUNTIES SEED DEPOT.
THOMAS VEITCH AND Co., of 195, High Street, Exeter, WHOLESALE AND RETAIL SEED MERCHANTS, are now prepared to furnish CATALOGUES of their AGRICULTURAL, VEGETABLE, and FLOWER SEEDS, comprising all the newest varieties, &c., all of which can be warranted genuine, and supplied at very moderate prices.

SEEDS, THE FINEST IN CULTIVATION.
BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE supplied on application.
It contains everything which may be desired of the choicest new and other Vegetable and Flower Seeds, superb imported German Seeds, also Lists of splendid Bulbs and Roots for spring planting.
Catalogues for the season complete by the present time for three penny stamps.
Seed and Horticultural Establishment, Sudbury, Suffolk.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

FRAME CUCUMBERS.
WOOD AND INGRAM offer the following well known kinds at 1*s*. per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
„ White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
Improved Sion House	Manchester Hero
Sir Colin Campbell	Conqueror of the West
	Snow's Horticultural.

Huntingdon Nurseries, February 16.

SEAKALE AND ASPARAGUS PLANTS.—TO THE TRADE.—ONE MILLION *fine strong plants of Seakale and Asparagus are now growing by the undersigned. Wholesale prices on application.*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEED BARLEY FROM THE CHALK.
MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

CUCUMBERS. CUCUMBERS, CUCUMBERS.
THOMAS WILD, Ipswich, offers for Sale IPSWICH STANDARD, the best in the world, now being sent out with Orion Melon, Latter's unrivalled Primulas, Hollyhocks from 24 best varieties, Pansies from Hine's exhibition bed, embracing all the leading sorts. The above free by post, 7*s*. 6*d*., with Latter's Hints on the Cultivation of Primulas, and a coloured drawing of a beautiful Seedling from the above seed.
Address THOS. WILD Ipswich.

CELOSIA AUREA.
FRANCIS AND ARTHUR DICKSON AND CO., SEED MERCHANTS, 14, Corporation Street, Manchester, offer Seeds of the above very graceful Plant, at 2*s*. 6*d*. per packet.

NOTICE TO GROWERS OF PINE-APPLES.
WANTED, FOR THE LIVERPOOL MARKET, a quantity of good PINES, not under 2 lbs. each. Forward immediately.—GEORGE TAYLOR, Jun., Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

TO NURSERYMEN AND OTHERS.
RHODODENDRONS WANTED.—Two Thousand to Three Thousand Plants of various sorts and sizes, to be delivered to London Bridge or the Tonbridge Station.—Address, with Catalogues and prices, to A. Z., 67, Borough, London.

THE AMERICAN VEGETABLE MARROWS, advertised in the *Chronicle*, January 26th and February 2d, may be had in packets, mixed, for 13 stamps, or separate for 18 stamps.—A. B., 6, Munden Street, Hammersmith.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

TO THE SEED TRADE.
G. TABER, SEED GROWER, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

NURSERY TREES.
FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have on Sale a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL PLANTS, SHRUBS, and FRUIT TREES, at very moderate prices. Catalogues may be had on application.—Feb. 16.

HOWDEN, BROTHERS, Inverness, N.B., offer TWO YEAR SEEDLING NATIVE SCOTCH FIR, and TWO YEAR SEEDLING LARCH to the Nursery Trade at very moderate prices.

NURSERY TREES.
FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have on Sale a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL PLANTS, SHRUBS, and FRUIT TREES, at very moderate prices. Catalogues may be had on application.—Feb. 16.

TO BE SOLD CHEAP, ENGLISH YEWS.—Several Hundreds of the above trees from 3 to 6 feet, very fine.—Apply to Mr. SURMAN, Nurseryman, Lavender Hill, Wandsworth Road.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6*s*. per dozen. FLUKE KIDNEY POTATO (true), 3*s*. per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.
Catalogues now ready.

THE FLUKE KIDNEY POTATO (TRUE).
JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is [illegible] enabled to offer the above excellent POTATO, which, ha[illegible] been raised in Middleton, may be depended upon as GE[illegible], and from the ORIGINAL stock. May be had of a medium [illegible] planting, at 3*s*. per bushel of 56 lbs.

GENUIN[illegible] [illegible]UKE KIDNEY POTATO.
FRANCIS A[illegible] [illegible]RTHUR DICKSON AND CO., SEED MERC[illegible] 14, Corporation Street, Manchester, offer the above very p[illegible] and hardy Potato, carefully picked for sets. Price may be h[illegible] application.

FLUKE K[illegible] [illegible]EY POTATOES, 5*l*. per ton; in quantities les[illegible] han 1 ton, 6*s*. per cwt; sacks, 1*s*. per cwt. The above are grow[illegible] expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.
HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

ASH-LEAF KIDNEY POTATOES, one year, from Yorkshire, carefully selected, 8*l*. per ton; SHAWS, very first rate stock, 4*l*. 10*s*. per ton; REGENT PLANTS, 4*l*. per ton for cash, of W. G. K. BREAVINGTON, Vicarage Farm, Hounslow. (Sacks 2*s*., each holding 2 cwt.)

BEST POTATOES IN THE WORLD FOR SEED OR CONSUMPTION.
SODEN'S EARLY OXFORD, 200 sacks, to be sold immediately.—Apply to Mr. MACE, Calcot, near Reading.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

SEED POTATOES.
FREDERICK LETTS, Headley, near Epsom, has the following kinds to dispose of:—

Ash-leaved Kidney, true	...	...	5*s*. per bushel.
York Regent „	...	...	3*s*. „
Early White Shaw „	...	...	3*s*. „

Apply as above, or to JAMES CHAMBERLAYNE, Agent, Hungerford Wharf, Strand.

SEED POTATOES.—The following sorts, from true and healthy stocks, may be had as below, namely:—Kidney, Fiftyfold, Fluke, Lapstone, and Painted Lady, Round. Early Oxford, Early Frame, Early Cockney, Fortyfold, British Queen, Early Shaw, York Regent, and Purple Regent.—Prices on application. A descriptive, historical, and comprehensive Catalogue of Flower and Vegetable Seeds forwarded on receipt of three penny stamps. A remittance with order from unknown correspondents.—HOOPER & Co., Covent Garden Market.

GARDENERS' CHRONICLE ONE PENNY

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).
Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.
Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s* 6*d.* to 21*s.*
Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).
Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.
Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.
Libocedrus gigantea, 10*s.* 6*d.*; about 2 feet, 31*s.* 6*d.*
Pinus Cembra, 3 to 4 feet, 5*s.*
" Douglasi, 3 to 4 feet, 3*l.* 3*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*
" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).
" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.
Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.
Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to
Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*
Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.
Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.

Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l.* per 1000.
" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.
" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.
" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.
" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.
Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s.*, to 24*s.* per dozen.
Hardy Heaths, superior collection, 35*s.* per 100.
Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. Waterer feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

CHOICE PLANTS, ETC.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants, in large and small 48-sized pots, at 12*s.* and 15*s.* per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, ignescens, Lateritia grandiflora, Conqueror, Emily, Decora, Rosea punctata, carminata.
CAMELLIAS, in choice new kinds, without bud, 21*s.* per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per dozen; smaller ditto, 9*s.*
ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen. (A List of these will be found in our Advertisement of Dec. 1.)
GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*
EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.
STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen.
CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.
PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.
PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 3*s.* 6*d.* each.
PANSIES, a fine collection of all the new and first-rate flowers, 9*s.* per dozen.
DEUTZIA GRACILIS, fine strong plants for forcing, 9*s.* per doz.
LILY OF THE VALLEY, strong for forcing, 5*s.* per 100.
PÆONIES, a choice collection of 20 new varieties for 20*s.*
ROCKETS, double crimson (strong), 9*s.* per dozen; the old double pure white ditto, 3*s.* per dozen.
HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds including those adapted for rock work, 6*s.* per dozen; 30*s.* per 100.

CHOICE FRUITS, WARRANTED TRUE TO NAME.

				Per dozen.—*s.*	*d.*
APPLES,	Standard, in best selection, good heads		... ...	9	0
"	Dwarf	ditto	ditto	6	0
"	Trained	ditto	ditto	30	0
PEARS,	Standard	ditto	ditto	12	0
"	Dwarf	ditto	ditto	8	0
"	Trained	ditto	ditto	30	0
PLUMS,	Dwarf	ditto	ditto	9	0
"	Trained	ditto	ditto	36	0
PEACHES, dwarf trained, in fine strong plants			... 36*s.* to	60	0
NECTARINES, dwarf trained			ditto ... 36*s.* to	60	0
APRICOTS		ditto	ditto ... 36*s.* to	60	0
CHERRIES, standard, in fine variety			ditto	12	0
"	dwarf	ditto	ditto	9	0
"	trained	ditto	ditto ... 36*s.* to	42	0

GOOSEBERRIES, 25 of the finest varieties by name (good bushes) selected for size and flavour, 30*s.* per 100; 4*s.* per dozen.
CURRANTS, improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4*s.* per dozen; Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6*s.* per dozen: these are the most desirable kinds in cultivation, and are highly recommended.
RASPBERRY FASTOLFF (True), strong well-rooted canes, 15*s.* per 100; Large White Raspberry, 24*s.* per 100; New Monthly Fruiting, 20*s.* per 100; Belle de Fontenay, 6*s.* per doz.

ASPARAGUS, Giant, 2 years, per 100	... ...	2*s.*	6*d.*
" " 3 years	"	3	6
" " extra strong, for forcing, per 100	.	5	0
RHUBARB, Myatt's Victoria	... ... per doz.	8	0
" " Linnæus	... ... "	8	0
" Mitchell's Royal Albert	... ... "	8	0
" Hawke's Champagne, new & fine, 2*s.* each	"	18	0
SEAKALE, strong, 2 years, per 100	... ...	6	0
" extra for forcing	"	10	0

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	*d.*
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Standard and half Standard Roses, best sorts, per dozen, 12*s.* to	18	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen .. 12*s.* to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
Fine Pampas Grass, each, 3*s.* 6*d.*; or, per dozen ...	30	0
6 new sorts Mimulus, very fine early flowering	6	0
Cinerarias, fine sorts, to flower early, per dozen	12	0
Fine New Double White, Pink and Blush Pæonys, p. doz.	8	0

New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.

FRUIT TREES.

Fine standard and dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, Plums, and Cherries, grown for pot culture, per dozen...	18	0

Choice Flower Seeds, 18 papers, 5*s.*; 40 do., 10*s.*, free by post.
New General Catalogue of Plants for 1856 can now be had.
Albion Nursery, Stoke Newington, London, Feb. 16.

BALSAMS.

F. AND A. SMITH, Florists, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each: also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white: also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.
"Balsams:—20 plants from F. and A. Smith, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. Lindley, on inspection, said:—
"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."
Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.
"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white: and when we state that many of the flowers measured quite 2½ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. Smith have appointed as Agents:—
Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester
Messrs. F. & A. Dickson & Co., 14, Corporation Street' [Manchester
Messrs. Brown & Austin, Glasgow.

COTTINGHAM NURSERIES—ESTABLISHED 68 YEARS AGO.
HULL BRANCH ESTABLISHMENT, JUNCTION STREET.

MARTIN AND SON'S
CATALOGUE OF VEGETABLE SEEDS

May be had on application, and we trust the low prices there quoted will induce those who have not yet patronised us to give us a trial. Every article is tested, and quality equal to any respectable firm in Europe, we rather flatter ourselves, our firm having been established above half a century, and conducted by Mr. M., Senior, for above 40 years.

SKIRVING'S & MOSS FANG SWEDE TURNIP (own growth), 35*s.* per bushel.
FLOWER SEEDS made up, 16 sorts, 100 seeds of each, for 15 stamps free.
GERMAN STOCKS, 12 varieties, imported, 2*s.* 6 *l.* the collection.
" ASTERS, 8 vars., imported, Truffaut's, 2*s.* 6*d.* the collection.
POTATOES—Mutch's Early is one of the most prolific and best flavoured grown, 6*s.* per bushel of 70 lbs.
Also a fine Collection of Geraniums, good and healthy, 6*s.* to 9*s.* and 30*s.* per dozen. Seedling Cinerarias and Calceolarias, in 4 and 6 inch pots, at 4*s.* and 6*s.* per dozen.

Our General Nursery List may be had on application.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS,
SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c.

FULL PARTICULARS OF THE ABOVE ARE GIVEN IN YOUELL & Co's ADVERTISEMENTS WHICH APPEARED ON THE 2nd FEBRUARY.

ROYAL NURSERY, GREAT YARMOUTH, NORFOLK.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S
CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had gratis on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. A select List of FLOWER SEEDS that are recommended for their superior beauty and novelty may be seen on reference to page 93 of the *Gardeners' Chronicle*.

Plants of the GYNERIUM ARGENTEUM and the new Double White PETUNIA IMPERIALIS can be supplied by the dozen or 100. Price may be had on application.

The following new FUCHSIAS to be sent out in May have, with the exception of the Countess of Burlington, been raised by the eminent cultivator, Edward Banks, Esq., from whom the stock has been purchased:—

EMPEROR NAPOLEON (Banks).—Deep rich scarlet crimson; sepals extra wide, and beautifully reflexed, and of such substance that the flower has the appearance as if made of wax: corolla deep violet. This Fuchsia is the largest and finest that has ever been sent out; the size, width, and substance of its petals, with other superior qualities, can scarcely be imagined unless seen on the plant. Price 10*s.* 6*d.*

VENUS DE MEDICI (Banks).—A great novelty, and the most beautiful Fuchsia that has been introduced for many years; tube white, with sepals of a blush pink, or white shaded and striped with pink: corolla deep violet blue, large and beautifully formed: yet the above description will scarcely give an adequate idea of its beauty, as the colour is quite new among Fuchsias, but we have no hesitation in saying it will prove one of the finest varieties for exhibition. The habit of the plant is superior to any other white Fuchsia in cultivation; the flowers are large, well reflexed, and elegantly formed; the sepals are very long, which gives the flower a most striking appearance. Price 10*s.* 6*d.*

DONNA JOAQUINA (Banks).—Scarlet crimson tube and sepals, the latter splendidly reflexed; the tube very short and thick; corolla violet-blue, a striking and novel colour, the substance of which is exceedingly fine, giving it the appearance of a thick leathery substance. Price 10*s.* 6*d.*

COUNTESS OF BURLINGTON (Story's).—Scarlet tube and sepals, elegantly reflexed, with a beautiful pure white corolla: habit of the plant graceful. This may be considered the finest white corolla'd Fuchsia yet sent out. Price 10*s.* 6*d.*

VOLCANO DI AQUA (Banks).—Rich glossy scarlet, with well reflexed sepals; corolla violet, extra large; a wonderful flower for size, and a very free bloomer. Price 10*s.* 6*d.*

CHARLEMAGNE (Banks).—Rich scarlet, sepals well reflexed, with a large barrel-shaped, violet-purple corolla; dwarf habit and free bloomer; very distinct and novel. Price 10*s.* 6*d.*

*** Persons ordering the whole of the above set will have Story's Double White Corolla'd Fuchsia, "Ranunculus-like" given in gratis. This variety, our customers are aware, we were unable to send out last spring on account of the smallness of the stock.

We can with confidence recommend the above Fuchsias as the finest that have been sent out for many years, as having quality, size, and colour far surpassing all others, either for exhibition or ornamental effect in the Conservatory.

Wellington Nursery, St. John's Wood, London.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.—Hedenham Rosary, Feb. 16.

ERICAS.

MESSRS. YOUELL AND CO. beg to submit the following list of choice ERICAS, which can be supplied in good bushy and healthy plants, in large and small 48s, at 12s. per dozen:—

ERICAS.—Aggregata, ampullacea, ampullacea carnumbrata, ampullacea rubra, aristata major, Archeriana, Bandoniana, bicolor, Cavendishi, cerinthoides, cer. coronata, Cliffordi, Coventryana, Devoniana, depressa, denticulata moschata, echiflora, Ewerianа, eximia, exurgens coccinea, Hartnelli, hybrida, hyacinthiflora, Linnæoides nova, L. superba, metulæflora bicolor, ovata, perspicua nana, pinifolia discolor, princeps, propendens, pyriformis, primuloides, rubens, retorta major, Shannoniana (Turnbull), Sindryana, tricolor, tri. rubra, umbellata, ventricosa alba, v. alba tincta, v. breviflora, v. carnea, v. coruscans, v. curta ruba, v. densa carnea, v. dependens coccinea, v. fasciculata longiflora, v. f. rosea, v. f. superba, v. globosa, v. hirsuta, v. magniflora, v. perspicuoides, v. superba, v. tumida, v. tenuiflora, Vernoni, Ver. superba, verticillata, vestita tenuiflora, v. coccinea, v. c. tenuiflora, v. rosea, viridiflora, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

All orders of 2l. and upwards are delivered carriage free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

CHOICE FLOWER SEEDS.

W. THOMPSON, Tavern Street, Ipswich, Author of the "Gardening Book of Annuals," favourably noticed in the *Gardeners' Chronicle* for August 18, 1855, begs to offer the following selection of NEW or RARE SEEDS from his Catalogue, all of which can be highly recommended, and will be sent post free.

	s.	d.
Adlumia cirrhosa, rare	0	3
Æthionema cordifolia, very pretty dwarf rock plant	0	3
Ageratum conspicuum, pretty new white species	0	6
Alonsoa Warczewiczi, light scarlet, distinct new species	0	6
Calandrinia umbellata, beautiful dwarf hardy annual	0	4
Centranthus macrosiphon albus	0	6
Delphinium micans, highly recommended, flowers first season	0	6
Dracocephalum grandiflorum (true)	0	6
Eschscholtzia tenuifolia	0	6
Eutoca viscida alba, 50 seeds	1	0
Glossocomia clematidea, interesting new hardy Bellwort	1	0
Ionopsidium acaule, beautiful for pots or rockwork	0	4
Linum grandiflorum (true)	0	6
Lupinus subcarnosus, very beautiful deep violet and white, 50 seeds	0	6
Mulgedium Plumieri, violet blue, very pretty border plant	0	3
Microsperma bartonioides, fine pot annual	0	4
Œnothera anisoloba (white)	0	2
Ononis matrix, very pretty, sp., yellow and red, rare	0	6
Phalacræa cœlestis, very pretty new annual, blue	1	0
Pharbitis limbata (true)	0	4
Sabbatia campestris, very beautiful rose, with yellow eye, 200 seeds	1	0
Salvia argentea, very ornamental species, white and blue	0	6
Silene Bergeri, pretty new species, deep rose	0	3
Trichonema speciosum, beautiful dwarf bulb, deep red	0	3
Whitlavia grandiflora	0	4

And many other rare and interesting Seeds.

A Priced Descriptive Catalogue, arranged according to the Natural System, and acknowledged by all who have seen it to be the best yet published, sent post free on application.

UNEQUALLED NEW MELONS.

THE FOUR BEST SUPERB VARIETIES THAT HAVE EVER YET BEEN SENT OUT.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2s. 6d.

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon; it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit; flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2s. 6d.

Also Monro's Crystal Palace Hero. This was awarded the first prize for the best and heaviest hybrid Persian Melon; 2s. 6d. per packet.

Monro's Golden Gauge Melon was awarded the first prize for the best flavoured Green Flesh variety at the Crystal Palace; 2s. 6d. per packet.

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each of the four varieties will be charged 7s. 6d., or two packets of either kind for 4s. A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.

Per Post prepaid.

		Per packet.— s.	d.
PANSY, saved from	100 of the best varieties, by name	2	6
POLYANTHUS "	50 " "	2	6
VERBENA "	50 " "	2	6
HOLLYHOCK "	60 of the most superb kinds "	2	6
CALCEOLARIA "	24 " spotted varieties	2	6
GLOXINIA "	30 of the best varieties	2	6
DAISY "	50 of the new Belgian vars., by name	1	6
ANTIRRHINUM "	20 best named varieties	1	0
ANEMONE, from the most showy and brilliant kinds		1	0
30 packets of New Choice Flower Seeds, per post, free for		5	0

YOUELL & Co., Royal Nursery, Great Yarmouth.

WILLIAM WOOD AND SON are offering SEEDLING FOREST TREES as under. Prices will be furnished on application.

1 year Pinus austriaca.	1 year Birch.
1 year " pinaster.	1 year Ash.
2 year Scotch Firs.	1 & 2 year Ailanthus.
2 year Hollies.	1 year Chinese Arborvitæ, &c.
1 year Alder.	

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	12s. to 18s.
DWARF STANDARD DO.	18s. to 24s.
CLIMBING AND NOISETTE ROSES, named	9s. to 12s.
CLIMBING ROSES, mixed, for covering banks	4s.
DWARF ROSES, on own roots, mixed, not named	4s.

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3s. 6d. each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6-inch pots, for forcing, exhibition, or greenhouse culture, 24s. per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12s.

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1s. each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1s.; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1s. per stone of 14 lbs.

100	Fine named Hardy Herbaceous Plants	£1 10
100	" " Alpine Plants	1 10
100	" " Shrubs	2 10
100	" " Cape Heaths	4 10

Fine blooming plants Epacris, 12s. per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

BEARING TRAINED FRUIT TREES.

THOMAS JACKSON AND SON having the greatest extent of Wall in the trade, are enabled to offer at moderate prices the under-mentioned FRUIT TREES trained for Walls or Houses:—

DWARF TRAINED PEACHES, 7s. 6d each.
" " NECTARINES, 7s. 6d. each.
" " APRICOTS, 7s. 6d. each.
" " GREENGAGE PLUMS, 5s. each.
" " MORELLO CHERRIES, 4s. each.
STANDARD TRAINED PEACHES, 10s. 6d. and 15s. each.
" " NECTARINES, 10s. 6d. each.
" " APRICOTS, 10s. 6d. to 21s. each.
" " PLUMS, 5s. and 7s. 6d. each.
" " MORELLO CHERRIES, 5s. each.

The above are all set with Flower-buds, and are capable of bearing Fruit this season.

Fine Trained Trees of the usual nursery size, from 2s. 6d. to 5s. each.

STANWICK NECTARINE, Standard Trained, 10s. 6d. each.
KAISHA APRICOT, Dwarf, 2 Years' Trained, 5s. each.

Nurseries, Kingston-on-Thames.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leas, SUTTON'S Renovating Grass Seeds may be sown with great advantage *in all such cases.* PRICE REDUCED TO **9d.** PER POUND.

SUTTON & SONS *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with their orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit every description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—*FREE DELIVERY.—All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

TO THE TRADE.

WILLIAM E. RENDLE AND CO. have several Tons of the following Seeds to dispose of *at the lowest market prices.*

LONG RED MANGEL WURZEL | YELLOW GLOBE do.
RED GLOBE do. | WHITE BELGIAN CARROT
ORANGE JELLY FRUIT.

Prices on application to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

All NEAT *and in the same condition as received from the Growers.*

GARDEN SEEDS SENT CARRIAGE FREE BY

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, according to the following scale:—*All orders above £1 will be sent carriage free to any Railway Station between Plymouth and Paddington.*

All orders above £2 will be sent carriage free to any Station on the Broad Guage Railways, to any market town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.

All orders above £5 will be sent free of carriage to any Railway Station in England and Wales, and to any Port in England, Wales, Scotland, and Ireland.

For further particulars see "RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY," to be obtained from WM. E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

CARTER'S PROLIFIC RASPBERRY (true) 6s. per doz.

COOK'S NAPOLEON, EUGENIE, and RAE'S PRINCESS, three of the best six Dahlias coming out, 10s. 6d. each.

COOK'S four new HOLLYHOCKS, 20s. the set.

IRIS PUMILA (sky blue and very dwarf), 6s. per doz.

The above are consigned to Mr. GLENNY, Horticultural Agent, Fulham.

GLENNY'S IMPROVED BALSAM, the best ever produced (600 references), six classes, 37 stamps; mixed, 13; Sulphur Stock, 13 or 7; large flowering mixed, 13 or 7. The best Twelve Annuals, 3s. Orders and subjects for sale received as above.

GLENNY'S COMPANION FOR ALL THE ALMANACKS, with Portrait, 1s., 1st March.

PLANT IN FEBRUARY!

CAREY TYSO, FLORIST, Wallingford, Berks, begs to offer Choice RANUNCULUSES and ANEMONES, suitable for planting at this season, in selected assortments as under:—

RANUNCULUSES, 100 splendid named sorts, 40s. to £4	0	0
" 25 superb new seedlings	1	10	0
" 100 fine mixtures, 8s. to	1	0	0
DOUBLE ANEMONES, 50 fine named sorts, 10s. to	0	13	0

IMPORTED GERMAN SEEDS, of the best quality, in named assortments, 1s. to 2s. 6d. each—Asters, Balsams, Stocks, Larkspurs, Poppies, Wallflowers, Zinnias, &c. Choice Annuals, 25 packets per post, 5s.

General Descriptive Catalogue of Florists' Flowers and Seeds for 1856 may be had for one label.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.—27, Great George Street, Westminster.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 16, 1856.

SEVERAL correspondents ask whether they can be charged with a TAX of 10s. 6d. each FOR UNDER-GARDENERS; surcharges to that amount having been made by the surveyors of their districts. A, for instance, living in Sussex, says—"I keep a gardener and employ in my garden two labourers, who know nothing about gardening, and merely roll, rake, dig, and perform the usual rough labour of the place. I made a return of my gardener, as usual, but the surveyor surcharges me with 10s. 6d. each for the two labourers. Am I really liable to the tax, which was never levied before?" This being a matter which concerns most especially the readers of the *Gardeners' Chronicle,* we have made the necessary inquiry, and we find the following to be the present state of the law.

In the last act passed for the regulation of certain Duties of Assessed Taxes (16 & 17 Vict. c. 90) is the following clause:—"The said duties on gardeners [namely, 1l. 1s. if above 18 years of age, and 10s. 6d. if under] shall extend to every gardener who shall have contracted for the keeping of any garden or gardens wherein the constant labour of a person shall be necessary, *or when a person shall have been constantly employed therein,* to be paid by the person for whose use and in whose garden such

gardener or person shall have been employed; provided that no person shall be deemed to be a gardener unless the whole or the greater part of his time shall be employed as a gardener in a garden requiring the greater part of the labour of one person; provided also that any person employing *any under gardener shall be chargeable for such under gardener at the rate of* 10*s.* 6*d. only.*" Such are the words of the act.

It is, therefore, evident that for every under-gardener his employer must pay 10*s.* 6*d.* per annum. But what is meant by the words "Under-Gardener?" This the act does not explain. We should have supposed that an under-gardener would have been held to be a person skilful in gardening, but subordinate to the chief gardener, such as a foreman, an apprentice, a man employed to prune trees, or sow seeds, or perform some other of the many operations called horticultural; by which he is distinguished from a mere labourer, who only knows how to mow, or dig, or drag a roller, or carry fruit and vegetables to the house. But in this it appears that we should have been mistaken. It seems that the word under-gardener, within the meaning of the act, includes every man above 18 years of age employed in a garden under a gardener. That this is so is now placed beyond a doubt by the following decided cases:—

No. I.—At a meeting of the Commissioners of Land and Assessed Taxes held at Hanmer for the Division of Maylor, in the County of Flint, on the 4th day of September, 1854, for the purpose of hearing appeals against first assessments of Assessed Taxes for 1854.

Sir John Hanmer, Baronet, appealed against assessment made upon him for two under-gardeners. Appellant stated that he only kept one gardener, at an annual salary, and that the other two men employed by him in his garden were labourers not in receipt of annual salaries, but paid weekly wages at the rate of common agricultural labourers of the district; consequently, he contended, they were not under-gardeners under the meaning of the Assessed Tax Act of last session. Appellant is assessed for one gardener and two under-gardeners.

The surveyor objected and stated the labourers in question were in his opinion assessable as under-gardeners.

The Commissioners relieved appellant from assessment, and the surveyor demanded a case for the opinion of Her Majesty's judges, which we have stated and signed accordingly.—*Joseph Lee, Thomas W. Lee,* Commissioners.

Judgment.—We are of opinion that the determination of the Commissioners is wrong.—*Wm. Wightman, T. J. Platt, Samuel Martin.* 14th December, 1854.

No. II.—At a meeting of the Commissioners of Land and Assessed Taxes, held at the Crown Hotel, Faringdon, on the 30th September, 1854, for the purpose of hearing appeals against the first assessments for the year 1854-5.

The Right Honourable Viscount Barrington appealed against a charge made on him for four under-gardeners, whom he considered as labourers, and who were engaged in the garden assisting, and under the management of the gardener; they were paid weekly wages, knew nothing of the management of a garden, and were frequently changed in the summer months, and therefore could not be termed under-gardeners as meant by the act of Parliament, but that under-gardeners were persons skilled in gardening, and who might take upon themselves the charge of a garden in the absence of the head gardener.

Mr. Webber, the surveyor, contended that as these men were employed in the garden, lawn, and shrubberies, under the direction of the head gardener, they were assessable as under-gardeners at 10*s.* 6*d.* each, but we, the majority of the Commissioners present who heard the said appeal, being of his lordship's opinion relieved him from the charge. The surveyor being dissatisfied with the decision requested a case for the opinion of her Majesty's judges, which we hereby state and sign accordingly.

The same case will govern the charge made upon Sir Robert Throckmorton, Baronet, who was relieved by the Commissioners from four under-gardeners.

Given under our hands this fourth day of December 1854:—*G. Butler, George Mantell, Thos. Belcher, Geo. F. Crowdy,* Commissioners.

Judgment.—We are of opinion that the determination of the Commissioners is wrong.—*Wm. Wightman, T. J. Platt, Samuel Martin.* 14th December, 1854.

No. III.—At an adjourned meeting of the Commissioners of Assessed taxes for the hundred of Wootton, in the county of Oxford, held in the Town Hall in Woodstock, in the said district, on Wednesday the 26th day of September, 1855, before us the undersigned Commissioners of Assessed taxes for the said district:—

Timothy Abraham Curtis, Esq., Agent to his Grace the Duke of Marlborough, appealed against an assessment of a charge for nine under-gardeners.

He contended that the Duke was not liable, inasmuch as they were not the servants of the Duke, but merely labourers, hired, employed, and under the sole control of the head gardener in the public and private pleasure grounds at Blenheim, who by an agreement,* dated 3d March, 1842, is bound to keep such gardens in order for the sum of 200*l.* per annum, exclusive of his salary of 60*l.* per annum.

Mr. Curtis contended that the Duke could only be called upon to pay duty for the persons he employed, and not for those employed by the head gardener.

William MacMorran sworn:—I am head gardener of the public and private pleasure gardens at Blenheim.

Q. State the number of persons employed by you as under-gardeners.

A. I employ nine men in the summer, six in the autumn, and four in the winter. The average number of boys I employ is about six—age from about ten to twelve years, at 6*d.* and 4*d.* per day, some 8*d.*, only big boys at 8*d.* per day. I agree to keep both gardens in order for 200*l.* a year. I have sometimes nine men and six boys employed at the same time.

Q. State the acreage of the gardens.

A. I cannot say with certainty. I should say about sixty acres. The Duke has full power over all the persons employed in the gardens.

The Commissioners being of opinion that the contract with the head gardener did not interfere with the Duke's liability, *confirmed the charge;* but the Duke being dissatisfied with their decision, demanded a case for the opinion of her Majesty's judges upon the following grounds:—

Firstly, that William MacMorran, my gardener, having contracted with me for a certain fixed sum for the maintenance and due cultivation of my pleasure gardens, and the labourers employed by him under that contract being his servants and not mine, I am not liable to any tax for under-gardeners, and therefore claim exemption. But if the judges should decide that I am liable to the tax on under-gardeners, then—

Secondly, I appeal against the stated number of nine, as according to the average number of persons employed during the year it appears that the number does not exceed six.

The case is hereby stated and signed accordingly.

Given under our hands this 20th day of October, 1855:—*Charles Cottrell Dormer, John Lechmere, J. Burrows,* Commissioners.

Judgment.—We are of opinion that the determination of the Commissioners is right.—*E. H. Alderson, T. J. Platt.* 6th Dec., 1855.

It would seem that these decisions of the Judges are conclusive, and must govern all future cases that may be brought before them.

It is announced that Dr. Gustav Richard, who is about to quit Europe for many years, has determined to sell the valuable herbaria bequeathed to him by his father, the late learned Professor Achille Richard. Of the manner in which the sale is to be effected we are not informed, but we presume that inquiries addressed to Dr. Richard, at 29, Rue d'Enfer, Paris, will receive a reply.

The contents of this vast assemblage are said to be as follows:—

1. *Herbier Général.*—Classed according to the Genera plantarum of Jussieu, about 27,150 species.——2. *Herbier de l'Ile de Cuba.*—Plants sent home by M. Ramon de la Sagra, and types of the Flore de l'Ile de Cuba; about 4470 species (qu. specimens), with many duplicates and triplicates.——3. *Herbier d'Abyssinie.*—Collected by MM. R. Q. Dillon et A. Petit; and types of the Flore d'Abyssinie; 7820 species (qu. specimens).——4. *Herbier du Sénégal.*—Collected by MM. Heudelot et Leprieur, &c.; and types of the Flore du Sénégal; about 900 plants.——5. *Herbier de la Guyane française* et des *Petites Antilles.* Collected by Louis Claude Richard, accompanied by drawings, analyses, etc., executed by L. C. Richard; 2460 species, and a great number of specimens. Also *Plantes de la Guyane française* from M. Leprieur; about 740 species.——6. *Plantes du Brésil.*—From the provinces of Rio-Janeiro, Minas-geräes, and St. Paul; collected by M. Ch. Vauthier; 4060 species and many specimens.——7. *Plantes de la Nouvelle Zélande.*—From the voyage of the Astrolabe, under M. Dumont d'Urville, types of the botany of that voyage.——8. French Plants; about 600 species.——9. Plants of Naples and Sicily; about 600 species.——10. Plants of China.——11. Plants of Bourbon and Madagascar; about 600 species.——12. Sea Weeds, a large bundle.——13. Various Cryptogams.——14.—Herbarium of the environs of Paris; 12 boxes.——15. East Indian plants; one bundle.——16. Cape plants; one bundle.——17. Cryptogams; 37 boxes.

N.B. The North American plants of Michaux, published by the elder Richard, are incorporated in the general herbarium.

ON FROST SPLITTING.—By Dr. Robert Caspary.

(*Continued from p.* 85).

According to these observations, frost clefts occur in trees from 7 inches to 40 inches diameter; but I have also seen frost clefts on some stems of Acer dasycarpum of 2½ inches thickness, and I possess a branch of a Peach tree from the nursery garden of Mr. Lorberg which is only 8 lines thick, and yet has a frost cleft; although I have not included these cases amongst the observations given above because I have not seen the frost clefts in these very thin stems during the time of frost, but only observed them at a later period. The assertion of Schübler ("Observations on the Temperature of Plants," 1826), that thin trees of a few inches only in diameter are not liable to frost splitting is therefore incorrect.

The degree of frost under which these clefts occur is always very considerable. I believe that the most of the above-mentioned trees burst open in the night of the 1st to the 2d February, when the minimum degree was —15° 1 R. (—2° Fahr.). I was much pleased that the date of the splitting of the Horse Chesnut in the pupil gardeners' garden, No. 29, could be so accurately fixed by Mr. E. Bouché. On the night in question, at 10 o'clock in the evening of the 9th February, the thermometer in the Ritterstrasse indicated a cold of —14° 6 (about —1° Fahr.), and the minimum of the night was —18° 9 R. (—6° Fahr.). In the pupil gardeners' garden, which lays more open, it must have been 2° or 3° Fahr. colder. The Horse Chesnut, therefore, burst by at least —15° 6 (—3° Fahr.).

As to the time of bursting, it appears always to take place in the night. It was so with the last-mentioned tree. Mr. Nursery-gardener Fr. Bouché tells me that several years ago a Horse Chesnut tree in his own garden also burst with a loud report, like a pistol-shot, and that was in the night. Mr. Nursery-gardener Reinecke, whose report I shall communicate further on, had occasion to hear the bursting of Cherry trees during the night, when engaged in the heating of his plant houses.

Frost splitting gives an excellent means of observing the twisting of the stems of trees. See Alex. Braun on the oblique direction of the woody fibres, in the monthly reports of the Berlin Academy, August 1854. I have everywhere noted this circumstance.

Frost clefts usually close over in summer by a new formation of wood and bark, and open again in winter. But this does not take place in all cases in every winter. I have this winter observed many overgrown frost clefts in Oaks and Lime trees, which did not break open again. When, therefore, the thickened rim of overgrowth shows several breaks indicating a repeated bursting open and healing over, this does not afford the means of deducing with certainty the year when it first split, even when the intervals between the breaks are of equal thickness, for the cleft may have remained closed one or more winters. In the case therefore of the above-mentioned Oaks, Nos. 1 and 2, the evidence of eight breaks in the border of the clefts still leaves it doubtful whether they first broke out eight years since or earlier.

Among the frost clefts of the 33 trees which I more particularly examined, all except six showed a connection with some local injury which had there weakened the cohesion of the woody tissue. This weakening of the tissue occurred in the following forms:—

1. Weakening by decay.
   1. From a branch rotted away, fig. 1.
   2. From a stump not overgrown, fig. 2 a.
   3. From a bruising of the bark and young wood which had occasioned decay, fig. 3 r.
2. Weakening by a slit in the bark, such as gardeners make to cause the tree to bleed, fig. 4 s, s′, s″.

Also, in those six cases out of 33 where I could not clearly trace a connection between the frost cleft and any local weakening of the tissue, I could not say with certainty that there was no such defect. Hidden from sight, there might have been some decayed spot within the wood, which may have been caused by some stump of a branch long since overgrown, so as to be no longer recognisable, but which at the time when it was not yet closed over, by the admission of moisture and atmospheric air occasioned a spot of decay, imperceptible from without, but affording facilities for frost splitting. Amongst my observations I have found no certain case of frost splitting occurring in wholly uninjured trees.

I may also remark that I have always carefully looked for any ice that might appear in the open fissures as indicating a previous deposit of liquid, and that I have never detected even the slightest trace of it, any more than did Treviranus in the case of Horse Chesnuts and Elms ("Physiologie," vol. ii., p. 701).

The frost lasted till the 25th February; on this day came on a thaw which continued over the 26th and 27th. I was astonished on the morning of the 27th, between 7 and 8 o'clock, to find the frost clefts already closed on most of the trees. Still, those of the thickest trees were not yet closed, although the fissures had become several lines narrower. Gradually, as the milder temperature continued, the clefts of these trees closed also. Here and there a single one still continued to gape, especially the fissure in the Lime tree, No. 22, which, even at the time of writing this on the 28th March, is still open to the width of about two lines.†

(*To be Continued.*)

VEGETABLE PATHOLOGY.—No. CVIII.

423. Veneficium (*Poisoning*). Though several species of the lower fungi are able to endure concentrated poisonous solutions,‡ which would at once be fatal to higher vegetables (420), it is curious that some moulds and other parasitic fungi are peculiarly susceptible of injury from certain inorganic substances, and that solu-

* Copy of an Agreement between the Duke of Marlborough and William McMorran.

Blenheim, 3d March, 1842.

I agree to serve the Duke of Marlborough as gardener, and to undertake the care of the public and the private gardens at the annual salary of sixty pounds, to commence from the first of September last, being allowed to retain all fees for showing the gardens if they exceed that sum, and having the salary made up to that sum if the fees fall below it; and being also allowed a house rent-free, firewood, and vegetables as at present: and I undertake to keep and render, when required, an accurate account of the fees. I also undertake for the sum of two hundred pounds a year from the first day of September last, to be advanced by the Duke for labour, to expend that sum in keeping the public and private gardens in a perfectly neat state and proper course of cultivation.

(Signed) *W. McMorran.*

† In a subsequent note written on the 1st July it is stated to have been then completely closed.

‡ It might have been mentioned that concentrated opium is not free from the attacks of fungi, as *Periconia thebaica.*

tions, as arsenious acid, sulphate of copper, &c., in which some species will grow and flourish, are certainly fatal to others. This fact is of great importance, because those species which are most prejudicial to man are often capable of being destroyed by such applications.

424. It was stated amongst other matters that moulds will flourish in arsenical solutions. Such solutions have been proved by Jäger, Marcet, Macaire and others to be fatal to higher plants, but Jäger has himself witnessed the growth of a mould in water containing $\frac{1}{32}$ of its weight in arsenic. Dr. Pereira communicated to me luxuriant specimens of mould in a solution of arsenious acid, amongst the threads of which were free crystals of arsenic. This latter circumstance, taken in connection with the fact that copper is deposited in a metallic state on the threads of mould generated in a strong solution of sulphate of copper, may perhaps indicate some vital process by which the arsenic and copper are rejected, while those parts of the solution which may be beneficial are absorbed.* It is, however, well known that in those cutaneous disorders which depend upon the growth of parasitic fungi, the surest cure is to impregnate the system with arsenic, which may act partly perhaps as a tonic, but partly as a direct antagonist to the growth of the parasite. A superficial application has not the same effect as the treatment just mentioned.†

425. We have no proof of fungi being capable of existing in solutions of sulphur. Solutions of sulphuric and sulphurous acids though very weak are injurious to vegetation. Seeds indeed will germinate and grow in crude sulphur, but then this substance is insoluble in water.† It is strange, however, that this very substance is a deadly poison when crude, but finely powdered, and much more when quite impalpable, to those parasitic moulds which grow on living vegetables, such as the Hop and Vine mildew, the Peach and Rose mould, and others of a similar character. It is clear that the sulphur must enter into some combination in order to its absorption into the plant, and what this may be is at first sight by no means clear. If, however, it is reflected that oxygen in a nascent state is given off by the plant, and ready therefore to enter into combination with any substance for which it has affinity, it may readily be conceived that in that condition it may combine with the sulphur to form sulphurous acid, and so prove fatal to the mould, while the hardened cuticle of the leaf does not suffer. Thus fumes of sulphur, or sulphurous acid, may effect the same end in a closed building, as, for example, a grape-house, but they are not to be used without caution; and on the same principle fermentation, which depends upon the growth of a fungus, is arrested by racking off the fermenting fluid into a sulphured cask. A few grains, again, of sulphite of soda put into a bottle with a fermentable juice are equally efficacious, as the acid decomposes the salt, which evolves sulphurous acid (Pereira under *Soda bisulphis*). Bisulphite of soda has also recently been used with success in the treatment of those diseased states of the stomach in which the growth of the curious vegetable production Sarcina ventriculi is one of the most prominent symptoms.

426. The most effectual way perhaps of applying sulphur, and the most permanent, is that adopted by M. Becquerel. A solution of sulphuret of potassium, or sulphuret of calcium, is treated with an acid, and then applied by means of a syringe. A deposit of sulphur is formed on the leaves, which follows every inequality,‡ destroys by means of its decomposition the mould already present, and then prevents the formation of a new crop of fungi. The sulphuret of calcium, without the acid, acts like magic, but is not permanent. Other chemical substances have been employed, but those enumerated are the most promising or approved.

427. Several mineral substances are used to contend against those fungi which attack cereals. Sulphate of copper (blue vitriol), perchloride of mercury (corrosive sublimate), arsenic, chloride of soda (common salt), lime by itself or mixed with sulphate of soda, &c., have all their advocates, and all seem to be useful. Of these the combination of the two last is most efficacious, and the effect to be due to the caustic soda which is set free on the combination of the sulphuric acid with the lime.

428. Another set of fungi is injurious not to living plants, but to their woody parts when employed in domestic architecture or in ship-building. Freedom from damp, and exposure to a frequently renewed atmosphere are excellent preventives, but where these conditions cannot be secured the only remedy is to impregnate the wood with something which will destroy the fungi which live at their expense. Corrosive sublimate and blue vitriol are the best remedies, and if properly applied, completely successful. Where the application can be only superficial it may be necessary from time to time to repeat it. The vapours of sulphurous acid might in some cases be tried for the same purpose with great prospect of benefit.

429. Mould frequently occurs in ink, which is a strong solution of sulphate of iron with nutgalls, constituting a tanno-gallate of iron. The greater, however, the proportion of the vegetable infusion, the more abundant is the crop of moulds. It is certain that a large proportion of sulphate of iron renders soil unfruitful, though there is reason to believe that in small proportions it acts as a tonic. Oxides of iron are said not to be injurious. Iron in some form or other forms an ingredient in the composition of most plants. *M. J. B.*

* It is certain that vegetables by a vital process can effect chemical changes which either surpass man's power or require the most intense agents. They can, for instance, force a substance to enter into combination with another of lower electric affinity than the one with which it is combined. Seaweeds, for instance, decompose the muriate of soda arising from the mixture of chloride of soda and water. The chlorine and hydrogen are in part appropriated and in part set free, while the soda combines with the carbonic acid, thus reversing the order of chemical affinity. See Harvey Nereis Am. Bor. 1, p. 6.

† The common practice of placing a roll of brimstone in water to which dogs have access is perfectly useless on this account.

‡ The action of the acid is capable of explanation in the following way. Supposing the substance employed to be sulphuret of potassium and water, with the addition of sulphurous or hydrochloric acid, we have the following equations:—

$$2(KO, SO, HO) + SO_2 = 2(KO, SO_2, HO) + S$$

$$2(KO, SO, HO) + 2\,HCl. = 2\,KCl. + 2\,HO + SO_2 + 2\,HO + S.$$

In either case sulphur is set free, in the first by the conversion of the Hyposulphurous acid (SO), into sulphurous acid (SO_2); in the second, by the formation of chloride of potassium (K Cl.), and the same conversion. Similar reasons will apply if the substance be sulphuret of calcium.

GREENHOUSE FERNS.

THIS interesting tribe of plants is every year becoming more extensively cultivated. We now begin to recognise beauty in form; once we saw it only in colour. Ferns, I need not say, are remarkable for their elegance and varied shapes, and the minutiæ of their delicate organisation are also extremely interesting. Being fond of plants of this description, and having observed them attentively, I have been led to believe that the following list of species capable of enduring ordinary greenhouse temperature might prove useful. I have cultivated at various times the whole of the plants enumerated, and therefore I do not hesitate to say that they may be grown successfully in houses where artificial heat is employed only during severe frost. Many species will be found less affected by cold than Asplenium Marinum, a plant which I find will not stand in the open Fernery in the gardens here. Those species to which an asterisk is prefixed are what remain of a number of plants which were planted out here two years ago; some of them have been slightly protected by decayed fronds or a few leaves, and they seem to some extent to be hardy. In the list will also be found several plants to which a D is affixed; such kinds require less moisture than the others, and will therefore succeed best in a comparatively dry house. The following is the list alluded to.

* Adiantum assimile, Sw.
* „ cuneatum, Hook.
*D „ hispidulum, R. Br.
„ formosum, R. Br.
„ reniforme, Lin.
„ affine, Willd.
„ pubescens, Schk.
„ setulosum, J. Sm.
D Asplenium attenuatum, R. Br.
D „ furcatum, Swz.
„ palmatum, Lam.
* „ lucidum, Forst.
* „ ebeneum, Ait.
D „ compressum, Swz.
D „ obtusatum, Forst.
„ flabelliforme, R. Br.
D „ monanthemum, Lin.
„ præmorsum, Swz.
„ canariense, Willd.
„ falcatum, Swz.
„ polyodon, Forst.
* „ acutum, Willd.
„ planicaule, Wall.
D „ Petrarchæ, Dec.
* Athyrium umbrosum, J. Sm.
„ axillare, J. Sm. [J. Sm.
* Antigramma rhizophylla,
Alsophila capensis, J. Sm.
Acrophorus hispida, T. Moore
Arthopteris exigua, T. Moore
Balantium culcita, Kaulf.
Cyathea dealbata, Don.
„ medullaris, Don.
D Cheilanthes micropteris, Swz.
D „ spectabilis, Kaul.
D Cheilanthes viscosa, Lk.
D „ cuneata, Lk.
D Cassebeera farinosa, J. Sm.
D „ pteridoides, Presl.
„ hastata, J. Sm.
„ inframarginalis, J. Sm
Cibotum Schiedii, Sch.
„ Barometz, J. Sm.
* Cyrtomium falcatum, Swz.
Davallia tenuifolia, Swz.
„ canariensis, Swz.
„ pyxidata, Cav.
„ bullata
Dictymia attenuata, J. Sm.
Drynaria erioides, J. Sm.
„ diversifolia
* „ Fortuni
„ vulgaris, J. Sm.
* „ Billardieri, J. Sm.
„ pustulata, J. Sm.
„ linearis
Doodia aspera, R. B.
* „ lunulata, R. B.
„ caudata, R. B.
* Diplazium decussatum, J. Sm
Darea bulbifera
„ diversifolia
„ cicutaria
„ flaccida
Dicksonia Squarrosa
„ antarctica, Lab.
„ arborescens, L. Herit.
Doryopteris pedata
Blechnum triangulare, Link.
„ occidentale, Lin.
„ striatum, R. B.
„ australe [J. Sm.
Goniophlebium argutum,
„ sepultum, J. Sm.
„ vaccinifolium
* Gymnogramma Totta, Lowe
* „ leptophylla, Desv.
* „ chaerophylla, Desv.
* „ aurita, Hook.
Goniopteris fraxinifolia
„ prolifera
D Gleichenia microphylla
D „ dicarpa
D Elaphoglossum conforme
D „ squamosum
Hypolepis repens, Presl
* „ rugulosa
Lygodium palmatum, Swz.
„ flexuosum, Swz.
„ japonicum, Swz.
„ articulatum, Swz.
„ microphyllum, Swz.
Litobrochia vespertilionis, J. S.
„ leptophylla, J. Sm.
Lomaria lanceolata, Spreng.
„ nuda, Willd.
* „ Patersoni, Spreng.
„ Gillesi, Hook.
* „ magellanica, Desv.
„ attenuata, Willd.
Lastrea glabella
„ acuminata
„ spinescens
* „ elongata, Presl
„ eburnea, J. Sm.
„ decomposita, J. Sm.
„ decurrens
„ canariensis, Presl
D Mohria thurifraga, Swz.
Meniscium simplex
D Mertensia flabellata, J. Sm.
Marattia elegans, Endl.
* Nephrodium molle, R. B.
„ unitum, R. B.
D Nothochlæna nivea, Desv.
D „ hypoleuca, Kunze
D „ vestita, J. Sm.
D „ marantæ, R. B.
D „ Eckloniana, Kunze
D „ distans, R. B.
D „ lendigera, J. Sm.
Neottopteris vulgaris, J. Sm.
D Niphobolus pertusus, Spreng.
D „ varius, Kaulf.
D „ rupestris, Spreng.
D „ Lingua, Spreng.
Nephrolepis exaltata, Schott.
„ undulata
* Onychium lucidum, Spreng.
D Pycnopteris Sieboldi
Platyloma cordata, J. Sm.
„ flexuosa, J. Sm.
D „ ternifolia, J. Sm.
*D „ rotundifolia, J. Sm.
D „ Browni, J. Sm.
* „ falcata, J. Sm.
D „ calomelanos, J. Sm.
D „ atropurpurea, J. Sm.
Phlebodium aureum
„ triseriale
„ squamulosum
* Pteris longifolia, Sm.
„ cretica, Sm.
* „ crenata, Swz.
„ umbrosa, R. B.
* „ serrulata, Lin.
„ arguta, Vahl.
„ Kingiana, Endlich.
„ tremula, R. B.
„ semipinnata, Lin.
Platycerium grande, J. Sm.
„ alcicorne, Desv.
Polypodium effusum, Swz.
* „ trichoides
„ paradisæ
„ subpetiolatum, Hook.
Polystichum jungens, Presl
* „ proliferum, J. Sm.
„ capense, J. Sm.
„ drepanum, Presl
„ hispidum, J. Sm.
„ falcinellum, Presl
D Scolopendrium Krebsi
* Sitolobium davallioides, J. Sm.
Todea africana, Willd.
„ pellucida, Carm.
Trichomanes reniforme, Forst.
D Woodsia mollis, J. Sm.
* Woodwardia radicans, Willd.

—*C. Barter, Botanic Gardens, Regent's Park.*

Home Correspondence.

How to Treat Plants which have been Dried up, as Orange Trees, &c., received from abroad.—It may perhaps be worth while to detail, for the benefit of the correspondent to whom you gave some advice on this subject a week or two since, the means by which a plant apparently quite dead from drought was restored to vigorous growth. A large Gardenia florida was received in such a condition as to appear worthless. The more succulent part of its stem and branches were withered; its leaves shrivelled up, and the whole aspect of the plant resembled a newly-planted evergreen killed by the March winds. There were many circumstances which rendered it desirable to restore the plant if possible, and what seemed hopeless was attempted, and, as the sequel will show, accomplished. As a preliminary the plant, pot and all, was immersed in a tank of water, sufficiently large to cover every branch. Here it remained until the bark became plump by absorption, and after being removed and the now saturated soil washed from its roots, leaving them as bare as the branches, it was repotted in as small a pot as would conveniently hold the roots, using a compost suitable to the nature of the plant. The entire stem, as well as the main branches, was now enveloped in Moss and kept constantly damp by syringing. Of course the plant was shaded on sunny days. The pot being plunged in a gentle bottom-heat, and a damp atmosphere maintained around the branches, in a short time the leaves began to drop off—a certain sign, under the circumstances, of returning health. Two or three weeks elapsed and tiny buds began to push; leaves and shoots followed, and the plant was restored. True, most of the smaller branches never recovered; nor was that of much moment, as the vigorous growths from their bases more than compensated them. In all cases of this kind very gentle stimulants must at first be given, and these with caution. Heat injudiciously applied, or without the necessary adjuncts, will often accelerate death rather than restore to health; and the same holds good with respect to both bulbs and seeds. The latter, when the vital principle is become dormant by age, will often decay if subjected to the excitement of a tolerably high temperature, when if sown merely in a cool frame they vegetate freely. And so of bulbs: if these are received in a dry and shrivelled condition, the first care should be to restore the lost juices; when this has been accomplished the vegetative principles may be aroused, but not before. I need hardly observe that these necessary precautions are not always attended to, and the consequences are the loss of many plants which might otherwise have been saved. Even in the cultivation of the ordinary Hyacinth this is not sufficiently observed, especially by amateur and lady cultivators. When, as is often the case, the bulbs have lost much of their plumpness, they should either be placed for a day or two in damp sand, or enveloped individually in a piece of moistened flannel, before being placed in the glasses. And even when they are there it is an excellent plan to cover the crown of each with a piece of thick blotting-paper or thin cloth, kept moist by a few threads connected to it, and touching the water below. I have seen the best results follow this plan. *G. W. L.*

Ignorance of Common Things.—It is indeed to be deplored that whilst the clergy and gentry are founding schools in almost every village, and duly providing "trained" masters and mistresses to instruct the rising population in what is generally considered the most necessary branches of learning, that botany, or as your remarks last week have it, "the use of the common things which surround them," should in no shape find a place in their studies; but the mere study of botany from books is not sufficient to bring the minds of young children, such as are usually found in village schools, to understand plants in any useful way; their minds would become bewildered in the maze of technical terms. My impression is that the instruction should consist in simple lectures, illustrated by the things themselves, assisted by a simple question and answer book, got up without Latin or technical terms; and as few schoolmasters or mistresses are at present sufficiently acquainted with the vegetable kingdom to impart such instruction to their pupils, let the patrons of these schools call in the aid of their gardeners, who are, or should be, sufficiently well informed to impart information enough on the subject to lead the minds of the pupils to inquire and desire to know more of things with which they have every day to do; that done, books will be resorted to to feed the growing desire for knowledge, and when such a system gets fairly into practice, such deplorable accidents as you alluded to would doubtless become extremely rare; besides, a knowledge of botany would administer to the enjoyment of life, for at every step the botanist meets something to attract and interest him, at every turn a friend, an old acquaintance in every familiar plant that strikes his eye; silent and unobtrusive, but not the less a friend, it abstracts him for a while from the cares and anxieties of life. *H. Howlett, Haverland.*

Cucumber Disease.—The misapplication of stimulants in my opinion often generates diseases in Cucumbers, such as mildew, canker, gumming, and deformity. The fruit is also liable to bitterness—an ill quality usually removed by increasing the temperature. Even red spider and thrips are not apt to attack Cucumbers in a thriving state. Plants from the same batch of seeds and out of the same pot may not be constituted alike, and may not be alike susceptible of general treatment, and here,

in my opinion, lies the mystery. What is generally known as disease makes its appearance in gummy spots the size of a small Pea, and very often manifests itself on the fruit, while nothing is wrong with the Vines; and under my own observation in its worst form never indicated flagging or want of substance in the foliage. This leads me to think that your correspondent with the lens discovered something else, and not the evil in question. The disease now complained of is in my opinion new, and therefore it is highly desirable that discussion on the subject may be continued until some cure is elicited. *George Westland, Exotic Nursery, Chelsea.*

Daphne Mezereum.—Passing through the pleasure grounds at Bishopthorpe Palace I noticed a remarkably fine specimen of this old but favourite shrub, about 18 feet in circumference, and from 2 to 3 feet in height, uniformly branched to the base. On inquiring the particulars of its situation and growth, I was informed that it had for some years previously occupied a privileged position on the principal Vine border, where it was supposed to have derived its unusual vigour from the surface coatings of manure that have been applied during the winter and spring months. As a fair inference, it seems to have proved a mutual benefit, and I trust that the admirers of spring flowers (and who are not?) will test the efficacy of this fact by endeavouring to restore the wonted beauty of those numerous worn-out and nearly flowerless plants which are almost everywhere to be met with, and it is still more earnestly to be hoped that the present instance of restorative power may be found equally efficacious in bringing into notice some of the widely scattered specimens of that rare and valuable variety of this species, viz., Daphne Mezereum autumnale, now almost lost to our collections. Cultivators of ornamental shrubs will confer a favour by recording the result of the experiment now suggested. *W. Wood, Wolgate Nursery, York.*

Plane Trees.—I have long wished to know something about the different kinds of Plane tree, and am therefore very glad to read the letter from Sir W. Hooker on the subject. Can any of your correspondents say certainly what the large trees about Constantinople are? I have a strong impression that the great trees in the plain of Buyukdere, on the Bosphorus, has leaves like those grown about London, and not the deeply cut ones of what we call the Oriental Plane. I am not so sure about the trees in the court of the mosque of Sultan Suliman. If no one in England can decide this, I think you would have no difficulty in obtaining a small branch with the leaves during the summer, if you should think it worth while. *C. W. Strickland.* [The late Professor Link once assured us that our common Park Plane was a Greek plant. But this was merely an *obiter dictum.*]

Disease of Larch.—In a plantation of some extent in the south of Ireland, 11 or 12 years old, a great number of the Larch have got a twist in their tops. With few exceptions it does not appear till 10 or 12 feet from the ground in the growth of the last year or two. It is quite sufficient to spoil the tree for any purpose needing straightness. In those Fir trees in which it appeared earlier the tree does not seem to grow out of it. Is there any chance of its doing so? Is it an evil known elsewhere or common? The land is rocky—a sandstone, said to be geologically above the old red sandstone. The slope is to the east, and not much exposed. In other plantations more exposed to the S.W. (one bad quarter) there is very little of it. Is it possible a single gale of wind while the shoots were growing caused it? *Anon.* [We think so, or a sudden frost when the shoots were young and tender.]

Discoloured Granite.—I have found the following solution effectual in cleaning discoloured or rusty granite, viz., 1 pint of vitriol to 1½ quart of clean water, laid on with a whitewash brush. Immediately after using the solution wash off with clean water. If this precaution is not particularly attended to, it makes bad worse by blackening instead of brightening. *Alex. Robertson, County Wicklow, Ireland.*

Ancient Oak.—"*Coway Stakes.*"—Botanists are spared the expense, trouble, and bother of drawing one of these from the bed of father Thames, as a fine specimen is now deposited in the British Museum, and doubtless Mr. Franks would give every facility for examining the same, and the microscope would come in very well in this instance. *Centurion, Athenæum Club.*

Monkshood and Horseradish.—I have reflected on your article at p. 67, and I think of offering a prize for the best Horseradish to the cottagers exhibiting at our local Horticultural Show. This may induce some of them to learn the difference between the two plants. I want to know where I can find the best directions for its cultivation. I will have them printed and distributed. And I shall also this year get the best root that can be found in Covent Garden, to show at each of our exhibitions as a demonstrative proof of the power of cultivation, and an object for cottagers and gardeners to rival. Surely the cook who would dress Monkshood for Horseradish would roast a cat if the poulterer brought it to her for a hare. *Diss.* [There is some external resemblance between the crown of the root of the two plants; but the cook should have known she was not scraping Horseradish. The following directions for cultivation are among the simplest:—Trench the ground 2 feet or 20 inches deep in February or March, having the trenches 2 feet wide; the first trench must be taken out 15 inches deep only, and the mould barrowed back to fill up the last trench when the quarter is completed. The bottom of the first trench must now be dug over 5 inches deep, and levelled even; then place a line lengthwise at 6 inches from the side, and plant some crowns of the roots, each cut with an inch or two of its root, at 9 inches apart along the line; when this is done remove the line 12 inches, which will be within 6 inches of the side of the trench, the same as the first, and must be planted in the same manner. When this is done turn over the second trench 15 inches deep upon the roots so planted, which will level the work; dig up the bottom again as before, and plant the sets in the same manner, and proceed thus till the whole piece is finished. According to this method the rows will be a foot apart, and the sets 9 inches distance in the rows. There will be nothing further required from this time than to keep the ground clean and not to suffer any other crop to be grown upon the ground, as the Horseradish will soon make its appearance, and occupy all the surface. Some people drop the set of the Horseradish to the bottom of a hole 1½ foot deep, made with a hoe handle, and fill up the hole lightly with the decayed remains of an old Cucumber bed.]

Arum maculatum and Italicum.—I have never seen A. maculatum in Italy, wild or cultivated. Italian botanists take the splotched variety of Italicum for maculatum, not knowing the true one. I suspect the case of supposed A. Italicum in England to have arisen from a similar mistake as to the unspotted variety of maculatum. A. Italicum is *said* to have been found in Portland, but which variety I do not know; perhaps it was thought there that the starch, or arrowroot bearing roots could not be the common Arum.

Arum Italicum.

α. Spadix always white or yellowish. (Type—leaves large, tall, green *splotched paler.*) Common everywhere in Italy.

β. Spadix, &c., as the type. Leaves ditto, but strongly *veined white;* apparently a garden variety.

Arum maculatum.

α. Spadix *purple*, dark or pale; rarely if ever white or yellow. (Type—leaves short, green, *spotted*, as well as the *spathe* with *purple.*) Common in England.

β. Spadix, &c., as in the type. Leaves lanceolate mixed with the usual arrow-shaped. Usually without spots or splotches.

Arum Italicum seems to occupy an intermediate position between A. Corsicum (tall, leaves uniform green, spathe and spadix pale) and A. maculatum—the only three true typical Arums of Europe.

Rain at Rothamstead in 1855:—

	Actual weight of Rain from Gauge of Area = 1.1000th of an Acre, in	Rain calculated in inches from weight in large Gauge.	Rain in Gauge of ordinary size in in. and 10th.	
	lb. oz. 10th			
January...	135 3 7	0.6	0.13	Rain in 1855 at Chiswick, as given in *Gardeners' Chronicle.*
February.	224 11 7	1.03	0.8725	
March ...	524 13 4	2.32	1.718	
April	92 13	0.41	0.3275	
May	525 12	2.32	2.3125	
June	412 15 3	1.82	1.3125	
July	1577 2 1	6.97	6.48	
August ...	596 3 6	2.63	2.2475	
September	348 12	1.5	1.295	
October ...	1244 11 1	5.5	4.555	
November	559 8	2.47	1.9125	
December.	390 12	1.73	1.3275	
Total	6633 5 9	29.3	24.2355	24.38

J. B. Lawes.

British Ferns.—The following list of species with some of their varieties may be picked up within a radius of five miles of this place. Within that compass the conformation of the ground is admirably suited to the growth of Ferns. In low shady places many of the free growing kinds, such as Lastrea dilatata, Filix-mas, Polystichum angulare, Athyrium Filix-fœmina, Osmunda, &c., attain a very large size, and have a striking and handsome appearance.

1. Polypodium vulgare
2. " β bifidum
3. Lastrea Oreopteris
4. " Filix-mas
5. " β incisa
6. " dilatata
7. " β dumetorum
8. " Fœnisecii
9. Polystichum lobatum
10. " aculeatum
11. " angulare
12. " β subtripinnatum
13. " γ multifidum
14. Athyrium Filix-fœmina
15. " " β incisum
16. Asplenium lanceolatum
17. Asplenium Adiantum-nigrum
18. " β variegatum
19. " marinum
20. " Trichomanes
21. " Ruta-muraria
22. Grammitis Ceterach
23. Scolopendrium vulgare
24. " β multifidum
25. " γ marginatum
26. Blechnum boreale
27. " β See T. Moore's Nat. Printed Ferns
28. Pteris aquilina
29. Osmunda regalis
30. Hymenophyllum Tunbridgense.

Polypodium vulgare when growing in dry shady hedges often has the pinnæ very wavy, and slightly serrated, but whether that characteristic remains constant when removed to the rockery or not I am unable to say. L. Filix-mas has often a frond or two slightly variegated, but it seldom or never (to my knowledge) extends over the whole plant. Several varieties of L. dilatata are to be met with, and may be distinguished easily enough by their difference of aspect, but it is a hard matter to find terms to explain their differences, so as to point them out with anything like certainty. During the past summer I met with a plant of this species growing in a dry shady wood, among tussocks of Molinia cœrulea, with robust triangular fronds of a dark green colour, on which the indusium was quite black. Is this of common occurrence? I have given *dumetorum* as a variety of dilatata, but I wish to know if this is considered the same as Fœnisecii of Moore? Asplenium Trichomanes, although generally said to grow on dry walls, is by no means particular in this respect; indeed in this locality it is more commonly found in hedges. In the fence of the park here, there is a plant growing that is watered with salt water every time the tide flows; yet it does quite as well as if on a wall 20 feet high. Scolopendrium vulgare seldom sports except it is starved or grown very luxuriantly, and when this occurs, even in a slight degree, it often degenerates to the primary form; marginatum I have only seen growing in one place, in a dwarf wall at Enys, where there are several plants of it. Although Pteris aquilina may be seen in different places varying from a few inches to many feet in height, I have never seen a good variety of it. Osmunda regalis is sometimes nipped by cattle, by which much of its otherwise majestic beauty is destroyed. Its matted fibrous roots form an excellent material in which to grow many kinds of Orchids. Polypodium Phegopteris, I have been informed, was found in the neighbourhood of Penryn during the past summer by Mrs. Phillpotts. In addition to the species above enumerated, others grow in the county, such as Adiantum Capillus-veneris, Hymenophyllulum Wilsoni, &c. From the facility with which many of the species may be dried so as to preserve much of their original colour, many people dry specimens to fix on white paper merely for the pretty pictorial effect which they produce when nicely done; some even put them in frames. Facsimiles of them are also taken by means of a piece of oiled paper, smoked over the flame of a candle or lamp. *Frs. Symons, Carclew, Cornwall.*

Quercus sessiliflora.—In the summers of 1853 and '54, I visited Fontainebleau and had long drives through the forest. I was much struck with the appearance of the Oaks, and having forgotten what Loudon had stated about them, as being all Quercus sessiliflora, I could not account for their fastigiate appearance, so different to our old English Oaks. My guide finding that I was a lover of trees took care to show me all the lions of the forest in that way; I took notes at the time of their girth and apparent altitude, but these I have mislaid, and I now only remember that he first of all drove me up to the foot of an enormous tree which he called "Chêne du Roi;" this was a magnificent "stick," with a clean straight bole entirely branchless, and with a compact densely leafed head. He then after a considerable drive brought me up to another, and with his "Voilà, Monsieur," directed my attention to its grandeur; this he called "le Chêne des Deux Frères." I remember it as being very tall, straight, and branchless in its stem; another he pointed out to me as "le Chêne de Ferrand" was equally grand; in fact, I never before saw such straight, clean-stemmed, bulky Oak trees. It did not strike me at the moment that they were the sessile sort, but on visiting another part of the forest where the sandstone rocks lie on the surface in large masses—one place I remember as very picturesque, called, I think, the Valley of Rocks—I found some small stunted trees with acorns, and I then found that the dense-foliaged large Oaks I had been admiring were Quercus sessiliflora. Loudon describes the leaves as being of a "paler green" than those of Quercus pedunculata; this is just the opposite of my impressions, for I remember being attracted to some trees of Q. sessiliflora on the banks of the Dart by their dark green hue, and by their thick, may I call it leathery, appearance. The Fontainebleau Oaks have this character. On coming to the verge of the forest near the town I observed in some of the thickets young trees of Quercus pedunculata, and I fancied that some were hybrids partaking of the characters of both, but I could not find any acorns on them; has any one ever heard of such hybrids? The misfortune is that it is difficult to prove, for before a young Oak tree commences to bear acorns one has generally ceased to care about acorns and Oak trees. As the timber of the sessile-fruited Oak must be used in large quantities in Fontainebleau, and indeed in Paris, your inquiry as to its quality in *Gardeners' Chronicle*, p. 52, can be easily answered by a French timber merchant. Some of your numerous readers will I hope be able to obtain correct information as to its quality through some such source. *T. R., Herts.*

The Sydenham Flower and Fruit Shows.—As you have permitted me to speak in behalf of "the Society" on the good it has effected in times past, suffer me to say a few words on the schedule of prizes just issued by the youthful and already gigantic Sydenham. Though fruit and flower shows may be considered as subsidiary there, yet it requires no argument to prove that they have got a strong hold on the minds of all ranks of the people, and that their tendency is in unison with the elevating and educational character which that noble institution is developing. And it is gratifying to find that the directors are men who are alive to the wants of the age, and that no effort on their part will be wanting to improve on the experience of the past—take advantage of the present, and hold forth all that men of progress ought, and will be ready to support and encourage. The schedule issued for the ensuing May exhibition is an improvement upon any yet published by the older societies. In some cases the prizes are lessened from those of last year, but they are still liberal and are better balanced. A few classes are scratched, and here and there new features are observable. "Class 1. Plants grouped for effect, in or out of flower," is very properly retained; but it may be suggested here that for such grouping the exhibitors should not be provided with an ordinary stage as last season, but with sufficient space on the floor to describe a circle or oval, slightly raised in the centre, and the whole of the pots to be mossed over. The rather severe criticism of last year on the general arrangements as being too scattered will no doubt be avoided. I think it is to be regretted that they have again fixed upon Saturday, and

that the show will only be open for one day. The fruit regulations are excellent. Fruit shows in May will tend to exhibit more skill, as well as to prevent its being said that fruit growers were behind plant growers in any degree. It has been urged that fruit was not in the country, but the same encouragement that brought Roses in pots and other plants which were not in the country before prizes were offered, will also bring fruit; and though the ensuing show may not exemplify this largely, in succeeding years it will be more and more abundant. That this department is not void of attractions to visitors the "crush" in the fruit tent gives ample evidence. I observe that good prizes are offered for various fruit trees in pots. I do not anticipate that many can be brought from the short notice given. Orange trees in fruit might have been added with advantage, and when the fruit is arranged artistically on a level table not dissimilar to the manner it is "set up" for dessert (but very different from the one-sided affair of last year), with the Peach trees, the Grape, the Orange, the Plum and the Cherry tree in pots, tastefully interspersed either in vases or on pedestals—we can easily picture a beautiful sight, and something which is yet to be seen. It appears that this schedule is only the prelude of a much grander fruit display which is to take place in September, when we may reckon on the gardeners from all quarters taking part in the fray. I say from all quarters, and may I express the hope that our friends in the far north will not longer exempt themselves from taking part in some of the classes, from which there is no obstacle differing much from that which their southern friends have to contend against. Let us take Pines, Melons, Peaches, and Nectarines, &c. These can be packed to send to any distance. We have seen Peaches from Ireland, and compete successfully too; why not Peaches and Pines, &c., from Scotland? The rail has brought distant places near, why not take advantage of it? Methinks I hear them say, "give us your climate." I admit for out-door fruits we have things earlier, but I hesitate not to say that for early forcing they have all the advantages which we possess. Let us therefore see to it that there will be flower and fruit displays at Sydenham commensurate with the liberality of the spirited directors, and worthy of being holden in the precincts of the grandest of all gardens, and in the most splendid of all palaces. *Geo. McEwen.*

Furniture in Gardeners' Houses.—On coming up to the entrance gate of one of our London nurseries the other day, I observed a cartload of furniture which had been brought by a gardener from Yorkshire. The carter was told to take it to the gardener's lodgings, where it will remain till he obtains another situation, when perhaps it will be sent 200 miles into the country. It is well known that when an English gardener leaves a place he has either to drag his furniture about in this way or sell it at a great—sometimes a ruinous—sacrifice. Now, will you allow me to say that this state of things ought not to last, and that if you will lend us your aid we shall see happier days. If a gardener on being engaged by a gentleman modestly moots the idea of having his cottage furnished, the proposal appears so novel and outrageous that it is not entertained; but if you would undertake our cause, methinks many gentlemen would be induced to listen to the suggestion or solicitation of the new comer. You would thus confer a great blessing on poor gardeners, for which I am sure they would be grateful. In Ireland it is usual and general to furnish the houses of gardeners and bailiffs. And why should it not be general in England? A trifling outlay on the part of the employer would cure the evil. Twenty-five pounds would purchase all necessary furniture except bed clothes, which are easily moved about. This furniture would be considered fixtures—permanent improvement on part of the estate, and for which 5 per cent. might be charged in the annual balance sheet. *An Old Gardener.*

Societies.

British Pomological, *Feb.* 4.—(Extraordinary meeting).—Mr. Glendinning in the chair. The subjects of exhibition on this occasion were Pears, Apples, and Grapes. Of the last named fruit Mr. Tillery, of Welbeck, sent bunches of Trebiana and Welbeck Black Tripoli. Concerning the former, Mr. Tillery reported that it was one of the best white late Grapes he had, usually keeping in good condition till the end of March. Like Muscats it was stated to require fire-heat in September and October to get it ripened, while there was sufficient sunshine to give it colour. Mr. Rivers contributed a collection of Pears. Among them were Josephine de Malines, a first-rate variety, very juicy and melting, and will keep till April; Zepherine Gregoire, melting and even more juicy than the last, also a first class sort; Beurré Langelier, large and melting, but not so much so as either of the preceding, compared with which it was regarded to be only second rate; Jean de Witte; Doyenné Gris d'Hiver, a middling good kind; Easter Beurré; Bezi Esperen, said to be an extremely useful kind, well flavoured, hardy, and an abundant bearer, but in some soils liable to crack; likewise Beurré Sterkmanns, a crisp, sweet Pear, but in this instance rather coarse fleshed, and one or two other kinds. Mr. Perry sent a collection of Apples and Pears from the neighbourhood of Spalding. From Mr. Kitto came specimens of Golden Cluster Apple, a good late keeping kind, said to bloom later than most varieties, and also examples of Scarlet Nonpareil. Dr. Davies, of Pershore, furnished what was called Burdon's Reinette, a favourite dessert Apple in that locality, and others, together with a seedling from the Sturmer Pippin, which was, however, inferior to its parent. Mr. Barratt, of Wakefield, sent some Apples and Pears, all of them small in size; but some of them excellent in flavour. Apples and Pears also came from the neighbourhood of Ipswich. Mr. M'Ewen, of Arundel, directed attention to the desirableness of offering prizes at these meetings, a matter which, after some discussion, was left to be settled at a future meeting. Five new members were elected.

Linnæan, *Feb.* 5.—The President in the Chair. H. Christy, Esq., and A. G. More, Esq., were elected Fellows. The following papers were read:—1. "Notice of the habits of Atypus Sulzeri," by Mr. E. Newman. This spider, which was recorded as British by Dr. Leach, had not been found subsequently until last autumn, when it was met with near Hastings by Mr. Brown, of Cirencester, whose observations on the insect and its habits Mr. Newman records. Mr. Brown thinks these rare spiders may be found scattered along the southern coast of England wherever the Hastings sand predominates; this kind of sandy soil being congenial to its burrowing habits. 2. "Note on a Fungus found imbedded in the fens of Cambridgeshire," by the Rev. M. J. Berkeley. In the museum at Kew there is a specimen of Polyporus fomentarius, communicated by the Rev. Mr. Hailstone, from the fens of Cambridgeshire, where it had occurred along with bog Oak, and must have been buried for centuries. The specimen is so perfect as to show the peculiar substance of the pileus, both as regards colour and texture. It perfectly accords with one found in Sikkim by Dr. Hooker. 3. "Notes on Loganiaceæ," by G. Bentham, Esq. A portion only of this monograph was read. The Loganiaceæ, Mr. Bentham remarks, can scarcely be said to constitute a natural order, but rather one of those artificial assemblages which in the present state of our knowledge of plants we are obliged to interpose between some of the great families to receive anomalous genera rejected from them. Our natural orders, with all the improvements they have received from the most philosophical of modern botanists, are yet as dissimilar in definiteness of circumscription and apparent conformity to nature as they are in extent. After some extended philosophical remarks on the limits of natural orders, Mr. Bentham observed, that almost the whole of the Loganiaceæ lie very near to some part or other of the vast field of Rubiaceæ; and he then distributes them into four groups, the Antonieæ, Euloganiaceæ, Fagræeæ, and Gærtnereæ, standing opposite the Cinchonaceæ, Hedyotideæ, Gardenieæ, and Coffeææ, in the group of Rubiaceæ respectively. The remainder of the paper was occupied by critical remarks on the genera, 24 in number, and an enumeration of the species, with characters, &c.

Notices of Books.

Dr. Sandwith's *Narrative of the Siege of Kars* (small 8vo, Murray), told as it is by one of the gallant defenders of the devoted city, will be read by all who take an interest in that country which may be the next scene of warlike operations in the East. The work consists of two parts; in the first the author narrates events up to the time when the city was invested; the second is a diary of the succeeding events up to the day when he reached Batoum, after being honourably dismissed by the Russian General Mouravieff, in consideration of the kindness with which he treated the wounded prisoners who came beneath his medical care. It is difficult to read Dr. Sandwith's account of the causes which led to the fall of Kars without disgust and indignation; nothing can be more clear than that the Allies must take matters into their own hands, if they are ever to recover Asia Minor, one of the richest countries in the world, from the curses of misgovernment and peculation. In this respect the course taken by the gallant Williams will serve as a guide to his successors. How all this was, is, and will be, the reader may learn from Dr. Sandwith's interesting pages. The tale is old indeed and so wants novelty, but it is one that cannot be too often repeated.

The reader will find much to instruct him, besides politics, in the account which the author gives of the climate and productions of this little known part of the world. He speaks in glowing terms of the riches of the mines of copper, argentiferous lead, and coal, of the excellence of the iron of Sivan Maden, between Kharpoot and Diarbekir, which he describes as being highly carbonised and "superior perhaps to any in the world," of the glorious forests, and the general fertility of the land, except on the higher ranges of the mountains, which are almost impassable in winter. Gumush Khané, a place on the road from Trebizond to Erzeroum, is famous, he tells us—

"For a delicious Pear which much resembles the Jargonel. I have heard it surmised that this Pear is of English importation, and is one of the traces of an English settlement of one or two centuries date; this I apprehend to be an unfounded idea, engendered perhaps by national vanity, which will not allow the poor Turk to have even a good Pear of his own."

As to the mountain passes, those who imagine that troops can be taken over them in winter will perhaps change their opinion after reading the following description of what happened to the author in the beginning of December, when attempting to reach Batoum:—

"We at last reach the highest plateau of the mountain; our horses are staggering; each man has been rolling over and over in gullies, and dragging his horse through drifts during the last three hours; we none of us have much strength left, but we all feel it is truly a battle for life. We then come to the worst drift of all: it is a valley in which the snow has accumulated."

"I am scarce able to fight my way through this horrible gulf, and have still more difficulty in saving my horse, which lies helpless on his back, having ceased for a time even to struggle. My left hand and left cheek are dead, apparently; and I sink down gasping and exhausted in the snow by the side of my faithful steed, who has given up the game as lost. A little reflection, and a little recovered breath, however, teach me that life is worth one more effort. At last I rise, and myself and horse are fairly landed on the opposite bank, which, being swept by a fierce wind, is almost bare of snow; and here I lie down again. In five minutes, however, I scramble into my saddle, and turn to look at my followers. My own servant Ismael has escaped, and is standing by my side. He reports that all my baggage is lost, and that one of my horses is perfectly helpless. Some of the other people are still struggling in the snow, but Khurshid Effendi is fairly buried in the drift, and has lost all power of saving himself; he raises his arms like a drowning man, and cries feebly "*aman, aman*" (mercy, mercy). Mehemed, a muleteer, asks permission to try and recover one of the loads, but I tell him to look first to Khurshid Effendi. A stout soldier now rushes forward, and by immense efforts drags the poor man out of the snow, more dead than alive. I direct some men to tie him on the pack-saddle of a horse, which had been saved at the expense of its load. Khurshid's own horse has strayed down the mountain, and is irrecoverable.

"We now reassemble ourselves and turn to face the most frightful hurricane. We ride on over the crest of a trackless mountain, blinded by snow, and half-frozen by cold. After some time our stout Kurd, Mollah Hussein, suddenly pulls up, tells me he is lost, and asks me if he should turn and try to find the road back again. This I know to be a matter of much greater difficulty than it would have been an hour ago. Some of the people cry out, 'Go on,' others, 'Turn back;' but I soon silence this clamour, and tell Mollah Hussein to reflect well for five minutes, and then act for the best, as he is the only man who knows anything of the country. On this the Mollah pushes on, and we follow, hoping to escape, yet fearing that our destruction is still far from improbable. The cold is terrible, and my servant Ismael very drowsy, which disagreeable symptom I never felt. After an hour's ride we at length find landmarks; the Kurd exclaims, "*Elhamdu-li-'llah!* (Praise be to God), the road is clear;" and the words are echoed through the group, and most fervently responded to by myself.

Russia: its Rise and Progress, Tragedies and Revolutions, by the Rev. Thomas Milner (Longmans, 8vo, pp. 500), is a skilful abridgment of the history of that country from the earliest period to the death of the Emperor Alexander at Taganrog. The narrative is easy, the arrangement good, and the facts selected are chosen judiciously. It is by far the best abridgment of Russian history which we have seen, and is most welcome in the present state of our political relations.

We have received a small catalogue called *Notes on Plants of which the Seeds are imported by Geo. Roberts*, but as we do not know what acquaintance Mr. Roberts has with the plants he professes to describe, and he does not say where he finds his descriptions, we can only say to buyers "judge for yourselves." That the statements are not to be implicitly relied upon will be seen by the following extract:—"Crotalaria verrucosa.—A beautiful species with purple, blue, green and white flowers, with anthers of a golden yellow." Now if the reader will turn to the Botanical Magazine, t. 3034, in which he will find this plant figured, he will learn that it is a mean looking Pea-flowered annual, the greater part of whose blossom is white tinged with green faintly stained with lead colour, and with a deep dull purple stain at the end of the wings; no "golden yellow anthers" are visible, those organs being completely concealed, as in most leguminous flowers. In like manner Crotalaria retusa is called "a splendid plant, with very large golden yellow flowers, the standard of which is sometimes a bright purple." We will not complain of the application here of the term *splendid*, for that is a matter of opinion; but we must say that, because a few reddish streaks occur on the back of a petal, to tell buyers that it is sometimes *a bright purple* is not a fair description.

Garden Memoranda.

Holland House, Kensington.—The conservatory here is now gay with Camellias, which are planted out in the borders, and many of them large plants. A specimen of the old Double Striped, quite 15 feet in height, is literally covered with blooms fully expanded; Lady Hume's Blush, a noble bush, has also many fine flowers open on it, while the Myrtle-leaved kind and the Old Double White are not yet in bloom. These last, therefore, form a good succession to the others, and thus by means of Camellias alone this house is kept dressy for weeks together. Arranged along the centre of this conser-

vatory are the noble Orange trees to which we have alluded in former volumes. Many of them are of great size and all of them are in excellent health. They have not been re-tubbed for years, but they are annually top-dressed in spring with old hotbed manure which keeps them in good condition, and at the same time some cowdung and clay mixed is put round the sides of the tubs inside, so as to prevent surface waterings from passing off between the tub and ball without moistening the centre of the latter. This has been found in summer to answer perfectly, but in winter it is removed for fear of its keeping the soil too wet. The tubs in which these trees are growing are set on feet and made to take to pieces, so that the state of the roots can be examined at any time without much trouble; the object kept in view has been however to preserve the trees in health in as small tubs as possible, and therefore when the trees have been found to require more root-room, instead of placing them in larger tubs, the size of the ball has been reduced and fresh soil added, and thus the trees have been induced to content themselves in tubs of manageable dimensions. The plants of Fuchsia coralina on the square brick pillars which support the roof of the house, and which in autumn are covered with flowers from the ground to a height of 15 feet, are at present receiving their winter pruning, which consists in divesting them of all useless spray, and spurring them close in like Vines.

In the open ground two plants of Rhododendron atrovirens are at present masses of small purple blossoms which at this comparatively flowerless time look unusually handsome, and on some Apple trees on the lawn were several very fine bunches of Misletoe, the bright green of which contrasted strikingly with the long leafless branches from which they were suspended. This favourite parasite took possession of these trees naturally; but it may be readily established artificially by merely making slits in the bark and inserting the seeds on the under sides of the boughs, where birds are not likely to pick them out and destroy them. Some young fruit trees in an orchard, which was planted here some six years ago, have borne excellent crops both in this and previous years. The ground in the first instance was old pasture trenched 2 spits deep; but it has all been retrenched this autumn, so that the old turf has been brought again to the surface, and it is expected that the partial root pruning which the trees have thus received will have the effect of checking exuberant growths, and thus render them even more fruitful than they hitherto have been. The flower buds on Apricots on walls are very forward, and should the present mild weather continue, they will soon be open. It may be mentioned, however, that this is rather an early spot.

In the kitchen garden Peas are coming through the ground. The sorts are Sangster's No. 1, Early Frame, and Prince Albert. The first has been found from experience to be the earliest.

Mushrooms are grown here in triangular ridges in the open air. The horse-droppings are placed in the centre, and, after being spawned, are covered with soil in the usual way. Hay is then put over the ridge, and the whole is covered from the weather by means of straw protections. In this way abundance of Mushrooms are secured. A bed put up in September last is at present full of them.

Bedding plants, of which immense quantities are wanted every summer, are wintered here in old Cucumber frames covered with mats. Verbenas and other things succeed well in this way; the tops of such kinds as are found to be scarce are taken off them about this time, struck and hardened off in turf pits, which, like the Mushroom beds, are covered with straw hurdles. These pits are also found to be useful for Early Potatoes, Radishes, &c. The Potatoes are planted on a little bottom-heat of dung and leaves.

The beds in the flower garden have all been dug, in order to prepare them for their summer occupants; in short, the place generally is neat and clean, and has within the last year or two been considerably improved.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—This house should now be nearly as gay as at any period during the whole year. Any Camellias done blooming should, if possible, be removed forthwith to some of the houses at work; a moist atmosphere, a temperature averaging 65°, and a slight shade in bright weather, are the requisites in order to cause them to produce wood freely and large healthy leaves. Stove.—Some little increase of temperature may take place here, and that chiefly as before observed in the afternoon by shutting up early, at the same time using a sufficiency of moisture. Look over the fastenings of Orchids on blocks or in baskets, and renew the wires where necessary. Lay baits for snails and cockroaches, and otherwise endeavour to keep in check all similar pests. Examine and shift all plants that require such attention, and cut back kinds which it may be desirable to increase after flowering, in order to get a supply of cuttings.

FORCING DEPARTMENT.

Late Vineries.—Where it is desirable to have Grapes fresh and plump after Christmas, a house should be devoted to the purpose; and if the kinds selected are the true varieties of St. Peter's and the Barbarossa as black Grapes, and the White Muscat and Charlesworth's Tokay for white ones, cultivators may be satisfied that the desired end will be attained. Numerous writers on this point assert that Grapes should ripen in September to keep well; we have, however, found it very difficult to keep Grapes ripening at that time fresh through January. As our Vinery is very steep, we may perhaps obtain more light in November than some others; but, certainly, we have ripened Grapes in that month of the above varieties (excepting the Barbarossa), which have been equally well coloured and flavoured as those ripened at a much earlier period; and we managed to keep the leaves green and fresh through the greater part of January, by simply covering the borders with warm litter, to preserve the roots in action. We name this, as fresh Grapes and green leaves are a boon at that period. To obtain the above, we shade the Vines, to prevent their breaking before May. Bring on the successional forcing houses, and pay every attention to the regulation of fire-heat, and admission of air. The bunches in the early house will now require thinning, which should take place directly the berries are discernible; aim at doing the work principally at the first operation; do not handle the bunches with dirty hands, nor allow anything greasy to touch them. Keep the house in a moderately moist state, by steaming the heating apparatus twice or oftener daily, but not during sunshine. Peach House.—Go over the newly set fruit, and give them a slight thinning.

FLOWER GARDEN AND SHRUBBERY.

The demand for bedding out plants (in the spring) is frequently greater than the room devoted for their wintering can supply. It will in this case be necessary to commence propagating to make good the deficiencies. For all the soft-wooded and free growing plants a common dung frame, having a slight bottom-heat, will suffice; fill up to within 12 inches of the glass, upon which place 4 inches of dry sandy soil, in which the cuttings may be put directly you can procure a young growth for the purpose. As the display of flowers during the early summer months depends mainly on the health of the stock at planting time, it will save labour add increase the size and healthiness of the plants by turning them out of their pots or cutting pans into low pits or frames; and a light sandy compost will serve for them to grow in, and if 6 inches of this is placed over a very light bottom-heat, the plants will soon make rapid growth; and you will have the advantage of an abundance of cuttings for propagation, if wanted. Calceolarias, Petunias, Verbenas, and such things, answer best for this; but where time and pot room are objects, scarlet Geraniums, and nearly every variety of bedding-out stuff, may be managed on the above plan. Before planting time the plants should be checked by raising them once or twice with a spade. Put in root cuttings, in a brisk bottom-heat, of Bouvardias, and some kinds of Geraniums difficult to strike in the ordinary way, or of which cuttings are scarce to be got. Sow in small pots Maurandyas, Lophospermums, and other plants of that kind to get them strong by May. Keep the pleasure-grounds swept and rolled frequently, to keep down moss.

HARDY FRUIT AND KITCHEN GARDEN.

The Strawberry plantations will now require going over; for the present, however, allow the leaves of last year's growth to remain, as a protection to the crowns; the beds should be cleared of weeds, and a dressing of good rotten dung spread between the rows. We by no means advise a digging between them, but if the ground is firm, a light forking will do good, but only to break the crust. As soon as the pruning of espaliers and dwarf fruit trees is completed, let the ground, if poor, have a surfacing of manure, and be slightly forked over, leaving it rough for the winds of March to dry the surface, when it may afterwards be raked smooth. Pruning of all kinds should now be brought to a close, except Figs, which may yet remain. When Filberts are closely pruned, a deficiency of male blossoms sometimes occurs; in which case stick some branches of the common Hazel, having a crop of catkins on, about the bushes, to fertilise the female flowers. Before Peaches are tied to the walls, they should be dressed with a composition, consisting of soft soap, tobacco-water, sulphur, to which add quick-lime, to give it consistence. Whenever any appearance of scale is found on other wall-fruits, they should be dressed during winter with the above composition. Although both soil and weather are unfavourable for committing seeds to the open ground just at present, still when necessity compels a continuous supply of vegetables to be kept up, means must be taken to overcome both unfavourable seasons and soils. Fortunately for our purpose glass is cheap and timber not very dear, and with such auxiliaries the cultivation of vegetables in unfavourable seasons becomes easier in proportion to the artificial assistance employed. To provide, therefore, against failures in the crops already sown, or where the climate is too cold to trust seeds for the present to the open ground, we advise sowing Peas, Beans, Spinach, &c., in addition to the kinds named in our last Calendar; good early varieties of the former should be selected. They may either be sown in small pots for the more easy transferring to the open ground; or when the quantity is considerable, cut fresh pieces of turf 12 inches long, and 4 or 5 inches wide; turn the Grassy side downwards, and form a channel along the centre of the now upper part, in which sow the crop as you would in the open ground. Place the turves under glass, giving air, &c., as the plants progress, removing the sashes entirely each fine day when the plants are up, to harden them perfectly before planting them out, which, with the turves, require merely a trench being cut with a spade, and all put in, burying the turves about 2 inches.

COTTAGERS' GARDENS.

An important crop for cottagers is the Parsnip, yet it is difficult to persuade them to cultivate it. It is not like the Potato liable to be ruined by disease, all kinds of stock will eat it, and it will succeed on almost any soil. A good way to keep it in winter is to spread over the crowns in November the manure that is intended for the next crop and to trench them out as wanted, leaving the soil in ridges. The ground for Parsnips should be trenched, putting the manure in the bottom, and the seed should be sown in drills 15 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Feb. 14, 1856, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind.	Rain.
Friday 8	2	30.038	29.986	50	45	47.5	43	42½	S.W.	.00
Satur. 9	3	29.972	29.909	60	45	52.5	45	44	S.W.	.00
Sunday 10	4	29.962	29.923	54	41	47.5	46	44	S.	.00
Mon. 11	5	29.861	29.810	53	42	47.5	46	44½	S.W.	.20
Tues. 12	6	29.737	29.375	50	43	46.5	48	45	S.W.	.05
Wed. 13	☽	29.773	29.685	53	43	48.0	48	45	S.	.20
Thurs. 14	8	29.739	29.709	54	40	47.0	48	45	S.W.	.02
Average .		29.869	29.771	53.4	42.7	48.0	46.3	44.3		.47

Feb. 8—Densely overcast; fine; cloudy.
— 9—Fine; exceedingly fine; cloudy and mild.
— 10—Uniformly overcast; cloudy.
— 11—Foggy; rain; overcast;
— 12—Overcast; rain; fine; rain at night.
— 13—Rain; showery throughout.
— 14—Rain; showery; fine; fine.

Mean temperature of the week 9 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Feb. 23, 1856.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17	45.7	31.0	38.4	11	0.32 in.	3	2	2	3	3	6	9	2
Mon. 18	44.5	31.0	37.7	12	0.30	4	2	3	1	4	7	6	3
Tues. 19	44.6	31.1	37.8	11	0.64	5	1	4	5	1	7	4	3
Wed. 20	45.2	30.8	38.0	16	0.51	3	3	3	4	1	8	5	3
Thurs. 21	46.3	32.0	39.1	16	0.20	2	6	3	5	—	7	6	1
Friday 22	45.7	33.3	39.5	13	0.29	3	5	7	—	2	7	5	1
Satur 23	46.8	32.1	39.4	11	0.44	4	5	1	3	—	7	7	3

The highest temperature during the above period occurred on the 21st and 23d, 1846—therm. 58 deg.; and the lowest on the 17th, 1855—therm. 2 deg.

Notices to Correspondents.

Araucarias: *Cavanensis* had better wait till September unless he has a damp climate and can depend upon several wet days after the operation. The letter arrived too late for last week.

Barbe du Capucin: *D L B.* It is blanched Chicory. It is imported every spring from France to Covent Garden Market, where it meets with but an indifferent sale.‡

Bedding Plants: *P O T.* Nemophila atomaria, or Dahlia Zelinda may possibly answer your purpose.‡

British Museum: *E. A.* There must be some misconception. The collections are public property; the officers are paid public servants, and we really do not believe they would dare to do what you suppose them to have done. If you are right, you have a simple remedy; apply to the trustees.‡

Ice Houses: *D.* They do not require ventilation; quite the contrary. Ventilation ruins them.

Legal Questions: *E T.* We make a point of not running the risk of misleading inquirers. We believe that you cannot *legally* remove any tree or shrub whatever, unless you have a special agreement. Why not consult your landlord? If not, you had better be advised by your solicitor.

Mealy Bug: *H.* Yes; but you must give your name and address.‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Sandwich.* It is no doubt Cupressus funebris. It does not agree with the engraving which appeared in our columns some years since, because it is a young one and not old and fruit bearing. It will change its appearance in course of time.—*H W.* Lonicera involucrata.—*C E F.* Polypodium vulgare, *L.*; var. serratum. Moore's Brit. Ferns, Nature Printed, t. 2, f. B. *S.*

Pine-apples: *Ananas.* Your pit looks as if it would answer; you must not, however, sink it too much below ground, and except the place is naturally very dry indeed, a good drain should be made all round it deeper than the bottom of the pit to carry off superfluous water. The distance at which the Pines should stand apart will depend on the sorts and the size of the plants. As a general rule they should not be so close as to cause the leaves to cross one another to any great extent.‡

Potatoes: *Mr. Cridland*, seed grower, of Williton, near Taunton, assures us that he and his neighbours lost their crops by dressing the sets with Jackson's preparation. He says he was an agent for the sale of it, and speaks with authority.

Protection: *T F.* There *will* be some danger of frost, though not much. Why can you not close the sashes at night and open them by day. By all means remove the lights as soon as frost is gone. None of these costly contrivances are better, if so good, as the woollen netting described last year, p. 24, which further experience has proved to answer perfectly.

Railway Banks and Cuttings: *G M E.* We are sorry to say we are unable to understand your drawing. It is scarcely probable that the railway companies would like to incur the risk of depredators and trespassers by covering their wastes with fruit trees.

Red Spider: *Glebe.* Sulphur and water applied with a syringe the moment the spider makes its appearance will probably be found to rid your Gooseberry trees of this pest. The best means of keeping it from gaining a footing at all, however, is to wash the trees with lime and sulphur in winter when the leaves are off them.‡

Sponge Bags: *T P.* These are varnished with some kind of resin dissolved in spirit, and not covered with any solution of glue. Nothing but varnish, (and "Mackintosh" is nothing else,) will answer.

Tuberoses: *J J.* Excellent directions for cultivating these will be found in our volume for 1849, p. 160.‡

Wire: *H P.* Copper is best but dear; galvanised iron does very well, but in either case you must tie your wood in securely. There is much difference of opinion among gardeners as to the use of wire. We prefer shreds and nails as being warmer.

Misc.: *T H.* Turfy loam, leaf-mould, and sand well mixed together, but not sifted, will be found to suit Orange trees perfectly; but for Camellias substitute peat for the leaf-mould.‡—*R S.* Send your address with the advertisement to the office, and we will inform you the price.—*A. B. Worthing.* Will you favour us with your name and address.

THE LONDON MANURE COMPANY have the following ready for immediate delivery:—
CORN MANURES.
CONCENTRATED URATE, for Roots, Grasses, &c.
NITRO-PHOSPHATE, or BLOOD MANURE.
SUPERPHOSPHATE of LIME.

PERUVIAN GUANO direct from importers' warehouses, Nitrate of Soda, Sulphate of Ammonia, and every artificial Manure of known value.

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HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

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The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

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THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

BONE MANURE, PHOSPHATE OF LIME, NITRATE OF SODA, GUANO, GYPSUM, SALT, PEAT CHARCOAL, and all other Manures on sale, at H. J. HUNT's Bone Mills and Manure Works, Broad Street, Lambeth, London. Agents wanted for the sale of BONE PHOSPHATE of LIME, the best Manure for Turnips and all Root Crops.

THE PATENT WOOL MANURE COMPANY LIMITED.—Registered Provisionally under 7 and 8 Vic., cap. 110. With the "Limited Liability Act," 1855, by which the Liability of Shareholders is limited to the Amount of thei Shares.

Offices: 81, Gracechurch Street, City. Manufactory: Deptford.

Capital, 35,000*l.*, in 3500 Shares of 10*l.* each, with power to increase to 100,000*l.* Deposit, 2*l.* per Share.

Trustees.

Apsley Pellatt, Esq., M.P., Staines, Middlesex.
Thomas Luce, Esq., M.P., Malmesbury, Wilts.
Charles Curling, Esq., Clapham Common, Surrey.
R. Henley Payne, Esq., Bordean House, Petersfield, Hants

Directors.

Charles Curling, Esq., Davis Wharf, Southwark; and Clapham Common, Surrey.
Josias Nottidge, Esq., Chemical Works, Locksfields, London; and Bocking Hall, Essex.
Joseph Odling, Esq., Castelnau, Barnes, Surrey.
With three other Directors to be chosen from the Shareholders.

Bankers—The Bank of London.
Solicitors—Messrs. Batty & Whitehouse, 26, Charles Street, St. James's Square.

Consulting Chemist.

Dr. Odling, Professor of Practical Chemistry, Guy's Hospital.

Auditor.

F. D. Lockwood, Esq., 3, Sun Court, Cornhill, London.

Secretary pro tem.

Charles H. Tidbury, Esq.

This Company, as its name implies, is formed to carry on the manufacture of artificial Manures, having as their basis decomposed wool, hair, woollen rags, shoddy and other waste products of wool; together with the preparation of superphosphate of lime, and such other chemical fertilisers as may from time to time be required. The rapidly increasing demand for artificial Manures, and the gradual decreasing stock of Peruvian Guano, render it of the utmost importance to the Farmers of this country that every substitute capable of being turned to account as a substitute for this fertiliser should be brought prominently before them.

For many years woollen rags have been extensively used for crops requiring a large supply of nitrogen, of which they yield in their dry state 17 to 18 per cent. The length of time required or their gradual decomposition in the soil, by which means the apital therein invested remains comparatively unproductive, has, however, tended to prevent their more general adoption. By the process to be used by this Company the objection is entirely removed; and, by an artificial decomposition by means of certain chemical agents, their fertilising properties are at once eliminated, and their action upon the plant rendered immediate.

Although the preparation of the Patent Wool Manure has been entered upon by the present proprietor only within the last few months, the results of the working are sufficient to show the remunerative nature of the manufacture—the return upon the capital employed having been upwards of 25 per cent.; whilst the fertilising properties of the manure have exceeded his most sanguine expectations. The accounts received of its application may be inspected daily at the Offices, where also printed copies of testimonials may be obtained.

The Directors have much satisfaction in announcing that they have secured the valuable services of Dr. Odling, Professor of Practical Chemistry at Guy's Hospital, London; under whose immediate superintendence the Manures will be prepared.

The utmost caution will be observed by the Directors in the allotment of Shares, it being their desire to allot in small numbers, that this Company may obtain the advantage of a numerous Proprietary in the Agricultural districts.

The Company is constituted under the recent Act, limiting the liability of the Shareholders to the amount of their Shares.

From very careful estimates which have been prepared, the Directors are led to believe that not more than 5*l.* per Share will be required during the first 12 months.

Applications for Shares to be made to the Secretary (pro tem.) of the Company, at 81, Gracechurch Street, City; or, to the Solicitors, Messrs. Batty & Whitehouse, 26, Charles Street, St. James's Square.

FORM OF APPLICATION FOR SHARES.

To the Directors of the Patent Wool Manure Company Limited:—

Gentlemen,—I request you will allot me ..... Shares of 10*l.* each in the above-named Company; and I hereby undertake to accept the same, or any less number you may allot me, to pay the deposit thereon, and to sign the necessary Deed, when called upon to do so.

Dated this ..... day of 185

Name in full .....
Business or Profession.....
Residence in full .....
Referee.....

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.

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THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

Trustees.

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Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-General Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.

Directors.

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Deputy-Chairman—JOHN SHARP, Esq., Tower Villa, Queen's Road, Regent's Park.
Edward Bell, Esq., Tottenham, Middlesex.
John Clayden, Esq., Littlebury, Essex.
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Robert Leeds, Esq., West Lexham, Norfolk.
Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
James Odams, Esq., Bishop Stortford, Herts.
John Collins, Esq., Middleton Square, Pentonville,
With power to add to their number.

Bankers—Messrs. Barnett, Hoare & Co., Lombard Street.
Auditor—James Caird, Esq., Baldoon, and 6, Serjeant's Inn, Temple, London.
Solicitors—Messrs. Kingsford & Dorman, 25, Essex Street, Strand.
Secretary and Chemist—James Taylor, Esq., F.C.S.

Offices—109, Fenchurch Street, London.
Manufactory, Plaistow Marshes, Essex.

The Directors of the above Company (many of whom are eminent agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are large consumers themselves of the Blood Manure, their fixed determination being to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully and fairly established fact. Ever since the first introduction of this valuable fertiliser, the demand has always been greater than could be conveniently supplied, and the Patentee has two objects in view in establishing a Company. First, to develope the capabilities of this invention; and second, to protect the farmer from the daily imposition to which he is subjected, by having worthless articles pawned upon him as genuine fertilisers, which have too often made him the victim of designing and unprincipled men.

Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a triumphant answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

Price, delivered at any Wharf or Railway Station in London:—Corn and Grass Manure, 7*l.* 10*s.* per ton; Turnip Manure, 6*l.* 10*s.* per ton; Flax and Hop Manure, 8*l.* 10*s* per ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton: Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

DRAINAGE OF LAND.

MR. J. JOHNSON, DRAINAGE ENGINEER, is desirous to undertake the Drainage of Land by Contract or Commission. Temporary Tileries erected in any part of England, and Drain Pipes manufactured at moderate prices. Every description of Drainage Tools.—Abingdon Street, Westminster.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

TESTIMONIAL TO MR. T. B. WRIGHT.

BIRMINGHAM CATTLE AND POULTRY SHOW.—At a Meeting of the Committee appointed to promote a Subscription for the Presentation of a TESTIMONIAL to Mr. T. B. WRIGHT, in acknowledgment of his important services in originating the Birmingham Cattle Show, and for the valuable assistance he has contributed towards its management, held on Tuesday, February 12, it was resolved—

That the Subscription List be closed on the 1st of March next.

HOWARD LUCKCOCK, Chairman of Committee.
JOHN LOWE, } Honorary
JOHN MORGAN, } Secretaries.

Subscriptions to the Fund will be received by the Treasurer, Mr. John Shackel, Blenheim House, Small Heath; Mr. John Lowe, of the firm of Mapplebeck and Lowe, Bull Ring, Birmingham; Mr. John Morgan, Jun., Cattle Show Offices, 38, Bennett's Hill; and by the Bankers, Messrs. Attwoods, Spooner, and Marshalls, New Street, Birmingham.—Post Office Orders should be made payable to Mr. John Morgan, jun.

YORKSHIRE AGRICULTURAL SOCIETY.—The next ANNUAL MEETING will be held at ROTHERHAM, on WEDNESDAY and THURSDAY, August 6th and 7th, when upwards of EIGHT HUNDRED POUNDS are offered in Prizes for Stock, Implements, Poultry, Flax, Essays, &c. Prize Sheets are now ready, and may be had free on application to the Secretary. JOHN HANNAM, Secretary.

Kirk Deighton, Wetherby, February 16.

The Agricultural Gazette.

SATURDAY, FEBRUARY 16, 1856.

SOUND doctrine and mistaken practice in THE RELATIONSHIP OF LANDOWNER AND TENANT have both lately received striking illustration in instances occurring singularly near to one another, both in locality and in time. Mr. GREY, of Dilston, has lately delivered a lecture on "the Duties of Land-

lords and Tenants," before the Hexham Farmers' Club, in which, although the details of the bargain between the two were not discussed, it was plain that the recommendation given to the former was to abandon, more or less, the strict rights of ownership, in consideration of the higher style of agriculture thereby encouraged in the latter. Leases for long terms of years, and leases of large farms, both of them involving considerable abandonment of the original rights of ownership, were plainly the main points on which Mr. Grey laid greatest stress; and although the details of the lease are to form the subject of his second lecture, not yet spoken, the principles which he already has enunciated obviously tend to the establishment of a tenancy as nearly resembling ownership as may be during the term of a lengthened occupation. That, then, is one side of the picture.

The other side gives us the history of a passage in the existing relations between an owner of land and its occupying tenants in the same county. There is nothing which the Duke of Northumberland has done, in the matter we allude to, which it was not fully competent for his Grace to do. The articles of agreement on which he insists as the only terms on which his land shall be let are quite within his rights as owner; and Mr. Wetherall, his tenant, who has given up his farm rather than bind himself to their performance has no legal grounds of complaint, that we are aware, on account of the loss that he has sustained. The policy of a relationship such as the owner has here insisted on—such as the tenant has declined—is, nevertheless, a perfectly proper topic for public criticism and discussion. The impolicy of old-fashioned articles of agreement, handed down by copy after copy from models of a century ago, stands out boldly and therefore usefully—when, as in the case before us, their proper fruit is borne. No tenant of intelligence and resolution and ability—if he be a free agent—will undertake the cultivation of land except on conditions which permit the exercise of that judgment by which he expects his capital to yield its annual return.

The Duke of Northumberland, just as any other landowner, may, however, refuse to allow the growth of Hemp, Rape, Turnip, or Flax as seed crops. He may require a rent of 10*l.* for every acre above a certain quantity which shall be in Potatoes in any one year—manured with at least 12 tons of manure to an acre. He may require 5*l.* an acre for every acre of arable land on which more than two crops of corn shall be taken to one of fallowing. He may insist that all the dung made each year shall each year be used and spread — that a certain length of fencing shall each year be cut and scoured—that the moles and rats be all destroyed—that twice in every year, at proper seasons, the Rushes, Thistles, weeds, be mown, and Whins and Brambles stubbed up which shall be found growing upon the pasture fields, sides of arable land, and in the lanes and hedges adjoining the premises: and in case the premises are not repaired, the moles destroyed, and the Grass grounds scaled, the hedges and fences properly cut and scoured, and the Rushes, Thistles, and weeds twice mown, and the Whins and Brambles stubbed up within two months after notice by the landlord or his agent, he may employ proper persons to do the same, the expense whereof shall be paid by the tenant, to be recovered the same way as rent and arrears.

It is perfectly competent for the owner of land to require and do all this, or even to descend to still greater detail, and enforce his own mode of cultivation with minuter particularity—connecting every departure from his rule with a severer penalty than any named in the particulars of agreement before us.

All we say is that such a resolution produces its natural fruit when the land as its consequence falls into the hands of an inferior order of men, as to intelligence, capability, and independance. Mr. William Wetherall of Kirkbridge pointed out to his landowner that some of the conditions to which he was thus required to bind himself were impossible of fulfilment—that others were unjust when taken in connection with those on which he had entered to his land. It needed no one to point out that in his case no stringency was needed to ensure good culture—*that* had already been exhibited. His farm but lately had received—its tenant from its owner—the premium as the best cultivated in the district. And the list of names appended to a circular on the subject proves that Mr. Wetherall is esteemed highly in the north of England as an agriculturist of ability and worth.

The dismissal of such men is the natural consequence of attempts to enforce the observance of conditions such as we have described—that consequence has ensued in the instance before us: and it is well to call the attention of landowners and of farmers to such a fully developed case of mistaken practice, for it is an argument of greater weight than words in favour of the sound doctrine taught by Mr. Grey, at Hexham, on the relative duties of landlords and tenants.

The question of Agricultural Statistics may be said to have been at last fairly grappled by English farmers at the meeting of the Farmers' Club last week, when a resolution decidedly in favour of a system "on broad and equitable principles," proposed as an amendment, was adopted by a large majority, after a most interesting discussion, not more remarkable for the spirit displayed by those friendly to the accomplishment of ample annual returns of the kind and quantity of cereal products, than for the admissions and approach to acquiescence of those previously adverse to any general scheme involving a disclosure of the results of each farmer's labours. The introducer of the question, Mr. Williams, acknowledged he was in some measure influenced by the prospect of a compulsory measure, yet admitted he was "decidedly of opinion that no nation ought to continue in ignorance of its capabilities of producing the first necessaries of life," and that "however his brother farmers might dislike to make any of their business or private matters known, the good of the country at large required that once in each year the quantity of corn the kingdom has produced should be known." The plan he propounded contemplated only a statement of the acreage under corn cultivation and Potatoes, assuming that a correct estimate of the produce could not be made. We know that this opinion is largely prevalent, and it is the main argument against any inquiry into the probable quantity of corn grown in each year, but is it not the fact that in each year a nearly accurate estimate *is* arrived at all over the country before the harvest is closed?—and may we not safely assume that if a valuer or an enumerator taking 2000 or 3000 acres should compute too largely, yet that among 1000 or more persons so employed the number under the mark might be expected to fully balance the excess of those counting too much. The estimates need not be completed until the middle of September, by which time many parcels would be tested by threshing so as to sufficiently confirm or raise a doubt upon the aggregate returns. And why should these returns differ from the known quantities of Hops grown in consequence of a duty being paid by each grower? Is it therefore an inquisitorial system? Does any prejudice arise to the cultivators of Hops? And is there any just cause why a similar account should not be rendered by each grower of corn or feeder of stock?

Mr. Sydney, of Peckham, said truly that "*every* farmer was most anxious, above all things, to know the price of corn, and what it was likely to be," and why therefore should every farmer be himself unwilling to furnish the information that would assist others in forming a correct opinion?

We gather from this debate that one and a main step is fully established, viz., that information is wanted even by the farmer, and must be supplied. There is some difference as to the extent to which it should be furnished, and about the means to be employed. It is perhaps not of much moment how much may be at first required, as when once it is fairly carried out so that a close approximation to reality is obtained the advantages will be so obvious, the objections will so thoroughly vanish, that as much knowledge as is requisite for the alleged purpose of the public good will no doubt be cheerfully rendered by most, if not all, agriculturists. And with a little more inquiry and discussion the best *means* will be forthcoming. Intelligent men should be employed, and they must be, if possible, persons conversant with the details of farming business, as if undertaken it should be faithfully and skilfully accomplished—it would then redound to the credit of farmers, and be of infinite service to the country.

We may add that the resolution proposed by Mr. Williams, while it recommended the farmers of England to unite in cheerfully giving the acreage of their crops of Wheat, Barley, Oats, Rye, Beans, Peas, and Potatoes, stated that as regards the acreage of green crops, and the returns of the numbers of different kinds of stock, the Club considered it could lead to no practical result, being of too inquisitorial a character to be entertained, and likely to have an injurious effect on the grower, inasmuch as it would affect the market value of his commodity. As regards the present system of taking the averages of the price of corn—that, it stated, was conducted in so careless and disreputable a manner, that an alteration in the law respecting it is imperatively called for. It recommended that a uniform system of measure for the sale of corn should be adopted and enforced throughout the kingdom, and that petitions to both Houses of Parliament should be got up by the Club, embracing these several measures.

On this Mr. Oakley, of Doughty Street, London, moved the following amendment, which was seconded by Mr. Bidwell, of Ely: "That a system of agricultural statistics, carried out on broad and equitable principles, would be of general advantage to the country: And that the present plan of taking the average price of corn is conducted in a manner so careless and inefficient as to imperatively demand some alteration." The amendment being put was carried by a majority of at least two to one.

The amendment thus carried is more favourable to the progress of the contemplated measure than the original resolution—and its adoption by so influential a body of the Farmers' Club is a great step in advance.

A STEAM-CULTURE REVERIE.—No. IV.

My friend, Mr. Digland (for he will not be displeased at my naming him) reminded me that many of the early inventions for propelling carriages by steam or otherwise—the rack-and-pinion railways, locomotives propelling themselves by crutches, &c.,—were not altogether without their suggestions toward "power" ploughing and cultivating; and that the history of steam culture is therefore bound up to some extent with that of locomotion, motive power, and railwaying in general. But his own collection of schemes includes only such as were specially designed for field work; and my references to other inventions will be merely to illustrate the origin and nature of those that are purely agricultural. Of the amusing diversity of steam coaches intended for common roads,—which threw many a steady-faced nag into a frenzy 20 or 30 years ago, and were expected to help the farmer's teams after they had relieved the roadsters—I found not a single specimen. And indeed my friend's mechanical monstrosities appeared sufficiently appalling without them.

He had firmly embraced the opinion that a steam engine, either of the racehorse or slow cart breed, is too heavy an animal to be employed in merely travelling over arable land, dragging implements behind it; still for the sake of testing the principle, he had not omitted to try the earliest proposed engine purposely adapted for traversing ploughed ground. This was patented by Joseph Reynolds, 9th January, 1816, and without staying to detail what I saw of its performances, which were far inferior to those of Boydell's engine at Carlisle, I must mention one or two original points in its construction. Being mounted upon three wheels it avoids that rack of the carriage-frame upon uneven ground which is occasioned by having two pairs of wheels. By an ingenious system of gearing, the two broad roller-wheels sustaining the principal weight, can be turned in opposite directions, by which means the carriage can turn "on an area of its own length." One roller can also be driven the same way but somewhat faster than the other, for traversing a curved track. The chief feature, however, is that the boiler is suspended in such a manner as to preserve a horizontal position while ascending or descending a gradient. And this involves no difficulty in gearing, as the cylinders, crank-shaft, &c., are all fixed upon the carriage-frame, the boiler alone being moveable vertically,—that is, it is supported upon a bearing at one end and can be raised or depressed at the other, the steam pipe supplying the cylinders having a joint and stuffing-box, to allow of this movement.

Careful not to waste money upon a repetition of bygone experiments, Digland contented himself with relating to me the history of Heathcoat's steam-plough, and also of one or two other similar inventions, although he has manufactured and worked some ploughing machinery of a more novel description. In 1832, Mr. Heathcoat of Tiverton, the well known inventor of the lace machinery, brought out the first steam plough ever put into actual operation, in which the ploughs were drawn by ropes, to and fro between the principal carriage on which the engine was mounted and an auxiliary carriage sustaining a pulley a considerable distance off. The platform carrying the engine with its machinery of wheels and barrels was supported upon an endless flexible floor or railway extended over large drums, in order to prevent its sinking in soft land. This part of the invention was founded upon a very old proposal. In 1770 Mr. R. L. Edgeworth patented an "endless railway." In 1821 Mr. Barry patented a contrivance enabling a carriage to carry its own railway, or rather to take up one pair of running wheels and set down another pair, so as to step completely over a stone or other obstacle, instead of rolling or jumping upon it. Mr. Gordon, in 1822, patented a perpetual railway, consisting of a very large hollow cylinder, within which a locomotive engine was placed, the cylinder rolling when the engine climbed up its internal face as a tub will do when you walk inside it. In 1825, also, Sir G. Cayley patented an apparatus resembling Barry's, a series of friction rollers attached to two endless chains coming successively in contact with the ground, so as to step instead of rolling along the road. All these contrivances, however, as well as Heathcoat's, have been eclipsed for simplicity and easy action by Boydell's "endless railway." Heathcoat's "pulley" was mounted upon a carriage with three broad roller wheels, and was shifted forward at intervals according to the breadth required by the plough by means of a winch turned by hand. This carriage was weighted so as to offer sufficient resistance to the drag of the rope, band or chain from

the engine; but stakes or posts driven into the soil at proper distances and connected with the pulley-carriage by cords or chains were also proposed. The plough itself was double-acting, performing turnwrest work.

The patent also includes another form of engine-carriage, mounted upon three broad rollers or drums, instead of the broad endless bands. The steam-engine, of smaller dimensions and more compact form than the other, propels itself at a comparatively rapid pace, serving as a heavy rolling-machine, to consolidate the soil or crumble clods The steering wheel or roller does not turn upon a transom, but its axis is set at an angle with the axis of the other rollers by means of a rack and pinion acting on only one of its bearings.

In the years 1835—6 this invention was repeatedly tried upon Red Moss near Bolton-le-Moors, Lancashire, under the superintendence of Mr. Josiah Parkes, C.E.; indeed, it was chiefly designed for cultivating such boggy waste lands as are of too spongy a character to sustain the feet of horses; and the engine boiler was purposely constructed for consuming peat fuel. The results were that two ploughs were actuated by an engine capable of working up to 50-horse power; the implement travelled at a speed of 2½ miles per hour, each turning a furrow of fibrous Moss 18 inches broad by 9 inches in depth, and completely reversing the surface. Each furrow of 220 yards in length (between the engine and the pulley) was ploughed in somewhat less than three minutes, so that in a working day of 12 hours the two ploughs could turn over 10 acres. The engine was stationed, or rather slowly propelled itself midway between two pulley-carriages, working one plough on each side; and thus had to advance only 11 yards, while the two ploughs had unitedly travelled 5½ miles, and ploughed an acre of land. The power required for each plough was estimated at about 12 horses; and the weight of the sod operated upon from the point to the heel of the implement was not less than 300 lbs. Eight men were needed for the management of the apparatus, being at the rate of nearly one man per acre. These details are applicable only to the first heavy process of breaking up boggy land; but the deep culture and subsoiling of stiff clays, demanding a great amount of power, would hardly prove less expensive.

But steam-ploughing was proposed not only for the red bogs of Ireland but also for one of our colonies. Mr. Alexander MacRae, a gentleman of great experience in the working of the sugar estates of British Guiana, directed his attention to the occasional necessity for suspending cultivation by manual labour, and in 1839 patented some machinery for tilling by steam power. This was constructed by Messrs. Edington and Sons, of the Phœnix Ironworks, Glasgow, and tried on the estate of Possil, near that city. The cultivated land in Guiana being very flat, the fields are laid out with navigable canals on each side, these running parallel to each other at a distance of from 240 to 360 feet apart. The machinery consists of a steam-engine contained in a punt or iron boat on the canal at one side of the field, and of a large pulley, contained in another punt on the canal at the other side of the field. The ploughs or other implements are secured to a carriage mounted on four large wheels, and to this carriage one end of a rope or chain is attached, which passes twice or three times round a drum upon the engine, then proceeds beneath the carriage to the pulley in the other punt, and after passing round it, returns to the carriage and is there secured. The drum revolving by the power of the engine draws the implement carriage across the field; and on the motion being reversed, the carriage travels back again. The punts are shifted a sufficient distance onward each time the ploughs reach the end of their furrows.

As I have said before, these two proposals, essentially the same in principle but varied in detail to suit particular conditions of soil and locality, have been lately reproduced in a more practicable form, thus rendering any renewed trials of the original designs perfectly needless. In my next paper I shall describe machinery upon which my spirited friend has ventured to bestow some of his pecuniary and other talents. *I. A. C.*

FARM BAILIFFS.

In the *Agricultural Gazette* of the 7th instant, a correspondent, who very modestly terms himself "A Novice," pours into your friendly ear the doleful tale of his perplexities in the pursuit of information as to who are farm bailiffs, or who ought they to be. Having had the misfortune to belong for several years to that very useless class of people, I trust you will kindly permit me to give your correspondent the benefit of my experience so far as it goes, and I hope he will rise from the perusal of these remarks a wiser and more enlightened man on the, at present to him, mysterious subject of bailiffdom.

"A Novice" divides the class of bailiffs into three or four different orders; I would be inclined to divide it into two—first, bailiffs who are required to supply brains and experience for their employers' benefit; and secondly, bailiffs who need not possess any greater amount of intelligence than what is merely sufficient to enable them to act as they are bid, without thinking anything about the matter; the employer in this case engaging to find the brains, whether he does so or not. The first class I am sure "A Novice" will allow ought to be placed on a respectable footing, inasmuch as they are responsible parties; as to the second class, any sort of men who know the difference which exists between a bullock and a cart-wheel will do, provided they are contented to become the patient and uncomplaining scapegoats of their employers' blunders.

As your correspondent writes for the purpose of acquiring information first, as to what farm bailiffs actually are, and next, what they ought to be, it will perhaps be as well if I briefly allude to the different classes or varieties of farm managers which he enumerates. The first he mentions are Scotchmen, whom he considers well enough versed in their national system of farming, but when transplanted to the more genial south, must be acclimatised, and, at the expense of their unfortunate employers, must serve a second apprenticeship in peeping over their neighbours' fields for the purpose of ascertaining how they should farm in England. Now, even at the risk of being considered egotistical by your correspondent, I shall take the liberty of taking my own case as a case in point, and will show you what sort of second apprenticeship I would have served had I derived my professional knowledge, (perhaps that is too fine a phrase for Mr. Novice,) from "a few peeps over the hedges of the fields of the neighbouring farmers to get an idea of their customs." I would have learned that draining to a depth not exceeding two feet was far preferable to going four feet down; that removing Couch grass or any other weed was only incurring unnecessary expense; that drilling or ridging Turnips at fifteen to twenty inches wide, and leaving the plants six inches apart, was a much better plan than ridging or thinning at greater distances; that the perfection of haymaking was to bring it to such a degree of heat in the rick as to make it as brown as possible or even black, provided we did not require to call in the aid of the fire engines to extinguish the flames; that hedges fifteen feet high and having a base of twenty to thirty feet wide was a beautifully rural prospect; that it was more economical to keep four lumbering horses yoked in line to do the same amount of work that two smart animals yoked abreast would accomplish; that ploughing should never exceed three inches in depth; that Turnips and straw should invariably be sold, instead of converted into manure on the farm where they were grown; that—but in short, I should only be occupying too much of your space, and trying your patience, were I to enumerate all the lessons I should receive by peeping over the hedges. The sample I have given is surely quite sufficient to convince even "A Novice" of their immense utility. Your correspondent next mentions a class "said to be numerous," a class of clodhopping exquisites, redolent of Macassar and brilliant in patent leather boots, kid gloves, Brummagem jewellery, and who, Ducrow-like, scour the country bestriding "two or three horses." During twenty years' experience I have mixed with all kinds of farm managers, and I must say I have never yet met with a specimen of this "said to be numerous" class; and unless existing only in the verdant imagination of "A Novice," I would strongly recommend that the very first occasion on which he meets with one answering the description, he proceed at once to bag the rara avis, and forward him to the Sydenham Palace, there to occupy a a niche amongst the curiosities of the nineteenth century.

"A Novice," in his pursuit of knowledge under difficulties, next proceeds to enter in his classification what he very properly terms a "hybrid" variety of the genus bailiff, namely, those who profess to combine the occupations of gardener and agriculturist, "two single gentlemen rolled into one." That there are men filling a compound situation of this kind, ay, and even a threefold one, being at once bailiff, gardener, and forester, is, like the blindness of the Irishman's horse, not their fault but their misfortune. This fact—for an undeniable fact it is—arises, not from any desire on the part of a gardener or bailiff to fill in his own person a plurality of offices, but partly from the entire concern being often on so very limited a scale as to preclude the possibility of finding sufficient employment for more than one person, and in such a case it will usually be found that the garden occupies the most prominent position. This is, however, only one reason; another, and I am sorry to say perhaps a more general one, is the short-sighted niggardliness of many employers. An establishment of considerable pretensions must be maintained, without the owner having either the heart, or it may be the means, to keep it up on a scale commensurate with its pretensions. Hence we find in the pages of every advertising paper advertisements for men wanted to fill the combined situation of gardener and bailiff, and it may be forester, with the splendid offer of perhaps 40*l.* or 45*l.* a year, "and the gate-house to live in," as an inducement. Are not these magnificent prospects, Mr. "Novice?" Let us forthwith bring up our sons and our daughters to be gardeners, bailiffs, and gate-openers.

The fourth variety of the bailiff fraternity is composed, according to "Novice," of those who, having been unfortunate as farmers on their own account, try to make a living by farming for others; and although your correspondent does not manfully avow his opinion, still any one may see that if he had his will such people should be sent either to purgatory or the workhouse, rather than that they should fill the office of bailiff in no matter how humble a sphere of labour. Did it never occur to "A Novice" that a man may have become unfortunate from causes over which he had no control, or is he so placed in the world that he cannot be shaken by any of those vicissitudes to which every department of commerce is liable, and from which certainly agricultural pursuits are not exempt?

But the last class he touches upon, and over which he has spread [in the most friendly manner the mantle of his protection and patronage, "are the smock frock or working bailiffs." Be it very far from me to insinuate even a shadow of discredit on this generally speaking deserving class of men. I know many cases where the farms under their superintendance are conducted in a manner every way creditable to themselves, and I believe profitable for their employers. Unfortunately for themselves their early education has in too many cases been of such a limited nature as to prevent them from rising in the world, as perhaps their natural abilities would otherwise entitle them to do, and this very circumstance is the cause why, whilst perhaps perfectly suited to fill the situations they do occupy, they would be "quite at sea" in another appointment for which a more highly educated man was better adapted. If "A Novice" still desires to know who are "the right men for the right place," I must refer him to the two classes into which I divided farm managers, for the man who might perhaps answer perfectly all the requirements of a quiet countryman would cut but a sorry figure if placed in a situation of greater respectability and responsibilty. *A Clodhopper.*

Home Correspondence.

Steam Culture.—I perceive that your correspondent "I. A. C." has in his third Reverie on this subject again commenced sailing on dry land! It would doubtless prove edifying to more than myself to hear a little further of the *modus operandi* in detail. In the mighty deep we have paddle-wheel propellers working on transverse horizontal shafts, Archimedian screw-propellers on longitudinal horizontal ones, but propelling ploughs on a vertical axis beats Usher out of the field. After this Fisken's heart may well quake for the safety of his sheet anchor, for when ploughs begin to sail up and down the land broadside foremost there is certainly some risk of its being at the opposite headland nearly as soon as his rigger. Again, what is an engine? In the simple times of 1618 was it a spade, plough, or an improved caschrom? "Wildgoose" would doubtlessly have answered either, and that the first patent for a steam-engine, then ycleped under the more glowing appellation of "Fire engine," was granted to Mr. Ramsey in 1630. *W. B.*

St. Mary-le-bone Bank for Savings, No. 76, Welbeck Street, Cavendish Square.—The 26th annual general meeting of this institution was held on Thursday the 7th of this month, at the Office, No. 76, Welbeck Street, Cavendish Square, Sir James John Hamilton, Bart., in the chair. It appeared from the several reports read to the meeting that the progress of the bank during the past year had been of a satisfactory description, no less than 2352 new deposits having been made in the last year; 23,398 deposit accounts remained open on the 20th November last, of which 18,192 held balances averaging less than 2*l.* 18*s.* 8*d.* each.

	£	s.	d.
The sum in the hands of the Government on the 20th November, 1855, as per receipt from National Debt Office, signed by Sir A. Y. Spearman, Bart., and laid before the meeting, was	346,933	4	10
In the hands of the Treasurer, Sir Claude Edward Scott, Bart., whose acknowledgment was likewise produced	1,375	13	1
	348,308	17	11
The balance due to depositors at that date, as per balance-sheets produced	347,151	10	9
Surplus	£1,157	7	2

Superphosphate.—Assuming from Dr. Voelcker's interesting paper in a late number of your Journal that it would be wise to provide more liberally than I had done for the early growth of my coming crop of Swedes, I was intending to use 8 to 10 tons of superphosphate. May I ask your opinion as to making it at home or purchasing? I bought last year at a lower price than ground bones from the same establishment, and I see that the doctor puts his bones at 5*l.* 12*s.*, and superphosphate at 6*l.* I presume that superphosphate sold at a less price than the bones must either have a mixture, perhaps of ashes, or must be very damp. The amount of biphosphate which a superphosphate holds constitutes its value. Will this amount be likely to be materially affected by want of skill in the process of manufacture? And would not the only evil likely to arise be merely a portion of undissolved bone? Lastly, if made at home is it better to be made some time before using it. *J. D.* [You had better buy the superphosphate. Want of skill resulting in the presence of a great deal of undissolved bone of course materially affects the quality of the result. If you make it yourself you had better do so a month before use.]

The Measles in Pork.—In consequence of so large a portion of the pork furnished by contractors for the use of the navy having been condemned as unsound, the subject of the diseases of swine, and more especially that known as "measles," at present engages much attention here, and many are anxious to obtain information respecting it. On referring to the "Encyclopædia of Agriculture" with that view, I find that Mr. Spooner describes the disease as having its seat "somewhat beneath the skin, on which we find a number of small watery pustules externally of a reddish colour, and there is fever, cough, discharge from the nostrils, and pustules under the tongue." He further states that the disease yields to cooling treatment. Encyclopædia, head—Swine, p. 952. Now this description in no way applies to the disease known here as "measles." This disease

is marked by no external symptom, nor is it until the flesh of the animal has been examined that any one can tell whether or not a pig is infected. By measles we understand the presence in the muscular parts of the flesh of pigs of small white bodies, which under a good microscope are shown to be animalcules of a very singular formation, and which, according to some Continental authorities, are merely an undeveloped stage of the tape-worm. Neither pustules in the skin, discharge from the nostrils, or cough, attends the disease; nor in the opinion of pig-feeders, here or there, is there any application known by which these granulations can be removed from the flesh of the pig whether in its living or dead state. Pigs infected with measles do not appear to suffer in health, on the contrary, the finest looking and fattest pigs are often amongst the worst affected; but the most important part of the inquiry is, Does the presence of "measles" in pork render it unwholesome? The late Mr. Youatt, as quoted in "Stephens' Book of the Farm," expresses a decided opinion that it is unwholesome. Martin, in describing the diseases of swine in the "Farmers' Library," seems to confound leprosy with measles, and describes the progress of the disease to its finale, when the pig sinks a mass of putridity. I have been at much pains to endeavour to obtain correct information on this subject, and have made very numerous inquiries, but no one that I ever spoke to has known an instance of such finale; on the contrary, they all believe that up to thorough fatness measles do not injure the health of the pig, and what the consequence of holding over a much infected pig after it has become fat, no one that I can find is able to say. *Edmund Murphy, Queen's College, Cork.* [The disease alluded to by Professor Murphy is totally different from that briefly touched by me in the "Encyclopædia," and has much less resemblance to the measles in the human subject than mine, although perhaps it is doubtful whether the latter is properly denominated, the measles having certain characteristics in men which is wanting in animals. Measly pork, which appears so much more prevalent in Ireland than England, may perhaps be attributed to the gross feeding of the animal, by which means the germ of the tape-worm may be taken with the food, and not destroyed in the digestive process. I should not consider that the pork was unwholesome in consequence. *Spooner L. Baily.*]

Spring Wheat out of Lea.—Will any of your correspondents be good enough, through the channel of your Paper, to give their experience in regard to the cultivation of the above. I purpose sowing Wheat on a field ploughed out of lea, the said field having lain in Grass for nearly 40 years; the soil is a deep rich dry loam, about 20 feet above the level of the sea, and situated in a good Wheat growing district. I am afraid of having too much straw, and if so the crop is likely to be laid, and consequently the quality of the grain deteriorated; I am therefore anxious to know which would be the best sort of Wheat to sow, and also the quantity per acre. I have spoken to several farmers in the neighbourhood, and they all agree that the Oat does better than any other cereal after lea. Now, I am aware that it is common to sow Wheat after Clover stubble in the southern counties, and if such a system could be pursued in the northern counties, I conceive that that "gold yielding grain" could not be otherwise than remunerative. *A. C. B., Cumberland.*

Covered Yards and Box-feeding.—Mr. Mechi justly says this question is all important. I want to notice the assumption that the disease called heaves in pigs, and perhaps pleuro-pneumonia in cattle, is caused by the animals lying on heating manure. Now is not this just assuming what requires to be proved? I do not believe that the constantly wearing a warm plaister on the external walls of the chest will ever induce fatal disease of the lungs; but constantly inhaling a vitiated atmosphere, loaded with ammonia, aqueous vapour, carbonic acid, and withal at the same heat as the lungs themselves, is very likely indeed to corrupt the whole mass of blood, and the body of the lungs too. Mr. Randall's, of Evesham Vale, success is to me easily enough accounted; for he puts the very best ammonia-trap exactly where it is wanted, and thereby nips the evil in the bud. Mr. Mechi's own success on boarded floors may be accounted for by the fact of these results of decomposition being diluted by the air before they are inspired. In his barn the cattle were in close contact with the fermenting material; and judging from his account only, with only a limited access of air. Then abundant air is to be admitted to keep our cattle healthy, and drive off our precious and costly ammonia to fertilise other fields than ours. Is it not possible to combine the two desirable results—perfectly healthy cattle, and the most rigidly economical saving of every particle of ammonia? The most of meat and corn on the smallest space? I infer from Mr. Way's lecture that the soil of England in every cultivated spot will tenaciously hold till wanted by the plant growing thereon every atom of ammonia intrusted to it; then why not use raw manure—unfermented dung? Let its produce be constantly consuming and constantly returning to the earth again. Some different course of cropping or some different method of use must be adopted; for truth must be consistent—the errors are ours. Another question is what is the best use to make of our straw? Ammonia is but a result of excrement; it exists but sparingly therein at first, and is it not a fact that the solid excreta of animals contain carbon enough of themselves to liberate all their ammonia? Then why use straw as litter at all when the very first effect of its application is to set up a violent chemical action, burning off in waste the costliest production on the farm? *S.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *Feb.* 13.—Colonel Challoner, trustee, in the chair.

Sea-Sand.—The Rev. S. N. Kingdon, a member of the Society residing at Bridgewater, near Holsworthy, in Devonshire, informed the Council that a great quantity of sea-sand was brought into the adjoining district from Bude Haven, on the north-western coast of Cornwall, to be employed by the farmers as a manure; also from a neighbouring part of the coast called Widemouth Bay. No less than 59,000 tons of this sand had been sent inland for manure, in the course of a single year, by a canal formed for the express purpose; and a very large amount was brought away by waggons and carts sent to the sea-shore itself. As the fertilising qualities of this sand appeared to be very evident, he thought it would be an interesting inquiry to ascertain by chemical analysis the probable cause of such fertilising action.—Professor Way expressed the satisfaction it would give him to investigate the nature of this sand, and report the result to the Council, if the Rev. Mr. Kingdon would kindly send to him a portion for analysis, along with information under the following heads:—1. The nature of the soil benefited. 2. The quantity of sand put on. 3. How often applied. 4. For what crops. 5. The cost of application. Professor Way remarked that last year Mr. Scott had called the attention of the Council to a peculiar deep-sea sand containing fibrous matter and used in Ireland as manure under the term "wool."—Colonel Challoner was acquainted with a sea-sand on the Wexford coast, which produced wonderful crops of Asparagus and other similar vegetable products.

Clinker-Manure.—Dr. Ritterbandt desired to place at the disposal of members of the Society five tons of a manure obtained from the vitreous substance produced in the fluxing of iron and other ores, and known in the country as "Clinkers." This substance was treated with sulphuric acid and a dark-gray sandy powder obtained. This powder Dr. Ritterbandt had found very advantageous to Potato crops.—The Council decided that they could take no cognisance of any manure submitted to them, unless accompanied by a suitable chemical analysis showing its composition; and that, even in such case, the trial of manures could only be undertaken by the members in their individual capacities. Col. Challoner and the Rev. L. Vernon Harcourt expressed their willingness to give the manure a trial, in their private capacities, should the chemical analysis Dr. Ritterbandt might hereafter furnish hold out a probable indication of favourable results, and the estimate of cost and quantity to be employed render the application economical. Mr. Jonathan Gray stated that in South Wales the use of clinkers to the land had been attended with no advantage.

African Grasses.—Mr. Donovan favoured the Council with a collection of African Grasses and a stuffed specimen of the great locust bird, referred to in the following communication:—

37, Nottingham Place, New Road.

I beg you will receive, for the acceptance of the Royal Agricultural Society, the accompanying specimens, consisting of four books or vols. of Grasses, &c., two of which, marked Nos. 1 and 2, contain specimens of the common uncultivated indigenous Grasses of that part of Africa situated between the chain of Dengousberg Mountains and the Orange and Vaal Rivers; vol. 3 contains, besides pasture, herbs, and Grasses collected in the districts of Colesberg, Richmond, and Beaufort, W., S.S.W. of the Orange River, some rough mountain Heath, common vegetation in the Cape western district. The small collection, No. 4, are a few specimens hurriedly collected in the immediate neighbourhood of the Emperor Napoleon's tomb, St. Helena. I must also mention a specimen of natural history, "the great locust bird," which I am induced to present to the British agriculturists on account of it being an object of great interest and service to the European agriculturists in Africa, who welcome with much pleasure the rare, unexpected, and mysterious visits of these birds, because of their habit of exterminating vast swarms of destructive locust. It will be found on examination that this specimen bears a great resemblance (with exception of the legs and beak) to the white storks in the British Museums. In conclusion, I beg you will intimate to the Society that I shall be happy to answer any inquiries they may be desirous to make concerning the agriculture, wool, &c., of those parts from which I have gathered the Grasses in question.

(Signed) John Clarke Donovan.

The Council voted their best thanks to Mr. Donovan for the favour of these presents and communications, and would feel further favoured by his attendance at any of their weekly meetings, for the purpose of furnishing such additional information as he might possess in reference to African Natural history. Professor Way had received information from the same part of Africa, where the summers were short and bright; the Grasses there were represented to him as being well worthy the attention of English agriculturists.—On the suggestion of Mr. Majendie, it was moved by Mr. Fisher Hobbs that Mr. Robert Brown, of the Linnean Society, so eminently distinguished for his acquaintance with the botanical productions of the southern hemisphere, should be requested to examine these Grasses, and favour the Council with his report upon them.

Irish Grasses.—The following is the report of Mr. Brandreth Gibbs on the dairy-land Grasses obtained from Ireland last year by Mr. Thomas Scott, at the request of Mr. Miles, M.P., and referred to the favour of Mr. Gibbs's examination.

The packet of cut Grasses from Blarney Castle contain:—Holcus lanatus, Italian Rye-grass, Dactylis glomerata, Cynosurus cristatus, Anthoxanthum odoratum, Lotus corniculatus, Carex, Plantain, Agrostis, Festuca ovina, White Clover, Yarrow.

In the turf the only kinds that are in flower are the Anthoxanthum odoratum, Cynosurus cristatus, and Plantain. There are, however, apparently several other kinds of Grasses in the turf; but they have not any culms or flowers. We have, therefore, planted the turf in bits, so as to get the individual plants to spread and throw out flower, and when they have come to sufficient maturity we will let you know the result.

Grain-Aerator.—On a former occasion Mr. Brown favoured the Council with his attendance, for the purpose of explaining to the members the progress of his inquiries into the best mode of fumigating growing crops, on the principle so long tried and found effectual in his hand-fumigator for garden use, namely, that of driving any kind of air or vapour, by means of revolving fan-wheels, through the fumigatory chamber, into a pipe conducting the air or vapour immediately to the plants, shrubs, or trees to which the application is desired. At the present Council meeting, M. Salaville exhibited a working model of his machine for the preservation of grain, to which a first-class medal was awarded last year at the Paris Exhibition. The principle of M. Salaville's machine appeared to be similar to that so long ago adopted by Mr. Brown; its application, however, is different, namely, to large masses of grain, vegetables, or other substances in barns, warehouses, or ships' holds. The construction consisted of a fumigatory chamber, for receiving the cold air or for generating the sulphurous or other antiseptic preservative or vapour—of revolving fan-wheels for driving these vapours from the chamber into the perforated tubes over which the deep mass of grain, Potatoes, &c. was laid and received through their whole bulk the action of the vapours thus passed up through them. The fan-wheels are set in motion by hand or steam power. M. Salaville stated that by means of this machine, not only were all insects and their eggs destroyed at a very small cost, but a greater weight and brighter appearance was given to the grain. He invited the members to inspect these machines at full work at the wharf of Messrs Charles Devaux and Co., 62, King William Street, London Bridge.

The Chairman expressed to M. Salaville the thanks of the Council for his attention in submitting this machine to their notice; at the same time informing him that the Council in such cases expressed no opinion on the value of inventions brought before them. He would be at liberty to enter it for exhibition at the Chelmsford meeting, where it would come under the notice of the judges.

Microscope.—Colonel Challoner gave notice that at the next monthly meeting he should move that the Society should purchase a microscope of the most approved and complete kind for investigations similar to those to which M. Salaville's operations on grain would lead, namely, to ascertain the exact difference produced on the grain by the action of the vapours to which it had been exposed. In the meantime he would suggest that Prof. Simonds be kindly requested to attend on that day fortnight with his own microscope, and show to the members that difference between the original and the vaporised grain.

Locomotive Railway.—Mr. Manning Fellowes, of Ormesley, near Great Yarmouth, informed the Council of an invention made 16 or 18 years since by Sir George Cayley, of a steam locomotive laying down its own railway; and of which a plate was published at the time in the "Mechanics' Magazine." He also referred to "a trial with an endless chain for propelling boats in a canal; the chain, or the slack part of it, sinking to the bottom of the canal, and there, being detained by the mud, &c., formed a basis for motion: the scheme was found to be sound in principle, but was abandoned in consequence of the room the machinery took, and the water and dirt which came on board the boat."

Cottages.—The reference made in the report on the farming of Dorsetshire (Journal XV., 442) to Mr. Sturt's cottages having excited much attention, Mr. Sturt, on application to him, has kindly stated to the Council his willingness to give any of the members all the information he possesses in reference to their construction and cost.

Treacle for Cattle.—Mr. Tollemache, M.P., referred to the probable advantage that would arise, during the high price of oil-cake, from the use of treacle for the purpose of feeding cattle. It had already been tried, as such a substitute, with considerable success by some farmers in the eastern counties. A West Indian merchant had informed him that coarse brown sugar contained 95 per cent. of saccharine matter, while treacle contained not more than 15 or 20 per cent. He thought it desirable to ascertain how far the amount of nutritive value in food depended upon the saccharine matter it contained.—Professor Way remarked that treacle consisted almost entirely of saccharine matter, although not of that kind which could be crystallised out of it. The Government had a few years ago appointed a commission to inquire into the feeding properties of malt, when it was found that Barley malted was not better than Barley unmalted; in other words, that sugar was not better than starch.

Implement Report.—Mr. Fisher Hobbs gave notice that, in consequence of some omissions having been made in the Report of the Implements at the Carlisle Meeting, published in the last Journal, he should bring the subject before the Council at their next Monthly Meeting.

The Committee having referred to the Journal Committee papers by Mr. Fulbrooke on Meteorological

Cycles, and by Mr. Dickson on Flax Operations, arranged that on that day fortnight the following subjects be brought before them :—

1. Colonel Clinton's communication on Improvements in the Machinery for Raising Water and other Fluids, by which a great Economy of Steam-power is effected.
2. Mr. Riddell's Exhibition and Explanation of his Model of his new Reaping Machine.
3. Mr. Hancock's Exhibition and Explanation of his new Chaff-cutting Machine.

The Council then adjourned to their Weekly Meeting on Feb. 20.

Calendar of Operations.

FEBRUARY.

CHESHIRE, *Feb.* 12.—The weather for the two last months has been very variable, commencing with severe frosts early in December, and changing suddenly to mild weather towards the middle of the month, and in a few days to frost again, which in about a week changed again to unusually fine mild weather, which continued to the end. During these changes very little progress was made in ploughing as the frost was seldom entirely out of the ground, therefore carting manure when the ground was sufficiently hard, and occasionally carting Turnips to the homestead, and threshing straw for the cattle was the principal business of the farm. The new year set in more favourably for the plough, and a good deal of land was turned over during the first nine days when the teams were again stopped by the frost, and manuring and threshing had again to be resorted to for a week or more, when another change took place, and the unsettled weather of frost and thaw, with occasional thunder showers, continued until about the 5th inst., when the weather became more settled, and "lea" and other ploughing is now going on very satisfactorily. Notwithstanding the sudden changes and occasionally severe weather, the Wheat crops generally are looking remarkably well, and none appear to be over luxuriant; there is still a good deal to be sown, some farmers thinking it better to sow in the spring than late in the year; their success, of course, will depend much upon the season. The land, upon the whole, has been dry through the winter, and stocks of cattle, in many instances, both old and young, have been allowed to range the fields and eat off the old tufts of Grass left on the pastures, which in some measure has been a saving of fodder. Water meadows properly attended to on streams not much affected by dry weather are looking remarkably well, and will in another month afford good pasturage for ewes and lambs. The practice of cutting all the Turnips and Mangel Wurzel, and mixing with chaff, &c., is found to answer and appears to be greatly on the increase. The prospects of peace have affected the local corn markets, and prices of Wheat have receded at least 1*s.* 6*d.* per bushel. Great complaints of the yield of all kinds of grain are constantly being made by the farmers; and as previous prices and a good demand have induced them to thresh out freely, we think it probable that we have arrived at the lowest point of depression until there is a prospect of considerable importation. The cattle markets are also depressed, but prices have not given way very materially, and good beef is still worth 6*d.* per lb.; mutton, 6½*d.* to 7*d.*, and pigs 5¾*d.* *W. P.*

Notices to Correspondents.

ADDRESS: *Subscriber of Many Years.* Mr. Strafford, 13, Euston Sq.

AVERAGE PRICES OF GRAIN: *Correspondent.* The published averages for any week certainly are not the prices at which on the average the grain of the country has been sold during that week. The fact that comparatively little of the grain sold is written down is enough to show this; but the practice of selling at a higher price, so much being added to the quantity, is the main source of error. Wheat weighing 60 lbs. is sold at 70*s.* a quarter, the seller making it up to 62 lbs. a bushel, and thus the price of a better quality appears in the returns as the price of the actual quality. This is no doubt a source of error and injustice, for the averages are guides to many payments and charges both on farmers and on landowners. And as prices may vary five or more per cent. on any given market day, according to those variations of quality which are thus ignored it becomes *possible* that a corn rent or a rent charge may be assessed as much as this per cent. above the sum at which after the rate of actual sales it was properly assessable.

BOX FEEDING: *Mr. Mechi* adds to his paper on this subject last week the following memorandum:—Another very important point is the nature of the bottom. I find that in my barn, which has a thin layer of chalk upon a retentive clay, the heating process sets up rapidly, whilst the bricked floor shows no sign of heating. On cleaning out the manure from the chalked floor, it retained heat for 28 hours afterwards—not so the bricked floor. I shall pave a portion of the barn floor to see whether the chalk is the real cause of heating. [It is probably the access of air beneath the unpaved portion which is the cause of heating.]

LICE IN CATTLE. Grease or oil well rubbed in at intervals will ultimately kill them.

LIME AND GUANO: *Ayrshire Subscriber.* If you have very recently applied the lime hot from the kiln, it would probably dissipate much of the ammonia from the guano if you applied a heavy dressing at once to the land. But the idea which seems to prevail on this subject is that hot lime positively *drives* off the ammonia. It only acts by uniting with any acid which may have held the ammonia in a more or less non-volatile state, so that the ammonia is left in its natural volatile form. But then a great deal of it in guano is already in that form, and it is possible to apply it to the soil, although volatile, without any great waste. If you sow it broadcast just before rain most of it will be at once washed in; and if you sow it and then scarify or harrow or even plough it in, its volatility will not hinder its retention by the soil. If, therefore, the lime has been applied some time, and you have the means of putting the guano well under the surface, we think that you may safely do so.

OATS: *B B.* We have been ploughing up old sward for Oats, and have ploughed about 6 inches deep and 10 inches wide, using a skim coulter, which throws the edge of the turf under the sod, effectually burying the Grass. We followed the plough with a drill presser, and shall in a week or two sow 4 bushels of Tartarian Oats per acre over it. The Oats will fall into the furrows, and come up as if drilled at 10 inch intervals. We shall give the land a double tine of the harrow over them, and then throw about 20 bushels per acre of lime broadcast over all and finish the harrowing, roll heavily, and leave it. If Thistles come up we must cut them or pull them, and if in spite of lime and hard rolling the wireworm should destroy the plant, we must just—keep our temper. There are evils for which no other remedy exists.

OATS AFTER LEA: *Manx.* It is best to adopt the practice of the county in such questions as that of sowing Oats or Wheat after Clover. We would sow Oats in Scotland and Wheat in the south under such circumstances, or depart from the general custom only on a very limited scale and by way of experiment.

WHEAT: *X.* If you fear your Wheat lodging you had better roll it hard and apply some 2 or 3 cwt. of common salt per acre. Both of these things benefit weak lands.

WINDLASS: *Subscriber.* We presume the drum should be loose on the vertical shaft from which the four radial arms proceed to which your horses are attached, and that one of these arms should carry a pal falling into the teeth of a circular ratchet work on the upper end of the drum.

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„ „ major
„ „ rosea
Lupinus monogynia, fine light and deep purple, variegated
*Nasturtium, new dwarf scarlet and crimson vars., 1 foot high, with a mass of flower round the stem
Nemesia bicolor, very attractive and beautiful, 4*d.*
Nemesia versicolor compacta, 1*s*
Nemophila, new white edged, 4*d.*
Pennisetum longistylum, new Grass
Pavetta nankiensis, striking dark purple and violet foliage
Pink, Imperial Indian, 3*d.*
„ Indian white, 4*d.*
Stock, Victoria, fine scarlet, 3*d.*
„ Chamoy's fine yellow, 3*d.*
Tropæolum minus coccineum
Viscaria oculata nana, 3*d.*
Whitlavia grandiflora, very fine, and a general new favourite.

Greenhouse and Tender Annuals.

Balsam from several choice imported and others, ex.
*Balsam, Smith's new vars. so highly spoken of by Dr. Lindley and the Nat. Flor. Soc.; 6 vars. separate, 2*s.* 6*d.*; larger packets mixed, 2*s.*
Gomphrena aurantiaca, 1*s.*
Ipomœa (Pharbitis) limbata, 1*s.*
„ violacea (rubra cerulea), 1*s.*
Phlox Drummondi, fine mxd., 3*d.*
„ do., fine scarlets
Phlox, do. superb hybrids from Leopoldi and others
„ do. alba oculata, white, dark eye, beautiful
Portulaca, 8 superb vars, separate, 3*s.*
„ fine mixed vars.
Rhodanthe Manglesi
Salpiglossis atrosanguinea
„ new yellow
Schizanthus retusus alba
„ Grahami carnea
Thunbergia, 6 fine vars. sep., 3*s.*
„ mixed vars.

Hardy Perennials.

Abronia umbellata
Antirrhinum, ex., from best striped and others, 1*s.*
Cistus, rock vars, ex., 1*s.*
Dianthus Dunnetti, superb dark new Sweet William, 1*s.*
Dianthus superbus nanus, a pretty dwarf fringed pink, in vars., mixed, 1*s.*
Dianthus maculata, fine spotted
Gladiolus, fine mixed hybrids
„ choice, ex. from named vars., 1*s.*
Hollyhock, choice, 1*s.*
Lindheimeria texana, 1*s.*
Lupinus magnificus, fine variegated, 4*d.*
Pansy, choice, ex., 1*s.*
Phlox, choice, from our large collection
Potentilla, splendid mixed, 1*s.*
„ from our newest vars., ex. ex, 2*s.* 6*d.*
Sweet William, fine scarlet

Greenhouse Perennials.

Acacia lophantha
„ verticillata
Bossæa heterophylla, 1*s.*
„ bilosa stenophylla, 1*s.*
Calceolaria, very choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
Calendrinia umbellata
Cineraria, choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
Cobœa scandens
Geraniums, choice, 1*s.*
„ ex. ex., 2*s.* 6*d.*
„ finest scarlets, 1*s.*
„ finest fancys, 1*s.*
Gloxinia, choice, 6*d.*
„ ex. ex., saved from new, 2*s.* 6*d.*
Heliotrope, fine mixed
Lotus Jacobæus luteus
Nyctarinia saliginoides
Platylobium triangulare, 1*s.*
Primula sinensis fimbriata, 1*s.*
„ „ „ alba, 1*s.*
Verbena, mixed, choice, 1*s.*
„ ex. ex., from new, 2*s.* 6*d.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Including a quantity of the before-named, free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	*d.*
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	3*s.*	0*d.*
30 superb vars. dwarf German Stock, 5*s.*; 15 vars. ...		
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pœony flowered French do. (Truffaut's)...	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonea aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.

Post Office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

DICKSON'S "EARLY FAVOURITE PEA."

FRANCIS AND ARTHUR DICKSON AND SONS have great satisfaction in again calling attention to this distinct and truly valuable EARLY PEA (sent out by them for the first time last season), which is admitted by all who have grown or seen it to be the MOST PROLIFIC and BEST Early Pea ever introduced. It comes in very few days after the *earliest* varieties, and the flattering testimonials which they have received from some of the first Gardeners in the kingdom who grew it last season (see *Gardeners' Chronicle* of Jan. 12th, 1856), will, they think, be sufficient guarantee for its EXTRAORDINARY PRODUCTIVENESS and general EXCELLENCE.

Price 2*s.* 6*d.* per quart, or 1*s.* 6*d.* per pint, in sealed parcels.

VEGETABLE, FLOWER, and AGRICULTURAL SEEDS of every description, of *select* and *superior* quality, detailed CATALOGUES of which will be forwarded on application.

The Old Established Seed Warehouse, 106, Eastgate Street, Chester.—Feb. 16, 1856.

CHEAP AND SELECT NURSERY STOCK.

ESTABLISHED PRIOR TO 1700.

WILLIAM JACKSON AND Co., Bedale, Yorkshire, beg to offer the following CHOICE STOCK at annexed low prices. Their Nurseries are exposed and extensive, and goods from them generally do well. Forwarded to any part of the kingdom.

	s.	*d.*
12 Abies Menziesi, 2 to 3 feet	20	0
12 „ morinda, 4 to 5 feet	20	0
12 „ Douglasi, 2 to 3 feet	40	0
12 „ do. 4 to 5 feet, fine specimens	80	0
12 Pinus Cembra (Siberian Pine), 4 to 5 feet	20	0
12 „ excelsa, 3 feet, fine specimens	20	0
12 Cedrus Deodara, 3 to 4 feet, ditto	50	0
12 Taxodium sempervirens, 3 to 4 feet, ditto	30	0
12 Cedar of Lebanon, 2 to 3 feet	18	0
12 „ „ 3 to 4 feet	30	0
12 fine Purple Beech, 5 to 6 feet	12	0
12 fancy Cratægus, ditto	9	0
12 New Scarlet Persian Lilac, 2 to 3 feet	12	0
12 Standard ditto, ditto, grafted, 4 to 5 feet	24	0
12 „ Berberis dulcis, 3 feet stem, fine heads ...	30	0
12 Hardy Azaleas, best vars. with flower buds, 2 to 3 ft.	18	0
12 Rhododendron dauricum atrovirens, with flower buds, 3 to 4 feet	18	0
12 „ handsome hardy varieties, 2 to 3 feet, many with flower buds, purple, white, and crimson, selected from more than 100 kinds ...	20	0
100 Rhododendrons, in variety, 2 to 3 ft., bushy plants ...	40	0
100 Evergreen and flowering shrubs, two of a sort ...	40	0
100 good showy herbaceous plants, two of a sort	30	0
100 Dwarf Roses, extra fine varieties, two of a sort ...	40	0
1000 best Evergreen Privet, 1½ and 2 feet for fancy hedges ... ... 20*s.* &	30	0
1000 Evergreen Privet, 4 ft., for field fences, &c.	40	0
1000 Common Laurel, 1 to 2 feet	50	0
1000 Hollies, 1 to 1½ feet	60	0

FRUIT TREES.—STRONG PLANTS. Per doz.—*s.* *d.*

Apples and Plums, good strong standards	9*s.* to 12	0
Pears and Cherries, ditto ditto	12*s.* to 18	0
Apples, Plums, and Pears, dwarfs, 8*s.* trained	30	0
Peaches, Nectarines, and Cherries, trained	42	0
Giant Asparagus, 10*s.* per 1000; Rhubarb, of sorts, per 100	40	0

Rhododendron Jacksoni, of varieties, 1 to 2 feet, well set with flower buds, fine for forcing, prices on application.—English Oaks, 2 to 3 feet and 3 to 4 feet; Spruce, 1½ to 2 ft. and 2 to 3 ft.; Larch, 2 to 3 feet and 3 to 4 feet; Strong Quickwood, 3 & 4 years transplanted.—Prices on application.

A reference or remittance respectfully solicited from unknown correspondents.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	*d.*
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above varieties mixed, 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. D. Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year are really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established more than a hundred years.

KENNEDY AND KEMPTON'S second edition of their Scientific, Comprehensive, and Unique CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS is now published, and may be had on application, free. It will be found to comprise all the New and Rare Flower Seeds, and a Select List of the most approved Vegetable and Agricultural Seeds ever extant. Prepared by Mr. KEMPTON, who for the last 15 years, and up to the time of his employer's decease, was principal Assistant of the late Mr. JAMES CARTER, of Holborn.—Address KENNEDY & KEMPTON, Bedford Conservatory, Covent Garden, London.

SUPERB SHOW PANSIES,
FOR POT CULTIVATION,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties for 15s., hamper, package, &c., included. To purchasers having duplicates, other kinds of equal merit will be supplied.

Argo, Paton & Small's	Marchioness of Bath, Wheeler's
Boadicea, Fellowes's	Miss Talbot, Dickson & Co.'s
Charles Turner, Hale's	Nonsuch, Turner's
Chillington, Sadler's	National, Turner's
Emperor, Hale's	Pandora, Hunt's
Father Gavazzi, Holland's	Sovereign, Dickson & Co.'s
Fearless, Schofield's	Satisfaction, Turner's
Lady Carrington, Hunt's	Sir J. Paxton, Betteredge's
Lord Jeffrey, Lightbody's	Sir J. Cathcart, Turner's
Memnon, Turner's	Yellow Climax, Paton & Small's

Very select Pansy Seed, 1s. to 2s. per packet. Catalogues now ready. Post Office orders to be made payable at Middleton, Lancashire.

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2s. 6d.; per bushel, 9s.

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than Soden's Oxford, which in some respects it resembles, and far more free from disease, planted in the same soil and in every way alike."—Mrs. CANNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2s.6d.; per bushel, 9s.

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2s. per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2s. 6d. per peck, or 9s. per bushel.

We don't pay carriage of Potatoes.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

NEW AND CHOICE SEEDS.
FREE BY POST OR CARRIAGE PAID.

Per packet—	s. d.
Cauliflower, Lenormand's extra large Paris, very fine	2 0
Carrot, Early Scarl. Horn, best for forcing imported, of the same kind as are imported to the London markets ... per oz.	1 0
Snake Cucumber, per pkt.	0 6
Abronia umbellata ...	0 6
Ageratum conspicuum, new	1 0
Alonsoa Warczewiczi, new	1 0
Arctotis breviscapa ...	0 6
Browallia demissa ...	0 6
„ abbreviata, new, 12 seeds	1 6
„ elata	0 6
Calendrinia umbellata ...	0 6
Calyxhemenia chilensis, new	0 6
Cannabis gigantea (Giant Hemp for lawns) ...	0 6
Campanula stricta ...	0 6
Centaurea cyanus, double new, blue striped ...	0 6
Centauridium Drummondi, new	0 6
Centranthus macrosiphon albus, new	1 0
Cineraria, from fine named sorts	1 0
Clintonia pulchella ...	0 6
Cockscomb, Giant headed, new, brill. crimson red	1 0
Collinsia bicolor alba, new	1 0
Convolvulus minor, double	0 6
Dianthus imperialis, extra fine double, from scarlet to white	0 6
Egg-plant, new striped ...	0 6
Escholtzia tenuifolia, new	0 6
Euchnide bartonioides ...	0 6
Eutoca viscida alba, new, 25 seeds	1 0
Grammanthes gentianoides	0 6
Gemphrena Haageana, new beautiful orange Compositæ	0 6
Gutiernézia gymnospermoides, new	1 0

Per packet—	s. d.
Gypsophila muralis, red, very pretty for rockwork or edging	0 6
Helianthus argophyllus ...	0 6
„ Californicus. fl. pl., splendid dble. Sunflower, orange ...	0 6
Helichrysum brachyrhinchum	0 6
„ compm. maximum, double everlasting flower, white to orange red	0 6
Ipomœa limbata, violet blue bordered white, 12 seeds	1 0
„ rubro-cœrulea, light blue changing to crimson, 4 seeds ...	1 0
Lamarckia aurea (Ornamental Grass)	3 6
Leptosiphon aureus, new golden yellow	1 0
„ luteus, bright yellow	0 6
Linum decumbens, blue ...	0 6
„ grandiflorum rubrum, splendid vermillion crimson	1 0
Lisianthus Russellianus, 100 seeds	1 0
Lobelia ramosa, new dwarf	1 0
Mimulus, from the finest named Scarborough vars.	1 0
Nemesia compacta elegans, new	1 0
Nepeta Meyeri, new ...	0 6
Nyctarinia capensis, new	0 6
Palafoxia texana, new ...	0 6
Perilla nankinensis, ornamental purple leaves ...	0 6
Phlox Drum. Leopoldi ...	0 6
„ „ oculata, white with crimson eye	1 0
Physostegia speciosa, new	1 0
Podolepis auriculatus, new	0 6
Portulaca, mixed	0 6
Sabbatia campestris, new splendid, pink with yellow centre, 100 seeds ...	1 6
Schizopetalum Walkeri ...	0 6
Silene Bergeri, new ...	1 0

Collections suited for competition of the finest imported German Asters, German Stocks, Balsams, Larkspurs, and Zinnias, from 2s. 6d. to 7s. each. A general list of seeds may be obtained free on application. A General Catalogue of Plants (priced) ditto. Post Office Orders are requested to be made payable at Kingston-on-Thames. Small amounts may be remitted in postage stamps.

THOMAS JACKSON & SON, Kingston-on-Thames.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

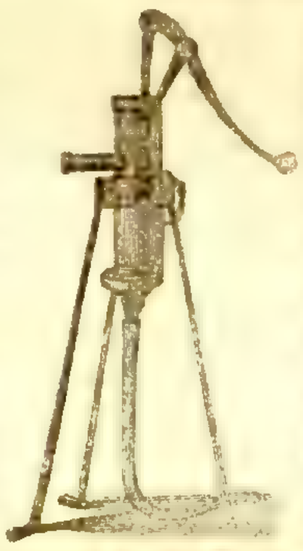
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „ long	3 „ 3 „		1 14 0
3 „ ditto	3 „ 6 „		2 8 0
3½ „ ditto	3 „ 6 „		2 12 0
4 „ ditto	3 „ 6 „		3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 9d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 6d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

THIS *is the Original Patent for Important Improvements in Stable Fittings, Hay-box, Manger, and Water-trough as one fixture*, including a method surpassing all others for conveying the straps and halter-weights to the back of the fitting to prevent the horse being cast in the stall. Stable Fittings of every description, plain, enamelled, or galvanised. Also the newly invented Loose Box Fittings, Surface Gutters with moveable cover-plates, Stable Posts, Ramps, Sills, and all kinds of Stable Furniture in stock.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

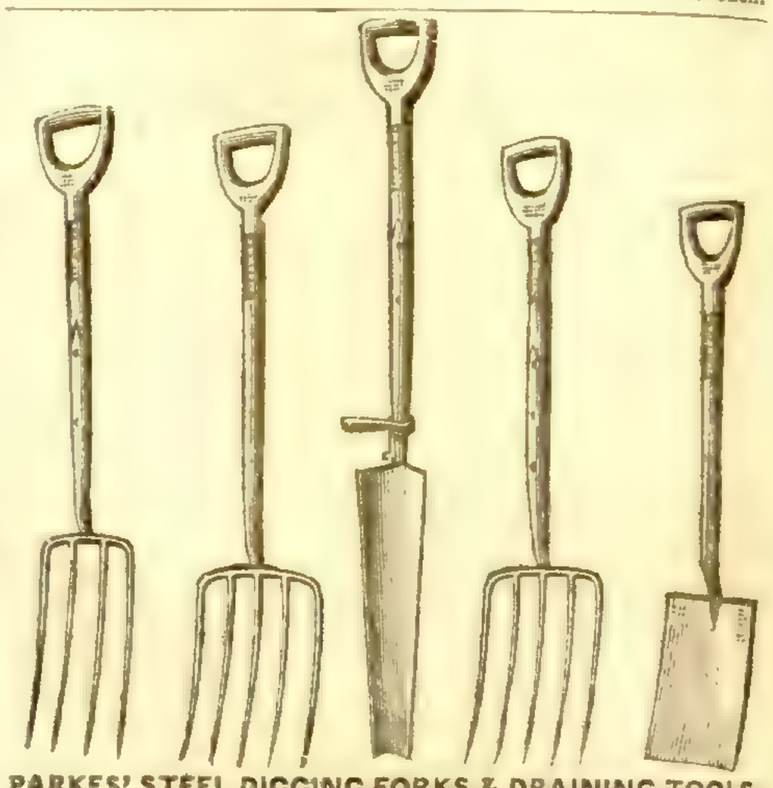
MANUFACTURER OF KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS, patronised by her Most Gracious Majesty, 200 on Buckingham Palace. In use also on St. James's Palace, Windsor Castle, Government Offices, &c. &c. Zinc, 30s.; cast iron 35s. each; the latter as durable as the building itself. Drawings and Price Lists forwarded on receipt of two postage stamps.

Address BARTON'S Iron Works, 370, Oxford Street, London.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

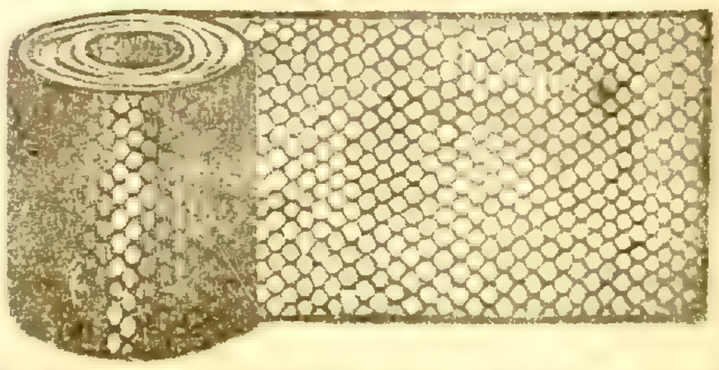
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5s. 3d. each.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5d. per yd.	4d. per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9⅛ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5¼ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

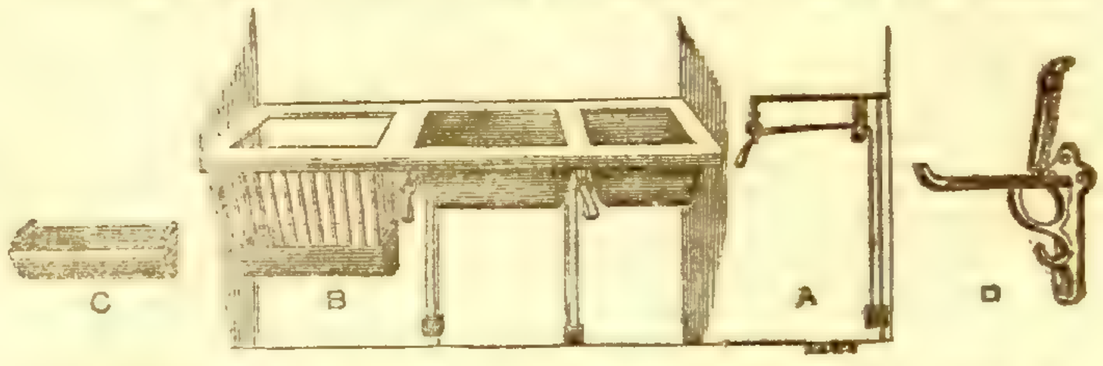
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½d. per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2d. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.
(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, have the pleasure to hand their present prices of

GLASS FERN SHADES AND STANDS.

	s.	d.	With	s.	d.		s.	d.	With	s.	d.
6 in. diam.	2	0	stands	3	0	12 in. diam.	6	0	stands	8	0
7 "	2	4	"	3	6	13 "	7	6	"	10	0
8 "	2	9	"	4	0	14 "	10	0	"	12	6
9 "	3	3	"	5	0	15 "	14	0	"	17	0
10 "	4	0	"	6	0	16 "	18	6	"	22	0
11 "	4	0	"	7	0						

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25s. each.

AQUARIUMS, with French polished stands, from 10s. each. Vase-shape ditto, on glass pedestal standing 23 inches high, 17 inches diameter, 25s.

Extract from *The Cottage Gardener*.

"FERN SHADES.—Many delight in seeing their beautiful Ferns introduced into the domestic circle; but without some such protection as these shades it would be impossible to preserve them. The shades of which we speak are glass cylinders with a domed top, which are placed on a glass pot wherein the Ferns have been planted, and they form on a small scale a pretty imitation of a Wardian Case."

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium, 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in.	and	6 in.	by	4½ in.	...	...	12s.	0d.
6½ "	4½	"	7	"	5	...	...	12	6
7½ "	5½	"	8	"	6	...	...	13	0
8½ "	6½	"	9	"	7	...	...	13	6
9½ "	7½	"	10	"	8	...	...	13	6
10½ "	8½	"	11	"	9	...	...	14	0
12 "	9	"	13	"	9	...	...	14	0
10 "	10	"	10½	"	10½	...	...	14	0
11 "	10	"	11½	"	10½	...	...	14	0
11 "	11	"	11½	"	11½	...	...	14	0
12 "	11	"	12½	"	11½	...	...	14	0
13 "	11	"	13½	"	11½	...	...	14	0
13 "	12	"	13½	"	12½	...	...	16	0
13½ "	13½	"	14½	"	13½	...	...	16	0
15½ "	13½	...	...	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application. Established more than 100 years.

CAUTION.

GARDEN ENGINES, SYRINGES, &c.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION.

R. READ begs to caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal arms, and address, "35, REGENT CIRCUS, LONDON."

*** Descriptions sent post free.

BLOSSOM OF FRUIT TREES.—WORSTED NET to effectually protect the blossom of wall fruit trees from frost and blight, and the ripe fruit afterwards from wasps and flies, 7d. per square yard, in various widths. All kinds of garden, fishing, and sheep nets, made by machinery, and at very low prices. —R. RICHARDSON, 21, Tonbridge Place, New Road, King's Cross, London.

TO GENTLEMEN. TO GARDENERS.

WANTED IMMEDIATELY, the Address of any Gardener or his Employer who has not received (free by post) Patterns, with prices and particulars, of HAYTHORN'S HAXAGON GARDEN NET, for the protection of bloom, fruit, and flowers from frosts, birds, wasps, flies, children, and servants; covering also for Hot-houses, without preventing the admission of light and air.—Letters and orders to be directed to J. W. HAYTHORN, Nottingham. Parcels—carriage paid to London, Liverpool, Leeds, Bristol, Hull, &c.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard. Half-inch mesh ditto, 2 yards wide, 8d. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower or seed beds, 4½d. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½d. per yard; 4 or 6 yards wide, 3d. per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.; scrim canvas for wall fruit.—At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures. Catalogues, containing prices and every particular, free by post. Warehouse, 42, Ludgate Hill, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

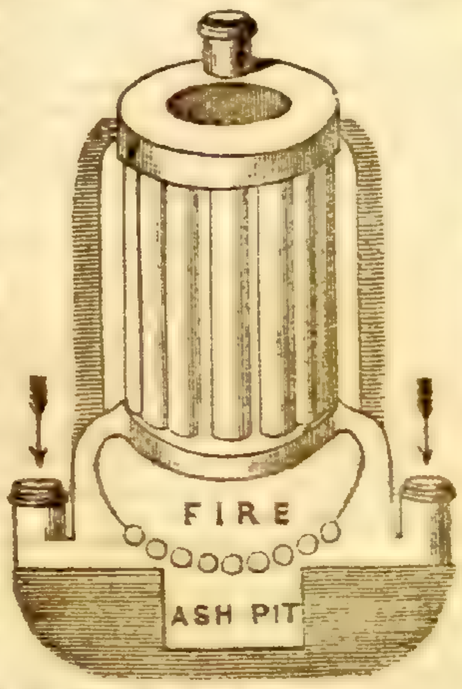
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

USEFUL AND ORNAMENTAL WIRE WORK of every description for the Conservatory, Garden, or other service; the CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs; Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Framing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Improved Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

GLENFIELD PATENT STARCH.—Used in the Royal Laundry, and pronounced by Her Majesty's laundress to be the finest starch she ever used.—Sold by all Chandlers, Grocers, &c., &c.

SEED DRAWERS.

TO BE SOLD, an excellent Nest of SEED DRAWERS, 10 feet by 4, containing 30 drawers 11 by 9 inches, and 10½ inches deep, and 45 drawers 8½ by 7 inches and 6½ inches deep, all having solid mahogany fronts and lettered with black on a gilt ground. Price 6l.—Apply to WOOD & INGRAM, Huntingdon.

TO MARKET GARDENERS AND FARMERS.

TO BE LET, A GARDEN FARM, comprising 50 Acres of Garden Ground and 15 of Meadow Land, with convenient Farm House and Buildings, about eight miles from Covent Garden and four from Kingston and Croydon markets. Immediate possession may be had.—For particulars apply to JOHN MACKRELL, Esq., Solicitor, 34, Cannon Street West; or T. ATTWOOD, Esq., Land Agent, Mortlake, Surrey.

TO BE LET, and may be entered upon at Lady Day next, a PUBLIC PLEASURE GARDEN, with a good House, large Kitchen Garden and Paddock of excellent Grazing Land attached containing 1½ Acres. The Pleasure Garden extends over 2½ Acres laid out in the modern style, and planted with Trees, Shrubs, &c. The town is populous, with good railway communication, and there is no other garden of the kind within 40 miles. Fixtures, &c, about 130l.; to be taken in the usual way. Satisfactory reasons can be given for the present occupier leaving.—Applications to be addressed to V. F. J., Post Office, Paulerspury, near Towcester, Northamptonshire.

TO BE LET ON LEASE, at Pawlett, near Bridgewater, a large ARABLE FARM. The above, from the high quality of the Land and its proximity to both Water and Rail communication, is deserving the notice of Agriculturists. —The Farm will be pointed out by GEORGE NEATH, Pawlett Bridgewater.

TO BE LET, with immediate possession, about 3 acres of Land, well planted with Choice Apple and other Fruit Trees, lately used as a Nursery Garden, together with a comfortable Dwelling-house, and a Vinery attached to the Sitting-room, pleasantly situate about 7 miles eastward of Bath and 6 westward from Chippenham.—Particulars to be had of Mr. G. BISHOP, Chippenham, Wilts.

DORKINGS.

TO BE SOLD, the whole Stock of DORKINGS belonging to Mrs. THOMAS TOWNLEY PARKER.—For particulars, address Astley Hall, Chorley, Lancashire.

TO BE SOLD, FANCY POULTRY EGGS, from the finest strains, at a reduced price, from being overstocked. BIRDS from the same stock, whose parents have all gained prizes, are also on sale.—For particulars, address to A. A. M., Post Office, Brighton.

SILVER PENCILLED HAMBURGH EGGS.

MR. EDWARD ARCHER, Malvern, will supply EGGS from the birds stated below at 15s. a set of 13, packing box included:—The run contains a Cock and seven choice Pullets. The Cock is two years old, and has taken 1st prize at Birmingham, 1854; the Liverpool Cup, 1855; several first and second prizes since, and 1st at Liverpool, 1856. Four of the Pullets have been exhibited alternately, and have taken the following prizes:—2d at Anerley; 1st at Bridgnorth; 1st at Bedford; 1st at Taunton; 3d at Birmingham; and the Silver Cup at Liverpool, 1856. The three sister Pullets have not been exhibited. Post Office Order must accompany the order for Eggs. The birds may be viewed at any time.—Malvern, Feb. 16.

Sales by Auction.

FANCY POULTRY.—EXTRA SALE 19th FEBRUARY.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 19th February, at 12 o'clock precisely, Spanish Fowls of extraordinary quality from the yard of Sir Archibald Macdonald; first-class Dorkings, prize birds from the Rev. S. Doane; White Cochins from Mrs. Herbert; Buff Cochins, Brahmas, Polands, Ducks, Pigeons, &c., from several amateurs.—Catalogues may be had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CAMELLIAS AND PEAR TREES FROM THE CLARENDON NURSERY, JERSEY.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, the 26th February, at 1 o'clock precisely, 500 PEAR TREES, including some of the best sorts in cultivation, and 500 CAMELLIAS, with bloom buds, sent by Mr. RÉNÉ LANGELIER, of Jersey, for sale without any reserve.—May be viewed on the morning of sale and Catalogues had.

CAMELLIAS, GHENT AND INDICA AZALEAS, STANDARD AND OTHER ROSES, PINKS, PICOTEES, HOLLYHOCKS, AND OTHER HERBACEOUS PLANTS, BRITISH ORCHIDS, &c.

MR. HASLAM will Sell at the Mart, on THURSDAY and FRIDAY, 21st and 22d February, as above.—N.B. Packing Baskets of all sizes will be provided for purchasers.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Hally, of Blackheath, to Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, Feb. 28th, at 12 o'clock, about 300 DOUBLE CAMELLIAS, from 1 to 5 feet, consisting of all the best kinds, well set with bloom buds; also Standard and Dwarf Roses; American Plants, consisting of Ghent and other Azaleas, Hybrid Rhododendrons, Andromeda floribunda, Epacris, Cytisus, Otaheite Oranges, &c. May be viewed morning of Sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

PLUMSTEAD, NEAR WOOLWICH.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the premises as above, on MONDAY, February 25th, at 11 o'clock, Two newly-erected Greenhouses, a capital 3-light Box, about 100 Fruit Trees in pots, established on Quince and other Stocks for Forcing, consisting of Apples, Pears, Cherries, Plums, Peaches, &c.; a choice assortment of Roses in pots and ground; the newest varieties of Chrysanthemums, Carnations, and Pinks; Gooseberries, a few Camellias and Azalea indica. Also a young Alderney Cow (down Calving), 20 Cochin China and other Fowls, Bee-house and Bees, Patent Hives, Water Carriage, Wheelbarrows, Water Butts, Syringe, Garden Pots, and Tools, with sundry effects. On view One day previous to the Sale.—Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

SEEDS FOR THE KITCHEN GARDEN.

SEEDS FOR THE KITCHEN GARDEN *can be obtained from* DEVONSHIRE, *through* Messrs WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. *All orders carriage free.*

See their "PRICE CURRENT AND GARDEN DIRECTORY" just published.

VAN PARCEL TRAINS *are now running on the Great Western and the other Broad Guage Railways, so that Seeds can now be sent from* DEVONSHIRE *with as much regularity and despatch as from any other county in England.*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, Devonshire.

SEEDS FOR WALES.—*Arrangements have been made by the undersigned for the speedy transit of all orders for* WALES. *Seeds can be forwarded from Bristol direct by Steamer, or by the South Wales Railway, viâ Gloucester.*

WILLIAM E. RENDLE & Co., Seed Merchants and Seed Growers, Plymouth, Devonshire.

GARDEN SEEDS FOR IRELAND.—*Plymouth is situated in close proximity with* CORK, DUBLIN, BELFAST, and LIMERICK, *and Steamers call every week at the Great Western Docks, so that purchasers in our sister country will find their orders attended to with promptness and despatch, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

E. MERRY, CHRYSANTHEMUM NURSERY, Stamford Hill, being a successful exhibitor from the formation of the Stoke Newington Chrysanthemum Society in the year 1846, and having taken prizes at the following Exhibitions in the year 1855:—Stoke Newington, 2d; North London, 1st; the Horns at Kennington, Silver Medal; Old Kent Road, 1st. E. M. having selected the best 36 varieties can strongly recommend the same, from 4*s.*, 9*s.*, and 12*s.* per dozen, by Post Office order.—Stoke Newington.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.

N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from this establishment.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Also, a useful practical Treatise on the Cultivation, &c., of Strawberries.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

CUCUMBERS.

JAMES DICKSON AND Sons beg to offer the following much esteemed varieties of Cucumbers, in sealed packets containing six seeds, for 1*s.* 6*d.* each packet, post free. "They should be grown by all Cucumber growers."

MODEL OF PERFECTION.—Has a fine white spine, remarkably prolific and early; the fruit is 20 to 24 inches long when fit for table, and is very handsome.

TELEGRAPH.—Black spine, rather smooth, great bearer, very early handsome fruit.

The following lists are published, and will be forwarded prepaid on application:—

Vegetable and Flower Seeds	Fruit Trees
Roses	Forest Trees.

102, Eastgate Street, Chester; and 23, Market Place (late 106, Deansgate) Manchester.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Feb. 16.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

TO THE WHOLESALE SEED TRADE.

MESSRS. PLATZ AND SON, SEED GROWERS, Erfurt, Prussia, supply from their extensive Stock the very best Flower and Vegetable Seeds, the growth of 1855, through their agent, Mr. R. KENNEDY, Bedford Conservatory, Covent Garden, London.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Feb. 16.

SEED POTATOES.

CHARLES SHARPE AND CO. have the pleasure of offering the following varieties of Potatoes, all of which have been grown by themselves, and are of fine quality.

Per bushel of 4 stones:—

Kidney Early Ash-leaved	5*s.* 0*d.*	Foxe's Seedling	5*s.* 0*d.*
„ Jackson's	5 0	Emperor	5 0
„ Fluke	4 0	Cockney	5 0
Martin's Globe	5 0	Hen's Nest	5 0
Early York	5 0	Oxford	5 0
„ King's	6 0	American Native	4 0
„ Round frame	5 0	White Rough	4 0
		Regent	3 6

Nursery and Seed Establishment, Sleaford, February, 1856.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

Per bushel—	*s.*	*d.*	Per bushel—	*s.*	*d.*
Ashleaf Kidneys	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

TO THE SEED TRADE.

REDUCED PRICES OF SEED POTATOES AND SEEDS.

ABRAHAM HARDY AND SON, SEED GROWERS, &c., Maldon, Essex, recommend to notice their earliest selected kinds of POTATOES of good quality. Per bushel of 56 lbs.; sack 2*s.*, bag 1*s.*

KIDNEYS.	*s.*	*d.*		*s.*	*d.*
Hardy's Seedling Frame	4	0	Hardy's Albert Frame	4	0
„ Ladies' Fingers	4	0	„ Early May	4	0
„ Maldon Heroes	4	0	„ Flour Balls	4	0
ROUND VARIETIES.			„ Prolific Cockneys	4	0
Hardy's Victorias	4	0	Potato Seeds for Exportation.		

Present Reduced Priced Seed List on application.

SOUND SEED POTATOES.

JAMES DICKSON AND SONS, SEEDSMEN and NURSERYMEN, 102, Eastgate Street, Chester, beg to offer the undermentioned first-class varieties of Potatoes for Seed, together with other esteemed varieties, a priced list of which will be furnished, post-free, upon application, which will be found moderate.

EARLY CHINA.—This early and excellent variety was introduced by our senior partner some years ago, and is an established favourite with all who have grown it.

HARROLD'S EARLY FLUKE KIDNEY, PERTHSHIRE REGENT'S, and PRINCE OF WALES. All true to their sort.

102, Eastgate Street, Chester, and 23, Market Place (late 106, Deansgate) Manchester.

NEW GARDEN SEEDS.—SEED POTATOES.

THORNHILL AND DICKSON, Bristol, have now to offer a complete assortment of the above. Priced Catalogues gratis on application.

T. & D. having in past seasons acquired an eminent reputation in the cultivation of Seed Potatoes of genuine merit, they have much confidence and pleasure in recommending the subjoined to their numerous Patrons and Friends:—

NEW LA BELLE KIDNEY, fine early, producing abundantly very large tubers, beautifully white, dry and floury, 14 lbs., 3*s.*

EARLY INCOMPARABLE; the best round Potato in cultivation, earlier than Fortyfold; white, a great and safe cropper, 14 lbs., 2*s.* 6*d.*

Very superior EARLY ASH LEAF KIDNEYS, per cwt. 15*s.*, and many other esteemed varieties; also

The genuine FLUKE POTATO, from the original stock, per cwt. 8*s.* (finest seed sample), per ton, 7*l.* 10*s.* pre-paid.

The above free on board the Bristol Packets or Railways. No charge for bags.

THORNHILL & DICKSON, 27, Bath Street, and Lawrence Hill Nurseries, Bristol.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

NEW TURNIP. WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

PATENT LIGNUM TEXTILE.

NEW PROTECTING MATERIAL, WATERPROOF, A NON-CONDUCTOR, AND DURABLE FOR COVERING PITS, VINE BORDERS, ROOFS, &c.

J. LANCASTER begs to call the attention of Horticulturists to this Material, which has been highly commended by all who have seen it. A Model of a Pit covered with it, showing various ways of applying it, is on view at Mr. KERNAN'S, Seedsman, Covent Garden. Made in sheets, 4 feet by 4 feet 6 inches, long lengths to order. Price 1*d.* per square foot. Pits covered with shutters as shown on the Model at 2*d.* per square foot. Covered with canvass the cost of the canvass extra.

J. LANCASTER, Patentee and Manufacturer, Evelyn Vineries, Edward Street, Deptford.

FINLAY FRASER, JUN. (lately with Messrs. Minter, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that all orders entrusted to their care will be thankfully received and promptly executed. F. R. and G. confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality. Catalogues forwarded gratis on application.—82, Bishopsgate Street Within. London, Feb. 16.

NEW SEED CATALOGUE.

SAMUEL FINNEY AND CO. beg to invite the attention of their numerous friends and the public to their Catalogue of Seeds for the present season, which is now ready, and may be had on application at their Nursery and Seed Establishment, Gateshead, Newcastle-upon-Tyne.

The Catalogue contains lists with prices to each article of all the most approved kinds of Vegetable Seeds, including many new and choice sorts, and comprises all that is requisite for the Kitchen Garden, together with lists of Flower Seeds, forming a collection of more than 700 select sorts, including all the splendid assortments of Stocks, Asters, Balsams, Calceolarias, &c. &c., which they annually import from France and Germany, and which have heretofore given such general satisfaction; many new and beautiful species and varieties have been added this year. Also a complete list of all the most useful kinds of Natural Grasses, Rye-grass, Clover, Turnip, and other seeds in use in the present improved system of agriculture.

Catalogues of Nursery Stock, Garden, and Agricultural Implements, &c. &c., may be had on application as above.

Gateshead Nursery, Feb. 16.

VERBENA "TRANBY."

MARTIN AND SON would recommend the above Verbena to every grower. It is one of the most distinct varieties grown, and they do not hesitate to say it will please every one; colour shaded crimson, very large flower, with an immense cream eye in the way of an Alpine Auricula. It was exhibited at the principal shows here and greatly admired, and ordered to a considerable extent, some making whole beds of it. Price 5*s.* each; if taken by the half dozen, 21*s.* Trade supplied liberally.

Our general Nursery List comprises a good assortment of Coniferæ, Forest, Fruit, and Ornamental Trees, Evergreen and Deciduous Flowering Shrubs, Greenhouse and Bedding Plants, Hollyhocks, Chyrsanthemums, Phloxes, and Bulbous Roots, with prices; also a List of Culinary Seeds may be had. Every article before sending out is tested, and can warrant them to grow well. See our List with price, which, no doubt, will induce you to order. Transplanted Swede and other Turnip Seeds from 30*s.* to 48*s.* per bushel; 18 varieties of Flower Seeds, free for 15 stamps.—Nursery and Seed Establishment, Cottingham (A.D., 1788), Hull Branch Junction Street.—MARTIN & SON, Proprietors.

NEW CELERY—COLE'S DEFIANCE RED.

WILLIAM COLE, NURSERYMAN, SEEDSMAN, AND FLORIST, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a great improvement on his well known Celery, "Cole's Dwarf Solid Red," being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, free by post, 2*s.* each.

It can also be procured from the following agents:—

Messrs. Hurst and McMullen, 6, Leadenhall Street; Messrs. Noble, Cooper, and Bolton, 152, Fleet Street; Messrs. Minier & Co., 60, Strand; Messrs. Charlwood & Cumming, Covent Garden; Messrs. Nutting & Son, 46, Cheapside, London; Mr. Turner, Slough; Mr. Duncan Hairs, St. Martin's Lane; Mr. Denyer, Gracechurch Street; Messrs. Downie and Laird, Edinburgh; Messrs. F. & J. Dickson, Chester; Messrs. J. & J. Fraser, Lea Bridge, Essex; Messrs. Little and Ballantyne, Carlisle; Messrs. Veitch & Son, Exeter; Mr. J. Veitch, Exotic Nursery, Chelsea; Messrs. Finney & Co., Gateshead; Mr. A. Pontey, Plymouth; Mr. E. Rendle, Plymouth; Mr. Cattell, Westerham, Kent; Messrs. Lucombe, Pince, & Co., Exeter; Mr. Browne, Norwich; J. Cole, Keyfield Nursery, St. Alban's; Garraway & Mayes, Bristol; Drummond & Son, Stirling; J. Dickson & Son, Market Place, Manchester; F. Winstanley, Market Place, Manchester; F. & A. Dickson, Corporation Street, Manchester.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 16, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 8.—1856.] SATURDAY, FEBRUARY 23. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will take place on TUESDAY, February 26, on which occasion the effects of Grafting will be a subject of inquiry and discussion. The Chair will be taken at 2 P.M.

THE SOCIETY OF ARTS ANNUAL COLLECTION OF INVENTIONS will be opened at the Society's house, John Street, Adelphi, on EASTER MONDAY, the 24th March. It will comprise Models and Specimens of Recent Inventions, whether patented, registered, or not, and of works of recent construction. Articles for Exhibition must be forwarded, carriage paid, on the 6th, 7th, or 8th of March.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

BENJAMIN MALLER, late Gardener at Belmont-Lee, Kent, begs to announce to his friends and the public that he has, with Mr. ROBERT MILLER, of Lewisham, taken the Premises, 5, Granville Terrace, High Road, Lewisham, where they intend carrying on the business of Seedsmen and Florists.

M. & M. will supply every article that is requisite for a garden of the very best description at the lowest possible prices.

TO THE TRADE.

NEW PURE WHITE COLLINSIA.—The price per ounce of this new and beautiful ANNUAL can be had on application.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

WAITE'S DANIEL O'ROURKE PEAS.—The best Early Pea in cultivation can be supplied in any quantity, and price had on application to J. G. WAITE, Seed Merchant, 181, High Holborn, London.

EARLY WHITE FIELD PEA.—NEW EARLY RACEHORSE—comes off early in July in time for Turnips, and is a good cropper. Price 12*s*. per bushel.

SUTTON & SONS, Seed Growers, Reading, Berks.

GIANT SAINTFOIN.—*The True Giant Saintfoin may be obtained genuine of the undersigned, at 10s. per bushel. It will thrive on all soils.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

CARNATIONS, PICCOTEES, ETC.

CHARLES SCHOFIELD has this spring a fine healthy stock of the above; also PINKS, PANSIES, &c. Catalogues on application containing descriptive lists of those and many other Florist Flowers. Pansy Seed selected from the finest show flowers, 2*s*. 6*d*. per packet. Hollyhock Seed, extra fine, 1*s*. 6*d*. to 2*s*. 6*d*. per packet.—Knowsthorpe, near Leeds.

DOUBLE WHITE CAMELLIAS.

JOHN HENCHMAN, JUNIOR, begs to offer fine bushy home-grown Plants, full of flower-buds, at 24*s*., 27*s*., 30*s*., and 36*s*. per dozen; a few extra size at 3*s*. 6*d*. each.

INDIAN AZALEAS, short bushy Plants, full of flower-buds, at 15*s*., 18*s*., 24*s*., and 30*s*. per dozen.

Opposite the Golden Fleece, Lower Edmonton.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (TRUE).

CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s*. 6*d*. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

TO THE SEED TRADE.

BASS AND BROWN beg to offer to the Trade True and Fine Stocks of the following. Prices on application.

BEANS.—Taylor's and common Windsor, Sword, Hangdown, and Green Longpods.

PEAS.—Fairbeard's new Nonpareil; also a few quarters of each of Ringwood Marrow, Flack's Victory, Emperor, &c.

KIDNEY BEANS.—Of sorts.

CARROTS.—Altrincham and White Belgium.

Wholesale Seed Lists on application.—Seed Establishment, Sudbury, Suffolk.

IMPORTANT TO PURCHASERS OF SEEDS.

SUTTON'S SEED CATALOGUE, *with prices of every article, will be sent gratis and post free to any address.* Also,

SUTTON'S AMATEUR'S GUIDE. Published by LONGMAN, Paternoster Row. Price 6*d*., or free by post 7*d*., in penny stamps.

SUTTON & SONS, Seed Growers and Merchants, Reading.

J. G. WAITE'S CATALOGUE is now ready, and can be had on application.

Seed Establishment, 181, High Holborn, London.

KITCHEN GARDEN AND FLOWER SEEDS.

JOHN CATTELL'S CATALOGUES of the above are now ready, and may be had on application.

Westerham, Kent.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

SEED GROWING ESTABLISHMENT, WISBECH, CAMBRIDGESHIRE.

CHARLES SHARPE begs respectfully to inform the Trade that his CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS, cultivated and saved under his own management, will be forwarded post free on application.

NEW PLANT CATALOGUE.

WILLIAM RUMLEY AND SONS' New Descriptive SPRING CATALOGUE for 1856, of New and Choice Fuchsias, Verbenas, Geraniums, Cinerarias, Petunias, Dahlias, Pansies, Hollyhocks, Chrysanthemums, Stove, Greenhouse Bedding, and Hardy Plants at very reduced prices is now ready and may be had on application.

Gilling, near Richmond, Yorkshire.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is Now Ready, and will be sent free by Post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.

Tollington Nursery, Hornsey Road, Islington, London.

BEFORE ORDERING YOUR SEED POTATOES, send for THORNHILL & DICKSON'S DESCRIPTIVE PRICED LIST of the best leading varieties. OBSERVE!—27, Bath Street (facing the Talbot Hotel), BRISTOL; and Nursery Grounds, Lawrence Hill.

N.B. A complete assortment of Kitchen Garden, Flower, and Agricultural Seeds. Priced Catalogues free by Post.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.

Seed Warehouse, 28, Market Place, Manchester.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s*. The Trade supplied.

T. F. WINSTANLEY, Seed Merchant, Manchester.

CELOSIA AUREA.

FRANCIS AND ARTHUR DICKSON AND CO., SEED MERCHANTS, 14, Corporation Street, Manchester, offer Seeds of the above very graceful Plant, at 2*s*. 6*d*. per packet.

TO THE SEED TRADE.

G. TABER, SEED GROWER, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

CHEAP AND SELECT NURSERY STOCK.

WILLIAM JACKSON AND CO., Bedale, Yorkshire, beg to refer purchasers to their advertisement of useful Nursery Stock in the *Gardeners' Chronicle*, page 109.—Feb. 23.

W. STEWARD AND CO., the only firm who supply SEEDS AT GROWERS' PRICES, Package and Carriage free. Lists on application, 13, Drake Street, Plymouth. Collections 10*s*., 20*s*., 30*s*., 40*s*. each, value 10 per cent. more.

PRIMULAS—PRIMULAS—PRIMULAS.

LATTER'S PRIMULAS, and WILD'S IPSWICH STANDARD CUCUMBER, of world-wide celebrity, are now being sent out with Orion Melon, Hollyhocks, and Pansies, free by post for 7*s*. 6*d*., with Latter's "Hints on the Cultivation of Primulas," coloured drawing of a beautiful seedling, &c., on application to THOMAS WILD, Ipswich.

THE SEED TRADE.

WILLIAM CUTBUSH, NURSERYMAN, Barnet, Herts, begs to inform his Patrons and the Public that his Stock of Vegetable and Flower Seeds are unusually fine this season, and can recommend them as true to name, and such as will give satisfaction.

W. C. has a fine Stock of Shrubs and Ornamental Trees in good condition for planting.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Advertisements which appeared on the 2d Feb.

Royal Nursery, Great Yarmouth, Norfolk.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

NURSERY TREES.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have on Sale a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL PLANTS, SHRUBS, and FRUIT TREES, at very moderate prices. Catalogues may be had on application.—Feb. 23.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

NOTICE TO GROWERS OF PINE-APPLES.

WANTED, FOR THE LIVERPOOL MARKET, a quantity of good PINES, not under 2 lbs. each. Forward immediately.—GEORGE TAYLOR, Jun., Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

WANTED, one, two, or three ORANGE, LEMON, or CITRON TREES; also a large sized POMEGRANATE.—Apply by letter to A. D., Post Office, Brook Street, stating lowest price.

TO BE SOLD, six to eight dozen healthy PINE APPLE PLANTS, showing fruit. Also four dozen SUCCESION PLANTS.—Mr. G. EDWARDS, Gardener, Winterfold Kidderminster.

SUCCESSION PINE PLANTS.

TO BE SOLD, about 40 SUCCESSION PINE PLANTS, healthy and vigorous.—Apply to JAMES DICKSON, SONS, & Co., 23, Market Place, Manchester.

TO GENTLEMEN AND BUILDERS PLANTING.

TO BE SOLD, some FRUIT TREES of large growth, a few Shrubs and Forest Trees, 140 feet of Asphalte, Kerb Stone, and Circular Iron Fence for a Fish Pond.—Apply at Amherst House, Amherst Road, Shacklewell, Stoke Newington.

TO BE SOLD, very handsome large IRISH YEWS, from four to eight feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

FALSTAFF'S RASPBERRY CANES.—Any quantity of the above may be had at 2*s*. 6*d*. per hundred. Liberal discount to the trade. Orders for 500 delivered to any Railway Station in London. Post-office orders made payable to WILLIAM MANN, Post Office, Brentford.—Mogden Lane, Isleworth.

GEORGE LEE, MARKET GARDENER, &c., Clevedon, near Bristol, has a surplus Stock of POTATOES and STRAWBERRIES, both of first-class varieties—see Advertisement Feb. 7. Early orders are solicited, as the stock of many is limited. (All Black Prince Strawberry sold.)

Post Office Orders payable at Clevedon to GEORGE LEE.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply the HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES at 6*s*. per dozen. FLUKE KIDNEY POTATO (true), 3*s*. per bushel, 56 lbs. CARNATIONS, PICOTEES, PINKS, PANSIES, &c. &c. &c.

Catalogues now ready.

THE FLUKE KIDNEY POTATO (TRUE).

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now enabled to offer the above excellent POTATO, which, having been raised in Middleton, may be depended upon as GENUINE, and from the ORIGINAL stock. May be had of a medium size for planting, at 3*s*. per bushel of 56 lbs.

GENUINE FLUKE KIDNEY POTATO.

FRANCIS AND ARTHUR DICKSON AND CO., SEED MERCHANTS, 14 Corporation Street, Manchester, offer the above very prolific and hardy Potato, carefully picked for sets. Price may be had on application.

FLUKE KIDNEY POTATOES, 5*l*. per ton; in quantities less than 1 ton, 6*s*. per cwt; sacks, 1*s*. per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.

HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

ASH-LEAF KIDNEY POTATOES, one year, from Yorkshire, carefully selected, 8*l*. per ton; SHAWS, very first rate stock, 4*l*. 10*s*. per ton; REGENT PLANTS, 4*l*. per ton for cash, of W. G. K. BREAVINGTON, Vicarage Farm, Hounslow. (Sacks 2*s*., each holding 2 cwt.)

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

B. HORTON, Lewisham Bridge, Kent, offers for sale true SEED POTATOES, warranted direct from Yorkshire. Early Shaws and Yorkshire Regents at 4*s*. per bushel of 56 lbs., or 6*l*. per ton, delivered free within 6 miles.

N.B. A superior stock of Maple stakes selected expressly for Orchidaceous baskets, and every other kind of stakes supplied in large or small quantities at the lowest price.

SEED POTATOES.—The following sorts, from true and healthy stocks, may be had as below, namely:—Kidney: Fiftyfold, Fluke, Lapstone, and Painted Lady. Round: Early Oxford, Early Frame, Early Cockney, Fortyfold, British Queen, Early Shaw, York Regent, and Purple Regent.—Prices on application. A descriptive, historical, and comprehensive Catalogue of Flower and Vegetable Seeds forwarded on receipt of three penny stamps. A remittance with order from unknown correspondents.—HOOPER & Co. Covent Garden Market.

NEW CELERY—COLE'S DEFIANCE RED.

WILLIAM COLE, Nurseryman, Seedsman, and Florist, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a great improvement on his well known Celery, "Cole's Dwarf Solid Red," being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, free by post, 2*s.* each.

It can also be procured from the following agents:—

Messrs. Hurst and McMullen, 6, Leadenhall Street; Messrs. Noble, Cooper, and Bolton, 152, Fleet Street; Messrs. Minier & Co., 60, Strand; Messrs. Charlwood & Cumming, Covent Garden; Messrs. Nutting & Son, 46, Cheapside, London; Mr. Turner, Slough; Mr. Duncan Hairs, St. Martin's Lane; Mr. Denyer, Gracechurch Street; Messrs. Downie and Laird, Edinburgh; Messrs. F. & J. Dickson, Chester; Messrs. J. & J. Fraser, Lea, Bridge, Essex; Messrs. Little and Ballantyne, Carlisle; Messrs. Veitch & Son, Exeter; Mr. J. Veitch, Exotic Nursery, Chelsea; Messrs. Finney & Co., Gateshead; Mr. A. Pontey, Plymouth; Mr. E. Rendle, Plymouth; Mr. Cattell, Westerham, Kent; Messrs. Lucombe, Pince, & Co., Exeter; Mr. Browne, Norwich; J. Cole, Keyfield Nursery, St. Alban's; Garraway & Mayes, Bristol; Drummond & Son, Stirling; J. Dickson & Son, Market Place, Manchester; F. Winstanley, Market Place, Manchester; F. & A. Dickson, Corporation Street, Manchester.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of Sutton's Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early. Price reduced to 9d. per lb.

From Mr. G. Norrington, Rectory Farm, Taplow, 26th 11, 1855.

"About five years ago I wrote to you to send me a mixture of Grass seeds to sow upon 10 acres of old pasture. At the time I took the farm the 10 acres of meadow was almost useless. I now have a most excellent pasture."

From C. F. Thruston, Esq., Talgarth, August 9, 1855.

"Your seeds have answered admirably. Turnips, Mangels, Carrots, and Parsnips are superb. Your Grass seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable; Clover and other seeds springing up where nothing but the poorest pasture had been previously, and I think that a field of 9 acres sown with your RENOVATING MIXTURE, is now one of the finest in our neighbourhood."

From Sir David Cunynghame, Wellesbourne House, Warwick.

"The meadows that were renovated with your seeds are looking very well. I cut nearly 2 tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre. The Garden Seeds I have had from you exceed by far any that I have bought elsewhere.'

Sutton & Sons *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense,* the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.

Many Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds (as see the above letters).

Goods delivered Carriage Free by Rail.

Address, John Sutton & Sons, Seed Growers, Reading, Berks.

J. C. WHEELER and SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	d.
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed, 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgbaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. D. Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year are really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established more than a hundred years.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.

THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "Sutton's *Complete Collections for one year's supply," particulars of which may be had on application, addressed*—

Sutton & Sons, Seed Growers and Merchants, Reading.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3	0
Collection No. 2. in reduced proportions	2	0
Collection No. 3. do.	1	5
Collections for small Gardens ... ... 10*s.* 6*d.* and	0	15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2*s.* 6*d.*
" " in larger packets, mixed 2*s.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	d.
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	s.	d.
30 superb vars. dwarf German Stock, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony-flowered French do. (Truffaut's)...	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p. 46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1*s.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

Goods Carriage Free (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

Catalogues for the season to the present time sent free for three penny stamps.—Post-office orders payable to Bass & Brown, or to Stephen Brown, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).

Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.

Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s* 6*d.* to 21*s.*

Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).

Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.

Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.

Libocedrus gigantea, 10*s.* 6*d.*; about 9 feet, 31*s.* 6*d.*

Pinus Cembra, 3 to 4 feet, 5*s.*

" Douglasi, 3 to 4 feet, 3*l.* 6*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*

" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).

" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.

Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.

Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to

Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*

Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.

Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.

Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l.* per 1000.

" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.

" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.

" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.

" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.

Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s.*, to 24*s.* per dozen.

Hardy Heaths, superior collection, 35*s.* per 100.

Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. Waterer feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

COTTINGHAM NURSERIES—ESTABLISHED 68 YEARS AGO.
HULL BRANCH ESTABLISHMENT, JUNCTION STREET.

MARTIN AND SON'S
CATALOGUE OF VEGETABLE SEEDS

May be had on application, and we trust the low prices there quoted will induce those who have not yet patronised us to give us a trial. Every article is tested, and quality equal to any respectable firm in Europe, we rather flatter ourselves, our firm having been established above half a century, and conducted by Mr. M., Senior, for above 40 years.

SKIRVING'S & MOSS FANG SWEDE TURNIP (own growth), 35*s.* per bushel.
FLOWER SEEDS made up, 16 sorts, 100 seeds of each, for 15 stamps free.
GERMAN STOCKS, 12 varieties, imported, 2*s.* 6 *l.* the collection.
" ASTERS, 8 vars., imported, Truffaut's, 2*s.* 6*d.* the collection.
POTATOES—Mutch's Early is one of the most prolific and best flavoured grown, 6*s.* per bushel of 70 lbs.

Also a fine Collection of Geraniums, good and healthy, 6*s.* to 9*s.* and 30*s.* per dozen. Seedling Cinerarias and Calceolarias, in 4 and 6 inch pots, at 4*s.* and 6*s.* per dozen.

Our General Nursery List may be had on application.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S
CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had gratis on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. A select List of FLOWER SEEDS that are recommended for their superior beauty and novelty may be seen on reference to page 93 of the *Gardeners' Chronicle.*

Plants of the GYNERIUM ARGENTEUM and the new Double White PETUNIA IMPERIALIS can be supplied by the dozen or 100. Price may be had on application.

The following new FUCHSIAS to be sent out in May have, with the exception of the Countess of Burlington, been raised by the eminent cultivator, Edward Banks, Esq., from whom the stock has been purchased:—

EMPEROR NAPOLEON (Banks).—Deep rich scarlet crimson; sepals extra wide, and beautifully reflexed, and of such substance that the flower has the appearance as if made of wax: corolla deep violet. This Fuchsia is the largest and finest that has ever been sent out; the size, width, and substance of its petals, with other superior qualities, can scarcely be imagined unless seen on the plant. Price 10*s.* 6*d.*

VENUS DE MEDICI (Banks).—A great novelty, and the most beautiful Fuchsia that has been introduced for many years; tube white, with sepals of a blush pink, or white shaded and striped with pink; corolla deep violet blue, large and beautifully formed: yet the above description will scarcely give an adequate idea of its beauty, as the colour is quite new among Fuchsias, but we have no hesitation in saying it will prove one of the finest varieties for exhibition. The habit of the plant is superior to any other white Fuchsia in cultivation; the flowers are large, well reflexed, and elegantly formed: the sepals are very long, which gives the flower a most striking appearance. Price 10*s.* 6*d.*

DONNA JOAQUINA (Banks).—Scarlet crimson tube and sepals, the latter splendidly reflexed; the tube very short and thick; corolla violet-blue, a striking and novel colour, the substance of which is exceedingly fine, giving it the appearance of a thick leathery substance. Price 10*s.* 6*d.*

COUNTESS OF BURLINGTON (Story's).—Scarlet tube and sepals, elegantly reflexed, with a beautiful pure white corolla; habit of the plant graceful. This may be considered the finest white corolla'd Fuchsia yet sent out. Price 10*s.* 6*d*

VOLCANO DI AQUA (Banks).—Rich glossy scarlet, with well reflexed sepals; corolla violet, extra large; a wonderful flower for size, and a very free bloomer. Price 10*s.* 6*d.*

CHARLEMAGNE (Banks).—Rich scarlet, sepals well reflexed, with a large barrel-shaped, violet-purple corolla; dwarf habit and free bloomer; very distinct and novel. Price 10*s.* 6*d.*

*** Persons ordering the whole of the above set will have Story's Double White Corolla'd Fuchsia, "Ranunculæflora" given in gratis. This variety, our customers are aware, we were unable to send out last spring on account of the smallness of the stock.

We can with confidence recommend the above Fuchsias as the finest that have been sent out for many years, as having quality, size, and colour far surpassing all others, either for exhibition or ornamental effect in the Conservatory.

Wellington Nursery, St. John's Wood, London.

PEARS GRAFTED ON THE QUINCE AS PYRAMIDAL SHAPED TREES.

J. AND J. FRASER beg to announce that their Priced List of the above is now published, and may be had post free on application.

J. & J. F. have sold a large number of these Trees for the last three years, and have received numerous letters from gentlemen in the country speaking in very high terms of their productiveness. They can therefore recommend them with greater confidence to the notice of their friends and the public in general.

Lea Bridge Road, Essex.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

FIVE HUNDRED BUSHELS OF POTATOES TO THE ACRE.—This enormous crop was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

THE CHAMPION KIDNEY POTATO.

EDWARD TILEY begs to state, in answer to the numerous applications that have been made within the last fortnight by persons who purchased the above last season, wishing to know if they can be supplied with seed of the same again, that he has about 20 bushels of good sound sets to dispose of.

This variety bears a strong resemblance to that fine old Potato the Ashleaf Kidney. If planted at the same time it will come in ten days earlier; it is quite equal to that in flavour, and will give double the crop. As a proof of its superior quality, a market gardener who purchased a peck of them last season has just sent an order for a sack, for his own planting. Several persons who forced them last spring speak in the highest terms of their being the best they ever grew for early frame work.

THE EARLY EMPEROR POTATOES.

This is one of the best keeping varieties that has ever yet been sent out. It is a fine red Potato, nearly round, and the eye level with the surface, so that there is no waste to it in peeling as in most other sorts, which in general possess deep eyes. It is a seedling from that well known kind the "Old Rough Red;" it is very mealy when boiled, and is so rich in flavour that it cannot be equalled by any other Potato now in cultivation. It will be found to keep well until new Potatoes come in plentiful again. The above will be sure to give the greatest satisfaction to all purchasers.

Sold in quantities of not less than one peck; they will be sent, hamper and package free, at 5*s.* 6*d.* per peck; or four pecks for 1*l.*, hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest Railway Station to their residence.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than Soden's Oxford, which in some respects it resembles, and far more free from disease, planted in the same soil and in every way alike."—Mrs. CANNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large.

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s.* per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s.* 6*d.* per peck, or 9*s.* per bushel.

We don't pay carriage of Potatoes.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10*s.* 6*d.* The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

BASS AND BROWN beg to offer the following, all of fine and strong growth Plants:—

ROSES.

100 Standards, in	100	splendid vars.	... ...	£7	0 0
100 "	50	"	... ...	6	0 0
100 Dwarfs,	100	"	... ...	3	0 0
100 "	50	"	... ...	2	5 0
100 "	100	"	the whole perpetual bloomers ...	5	0 0
100 "	50	"	" ...	4	0 0

Choice Selections, per dozen, Standards, 15*s.* to 24*s.*; Dwarfs, 6*s.* to 18*s.*; Short Standards, on 1½ to 2 feet stems, 9*s.* to 21*s.*

DWARF TRAINED FRUIT TREES.

A very fine lot of strong well grown two and three year trained Fruit Trees. Gentlemen requiring first-rate trees for planting will not be better supplied:—

Apricots, Peaches, Nectarines ... ... fine, 3*s.* 6*d.* each; extra, 5*s.* each.

Plums, fine, 2*s.* 6*d* each; extra, 3*s.* 6*d.* each.

Other FRUITS, all of choicest sorts, see Catalogue.

Hardy Herbaceous Plants, 100 distinct and showy vars., 30*s.*, or 50 for 17*s.* 6*d.*

Ditto, 100 superior and newer vars., 50*s.*, or 50 for 30*s.*

Hardy and Flowering Ornamental Shrubs, 20 fine vars., 12*s.*; 20 fine newer vars., 24*s.*

Hardy Climbing Plants, 20 fine sorts, 20*s.*

Camellias, choice assortments, per dozen, well set with flower-buds, 30*s.* to 60*s.*

RHUBARB.—Bailey's Early Monarch, each 2*s.* 6*d.*; Salt's Crimson Perfection, 3*s.* 6*d.* These two varieties are very similar, and the earliest grown.

Ditto, Victoria Giant, 7*s.* 6*d.* per doz.; Myatt's Linnæus, a good early sort, 7*s.* 6*d.* per doz.

SEAKALE, strong, for Forcing, 10*s.* per 100.

Catalogues, Nos. I., II. and III., for the present Season, for warded complete for three penny stamps.

Goods carriage free (not under 20*s.*) to all the London termini, and all Stations on the Colchester line between London and Norwich.

Seed and Horticultural Establishment, Sudbury, Suffolk.

UNEQUALLED NEW MELONS.

THE FOUR BEST SUPERB VARIETIES THAT HAVE EVER YET BEEN SENT OUT.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2*s.* 6*d.*

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon; it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit; flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2*s.* 6*d.*

Also Monro's Crystal Palace Hero. This was awarded the first prize for the best and heaviest hybrid Persian Melon; 2*s.* 6*d.* per packet.

Monro's Golden Gauge Melon was awarded the first prize for the best flavoured Green Flesh variety at the Crystal Palace; 2*s.* 6*d.* per packet.

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each of the four varieties will be charged 7*s.* 6*d.*, or two packets of either kind for 4*s.* A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1856.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2½ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester
Messrs, F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

CEDARS.

A. PAUL AND SON offer for Sale CEDRUS DEODARA, 1 foot to 8 feet, from 1*s.* 6*l.* to 31*s.* 6*d.* each. CEDRUS LIBANI, 3 feet to 10 feet, 3*s.* 6*d.* to 31*s.* 6*d.* each. Magnificent specimens of the above and every intermediate size, *frequently removed*, may be had in any quantity, carriage free to London, from A. PAUL & SON, Nurseries, Cheshunt, Herts.

NE PLUS ULTRA LETTUCE.

HART AND NICKLIN, SEEDSMEN, Guildford, offer to the public the above Lettuce. It is a Brown Cos variety, folds and blanches beautifully without tying, is fine of texture and very sweet; worthy of notice by the small or large grower. ¼ oz packets, 2*s.* 6*d.*, free by post.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. Per Post prepaid.

		Per packet.—*s.*	*d.*
PANSY, saved from	100 of the best varieties, by name ..	2	6
POLYANTHUS "	50 " " ...	2	6
VERBENA "	50 " " ...	2	6
HOLLYHOCK "	60 of the most superb kinds " ...	2	6
CALCEOLARIA "	24 " spotted varieties ...	2	6
GLOXINIA "	30 of the best varieties	2	6
DAISY "	50 of the new Belgian vars, by name	1	6
ANTIRRHINUM "	20 best named varieties	1	0
ANEMONE, from the most showy and brilliant kinds ...		1	0
30 packets of New Choice Flower Seeds, per post, free for		5	0

YOUELL & Co., Royal Nursery, Great Yarmouth.

BEARING TRAINED FRUIT TREES.

THOMAS JACKSON AND SON having the greatest extent of Wall in the trade, are enabled to offer at moderate prices the under-mentioned FRUIT TREES trained for Walls or Houses:—

DWARF TRAINED PEACHES, 7*s.* 6*d* each.
" " NECTARINES, 7*s.* 6*d.* each.
" " APRICOTS, 7*s.* 6*d.* each.
" " GREENGAGE PLUMS, 5*s.* each.
" " MORELLO CHERRIES, 4*s.* each.
STANDARD TRAINED PEACHES, 10*s.* 6*d.* and 15*s.* each.
" " NECTARINES, 10*s.* 6*d.* each.
" " APRICOTS, 10*s.* 6*d.* to 21*s.* each.
" " PLUMS, 5*s.* and 7*s.* 6*d.* each.
" " MORELLO CHERRIES, 5*s* each.

The above are all set with Flower-buds, and are capable of bearing Fruit this season.

Fine Trained Trees of the usual nursery size, from 2*s.* 6*d.* to 5*s.* each.

STANWICK NECTARINE, Standard Trained, 10*s.* 6*d.* each.
KAISHA APRICOT, Dwarf, 2 Years' Trained, 5*s.* each.

Nurseries, Kingston-on-Thames.

VERBENA "TRANBY."

MARTIN AND SON would recommend the above Verbena to every grower. It is one of the most distinct varieties grown, and they do not hesitate to say it will please every one; colour shaded crimson, very large flower, with an immense cream eye in the way of an Alpine Auricula. It was exhibited at the principal shows here and greatly admired, and ordered to a considerable extent, some making whole beds of it. Price 5*s.* each; if taken by the half dozen, 21*s.* Trade supplied liberally.

Our general Nursery List comprises a good assortment of Coniferæ, Forest, Fruit, and Ornamental Trees, Evergreen and Deciduous Flowering Shrubs, Greenhouse and Bedding Plants, Hollyhocks, Chrysanthemums, Phloxes, and Bulbous Roots, with prices; also a List of Culinary Seeds may be had. Every article before sending out is tested, and can warrant them to grow well. See our List with price, which, no doubt, will induce you to order. Transplanted Swede and other Turnip Seeds from 30*s.* to 48*s.* per bushel; 18 varieties of Flower Seeds, free for 15 stamps.—Nursery and Seed Establishment, Cottingham (A.D., 1788) Hull Branch Junction Street.—MARTIN & SON, Proprietors.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL, AND OTHER FARM SEEDS *being good, prices are much lower this season (at present) as see* Messrs. SUTTON'S *Priced List*, which may be had, post free, on application, Addressed SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 23, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Feb. 26—Horticultural ..... 2 P.M.

THE mode of ascertaining the percentage of good seeds in any given sample is to our great surprise declared by some of our correspondents to be a profound mystery, which they think it would be useful to penetrate. That TRYING SEEDS, as it is technically called, is useful—very useful—is true enough; but as to the mystery of the art, there is none.

When a merchant buys a parcel of seed he always tries it, or should do so, in order to be certain that he buys what is sold him. He does not allow his country friend or foreign correspondent to send him a sample half of which will grow while the other half is dead; but he requires it to be all good, or if not he ascertains the percentage of dead seed, and makes his purchase accordingly. It is certainly desirable, in these days of eager competition and underselling, that the retail customer should do in a small way what the merchant does on the large scale; unless he

be content to make his purchases blindfold. It is well known that there are persons in the trade who carry on a much more satisfactory business by selling seeds below their cost price, than others who add 25 per cent. for profit. Thus A will give a shilling for an article, sell it for ninepence, and grow rich, while B gives a shilling for the same article, sells it for fifteenpence and loses his trade, being denounced as a man whose charges are extravagant. No wonder that the public should wish to be enlightened on this matter. We are glad that our attention has been directed to it thus opportunely when gardeners are procuring their spring supplies.

Everybody knows that after seeds have been kept a certain time they are incapable of growing. It is equally notorious that all seeds may be *killed*, by hot water, or hot dry air. In neither case is there a change in their outward appearance, except in particular instances. It is also notorious that some seeds are undistinguishable by the eye, although they produce totally different plants. No one, for instance, can tell the varieties of Carrot, Beet, Turnip, Cabbage, Radish, &c., from each other by their seeds. Red Beet, for instance, worth 8*s.* a pound retail, is not to be known by its seeds from Mangel Wurzel worth 6*d.*; nor Cauliflower worth half-a-crown an ounce from Cabbage seed worth 5*s.* a pound. These data furnish the clue to the great mystery before us.

Thus: A and B both give 16*s.* per lb. for Cauliflower seed. A retails his at 15*d.* an ounce; while B is satisfied with 9*d.* A loses his trade, as we have already stated; while B is thriving. This, like all great operations, is brought about by very simple means. A sells all his seed as he bought it; but B knows better; he perfectly understands the love of the public for what is cheap, and he complies with the popular taste and prepares a cheap article. Instead of acting like his simple competitor, he buys for a shilling another pound of Cabbage seed which has either died a natural death, or been killed for the occasion. This is carefully mixed with the Cauliflower seed, and makes as nice and clean a sample as can be desired. In this way he obtains 2 lbs. of seed for 17*s.* instead of one lb. for 16*s.* These he retails at 9*d.* an ounce, and converts into 24*s.*; while A, with his honesty, receives only 20*s.* Moreover, for one pound sold by A with 25 per cent. profit, B sells ten, with 50 per cent. Can any one be surprised at the prosperity of the one and the adversity of the other?

If we are to judge from the endless complaints which reach us there must be a good deal of such ingenuity at work. It is therefore desirable, in the interest of the fair trader no less than in that of the public, that the manner of detecting such practices should be explained. "Trying" seeds reveals the secret. Nothing is easier, or more certain of success. We will suppose that a gardener has bought a pound of Radish seed. He is to count out some even number of seeds, *exactly as they follow* when spread on a piece of paper; the usual and most convenient number is 100. These he is to sow carefully in finely-sifted mould in a flower-pot, which is afterwards plunged in a hotbed, as if he were attempting to raise some tender annual. In a few days all the seeds which are good will have grown. He then has only to count them, and the difference between the number which grows and that which was sown is the percentage of useless seed. When a hotbed is not to be had, the necessary heat may be obtained by plunging the flower-pot in a heap of warm stable litter covering it with a hand-glass, or even by placing it under a bell glass in a warm room. The only precaution that requires to be taken is to be careful not to consider plants which may damp off in the operation as representing bad seeds. The damp confined atmosphere in which the seeds are raised renders this accident very likely to occur.

Gardeners are not the only persons interested in the operation. When we look at the prices at which agricultural seeds are sometimes sold, we cannot doubt that a "trial" of such against more high priced seeds would be advantageous. The subject indeed is of more importance to farmers than to gardeners when we consider how much greater is the stake which the former have in their crops. They may discover that very cheap agricultural seeds are as expensive as very cheap manures.

A notice has been issued by the Horticultural Society that at the meeting, on Tuesday next, Feb. 26, some questions relating to the effect of grafting upon certain descriptions of plants will be illustrated by specimens collected for the purpose. It is understood that the principal object will be to show what the causes are of failure or success in this ancient operation, and to demonstrate the impossibility of any permanent or healthy junction being effected between the scion and its stock in many cases where propagation by grafting is attempted.

The importance of such a subject will be appreciated by the buyers of plants, who are invited to contribute any evidence they may possess. That evidence is not however required for the purpose of showing that grafted plants are often as perfect as seedlings; proofs of this are to be procured anywhere. What are wanted are specimens, dead or alive, of bad grafting; that is to say of grafts which have failed from any cause whatever—whether by reason of an unskilful operator, or of the stock not suiting the graft, or from other circumstances.

We also learn that a further supply of Gynerium seed has been received for distribution from E. Brande, Esq.

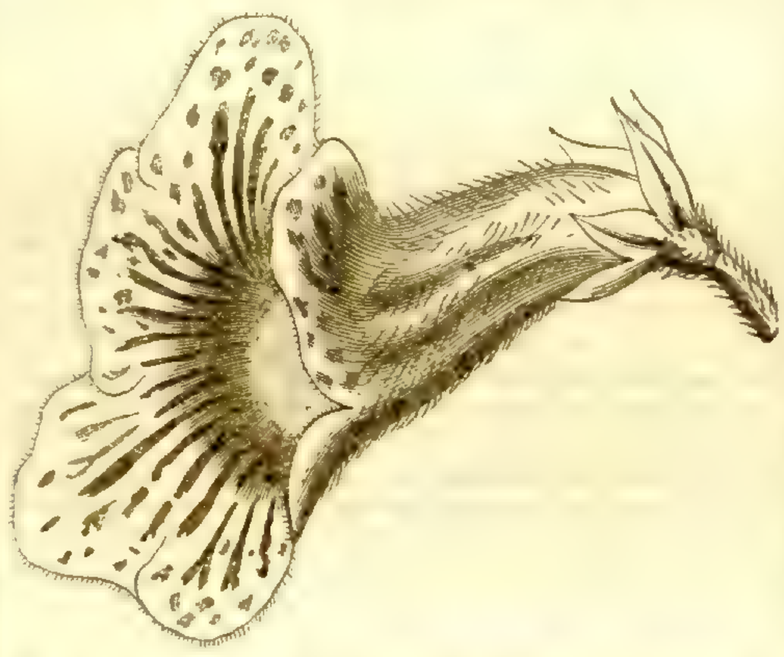
We learn with much satisfaction that the late case of poisoning with Monkshood (see p. 67), has attracted the attention of Sir Wm. Hooker; and that there has been recently placed in a conspicuous situation in the Kew museum a specimen of the root of the Monkshood by the side of one of Horseradish, together with a short description of the points in which they differ. This is really using a great public institution for great popular advantage.

New Plants.

163. Achimenes magnifica; *aliàs* Locheria magnifica. *Planchon and Linden in Fl. des Serres*, x. t. 1013.

Most people would call this an Achimenes, of which it has all the habit, and as far as we can discover all the essential points of structure. We must, therefore, object to the introduction of a new name for which there is no sort of necessity, either botanical or horticultural. It is said that Locheria differs from Achimenes in having the cup in which the ovary is seated of a membraneous instead of a fleshy texture; so that the subdivision of genera is now to be made dependent, not only upon the mere thickness of an organ, but what is worse, of one of no functional importance. To that doctrine few in this country will subscribe.

Putting aside names we must add that the plant before us was introduced from Popayan by Mr. Triana,



one of the collectors employed by Mr. Linden. It would appear from the published plate, a figure of which we copy of the natural size, to be extremely handsome, with thick velvety leaves, and large flowers of a rich deep red colour, spotted with lines of black purple. It may be compared to a gigantic form of Achimenes hirsuta or pedunculata; like which it has the scaly rhizome and little bulbs so common among plants of its class. We observe that Mr. Linden has it in his new catalogue under the name of Locheria magnifica at the price of 20 francs.

NOTES ON PEARS.—No. III.

In describing Colmar d'Eté in the catalogues its season is given as the "end of September," exactly the same as that for Beurré d'Amanlis, but it generally succeeds it, and in some seasons, and I may add, from some soils, it will keep nearly through October. I may as well say here that in giving qualified praise to Beurré d'Amanlis (see page 53), I felt that I acted with proper caution, for it is dangerous to say of any particular Pear that it is always good. Last autumn I ate some that were gathered in time, and they were really exquisite. My near neighbour had some I think larger and more beautiful than mine were; he produced them at his dessert, and his friends declared they were not quite equal to a good white Turnip. To return to Colmar d'Eté: it is a very juicy, melting, and most agreeable Pear, slightly vinous, and very refreshing to a thirsty palate; the tree is remarkable for its beauty, as it forms a compact Cypress-like pyramid, and grows if possible, more freely when budded on the Quince than on the Pear.

There are perhaps too many September Pears, and were it not that Pears are so variable in their flavour and in bearing we might rest and say "hold enough;" but as pyramids and bushes take up so little room, it is I think better to cultivate six or eight varieties ripening in the same month than three; in cultivating we will say ten varieties all ripening in September, I have known numbers 1, 2, and 3 fail to give a crop, owing perhaps to their blossoms being early, and thus killed by a solitary spring frost; while numbers 4, 5, and 6, blooming a few days later, have escaped. And, again, in some seasons it will be found, I cannot tell the "reason why," that two or three or more varieties do not come to perfection; they either crack, or spot, or are deficient in flavour. Now, if numbers 1, 5, and 6 thus fail, 8, 9, and 10 may be perfect; and thus by planting several varieties ripening in the same month (I am writing for those who have room in their gardens) failure to a certain extent is guarded against, and this holds good through all the autumn and winter months in which Pears are presentable; let me illustrate this by two or three examples that just now occur to me. My Beurré Diel Pears last December were large and handsome, but they were not good; my Glou Morceau were excellent; my Beurré d'Arembergs and Winter Nelis all ripened and rotted early in December; but my Beurré Langelier and Passe Colmars kept well through January, and yet generally they are all Pears that ripen about the same period. So then let us look at a few more September Pears. Beurré Goubault, a very handsome greenish yellow round Pear, is a most abundant bearer and exceedingly juicy, not rich, like a Winter Nelis, but very agreeable and worthy of culture; it succeeds on the Quince in a light rich soil, and forms a prolific bush or espalier. Bonne d'Ezée, a full sized and handsome Pear, sometimes ripening at the end of August, but must be considered a September Pear, is melting, rich, and good, succeeds and bears profusely when grafted on the Quince. Jalousie de Fontenay Vendée, like the three preceding varieties, is yet but little known, but it well deserves attention; it is not large but of the full medium size, and melting, rich, and good. It grows well on the Quince, and forms a nice prolific pyramid.

We must not forget in this enumeration of Pears for September one very old, and, I may add, universal favourite, the Autumn Bergamot, or York Bergamot, or "Bergamie" of cocknies, and "Burgundy" of those who call a Bigarrean Cherry a "Bigerroon," simply because it is not correct. The trees of this old Pear in most soils look old even when they are young, and a very old tree reported to be considerably more than 200 years old, growing in my garden, bears good fruit, and looks as young as a tree of the same variety 30 years of age. This premature appearance of age in young trees is brought on by its tendency to canker. In cold soils the young shoots generally die half-way down every year, *i.e.*, the shoots made in one summer canker and die back the following winter. This is a Pear that we need plant when youthful, for it seems (when planted as a standard in the usual way) more inclined to give Pears to your heirs than to yourself. It is therefore comforting to know that it can be conquered, and that we can make it "go a-head," as all things must in these days. This is done by double grafting, or "double working," and double grafting is done as follows:—Take a vigorous tree of Beurré d'Amanlis or Colmar d'Eté two or three years old, budded or grafted on the Quince stock, and on the Pear part of the tree, about a foot from its junction with the Quince stock, graft your Autumn Bergamot; in two or three years, whether trained as a pyramid, a bush, or an espalier, you will have a tree in a nice bearing state, and its fruit will be finer than from standards planted in the usual way in orchards or gardens. *T. R., Herts.*

ON FROST SPLITTING.—By Dr. Robert Caspary.

(*Continued from p.* 100).

Before I proceed further, it appears to me necessary to consider two questions: 1st, at what time the changes of temperature in the atmosphere show themselves in the interior of the tree; and 2d, whether the trees I examined at the time they burst, were entirely frozen inside.

1. As to the time when the changes showed themselves in the interior of the tree, Schübler, in his researches into the temperature of plants (two Dissertations, Tübingen, 1826 and 1829), does not appear to have taken a very close view of this question, and we find only the following general statement (2d Dissertation, p. 9 and 10). "The temperature of trees lowers itself very much slower when that temperature has descended below the freezing point;" and again, "The converse occurs on the appearance of a thaw. If the frost had penetrated into the interior of the tree, if its temperature had descended below the freezing point, that temperature rises proportionally much slower" than in warmer seasons. As Schübler seldom made daily observations, and only twice in the day, at sunrise and at 2 p.m., and for the most part only observed once a week his thermometer, which he had inserted to the depth of 4 inches into a Poplar tree of the thickness of 14 French inches, he could obtain no information as to the relation of the daily periodical changes of the atmosphere with the temperature of the tree. Rameaux (Ann. Sc. Nat. Par. Ser. 2, v. 19, p. 1 et seq.) has made further researches on this point, observing seven or eight times in the day the temperature of the tree and that of the air. He has obtained the result that the influence of the outer temperature on the tree requires the more time to take effect in proportion to the thickness of the tree. He found that a Poplar branch of 4 centimetres (about 1½ inch) diameter in the shade indicated in the centre the same temperature as that of the air. In June 1841 a tree of about half a metre (about 19 inches) diameter felt the influence of the ex-

ternal temperature on its centre 15 or 16 hours later, and a tree of 1 metre in thickness only showed the effects of external changes in its centre after two days or more. But Rameaux did not attain the establishing of any general law on this point. Besides, his researches suffer from a twofold deficiency; first, that they were chiefly made in the warm season between April and September, and that he takes no account of the winter, when, as we should conclude from Schübler's above-quoted observation, the relations are somewhat altered; and secondly, that his method gave no certain results, as the thermometer which Rameaux stuck into the tree had, on each occasion of examining it, to be drawn out of the otherwise corked up hole until the column of mercury was visible, instead of being provided with a column long enough for the thermometer to be read off without disturbing it; for by thus drawing it out it must have been made to indicate a somewhat higher degree. Under these circumstances the above-mentioned question is not yet fully answered, and requires further investigation.

2d. Were the trees which I observed frozen through and through when they burst? The answer to this question, so important a one in the investigation of frost splitting, depends so much on the one I have just alluded to, which is only partially solved, that I can unfortunately say nothing positive, excepting in respect of very thin trees. The reply depends, in the first place, on another question; at what degree of cold does the sap of plants freeze? As it contains salts and organic matter, it does not yet freeze at 0° (32°). Hunter (Philos. Trans., v. 65, 2, p. 447) found that the expressed juice of Cabbage and Spinach only froze at 29° Fahr. (— 1.3 R). The sap of living plants freezes in flowers and young shoots at a few degrees below 0° (32°), of which it is easy to convince one's-self in the cold nights in spring. Göppert ("Development of Warmth," p. 10) only found this difference, that plants with a watery and so-called neutral sap and tender leaves froze much quicker at the same degree of cold than those whose sap contained more saline or resinous particles, or presented larger masses, thicker leaves and stems, and (p. 147) that "2, 3 or 4° (4½ to 9° F.) of frost, if they continue for a few days, will cause the sap of all trees, those of Coniferæ not excepted, to congeal." In order to give the greater latitude, I will assume that the trees I observed could only freeze in the centre when this was cooled down to — 4° R. (23° F.). It may now be asked, did the temperature ever sink so low in the centre? If the fact observed by Rameaux in June, that the temperature of the atmosphere is communicated to the heart of a tree of half a metre in thickness in 14 to 16 hours, be equally true in winter, then, indeed, all the trees I examined in 1855, of which the thickness was not more than half a metre, must have been frozen throughout before the time of their bursting in the night of the 1st to the 2d February, and the large Horse Chesnut of the pupil gardeners' garden by 11 P.M. on the 9th February. Let us consider more particularly the case of this large Horse Chesnut. Its diameter is 14 inches, therefore not quite half a metre. On the 8th February the thermometer was at 2 P.M. at — 4° 1 R. (23° F.), at 10 P.M. at —8° 3 (13° F.); in the course of the night of the 8th to the 9th it sunk to — 15° 4 (— 3° F.); on the 9th at 6 A.M. it indicated — 13° 9 (+ 1° F.); at 2 P.M. — 11° 6 (+ 6° F.). As in a tree of half a metre, according to Rameaux, the temperature of the air is communicated to the centre in 14 to 16 hours, it would in this tree of 14 inches do so in about 10 to 12 hours; yet not entirely so, there will be some difference. What is this difference? Schübler, in the extremes of temperature of the tree he observed, found it once, on the 8th January, 1828, 10° 5 (24°); and on the 8th March even 11° 2 (25°) warmer than the air. He gives no data for the explanation of this difference, which possibly did not occur in our case, and in most instances he found the difference between the air and the tree much smaller. In January 1829, it did not exceed 4° (9°), although it must be confessed that Schübler's researches afford no very precise results on this point. But let us assume that from the minimum of the night of the 8-9 February, — 15° 4 (— 3° F.) must be deducted 10° 5 (24°) as the greatest difference that Schübler found in January, to give the temperature that must have prevailed in the centre of the tree after 10 to 12 hours, the tree must have experienced throughout by 6 P.M. a temperature of —4° 9 (21° F.), and consequently must have been frozen through and through before 11 P.M., when it burst. Schübler also observed in his Poplar tree a temperature of —7° (+9° F.), and in thinner trees —12° to —14° (+5° to +½° F.). I may therefore, without further research, take it for granted that all the trees I observed which did not exceed 14 inches in thickness were thoroughly frozen before they split. It is true that some of Schübler's observations (2d Dissertation of 1829, p. 15) are not in accord with this assumption; he found that after a long frost in January, 1829, of which the minimum had the preceding day been down to —14° (+½° F.), in a tree of Acer pseudoplatanus, in which he daily ascertained the depth of the frozen wood, the frost had only penetrated to 15.2 lines, in a Horse Chesnut to 8.2 lines, in a red Pine 12.5 lines, in an Ash only 16.8 lines, in a Hazelnut 16.9 lines, in a Salix fragilis 17.3 lines. But as he reports that the temperature of his Poplar tree fell at the same time down to —7° (16°) at the depth of 5 inches, and as, consequently, it must have been frozen to that depth, Schübler is thus in contradiction with himself, and some error must have crept in, and his statement cannot disturb the above assumption. Calculations derived from the intensity of the frost in this winter show the probability that trees even of 2 feet thickness were frozen to the centre.

(To be continued).

VEGETABLE PATHOLOGY.—No. CIX.

430. ASPHYXIA* (*Suffocation*).—It has been a subject of debate whether plants derive their nutriment from the air, or from the ground in which they grow. Some authorities maintain that manures are not intended as a direct vehicle of nutriment; but that they form humus, which constitutes a reservoir for nutritious matters derived from the air, while others contend that the whole of the nutriment is absorbed by means of the spongelet in the shape of an aqueous solution. The truth apparently is that a portion of nitrogenous and other constituents is carried down by rain from the air, while another portion is derived from beneath by means of springs, while the humus itself supplies its share by the slow dissolution of ulmates and humates of which it is composed. The several matters entering with the water on one side supply the exigencies of the plant and as was shown before (190) on the formation of vegetable substances oxygen is constantly evolved; and as the fixation of carbon takes place principally under the agency of light, in its presence oxygen is evolved, while on the contrary in shade, when little or no carbon is fixed, carbon remains in combination with the oxygen, and carbonic acid is given out.

431. Besides this supply of the four substances, carbon, nitrogen, hydrogen and oxygen, essential to vegetable life contained in the absorbed water, as the plant consists of a tissue pierced with ducts communicating with apertures in the leaves called stomates, there is a communication of every part through the intervention of delicate membranes with the outer air, the gases of which it is composed entering when in contact with the membranes at different rates of penetration. The constituents of the vegetable organs may therefore in part be received from the air, and on this account again in sunlight oxygen will be given off on the appropriation of the carbon, in addition to that from carbonic acid mixed with the water, and in the shade carbonic acid will be given off on account of the non-fixation of carbon due to the absence of light.

432. But not only is atmospheric air thus brought in contact with the intimate tissues of the plant, but another important end is accomplished by the means of these same outlets. The nutritious matter being conveyed by water in the shape of an extremely weak solution, it is necessary for the full and constant supply of nutriment that so much of the water as is not decomposed should pass off in the shape of vapour; and this is readily done by means of the stomates, which not only imbibe the air with all it may contain, but with the air expel the superabundant moisture. If anything then impede this course of things, the proper aeration or interchange of gaseous matter is impeded, and the plant suffers from asphyxia, whether from the presence of noxious gaseous matter, or from the tissues being gorged with fluid which impedes the accomplishment of needful vital processes.

433. The vast importance of these ducts appears in the difference of wood structure which exists between erect and climbing species of the same genus, or even in different conditions of the same species. The stems are subject to violent torsion and compression, and therefore to insure a free passage the ducts are far larger in proportion to the need.

434. A small derangement indeed of the constituent parts of the atmosphere in which plants are placed is not so immediately dangerous as in the higher animals. A proportion of one-eighth of carbonic acid in light is not injurious though it would be in the shade. Respecting the effects of nitrogen there is a difference of opinion. Hydrogen must certainly exercise some powerful influence, because in its presence vegetables are not blanched, as related by Humboldt of experiments in the Freyberg mines, where the atmosphere contains hydrogen (133). It is, however, quite certain that there must be some proper ratio between the matters supplied and the necessities of the plant or health cannot be maintained for a long time, and hence arises the necessity in artificial atmospheres, such as those which exist in heated frames or conservatories, of taking care that a proper ventilation is established and at the same time a condition of the air favourable to a proper exhalation from the leaves, not so dry as to cause evaporation, or so moist as to prevent exhalation. In the one case the leaves will wither, in the other the tissues will be gorged with moisture. It has indeed been suggested that the growth of plants in Wardian cases proves that ventilation is not necessary to plants. Plants will not, however, thrive if air is completely excluded, as in perfectly closed bottles. In Wardian cases such exclusion is never perfect. Their use in the transport of plants, where fresh water is scarce, and the air charged with saline particles, or when the atmosphere is loaded with smoke, is no proof that beyond their proper province they are worthy of adoption. Firm healthy wood, abundant flowers, and perfect fruit cannot be expected from such arrangements. The great difficulty is to secure a proper degree of moisture with change of air.†

435. If improper proportions of those constituents which are necessary to life are sooner or later injurious, much more are plants liable to evil from an atmosphere charged with strange gases. Sulphurous acid, sulphuretted hydrogen, hydrochloric acid, and others produce death or violent disease by an asphyxia, as certainly as in the human frame. One motive for ventilation arises from the necessity of getting rid of noxious exhalations from the soil or the manure mixed with it.

436. Some plants, again, perish by asphyxia from immersion in water, though the process varies with the species concerned. A few days produce death in one case, while the same number of weeks may be required to effect the same end in another. Other plants of different constitution require such immersion. Where this is incomplete the air-tubes are abundant and large; but there are also true aquatics to which, like aquatic animals, the quantity of air mixed in the water gives a competent supply. *M. J. B.*

* From α intensive and σφιγγω to throttle.

† I have not thought it necessary to enter further into the subject of ventilation, as it is treated in the new edition of the "Theory of Horticulture" in such a manner as almost to exhaust the subject.

Home Correspondence.

Disease in Winter Spinach.—This plague was prevalent in this neighbourhood several years ago, but its ravages were only partial compared with this last autumn. I have a very good variety of Spinach, the seed of which was first brought from Switzerland by a gentleman who noticed it growing in a cottage garden in the vicinity of Zurich in 1820. It is very hardy, and much admired for its flavour. When attacked by the plague it first turns yellowish and sickly, and gradually dies away till nothing is left. Mine was sown last August, and when just becoming fit for use was seized by the malady and completely swept off, though it previously looked quite promising. The heart of the plant seems all at once to become stagnant, the leaves assume a yellow hue and gradually die. I have examined the roots of many of the plants, which seem quite sound, so that the cause, whatever it is, must be above ground. Many gardens near us have suffered just the same, not a plant has been left. I should like to know whether this plague is general or only local in its ravages—perhaps some of your correspondents can tell us? Let me also ask what is the cause of this evil? and how is it to be prevented in its destructive influence? *Quercus.*

Ice Houses.—It is stated in your Paper of the 15th inst. "that ice-houses do not require ventilation, and that ventilation ruins them." In answer to that I beg to say that if constructed as mine is, ventilation is essential, and no better ice-house can be made than the one I have. My ice well is circular, 12 feet deep by 12 feet wide, and bricked round in 9-inch work; it has a roof over it thatched 2 feet thick, on one side a door with a latticed opening in the upper part, and immediately opposite a latticed window, and neither are ever closed, so that there is always a draught through the house winter and summer. The house should be moderately shaded with trees, and there must be a drain from the bottom, should the ground require drainage, with a trap to prevent the air from entering below by the drain, and the ice should be covered with a foot or two of straw. At the bottom of the well should be placed a layer of faggots resting on sleepers pointing to the drain, so that any water may be carried off. An ice-house constructed like mine allows of ice being taken from it every day, with very little if any waste, is far preferable to any other kind, and may be made at less than half the cost of the old-fashioned ice-house. My ice lasts through the whole year, and at the end is rarely exhausted. *R. B. W., Feb.* 19. [We thought the question put to us related to ventilation by drains, which is always ruinous to the ice.]

Balsam Bog (Bolax glebaria, *Comm.*) *of the Falkland Islands.*—The museum of the Royal Gardens of Kew has just been presented with a noble specimen (dried) of this remarkable plant, by George Rennie, Esq., late Governor of that settlement. The woodcut, in Sir James Ross's "Voyage of Discovery in the Antarctic Regions," vol. ii., p. 302, represents a landscape, in which the tufts of this plant constitute a remarkable feature; but the best account of it is in Dr. Hooker's "Botany of the Antarctic Voyage," vol. i., p. 286. It belongs to a group of minute umbelliferous plants, of which we have no true representative in the northern hemisphere; and bears trifid leaves something like those of Saxifraga tridactylites, but of a harsh and rigid character. Though, in size, among the smallest of its tribe,‡ yet, owing to the peculiar mode of increase, one single tuft of an old plant is as much as four men can conveniently carry, and it becomes one of the most striking vegetable objects in the countries where it is a native. "Long before the Falkland Islands," says Dr. Hooker, "were colonised from Britain, this plant had excited considerable curiosity by the very remarkable mode of growth it there assumes, and by its forming a feature in the landscape that strikes the most casual observer. Now that these islands have been annexed formally to the British dominions, the Bolax or Balsam Bog is a production of still greater general interest. In whatever portion of this country the voyager may land, he cannot proceed far along the beach without entering groves of Tussac Grass (Dactylis cæspitosa), whose leaves often wave over his head; nor turn his steps inland without seeing, scattered over the ground, huge rounded hillocks, of a pale and dirty yellow-green colour and uniform surface, so hard that one may break the knuckles on them. If the day be warm, a faint aromatic smell is perceived in their neighbourhood, and drops or tears of a viscid white gum flow from various

‡ We may refer for a good botanical representation of the plant to Hook. Ic. Plant., vol. iv., t. 492.

parts of these vegetable hillocks. The plants stand apart from one another, varying from a few inches to 2 and 4 feet in height; and though often hemispherical, are at times much broader than high, and even 8 or 10 feet long! The very old ones begin to decay near the ground, where a crumbling away commences all round, and having but a narrow attachment, they resemble immense balls or spheres laid upon the earth. Upon close examination each mass is found to be herbaceous throughout: the outer coat, or crust, formed of innumerable little shoots rising to the same length, covered with imbricating leaves, and so densely packed that it is even difficult to cut out a portion with a knife; while the surface is of such uniformity that Lichens sometimes spread over it, and other plants vegetate in occasional holes or decayed places* on the tuft. On a careful inspection of the interior, the nature of the formation of these balls may be distinctly traced: each of them, whatever the size, is the product of a single seed, and the result of many, perhaps hundreds of years' growth. In a young state it is furnished with a very long, slender, perpendicular tap-root, like a whip-lash, that penetrates the soil. At its summit arise 2 or 3 small branching stems, each densely covered for its whole length with sheathing leaves. As the individual increases in size, the branches multiply more and more, radiating regularly from the rooting centre, instead of prolonging rapidly in one direction; then send out lateral shoots from the apices, and in such numbers that the mass is rendered very dense; and by the time the plant has gained the diameter of a foot it is quite smooth and convex on the surface. The solitary root has become evidently insufficient for the wants of the mass of individuals, which are nourished by fibrous radicles proceeding from below the leaves, and deriving nutriment from the quantity of vegetable matter which the decayed foliage of the lower part of the stems and older branches afford." "The Bolax glebaria yields a gum-resin, which is white when oozing from the wounded stem and leaves, but soon turns red-brown in drying. It has been employed as an application to cuts and other lesions with apparent effect." A bottle of this gum-resin accompanies the specimen. Some idea may be formed of the appearance of the specimen sent, when, in addition to the above particulars, we say that, together with the very strong case for its transport and packing material, it weighed 5 cwt.; deduct for the stout case and the packing 1 cwt., we leave 4 cwt. for the actual weight of one lump of an umbelliferous plant. It is cut off horizontally at its base from the place of growth, but brings away no earth or stones, the whole inside being black decayed vegetable matter. Its height is 2 feet, its broadest diameter 3½ feet, the circumference 10 feet, and its size over the top, from one side to the opposite, is 6 feet 3 inches. The very packing material, entirely composed of filamentous and subfoliaceous Lichens, viz., Usnea melaxantha, U. barbata and plicata, together with various forms of Ramalina scopulorum, &c., is of interest to the cryptogamic botanist, many of the specimens being in fine fructification, and no substance could better serve the purpose. It retained a certain degree of moisture, without showing the least disposition to heat or to decay, and is remarkably elastic. A second box, 12 feet long, contains fine specimens of the rarer sea-weeds of the Falklands:—D'Urvillæa utilis, Hook. Bot. Antarct. Voy., l. c. Tab. 165, 166; Lessonia fuscescens, together with what may be considered L. nigrescens and L. cordata (all figured l. c. Tabs. 167, 168, 169, 170, and 171,) if really distinct. Although the fronds of the Lessonia fuscescens are partially decayed, the stems or trunks branching at the top are perfect, and measure 12 and 14 feet in length. Handles for the large knife-blades of the Gauchoes are made of this, and they become as hard as and resembling horn. The specimens of Macrocystis pyrifera show their attachment to the rock, a state in which it is very difficult to procure them. Of this remarkable sea-weed, specimens 100 and 200 feet in length are comparatively common; and from observations that are recorded there is reason to believe that some attain a length of 700 feet!—and if so, assuredly the greatest length or height to which any vegetable has been known to reach. *W. J. H.*

Sexes of Ferns.—In the account by "R. E." of the reproduction of Ferns he has called the spiral ciliary filament a worm—will not this unintentionally lead people not learned in these mysteries into the idea of an animal agency in the production of a vegetable structure? He did not intend, I am sure, to convey such an impression. Although these ciliary filaments move about, no one, I presume, ventures to assign to them an animal structure or a distinct vitality. *R. Bree, Strickland.* [What are they?]

Lancaster's "Lignum textile."—Mr. Turner must I think be in error as to the opinion expressed by "The Streatham Gardeners' Society" relative to the value of this material, for I find by my notes of the proceedings of the Society that the subject was not discussed for want of time. *John Carll, Secretary to the Streatham Gardeners' Society.*

Daphne Mezereum.—I agree with your York correspondent respecting the merits of this Daphne; for instance, what would look better at this season, in front of a dining-room or sitting-room window, than a neat bed of it interspersed with Daphne Laureola? The foliage of the latter would enhance the beauty of the former, set off its flowers to more advantage, and give the bed a more characteristic appearance. I would suggest that the plants be grown in pots and plunged in the bed; they could then be removed with more facility to make room for other things. *A. J., Shrubland Park.*

Wall Tree Protections.—There are two points in which it appears to me that the condition and treatment of wall fruit trees and borders may be materially improved. 1st. The fault of British climate is excess of moisture in autumn and mildness of temperature in the early part of winter, in consequence of which the trees are kept in a sort of half growing, excitable state, and the wood and roots are not so perfectly ripened and hardened, or so completely and timeously put to rest as they ought to be, and would be in a drier and keener climate. 2d. There is a want of correspondence or agreement in the relative conditions of the ground in which the roots are bedded, and the wall against which the trees are trained in the latter part of winter and beginning of spring, before the sap begins to move. Even so early as the latter half of January the sun begins to exert considerable influence on objects exposed to its direct action, while the ground remains under the full dominion of winter. Thus a thermometer which marked 32° in the shade at the end of January rose to 60° when suspended against a common stone wall facing the south. Every day the sun acquires increasing power, the full influence of which is felt against an upright wall, while the (as yet) slanting rays produce little impression on the ground. A tree trained against a south wall then is placed in an unnatural and artificial state, in which the stem and branches are from time to time excited by warmth, while the action of the roots is suspended by the low temperature of the ground. This is not the case in an open compartment; there the sun has little direct influence on the stem and branches, and they are surrounded by a free current of cold air which reduces it to a minimum. The roots and branches thus remain in correspondence with each other, and both continue equally at rest till the gradually increasing temperature of the earth and air sets the sap in motion throughout the tree. As a consequence of the conditions being so different in walled borders with a sunny aspect, it may be expected that the fruit blossoms will be both prematurely excited and weakly developed; at once exposed to early frosts and less able to resist them. For the purpose of protecting the borders from rain and undue moisture, when it is desirable that the roots should be ripened and put to rest, and of screening the walls from the action of the sun when it is desirable that the buds should not be prematurely excited, I would suggest the employment of light waterproof frames which should have their office on the ground from October to the middle of January, and from thence till spring is setting in should serve as a screen to the wall. As they are to serve these purposes in succession, and might also be occasionally varied from one position to the other, according to circumstances, a series of looped iron pegs might be driven into the ground at a foot or more from the wall, having the eye or loop about the same height above the ground, which would afford sufficient fall to the frame, when laid down, to carry off the rain. The ends of the inner or bottom cross bar of the frame will rest and move on the loop as a support and hinge; and when no longer wanted for the border the frame might be turned up and hooked or fastened to projecting bars near the top of the wall, by which the frame would be kept clear of the trees, and a free space left for the circulation of air. As there are sometimes excessive rains about the beginning of spring, the frames might occasionally be let down on the border previous to their final removal. *J. H. H.*

Arum Italicum.—Writers in the *Gardeners' Chronicle* seem to take an interest in the question of the presence or not of this plant as a native of Britain, and I am sorry to see them trying to distinguish the A. italicum from the A. maculatum by characters which are unworthy of trust. I have also been sorry to see an argument brought against the native character of the former plant—that it was not a native of any of the neighbouring countries. This does not occur in the *Gardeners' Chronicle*, and I forget in what journal it is to be found. It is founded upon the careless mode in which many persons who ought to know better content themselves with examining some old "Flora" of France to see if a plant grows in that country, not remembering that the botany of that country is only now attaining a tolerable state of perfection, and that such books, valuable although they are, as Duby's "Botanicon Gallicum," are exceedingly imperfect, and more especially so in the botany of Normandy and Brittany, the countries most resembling in situation and climate the south-western counties of England. Judging from that work, and even from Deslongchamps' "Fl. Gallica," it might be supposed that A. italicum was not found in the north-western provinces of France; but if we turn to the admirable "Flore de France" of Drs. Grenier and Godron, it appears that A. italicum is found in "all the west of France from Caen to Bayonne," as well as in the Mediterranean region. What wonder, therefore, is there that a plant that is a native of the opposite coast should be also native in the Isle of Wight. The wonder rather is that it should have remained unknown until now, and that it still remains unknown in the counties of Dorset, Devon, and Cornwall, and in the south of Ireland, in all of which it may safely be predicted that it will be soon noticed. Let me hope that some of the intelligent gardeners who may read these lines will have the pleasure of finding it. According to my views the distinctive characters of the plants are as follows:—

Arum maculatum (Linn.). Leaves hastate-sagittate, with deflexed lobes green or spotted with purple, appearing in the spring. Spathe ventricose below and above, with inflexed edges when open. Berries many-seeded.

A. italicum (Mill.). Leaves triangular-hastate, with divaricate lobes and yellow veins; appearing in the autumn. Spathe ventricose below, opening nearly flat and very broad above. Berries three-seeded.

I learn from Mr. Hambrough that A. italicum is very plentiful in the south of the Isle of Wight, and that it flowers in June about a month later than A. maculatum. *C. C. Babington.*

Hybrid Oaks.—"T. R." asks if "any one has ever heard of such hybrids." Every one the least conversant with raising seedling Oaks, or the management of Oak plantations, must not only have heard of such but have often observed them. I venture to assert that were a quantity of acorns collected from a mixed forest, and the produce were, say 500,000 seedlings, in such batch would be found some hybrids dissimilar to either parent. In many nurseries are hybrids and varieties of the two species cultivated as ornamental trees, nearly all of which have been picked up in batches of seedlings or from young plantations. *Sessilis Rinefield.*

The Plane Trees of Buyukdere.—In reply to Mr. Strickland's inquiries in the last *Gardeners' Chronicle*, I beg to say that the large Plane trees at Buyukdere, as well as all that I observed in the neighbourhood of Constantinople, all evidently planted, belong to the common Eastern form of the Oriental Plane, with leaves much deeper cut than either the tender Plane that we suppose to be the true occidentalis, or the one commonly grown in England and France under the name of acerifolia, or in France especially under the name of occidentalis. At the same time we have in cultivation some varieties of the Oriental Plane with leaves still deeper cut than those of the Buyukdere trees. Specimens of the foliage of the latter remarkable trees, which I gathered in the autumn of 1846, were laid into my herbarium, now part of the collections attached to the Royal Gardens at Kew, where they can be easily referred to. *G. Bentham.*——As to the Plane trees at Buyukdere I am unable to say which species they belong to, nor have I seen the magnificent one at Vostizza, on the Gulf of Corinth, but I feel perfectly certain that every Plane tree which I did see when in Greece and the Levant 20 years ago belonged to that species which is called orientalis, with deeply indented leaves. I remember some very fine old ones in the wild district between Athens and Marathon, growing on the banks of rivulets as Poplars and Willows do with us. One very large one at the village of Kephissia, near a magnificent old ruin of one on the banks of the little river Meles, near Smyrna, I remember being exceedingly struck with, so much so that when I returned home I immediately planted a Platanus orientalis with deeply indented leaves in my own little shrubbery, which though a thriving plant hardly promises to attain the size in height of two very fine specimens of the other species (occidentalis) which have long been an ornament to the place. I have this autumn tried the experiment of planting a Platanus orientalis on the banks of the river at this place, but I fear though in its own sunny clime the natural situation, in North Yorkshire it will prove too damp and cold for it. As far as my experience goes Platanus occidentalis is the quickest grower of the two, and in this country attains the largest size. In this I may be mistaken. *Downe.*

Cloacine.—A short time ago I saw a discussion in your Paper about the taste of plants being sometimes suspiciously like the manure in which they have been grown. Now this is not a pleasant idea. It dissipates at once all our fond romance of science about the conversion of elements into new forms. We may talk and write to people for ever about oxygen, hydrogen, Liebig, and Professor Way, the glaring fact will still remain suspended before the epicurean vision that in eating our forced or "strongly" grown vegetables, we are not eating the rearranged, reorganised, or reconverted elements of poor mild harmless humus, but actually the very essence of some horrid artificial manure company, or one of those proud monuments of rural greatness, an ungypsumised dunghill. The question is one of national importance, and I really felt much cast down in mind when I read the facts, corroborated by those mystical hieroglyphics "M. J. B." In this mental condition I was looking at the plants in my greenhouse, all redolent of pure fresh chlorophyll, and I was thinking if it was really all a dream that Roses had a beautiful smell, or whether some eastern genii had not invented the famous attar to delude mankind, or whether poets had not been equally disingenuous when they gave to the Lily its whiteness, when my eyes fell with delight upon two huge pots containing most luxuriant stalks of what I knew full well would soon be converted into Rhubarb pie. Now then, I said to myself, will this great question be decided. Visions of past days and dinners, in which Rhubarb pie formed a prominent part, came at once into my mind's eye. And that smoky taste—what was that? My mind reverted insensibly but with horrid individuality to the sheep of our respected vicar then browsing in happy ignorance in the churchyard. Should any of my future dinners be from a haunch of this mutton, and a pie of that smoky Rhubarb? To settle the question I had the Rhubarb in my greenhouse cut on the spot, and the pie wherewith it was made was not smoky. "It is always the case, my dear," said a gentle voice, "with forced Rhubarb." Alas! my greenhouse Rhubarb was forced

* From one plant there is a very fine tuft of the "Diddie-dee" of the Islanders (Empetrum rubrum), a foot long, growing out of the side, and another tuft of the same forming a crest on the very summit!

too. The truth shone out with clear unmistakable certainty. No perversion of Liebig could possibly settle the matter in favour of rearranged elements. The actual thing with which those pots and tubs were surrounded was positively identical with that smoky taste, and the glories of Rhubarb pie are with me among the things that were—at least that form of it which proceedeth from tubs and pots with their well-known coverings of straw. *Sic transit gloria rhabarbi. R. Bree, Strickland.*

Beech Timber.—Permit me to inform Cotswoldianus that my statement respecting the Beech beam is perfectly correct, but it is an isolated case; Beech not being the natural growth of Carmarthenshire, it has never been tried since. The tree was cut in June, 1830, the girth about five inches; it was squared and cut into two small beams, small bits of which I send with this note to prove its soundness. It grew in an Oak wood above the banks of a small river, nothing at all was done to it as to pickling, it was cut, sawn, and immediately used. I sent the paragraph in the belief that it might be an advantageous thing to be tried again in a part where Beech is indigenous. *Y. Z.* [The specimen sent us was perfectly sound.]

Robinia Pseudacacia.—In December, 1843, I communicated to you my experience of the value of the Acacia tree; my opinion is confirmed every year—not one of the posts then referred to is decayed—they have been in the ground 30 years. Mr. Withers, in his publication (1843), advised the seed to be imported from America. There is no necessity for that, as I have frequently raised it from trees in this country; but having lately heard the same remark, I wished to ascertain the fact again, consequently I directed about a handful to be immersed in warm water 24 hours, and then put in a box of earth upon the warm water-pipe in the hot-house, when every seed appeared in two days. This was 14 days ago, and they are now 3 inches high, and consequently removed to a cooler place. It would be difficult to exhibit any plants in a more vigorous state. I beg to add, that from the plantation made in 1823 I have for some years past cut down many for the same useful purpose referred to above. *A. P., Cheam.*

Societies.

Entomological.—Anniversary Meeting, *Jan.* 28.—Mr. Edward Newman, V.P., in the chair. A report from the Council was read and adopted, giving an account of the prosperous state of the Society, and proposing the sale of the exotic portion of the collection, with the view to increase the library, and to render the British collection as complete as possible with the proceeds of the sale. Messrs. Newman, A. F. Sheppard, Edw. Sheppard, and Waring were removed from the Council, and Messrs. Baly, Pasco, Saunders, and Waterhouse elected in their stead; Mr. Saunders was elected President for the ensuing year in the stead of Mr. Curtis, to whom a vote of thanks was passed, and a portrait of whom was ordered to be suspended in the meeting room. The Chairman read an address on the state of the Society, and on the progress of entomology in England during the past year.

Ordinary Meeting, *Feb.* 4.—W. W. Saunders, Esq., F.L.S., President, in the chair. The President returned thanks for his election to the chair, and nominated Messrs. Smith, Waterhouse, and Westwood as Vice Presidents. A new part of the Society's Transactions was announced as ready for distribution. Mr. Samuel Stevens exhibited some very fine Coleoptera just received from Borneo, including several rare and new Lucanidæ. Mr. Moore exhibited some cases formed by a wild bee, Megachile lanata, within a buffalo's horn received by the East India Company from Northern India. Mr. Baly exhibited a specimen of the extremely rare beetle Cryptonychus porrectus, received by Mr. Murray from Old Calabar. A note from Mr. Hewitson was read, giving an account of the creaking kind of noise made by a specimen of the peacock butterfly which had been disturbed in its hybernating quarters. A similar circumstance had been recorded by the Rev. Jos. Green in the month of February, 1853. Mr. Newman read a note inquiring particulars concerning a species of spider described by the Rev. R. Shepherd as forming a kind of raft on which it floats in ditches in Norfolk (Kirby & Spence, Introduction, Vol. i.) Also a note from Foster's Voyage on the silk spider at St. Helena; also descriptions of five species of insects of various orders and families from Australia. Mr. Stainton read some remarks as to the most efficient methods of promoting the study of entomology, suggesting the especial advantage of observers confining their attention to single families or genera.

Botanical of Edinburgh, *Jan.* 10.—The President in the chair.—The following papers were read:—1. "On some species of Epilobium." By Mr. Babington.—The author directed attention chiefly to the plants included under the names of Epilobium tetragonum and E. alpinum. Under these have been embraced several species which require to be separated. The characters to be considered in the arrangement of Epilobia are founded on the nature of the stigmas, whether divided or undivided, and the mode of extension of the plants from year to year.—2. "Observations on the Pollen Tube, its growth, histology, and physiology." By Mr. P. M. Duncan.—After giving a general account of the received facts relative to fertilisation, the author proceeded to detail some experiments made on Tigridia conchiflora. "In this plant," he remarked, "the style and stigma are at least 4 inches in length, and after the lapse of 14 hours from the application of pollen grains, hundreds of pollen tubes may be seen in the centre of the style, many in the axis of the ovary, and generally one in each micropyle. The following is a summary of the results of many experiments on this plant. 1. The pollen tube grows at the rate of an inch in four hours, and under very favourable circumstances (as under great heat and moisture) twice as rapidly. 2. The pollen tube is not a simple tubular prolongation of the inner membrane (intine) of the pollen grain, except to a certain distance. It is in reality composed of a series of cells, the first of which is formed from the intine, the second is formed within the papillose cells of the stigma, the third near the axis of the style, and the others at varying distances. The last cell is usually at the spot in the ovary where the tube perforates the cell wall of the ovary to enter the canal of the micropyle of the ovule. Each cell is divided from that above and below by a more or less perfect involution of the external cell wall. 3. The pollen tube passes through the stigma by a regular process of cell growth. Afterwards cell after cell is added to the tube by a process of division, each cell performing its function independently. 4. No germinal vesicles exist in the embryo sac of the Tigridia; the pollen tube effuses its contents into the sac with whose granular contents a mixture occurs, and the embryo is evolved out of this mixture. Microscopical specimens and drawings were sent to illustrate the author's views.—3 "Notes on the Chaulmoogra seeds of India." By Dr. Murchison. These seeds are furnished by the Chaulmoogra odorata, Roxb., or Gynocardia odorata. The plant is referred by Lindley to the Natural Order Pangiaceæ, which, by some, is considered a section of Papayaceæ. The seeds are sold in the bazaars in India, at about 13*s.* 4*d.* per cwt. The tree is poisonous, but the seeds yield, by expression, a bland fixed oil having a peculiar smell and taste. The seeds are used by the natives of India in various cutaneous diseases. For this purpose, they are beaten up with ghee or clarified butter, and applied to the diseased cutaneous surface. The expressed oil is prized in the treatment of leprosy in India. The surfaces of the ulcers are dressed with the oil, while a six-grain pill of the seed is given three times a day. The dose of the latter is gradually increased to twice the original quantity. The expressed oil is sometimes given internally in doses of five or six minims. Too large doses are apt to produce nausea and vomiting. The Chaulmoogra is also prized by the Chinese.—4. "On the Gutta Percha plant of India." By Dr. Cleghorn.—5. "Notice of the Flowering of an American Aloe (Agave americana)." By Mr. J. Lister.—6. "On the Flowering of Plants, &c., in the Isle of Wight." By Dr. T. Bell Salter.—Dr. Salter, at a recent meeting of the Isle of Wight Philosophical and Scientific Society, gave the following list of plants which had stood the winter of 1854—5 in that island. Amongst the trees and shrubs those only are included whose stems as well as roots retained vitality:—

Camellia japonica	Solanum crispum
Melianthus major	Veronica Lindleyana
Edwardsia grandiflora	" Andersoni
Acacia armata	" speciosa
" juniperina	Benthamia fragifera
" verticillata	Buddleia globosa
Myrtus communis	" Lindleyana
Punica Granatum	Salvia Grahami
Fuchsia coccinea	Teucrium lucidum
" Riccartoni	Aloysia citriodora
" gracilis	Plumbago capensis
" Youngi	Ixia crocata
" globosa	Anomatheca juncea
" microphylla	Amaryllis Belladonna
Escallonia rubra	Agapanthus umbellatus
" macrantha	Tritonia aurea
" montevidensis	Phormium tenax
Hydrangea hortensis	Bambusa falcata?
" japonica	

It was observed that the Catalpa and Yucca have flowered very freely this year, and that the Fig crop has been abundant.—7. "List of Plants in flower, in the open air, in the Neighbourhood of Ryde, Isle of Wight, in November, 1855." By Dr. T. Bell Salter.

Notices of Books.

Miss Catlow's *Popular Garden Botany* (12mo, Reeves) is a very pretty volume, containing some excellent coloured figures of flowers and indifferent gossip about them. As to the title it is delusive, and we protest against it. There is no Botany in the book. Undoubtedly there are what are called "generic descriptions," which we are told are principally taken from Loudon's Encyclopædia of Plants; not a very good source, considering that it merely gives the *differential* characters used by the Linnean school of Botany, and which are inapplicable to an arrangement upon the natural system, which is what is used in the volume before us. But in reality Miss Catlow's "generic descriptions" are not always to be found there, and when they are she has taken no pains to make them harmonize with each other. Take, for example, Nigella and Aconitum. What is called the corolla in Nigella becomes the calyx in Aconitum; while the parts named nectaries in Nigella are called petals in Aconitum. Such confusion can have no other effect than that of bewildering the unfortunate little people who try to learn Botany from the work. But if this is bad, what shall we say of the following account of Aconitum itself?—the italics are our own: "Divisions of calyx petal-like, the upper arched; petals two, *of curious form*, hooded; *spur red, with long stalks, and three petioles, small and scale-like.*" What shall we say?—what *can* we say?—except that blundering like this is most discreditable.

Mr. McLean has issued a prospectus of an illustrated work to be called *The Gardens of England*, from drawings made at Trentham, Woburn, Shrubland, Alton Towers, &c. &c. &c., by E. Adveno Brooke, with a suitable letter-press description. The plates will be executed in lithotint in folio; some being finished by hand, and sold at twice the price of the ordinary prints. The specimens which we have seen are well executed, and convey a faithful representation of the beautiful places they are intended to illustrate.

A new and very much fuller edition of Mr. Francis Galton's work on the *Art of Travel* (12mo, Murray), has just appeared. We formerly drew attention to the first edition of this valuable little work (1855, p. 135) and we are now glad to announce that the author, by means of copious and excellent woodcuts, has rendered his instructions to travellers intelligible to the bluntest comprehension; a very important improvement in a book intended as a guide "to all who may have to 'rough it,' whether they be travellers, missionaries, emigrants, or soldiers." To the army, indeed, it must be most especially useful, and we doubt not that its value would have been felt had it formed a part of the kit of every non-commissioned and commissioned officer in the Crimea. We see, therefore, with satisfaction that the experienced author has been allowed by the military authorities at Aldershott personally to instruct the troops there "by a small degree of field practice," in the rude handicrafts they require to be regularly taught. Let us hope that something more than permission will be granted; and that the *art of campaigning* will come to be considered as much a part of the drill as extension motions, or the manual exercise. For it is surely as necessary that a man should know how to take care of himself under difficult circumstances, as to march with the true military bearing, or even to attack an enemy and defend himself. Cold and hunger and thirst, and intense fatigue are indeed, as our melancholy Crimean experience has taught us, more formidable than lead and steel.

Mr. Roberts is dissatisfied with the remarks we felt it our duty to make upon his *Notes on Plants* (see p. 103). He complains of our saying that he does not state where he finds his descriptions, and tells us that in the instances quoted by us the descriptions are placed in inverted commas, and explicitly stated to be derived from Mrs. Loudon's Flower Garden. We do not admit the accuracy of this assertion. It is true that in the description of Crotalaria a sentence is quoted from Mrs. L., and it is true that the descriptions of C. verrucosa and retusa are between inverted commas. But there is nothing to connect the one with the other, nor did we suppose them to be so connected. Mr. R. must excuse us for adhering to our opinion that there is no guarantee of the truth of his descriptions, whether original or borrowed. Where, for example, did he learn that Bignonia *stans* is a climber? If it is a climber it is not *stans*; if it is *stans* it is not a climber. But he adds that he produces dried specimens and beautiful drawings from nature. Why, he will see the same sort of evidence produced by the ingenious French gentleman who is practising his peculiar art in Tichborne Street. What guarantee has a buyer that the specimens and drawings can be relied upon? We have no doubt that Mr. Roberts believes they can, just as he believed that the exaggerated descriptions we objected to were just and true. But the public wants to know something of his means of judging. We have spared space for these remarks, at some inconvenience, because we should be sorry that Mr. R. or any other fair dealer should be misjudged. It is, however, for them to do what buyers have a right to require of unknown persons, especially in these days of fraud, namely, produce satisfactory evidence that the statements they make are reasonably accurate.

Garden Memoranda.

Mrs. Catleugh's Nursery, Hans Place, Chelsea.—This is one of those places in which certain kinds of plants are grown by the thousand for Covent Garden market. It is, therefore, not uncommon to see here a large housefull of Pelargoniums all in full flower at one time, another of Heliotropes, and frames some hundreds of yards long stocked with Mignonette. Potfuls of the latter sown in September last and wintered in low cold frames will soon be in blossom. Mignonette, we need scarcely state, is sometimes sown in small pots with the view of economising room; but where space is no object it gives less trouble and succeeds equally well sown at once in the pots in which it is to flower. It may be wintered in a shallow frame, as has been done here, from which the lights should be removed entirely in fine weather, so as to give as much light and air as possible. Many complain that they lose their Mignonette in winter; but this is for the most part owing to their keeping it too damp. It should have little or no water for about three months during the dull season, and care should be taken to keep it free from drip, which is sure to kill whatever plants it happens to fall on. When small pots are employed particular care need not be taken to have the soil very rich, provided it is light; but when sown at once in the flowering pots richer material should be used, draining well and placing on the top of the crocks flaky pieces of decayed manure for the double purpose of affording nourishment to the plants when they are coming into bloom, and for keeping the soil from choking up the drainage. Autumn sown plants, which were shifted into larger pots about Christmas, will blossom from the present time till about May, and another sowing now will succeed them, after which it may be had plentifully in the open ground. Even the worst potfuls should not however be thrown away, for if topped back about this time they come in nicely for window boxes in May, which may be managed in the following manner. Having some Tom Thumb

Geraniums (any other dwarf showy plants, as Intermediate Stocks, would do) three of these are placed in a box, one near each end and one in the middle, and between them are introduced carefully, so as not to break the balls, pots of Mignonette, filling the boxes up with rich light soil, and finishing with a good watering to settle the earth round the roots. The after-treatment consists in keeping the boxes watered always when they require it, and be it remembered that if Mignonette is ever allowed to flag it seldom succeeds so well afterwards. Boxes thus arranged are greatly admired during the summer months, the Geraniums giving brilliancy of colour, while the Mignonette furnishes all that is wanted in the way of scent. In addition to the above, all kinds of spring bulbs are grown extensively here, and are at present very gay. Hyacinths potted, and wintered out of doors under ashes are now moved into heat in succession as they are wanted and soon burst into bloom. Azaleas and other shrubs are also forced into flower for bouquets, for which at this season there is always a good demand. Below the stages of different houses in which no more fire-heat is used than just what will keep out frost, are large beds of most excellent Rhubarb, from which the market supply for weeks has been derived. This has been obtained from roots which were moved under glass soon after Christmas, placed closely together and covered with soil. The sort is the Victoria, which, although perhaps not so red as Salt's Perfection and some other kinds, is a vigorous grower, and deservedly a general favourite. Pine Apples are also grown here plentifully on tan for bottom heat and with hot-water pipes for surface heat. These, until lately, had been over potted and otherwise so badly managed that their roots had become nearly rotten. They were therefore taken out of their pots, the soil shaken from their roots, and all that were decayed of the latter cut away and put into fresh soil and smaller pots, and since that has been done they have thriven admirably, and have now all started into fruit. If, however, large pots do not answer for Pines it is because they are unskilfully managed, and we need scarcely add that the same remark holds good in regard to most plants.

Miscellaneous.

Timber Sales.—On Thursday Mr. Bentley sold by auction, at the Crown Hotel, Broad Street, upwards of 850 Oak, Elm, and Ash trees, from estates at Bransford, Leigh, Powick, and Longdon Hillend. There has not been so large a sale of timber for some years, and it went off exceedingly well. Elm and Ash fetched from 1*s.* to 1*s.* 4*d.* per foot, and Oak from 2*s.* to 3*s.*—At a recent sale of navy Oak and other timber, grown on the estate of Lord Portman, in the manors or parishes of Orchard Portman, Staple Fitzpaine, Bickenoll, Thurlbeer, West Hatch, &c., which took place at the Greyhound Inn, at Staple Fitzpaine, there were 1547 trees divided into 136 lots. The lots sold realised nearly 3000*l.* *Builder.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c. — Luculias and other winter blooming plants in beds or borders should be cut back after flowering as freely as may be necessary to keep them close and well furnished, and this should not be deferred so as to permit the energies of the plants to be wasted in the production of useless wood. The small leaved weaker growing varieties of Citrus are invaluable for winter flowering, and considering that they are plants of easy culture it is surprising that more of them are not grown for this purpose. If a batch of healthy young plants can be placed in a moist growing situation at once and allowed to remain until the young wood becomes rather firm, then removed to a shady place out of doors for the summer, and fully exposed to the sun after about the middle of August they will flower profusely during winter, if placed in a temperature of about 45° or even 40°. The Mandarin, Myrtle leaved and Otaheite Oranges are the most suitable kinds—the last of these flowers and fruits in a very small state. Get Camellias and Azaleas for early flowering next season started into growth without loss of time. Camellias may be had in bloom early in September by placing them in heat in February, so as to get the buds set early, and when once the plants acquire an early habit of starting into growth, they make as fine wood as those grown in summer, but unless plants with prominent wood buds can be selected, there may be some little difficulty in getting them to make free growth the first season. Let the temperature range about 45° at night, and give air freely on fine days, which will tend to make the permanent specimens in the house break their buds slowly, and will secure close strong growth. Lose no time in repairing the drainage of any specimens which require such attention, and endeavour to secure a healthy, vigorous root action, which is of great importance, especially in the case of hard-wooded plants. Admit air freely on every favourable occasion to greenhouse plants generally, and persevere in the destruction of insects immediately they are perceived. Shift and tie out Pelargoniums as may be required, and allow them plenty of space after this time with all the light possible, and a free circulation of air whenever the weather will permit, but avoid cold north-easterly winds, which are very injurious to plants in active growth. Do not allow Calceolarias to suffer for want of pot room, as any check at the present season will throw them prematurely into flower. Never allow aphides to gain a footing on them, but fumigate whenever one is perceived.

FORCING DEPARTMENT.

PINERY.—Recently potted stock will not require much water at the root for a few weeks, and it should not be heavily syringed until the plants get hold of the fresh soil, and start into free growth. Keep the atmosphere soft and moist by gentle syringings on the mornings of bright days, and sprinkle the passages, &c., frequently. Plants swelling their fruit will be greatly benefited by manure water in a clear state, which may be given as often as the soil requires watering. With plenty of moisture in the atmosphere a night temperature averaging from 70° to 75°, allowing it to rise to 85° with sunshine and a gentle circulation of air, will be beneficial to these. VINERIES.—As soon as the berries are fairly set, cut off all superfluous bunches at once, and get those left thinned as speedily as possible. It is a very common practice with young gardeners to overcrop Vines, and the result is small, ill-coloured, ill-flavoured fruit, and disappointment. Aim at securing fruit of first-rate quality, which will be more satisfactory than any quantity of inferior stuff. But depend upon it, that the way to do this is to thin early and severely. The quantity proper to be left must be regulated by the strength and vigour of the Vines, &c., but it should be remembered that it is quite possible to overcrop the most promising Vine. If the border is covered with fermenting materials, see that the heat is not allowed to decline. The buds will now be breaking in the succession house, and when this is the case, the night temperature may range from 55° to 60°. Take advantage of bright days to shut up early in the afternoon with a moist atmosphere, allowing the thermometer to rise to 75° for about two hours. FIGS.—Watch carefully for any indications of red spider or brown scale, both being terrible pests when allowed to gain a footing on the foliage. See that the borders are in a moist healthy state, and attend to stopping the shoots before the fourth or fifth leaf, so as to get the wood matured, in order to secure a second crop. PEACHES.—If there is the least apprehension of red spider play the syringe freely on trees where the fruit is fairly set, and commence the process of disbudding. If green-fly makes its appearance fumigate at once. See that the inside borders are properly supplied with water. After the fruit is set let the temperature range about 60° at night, but rather under than above this on cold nights, and with sunshine and a circulation of air it should range about 75° during the day.

FLOWER GARDEN AND SHRUBBERY.

Give lawns a good rolling after wet, and if it may be necessary to take up any of the turf for the purpose of levelling the ground this should be done as soon as possible. Proceed with edging the walks and keep these clean, and roll frequently to make them firm for walking upon, and also to prevent the growth of weeds. Where it may be necessary to increase the stock of any of the varieties of Dahlias these should be placed in heat at once in order to secure cuttings. Look to Crocus bulbs, &c., planted in beds, and protect them from the depredations of mice.

HARDY FRUIT AND KITCHEN GARDEN.

Prune and nail Peaches and Nectarines, and as soon as this is done, if it is intended to apply a covering for the protection of the blossoms, bring it into use at once to shade them from the exciting influence of the sun. If the covering can be so arranged as to be easily let down on sunny days and the trees exposed at other times it will considerably retard their flowering, and thus will probably be of more service than any protection which can be afforded after the blossoms expand. Where the early crops of Peas have been injured by frost or mice get some planted in turves with which to made good the deficiencies in the lines. The turves should be cut in widths about 5 inches, and 3 or 4 inches deep, cutting out a shallow channel about 3 inches wide and on the under side in which to place the seed. The turves should then be laid with the green side under in a moderately warm house, planting the Peas and covering them with light soil, where they will soon vegetate. As soon as they are fairly in leaf remove them to a cool place, and gradually prepare them for planting out. Managed in this way the Peas will not sustain the slightest check, and will root through the turf into the soil and grow away freely. If not already done clean and dress Strawberry beds. A moderate dressing of good rotten manure applied between the rows and lightly forked in will be of great service to two-year-old plants. See to keeping up a supply of French Beans, and give those bearing in pots a liberal supply of manure water, and endeavour to keep them in vigorous health, so as to avoid having them infested with red spider.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Feb. 21, 1856, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 15	9	29.773	29.776	55	32	43.5	48	45	S.W.	.00
Satur. 16	10	29.841	29.765	54	32	43.0	49	45	E.	.00
Sunday 17	11	29.843	29.8[illegible]1	43	34	[illegible]	[illegible]	45	E.	.10
Mon. 18	12	29.76[illegible]	29.707	36	33	34.5	42	44	E.	.01
Tues. 19	13	29.867	29.753	42	32	37.0	41	44	N.E.	.00
Wed. 20	○	29.908	29.841	38	32	35.0	42	43½	N.E.	.00
Thurs. 21	15	30.054	29.916	37	28	32.5	41	43	N.E.	.01
Average		29.864	29.791	43.5	31.8	37.7	44.0	44.2		.02

Feb. 15—Cloudy; very fine; foggy at night.
— 16—Foggy; very fine; foggy.
— 17—Hazy; overcast; foggy at night.
— 18—Hazy; overcast; slight snow.
— 19—Hazy and damp; cold and raw; cloudy.
— 20—Densely clouded; cloudy and cold throughout.
— 21—Slight rain, and occasionally very small hail; cloudy at night

Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending March 1, 1856.

Feb. and March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24	46.8	34.4	40.6	16	0.60 in.	3	2	2	3	4	6	8	2
Mon. 25	48.1	33.2	40.6	16	0.92	4	1	5	1	4	7	6	2
Tues. 26	47.1	33.2	40.1	17	1.48	5	2	3	4	1	8	4	3
Wed. 27	47.6	34.4	41.0	16	0.40	3	5	3	2	6	6	4	1
Thurs. 28	48.8	33.9	41.3	12	0.84	—	6	5	—	2	6	3	8
Friday 29	45.5	34.2	39.9	3	0.23	1	1	1	—	1	1	—	2
Satur. 1	47.6	34.6	41.1	13	0.62	—	5	2	—	5	9	5	3

The highest temperature during the above period occurred on the 28th, 1846—therm. 64 deg.; and the lowest on the 1st, 1854—therm. 18 deg.

Notices to Correspondents.

ALMONDS: *J S S.* Keep the seedlings where they are, away from frost and from heat, as long as you can. By and bye carefully prick them out in rich light soil, under a hand-glass, shaded until they have securely established themselves.

ANTS; *A Constant Reader.* You are fortunate not to have more than two very large nests in your ornamental woods. Attack them with BOILING hot water, and persevere, turning the heaps over as the water cools and applying more of it. Or if you please you may deliver yourself from your tormentors by the use of hot gas tar.——*G T P.* We give you the same advice, except as regards gas tar, which in your case should not be used.

ASSESSMENT OF UNDER GARDENERS: *F J.* It was in order that every one should be able to judge for himself that we gave verbatim the only three appeals which have been decided by the judges. Gentlemen must draw their own inference in cases unlike those cited. We apprehend that a man cannot be taken to be an under-gardener who works chiefly in a farm; but when a labourer is employed in plantations and sweeping the approaches to a residence the question assumes a new form. If surcharged and the Commissioners are against you, you had better appeal to the judges if you should be still dissatisfied.

BOOKS: *J P.* Gardiner's lessons in British Mosses, 2 parts, with dried specimens in illustration, and Hooker's Muscologia Britannica; both published by Longmans. Of Grasses there is no cheap account; except Moore's Dried specimens of Irish Agricultural Grasses, to be had of the Dublin publishers.—*X Y Z.* Lindley's School Botany.—*E J.* Loudon's Hortus Suburbanus Londinensis.—*J B.* Loudon's Suburban Gardener may possibly answer your purpose.‡

CAMELLIAS: *W G.* They may be grafted now, but if you wish to bud them wait till autumn.‡

DRACÆNA: *J A F.* Cut off a good piece of the top and treat it exactly like the crown of a Pine Apple. The stump will throw up suckers.

EARTHING UP TREES: *J J.* If no more than a foot is used there will be no danger, only you had better let it lie as loosely as possible. Use rotten sticks and other rough stuff as far as you can. It is Tritoma media.

GARDEN WALKS: *A Young Gardener.* When the frost is gone and the weather dry cover your walks with a concrete made with hot gas tar, lime and sea gravel. Spread it very neatly and evenly, keeping it higher in the middle than at the sides, afterwards sift over it plenty of fine gravel, and roll it well with a heavy roller so as to force the sand into the still soft concrete.

GRAFTING: *F R.* No papers are admissible; if there is any discussion it will be confined to Fellows.

GRAFTING OAKS: *T G S.* There is no need of inarching these trees. Graft with *two years old wood*, as if you were grafting Apples, and at the same season; clay carefully, and earth up. If the stocks are standard high then you can inarch them.

HEATING: *A.* Such a tank as you describe will do if put near the front wall.

HOLLY TREE: *C L.* We fear we do not understand your question. If the Holly tree is "very large, has a good head and is well rooted," no care will be required for its preservation, beyond preventing the encroachment of other bushes. Large deciduous trees and shrubs transplanted last autumn ought not to require any assistance now. If they push ill and their buds shrivel, then, in that case, they should be well syringed frequently in the evening, unless it is frosty; and if any covering can be thrown over them after the syringing, to be removed next day, so much the better. Or, Moss may be tied over their main branches so as to retain the water and preserve their bark in a damp state. Spring water will do very well in its ordinary condition; if from a pond or ditch so much the better.

MICROSCOPES: *A B.* For the construction of such instruments consult Quekett on the Microscope, published by Baillière; for their use we recommend the perusal of Mr. Currey's excellent translation of Schacht on the Microscope, ed. 2, published by Highley.—There is nothing special that we know of as the Solar or oxyhydrogen instruments.

MICE: *J B.* Kill them with common figure of 4 brick traps, or take them in wired ones, such as the ironmongers sell.

NAMES OF FRUITS: *Ignoramus.* Your Apple is the Cluster Golden Pippin. The Pear shoots are very badly affected with a canker, which is very common after warm moist seasons are succeeded by a series of dry ones.

NEW ASPARAGUS: *O S.* Surely you do not believe one word that is found in the list, which would be a gross fraud if it were not so preposterous a humbug.

NEW GARDEN: *A B O.* Your subsoil is a ferruginous sand containing small metallic particles. This is not what we should select for a garden. Have it well drained; dress it with lime and clay or strong loam; work them well in, and manure with the most solid substances you can get, such as burnt earth, charred weeds, decayed refuse from the wood yard, and rotten farm yard manure. If you can add cloacine do so. But we should like to know what kind of weeds and Grass grow in the surface soil; and how deep the subsoil goes.

PEARS: *T B P, Manchester,* says he has been very unsuccessful this season in ripening late Pears. Fruit which should come to perfection for the table in January and February and later months has shrivelled, and in some cases remained hard, but nearly in every case has been unfit for use. He would, therefore be obliged by some of our correspondents aiding him by advice both as to the proper time for gathering and the best mode of keeping so as to ripen and bring the fruit to perfection after gathering.

SEEDS: *E. S.* They should all be raised like tender annuals, and hardened off by degrees.

VINERY: *A Novice.* There is no objection to your wasting the floor of your houses—but it is a pity to lose so much useful room. You will gain very little unless you want fresh ripe Grapes in March. Plant one Vine to each rafter. Put Black Hamburgh, Muscadines, and Sweetwaters into one house; Muscats and Frontignans into the other, if you have heat enough for such sorts. If the floor of your house is your border then plant along the middle of it.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
WM. INGLIS CARNE, 10, Mark Lane, London.

THE LONDON MANURE COMPANY have the following ready for immediate delivery:—
CORN MANURES.
CONCENTRATED URATE, for Roots, Grasses, &c.
NITRO-PHOSPHATE, or BLOOD MANURE.
SUPERPHOSPHATE of LIME.
PERUVIAN GUANO direct from importers' warehouses, Nitrate of Soda, Sulphate of Ammonia, and every artificial Manure of known value.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

MANURES.
HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—
SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.
SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.
N.B. Manures specially prepared for Grass and Flax.
The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

BONE MANURE, PHOSPHATE OF LIME, NITRATE OF SODA, GUANO, GYPSUM, SALT, PEAT CHARCOAL, and all other Manures on sale, at H. J. HUNT'S Bone Mills and Manure Works, Broad Street, Lambeth, London. Agents wanted for the sale of BONE PHOSPHATE of LIME, the best Manure for Turnips and all Root Crops.

SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangel Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.
It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).
Trustees.
Abel Smith, Esq., Jun., M.P., Walton House, Ware, Herts.
Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-General Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.
Directors.
Chairman—JONAS WEBB, Esq., Babraham, Cambridgeshire.
Deputy-Chairman—JOHN SHARP, Esq., Tower Villa, Queen's Road, Regent's Park.
Edward Bell, Esq., Tottenham, Middlesex.
John Clayden, Esq., Littlebury, Essex.
Richard Hunt, Esq., Stanstead Abbot, Herts.
Thomas Knight, Esq., Edmonton, Middlesex.
Robert Leeds, Esq., West Lexham, Norfolk.
Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
James Odams, Esq., Bishop Stortford, Herts.
John Collins, Esq., Middleton Square, Pentonville,
With power to add to their number.
Bankers—Messrs. Barnett, Hoare & Co., Lombard Street.
Auditor—James Caird, Esq., Baldoon, and 6, Serjeant's Inn, Temple, London.
Solicitors—Messrs. Kingsford & Dorman, 25, Essex Street, Strand.
Secretary and Chemist—James Taylor, Esq., F.C.S.
Offices—109, Fenchurch Street, London.
Manufactory, Plaistow Marshes, Essex.

The Directors of the above Company (many of whom are eminent agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are large consumers themselves of the Blood Manure, their fixed determination being to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.
The great value of Blood Manure as a fertiliser may now be considered as a fully and fairly established fact. Ever since the first introduction of this valuable fertiliser, the demand has always been greater than could be conveniently supplied, and the Patentee has two objects in view in establishing a Company. First, to develope the capabilities of this invention; and second, to protect the farmer from the daily imposition to which he is subjected, by having worthless articles pawned upon him as genuine fertilisers, which have too often made him the victim of designing and unprincipled men.
Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a triumphant answer to the question, "What has science done for Agriculture?"
The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.
Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.
Price, delivered at any Wharf or Railway Station in London:—Corn and Grass Manure, 7*l.* 10*s.* per ton; Turnip Manure, 6*l.* 10*s.* per ton; Flax and Hop Manure, 8*l.* 10*s* per ton.
The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

MANURES.
TO BE SOLD, NITRO-PHOSPHATE, or BLOOD MANURE, SUPER-PHOSPHATE OF LIME, GUANO, BONE-DUST AND HALF-INCH, GYPSUM, SULPHURIC ACID, SALT, and all other MANURES of known value. Sole Agents for the Peat Charcoal Company.—Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street.

TO AGRICULTURISTS.—I have been appointed by Mr. BARBER, Poulton Hall, Cheshire, Sole Agent for the Sale of his COTTON SEED OIL-CAKE, and am now prepared to receive orders for the same. Price 11*l.* per ton in Liverpool, delivered at the carrier's (casks included).—Address, JOHN LLOYD, 63, Old Hall Street, Liverpool.
I subjoin copy of the analysis of it by Professor Way, London, addressed to Sir Thomas Parkyns, Bart. Boddington Manor, which has been fully borne out by the experience of all who have had an opportunity of trying it.
"15, Welbeck Street, Oct. 12, 1855.
"Sir Thomas,—I have made a careful analysis of the sample of cake which reached me on the 3d inst. With a full proportion of albuminous constituents, the sample of cake now analysed contains twice as much oil as foreign or English Linseed or rapecake; and I think it should therefore be superior to them in feeding and fattening properties; experience however, alone can decide this point; the proportion of water (moisture) is also small, which is in favour of the cake keeping without injury. Unless, therefore, it should in any way be distasteful to animals, I should form a high opinion of its value.
"I am, Sir Thomas, your obedient servant,
(Signed) J. THOMAS WAY."
"Sir Thomas Parkyns."
Sample of Oilcake received from SIR THOMAS PARKYNS, *Oct. 3d*, 1855.

Moisture	6.58
Oil and fatty matters	19.40
Albuminous matters	28.31
Woody fibre	10.64
Starch, gum, sugar, &c.	26.98
Mineral matters in ash	8.09
	100.000

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
SIR JOHN V. SHELLEY, Bart., M.P., *Deputy-Chairman.*

George T. Clark, Esq.	William Fisher Hobbs, Esq.
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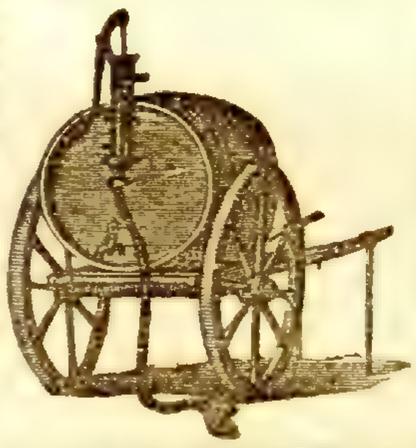
Sir William Cubitt, F.R.S.	Sir Samuel Morton Peto, Bart.
Henry Currie, Esq.	William Tite, Esq., M.P.
Thomas Edward Dicey, Esq.	William Wilshere, Esq.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*
1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.
1½ Gutta Percha Suction, 1*s.* 9*d* per foot.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

LONG'S NON-POISONOUS SHEEP AND LAMB DRESSINGS.—These important Sheep Dressings have already been the means of producing the finest Hogget Fleeces that have ever been seen in the United Kingdom. Specimens were exhibited at the principal Agricultural Meetings of last season, showing an increased Growth of Wool equal to 25 to 30 per Cent. Further specimens even of a more extraordinary character are preparing for exhibition at the different Meetings of 1856.
BARRY BROTHERS, Sole Agents for the Introduction of Long's Non-Poisonous Sheep and Cattle Dressing Compositions throughout the United Kingdom, and for Shipment. Meriton's Wharf and Shad Thames, London.
Appointed Agents in all principal Towns, of whom Catalogues with Testimonials can be obtained; or from above.

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738

FIRST PRIZE REAPING MACHINE.
NOTICE.
MESSRS. BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's, exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

IRON FENCE, HURDLES, ETC.
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

POULTRY, ETC., SHOWS.
PORTABLE WIRE PENS FOR POULTRY AND PIGEONS, furnished on hire by THOS. P. HAWKINS, General Wire Worker, 27, Dale End, Birmingham. Game Netting and Wire Goods of every description.

SLATE WORKS, ISLEWORTH, MIDDLESEX.
EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.
Priced Lists of Plant Tubs and Boxes forwarded on application.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—The next ANNUAL MEETING will be held at ROTHERHAM, on WEDNESDAY and THURSDAY, August 6th and 7th, when upwards of EIGHT HUNDRED POUNDS are offered in Prizes for Stock, Implements, Poultry, Flax, Essays, &c. Prize Sheets are now ready, and may be had free on application to the Secretary. JOHN HANNAM, Secretary.
Kirk Deighton, Wetherby, February 23.

The Agricultural Gazette.

SATURDAY, FEBRUARY 23, 1856.

AT a time when new manure companies are being advertised, and new materials are being brought into their service, and when farmers are preparing for the season of vegetable growth by laying in their stocks of food for plants, it is of the very highest importance that the grounds be known on which accurate valuations of such food can alone be made.

Professor WAY's paper on this subject in the Journal of the Agricultural Society has the merit

of being admirably timed, at the same time that it thoroughly lays its subject before its readers. The difficulties in the way of estimating accurately the value of a manure are fully stated; but that they are as a general rule and for ordinary purposes practically overcome by the data and the illustrations which Mr. Way has given will be acknowledged by many a reader who has risen satisfied from the perusal of his paper having gone puzzled to it for instruction.

The value of a manure to any one who shall use it varies with his soil, his crop, his climate. Bones are valuable on sandy soils, much less so upon clays; they are valuable for Turnips, much less so for grain crops. Ammoniacal manures are found more valuable for green crops in the North than they are in England. Again, the cost of a manure to any one who shall buy it depends upon the source from which he seeks it. Ammonia in sulphate of ammonia costs 7¼*d.* per lb., in guano it costs 4¾*d.* per lb. And there are other circumstances affecting both value and cost to which Professor Way alludes. It is plain, then, that the problem is not so simple as might have been expected—all that can be done is to give information on the market value of the several ingredients of manure in several of their most abundant forms, and from the average cost thus arrived at to calculate the selling value of any manure containing them. If such a manure is offered at a price above the sum thus calculated, the farmer had better take his custom to another dealer. The *agricultural* value of the manure is of course quite a different thing from its market value—it should be ascertained by experience: and in the absence of that it must be determined by the quantity of nitrogen and phosphoric acid in a soluble form that it contains.

The first table which Professor Way has quoted gives the market value of a variety of different substances which are either used directly as manure or were necessary for the calculation in which he had engaged.

Table I.

	£	s.
Sulphate of ammonia	15	0
Muriate of ammonia, 95 per cent.	26	0
Nitrate of potash (crude), 85 to 90 per cent. ... 32*l.* to	40	0
Sulphate of potash	15	0
Carbonate of potash, 97 to 98 per cent.	76	0
American potash, 75 per cent.	35	0
Nitrate of soda (usually 14*l.* to 17*l.*), 95 p. cent. 18*l.* 10*s.* to	19	0
Sulphate of soda, 95 per cent.	5	10
Common salt (clean)	1	6
Agricultural salt	1	0
Sulphate of magnesia (rough), 90 per cent.	5	0
" " (pure), 97 per cent.	8	10
Sulphate of lime (mineral gypsum)	1	10
" " (precipitated)	1	0
Coprolite (ground), 52 per cent. of phosphate of lime....	3	15
Bone ash, 70 per cent. of phosphate of lime, 5*l.* 17*s.* 6*d.* to	6	0
Animal charcoal, 70 per cent. of phosphate of lime, 5*l.* 15*s.* to	6	0
Bones (half-inch boiled) ... ... 6*l.* 6*s.* to	6	10
Guano (Peruvian) ... ... 11*l.* to	11	10

From the data which this table furnishes, the following calculated prices have been deduced.

Table II.—For Calculating Money Value of Manures.

Names of Ingredients.	Per lb.	Per cent. per ton.	Per ton.
	s. d.	*s. d.*	£ *s. d.*
Ammonia in sulphate	0 $7\frac{3}{10}$	13 7	68 3 0
" in muriate	0 $9\frac{6}{10}$	17 11	89 12 0
" as supplied by bones ...	0 $4\frac{8}{10}$	8 11½	45 9 0
" " dried blood ...	0 $5\frac{9}{10}$	11 0	55 0 0
" " Peruvian guano	0 $4\frac{7}{10}$	8 9	44 2 0
" " nitrate of potash	1 3½	28 0	140 0 0
" " nitrate of soda .	0 $10\frac{4}{10}$	17 9	89 1 0
Biphosphate of lime	0 5	9 7½	48 3 6
Soluble neutral phosphate of lime ...	0 3½	6 6¼	32 13 4
Phosphate of lime in coprolite ...	0 0¾	1 3	6 5 0
" in bone ash ...	0 $0\frac{91}{100}$	1 8½	8 11 5
" in animal charcoal	0 $0\frac{88}{100}$	1 7¾	8 2 2
" in bones	0 $0\frac{6}{10}$	1 2	5 14 4
" in Peruvian guano	0 $0\frac{59}{100}$	1 1	5 11 0
Potash in sulphate	0 $3\frac{3}{10}$	6 2	30 16 0
" in nitrate	0 $4\frac{9}{10}$	9 2	45 14 0
" in American potashes ...	0 $7\frac{8}{10}$	14 6	72 16 0
Magnesia in sulphate	0 $3\frac{4}{10}$	6 4	31 14 0
Soda in sulphate	0 $1\frac{4}{10}$	2 9	13 14 9
" supplied by common salt ...	0 $0\frac{22}{100}$	0 4½	1 17 9
Organic matter, nitrogenous	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
" non-nitrogenous ...	0 $0\frac{1}{20}$	0 $1\frac{2}{10}$	0 10 0
Alkaline salts	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
Sulphate of lime	0 $0\frac{1}{10}$	0 $2\frac{4}{10}$	1 0 0
" soda (dry)	0 $0\frac{61}{100}$	1 1½	5 15 0
" potash	0 $1\frac{8}{10}$	3 4	16 13 0
" magnesia (dry)	0 $1\frac{22}{100}$	2 3	11 7 0
Sulphuric acid (real) in sulphate of lime	0 $0\frac{30}{100}$	0 5¼	2 11 6
Adopted Averages.			
Nitrogen	0 $7\frac{3}{10}$	13 6	68 0 0
Ammonia	0 6	11 2	56 0 0
Phosphate of lime	0 0¾	1 5	7 0 0
Soluble phosphate of lime	0 3½	6 6½	32 13 4
Potash	0 $3\frac{3}{10}$	6 2	30 16 0

"The column headed per cent. per ton," Professor Way remarks,

"is perhaps somewhat difficult of comprehension. It is, however, a method of valuation familiar enough to manufacturers and others engaged in the purchase and sale of commercial articles. Thus, to give an illustration, soda ash (impure carbonate of soda) is sold at about 2¼*d.* per cent. per cwt., that is to say, a hundredweight of it is worth 2¼*d.* for every per cent. of *real* soda in it. If then the soda ash contains 50 per cent. real soda, one hundredweight of it will be worth 50 times 2¼*d.*, or 8*s.* 4½*d.* In the table the price per cent. refers to a ton; so if a manure contains 20 per cent. of soluble phosphate, one ton of the manure will be worth, for that ingredient, 6*s.* 6½*d.* multiplied by 20, or 6*l.* 10*s.* 10*d.*"

It only remains to give instances of the mode of calculation by which these tables are made useful to the purchaser in the manure market, and this Professor Way has done in the case of super-phosphate of lime and guano. The mode of calculation based on the last column in the table seems the simplest, and one instance in this way, which it is stated was first employed by Mr. Nesbit, may suffice. The following table gives the analysis of a superphosphate with the prices of each ingredient per ton used in calculating the value, first of 100 tons and then of 1 ton of the manure:—

In 100 Tons.

Organic matter (17 per cent.) 17 tons at 1*l.*	£17	0
Soluble phosphate (16½ per cent.) 16½ tons at 32*l.* 13*s.* 4*d.*, say 33*l.*	544	10
Insoluble phosphate (13 per cent.) 13 tons at 7*l.*	91	0
Sulphate of lime (41 per cent.) 41 tons at 1*l.*	41	0
Alkaline salts (2 per cent.) 2 tons at 1*l.*	2	0
Ammonia (1 per cent.) 1 ton at 56*l.*	56	0
	£751	10

"We have here 751*l.* 10*s.* as the cost of 100 tons of the manure; by striking off the two last figures in the division of pounds sterling (thus 751*l.*), we have $7\frac{51}{100}$*l.*, or 7*l.* 10*s.* as the value of the manure."

Professor Way's extremely valuable paper concludes with tabulated analyses of 78 guanos, and 171 superphosphates. The average results afforded by the two are as follow:—

The 78 analyses give us the mean composition of Peruvian guano, as under:—

Moisture	13.67
Organic matter and salts of ammonia*	52.05
Sand, &c.	1.83
Phosphates of lime and magnesia	22.78
Alkaline salts, containing 3.34 phosphoric acid equal to 6.89 soluble phosphate of lime	9.67
	100.00

The analyses of the superphosphates give such varying results that to strike the average of the whole would give no useful information. The following is a classification of them:—

Of 171 specimens in the table, there are—

Containing—					
Less than 5 p. cent. of soluble phosphate	11 samples,	or 6½ p. cent.
Between 5 & 10	"	"	49	"	or 29 "
" 10 & 15	"	"	60	"	or 35 "
" 15 & 20	"	"	40	"	or 23 "
Over 20	"	"	11	"	or 6½ "

On the whole Professor Way comes to the satisfactory conclusion, in reference to all manures intended for green crops, that—

"The manufacture of these manures is rapidly improving. Sounder information, abundant capital, free competition, and improved machinery are doing for agriculture in this respect what the same causes are found to effect in every other manufacture; and although I have given the analysis of what may be called a good superphosphate, and which was probably sold at from 6*l.* to 7*l.* per ton, it may not be long before such a sample will be considered of an inferior class. Of this I am sure, that the manufacturer must cease to leave any considerable quantity of phosphate of lime undissolved, and must raise the proportion of soluble phosphate to as high a pitch as possible."

IRISH STATISTICS.

In the *Agricultural Gazette* of the 22d December, 1855, p. 845, there is an extract from the *Times*, relative to the Irish agricultural produce for the year 1854, and which that paper considers, and I think with good reason, an indication of increasing agricultural wealth and consequent improvement in the condition of the people. I think, however, that the *Times* in the article Wheat is disposed too much to attribute this improvement to war stimulant; for my part I am inclined to ascribe it to very different causes; the high prices, from whatever causes they may have arisen, would have been equally effective, if not more so, in Ireland, in the increased average of Oats, which, in its price, bears a tolerably fair proportional increase with Wheat, being nearly double the previous price. The increase in the acreage of Wheat has rather, I think, been determined by a returning confidence in the safety of this crop. It had suffered, for some years, to an extent, in many places, equal to four-fifths of the crop from mildew, and many persons had consequently abandoned the growing of it altogether; it has, however, in the last two or three years been less seriously affected, and to this somewhat restored confidence, rather than to war prices, may be attributed the increase of 1854. Independent of climate and the want of drainage rendering many parts of Ireland not so applicable to Wheat as Oats, its straw is under very low estimation either for fodder or litter, and this is still more the case with Barley straw. The value of Oat straw for fodder, as well as the rough preparation under which it succeeds, favours the tillage of Oats.

With respect to Oats, it may be said to be our staple crop, other causes have been in operation to affect the extent of its tillage in bygone years, perhaps even more effective than war prices at present. After the famine years of 1846 and 1847 confidence being lost in the Potato, though not hope, the manure was very generally applied to four repeated crops of Oats; the progressive breaking down of our farmers, who, before they gave in, took crop after crop of Oats in even a greater number of successions than they had been accustomed, caused a great increase in the acreage extent of this crop, though very probably not in the weight of produce; then came a decrease in tillage from the overcropped land falling into the hands of the landlords and being left by them, in the language of the country "waste," to natural restoration. These times have passed, and our agriculture may now be considered in a great measure returned to its former healthful condition (if healthful I may be allowed to call it), and may be hoped to be under progressive improvement.

Flax made indeed a very great start from 1850 to 1853, but its falling off in 1854 ought not to be, I should think, attributed, as the *Times* supposes, to its giving way to the reviving popularity of the Potato, for it never in our rotations occupied the place of our old friend, nor can they in any way interfere with one another; it, the Flax crop, rather comes in place of an Oat crop; but, from the introduction in those years of supposed improvements in the manufacture of Flax, and by the exertions made by those who took a deep interest in its production, it became a temporary rage; this has subsided, some failed, some were disappointed in over expectancy, and some fell from their first love, and, perhaps, even the high prices of Oats and other grain may have had some influence in checking its culture. *J. M. Goodiff.*

* Containing nitrogen 13.61, equal to ammonia 16.52.

THE POOR-LAW.

There are few subjects of more importance to the welfare of the country than the proper administration of the poor-law, and we venture to say that so much unmitigated evil was caused by the operation of the old poor-law previous to the year 1834, that if the mischief caused by the corruption and terror of overseers and the insubordination and increasing extortion of paupers had continued much longer, there would have been a servile war waged against property and respectability that would have taxed the utmost resources and energies of England to have overcome, as even now the traces are not quite worn out of those claims of idleness to be maintained, and maledictions to be appeased, that were then so common and so unmanageable.

Our attention has been directed to this subject by the appearance of a leading article in the *Morning Herald* of January 4th, extolling the old system of "subdivision," as he calls it, and taxing the new system of "aggregation" with injury to "the deserving poor and the ratepayers," styling it the chief of "modern nostrums," and stating it to have been concocted by an "artful speculator solely for his own purposes;" all this because from 1829–40 to 1854–5 the number of paupers in the West London Union had increased from 1594 to 2494, *i.e.*, 900 in 15 years, and the expenses of the union from 11,793*l.* 12*s.* 11*d.* in 1838-9 to 21,111*l.* 5*s.* 3*d.* in 1854-5.

Whatever may have been the causes of the increase in this particular union they do not prevail to the same or anything like the extent in the country, although we are free to admit that a considerable increase has been observed the last two years, and as the agricultural interest is very largely affected by the good or bad condition of the poorest class of the community, it may not be amiss to examine the reasons of this augmentation of charges on account of relief to the poor to rescue the question from personal or party grounds, that we may endeavour to ascertain if anything can be done to arrest or alleviate a growing evil.

We will first glance at the old poor-law as existing in 1834, when the money levied for poor-rates amounted to 8,338,079*l.*, applied, as Lord Brougham said, by "a grand violation of all sound principle to a system which went to support the idle and the profligate at the expense of the honest and industrious," which produced "evils the extent of which no tongue could adequately describe, and the possible extent of which no fancy could picture" detailed at length "by the concurrent testimony of magistrates, clergymen, country gentlemen, farmers, labourers, churchwardens, overseers, vestrymen"—"who in one voice united in representing a state of things which has reduced your peasantry to a state of abasement which I am ashamed to think of, and which I shudder to describe," by which some parishes actually went out of cultivation, from the difficulty of organising labour, and the excessive amount of poor-rates; every honest, right-minded man avoided parochial offices, and when compelled to serve as overseers, got over their year of office as well as they could, only daring to apply temporary means to escape the evils that threatened them without being able to stem the torrent of unblushing pauperism with which every village in England was more or less then threatened; the workhouses were worse than the prisons in scenes of violence and degradation, without any prospect of improvement; high wages were demanded for doing nothing, and paid functionaries alone could be said to manage parish affairs by turning this confusion and disorder to their own pecuniary benefit.

The poor-rates have not been so high since! For 1854 the amount was 6,973,220*l.*, and as a large portion of the relief given is bread, and the 4 lb. loaf for 1855 averaged more than the previous year, we may expect that a higher amount of poor-rates were levied during the year just closed; but will any one who is in the least conversant with the operation of the poor-law compare the mode of administration at present with that which prevailed previous to 1834? Our friend of the *Herald* says pauperism is dealt with in a "wholesale way," whereas every separate case is entered in a book with a variety of particulars by the relieving officer which ensures a preparatory investigation previous to the case being considered by the board of guardians; every applicant has a fair hearing, and if there is anything wrong in the increased burden of the poor-rates,

it ought rather to be attributed to a greater leniency or indulgence in granting relief than an indiscriminate disregard of the claims of the deserving poor.

And now for those instances where it may be supposed a tendency exists to grant improper relief, or where the alleged increase of charges may admit of curtailment. Medical relief is a great boon to a poor man, and the inclination of boards of guardians seems to be favourable to a liberal grant of it; but it is nevertheless liable to be abused, 1st by persons applying for it who are well able to pay a doctor themselves, 2dly by orders being granted without due consideration by overseers of parishes remote from the residence of relieving officers; and 3dly, by orders being granted for trifling ailments on which to found claims for other relief. Relieving officers have a notion that they cannot refuse an order, in this they often perhaps err on the right side, but too much facility in giving medical orders discourages altogether those medical clubs, which cost the labourer little and yet keep him from the contamination of parish relief. Applications for a doctor to attend the wives of labourers earning full wages during confinement are becoming more frequent, often in consequence of the "doctors" refusing to attend without an order, because they are sure of their fee from the board.

A practice is also beginning to extend itself of getting "funeral expenses" provided by the board whenever a death takes place; this is an insidious step towards the old system.

Clothes are also frequently applied for to rig out one of the family taking a place, a pitiable case is made out, the humane feelings of the guardians are acted upon, and not unfrequently 25*s.* for a boy, and 15*s.* or 20*s.* for a girl, are allowed to start them into life; the miserable condition of the family being often brought about by the extravagance or improvidence of the parents begets commiseration for the children, which procures for them advantages not enjoyed by more scrupulous poor without considerable self-denial and privation. These hints will suffice to show that abuses may creep in and should be carefully watched, and when possible prevented. Much of the increase in poor-law charges may be owing to a relaxation of that strictness which was at first enforced, and which it is the constant business of the Poor-law Commissioners to maintain; but 618 unions in England and Wales take a deal of looking after, yet it must be admitted that the qualifications of all officers and persons concerned in administering the poor-law are of a higher character than formerly; the union houses are not the horrible hotbeds of immorality and wretchedness they once were; the children in all of them are, taken as a whole, well educated; and though parents who desert their offspring, or rather men who desert their families, should be dealt with as criminals, yet the children of such people are better under the care of a master who keeps them clean and endeavours to make them good, than living with a drunken or vicious parent. One ugly feature of the times is the increase of illegitimate children, and consequently of abandoned girls; this item cannot be charged to the new poor-law, and like the other monster grievance of cruel husbands, seems to demand extraordinary treatment for its amendment. Finally, we come to the conclusion that all social evils require the efforts of benevolent and right-thinking men to devise practical measures that shall abate evil and induce good habits, while dearness of provisions must abridge the comforts of the poor; the pressure is also felt by numberless struggling families who can with difficulty keep their head above water, and the heavy taxation is severely felt by all persons with limited incomes. For such, and for all, public journalists should state facts and argue fairly, not revert to obsolete and disastrous usages as a fair contrast to the condition of the poor at present, but remove obstacles to a right apprehension of things without fomenting discontent or insinuating useless calumnies. *J. W., Peterborough.*

AGRICULTURAL CONSTANTS.

THOUGH the unceasing calls of a very extensive medical practice have for 12 long years prevented me from writing anything on the subject of agricultural chemistry, I have by no means lost my interest in the subject, and continuing a steady reader of your valuable Paper have watched with much pleasure the progress of the science. It is not however my inclination, neither indeed is it in my power, to resume my pen and once more enter the field as a writer, but having noticed a paper of mine referred to on two occasions lately by Mr. Martyn Roberts, I am anxious to say a few words in explanation. I had quite hoped that your leader on "Agricultural Constants" would have satisfied your correspondent; but this not being the case, I would call his attention to the following circumstances in connection with my papers on Bone-dust, Rape-cake, and Farm-yard dung. If he will refer to the schedule of prizes offered by the Highland and Agricultural Society of Scotland, he will find that the subject was introduced in some such way as this: "Extensive experience has proved that 1 ton of bone-dust or Rape-cake is equal to 15 or 20 tons of farm-yard dung in the production of Turnips," &c. &c. In competing for the prize, therefore, I felt that one point only was before me, viz., the immediate effects of these three manures upon a crop of Turnips. On a former occasion I had examined a somewhat analogous subject, viz. to ascertain why the police manure of Edinburgh (ashes, house refuse, &c.) was equal to farm-yard manure for certain crops while greatly inferior for others, and at that time I pointed out what I believed to be the peculiar requirements for a good manure for the Turnip crop, and in the essay from which Mr. Stephens quotes in his "Book of the Farm," I went upon the same data and followed the same process of analysis. For the particulars, however, I must refer to the essays themselves, which will be found in the 13th and 14th volume of the Prize Essays and Transactions of the Society. The mistake Mr. M. Roberts has made is in supposing that I made an out and out comparison between the three manures; this I did not attempt, as it was altogether foreign to the subject in hand. On the contrary, the comparison referred solely to their relative effects upon the Turnip crop, which, as you are aware, in Scotland always follows directly after the manuring; the comparison is therefore strictly limited to the immediate effects or to those only in relation to one particular crop. My method of comparison has often been objected to, and my calculations considered erroneous, but this has been entirely owing to the objectors overlooking this limitation to immediate effects. It must never be forgotten that in all fertile soils there constantly exists, independent of manure altogether, a vast superabundance of every ingredient, organic and mineral, which any crop can require, and yet we know that manures or substitutes for manure are required. The cause of this lies in the condition in which the various ingredients exist, those only being available for the present crop which are in such a state or combination that the growing plant can absorb and appropriate them. I think my mode of calculating will be best understood by an analogy. The soil may be compared to a banking concern, where there is both vested property and floating capital, and the growing crop will represent the daily demands for cash payments. Now it is clear that that bank will be in the best condition to bear a heavy crop, that is, to satisfy a large daily demand for money, which has the largest floating capital, or whose vested property is more readily capable of being realised. If, for example, we compare three banks, and find that one has 100,000*l.* invested in land, 15,000*l.* in the Funds, 10,000*l.* in Exchequer Bills, and 5000*l.* in cash; while a second has in land 50,000*l.*, in the Funds 50,000*l.*, in Exchequer Bills 20,000*l.*, and in cash 10,000*l.*, and the third had in land 10,000*l.*, in the Funds 50,000*l.*, in Exchequer Bills 50,000*l.*, and in cash 20,000*l.*; it is clear that although the three concerns have each a capital of 130,000*l.* they would yet be very unequally prepared to bear a pressure upon them for cash payments; and in comparing their relative superiority in this respect we should simply add together all the different sums possessed, with the exception of the amount invested in land which it might be difficult to realise, and we should conclude that the proportions of 30, 80, and 120 represented their relative capabilities to meet a sudden run. And this is what my objectors say I should have done with the three manures. But to make the analogy more accurate it should be stated that the daily customers at the bank require sometimes cash, sometimes exchequer bills, and sometimes a transfer of stock, since these are used to represent the various ingredients of the different manures, and, consequently, the comparison must be made differently, for the second bank can not only supply twice as many customers with cash, but also twice as many with exchequer bills, and nearly four times as many with government stock; hence nearly eight times as many customers can be accommodated at the second bank as compared with the first. Let it not be forgotten that in every soil, however richly manured, the crop obtains by far the greater part of its weight from the atmosphere and water; and all we can hope to do by manure is to stimulate the plants into more vigorous health by presenting some one or other of its required ingredients in a readily absorbable, or, as it might be termed, in a tempting form. I hope I have now succeeded in explaining my meaning. *Henry R. Madden, M. D., Brighton.*

Home Correspondence.

Adulteration of Bread.—Flour is adulterated with Rice, Indian corn, and sometimes Bean meal. These are not unwholesome; but the two former make the bread hold more water; and the latter serves to disguise milchy flour. Bean meal may be detected by the smell, on pouring boiling water on the flour; Rice and Indian corn only by the microscope, which housekeepers do not generally possess. But flour has been also adulterated with chalk, plaster of Paris, and China clay. All these may be detected by burning 100 grains (or any precise quantity) of the flour entirely away; when the mineral substance will remain unconsumed. Genuine Wheat flour will not leave more than 1 per cent. of ash; and what exceeds this may be charged to the adulteration. And they may be detected in the bread, by the same process. Chalk can be still more easily detected, by mixing a teaspoonful of flour in half a wine-glass of cold water, and adding 20 or more drops of muriatic acid; chalk will betray itself by effervescence. In the bread the adulteration with Rice and Indian corn flour may be indicated, though not with certainty, by drying a weighed slice of the new bread, freed from the crust, over boiling water, till it will lose no more weight. The loss will show the percentage of water, which will be greater in proportion to the Rice or Indian corn present. Mashed Potatoes are also used in bread, chiefly to improve the texture. If much is put in, the taste betrays it; but a little good mashed Potato rather improves the bread than otherwise. Alum is the most common injurious adulteration of bread. When the bread is pretty strong of alum, it may be detected by the taste. Cut a good slice, rather stale, about half-inch thick paring off the crust, put it in a deep plate or saucer, with warm water enough to soak it well, cover it and set it over hot water. Keep it thus hand warm (but do not let it boil) 2 or 3 hours; then squeeze out the water through muslin, and the alum will betray itself by the taste; or if too weak for this, it may be strengthened by gentle (not boiling) evaporation. But it will not be often strong enough to discover in this way, the taste of the bread generally covering that of the alum. To detect the more common small quantities, the bread must be charred, to make it insoluble; and the alum dissolved out by acid, as follows:—First char 1000 grains of the flour or bread; then boil it in a flask, with four drachms of nitric acid, four of muriatic acid, and four of water. Evaporate to dryness; when cold add one ounce of distilled water and boil for a few minutes; while boiling dilute with two ounces of liquor potassæ (as sold by the chemists) and boil again for a few minutes, then filter, neutralize the clear liquor with muriatic acid, and precipitate with ammonia (the liquor of ammonia of the chemists). The precipitate, if any, is alumina, showing the presence of alum; and if well washed, dried, ignited in a platinum dish and weighed will indicate the quantity; but this requires a little chemical practice. *I. Prideaux.*

The Cattle and Turnips of East Cumberland.—Cumberland having been very conspicuously brought before the notice of the agricultural world in the preceding year, on account of the Agricultural Society having favoured that county by holding their meeting at Carlisle, a few remarks on the various breeds of cattle for the most part reared there, and also upon the descriptions of Turnips mostly grown in that neighbourhood (with the greatest success), will I have no doubt be acceptable to our southern friends, who, I am informed, admired the culture and quality of our Turnip crops during their sojourn in our border city. The principal breeds of cattle in vogue here are the short-horns, the Galloway (or black Scots as they are provincially termed), and a sort of spurious breed, a cross between short-horns and Irish cattle. There are amongst the neighbouring gentry and farmers three or four choice breeds of short-horns, but the fancy prices which have been obtained for this breed lately have induced some parties to bring their stock to the hammer, large sums having been paid for animals of acknowledged blood and symmetry. Our ideas are that they are not so profitable for the dairy, as they have too great a tendancy to fatten, instead of being good milkers. The Galloway or Black Scots are the most suitable for the quality of land, and are decidedly the best breed for small farmers and cottagers. The plan usually adopted is to sell the bull calves to the butchers as soon as they are marketable, and the heifers after having had one or two calves very quickly fatten, and will feed, on average, say from 38 to 42 stone of 14 lbs. Cross breeds with the Irish cattle are generally looked upon with suspicion by farmers, as being often very stiff in the touch, and many having cast calf (before being brought to market) are slow feeders and hide bound. The Turnips grown here with most success are the Swedes, Yellow Bullocks, and White Globes. The Swedes are found to be much the hardiest and best keepers, never being used until all other sorts are finished; land in good order will produce from 20 to 25 tons per acre, and calculating the price at 25*s.* per ton [!] this shows a valuable crop; but when the great outlay in wages and manure is taken into account, as well as the process of thinning, hoeing, &c., many farmers give a preference to a summer fallow, and consider that the extra yield of Wheat the next year fully repays them. It may be as well, in conclusion, to mention that Yellow Bullocks generally produce from 18 to 22 tons per acre, and White Globes 25 to 28 tons; but as in all the high and sandy soils the Turnips are almost invariably eaten off by sheep, the exact growth per acre is not quite so correctly ascertained. The usual Turnip sheep here are Cheviot wedders, mostly bought at Falkirk, and the price for turniping each sheep per week is about 6*d.*; this is a high rate, but railways have much increased the value of Turnips. *Cumbrian.* P.S. The weight of the Turnips is calculated without including the root or tops.

Box Feeding.—Having seen in the two last *Gazettes* some speculations on the possible or probable results of this system on the health and condition of animals so kept, it will no doubt be satisfactory to any persons desirous of adopting it and who may have been influenced by any theoretical objections, to learn the practical results of nine years' experience. During that period in each year between October and June I have fed in boxes 24 bullocks—Shorthorns, Herefords, Devons, and Pembrokes, purchased at various markets. I have not lost a single bullock from disease of any kind. I have never paid, to the best of my recollection, a single shilling to any veterinary surgeon, nor has there been any ailment amongst the cattle in the boxes. My boxes were formed simply by excavating the earth under old stalls 2 feet deep, building a common stone wall of that height the entire length of the range back and front, to prevent any earth falling in, and without any brick or other floor; the range is then merely divided by cross rails into compartments 9 feet square, by strong rails, which are raised by a very simple contrivance as the manure accumulates under the animals, until they are raised to the ground level. That takes about 14 to 16 weeks. We generally find that, by that time, an

average thriving animal walks off on a level to the butcher. The week before last my boxes were completely filled, some of them inconveniently. An agriculturist who was over my farm, on walking into the principal range, and who did not know what was under the bullocks, remarked on the sweetness of the building—that it was as sweet as any room in a dwelling-house. I told him I considered it much sweeter than most domestic apartments, in which opinion he concurred. This week some other gentlemen had the opportunity of seeing the boxes while being emptied. They had the advantage of seeing a glorious sight to a farmer—2 feet of dung so compressed as absolutely to exclude all access to air, in an equally moist state from the top to the bottom; not a particle dry or wet, but as soon as the forks were inserted to hollow up and throw out the contents and free access was given to air, the fragrance of the preceding week was very quickly succeeded by an atmosphere redolent of fine Swedes and Mangel, and many a long, drooping, heavy ear of corn. The only essential to complete success, as respects this system, is that the litter should be passed through the chaff cutter, set to cut from 4 to 6-inch lengths, or thereabouts, which insures even treading and perfect absorption of the fluids. We put in the bottom of the boxes when first started 3 or 4 inches deep of the small straws, &c., thrown out behind the threshing-machine, or some turf ashes. *Charles Lawrence, Cirencester, Feb.* 18.

Couch Grass.—Having had some experience in the destruction of Couch Grass, the most vigorous enemy a farmer has to contend with on a stiff soil, I have come to the conclusion that nothing will effectually eradicate the pest but the long steel fork; the plough and spade increase its growth by cutting the roots into small pieces, and scattering them all over a field, the smallest length sprouting out and increasing wonderfully. It has been truly said that "the man who makes two blades of Grass grow where only one grew before" is a benefactor to mankind. Then surely the farmer who causes his land (which only produced 20 bushels of Wheat per acre under the old system of cultivation) to yield 30 in these days of improving husbandry is entitled to some praise. Couch Grass requires similar food to grain, and consumes even more, without returning any equivalent to recompense the labour bestowed upon the soil. It therefore stands to reason that the extirpation of this hungry weed would leave a double allowance of nutriment for grain, or nearly so, where the land is foul. The expense of forking is generally an objection urged by many against using that valuable tool. This fear should vanish into thin air, after the Lois-Weedon experiments and others, which have proved that a thorough deep stirring of land is preferable to a dressing of manure, particularly when it is of a stiff nature. Another incalculable advantage of the fork cultivation is the influence upon drainage, the air penetrating the subsoil, and the water running off more rapidly. A 4-inch ploughing upon dirty "Couch land" is labour in vain. With such facts before agriculturists will they still continue to encourage Couch Grass with the Wheat crop, and cut as much Grass as stubble in the autumn? It may appear tedious going over the same ground so often, yet cannot be too deeply impressed upon the minds of agriculturists, rich or poor, the absolute necessity of cleaning land and keeping it so, in order to obtain the greatest amount of produce. If farmers wait for steam cultivation to perform the work of deep tillage, they may wait long enough. *Falcon.*

Italian Rye-grass.—To extracts from a paper on Italian Rye-grass, read by Mr. Morton before the London Farmers' Club last year, Messrs. Sutton, of Reading, have appended the following notes from their own experiments and observations:—1. It will, however, thrive in any description of soil; in fact, will grow where scarcely any other useful Grass will exist. 2. We have now adopted the quantity of 3 bushels per acre sown alone; but we find 2 to 3 pecks sufficient with Clovers and a corn crop; and this quantity should not be sown till after the corn is up, or it will get too high before harvest. Although Italian Rye-grass is useful for this latter purpose, its great merit is for soiling or forage. (See Note 3.) 3. August is the best month, but it may be sown with safety any time between February and October. Autumnal sowing might have 8 lbs. Trifolium incarnatum (Italian Crimson Clover) per acre, with the Rye-grass; and the spring sowings would be likewise improved by adding 4 lbs. Trifolium hybridum (Alsike Clover). 4. Italian Rye-grass is also useful for nursing Common Red Clover when sown with the crop, by protecting it from frost and bringing it on much earlier for use. 5. If the land is in good heart or condition, three or four cuttings per annum may be obtained even without liquid manure; but undoubtedly, the more manure is applied, especially if in a liquid form, the more abundant will be the crop. It is important that the liquid should be applied immediately after each cutting; and if it can be done before the sun has shone upon the Grass where the scythe has wounded it, so much the better. 6. Mr. Dickenson has since published his pamphlet, and we would advise our friends to procure it. It is published by Ridgway & Co.

Gorse.—One of your correspondents in page 93 asks for a description of implements used to convert Gorse into fodder. I derive so much advantage from the various correspondents in your Paper, that I am always glad to answer any questions I can. This particular one I must have answered already many times. I have used Gorse for many years, and think it, on suitable soils, the very best winter food for horses, cows, and calves (I have not tried it for sheep, but make no doubt it is equally good for them). For horses it equals good hay and will keep in good condition either fast or slow-going ones. Cows milk extremely well upon it, and the milk and butter is as pure as when they are on Grass, and calves thrive well upon it. With Turnips, &c., it is equally good for feeding cattle. To begin at the beginning—first grow your Gorse. Here, I think, is the great reason why Gorse is not so much used as it ought; because it grows on all waste ground it is thought you need not take any pains or trouble about it It should, however, be carefully grown on well cleaned ground, sown much as you would Turnips on drills, flattening the latter well down with a light roller. It should be well horse-hoed and kept free from weeds through the first summer, and will be better for horse-hoeing afterwards. It will be ready to cut the autumn but one after sowing. To mow it a short-bladed strong scythe is required, and it must be cut level. For some years I was much puzzled how to bruise it in the best and cheapest manner; but I then purchased from Messrs. Richmond & Chandler, of Salford, one of their chaff-cutting machines, and found it answered perfectly for Gorse. My plan of using it is as follows:—The man who feeds the machine uses gloves, and with them on feeds it with Gorse. This first-cut Gorse is put on one side as cut till sufficient is done. The feeder of the machine has then straw placed upon it, and upon this the once cut Gorse is placed with a large shovel. The straw pulls it on and it gets a second cutting or bruising from the machine. The cut straw and Gorse is now ready for feeding with. This description seems long, but the process is very quick and inexpensive. I never use any straw or hay uncut, and when I have not Gorse I am obliged to use straw, which is much more expensive than Gorse, and is not half so good. In fact Gorse is the only good green food you can have in winter, and I feel convinced it has only to be fairly tried to become much used wherever the soil is light enough to grow it. If well cultivated it may be cut every year and yields a great amount of food. Some 50 years since a large cowkeeper at Birmingham fed his milking cows upon it, and for a long time no one could get at his secret for having an abundance of sweet rich milk through winter, as he would not allow any one to enter his yard. In Wales numbers of cows are kept upon it by small farmers and cottagers. They bruise it upon a block of wood with a sort of mallet having two knives placed across the bottom. It is common there to buy Gorse. I should add, that although the machine I have of Richmond & Chandler's has done its work quite to my satisfaction for 10 or more years, I saw great improvements upon it when at their works some months since, and they have one now especially devoted to Gorse; but which of course cuts straw also. *W. D. Fox.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *Feb.* 20.—Mr. Miles, M.P., vice-president, in the chair.

Oil-cake.—The Rev. Thomas Burroughes, a member of the Society residing in Cambridgeshire, transmitted to the Council a specimen of oil-cake which had been supplied to him as genuine "Rape" cake; but which, from its suspicious indications, Mr. Burroughes had not ventured to give as food to his cattle until a chemical analysis of its component parts had been made for him. This cake on examination appeared to contain various kinds of seed, had a very pungent taste, and on dissolving in hot water was found to emit the strong odour of Mustard. Mr. Burroughes, therefore, desired to ascertain whether it would be safe as food for stock; and, if safe, whether it would prove nutritious.

Peat-fuel.—His Excellency the Danish Minister addressed an inquiry to the Council on a subject of much interest in Denmark, namely, the compression of peat for fuel. A note on this subject was read from Messrs. Easton and Amos, the consulting Engineers of the Society; and the Secretary was authorised to make further investigation on the points to which the Danish Minister had referred.

Economy of Heat.—M. Etienne Salmon, of Brussels, communicated a plan by which the heat given off from coal, during its slow combustion and conversion into coke, might be applied to conservatories, manufactories, hospitals, and other large buildings, which require a great expenditure of fuel to warm them. M. Salmon's plan was illustrated by a drawing, and consisted in connecting pipes with the coke-oven, by means of which hot air could be thrown into the atmosphere, and steam conducted through the earth in conservatories, or below the floors and along the walls of the buildings in question.

Steam Digging Machine.—Miss Charlotte Bauer, of Schwabitz, near Nimes, in Bohemia, reported to the Council the progress made by her brother, the late Captain Bauer, in the invention of a steam digging machine, in competition for the Society's Prize; and her desire to carry into execution the plans he had, as he believed, so successfully perfected at the time of his decease. The Council referred this communication to Mr. Allen Ransome, with a request that he would give to Miss Bauer such advice in reference to the best mode by which she could carry out her wishes as his experience might suggest to him.

Agricultural Weeds.—Mr. Rawson, of Glanhenwyr, Radnorshire, applied for leave to print off, at his own expense for private distribution, two hundred copies of Professor Buckman's Prize Essay on Agricultural Weeds, published in the last Journal of the Society. Mr Rawson thought that such a gratuitous distribution of the essay among the Welsh farmers in his district, would strongly call their attention to the importance of the destruction of weeds in their waste lands and hedge-rows, and to the injurious consequences of the neglect of such eradication; and the example once set by a few of the most enlightened of those farmers, and the good effects of it shown, he had no doubt that in due time it would be followed by those who at present were least aware of its importance.—The council referred this request to the ensuing monthly council, with an order to the printers in the meantime to keep the type of the Essay standing.

Parliamentary Legislation.—Several communications were addressed to the Council on the subject of agricultural statistics, but were referred, without discussion, to the ensuing monthly meeting, when Mr. Miles, M.P., gave notice that he would call the attention of the Council to the following clause in the Society's Charter, with a view to ascertain what interpretation was given to the terms of that clause for the guidance of the Council in their proceedings:—

"And know ye further, that in granting this our Royal Charter to the said Royal Agricultural Society of England, we do hereby declare it to be our full and entire will and pleasure that we extend our Royal Protection to its national objects, under the condition that a principle of its constitution shall be the total exclusion of all questions at its meetings, or in its proceedings, of a political tendency, or having reference to measures pending, or to be brought forward, in either of our Houses of Parliament, which no resolution, bye-law, or other enactment of the said body politic and corporate, shall on any account or pretence whatever be at any time allowed to infringe."

Steam Cultivator.—Mr. Burness, of Prospect Terrace, Brixton, submitted to the Council a schedule of suggestions on the subject of the Society's prize of 500*l.* for a steam cultivator, and in reference to the best mode generally of obtaining the great object of steam cultivation. These suggestions were received with thanks, and referred to the Implement Committee, with a request that they would report upon them to the Council.

Agricultural Meetings at Paris.—Mr. Miles, M.P., reported to the Council the arrangements in progress by the French Government for the agricultural meeting to be held at Paris in the years 1856 and 1857. He also submitted to the Council the official prize-sheets having reference to those meetings. A short abstract of this will be given next week.

Reviews.

The Journal of the Royal Agricultural Society of England. John Murray, Albemarle Street.

To the concluding article—on Agricultural Statistics by Mr. Hoskyns—of the current number of the Journal we have already referred. The whole volume is exceedingly interesting and useful, and does great credit to the arrangements made for carrying on the editorship of the work, which had so long been in the hands of Mr. Pusey. Among the more useful papers on manures—the one describing the principles by which farm management in manure making is influenced, and the other the method of arriving at the intrinsic value of manures as sold in the market—are those by Mr. Way on the value of Artificial Manures, and the Rev. W. R. Bowditch on the Chemical Changes in the Formation of Dung. To these we shall hereafter direct the fuller attention of our readers. That they may learn the general character of this issue of the periodical we may mention that of its 340 pages, 50 are occupied by a report of Buckinghamshire Farming; 24 by Mr. Bowditch's paper on Manure; 20 by Professor Buckman on Agricultural Weeds; 28 by Mr. Finlay Dun on Lameness of Sheep; 90 by a controversial defence of the views on Agricultural Chemistry held by Mr. Lawes and Dr. Gilbert; 20 by reports of the Carlisle Meeting; 20 by Mr. Way on Artificial Manures, and the remainder by Mr. Hoskyns on Agricultural Statistics. Among the shorter papers is one by the late Mr. Pusey, which will be read with interest as the last contribution of one to whom agricultural literature owes so much. The experiment which he describes was devised for the purpose of determining the relative influence of superphosphate—charcoal and nitrate of soda as manures for Wheat upon an exhausted soil. It demonstrated the great superiority of the last—the utter inefficiency indeed of the others under the circumstances in which they were applied—thus corroborating his own previously asserted opinion of the specific value of nitrogen as a manure for Wheat.

Calendar of Operations.

FEBRUARY.

Wester Ross, *Feb.* 19.—The weather has been very changeable, and not particularly suitable for out-door labour. A good deal of rain has fallen within these few weeks, so that farmers with water-mills are now well advanced with threshing out the crop. Indeed corn-yards are presenting, for this season of the year, an unusually deserted appearance. The scarcity of straw is everywhere complained of, and little of it can now be had either for love or money. From this cause a larger proportion of the crop than usual has been already threshed out, and as prices have been high the most of what has been threshed has gone direct to market, so that unless large importations be made the pressure arising from a somewhat scanty crop may yet be

felt ere the arrival of another harvest. In the meantime, however, the panic arising from the approach of peace has caused prices to run speedily downwards, and a thorough want of confidence generally prevails. All the odds and ends of work that might hinder the ongoing of the general labour of the farm when better weather sets in, have been attended to and done up. With threshing out grain, dressing and delivering it, carting lime and manure, forming composts, mending roads, trimming hedges, trenching land, &c., all hands have been pretty busily employed. Although the ground has been wet, yet, from the absence of frost and snow, ploughing of lea has been proceeded with. A good deal of Wheat remains to be sown so soon as the ground is in a fit state for the reception. Turnips are running to their finish much quicker than was anticipated, and sheep and cattle will, in many places, be on short supplies both of straw and Turnips ere the Grass comes. A field of good Turnips to be eaten off with sheep would now fetch from 6*l.* to 8*l.* per acre. The winter, on the whole, being dry and open, sheep have made good progress, yet hoggs have not altogether recovered the severity of last spring. Cattle in courts are in forward condition. The railway is extending itself northwards, and labourers are looking forward to a busy season, with highly remunerating wages.

Notices to Correspondents.

COST OF DIGGING: *Somerset* says that in our Paper of the 26th January a correspondent founds an argument on the supposition that he can get an acre dug with forks at 10*s.* an acre. What is the use of such reasoning? It only leads to disappointment and confusion in experimental agriculture. [Land can be "turned in" for 1*d.* per perch; but the cheapest digging will cost 2*d.*]

DISCOLOURED GRANITE: Granite stained by vegetation and weather may be scoured with sand and alkali (as soda ash) in hot water: this rinsed off, and the alcaline shade brightened with dilute muriatic acid. If any vegetable tinge remains after this scouring, it may be bleached out with solution of chloride of lime. *J. Prideaux.*

DISINFECTANTS: *X.* They depend generally on the decomposition of the noxious effluvium. Charcoal acts by burning the vapours which it attracts. It is not so much a strong box in which they are stowed away as a furnace through which, on passing, they become converted into the products of perfect combustion. Dr. Stenhouse explained this; he says:—"When putrifying animal and vegetable substances are covered with charcoal powder, the effluvia and miasmata which, under ordinary circumstances they would evolve directly into the atmosphere, are absorbed and oxidised within the pores of the charcoal, where they undergo a species of what is called low combustion, which as effectually destroys them as if they were at once passed through a furnace; it is, therefore, on its absorbing and oxidising power that the great efficiency of charcoal as a deodorising and disinfecting agent depends."

EWES: *H C.* They may have Mangel Wurzel while suckling. There is no better food for them—along with a little good Clover hay. They may have access to salt.

FOOD OF COWS: *M C.* It is impossible to give the quantity of Oats, of bran, of hay separately needed to keep a cow, because a cow would not thrive on them, or the two former separately. In London dairies a bushel of grains, 3 bushels of Mangel Wurzel, and about 12 lbs. hay, and about 6 gallons of water is the winter food of a cow.

GUANO: *H W.* After opening the drills, putting in the manure, and setting the Potatoes, we would sow the guano broadcast over all. On pulling down the intervening ridgelets, or splitting them to cover the Potatoes, the guano would be covered and at the same time mixed with the soil, and but little would fall directly on the tubers.

IRISH AGRICULTURAL STATISTICS: *Subscriber.* The differences between 1855 and 1854 are very considerable in excess of the latter for Wheat and Oats, in excess of the former especially for Flax. The following are the figures:—

Crops.	Acreage.		Produce in Quarters.	
	1854.	1855.	1854.	1855.
Wheat	411,284	445,620	1,452,467	1,524,182
Oats	2,045,298	2,116,898	11,293,101	10,260,420
Barley	236,293	226,454	1,212,047	1,096,187
Bere	16,920	11,347	89,066	57,404
Rye	11,366	11,633	55,687	57,554
Beans	14,760	13,095	50,424	51,880
Peas	7,815	5,399	24,556	17,687

The following, again, are the figures descriptive of Potatoes, Flax, Turnips, &c.:—

Crops.	Acreage.		Produce in Tons.	
	1854.	1855.	1854.	1855.
Potatoes... ...	989,660	982,028	5,061,654	6,233,899
Turnips	366,311	366,311	5,207,636	6,063,985
Mangel	21,351	22,278	366,427	401,844
Cabbage... ...	26,080	24,080	356,649	312,510
Flax	151,403	97,048	35,606	23,414
Meadow	1,257,864	1,313,680	2,494,951	2,663,953

LICE: *L H.* See Morton's New Farmers' Almanack, page 76. *W. C. S.*

MANGEL WURZEL: *R S.* It is not so much giving these roots as changing to them suddenly from other food that will injure sows in farrow. We have fed sows through the winter on very little more than what they could pick up in the yard of injured Mangels, some of them rotten—and they were not the worse for the poor and rough food they had had. Three or four weeks before farrowing they had some Mangels steamed daily for them and a handful of meal thrown in.

MANURES: *R L.* The quantities made by many companies are enormous. The masses lying in heaps are literally quarried to furnish the current supply. The poudrette of French works lies in heaps of 30,000 or 40,000 tons; so does the blood manure of the Nitrophosphate Company. Of course the larger the mass and the longer it lies the more thorough is that alteration of its ingredients which is the object of the process, and on which the efficiency of the material depends.

M. GUENON'S MARKS OF MILKERS: *X.* The indications of milking qualities in cows, said to be furnished by the growth of the hair on the hinder part of the udder, asserted by Mons. Guenon, and so far established by him to the satisfaction of French authorities that he received a Government reward for his alleged discovery, have been observed in England too, and are to a certain extent endorsed by Mr. Haxton, of Fifeshire, who says:—"The conclusion arrived at, in regard to M. Guenon's test of judging of the milking properties of a cow by the development of the *écusson*, is that, in a very large majority of cases, it is borne out by facts. In a London dairy belonging to Mr. Biggs, 31, Edgeware Road, where about 400 cows are kept, and where nine-tenths of them are far above average milkers, the development or upward growth of the hair on the posterior part of the udder, thighs, and perinæum, was too remarkable to be accounted for by accidental causes."

POULTRY HOUSES: *Subscriber.* "The Poultry Book" contains plans, we believe, but your question shall be answered fully next week.

SOOT: *Constant Reader.* Its value depends chiefly on the ammonia which it contains, partly on the charcoal and gypsum. It is worth 6*d.* a bushel or more, and 30 to 40 bushels are an ordinary dressing. Mr. Dimmery, of Stinchcombe, Gloucestershire, a great Potato grower, used nothing else. His land was however on the lower oolite—a naturally fertile soil.

HOLLYHOCKS.
HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.—Hedenham Rosary, Feb. 23.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.
Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.
Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.
Cedars Red Virginian, 5 to 8 feet.
Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.
Cryptomeria japonica, fine plants, 4 to 7 feet.
Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.
Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.
Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.
Do. recurva, 3, 4, 5, up to 8 feet.
Do. hispanica or thurifera, 2, 3, and 4 feet.
Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.
Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.
Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.
Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.
Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.
Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).
Abies Clanbraziliana | Abies pumila } All dwarf varieties
" compacta | " diffusa } of the
" pygmæa | " Gregori } Spruce Fir.
Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.
Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.
Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.
Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.
Do. adpressa, 2 and 3 feet.
Do. do., worked on common Yew, as standards.
Do. gold striped, 1½ to 2 feet, by the thousand.
Do. do., a splendid lot of plants, 4 to 6 feet.
Do. do., worked as standards on the common Yew, 8 to 10 ft. high.
Do. do., worked on Irish Yews, 6, 7, and 8 feet high.
Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.
Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.
Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.
Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.
Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.
Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.
Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.
Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.—Knap Hill Nursery, Woking, Surrey.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit.—At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.* | 8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 13*s.* | 9 by 7, and 10 by 8 ... 13*s.* 6*d.*

AT 14*s.* PER 100 FEET
12 by 9, 13 by 9, 14 by 9, 15 by 9, 16 by 9.
12 by 10, 13 by 10, 14 by 10, 15 by 10, 16 by 10.
12 by 11, 13 by 11, 14 by 11, 15 by 11, 16 by 11, 17 by 11, 18 by 11.

AT 16*s.* PER 100 FEET.
13 by 12, 14 by 12, 15 by 12, 16 by 12.

AT 18*s.* PER 100 FEET.
17 by 12, 18 by 12, 19 by 12, 20 by 12, 14 by 13, 15 by 13, 16 by 13, 17 by 13, 18 by 13, 19 by 13, 20 by 13, 20 by 15.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HARTLEY'S PATENT ROUGH PLATE GLASS.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

Fern Cases with Ferns complete suitable for the Drawing-room, from 25*s.* each.

Aquariums with French polished stands, from 10*s.* each. Vase shaped ditto, on Glass stand, 25*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons; Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	...	12*s.* 0*d.*
6½	"	4½	"	7	"	5	...	...	12 6
7½	"	5½	"	8	"	6	...	...	13 0
8½	"	6½	"	9	"	7	...	...	13 6
9½	"	7½	"	10	"	8	...	...	13 6
10½	"	8½	"	11	"	9	...	...	14 0
12	"	9	"	13	"	9	...	...	14 0
10	"	10	"	10½	"	10½	...	...	14 0
11	"	10	"	11½	"	10½	...	...	14 0
11	"	11	"	11½	"	11½	...	...	14 0
12	"	11	"	12½	"	11½	...	...	14 0
13	"	11	"	13½	"	11½	...	...	14 0
13	"	12	"	13½	"	12½	...	...	16 0
13½	"	13½	"	14½	"	13½	...	...	16 0
15½	"	13½	...	...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14½, by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

CUPISS'S CONSTITUTION HORSE BALLS.—To Sportsmen, Agriculturists, Postmasters, and all Proprietors of Horses, these Balls are particularly recommended in all cases of swelled legs, cracked heels, loss of appetite, and vital energy; for Coughs, Colds, Fever or Inflammation, they are the best Medicine that can be exhibited, moreover their operation, though effectual, is so mild, that they require no alteration of diet, and if given with a bran mash on Saturday night, will not interfere with the ensuing week's regular work.

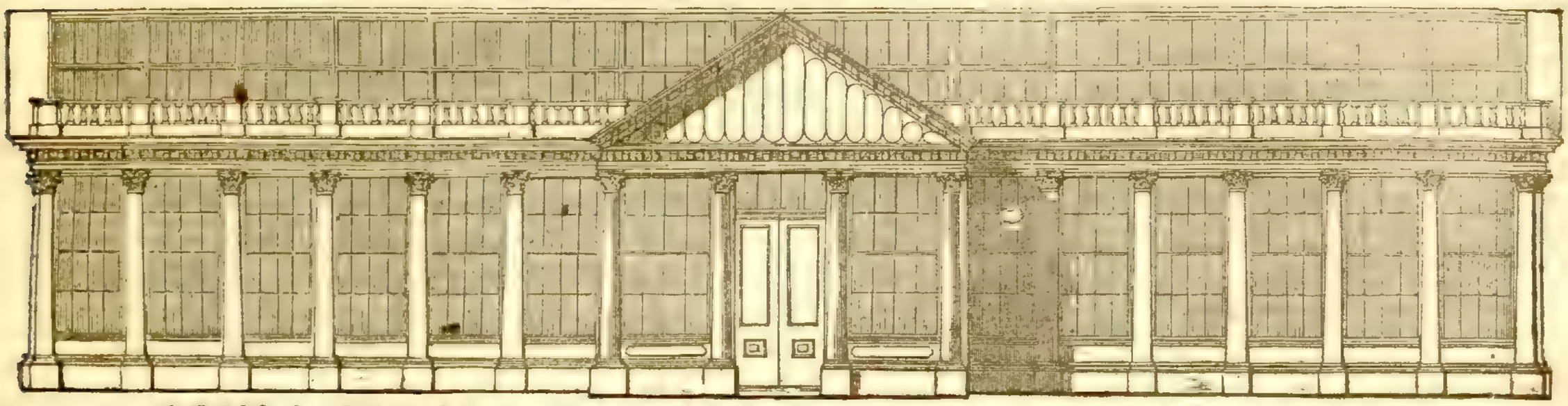
NEAT CATTLE.—The Constitution Balls are strongly recommended by many highly respectable Gentlemen (see Testimonials) for Cows and Oxen as a most valuable medicine in cases of Hove or Blown, Scouring or turning out to Grass, or from bad food, Gargate, Hide Bound, Loss of Appetite, Staring Coat, Distemper, Epidemic, or Influenza. Bullocks fat much faster by occasionally giving a Ball.

Prepared only by FRANCIS CUPISS, M.R.V.C.S., author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and Treatment of the Horse whilst taking them. Also a Pamphlet of testimonials from many Gentlemen who have used the Balls in various Complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

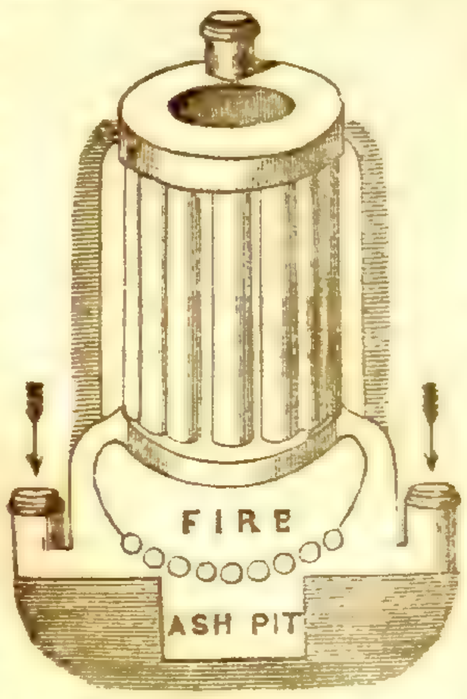
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

W. HURD AND CO., 1, Smith Street, King's Road, Chelsea, beg to inform the Nobility, Clergy, and Gentry, that they have commenced Business as HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS. Having been practically employed many years in the Firm of Messrs. Weeks & Co., Chelsea, they are thoroughly acquainted with every branch of the Business.

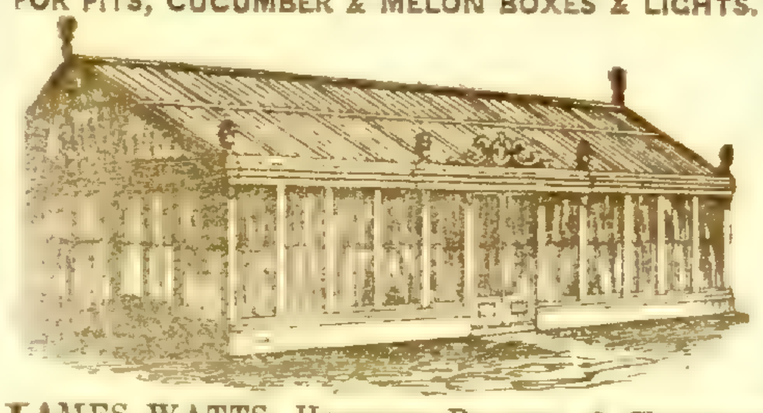
Churches, Halls, Mansions, and Public Buildings Heated by Hot Water. References to Works already executed.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1s. 3d. per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London.

Drawings forwarded by post.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

CAUTION.

GARDEN ENGINES, SYRINGES, &c.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION.

R. READ begs to caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal arms, and address, "35, REGENT CIRCUS, LONDON."

*** Descriptions sent post free.

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

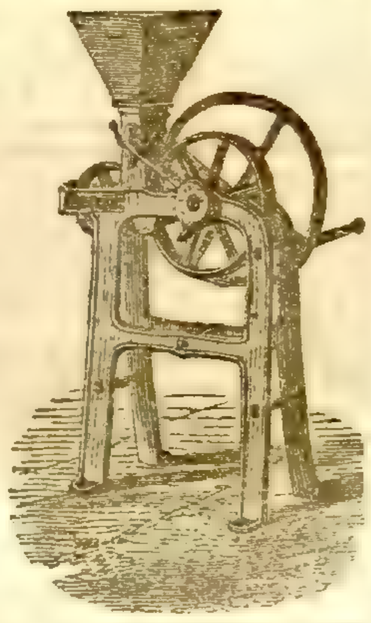
T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures. Catalogues, containing prices and every particular, free by post. Warehouse, 42, Ludgate Hill, London.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l* 19*s*., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s*. upwards. Metallic String from 5*d*. to 1*s*. 3*d*. per lb.

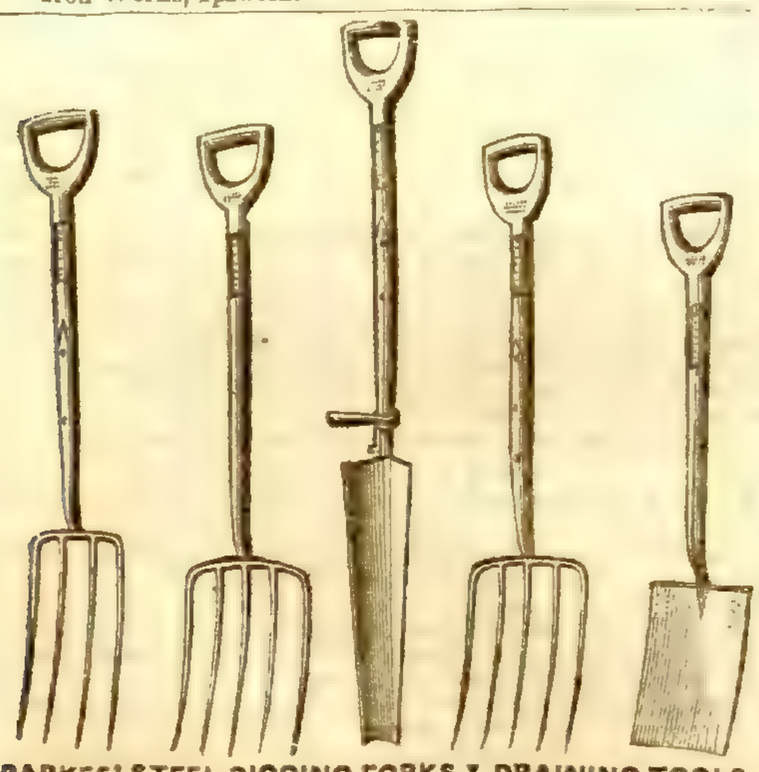
OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).



This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

Price £5 15*s*. 6*d*.

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL, now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lace-work ground, upon which is engraved in white letters, "ROWLANDS' MACASSAR OIL, for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS."—Sold at 20, Hatton Garden, London; and by Chemists and Perfumers.

Will be published on Tuesday next, in crown 8vo, elegantly bound, price 10s. 6d., with exquisite Illustrations, plain and coloured,

RUSTIC ADORNMENTS FOR HOMES OF TASTE.

BY SHIRLEY HIBBERD.

CONTENTS:—

AQUARIUM—Its uses and fitness as an Ornament—Construction and furnishing of Aquaria—Collecting specimens for stock—Notices of the Creatures which inhabit the Marine Tank—Notices of Sea Weeds—General management of Marine Aquaria.

FRESH WATER AQUARIUM—GARDEN AQUARIUM—WARDIAN CASE.

MISCELLANEOUS ORNAMENTS FOR DWELLING HOUSES—Vases for Cut Flowers—Fancy Pots—Miniature Plants—Illuminated Trees.

AVIARY—Construction of a Bird-Room—Account of the Birds which are usually kept in Aviaries—General management of Aviary and Cage Birds.

APIARY—Pleasures and Advantages of Bee-keeping—Consideration of the Possibility of Keeping Bees in Towns—General Management of Bees—Bee Hives and Bee Houses—Code of Bee Management on Humane Principles.

ROCKERY—Situation—Construction—Planting and Management of Alpines.

FERNERY—Formation—Stocking and General Management.

GARDEN SCENERY AND ORNAMENTS—Summer Houses—Arbours — Decoration of Gardens—Rocks — Banks and Ferneries—Rustic Seats—Root Ornaments—Chinese and Italian Ornaments—Vases—Flower Stands—Rustic Baskets—Trellis Work, &c., &c.

GROOMBRIDGE AND SONS, PUBLISHERS, 5, PATERNOSTER ROW, LONDON.

LAND DRAINAGE.

MR. BAILEY DENTON, ENGINEER TO THE GENERAL LAND DRAINAGE COMPANY, offers the following publications, which may be had by post (stamps being sent with the order) of W. P. METCHIM, 20, Parliament Street, London.

1. LAND DRAINAGE AND DRAINAGE SYSTEMS. Second issue (1855), price 3*s*.
"The best practical treatise we have yet seen." *Agricultural Gazette.*—"A very able treatise." *Mark Lane Express.*

2. TABLES OF COST OF LABOUR AND MATERIALS. Price 1*s*. 6*d*. For the Pocket.

3. RELIEF OR SURFACE MODELLING, as Suggestive of Drainage and the Profitable Use of Drainage Waters. Second Edition (1850), price 3*s*. 6*d*. Medals R. A. S. E., 1840, and Exhibition, 1851, were awarded for this method of Modelling.

GENERAL DRAINAGE AND THE DISTRIBUTION OF WATERS. A Paper reprinted from the "Westminster Review" (1842). Price 2*s*. 6*d*.

Also, THE DRAINER'S A LEVEL FOR THE USE OF WORKMEN. Price 32*s*.

Mr. BAILEY DENTON'S engagements do not preclude him from Designing or Superintending the Drainage of Estates on terms to be ascertained of him at No. 52, Parliament Street, London.

BUY OF THE MAKERS.

J. & J. WITHERS, Manufacturers of BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade. Manufactory, 36, Tottenham Court Road (opposite Bedford Street, Bedford Square). Warranted Tooth Brushes, 3*d*.; superior ditto, 4*d*.; the best that can be made, 6*d*. each.

N.B. The lowest price asked, and no abatement.

MARK YOUR LINEN.

THE PEN SUPERSEDED.—The most easy, permanent, and best method of marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, or anything else, is with the PATENT ELECTRO-SILVER PLATES. By means of this novel invention a thousand articles can be marked in ten minutes. Any person can easily use them. Initial Plate, 1*s*.; Name Plate, 2*s*.; Set of Numbers, 2*s*.; Crest Plate, 5*s*. Sent free to any part of the kingdom (on receipt of stamps), by the inventor and sole patentee, T. CULLETON, Heraldic Engraver to the Queen and Royal Family, 2, Long Acre, one door from St. Martin's Lane.

VALUABLE REMEDIES FOR THE AFFLICTED.

DR. ROBERTS'S CELEBRATED OINTMENT, called the POOR MAN'S FRIEND, is confidently recommended to the Public as an unfailing remedy for wounds of every description, a certain cure for Ulcerated sore legs, if of twenty years' standing; Cuts, Burns, Scalds, Bruises, Chilblains, Scorbutic Eruptions and Pimples on the Face, Sore and Inflamed eyes, Sore Heads, Sore Breasts, Piles, Fistula, and Cancerous Humours, &c. Sold in pots, at 1*s*. 1½*d*. and 2*s*. 9*d*. each. Also his PILULÆ ANTISCROPHULÆ, confirmed by more than forty years' experience to be, without exception, one of the best alterative medicines ever compounded for purifying the blood, and assisting nature in all her operations. Hence they are used in Scrofulas, Scorbutic Complaints, Glandular swellings, particularly those of the neck, &c. They form a mild and superior Family Aperient, that may be taken at all times without confinement or change of diet. Sold in boxes, at 1*s*. 1½*d*., 2*s*. 9*d*., 4*s*. 6*d*., 11*s*. and 22*s*. Sold Wholesale by the Proprietors, BEACH & BARNICOTT, at their dispensary, Bridport; by the London houses. Retail by all respectable Medicine Vendors in the United Kingdom. Observe.—No Medicine sold under the above name can possibly be genuine, unless "Beach & Barnicott, late Dr. Roberts, Bridport," is engraved on the Government Stamp affixed to each package.

TO NURSERYMEN, FLORISTS, ETC.

TO BE LET, a small but very advantageous NURSERY, situated in a thriving Market Town, about fifty miles from London, with Dwelling House, Vineries, and Forcing House. May be entered upon immediately.—Apply for particulars to Messrs NUTTING & SONS, Seedsmen, 46, Cheapside, London.

TO BE LET, with immediate possession, 2½ acres or thereabouts of GARDEN GROUND, near London, well stocked with choice Fruit Trees and thriving Bushes, for the most part enclosed with lofty brick walls well covered with Trees, being part of the Brandenburgh Estate in Fulham Fields, near Hammersmith.—May be viewed by applying to the Gardener at the Lodge, and particulars had of Mr. STANHAM, Surveyor, North End, Hammersmith Gate.

TO FLORISTS, GARDENERS, NURSERYMEN AND OTHERS.

TO BE LET ON LEASE for Four or Seven Years, about an Acre of Rich Garden Ground between Streatham and Tooting, with Four Greenhouses, Forcing Frames, &c., all newly erected.—Mr. CLARK, Seedsman, Bishopsgate Street.

GUILDFORD.

To NURSERYMEN, FLORISTS, SEEDSMEN, MARKET GARDENERS, AND OTHERS.

TO BE LET, with immediate possession, all that truly valuable old-established Nursery Ground, Garden, and Seed Business known as DICKINSON'S GUILDFORD NURSERY GROUNDS, an area of seven acres of rich soil in a high state of cultivation, close to the entrance to the town. The nursery grounds have been in the above family nearly 50 years. The present tenant, a widow, is disposing of the same solely in consequence of the concern being too large for her to manage.

N.B. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery Ground near this much improving neighbourhood. The present stock is small and saleable.—Particulars and orders to view may be had of Mr. DRURY, Estate Agent, 50, High Street, Guildford, Surrey.

TO NURSERYMEN, FLORISTS, GENTLEMEN'S SERVANTS AND OTHERS.

TO BE LET, on advantageous terms, a PIECE OF GROUND, situated in the main road a short distance from town, with Greenhouses, Heating Apparatus, Pits, Lights, &c., well stocked with Plants.—For terms apply to Mr. GODDARD, Stationer, 14, Great Portland Street, London.

GARDEN MOULD.

TO BE SOLD, about a Thousand Loads of GARDEN MOULD, of the richest description, from a Market Garden at Nine Elms, near Vauxhall, Surrey.—For particulars apply to Mr. JONES, the Engineer, London Gas Light Company's Works, at Vauxhall.

SEED DRAWERS.

TO BE SOLD, an excellent Nest of SEED DRAWERS, 10 feet by 4, containing 30 drawers 11 by 9 inches, and 10½ inches deep, and 45 drawers 8½ by 7 inches and 6½ inches deep, all having solid mahogany fronts and lettered with black on a gilt ground. Price 6*l*.—Apply to WOOD & INGRAM, Huntingdon.

DORKINGS.

TO BE SOLD, the whole Stock of DORKINGS belonging to Mrs. THOMAS TOWNLEY PARKER.—For particulars, address Astley Hall, Chorley, Lancashire.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 4th March, at 12 o'clock precisely, 60 COCHINS from the yard of Thomas Sturgeon, Esq., of Gray's; being choice selected birds, and chiefly bred last year; 36 first class SPANISH, from Mr. Bailey, Kennington Lane; GOLD and SILVER POLANDS, &c., from Graham Vivian, Esq.; a selection of DORKINGS, SPANISH, and BRAHMAS, from Mr. W. Saunders, of Cowes; choice BANTAMS, PIGEONS, &c.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

PEAR TREES FROM THE CLARENDON NURSERY, JERSEY.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, the 26th February, at 1 o'clock precisely, 500 PEAR TREES, including some of the best sorts in cultivation, sent by Mr. RÉNÉ LANGELIER, of Jersey, for sale without any reserve.—May be viewed on the morning of sale and Catalogues had.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Hally, of Blackheath, to Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, Feb. 28th, at 12 o'clock, about 300 DOUBLE CAMELLIAS, from 1 to 5 feet, consisting of all the best kinds, well set with bloom buds; also Standard and Dwarf Roses; American Plants, consisting of Ghent and other Azaleas, Hybrid Rhododendrons, Andromeda floribunda, Epacris, Cytisus, Otaheite Oranges, &c. May be viewed morning of Sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

PLUMSTEAD, NEAR WOOLWICH.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the premises, Ivy House, near the Post Office, Plumstead, on MONDAY, the 25th of February, at 11 o'clock, Two newly-erected Greenhouses, a capital 3-light Box, about 100 Fruit Trees in pots, established on Quince and other Stocks for Forcing, consisting of Apples, Pears, Cherries, Plums, Peaches, &c.; a choice assortment of Roses in pots and ground; the newest varieties of Chrysanthemums, Carnations, and Pinks; Gooseberries, a few Camellias and Azalea indica. Also a young Alderney Cow (down Calving), 20 Cochin China and other Fowls, Bee-house and Bees, Patent Hives, Water Carriage, Wheelbarrows, Water Butts, Syringe, Garden Pots, and Tools, with sundry effects. On view One day previous to the Sale.—Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.
ANNUAL SALE.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, 6th March, at 12 o'clock, about 200 choice DOUBLE CAMELLIAS, from 18 inches to 5 feet, comprising all the approved kinds, beautifully furnished with bloom buds, Azalea indica; also a choice assortment of Standard and Dwarf Roses, consisting of Noisettes, Hybrids, Bourbons, Perpetuals, Chinas, &c.; a fine collection of American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Magnolias, Andromeda floribunda, &c.; choice Dahlias in dry roots, Pæonias, Verbenas, Fuchsias, Ericas, Epacris, Lilium lancifolium, &c.—May be viewed the morning of sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

IMPORTANT SALE.

MR. T. BAXTER will Sell by Auction on WEDNESDAY, March 5th, and following day, at 11 o'clock, on the premises, Bromley Common Nursery, near Bromley, Kent, the whole of the valuable NURSERY STOCK on about 5 acres of Land, comprising several thousands of fine Spruce, Scotch, and Silver Firs, Larches, Chesnuts and Oaks, of various sizes; Weymouth Pines, Cedars, 500 Yews, quantity of fine Laurels and Hollies, Box, Arbor-vitæ, Quick, 4000 Chesnuts, and 6000 Ash Plants, several hundred Fruit Trees, Evergreens, and Flowering Shrubs of the usual varieties, Roses, &c.—May be viewed seven days preceding the Sale, and Catalogues had at the Dover Castle, Deptford, Inns in the neighbourhood, place of sale, and of the Auctioneer, &c., Bromley, Kent.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THOMAS VEITCH AND Co., Western Counties Seed Depôt, 195, High Street, Exeter, will forward upon application their List of VEGETABLE and FLOWER SEEDS, postage free.

COLLECTIONS OF PRETTY FLOWER SEEDS.

12 varieties, 1*s.*; 12 do, 2*s.*; 12 do., 3*s.*; and upwards, according to quality and quantity. Sangster's No. 1 Pea (the earliest), 1*s.* 6*d.* per quart; Early Morning Star (much approved), 1*s.* per quart; Hair's Green Mammoth (very fine), 1*s.* 6*d.* per quart; other most esteemed kinds, 8*d.* per quart and upwards. Fulmer's Early Forcing French Beans, 1*s.* 6*d.* per quart, and all other articles equally moderate. The best varieties of Seed Potatoes, &c., &c.—Feb. 23.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—Feb. 23.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor Branch, South Western Railway, where conveyances may be had.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

E. MERRY, CHRYSANTHEMUM NURSERY, Stamford Hill, being a successful exhibitor from the formation of the Stoke Newington Chrysanthemum Society in the year 1846, and having taken prizes at the following Exhibitions in the year 1855:—Stoke Newington, 2d; North London, 1st; the Horns at Kennington, Silver Medal; Old Kent Road, 1st. E. M. having selected the best 36 varieties can strongly recommend the same, from 4*s.*, 9*s.*, and 12*s.* per dozen, by Post Office order.—Stoke Newington.

GREENHOUSE AZALEAS.

A. PAUL AND SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s.* the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s.* the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s.* and 30*s.* per dozen. A few larger plants 3*s.* 6*d.* to 5*s.* each. Carriage free to London.—Nurseries, Cheshunt, Herts.

NEW EARLY MARROW PEAS. HARRISON'S GLORY (blue) & HARRISON'S PERFECTION (white.)—These extraordinary Peas, which are nearly similar in habit, are as early as Double-blossomed Frame, about 3 feet in height, full of large pods which cluster from the bottom to the top of the haulm, and are equal in flavour to Knight's Marrow. Samples of the haulm may be seen at the following firms in London, of whom they can be had, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, Middle Wharf, Adelphi.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

PLANT IN FEBRUARY!

CAREY TYSO, FLORIST, Wallingford, Berks, begs to offer Choice RANUNCULUSES and ANEMONES, suitable for planting at this season, in selected assortments as under:—

RANUNCULUSES, 100 splendid named sorts, 40*s.* to	£4 0	0
" 25 superb new seedlings... ...	1 10	0
" 100 fine mixtures, 8*s.* to	1 0	0
DOUBLE ANEMONES, 50 fine named sorts, 10*s.* to...	0 13	0

IMPORTED GERMAN SEEDS, of the best quality, in named assortments, 1*s.* to 2*s.* 6*d.* each—Asters, Balsams, Stocks, Larkspurs, Poppies, Wallflowers, Zinnias, &c. Choice Annuals, 25 packets per post, 5*s.*

General Descriptive Catalogue of Florists' Flowers and Seeds for 1856 may be had for one label.

FRAME CUCUMBERS.

WOOD AND INGRAM offer the following well known kinds at 1*s.* per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
" White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
Improved Sion House	Manchester Hero
Sir Colin Campbell	Conqueror of the West
	Snow's Horticultural.

Huntingdon Nurseries, February 23.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

SUPERB DWARF BUDDED AND DWARF STANDARD HYBRID PERPETUAL AND OTHER ROSES.

WILLIAM WOOD AND SON respectfully invite attention to their fine stock of the above, which they are offering as under:—

	Per dozen.
DWARF BUDDED ROSES	12*s.* to 18*s.*
DWARF STANDARD DO.	18*s.* to 24*s.*
CLIMBING AND NOISETTE ROSES, named	9*s.* to 12*s.*
CLIMBING ROSES, mixed, for covering banks	4*s.*
DWARF ROSES, on own roots, mixed, not named	4*s.*

New Hybrid Perpetual Rose DUCHESS OF NORFOLK, bright vivid crimson, Standards or Dwarfs, 3*s.* 6*d.* each, with a liberal discount to the Trade if six or more plants are ordered.

ROSES on 6-inch stems, established in 6 inch pots, for forcing, exhibition, or greenhouse culture, 24*s.* per dozen.

Catalogues gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SEED POTATOES.

FREDERICK LETTS, Headley, near Epsom, has the following kinds to dispose of:—

Ash-leaved Kidney, true	... ...	5*s.* per bushel.
York Regent	"	3*s.* "
Early White Shaw	"	3*s.* "

Apply as above, or to JAMES CHAMBERLAYNE, Agent, Hungerford Wharf, Strand.

SEED POTATOES.

CHARLES SHARPE AND CO. have the pleasure of offering the following varieties of Potatoes, all of which have been grown by themselves, and are of fine quality.

Per bushel of 4 stones:—

Kidney Early Ash-leaved	5*s.* 0*d.*	Foxe's Seedling ...	5*s.* 0*d.*
" Jackson's ...	5 0	Emperor	5 0
" Fluke	4 0	Cockney	5 0
Martin's Globe	5 0	Hen's Nest	5 0
Early York	5 0	Oxford	5 0
" King's	6 0	American Native ...	4 0
" Round frame ...	5 0	White Rough	4 0
		Regent	3 6

Nursery and Seed Establishment, Sleaford, February, 1856.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

	Per bushel—*s.*	*d.*		Per bushel *s.*	*d.*
Ashleaf Kidneys	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

TO THE SEED TRADE.

REDUCED PRICES OF SEED POTATOES AND SEEDS.

ABRAHAM HARDY AND SON, SEED GROWERS, &c., Maldon, Essex, recommend to notice their earliest selected kinds of POTATOES of good quality. Per bushel of 56 lbs.; sack 2*s.*, bag 1*s.*

KIDNEYS.	*s.*	*d.*		*s.*	*d.*
Hardy's Seedling Frame	4	0	Hardy's Albert Frame ...	4	0
" Ladies' Fingers..	4	0	" Early May	4	0
" Maldon Heroes...	4	0	" Flour Balls... ...	4	0
ROUND VARIETIES.			" Prolific Cockneys	4	0
Hardy's Victorias	4	0	Potato Seeds for Exportation.		

Present Reduced Priced Seed List on application.

MYATT'S NEW SEEDLING POTATO, THE "BROCKLEY KIDNEY."

W. MYATT can confidently recommend this variety as one of the best for Garden culture. Planted the same time as the Ash Leaf it will be about ten days later. The produce is nearly double, and the quality equal to this fine old variety; price 8*s.* per bushel of 56 lbs.

FLUKE KIDNEY, 4*s.* | FLOUR BALL, 4*s.*
BRITISH QUEEN, or EARLY MAY—4*s.*

The above will be delivered at any of the London Railway Stations free of charge for sacks or delivery.

Special agreement for a ton, or any larger quantity.

Manor Farm, Deptford, Feb. 23.

SEED POTATOES, ETC.

HENRY STROUD, Jun., FLORIST and SEEDSMAN, begs to offer the following in good condition, quite true, and of sizes sorted for planting whole:—

HAIGH'S SEEDLING KIDNEY (Second Early).—A Yorkshire variety, abundant cropper, very mealy, and of first-rate flavour.

BELL KIDNEY (Second Early), and of excellent quality.

SILVER'S SEEDLING KIDNEY (Second Early).—A large growing variety, good cropper, and keeps well.

Price 4*s.* 6*d.* per bushel of 56 lbs., or 2*s.* 6*d.* per half bushel, and 1*s.* 6*d.* per peck, bags included.

H. S. begs to add that the whole of the above are grown annually by himself for market and may be depended on. Early orders are respectfully solicited, as the stock is limited.

A general assortment of Kitchen and Flower Garden Seeds, also the greater part grown by himself, and the growing properties tested before sent out. A remittance from unknown correspondents.—Dane Nursery, Margate, Kent.

CLOVERS AND ITALIAN RYE-GRASS FOR SOWING WITH CORN.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-grass seed at 20s. per acre.*

As the demand for these is very great, and the supply limited early orders are requested and recommended.

Royal Berkshire Seed Establishment.—Feb. 23.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. SUTTON *have a supply of true Seed of each sort. Early application is requested.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S PERMANENT PASTURE.—GRASS SEEDS, SEPARATE OR MIXED.—*Gentlemen intending to lay down Land to Permanent Pasture, or for one or two years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 30s. per Acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.—The above kinds of Clovers will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixtures of Grass Seeds for Permanent Pasture, and they may be purchased separately.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s.*

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12*s.*

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1*s.* each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1*s.*; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1*s.* per stone of 14 lbs.

100	Fine named Hardy Herbaceous Plants	£1	10
100	" " Alpine Plants	1	10
100	" " Shrubs	2	10
100	" " Cape Heaths	4	10

Fine blooming plants Epacris, 12*s.* per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

GERANIUMS.

J. CLARK has a large stock of strong flowering Plants of the following varieties to offer at reduced prices:—

Phaeton (Foster), Wonderful (Hoyle), Fair Ellen (Story), Serena (Hoyle), Seraskier (Foster), Topsy (Hoyle), Petruchio (Foquet), Una (Hocken), Omar Pacha (Hoyle), Pandora (Turner), Lord Raglan (Hoyle), Grand Sultan (Turner), Jessica (Foster), Vesper (Cant), Hubert (Hoyle), Yerda (Hoyle), Queen Eleanor (Hoyle), Zoe (Hoyle), King of Portugal (Turner).

The set for 2*l.* 15*s.*; selection of 12, 2*l.*; selection of 6, 1*l.* 5*s.*

Belle Vue Nursery, Cheltenham.

POLYANTHUS SEED.

JAMES WOODS is now sending out his POLYANTHUS SEED, saved with more than ordinary care from named and good laced flowers, which he can recommend with confidence. Having had numerous testimonials from different parts of the kingdom of good and valuable flowers being raised from his seed, it needs no further comment.

A packet of Seed to grow 300 plants, with directions for sowing, price 1*s.* per packet; or sent free on receipt of 13 postage stamps; or 6 packets for 5*s.*

JAMES WOODS, Florist, Harwich, Essex.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that all orders entrusted to their care will be thankfully received and promptly executed. F. R. and G. confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality. Catalogues forwarded gratis on application.—82, Bishopsgate Street Within, London, Feb. 23.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, February 23, 1856.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 9.—1856.] SATURDAY, MARCH 1. {Price Fivepence. Stamped Edition, 6d.

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NATIONAL FLORICULTURAL SOCIETY.—Notice is hereby given that the Anniversary Meeting for the Election of Officers for the year 1856-7, will be held at the Society's Rooms, 21, Regent Street, on THURSDAY next, March 6th. Chair to be taken at 1 o'clock precisely. The Committee is respectfully requested to attend at 11 o'clock on the forenoon of that day, to arrange the necessary preliminaries for the said Meeting. JOHN EDWARDS, Secretary.

THE SOCIETY OF ARTS ANNUAL COLLECTION OF INVENTIONS will be opened at the Society's house, John Street, Adelphi, on EASTER MONDAY, the 24th March. It will comprise Models and Specimens of Recent Inventions, whether patented, registered, or not, and of works of recent construction. Articles for Exhibition must be forwarded, carriage paid, on the 6th, 7th, or 8th of March.

INVENTORS who purpose to contribute MODELS or SPECIMENS to the SOCIETY OF ARTS ANNUAL COLLECTION OF INVENTIONS, should communicate with the Secretary without delay, as the Exhibition will be opened at the Society's House, John Street, Adelphi, on EASTER MONDAY, the 24th of March.—March 1.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD. HORTICULTURAL ERECTIONS on the best improved principles.
, An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

JOHN LAW, CURATOR OF THE BOTANIC GARDEN, Sheffield, begs to inform the nobility and gentry that he has had the privilege from the Directors for the last eight years to practice as LANDSCAPE GARDENER and GARDEN ARCHITECT. Plans and Estimates for Horticultural Gardens, Asphalte for Garden Walls and Carriage Roads laid down on the best improved principles. Terms on application.

CHEAP AND SELECT NURSERY STOCK.

WILLIAM JACKSON AND CO., Bedale, Yorkshire, beg to refer purchasers to their advertisement of useful Nursery Stock in the *Gardeners' Chronicle*, page 109, Feb. 16.

CELOSIA AUREA.

FRANCIS AND ARTHUR DICKSON AND CO., SEED MERCHANTS, 14, Corporation Street, Manchester, offer Seeds of the above very graceful Plant, at 2s. 6d. per packet.

TO THE SEED TRADE.

BASS AND BROWN beg to offer to the Trade True and Fine Stocks of the following. Prices on application.
BEANS.—Taylor's and common Windsor, Sword, Hangdown, and Green Longpods.
PEAS.—Fairbeard's new Nonpareil; also a few quarters of each of Ringwood Marrow, Flack's Victory, Emperor, &c.
KIDNEY BEANS.—Of sorts.
CARROTS.— Altrincham and White Belgium.
Wholesale Seed Lists on application.—Seed Establishment, Sudbury, Suffolk.

CARNATIONS, PICCOTEES, ETC.

CHARLES SCHOFIELD has this spring a fine healthy stock of the above: also PINKS, PANSIES, &c. Catalogues on application containing descriptive lists of those and many other Florist Flowers. Pansy Seed selected from the finest show flowers, 2s. 6d. per packet. Hollyhock Seed, extra fine, 1s. 6d. to 2s. 6d. per packet.—Knowsthorpe, near Leeds.

PRIMULAS—PRIMULAS—PRIMULAS.

LATTER'S PRIMULAS, and WILD'S IPSWICH STANDARD CUCUMBER, of world-wide celebrity, are now being sent out with Orion Melon, Hollyhocks, and Pansies, free by post for 7s. 6d., with Latter's "Hints on the Cultivation of Primulas," coloured drawing of a beautiful seedling, &c., on application to THOMAS WILD, Ipswich.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2s. 6d. each, containing about 300 seeds, can now be had of MESSRS. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (come true from seed): decidedly one of the most lovely things in cultivation, deserving a place on every Lawn in England.
Durham Nursery, March 1.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1s. The Trade supplied.
T. F. WINSTANLEY, Seed Merchant, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2s. 6d. to 40s.

SUTTON'S FARM SEED LIST may be had gratis and post free.
Address SUTTON & SONS, Seed Growers, Reading.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

SEED GROWING ESTABLISHMENT, WISBECH, CAMBRIDGESHIRE.

CHARLES SHARPE begs respectfully to inform the Trade that his CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS, cultivated and saved under his own management, will be forwarded post free on application.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is Now Ready, and will be sent free by Post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.
Tollington Nursery, Hornsey Road, Islington, London.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l.* to 5*l.* The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

AMERICAN PLANTS.

JOHN WATERER'S CATOLOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—March 1.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines. Windsor branch, South Western Railway, where conveyances may be had.

THE BEST EARLY PEAS OUT.—COTTRELL'S SEBSATOPOL and the NEW EARLY WONDER; a few more of these fine Peas may yet be had of the undersigned.
TRUE FLAT RED TRIPOLI and LISBON ONION may be had in any quantity of DAWE, COTTRELL, & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, and 36, Bishopgate Street, London. Established 1720 at 28, Cornhill.

TURNIP SEEDS.—Marshall's, Skirving's, Butler's, Matson's Purple Top and other Swedes, Scotch and other Turnips, Mangel Wurzel, and all kinds of Agricultural Seeds. —Prices on application to DAWE, COTTRELL, & BENHAM, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

DOUBLE WHITE CAMELLIAS.

JOHN HENCHMAN, JUNIOR, begs to offer fine bushy home-grown Plants, full of flower-buds, at 24s., 27s., 30s., and 36s. per dozen; a few extra size at 3s. 6d. each.
INDIAN AZALEAS, short bushy Plants, full of flower-buds, at 15s., 18s., 24s., and 30s. per dozen.
Opposite the Golden Fleece, Lower Edmonton.

NOTICE TO GROWERS OF PINE-APPLES.

WANTED, FOR THE LIVERPOOL MARKET, a quantity of good PINES, not under 2 lbs. each. Forward immediately.—GEORGE TAYLOR, Jun., Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

FRAME CUCUMBERS.

WOOD AND INGRAM offer the following well known kinds at 1s. per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
„ White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
Improved Sion House	Manchester Hero
Turnbull's fine Frame	Conqueror of the West
	Snow's Horticultural.

Huntingdon Nurseries, March 1.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.
N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from this establishment.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Advertisements which appeared on the 2d Feb.
Royal Nursery, Great Yarmouth, Norfolk.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts, of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

WHEAT FOR LATE AND SPRING SOWING. —Samples with prices of Talavera, Red Hybrid, Nursery April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

TO THE SEED TRADE.

G. TABER, SEED GROWER, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

NURSERY TREES.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have on Sale a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, ORNAMENTAL PLANTS, SHRUBS, and FRUIT TREES, at very moderate prices. Catalogues may be had on application.—March 1.

CHARLES DALY AND SON beg to inform the Trade that they have still 500,000 good 2-year SEEDLING THORNS to Sell, at 3s. 9d. per 1000; and 200,000 1-year SEEDLING LARCH, at 1s. 3d. per 1000. Carriage paid to England; for Cash only.—Nurserymen, Coleraine, Ireland.

T. AND G. SWAILES offer to the trade (cheap), 1 year SEEDLING ASH, fine; 1 and 2 years' SEEDLING BEECH, fine. Prices on application.—Beverley Nurseries, March 1.

T. AND G. SWAILES offer extra fine EVERGREEN OAK, twice Transplanted, 1½ to 2 ft. COMMON HOLLY, 1½ to 2 feet.—Beverley, March 1.

T. AND G. SWAILES have a Fine Stock of Strong Transplanted ENGLISH OAK, clean-grown and well-rooted; prices moderate. Also very fine and well-grown ENGLISH and WYCH ELMS, 4 to 6 and 8 ft.; ASH, 4 to 6 ft.; ONTARIO and BLACK ITALIAN POPLARS, 4 to 6 and 8 to 10 ft. Surplus Stock, and to be sold cheap.
Beverley, Yorkshire, March 1.

ORCHIDS.

TO BE SOLD, a number of Masses of BROUGHTONIA SANGUINEA, in various sizes. They can be sold singly, but a preference will be given to divide the parcel at a lower price amongst three or four Cultivators. No further quantity will be introduced by the importer for 12 months.
GEORGE ROBERTS, 32, Moorgate Street, London.

TO BE SOLD, SCOTCH FIRS, SPRUCE, and PINE ASTER.—Apply to Mr. NAPIER, No. 1, Church Terrace, Lewisham.

TO BE SOLD, six to eight dozen healthy PINK APPLE PLANTS, showing fruit. Also four dozen SUCCESION PLANTS.—Mr. G. EDWARDS, Gardener, Winterfold, Kidderminster.

TO BE SOLD, very handsome large IRISH YEWS, from four to eight feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

BEFORE ORDERING YOUR SEED POTATOES, send for THORNHILL & DICKSON'S DESCRIPTIVE PRICED LIST of the best leading varieties. OBSERVE!—27, Bath Street (facing the Talbot Hotel), BRISTOL; and Nursery Grounds, Lawrence Hill.
N.B. A complete assortment of Kitchen Garden, Flower, and Agricultural Seeds. Priced Catalogues free by Post.

FLUKE KIDNEY POTATOES, 5*l.* per ton; in quantities less than 1 ton, 6s. per cwt; sacks, 1s. per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.
HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

EARLY ASH-LEAVED POTATOES, 1s. per stone: a good sample and true. Carriage per Great Northern Railway to King's Cross, 13s. 4d. per ton.—Address J. C. ARNALL, Ferrybridge, Yorkshire.

GEORGE LEE, MARKET GARDENER, &c., Clevedon, near Bristol, has a surplus Stock of POTATOES and STRAWBERRIES, both of first-class varieties—see Advertisement Feb. 7. Early orders are solicited, as the stock of many is limited. (All Black Prince Strawberry sold.)
Post Office Orders payable at Clevedon to GEORGE LEE.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

SEED POTATOES.—The following sorts, from true and healthy stocks, may be had as below, namely:—Kidney, Fiftyfold, Fluke, Lapstone, and Painted Lady. Round; Early Oxford, Early Frame, Early Cockney, Fortyfold, British Queen, Early Shaw, York Regent, and Purple Regent.—Prices on application. A descriptive, historical, and comprehensive Catalogue of Flower and Vegetable Seeds forwarded on receipt of three penny stamps. A remittance with order from unknown correspondents.—HOOPER & Co., Covent Garden Market.

ROYAL BERKSHIRE

SEED ESTABLISHMENT, READING,

UNDER THE PATRONAGE OF HER MOST GRACIOUS MAJESTY THE QUEEN, HIS ROYAL HIGHNESS PRINCE ALBERT, AND THE PRINCIPAL MEMBERS OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND,

FOR SUPPLYING

SUTTON'S HOME-GROWN SEEDS TO ALL PARTS OF THE UNITED KINGDOM.

CARRIAGE FREE (WITH FEW EXCEPTIONS).

SEEDS *grown in Berkshire and the Home Counties having obtained great celebrity,* SUTTON AND SONS *have annually increased their Stocks of Seeds to meet the increasing demand.* The undermentioned articles are of superior quaiity, being all genuine Home-grown Seeds. Agriculturists residing in the most remote parts of the kingdom can now be supplied with *Seeds direct from the Growers,* which will be found the most effectual means of preventing disappointment.

A Descriptive Priced List may be had post free.

ITALIAN RYE-GRASS SEED.
PERENNIAL RYE-GRASS.
MANGEL WURZEL.
CARROT.
FURZE OR GORSE.

CATTLE PARSNIP.
GARDEN SEEDS.
FLOWER SEEDS.
COW CABBAGE.
FLAX OR LINSEED.

SWEDISH TURNIP SEEDS.
YELLOW SCOTCH TURNIPS.
HYBRID AND OTHER TURNIPS.
KOHL RABI.
ALSIKE HYBRID CLOVER.

PERENNIAL WHITE CLOVER.
COMMON WHITE CLOVER.
PERENNIAL RED CLOVER.
COMMON RED CLOVER.
YELLOW TREFOIL.
LUCERNE.

SUTTON'S PERMANENT GRASS SEEDS.

GENTLEMEN intending to lay down Land to Permanent Pasture, or for one or two years lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable. The Alsike, the Perennial White, and Perennial Red Clover are included in our mixtures.

OLD MEADOWS DEFICIENT OF THE MOST NUTRITIVE GRASSES AND CLOVERS may be greatly improved by sowing at this season "SUTTON'S Renovating Mixture" of Seeds, at the rate of 8 to 12 lbs. per acre, price 1*s.* per lb. Our finest LAWN GRASS SEEDS *are highly useful to improve Garden Lawns.*

We have a very extensive stock of Natural Grasses, Perennial Clovers, &c., in our Warehouses, a Priced List of which may be had on application, post free.

*** *Sacks and Bags are charged at cost price only, and the full amount allowed, if they are returned.*

SUTTON & SONS have often been requested to appoint Agents, but they consider it best to supply the Seeds direct to the retail purchaser CARRIAGE FREE.

PRICED LISTS OF SEEDS MAY BE HAD POST FREE.

SUTTON & SONS, Seed Growers, Reading, Berks, Fellows of the Horticultural Society of London; Members of the Royal Agricultural Society of England, and the Bath and West of England Agricultural Society.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S CATALOGUE

Of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.

It contains upwards of 1500 varieties of FLOWER SEEDS, the whole of which are systematically arranged under their different classifications, such as Hardy, Half Hardy, and Tender Annuals; Biennials, Perennials, Alpine or Rock Plants, with a very choice variety of Seeds of Greenhouse, Stove, and Hardy Ornamental Flowering Trees and Shrubs. In nearly all cases the height the Plant attains with the colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. A select List of FLOWER SEEDS that are recommended for their superior beauty and novelty may be seen on reference to page 93 of the *Gardeners' Chronicle.*

Plants of the GYNERIUM ARGENTEUM and the new Double White PETUNIA IMPERIALIS can be supplied by the dozen or 100. Price may be had on application.

The following new FUCHSIAS to be sent out in May have, with the exception of the Countess of Burlington, been raised by the eminent cultivator, EDWARD BANKS, Esq., from whom the stock has been purchased:—

EMPEROR NAPOLEON (BANKS).—Deep rich scarlet crimson; sepals extra wide, and beautifully reflexed, and of such substance that the flower has the appearance as if made of wax: corolla deep violet. This Fuchsia is the largest and finest that has ever been sent out; the size, width, and substance of its petals, with other superior qualities, can scarcely be imagined unless seen on the plant. Price 10*s.* 6*d.*

VENUS DE MEDICI (BANKS).—A great novelty, and the most beautiful Fuchsia that has been introduced for many years; tube white, with sepals of a blush pink, or white shaded and striped with pink; corolla deep violet blue, large and beautifully formed; yet the above description will scarcely give an adequate idea of its beauty, as the colour is quite new among Fuchsias, but we have no hesitation in saying it will prove one of the finest varieties for exhibition. The habit of the plant is superior to any other white Fuchsia in cultivation; the flowers are large, well reflexed, and elegantly formed; the sepals are very long, which gives the flower a most striking appearance. Price 10*s.* 6*d.*

DONNA JOAQUINA (BANKS).—Scarlet crimson tube and sepals, the latter splendidly reflexed; the tube very short and thick; corolla violet-blue, a striking and novel colour, the substance of which is exceedingly fine, giving it the appearance of a thick leathery substance. Price 10*s.* 6*d.*

COUNTESS OF BURLINGTON (STORY'S).—Scarlet tube and sepals, elegantly reflexed, with a beautiful pure white corolla; habit of the plant graceful. This may be considered the finest white corolla'd Fuchsia yet sent out. Price 10*s.* 6*d.*

VOLCANO DI AQUA (BANKS).—Rich glossy scarlet, with well reflexed sepals; corolla violet, extra large; a wonderful flower for size, and a very free bloomer. Price 10*s.* 6*d.*

CHARLEMAGNE (BANKS).—Rich scarlet, sepals well reflexed, with a large barrel-shaped, violet-purple corolla; dwarf habit and free bloomer; very distinct and novel. Price 10*s.* 6*d.*

*** Persons ordering the whole of the above set will have Story's Double White Corolla'd Fuchsia, "RANUNCULÆFLORA" given in gratis. This variety, our customers are aware, we were unable to send out last spring on account of the smallness of the stock.

We can with confidence recommend the above Fuchsias as the finest that have been sent out for many years, as having quality, size, and colour far surpassing all others, either for exhibition or ornamental effect in the Conservatory.

Wellington Nursery, St. John's Wood, London.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d*; 60, 2*l.* 16*s*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s.*

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

JOHN CATTELL having a large stock of very strong ground roots of the undernamed, is enabled to offer them upon very advantageous terms to the Trade and others requiring them in large quantities. Prices may be had on application.

Dodecatheon alba,	per dozen or per hundred	
Œnothera macrocarpa,	ditto	ditto
Gentiana acaulis,	ditto	ditto
Hepatica, single blue	ditto	ditto
„ double red	ditto	ditto
Wahlenbergia grandiflora,	ditto	ditto
Helleborus niger,	ditto	ditto
„ orientalis, each or per dozen		
Lily of the Valley, per hundred; do. double, per dozen		
Delphinium Barlowi, per hundred or per thousand		
„ grandiflorum maximum, ditto	ditto	
„ Wheeleri, per dozen		
„ hybrida flore-pleno, per dozen		
„ Hendersonia, per dozen, per hundred, or per thousand		
„ Mooreanum, per dozen or per hundred		
„ magnificum, per dozen or per hundred		
Also, Irish Ivy, strong budded, fit for immediate potting, &c., per hundred or per thousand		
Early and Late Dutch Honeysuckle, ditto	ditto	

Evergreen Berberis, from aquifolium and repens, twice transplanted, from 1 to 2 feet, per 100 or per 1000

Hardy Azaleas of all the finest of the Ghent and other varieties, splendid plants, loaded with bloom-buds, per dozen, per 100, or per 1000

Raspberries, Red Antwerp, Fastolff, Turk's Cap Red, and Large-fruited Monthly, per 100.

Nurseries, Westerham, Kent.

JOHN CATTELL offers the following choice SEEDS, selected from his Flower Seed Catalogue, which may be had in packets, post free, at the prices annexed:—

	s.	d.
Azalea indica, finest mixed	1	0
Alstrœmeria acutifolia ...	1	0
Anemone, Single Poppy, extra fine mixed	0	6
Antirrhinum, from finest varieties	0	6
Aquilegia glandulosa (M'Gregor's true)	0	6
Auricula, fine mixed alpine	0	6
Balsam, in six varieties, separate, all saved from very superior double flowers ...	2	0
„ the same mixed ...	1	0
Calceolaria, saved from finest spotted and others, carefully hybridised ...	2	6
Calceolaria, from a collection of new colours to any previously sent out by J. C. The flowers are very large, mostly dark, and very rich, on light grounds, warranted to give the greatest satisfaction	5	0
Carnation, from fine vars.	1	0
„ from perpetual or winter flowering vars.	1	0
Clitoria plumeri	1	0
Cineraria, from finest vars.	2	6
Geranium, from first-rate florist vars.	1	0
„ „ fancy vars. ...	1	0
„ from newest Scarlet varieties mixed ...	0	6
Geranium, from finest White, Salmon, and Pink vars.	0	6
Gloxinia, very fine mixed	1	0
Heartsease, from finest florist vars. mixed	1	0
„ from new French spotted and striped vars.	1	0
Ipomœa rubra cærulea ...	1	0
Lychnis fulgens	0	6
Lotus jacobæus	0	6
Mandavillea suaveolens ...	0	6
Mimulus, finest mixed ...	0	6
Morna elegans	1	0
Myrtle, common	0	6
Nasturtium, Cattell's new Dwarf Crimson and ditto Scarlet, each	0	6
Oxalis rosea	0	6
Passiflora cærulea	0	6
„ quadrangularis	1	0
Primula sinensis, from extra fine Fringed, White, Blush, Pink, &c., mixed	1	6
Petunia, finest mixed ...	0	6
Polyanthus, fine mixed ...	0	6
„ extra fine mixed ...	1	0
„ Red Oxlip	0	3
Phlox Drummondi, extra fine mixed, from very rich dark flowers	0	6
Saponaria calabrica	0	6
Verbena venosa	0	6
„ from finest vars. ...	0	6
Violet, Sweet-scented ...	0	3

Post Office order or stamps must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

UNEQUALLED NEW MELONS.

THE FOUR BEST SUPERB VARIETIES THAT HAVE EVER YET BEEN SENT OUT.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, offers M'Ewen's Arundel Hybrid Scarlet Flesh Melon, possessing the following qualities:—The fruit is handsome, round shaped, slightly ribbed; flesh very firm and solid, of a melting and most delicious flavour; it has a beautiful appearance when set upon the table with other fruit, and has been found to be the best of all other Melons for preserving; weight from 3½ to 4½ lbs.; a free setter and abundant bearer; very early and hardy; will grow with less bottom-heat than any other of its kind. It obtained the first prize that was awarded to the Scarlet Flesh Melons at the Great Exhibition at the Crystal Palace, the 2d of June last. Packets containing Three Seeds, 2*s.* 6*d.*

M'Ewen's Arundel Hybrid Green Flesh Melon.—This was exhibited at the Royal Botanic Exhibition, Regent's Park, June 13th, where it obtained the 1st and 2d Prizes for the best flavoured Green Flesh Melon: it is a hybrid from those two well-known Melons Golden Drop and Beechwood. It has the fine flavour of the Golden Drop, with the shape and appearance of the Beechwood, oval shaped, netted, and a very free setter; the plants grow strong and carry out a great weight of fruit: flesh very solid and firm, will keep its excellent flavour for many days after it has been cut; weight from 4 to 5 lbs. Packets of Three Seeds, 2*s.* 6*d.*

Also Monro's Crystal Palace Hero. This was awarded the first prize for the best and heaviest hybrid Persian Melon: 2*s.* 6*d.* per packet.

Monro's Golden Gauge Melon was awarded the first prize for the best flavoured Green Flesh variety at the Crystal Palace; 2*s.* 6*d.* per packet.

The above new Melons will give the greatest satisfaction to all purchasers. Persons requiring a Packet of each of the four varieties will be charged 7*s.* 6*d.*, or two packets of either kind for 4*s.* A remittance must accompany every order, either by Post Office Order or Penny Postage Stamps.

14, Abbey Churchyard, Bath.

TO THE SEED TRADE.

GEORGE ROBERTS begs to make known that he can supply the following SEEDS at favourable prices:—Asclepias curassavica, Brunsfelsia americana, Cæsalpinia sepiaria, Canna indica, C. lutea, Carica Papaya, Clitoria Plumieri, C. ternatea, Coix lachryma, Ipomea rubro-cærulea, Mimosa pudica, M. asperata, Passiflora quadrangularis, Tecoma stans, and many other scarce seeds, of which a list may be had. A beautiful Plate of Clitoria Plumieri will be forwarded to all applicants inclosing six stamps with their request. Orders for seeds from private purchasers respectfully declined.

32, Moorgate Street, London.

NEW CELERY—COLE'S DEFIANCE RED.

WILLIAM COLE, NURSERYMAN, SEEDSMAN, AND FLORIST, Fog Lane Nursery, Withington, near Manchester, begs to introduce this valuable new variety, which will be found a great improvement on his well known Celery, "Cole's Dwarf Solid Red," being a more robust grower, and decidedly superior in every respect. In sealed ½ oz. packets, free by post, 2*s.* each.

It can also be procured from the following agents:—

Messrs. Hurst and McMullen, 6, Leadenhall Street; Messrs. Noble, Cooper, and Bolton, 152, Fleet Street; Messrs. Minier & Co., 60, Strand, Messrs. Charlwood & Cumming, Covent Garden; Messrs. Nutting & Son, 46, Cheapside, London; Mr. Turner, Slough; Mr. Duncan Hairs, St. Martin's Lane; Mr. Denyer, Gracechurch Street; Messrs. Downie and Laird, Edinburgh; Messrs. F. & J. Dickson, Chester; Messrs. J. & J. Fraser, Lea, Bridge, Essex; Messrs. Little and Ballantyne, Carlisle; Messrs. Veitch & Son, Exeter; Mr. J. Veitch, Exotic Nursery, Chelsea; Messrs. Finney & Co., Gateshead; Mr. A. Pontey, Plymouth; Mr. E. Rendle, Plymouth; Mr. Cattell, Westerham, Kent; Messrs. Lucombe, Pince, & Co., Exeter; Mr. Browne, Norwich; J. Cole, Keyfield Nursery, St. Alban's; Garraway & Mayes, Bristol; Drummond & Son, Stirling; J. Dickson & Son, Market Place, Manchester; F. Winstanley, Market Place, Manchester; F. & A. Dickson, Corporation Street, Manchester.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester
Messrs. F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).
Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.
Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s* 6*d.* to 21*s.*
Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).
Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.
Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.
Libocedrus gigantea, 10*s.* 6*d.*; about 2 feet, 31*s.* 6*d.*
Pinus Cembra, 3 to 4 feet, 5*s.*
" Douglasi, 3 to 4 feet, 3*l.* 3*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*
" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).
" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.
Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.
Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to
Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*
Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.
Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.

Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l* per 1000.
" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.
" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.
" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.
" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.
Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s*, to 24*s.* per dozen.
Hardy Heaths, superior collection, 35*s.* per 100.
Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. WATERER feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

IMPORTANT TO SEEDSMEN AND FARMERS.

TO BE SOLD, Skirving's Purple-top Swede, Green Globe, and White Globe Turnip Seed, from selected bulbs; White Spanish and White Globe Onion Seed, all of 1855 growth; also Seed Potatoes as follows:—Fluke Kidneys, 90*s.* per ton; Early Shaws, 80*s.* per ton. Delivered either at St. Neots, on the Great Northern Railway, or at Swavesey (Eastern Counties Line).—Apply to Mr. COOPER, Eaton Socon, St. Neots, and Drayton, Cambs.

TO THE SEED TRADE.

REDUCED PRICES OF SEED POTATOES AND SEEDS.

ABRAHAM HARDY AND SON, SEED GROWERS, &c., Maldon, Essex, recommend to notice their earliest selected kinds of POTATOES of good quality. Per bushel of 56 lbs.; sack 2*s.*, bag 1*s.*

KIDNEYS.	s.	d.		s.	d.
Hardy's Seedling Frame	4	0	Hardy's Albert Frame ...	4	0
" Ladies' Fingers..	4	0	" Early May	4	0
" Maldon Heroes...	4	0	" Flour Balls... ...	4	0
ROUND VARIETIES.			" Prolific Cockneys	4	0
Hardy's Victorias	4	0	Potato Seeds for Exportation.		

Present Reduced Priced Seed List on application.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

	Per bushel— s.	d.		Per bushel— s.	d.
Ashleaf Kidneys ...	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

500 BUSHELS OF POTATOES TO THE ACRE.

THIS ENORMOUS CROP was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

THE CHAMPION KIDNEY POTATO.

EDWARD TILEY begs to state, in answer to the numerous applications that have been made within the last fortnight by persons who purchased the above last season, wishing to know if they can be supplied with seed of the same again, that he has about 20 bushels of good sound sets to dispose of.

This variety bears a strong resemblance to that fine old Potato the Ashleaf Kidney. If planted at the same time it will come in ten days earlier; it is quite equal to that in flavour, and will give double the crop. As a proof of its superior quality, a market gardener who purchased a peck of them last season has just sent an order for a sack, for his own planting. Several persons who forced them last spring speak in the highest terms of their being the best they ever grew for early frame work.

THE EARLY EMPEROR POTATOES.

This is one of the best keeping varieties that has ever yet been sent out. It is a fine red Potato, nearly round, and the eye level with the surface, so that there is no waste to it in peeling as in most other sorts, which in general possess deep eyes. It is a seedling from that well known kind the "Old Rough Red;" it is very mealy when boiled, and is so rich in flavour that it cannot be equalled by any other Potato now in cultivation. It will be found to keep well until new Potatoes come in plentiful again. The above will be sure to give the greatest satisfaction to all purchasers.

Sold in quantities of not less than one peck; they will be sent, hamper and package free, at 5*s.* 6*d.* per peck; or four pecks for 1*l.*, hamper free. A remittance in cash must accompany all orders, or small amounts in penny postage stamps. Purchasers would do well to name the nearest Railway Station to their residence.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset.

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than Soden's Oxford, which in some respects it resembles, and far more free from disease, planted in the same soil and in every way alike."—Mrs. CANNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large.

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s.* per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s.* 6*d.* per peck, or 9*s.* per bushel, delivered carriage free.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

SELECT GERMAN AND OTHER FLOWER SEEDS.

JAMES DICKSON AND SONS, SEEDSMEN and NURSERYMEN, 102, Eastgate Street, Chester, would call attention to their choice selection of GERMAN and other FLOWER SEEDS, which they can with every confidence recommend as being of superior quality. The great satisfaction given last season by the whole of the German Flower Seeds imported and supplied by them induces them now to offer them fresh and pure as received from the same eminent source. A detailed Catalogue will be furnished of both Flower and Vegetable Seeds, post free on application as above.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	d.
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed. 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation: they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established more than a hundred years.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, MARCH 1, 1856.

DARWIN commenced his Phytologia in the following words:—"We have so accustomed ourselves to consider life and irritability to be associated with palpable warmth and visible motion, that we find a renitency in ourselves to ascribe them to the comparatively cold and motionless fibres of plants. But to reason rightly on many vegetable phenomena we shall find it necessary first to show that vegetables are in reality an inferior order of animals. If a bud be torn from the branch of a tree, or cut out and planted in the earth with a glass cup inverted over it to prevent the exhalation from being at first greater than its power of absorption; or if it be inserted into the bark of another tree; it will grow, and become a plant in every respect like its parent. *This evinces that every bud of a tree is an individual vegetable being, and that a tree therefore is a family or swarm of individual plants*, like the polypus, with its young growing out of its sides, or like the branching cells of the coral insect."

This was the opinion of an eminent man who

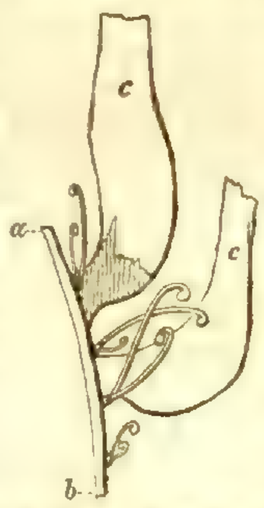
wrote 56 years since. Similar opinions, more or less modified, have been expressed by subsequent physiologists. Those of Du Petit Thouars were made known to the English reader in the Philosophical Magazine for August, 1824, and have ever since been the subject of discussion as opportunities have arisen. In Prof. Lindley's earliest introduction to Botany, published in 1833, they are given in detail; and in 1835 the late M. Gaudichaud brought them before the Institute in still another form. They are familiar to the men of science of every country, and we may add are also universally accepted as true by all who can claim a right to express an opinion upon the subject. We therefore read with no little surprise in an ingenious little volume that has just appeared,* that this "neither represents the popular belief, nor does it accord with the recognised doctrines of the schools. To the popular mind, indeed, it may be said to be nearly unknown, while heretofore it has failed to secure the sanction of the greater number of our scientific botanists." What the *popular* belief about the buds of trees may be we do not pretend to know, any more than what it is as regards the moon, or the cause of thunder; but we must altogether dissent from the last part of the paragraph quoted. Men of science fully recognise the individuality of buds as a matter of theory. What they do not agree about is the precise relation that exists between buds and wood; or rather in what manner that relation is to be interpreted. Du Petit Thouars, and Gaudichaud, endeavoured to prove that the wood of a tree is merely the roots of its buds; and they maintained their opinion with much skill and tenacity. Others, however, have objected to their theory upon several grounds, such for example as the production of wood in cases where no buds are present, or because the stock of a grafted tree partakes in no degree of the nature of its scion, although according to the theory of Du Petit Thouars, Gaudichaud and others, it must consist of a mass of roots belonging to the scion; and most especially because wood is not in structure the same as roots. It is on this ground that a conflict of opinion has established itself; nobody doubts the individuality of buds, but many doubt whether the wood of a tree is a mass of bud-roots. This is not the place in which to repeat the arguments which either party rests its case upon. The reader will find the most important briefly stated in the fourth edition of Lindley's Introduction to Botany, Vol. ii., p. 187, where a chapter is occupied by the subject.

Such being the case we must object to all claims to originality in a matter which, in a scientific form, has been worn threadbare, and we are glad to see that the same view is entertained by the author of the little volume whose appearance has led to these remarks. To use his own words—"He has advanced nothing that was not known before." Nevertheless he has done very well.

In a gardening aspect the individuality of buds is the cardinal point on which some of our most important operations turn; such, for example, as all modes of propagation whatsoever, except by seed. If that is not fully understood there is no possible explanation of the reasons why certain results are sure to follow the attachment of a bud or the insertion of a graft, or the planting a cutting, or the bending a layer, or the approach of a scion, or the planting an eye—our six great forms of artificial multiplication. It must not be supposed that Dr. Harvey has occupied an entire volume of 227 pages with arguments merely in support of the individuality of buds. The identity of wood and the roots of buds is what he most especially dwells upon, or if the reader pleases, the true origin of timber. In all that he says he writes well, with good taste and perspicuity; and we gladly welcome him as a useful recruit to the ranks of vegetable physiologists. Those who are interested in trees and their way of living and growing, will find his pages instruct and interest them, although speculative points occupy so large a part of the work.

We have lately received from Mr. Jackson, of Guernsey, a very interesting account of some experiments he has made with a view to discover a more ready means of propagating ferns than that afforded by the process of dividing the crowns which form naturally. Mr. Jackson's experiments were made with Scolopendriums, and show that at least the curious forms of that Fern may be increased to a much greater extent than was supposed without having recourse to the spores. It seems to us that the facts thus elicited throw some light upon the formation of buds on the stipes and rachides of Ferns, which it is now known occurs in many instances—in some constantly, in others as it would appear accidentally or only occasionally. Taking these into account, it seems highly probable that, under proper conditions, the fronds of many kinds of Ferns would produce plants if planted as cuttings; and it is further not unreasonable to infer that parts of fronds may be employed for the same purpose. There is much scope here for experiments, and among those which more especially suggest themselves are the following:—1. The fleshy living bases of fronds already decayed, which surround the lower part of the caudex in many Ferns, taken off with or without a portion of the rind of the caudex. 2. Entire living fronds, of different character, taken with and without the rind of the caudex or rhizome attached to their base. Mr. Jackson's successful experiments were entirely confined to those Ferns which have fronds adherent to the caudex: it would be very desirable to ascertain if the same power is possessed by the fronds of those species which are furnished with a joint or articulation at which the fronds are naturally cast off, and whether by the portion above or below the articulation. 3. Healthy portions of such fronds as Scolopendrium with a moderate length of sound healthy rachis treated as cuttings. 4. Pinnæ of divided fronds cut so as to preserve entire the axil formed by the branching of the rachis. 5. Simple pinnæ and pinnules of large and small size and of different textures, cut so as to preserve the axil of the vein from which they arise.

In conducting these experiments it should be borne in mind that it is usually at certain organised points in connection with the ribs and veins of Ferns, that buds or bulbils, as well as sori, are produced. The examples which Mr. Jackson has been good enough to send us, consist of healthy fronds producing buds at the base, and small portions of the rind of the caudex with the living bases of decayed fronds, also throwing out buds as shown in the accompanying sketch, in which some of the buds spring from the cut edges of the base of the stipes, and others from the cut edges of the rind of the caudex.



a b. Portion of the rind of the rhizome.
c. Living bases of decayed fronds.

Mr. Jackson's account of his trials is as follows:—"Having been very anxious to increase my varieties of Scolopendrium, I have been experimenting on some common sorts, and have been successful in discovering a way of increasing them very rapidly as to number, though not as to size. I find that the remains of the Scolopendrium fronds, which are attached to the very ends of the caudex, and the tops of which must have been for many years decayed, have the power of producing young plants. Is this known to you? I find also that a perfect frond of Scolopendrium will rapidly produce a new head, though there is not the slightest portion of rhizome attached, nor any appearance of a bud. I imagine that the new bud comes out of the cut part of the base as frequently as from the edge of it, and from the lower edge as well as the upper; and in the case of the rhizome I fancy it is requisite that it should be cut lengthwise, as the buds appear to push from the edge of the cut, and cannot perhaps otherwise break through."

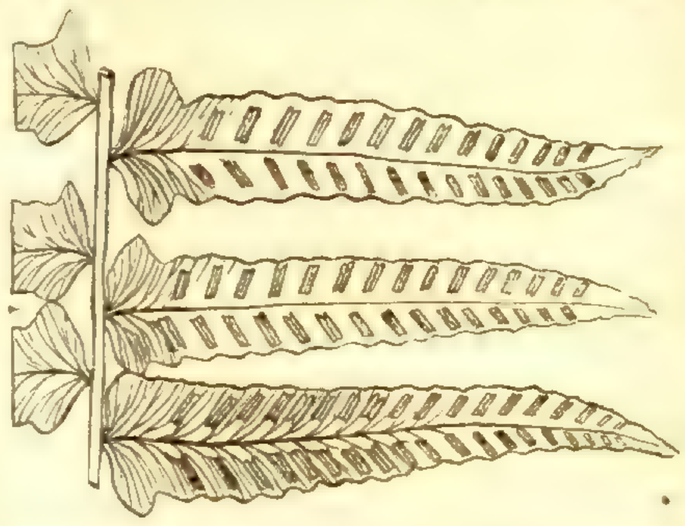
It would seem likely that those Ferns which possess some degree of fleshiness or succulency may be most successfully dealt with, probably from their having a greater quantity of available organisable material. Does the cut upon which Mr. Jackson, apparently with reason, lays some stress—inasmuch as these old caudices seldom produce young plants when left entire—does this cut liberate the vital force, which becomes organised in the shape of a bud? *M.*

NEW GARDEN FERNS.—No. VII.

18. Scolopendrium Krebsii, Kunze, Linnæa xviii., 118; and in Schkhr Supp. i. 176, t. 74. Onychium Krebsii, Kze., Lin. x., 504.

Fronds coriaceous, broadly lanceolate, acuminate, pinnate; pinnæ sessile numerous, lanceolate auriculate and subcordate at the base, the margin repand and revolute, the lowest smaller deflexed ovate, the upper confluent; sori short oblique; stipes short, terminal and adherent to the semi-erect rhizome.

A curious and ornamental warm greenhouse evergreen Fern, with the true fructification of a Scolopendrium, but having pinnated fronds. We are indebted for our first knowledge of this plant in a cultivated state to Mr. Henderson, of Wentworth, by whom the finest specimens we have seen were communicated. Seedling plants two years old produce with us fronds of about a foot in length, and fully fructified; but Mr. Henderson's fronds measure nearly a foot and a half, with the longer pinnæ about 3 inches in length. The fronds are more tapered below than above, and the lower smaller pinnæ are more distant; the rest are crowded, and the apex is abruptly acuminate. The pinnæ are smooth, coriaceous, spreading, lanceolate, with the base both above and below produced into an auricle, which is rounded and nearly equal in the upper pinnæ, but more angulate and most developed on the anterior side in the short lower deflexed pinnæ. The sori



are numerous, placed obliquely and forming two lines along each of the pinnæ. It is a native of the Cape of Good Hope and Natal, and should therefore succeed perfectly in a greenhouse. Our plants have however been cultivated in the higher temperature of an intermediate house, in which they progress satisfactorily. The young plants of this Fern are so much like those of some Blechnum as to be readily mistaken for them, but the more mature state is perfectly distinct in aspect as well as in structure, though having some resemblance to the barren fronds of Lomaria auriculata. *T. M.*

DISEASE IN CUCUMBERS.

Within the last few years practical gardeners have been astounded, and philosophers have put on their puzzling caps to discover a preventive for the too well-known Potato disease, while the community, especially its poorer members, have undergone much privation from losing the crops of that root, which has till lately been regarded, next to bread, as one of the most important items in "food for the million."

Happily for us, the subject of our present notice does not affect one of the staple articles of human food; but one which is nevertheless much in demand, and which those great authorities in gastronomy, French cooks, deem indispensable to their craft. Unhappy, therefore, is the fate of that gardener, who in spite of vibrio, mildew, burning the roots, and so forth, fails to produce them "on demand."

Various articles upon this subject have from time to time appeared in the pages of this Paper, but the descriptions of the affection have been so vague and mixed up with mildew and other causes, that with the exception of the lucid account given by Mr. Ayres, I have not seen any very intelligible case.

Last spring I sent to Dr. Lindley the root of a diseased plant, which he obligingly figured in the *Chronicle*, and which I dare say most Cucumber growers remember. At the same time, the Rev. Mr. Berkeley after examining the affected roots, made some remarks, and figured a small vibrio, which he had found, and to whose presence he thought the affection might be attributable.

After the failure of that crop, I did not use the same pit for Cucumbers again during last year, but another a few yards off. In the first the plants grew in fermenting materials, the atmospheric heat being supplied by hot water pipes. The second pit was heated from tanks in a chamber, and the same soil, a fine maiden loam with leaf mould, which had always answered perfectly before, was used in both cases. Every congenial condition for a successful issue was present—abundant light, heat, and moisture; the result was, that although I failed in the first pit, I succeeded beyond my most sanguine expectations with the second crop, not a trace of the affection appearing; but this season I have lost three successive crops in the first pit, and the roots now sent are from the first plants in the second pit, grown without check, and precisely under the same conditions which so fully succeeded last year. Yesterday I pulled up the plants, of which the one sent is an average sample. It will be seen that the excrescences have not become so large as they were when figured last year.

It is not the least remarkable of the phenomena attending this disease that it should have attacked Mr. Ayres's plants, distant 40 miles from hence, and mine at the same time. My seeds have been from different sources, some from my friend Mr. Ingram, of Windsor; others from Mr. Spencer, of Bowood; others from Bath. The soil has all been from the same source, but has produced both healthy and diseased plants. The hygrometrical conditions have both in the case of success and failure been uniform. The bottom-heat from which the plant sent was taken was 85°. I yesterday discovered what I suppose to be the vibrio of Mr. Berkeley in one of the excrescences.

Believing the subject to be one of singular interest and a phenomenon in the annals of Cucumber culture, I invite the attention of the scientific readers of this Paper to its consideration, and subjoin a few remarks on the prognostics and various phases of the malady. No trace of mischief has been apparent to me until the plants made three or four rough leaves. After that period the leaves do not attain their usual size, and the plants do not form fresh breaks in the usual manner, but appear stunted. Upon examination it is found that

* Trees and their Nature; or the Bud and its Attributes. By Ab. Harvey, M.D. 12mo. Nisbet.

they are not forming roots; but where roots should be forming, round the stems, small granular excrescences are perceived. In a short time the leaves flag in the sun, the edges curl downwards, and their tissues become thickened, brown blotches appear on the surface, and the state of the roots is that of the example sent: all is over. *Henry Bailey, Nuneham, Oxford.* [Our correspondent M. J. B. will have something to say presently on this subject.]

ON FROST SPLITTING.—By Dr. Robert Caspary.

(*Continued from p.* 117.)

I now turn to the consideration of the causes of frost splitting, and in the first place it is necessary to test the different views of the subject entertained by my predecessors.

1. Duhamel and Buffon (Hist. de l'Acad. Roy. de Sciences de Paris, 1737, p. 282) express the opinion that frost clefts occur more "*aux expositions du Nord et du couchant*" than in other directions, because the cold on those sides is more severe. This assertion cannot have been seriously maintained by Duhamel at least, for in the "Physique des Arbres," 1758, p. 346, he states that thay are promoted by an exposure towards the east and north (*levant et nord*). To these partially contradictory statements of Duhamel's, I will oppose the totally different one of Ehrhart, who, in respect of the effects of the frost of 1788-9 in general, and partially also with respect to frost splitting, which he had observed, says, for the country about Herrnhausen, "those trees and shrubs which had been planted on the southern side of the heights suffered more than those on the north side" (Beiträge, vol. v., p. 148). I have been unable to observe the slightest effect of exposition on frost clefts. They do not depend upon any cold coming laterally in any one direction, but upon previous injuries with which they are connected; these are the work of man, and, to me at least, showed no connection with exposition. It is striking that all the trees in which I observed frost clefts were not in the midst of the forest, but near to roads or paths, and consequently more open, as I have everywhere carefully noted. The reason of this is not that trees on the wayside are more exposed to any effect of weather in any particular aspect, but that they are more liable to injuries, not accidental only, but intentional also, for purposes of cultivation. The roads along which frost-split trees occur go in every direction, and in roads with one and the same exposure there are often, in patches as it were, the greatest and most inexplicable differences as to the presence of frost clefts. Thus in the long avenue of Lime trees from the bridge of Charlottenburg to just before the palace, which has everywhere the same exposure, making only a very slight bend, the frost-split trees are mostly in the central portion between the house No. 14 of the Berlin road and the Wilhelmsplatz, although it is precisely this portion which is the most sheltered from the north by the houses; before and after this part there are rarely any frost clefts to be seen.

2. The proposition that certain exposures promote frost splitting is to be distinguished from another one, that the frost clefts show themselves on the tree towards particular points of the compass. Gaudichaud attributes the fissures in the wood, and consequent deep decay which shows itself on the south-west side of an avenue of Horse Chesnuts in the Luxembourg at Paris, a metre and a half above a hedge which runs along it, to the alternating effects of frost by night and thaw by day during the winter. ("Comptes Rendus," 1853, p. 805.) As to his views of the alternation of frost and thaw as a cause of splitting I will return to them presently; I now only speak of the direction of the clefts as to the points of the compass. Gaudichaud also reports that the outer trees of a Poplar plantation near Paris, in a severe winter, had all become frost splitten at the height of 2 metres from the ground to the length of 4 or 5 metres on the south-west side. But as frost clefts are always in connection with some injury, and these injuries are independent of the points of the compass, so they cannot either have been in connection with these points. My observations show that the clefts occur in directions the most varied without distinction, in situations close to each other, and even on the same tree. Probably the frost clefts of which Gaudichaud speaks were all turned in one direction, because the injuries they were connected with, which Gaudichaud did not remark, all lay in that direction; for instance, the boughs of these trees might have been pruned off on that side only, as is often the case in alleys, and these were all in alleys.

3. Gaudichaud deduces the clefts in the abovementioned trees of the Luxembourg from the alternations of frost by night and thaw by day. I myself had formerly remarked that "it is to be inquired whether a thaw might not produce such a contraction of the outer layers of a frozen tree, as that the proportionally greater volume of the still frozen inner layers might cause them to burst." (Bot. Zeit. 1854, p. 702.) I can now give it as a fact in regard to the thaw, that it has nothing to do with the splitting. All the frost clefts I observed burst open during the severest cold, and closed immediately, as I have mentioned above, on the coming on of a thaw.

4. Göppert puts forth the conjecture that frost clefts may be partially produced by the effect of wind and storms when the trees are frozen and consequently brittle. "All those which occur in winter in the axils of the branches I could attribute to the effects of these influences (wind and storms)." Theoretically I have nothing to say against this view; but practically it is certainly very seldom realised. I never saw a frost cleft in the axil of a branch, they were always either under the centre of a stump or a knot, or quite independent of any branch, and I observed hundreds besides those above detailed. That the frost clefts I observed could not have been caused by wind is clear, as well from their position on the thickest firmest lower part of the trunk, as from a reference to the meteorological table, which shows that the wind was never more than 2°, that is to say only strong enough for a little piece of paper let fall from the height of a man to reach the ground at a distance of 6 to 12 feet.

5. As wood, as is well known, easily splits by dryness, so an idea appeared not improbable which some friends expressed to me (as I have already mentioned Bot. Zeit. 1854 p. 702), that the frost clefts are produced by evaporation, whereby the outer layers were reduced in volume and could not resist the expansive force of the inner layers, where no such evaporation had taken place, and which consequently retained their original bulk. But this view is certainly incorrect, as is shown by a glance at the relative moisture of the cold period from the 13th January to the 25th February, as compared to the previous rainy weather in December up to the 13th January. It is true that the relative moisture on the 13th and 15th February at 2 P.M. was only 50 per cent., but no tree burst before the 31st January, and from the 16th January to that time the moisture was so great that it exceeded that of the rainy time of December and the first half of January, and even reached 100 per cent. on the 22d and 23d January, which had never occurred in December or before the 13th January.

6. De Vriese (Some Principles of Vegetable Physiology translated from the Dutch in the *Gardeners' Chronicle*, 1854, p. 597) entertains the opinion that the sap rises in the stems of trees even in winter, and "often causes large trees, the expansion of which is prevented by the cold, to split from top to bottom, and the juice that is taken up streams out through the crevices on the surface." This proposition is in every respect contrary to nature. The following facts disprove it:—1. The thinner stems were, before they burst, frozen to the centre as above shown, and therefore there could have been no ascending current of sap in them. 2. The colder the temperature, the less evaporation, and the less will the sap ascend in leafless trees, even when, the thermometer being above the freezing point, they are not actually frozen; and the attributing to this sap, which must at any rate be very small in quantity and weak in ascending power, force enough to press on the outer layers which are prevented by the cold from expanding so as to burst them, cannot on any ground be justified. 3. No juice flows from the frost clefts when they are first produced, as my observations have proved to me. The flow of juices or gum only takes place in the following spring or summer.

7. In an article of a correspondent of the *Gardeners' Chronicle*, signed "R. E E." (1854, p. 614), which attacks the proposition of de Vriese, another cause is adduced for the frost splitting, which is by far the most popular, and maintained more especially by many gardeners, that the expansion of the sap in the act of freezing causes the splitting of the stem, and that the bursting of the vessels acts a great part in the phenomenon. In exotic annuals and small shrubs in which a remarkable formation of foliaceous ice takes place at the slight frost of 3° R. (25° F.) (Bot. Zeit., 1854, p. 665), it is indeed clear that by the freezing of the sap a disruption of the tissue ensues, in the first place in the layer of cambium and then also in the wood itself, but the ordinary frost clefts of our trees are certainly not produced in this manner. That the vessels in general are not burst by the freezing of the sap has been so often demonstrated, especially by Göppert, that one can only be surprised at the ignorance which would still maintain the contrary, and a refutation would be superfluous. But that in frost splitting the expansion of the freezing sap does not cause the bursting of the stem will be clearly proved by the following considerations. Ice has its greatest bulk at the moment of its formation. According to the researches of Brunner on the density of ice at different degrees of temperature (Poggendorff's Annals, 1845, No. 64, p. 113), the specific weight of ice at — 1° cent. is 0.91812, that of water at 0° (32° Fahr.) being taken as the unity. The ice has thus acquired about $\frac{1}{11}$ in bulk; but as the cold increases, its volume diminishes very considerably, more than that of any other body, even of zinc. Brunner found by the determination of the specific weight of ice at different degrees of temperature that the co-efficient of the linear contraction of ice for every degree centigrade was 0.0000375, or $\frac{1}{26700}$. At — 10° cent. its specific gravity is already 0·91912, and at — 20° cent. it is 0·92025. A similar though not the same result was obtained by Struve (Bulletin de l'Acad. de St. Petersburg, 1845, tom. 4, p. 170), who by another method, that is, by the direct measuring of a cylinder of ice more than 5 feet long on the Neva at different degrees of frost, found that the linear contraction of ice for 80° Reaum. was 0·00530, consequently for one degree centigrade 0·0000520. It is therefore clear, that when a bottle or pipe, or any other closed vessel containing water, does not burst as soon as the water freezes it will not do so at all, because as the frost increases in intensity the ice shrinks more than any other body. Without fear of error we may, therefore, assume in like manner that the watery juice of trees, even though it contain salts and organic matter, will follow the same laws as water in respect of alterations of bulk, that is, that it will acquire its greatest volume at the moment of freezing, and with an increase of frost it will contract. If, therefore, a plant bursts by the freezing of its sap, it must do so at the moment of congelation or not at all. I have shown that the sap of trees freezes at a temperature of from — 1° to — 4° R. (30° to 23° F.) A plant, therefore, whose tissue is broken by the freezing of the sap, must burst at a temperature ranging from — 1° to — 4° (30 to 23°). In those exotic plants mentioned above, in which foliaceous ice had formed, the rupture took place at a temperature of — 30° R. (about 25° F.). But as to the trees I observed, it has been shown that the thinner stems had cooled down to below — 4° (23°), and the sap had been frozen through and through before they burst; the frost splitting did not occur at the time of congelation, but only at a subsequent period at lower temperatures, a clear proof that the freezing of the sap was not the cause of the bursting.

8. Duhamel and Buffon (Hist. de l'Acad. Roy. des Sciences, Paris, 1737, p. 281-2) suggest that the stems are burst by the increase of volume acquired on congelation by a mass of moist decayed wood, or by an accumulation of sap in the interior of the tree. They say, "Il n'est pas douteux que la sève, qui augmente de volume lorsqu'elle vient à géler, peut produire plusieurs de ces gerçures." "Nous avons scié plusieurs arbres attaqués de cette maladie (the frost splitting) et nous avons presque toujours trouvé sous la cicatrice prééminente, un depôt de sève ou du bois pourri." Duhamel says the same in his "Physique des Arbres," 1758, p. 346. Treviranus entertains the same opinion ("Physiologie," vol. ii., p. 701); so also does Göppert to a certain degree, but only in the case of Willows, Nut trees, and others in whose soft pith fluids could easily accumulate. Schübler (1st Dissert. p. 11) sees in the congelation of watery fluids "which older trees often contain in their pith" at least one of the concurrent causes of frost splitting. That this cause may in some instances take place cannot be doubted, especially in old frost clefts and trees with old knots. Gaudichaud ("Comptes Rendus," 1853, p. 801) adduces several cases where deposits of sap had been found in the cavities of old overgrown frost clefts, and where on boring the liquid was squirted far out, even, in the case of a black Poplar, to 2 metres. But it does not follow that on the congelation of this liquid the stem must split; for if the ice finds space enough in the cavity for its expansion, which must be the case in a large frost cleft, or in the cavity under a knot, the stem would then not burst, and to me it is more than doubtful that these accumulations of sap in old frost clefts take place at any other time than in spring and the beginning of summer—at least it is only then that anything flows from them, as I well know from the time of my entomological studies, such liquid exudations from frost clefts being a great rendezvous of wood insects—and it would appear that these liquids are not the sap of the tree, but meteoric water that has found its way in. At any rate it is very rare that the causes so brought forward by Duhamel and Buffon produce frost clefts; I never found an example of it, as I never found any ice in the cavities into the depths of which I could often see most distinctly, and the rotten wood which often covered their sides was always dry without any ice-crystals. If these causes had ever operated upon the trees I observed, the same arguments I used in the last paragraph would prove that in the case of the thin trees they must have burst at a small degree of frost, or at any rate as soon as a temperature of — 4° (23° F.) had penetrated into the interior of the tree. Now as from the 14th to the 20th January—during seven days—the thermometer only once rose to —1° (near 30°), and in most days the maxima were not above —2° (17½°), and by night fell as low as —13° (+2¾°), all the clefts in the thin trees, if occasioned by the congelation of accumulated liquids, must have burst during that period. But during this time not one frost cleft had opened, a striking proof that when they did burst they were not caused by the freezing of accumulated liquids or wet rotten wood alone.

(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CX.

437. Anasarca* (*Dropsy*). It is not intended by these terms, which in conjunction with Hydrops have been used by Meyen, Léveillé and others to denote a particular condition of the tissues of plants, to assert that this condition is at all identical with the affection known under those names in the animal world. There is no disease in the majority of cases of any principal organ or organs causing an extravasation of fluid; but from external causes there is a general accumulation of water in the cellular system, in consequence of which and the attendant stagnation the plant is not properly nourished, the vital energies are impaired, and as a natural consequence of functional derangement organic mischief at last takes place, which is more or less fatal in proportion to the urgency and continuance of the outward conditions.

438. In our last article (436) attention was drawn to the fact that plants may be drowned as effectually as animals. There are, however, conditions of the atmosphere nearly as fatal in many cases as complete immersion in water, if continued long enough. In our own country it frequently happens that long continued

* From ana, through, and σαρξ, the flesh.

rains occur at the time when vegetation is most active. The ground is of course saturated with water, and at the same time the air is charged with moisture, and the intensity of light greatly diminished. Evaporation from the plant is consequently almost at zero, while exhalation is greatly diminished, the result of which is that every part of the plant is thoroughly gorged with moisture. Meanwhile the concentration of the fluids and their proper elaboration and assimilation are much impeded. The formation of cellular tissue, however, does not entirely cease, and as the quantity of nutritive matter is diminished, the cellular tissue formed is weak and unusually penetrated with moisture. In ordinary circumstances much of the energy of vegetation is directed to the strengthening of these walls by the deposit of layer after layer of lining matter, a process which requires a large stock of nutriment mixed up with the fluid sap, or at least a quick and continued supply. Here however it is spent principally upon the multiplication of cells, and from the necessity of keeping the fluid in constant action the formation of cellular tissue is increased in proportion as the strength of the tissue diminishes. Little carbon is fixed owing to the absence of light, and the new shoots are therefore in outward appearance luxuriant and rampant, but destitute of strength, insomuch that if they are able to stand the first winter's cold they are unproductive.

439. The cell walls, however, are not the only parts which suffer. The protoplasm of the cells, from which every part of the plant and all its secretions derive their origin, receiving little from the returning sap, is watery and deficient in carbonaceous and nitrogenous matter, the consequence of which is that but a small quantity of starch, sugar, and other allied substances are separated, the proteinous matters, on the presence of both of which the economical qualities of the plant depend, are more or less deficient, and the produce in consequence is tasteless, scentless, and innutritious, soon perishing from putrescence, combined with the effects of a variety of minute moulds or other fungi. The seed moreover does not ripen at all, or is preserved with difficulty to the proper time of sowing, and then produces starved and chlorotic plants.

440. The effects on long continued moisture are not, however, confined to functional mischief. Where functional disorder exists, organic lesion is sure to follow, and accordingly this anasarcous state is the forerunner of many evils, especially if there be considerable depressure of atmospheric temperature, or much more of the temperature of the soil, which is the inevitable consequence of long-continued saturation. The leaves at length acquire a yellow sickly hue from the want of a proper formation of chlorophyll, they fall off prematurely with or without any previous chlorosis, as is also the case with other articulated organs, as the flower and fruit, or the tissues begin to yield to decomposition, and the fruit therefore rots before it is ripe, spots are formed on the leaves and other succulent plants, the stem becomes cankered, and the foundation is laid of evils which are beyond remedy. Even in winter, when vegetation is more or less dormant, plants suffer from excess of moisture, which induces a low state of vitality from which, though apparently flourishing, they are unable to recover in the ensuing spring. Dr. Lindley, for instance, remarks how much the Rhododendrons, plants naturally loving moisture, suffered from the wet weather of the winter of 1852 and 1853. Much of the spotting of evergreens* in the spring arises doubtless from this cause. As a general rule, when vitality is low plants will not endure excess of moisture, a principle which all cultivators should perpetually keep in mind. After a dormant condition it is well to supply moisture at first with caution. Seeds will often grow better if the soil is not at first saturated with water, and the same may be said of bulbs and tubers after a long voyage, or when they have been kept for some weeks perfectly dry. The same principle will also apply to other plants. Such rules of course are not without exception, but in doubtful cases cautious proceedings are the best.

441. In cultivation in the open air, the only remedy for such a condition is to have the ground well drained so that at least there may be no stagnant moisture, and to keep the branches thin so as to be able to avail themselves as much as possible of what light there is. In the conservatory, and in general under glass, matters are a little more under control; but even there if the temperature and atmosphere be regulated with the greatest nicety, if the roots are placed under unfavourable conditions, it may be impossible to avoid shanking, fruit shedding, and a variety of other evils.

442. Though the conditions above-mentioned do not strictly come within the notion implied by the use of the words dropsy and anasarca in animal pathology, there is a condition of vegetables which bears a closer resemblance to it. Elms, especially, are subject to an affection characterised by an extravasation of fluid, and its accumulation amongst the cellular tissue. In spring, when the ascending force of the sap is very great, where it is not appropriated quickly enough or diminished sufficiently by the action of the leaves, the fluid oozes out of the cells and stagnates more especially between the alburnum or liber, the consequence of which is that both are more or less damaged, and when it finds a vent through some weak place in the bark air is admitted, and active putrescence takes place. *M. J. B.*

* Mr. Ivison, the intelligent gardener at Syon, lately told me that he could induce at pleasure spotting in the leaves of the Coacoa tree (Theobroma) and Mangosteen by an overdose of water either in the soil or air, or by any sudden change of temperature.

Home Correspondence.

The Plane Trees alluded to by Sir W. J. Hooker as growing at this place are of the species that I have always understood to be Platanus orientalis. The largest specimens stand in a part of the domain known as Chart Park, once the residence of a Capt. Cornwall, and celebrated at that time for an extensive collection of trees and shrubs, many of which still remain. The largest of the Plane trees in question measures 11 ft. 5 in. in circumference at 3 feet from the ground, and several others are as much as 9 feet round. Some trees which were cut down several years since have been converted into wainscotting, for which purpose, and for cabinet-making generally, the wood seems to be extremely well adapted, as it bears some resemblance to the foreign production known as "satin-wood." These trees agree with the description of P. orientalis given in the abbreviation of Loudon's "Arboretum Britannicum," but there is no reference to the Deepdene in that edition. A large tree of P. occidentalis is said by Mr. Loudon to have then been growing in the Palace Garden at Lambeth, and if that tree is still living its species might readily be ascertained by examination; for my part, however, I have never seen a large tree of the kind usually called occidentalis. Although the eastern species is a very ornamental tree—both in winter from the peculiar mottled appearance of its bark, and in summer when fully clothed with foliage—its value in that respect is somewhat lessened by its lateness in coming into leaf; in backward seasons I have known it to be nearly midsummer before the leaves were perfectly expanded. *J. B. Whiting, the Deepdene Gardens.*

The Weather in 1855.—The year which has just passed has been a remarkable one. It has been the coldest since 1784 (the years 1795 and 1814 not excepted). The following is a summary of the adopted mean of each month in the year, together with the actual maximum and minimum temperature of the month at this place:—

	Mean.	Max. Temp.	Min. Temp.
	deg.	deg.	deg
January, 1855	31.9	49	13
February "	26 8	45	8
March "	35.6	51	21
April "	43.7	66	25
May "	46.8	77	24
June "	55.0	81	33
July "	60.4	76	44
August "	59.7	76	45
September "	54.1	69	36
October "	49.7	61	32
November "	39.7	51	27
December "	34.2	47	14

It will be seen from this table that every month of the year was more or less below the average temperature, and that the departure from the mean was very large in January, February, March and May, and considerable in June and December. After the great frosts of 1795 and 1814, the ensuing December was unusually mild, as also in 1820, 1823, and 1838. The following is the amount of rain which fell here in 1855:—

January ...	... 0 83 inches	July ...	... 5 54 inches
February ...	... 1.23 "	August ...	... 1 93 "
March ...	... 1 87 "	September ...	... 1.47 "
April ...	... 0.25 "	October ...	... 5.28 "
May ...	... 1.91 "	November ...	... 2.16 "
June ...	... 1.33 "	December ...	... 1.37 "

The total fall was 25.17 inches, of which 10.82 inches fell in July and October. *C. B. N. P., Knebworth, Stevenage, Jan.* 26.

Cooking of Seeds.—I remember well the rise, and I hope I shall soon see the fall of this detestable dishonest practice. About 40 or more years ago it was reckoned one of the secrets of the trade, and mostly confined to the eking out a supply of Cauliflower when it was scarce and of Onion in a "bad year." I remember well being on a visit to a farmer and seed grower in Essex about the above period in the autumn; he was a sharp fellow, and I remember the knowing shake of his head, and his "You will see to-morrow," when I asked why he had so large an accumulation of old Onion seed, not a seed of which he assured me would grow, and which he had been buying at a low price for three or four years! The morrow came, and with it a great man from London, who bought all his old seed, I think 10 or 12 sacks (only think of sacks holding 4 bushels each of Onion seed) at a good price; in those days Onion seed in bad seasons was sometimes 16*s.* per lb. wholesale, and so was worth diluting or "cooking." I think I was told that the new seed of that year although scarce was pretty good, and each pound would bear six ounces of old seed mixed with it. At this period the mixing business was thought a great secret, and was I think confined to the more valuable seeds, such as Cauliflower, rare kinds of Broccoli, and Onion in bad seasons. Indeed, there was no occasion to endavour to increase the profits on seeds, which were then enormous. Early York Cabbage was purchased of the growers at about 9*d.* and 10*d.* per lb., and sold wholesale at 4*s.*, 5*s.*, and 6*s.* per lb. It was some few years after the above period that agricultural seeds, more particularly the Turnip seeds, came largely into consumption, and "cooking" them was soon found to be a profitable speculation. I have heard that very large sums of money were made by those who first did it largely and systematically. I mean by this, they took care not to lose credit with the farmers by putting too large a quantity of dead seed with the genuine, so as for the seed to come up too thinly on the land; the tender consciences of some of these cookers were therefore at rest, because the farmers did not complain, but still it was thorough dishonesty, and those who have made their fortunes by the practice ought to build hospitals or endow schools to expiate their offence. The mode of testing garden seeds as given by you is excellent; nothing can be better, and it will soon put a stop to the practice of mixing old and dead Peas with new and expensive sorts. It is really no joke to give half a crown a quart for some new kind of Pea and to find half a pint rotten and worthless in a few days after sowing. The testing of agricultural seeds seems to me to require something more than what you have recommended. Farmers do not like trifling operations; rather than count 100 seeds and sow them in a flower pot under glass, they would run the risk of losing a crop. Let testing of seeds be made a business, and a market gardener in a small way of business, such a man we will say as Mr. Cuthill, of Camberwell, make himself a "seed tester." One for the three kingdoms will be enough, and London as the centre the most convenient place, and let the farmers send samples of their seeds to him to be tested in the following manner. We will suppose a farmer to have received his Clover seed for the season, and two or three varieties of Turnips; instead of troubling himself to count out 100 seeds of each and sow them, let him send a small packet of each to the tester, with, we will say, 12 stamps for each in prepayment. The packets may be named or numbered thus:—

No. 1. Skirving's Swede from Messrs. A.
" 2. Skirving's Swede from Messrs. B.
" 3. Clover from Messrs. C.
" 4. Italian Rye-grass from Messrs. D.

This catalogue must be kept by the farmer, and the packets only numbered, and then on their being properly tested the tester writes to his employer.

No. 1. 80 seeds out of 100 grew.
" 2. 60 " " "
" 3. 75 " " "
" 4. 50 " " "

Sending packets with their names in full will of course do as well, but the numbering will spare much writing, and as it will not perhaps be quite agreeable for a farmer living near the country house of his seedsman to send his name, he may sign his letter and have his reply from the tester sent to "A. B., Post office, Birmingham," or as it may be; depend upon it this systematic testing will rejoice the hearts of the honest seedsmen, and make the cookers "shake in their shoes." When we had seed-shops and seedsmen we got along pretty well, but with our "seed-merchants" and "seed establishments," seeds have not prospered; there is yet another move to make "seed professors" and "seed institutions." Why not? *An Old Shopman.*

Oak Apples.—Permit me to call the attention of naturalists to the immense number of these excrescences in the neighbourhood of Exeter. Every Oak and also the underwood of this timber tree is now (February) literally covered. Could they not be useful for tanning purposes? *V.*

Cure for Damp Walls.—It is said (and in some cases where it has been tried it has been found successful) that if a damp wall is washed over on the outside with sulphuric acid and water in the proportion of one to six it will not after such dressing show any symptoms of damp. What is the change that takes place in the brick, and in what cases is such an application likely to be of benefit? If you or any of your correspondents could answer this question I would feel obliged. *J. L. B.* [We are quite unacquainted with any such method as that described.]

British Oaks.—I perceive that there is a tendency to believe that the Quercus sessiliflora is distinct from the Q. pedunculata. May I request that such of your readers as have attended to the botanical differences between them will send a note of the results arrived at to the *Chronicle* for publication. I had been led to think that no permanent characters could be found for their separation; but from the recent remarks of the Editor and his correspondents, I am prepared to be convinced of the error of such a conclusion. *C. C. Babington.*——The following distinctive marks will be found pretty correct—Quercus pedunculata: common British Oak and White Oak.—Acorns generally single, in twos or threes; fruit-stalks long. Leaves green, very deeply sinuate, short and set-like; foot-stalks very short, almost wanting, and of a reddish-green colour. Buds small and not prominent. Branches tortuous and spreading. Tree assumes a rather set and unhealthy appearance. Quercus sessiliflora: Bay Oak, Chesnut Oak, Durmast Oak, and Red Oak.—Acorns generally in clusters; fruit-stalks very short. Leaves green, glossy and shining, deeply sinuate; foot-stalks very long, and of a yellowish-green colour. Buds large and prominent. Branches upright. Tree assumes a robust and healthy appearance. *Sessilis Rinefield.*

Flavourless Pine Apples.—Can you tell me why my Pine Apples are so flavourless? They are well grown, handsome fruit, and the flesh is of first-rate texture and quite sound, but it has no flavour whatever; in fact it is sour. I have been cutting Pines all winter, and have not been out a fortnight until now. I will cut again in the course of three weeks or so. They look to all appearance as well as plants could possibly look, being green as Leeks and stout to the base, but still the fruit, as I have stated, has no flavour. The sorts I have been cutting this winter consisted of Queens, Ripley Queens,

Black Jamaicas, smooth-leaved Cyanes, and Envilles. What can be the cause of want of flavour in them? *P. P.* [Too much water, too little heat, too little sun, very little air. Are not these four your enemies, all or some of them?]

Disease in Spinach.—Our winter Spinach here has gone off in the same way as that described by "Quercus." The cause of the evil in my opinion is over rich soil; the ground on which my Spinach was sown was heavily covered with mould from a not very old Vinery border, and not a plant is now left, whereas a neighbour, not a mile off, had his sown on rather poor light land, and he has had no disease; on the contrary, his Spinach has been as healthy and good as it could possibly be. *Colo.*

Reproduction of Ferns.—You ask me what the ciliated spiral filaments described by "R. E." in worms are. Now, I would much rather throw the proof of their real nature upon "R. E." Mr. Antherid is, however, most certainly not a worm or an animal organism, notwithstanding his activity as a swimmer in water. I need not say that ciliary motion is no proof of this, or indeed motion without cilia, or else Desmidiaceæ and Diatomaceæ would have an equal claim to be retained in the list of animal structures. The independent life of spermatozoids in animals is now abandoned by the best physiologists; *a fortiori*, such an existence must be denied to those of vegetables. The little coiled up spiral ciliated filament which, under the name of Mr. Antherid, produces such wonderful effects when introduced through the canal of the archegone to the embryo cell in the prothallium of Ferns is surely a simple cell, which by means of its little hair-like appendages finds its way to another cell, and thus produces a new plant, just as the pollen tubes find their way to the ovules of flowering plants. Wonderful as is the process, and beautiful as is the design which it exhibits, it is not more so than the reproduction of the Diatomaceæ by conjugation. The wonder would be great indeed were we to believe that this was done by a worm, or by anything even analogous to a worm having an existence more independent than that of a simple cell. I hope "R. E." will not consider me hypercritical. I am anxious that the excellent information contained in your Journal should not convey wrong impressions, and I am sure you will agree with me that nothing could be more erroneous than the idea which I think most casual readers would obtain from "R. E.'s" description. *C. R. Bree, Stricklands, Feb.* 25. [Worm = anything which penetrates gradually—whence to worm. Not necessarily an animal; it might be a bit of steel. See lexicographers *passim. R. E.*]

Adulteration of Seeds.—Your remarks on this subject have recalled to my mind a case somewhat in point. A certain celebrated nurseryman sent out packets of seeds of a new and beautiful flower which he had imported, at — per packet. One day a gentleman told the nurseryman that he could or did buy packets of the same seed of another party at a considerably less price per packet. Judge, therefore, of the gentleman's surprise when the nurseryman told him that all the seed of that particular flower imported to this country was first in his hands, and that in sending it out he had not lessened the price to any one. How the other party was enabled to sell at a reduced price and yet obtain a profit, the sticklers for cheap seeds and the patrons of puffing, after perusing your observations on the subject, will not be at a loss to guess. *Henricus.*

Societies.

HORTICULTURAL, *Feb.* 26.—The Rev. L. Vernon Harcourt in the chair. Viscount De Vesci, J. Clutton, Esq., and W. Potts, jun., Esq., were elected Fellows. Several very fine specimens of Orchids were contributed by Messrs. Rollisson, of Tooting. Among them were the Madagascar Angræcum eburneum, Dendrobium speciosum, a species which at one time nobody could flower; various kinds of Vandas, a Phalænopsis, an Acacia, and a handsome example of the double flowered Chinese Plum. From Mr. Forsyth, gr. to Baron Rothschild, were two noble plants of Phaius grandiflorus, Medinilla magnifica, and Boronia pinnata. Beautifully bloomed Hyacinths were shown by Mr. Cutbush, of Highgate, and a collection not so well flowered by Mr. Rosher, of St. John's Wood; from Mr. Crockford came Chinese Primulas. Messrs. Veitch contributed a handsome new Corræa raised from Australian seeds, a white-flowered Cinchonaceous plant, a small bit of Streptocarpus polyantha, apparently a free flowering kind, and a very fine-looking Rhododendron (purple with dark spots on the upper petals) which was stated to force well. The same eminent nurserymen also sent several well grown and finely bloomed specimens of Epacris. Messrs. E. G. Henderson produced a novelty in the shape of Eucharis grandiflora, a plant with large striking snow-white flowers (see our page 804 in the volume for 1855). From the Society's garden came a collection of plants, among which were the useful winter flowering Thyrsacanthus Schomburgki *aliàs* rutilans of gardens, Hakea acicularis, a very free flowering species of this little cultivated genus; the large variety of Mignonette called Reseda grandiflora, which is much more vigorous and quite as sweet-scented as the common kind; the Crimean Snowdrop (Galanthus plicatus) gathered on the heights of Sebastopol by Col. Munro; also Dr. Fischer's Snowdrop of the same name, which is somewhat different from that of Col. Munro; and Forsythia viridissima, a hardy shrub, but whose flowers require a little protection to have them in perfection. Pears in good condition were exhibited, which had been ripened on trees in pots in the Society's orchard house. Cuttings of fruit trees were distributed. Some observations on grafting were made on this occasion by the Vice-Secretary. He began by stating that grafting often occurs naturally, as is instanced by branches, fruits, and even petals of flowers in close contact, and under certain conditions growing together, and went on to show that such accidents had doubtless led to effecting the same thing artificially. It is in reality, he said, the property of all living vegetable tissues to form permanent adhesions under certain circumstances. *Very young* or nascent tissue may be made to grow together with facility, as is exemplified in practice by what is called herbaceous grafting. Ripe tissues were next alluded to; but even in the case of these it was shown that a union could only be effected by bringing into contact nascent matter which practically consists in fitting the line of the cambium in the stock neatly to that of the scion, or in other words fitting the two together exactly. If this manipulation was not effected skilfully the union, it was stated, would be imperfect, as would also be the case if the stock was broader than the scion. It was mentioned that some believe that the scion sends down wood into the stock, but that this theory was attended by many difficulties. The point had been illustrated by Dr. Maclean, of Colchester, who grafted a yellow Beet on a red one; when the two were split down the middle after they had been united it was found that the yellow Beet still remained yellow, and that the red kind on which it was grafted still remained red. In this case there was no blending together of the tissues; the two varieties kept quite distinct. Cellular tissue, it was stated, would not unite with wood, nor wood with wood; with unskilful operators and the employment of unsuitable stocks bad joints were therefore of frequent occurrence. Although the scion was not of the same nature as the stock, there might be adhesion; but the line of separation between the two would always remain distinct, and in bad cases it not unfrequently happened that the two parted company across the line of union. Nevertheless when stock and scion were alike in kind and constitution, as when a Pear is grafted on a Pear, and the workmanship well performed all traces of their having been grafted disappeared. It was stated that under proper conditions adhesions might therefore be permanent and perfect, and that grafting might result in as complete a plant as any seedling. Of this various proofs were produced. It was shown, however, that adhesions might be temporary either from bad workmanship or from want of consanguinity. The ancients, it was stated, were of opinion that Apples would grow on Plane trees, and Beechmast on Chesnuts; but it was explained that this was a mistake, and that no permanent union could take place unless stock and scion had the same constitution. Sometimes durable unions might be effected, as was instanced in the case of Pears on Quinces and Peaches on Plums; but they were not permanent. Evergreen trees, it was stated, did not succeed on deciduous ones, in illustration of which an example of Quercus Turneri worked on the common Oak was produced; the evergreen in this case had grown for 13 or 14 years, but was now dead, while the stock was alive and throwing out suckers. Similar cases with nearly as bad results were also before the meeting. But what, it was asked, is "the same constitution?" Peaches take on Plums, although constitutionally unlike; but what is very curious French Peaches which take freely on the Pear Plum, dislike the Muscle Plum, and other examples of the same kind were brought forward. It was stated to be far easier to say what was not the same in constitution. The Cedar of Lebanon, for instance, would not long agree with a Larch, nor the Medlar with the Whitethorn, or the purple Cytisus with the Laburnum. In general the following conclusions might be drawn:—1. A scion will always form a perfect and permanent union with its stock if both are from the same individual. 2. A scion will generally form a perfect and permanent union with its stock if one is a mere variety of the other. 3. A durable, but not permanent union may be effected when one species of a genus is worked on another species. 4. No union either durable or permanent can be expected when stock and scion are widely different. 5. Bad workmanship will render any kind of grafting perishable. Grafted plants, then, are not necessarily worse than seedlings! A letter from a Fellow of the Society was read to show that in the case of Rhododendrons at least they were. Examples in the shape of grafted Rhododendrons, apparently proving the contrary, were, however, produced by Messrs. Standish and Noble. It was, nevertheless, universally admitted that except the stock and scion were identical in their natures plants thus increased were not so good as seedlings. Both reason and experience therefore showed that everything depended on the consanguinity of the stock and scion, and that what is wanted is not to have new methods of grafting invented, but to know more about consanguinity. Mr. Glendinning objected to the statement that evergreen Oaks did not live long on deciduous ones, and pointed to the fact that in Devonshire the Lucombe Oak worked on Quercus Cerris had attained the size and age of timber trees. The room was plentifully supplied with specimens of grafted plants from Messrs. Standish and Noble of Bagshot, Veitch and Son of Chelsea and Exeter, Masters of Canterbury, Osborne of Fulham, Rivers of Sawbridgeworth, and from the garden of the Society.

Notices of Books.

British Rural Sports. By Stonehenge. (Routledge.) This is a solid, closely printed 12mo. volume of 720 pages, with a good index. We give the author's own account of its contents:—

"In the following *Manual of British Rural Sports*, the first part treats of 'The Pursuit of Wild Animals for Sport,' comprehending Shooting—Hunting—Coursing—Falconry—and Fishing. Part the second embraces an account of 'Racing in all its branches,' viz., Flat racing — Hurdle-racing — Steeplechasing — Riding to Hounds — Trotting-matches—Yachting—Boat-racing—and Pedestrianism; while the third extends over the following long list, viz, Cricket—Foot-ball—Fives—Bowling — Tennis — Curling — Golfing — Swimming—Skating—Horsemanship—and Driving. And, lastly, the fourth and fifth parts are devoted to such a description of the Anatomy, Physiology, and Diseases of the Dog and Horse as may enable the sportsman to preserve their health, or to relieve any of the more ordinary deviations from it. In this enumeration, Pugilism, Cock-fighting, Bull and Badger-baiting are omitted, as being contrary to the laws of the land; and, to the best of my judgment, nothing is inserted which can injure the morals, or destroy that gentlemanly feeling which it should be the object of every true sportsman to encourage."

For our own parts let us add that all which we have examined has proved to be well done, and that this enumeration of contents is not only no overstatement, but really less than we should have made ourselves. How sound is the author's advice may be learned from the following remarks upon rifles, in which justice is done to Lancaster's, which are unrivalled for accuracy of fire combined with facility of loading:—

"In the choice of the rifle much consideration should now be given; for the recent improvements introduced by Colonel Colt and Mr. Lancaster have effected quite a revolution in its form and powers. Under the old *régime*, a rifle was considered first-rate which would in a calm day kill at 150 or 200 yards; and a chance made shot at 300 yards was a feat to be never forgotten. But by Mr. Lancaster's invention the windage of the ball is greatly reduced, while it is carried much further in consequence of its increased weight, and the ingenious discovery and adaption of the principle, that the axis of its rotation should be in the same line with the axis of its flight, and not at right angles to it, as formerly. The theory of this is clear enough, and is very beautifully acted upon by Mr. Lancaster. It is quite manifest that if a circular ball is rapidly revolving round its axis at right angles to its course, the friction must be enormously increased, and as a consequence its flight must be retarded in proportion. To obviate this defect, Mr. Lancaster calculated that all the revolution which is necessary for straight shooting is about once in 11 feet, and that all beyond that should be avoided. He therefore made his barrels one quarter of that length, or 2 feet 9 inches, exclusive of the chamber in the breech, being 2 feet 10 inches in all. This length is worked so that the rifle groove shall describe one quarter of a revolution, or, in other words, so that each groove shall commence at the breech on one side, and end at the muzzle on the top or bottom—that is to say, the side next to where it began. [This is rather obscurely stated. The spiral oval of the bore makes a quarter of a turn between the breech and muzzle, and the spire has a geometrically increasing curve.] Consequently this formation communicates such a slow revolving tendency to the ball, that on leaving the muzzle it goes on with the same kind and velocity of revolution, working its way like a corkscrew through the air, but like one with a very open and long worm. The barrel being thus formed, the ball is also made to suit it, being at the least one ounce in weight, and cylindrical in form, with a sharp cone at the one end and a segment of a circle at the other—sometimes, as in the Minié rifle, forming a deep cup with a thin edge, which expands and fills up the groove, and thus increases the force and accuracy of its flight, without requiring any great pressure of the ramrod. It is true that theory and practice do not always agree, but in this instance they appear to harmonise in a remarkable manner, for, on trial, it is found that Mr. Lancaster's rifle will carry, point blank, from one half as far again to twice as far as the old ones; and will also carry, with the proper allowances, four or five times as far. I should therefore unhesitatingly select a rifle on his principle, with the common conical ball, or that of the Minié rifle."

We entertain no doubt that Lancaster's smooth-bored rifles will speedily and entirely supersede the old grooved patterns, unless indeed the two-grooved should prove an exception; for his possess as much absolute certainty of aim as is attainable, and can be loaded as often without cleaning and as easily as a fowling piece. A musket on this principle has been fired 160 times with greased cartridges without becoming fouled inside the barrel.

Sylloge generum specierumque Cryptogamarum quas in variis operibus descriptas iconibusque illustratas, nunc ad diagnosin reductas, nonnullasque novas interjectas ordine systematico disposuit, C. Montagne, D.M., &c. Paris, 1855; 8vo., pp. xxiv. & 498.

THIS very useful volume is a digest of all the descriptive papers which the author has published in a vast variety of journals, voyages, &c., and which are so widely scattered, and often in books of such costly price

as to make them inaccessible to a large portion of the scientific world. Characters are given of 1361 species of Cryptogamic plants, far the greater part of which were first published by the author, and copious indices are added, which make the whole at once available for study and for the arrangement of the herbarium. Valuable notes are here and there inserted, errors corrected, the nomenclature amended, and the whole arranged according to the latest improvements in this branch of science. Even to persons in possession of all the works in which the species are described, or of the separate papers, the volume is a welcome boon, and those who are interested in this branch of Botany will do well to purchase it. To the more accomplished Cryptogamist it is quite indispensable.

Miscellaneous.

The Purification of Sugar by Ants.—If the juice of the Sugar-cane — the common syrup as expressed by the mill—be exposed to the air it gradually evaporates, yielding a light brown residue, like the ordinary muscovado sugar of the best quality. If not protected it is presently attacked by ants, and in a short time is, as it were, converted into white crystalline sugar, the ants having refined it by removing the darker portion, probably preferring that part from its containing azotised matter. The negroes, I may remark, prefer brown sugar to white; they say its sweetening power is greater; no doubt its nourishing quality is greater, and therefore as an article of diet deserving of preference. In refining sugar, as in refining salt (coarse bay salt containing a little iodine), an error may be committed in abstracting matter designed by nature for a useful purpose. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Orange trees in tubs or pots should be carefully examined in order to ascertain whether or not their roots are in a healthy state, and those requiring more space should be shifted at once; but in many instances it may not be possible to afford large specimens a shift. In this case remove as much of the surface soil as can be done without greatly injuring the roots, and replace it with a mixture of good loamy turf, broken bones, decayed cow-dung and sand, and see that the balls of the plants are in a moist healthy condition. Strong manure water is of great service to these, and may be applied freely at all seasons, particularly now when the trees will be starting into growth. It is quite impossible to use the syringe to advantage in many conservatories, and under such circumstances the flowering plants should be removed to one end of the house, and the twiners, &c., given a liberal washing with the engine, which will also greatly assist in keeping the glass, &c., clean. This should be done before the twiners start into growth, as there will be no danger of injuring the tender foliage while they are in a dormant state. Be satisfied with a rather low temperature for the present, and give air freely on fine days, endeavouring to avoid cold drying currents as much as possible. Attend to keeping up a supply of Roses, Azaleas, and other things requiring to be brought forward in a gentle heat, and persevere in the destruction of insects. Stove plants in active growth will require much attention in order to properly direct their energies and keep them perfectly clear of insects, &c. Give a little weak manure-water to such things as Allamandas, Clerodendrons, &c., if in free growth, and multitudes of stove plants will be benefited by the same treatment. Do not neglect the old but beautiful and useful Lisianthus. Keep the plants growing as freely as a moist high temperature, plenty of pot room, manure-water, a rich open compost, and all the light possible will effect, and get in seed at once, so as to insure a supply of plants for next season. Keep up a free circulation of air on every favourable opportunity, in order to induce a sturdy habit of growth. Water freely, but cautiously, especially in the case of recently potted specimens.

FORCING DEPARTMENT.

Pinery.—Succession plants should not be allowed to get too dry at the root, as this would probably throw them prematurely into fruit. In re-potting these, if a plant is found too dry it should be set aside and well watered, so as to get the soil in a moist healthy state before shifting. And where the plants are growing in the open bed the soil should be carefully examined to a sufficient depth, and if it is found to be over dry, water as often as necessary with tepid water to thoroughly moisten the mass, allowing two or three days between each application. Maintain a moist atmosphere, and shut up early in the afternoon, allowing the glass to rise to 80°; but do not exceed 60° at night. Vineries.—Proceed with thinning the berries whenever the crop is sufficiently advanced to allow of this being done. Stop laterals, tie in young shoots, &c., and keep everything neat and orderly. Maintain a steady night temperature as near 65° as possible; give air freely on fine days, taking care to open all the ventilators a little, and endeavour to avoid cold currents. See that the buds in the late house are not excited by the present mild weather; keep the house cool. Watch narrowly for red spider in the early Vinery and in the forcing houses generally, and should it be detected anywhere lose no time in washing the infested leaves and those around them, using a soft sponge and clean water with a little soap. This may appear a tedious process, but if the enemy is taken in time it will be more easily eradicated by these means than any other. Figs.—Keep the shoots thin so as to expose the foliage to light and air, and persevere in the use of the syringe to prevent red spider. Give air freely on bright days, shutting early in the afternoon after syringing the house. Peaches.—Proceed gradually with the disbudding of the early house, and where the fruit is very thick a portion of these should be removed as soon as they are fairly set; but the Peach is liable to drop until after stoning, and this must be borne in mind, and plenty left to allow of a few falling. Maintain a steady heat to Cucumbers of 65° or 70° at night, and allow it to rise 10° or 15° with sun heat. Give air on every possible opportunity; but be very careful of cold draughts, which would ruin the tender foliage. Stop the Vines and keep them thin and regularly disposed over the trellis so as to expose them to light and air. Attend carefully to the early Melon plants, and regulate the temperature according to the amount of sunshine, taking care not to get the Vines weak and long-jointed through a high close temperature, for if this state is induced it will be difficult to secure either an early or abundant crop. Do not omit putting in seeds of some of the finer kinds for succession crops. The Bromham Hall is an excellent variety, probably not surpassed as a hardy fruitful high-flavoured kind.

FLOWER GARDEN AND SHRUBBERIES.

Finish removing shrubs where not already done as soon as possible, and lose no time in getting alterations involving the relaying or putting down of fresh turf completed, for it is a great saving of after attention and labour to get this kind of work finished before drying winds set in. If not previously done get pillar Roses trimmed and tied, and where wooden stakes are used for their support get them examined carefully, letting none be left that are not likely to last the season; for it is extremely inconvenient to replace them after the plants have begun to ramble about. It is a good plan to give pillar Roses a liberal supply of manure-water when it can be conveniently obtained, or a dressing of solid manure may answer the same purpose. A stimulus of this kind will be found of great service in inducing vigorous growth and a fine display of flowers.

HARDY FRUIT AND KITCHEN GARDEN.

Get the pruning and nailing of all fruit trees finished with the least possible delay, and if any planting still remains to be done this should be completed at once. Do not, as is sometimes done, over-manure the ground about to be planted; for it is a great mistake to induce the production of gross long-jointed wood in any stage of the existence of a fruit tree; wood of this description never gets thoroughly ripened, and in the case of stone fruits, gum, canker, and the premature death of the tree is sometimes the result; and in the case of Pears anything deserving the name of a crop is never obtained till the gross habit induced by planting in over rich soils is overcome. Ground intended for fruit trees should first be drained, which should be done efficiently and then trenched to the depth of 2 feet. And if the natural soil is found to be too poor for the health and growth of the trees a sufficient quantity of fresh turfy loam should be added, but rich stimulating manures should not be used, for they are soon exhausted, and the trees are left to depend upon the natural soil for their support, and when treated in this way never give satisfaction. Trees infested with moss or lichen should have their stems, &c., scraped, and be painted with a composition of lime, soot, and cow-dung, mixed with soap-suds to the consistence of thick paint, carefully working the mixture into the crevices of the bark, in order to bury American blight or other insects which may be lurking there. Take advantage of the first fine day, with the ground in working order, to get in the main crop of Onions. The old practice of sowing broadcast must be given up, as being too expensive to clean and thin the crop. Select a piece of deep land in good condition, and if the surface is not naturally firm render it so before sowing by treading or rolling.

COTTAGER'S GARDEN.

Where not already done the main crop of Potatoes should be planted as soon as ever the state of the ground will admit of it. In the still uncertain state of this crop the cottager should not plant a great breadth, and should use only early sorts; for notwithstanding that the Potato is to the cottager the most useful of all vegetables, yet when a third or fourth of a crop cannot be depended on, the ground may be more profitably occupied. By planting early and only early kinds, and this on light and not over rich soil, there will be a good chance of the crop being pretty well matured before the period when disease has usually commenced its ravages. See that a bed is prepared for Onions, and also that every spare bit of ground is manured and turned over.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Feb. 28, 1856, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 22	16	30.047	29.976	43	27	35.0	39	42½	N.W.	.01
Satur. 23	17	30.229	30.017	50	27	38.5	41	42	N.	.00
Sunday 24	18	30.428	30.362	50	25	37.5	41	42	S.W.	.00
Mon. 25	19	30.467	30.406	47	41	44.0	42	42½	S.W.	.10
Tues. 26	20	30.369	30.314	57	45	51.0	42	42½	W.	.01
Wed. 27	21	30.473	30.394	51	42	46.5	45	43	N.W.	.00
Thurs. 28	22	30.483	30.463	49	36	42.5	44	43½	N.	.01
Average		30.361	30.276	49.5	34.7	42.1	42.0	42.5		.03

Feb. 22—Cloudy; overcast; slight rain.
— 23—Fine throughout; cloudy at night.
— 24—Fine; overcast; clear and frosty at night.
— 25—Overcast throughout.
— 26—Uniformly overcast; cloudy; slight rain.
— 27—Overcast; cloudy; slight drizzle, cloudy.

Mean temperature of the week 1¼ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending March 8, 1856.

March.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	2	49.2	36.0	42.6	11	0.45 in	3	3	3	—	3	10	[illegible]	[illegible]
Mon.	3	49.5	33.0	41.2	13	0.28	2	5	3	1	3	8	6	[illegible]
Tues.	4	49.1	31.9	40.5	10	0.48	3	8	1	3	3	6	5	1
Wed.	5	48.2	31.3	39.7	9	0.10	2	6	3	2	4	7	4	[illegible]
Thurs.	6	48.0	32.0	40.0	10	0.26	1	8	3	1	2	5	4	5
Friday	7	49.1	32.5	40.8	11	0.11	3	5	4	1	4	8	3	[illegible]
Satur.	8	49.7	32.5	41.1	10	0.17	3	7	3	—	5	5	2	[illegible]

The highest temperature during the above period occurred on the 7th, and 8th, 1841 and 8th, 1826—therm. 61 deg.; and the lowest on the 4th, 1852—therm. 15 deg.

Notices to Correspondents.

Apple Trees: *A H.* They ought not to be manured at all. If soil is naturally good, not over heavy, and well drained, they do perfectly well; and they will not thrive in any other. If for any cause unknown to us they must have manure, then it should not be such as contains much nitrogen. A gardener would use an old exhausted Cucumber bed. There are no experiments, that we know of, as to the use of saline substances for the Apple tree. If used at all it should be in March, before the trees begin to form their new roots.

Berberis asiatica: *P P.* It grows fast and makes a very strong fence; but it is apt to lose leaves near the bottom and so become naked and unsightly, on which account it should not be pruned. If, however, unpruned it will require at least 6 feet of breadth in which to grow.

Crickets; *A B.* states that for the last six months his kitchen, which is not under ground, has been infested with these pests, and inquires if some of our correspondents would kindly inform him of the best way of getting rid of them.

Gas-water: *D K.* This varies so much in strength that no rule can be given for diluting it with water. Mix it with twice its own quantity of water. It will not kill your Grass—although it may make it brown.

Heating: *Delta Iota.* Peat and sand is a good mixture. Finely sifted coal cinders are better. We should not use bark in preference, though there is no objection to it. The chamber ought to work well, if the water in the pipes circulates freely and heats fully.

Insects: *W R.* Your Rose snags have been bored into by a very minute black caterpillar of some little moth (Tortrix sp.) which has spun there for itself a white silken bag, within which it has slept through the winter, and from which it will shortly make its escape and burrow into the young buds; so that you must cut off and burn all the ends of the twigs which show the little aperture of the burrow. *W.*

Money: *W H.* Provided you invest it in *Government*, not foreign, securities you cannot be far wrong. Your master's banker will be your best adviser.

Names of Fruits: *F.* 3, Sweeney Nonpareil; 9, Baxter's Pearmain; 11, Ross Nonpareil; 16, Alexander; q., probably Coe's Golden Drop.—*M R C.* 1, Court Pendu Plat; 2, Blenheim Pippin; 3, Dumelow's Seedling; 5, Golden Russet; 7, Syke House Russet; 2, Kirk's Lord Nelson; 10, Rhode Island Greening.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R W.* No. 2 is the Pinaster; the others cannot be named from specimens so small without cones. No. 1 looks *like* a morsel of Pinaster growing badly. No. 3 *may* be a Stone Pine, but it is very doubtful.—*H.* It looks like a morsel of Limnanthes Douglasi; but we cannot venture to name positively a piece or two of some very common looking leaf and nothing more.—*A B C.* The red dots are Tubercularia vulgaris; the green is Lepraria viridis.

Oil-cake: *J C.* We have no experience in the matter. The presence of other seeds ought to be determinable without difficulty, nor do we suppose their identification to be impossible to persons having the necessary knowledge.

Painted Plant Supports: *J C.* The very little green paint that may happen to rub off your flower stakes will not injure the roots of your plants.‡

Pea leaf Soup: *J H H.* We have understood that some common garden Pea was used. Experiment would show which is the best. Try Knight's Marrow or some large sort. It is obvious that the Peas must be grown with *free* access to air as well as light. The point is to get into the young Pea plants the peculiar flavour of the seed. Of course the Peas when in the hands of the cook must be reduced to pulp, like Spinach, and passed through a tammy before being used for flavouring. Probably Sugar was added to bring out the flavour. We are not at liberty to mention names; but a visitor at the house in question assured us the other day that he had often tasted this soup, and found it excellent. We dare say however that most of our vile English cooks would contrive to spoil it.

Pine Cones: *T S P.* Place them on their point, and drive a stout iron pin or nail downwards from the base to the point, passing *through the axis.* If this is skilfully done the scales will be forced asunder without injury to the seeds. Sow the seeds now in a cool Cucumber bed, in pure loam, and as soon as they are fairly up remove them to any *airy* place where there is no artificial heat. We doubt whether Stone Pines will *thrive* so far north as Windermere, unless in some very sheltered nook.

Roses: *F F W.* Cuttings of Hybrid Perpetual and Hybrid China strike freely and make good plants. They may be taken at any time when ripe and planted in a border with a north aspect, or if shaded in any other situation. When rooted they may be potted, introduced into heat in the winter or early spring, and they will soon produce flowers.‡

Vinery: *A Novice.* If you plant your Vines under the rafter with the roots next the front wall all the interior will be available for something or other. E. g. Rhubarb, Asparagus, and Sea-kale—forcing, Strawberries, French Beans, winter protection, &c. We should plant the roots inside the house, opposite arches through the wall into the front border. The roots will then penetrate in all directions, some inside, some outside. Since your houses are very small a border 6 feet wide would do, though 12 feet are much better. Let it slope well to the south, be dry, well made, and not trodden upon. Say a foot or 18 inches above the ground level, and 2½ feet deep altogether. You will observe that we propose no *border* inside the house. The ordinary soil, if good, is quite enough.

Woodlice in Mushroom Houses: *Ignoramus.* Trap them with dry Bean stalks or plants with similar hollow stems, into which they creep, and may be caught and destroyed. Or you might try the effect of watering round the sides of the bed with boiling water, but take care that as little of it as possible is poured on the bed or it will kill the Mushrooms.‡

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Directors.

Charles Curling, Esq., Davis Wharf, Southwark; and Clapham Common, Surrey.
Josias Nottidge, Esq., Chemical Works, Locksfields, London; and Bocking Hall, Essex.
Joseph Odling, Esq., Castelnau, Barnes, Surrey.
With three other Directors to be chosen from the Shareholders.

Bankers—The Bank of London.

Solicitors—Messrs. Batty & Whitehouse, 26, Charles Street, St. James's Square.

Consulting Chemist.

Dr. Odling, Professor of Practical Chemistry, Guy's Hospital.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

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J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
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NEW TWINE NETTING, Tanned if required 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

THE CENTRAL FARMERS' CLUB,
FOUNDED 1843.

COMMITTEE FOR 1856.

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Baker, R., Writtle, Essex
Barthropp, N. G., Cretingham, Suffolk
Beadell, Jas., Broomfield Lodge, Essex
Bennett, W., Cambridge
Bradshaw, J., Knole, Guildford
Burton, E. B., Hitchin
Caparn, R., Holbeach
Carter, J., 65, South Molton St.
Cheffins, William, 62, Moorgate Street, City
Crosskill, W., Beverley, Yorkshire
Coussmaker, L. A., Westwood, Farnham
Gale, R. C., Winchester
Granger, T. W., Stretham Grange, Ely
Gray, Wm., Courteen Hall, Northampton
Howard, J., Bedford
Johnson, C. W., Waldronhurst, Croydon
Mechi, J. J., Tiptree Hall, Essex
Nesbit, J. C., 39, Kennington Lane
Oakley, J., 60, Doughty Street, London
Odams, J., 35, Leadenhall St., London
Owen, T., Clapton, Hungerford
Pain, J., Felmersham, Bedford
Pain, W., Newbury
Pawlett, T. E., Beestone, Biggleswade
Shearer, B. P., Swanmore House, Bishop's Waltham
Sidney, S., St. Mary's Road, Peckham
Skelton, S., Sutton Bridge, Wisbeach
Slatter, W., Stratton, Cirencester
Smith, J., Springfield Lodge, Rye
Smith, R., Emmet's Grange, South Molton
Spearing, J. B., Moulsford, Wallingford
Spearing, W., Chilbolton, Stockbridge
Thomas, John, Bletsoe
Trethewy, H., Silsoe, Beds.
Tyler, John, Leyton, Essex
Wallis, O., Overstone Grange, Northampton
Ward, B. E., Drayton, Rockingham
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Webster, W. B., Weston-super-Mare
Williams, J. A., Baydon, Hungerford

Secretary.—HENRY CORBET.

EXTRACT FROM REPORT OF SPECIAL COMMITTEE.

"The Central Farmers' Club has been in active existence nearly thirteen years. During that period—in addition to affording the advantage of social intercourse between Farmers, Gentlemen Farming their own Land, Agricultural Amateurs, Agricultural Implement Makers, Land Agents, Country Solicitors, Country Clergymen, and others interested in the cultivation and improvement of the soil—the Club has discussed upwards of Eighty important Agricultural Questions, and (since 1853) circulated printed Reports of these discussions among the Members. The number of Members who have joined in the past year has led the Committee to believe that the time has arrived when the large body of residents in the country, interested directly or indirectly in Agriculture, can support a Club House, situated in a central situation, furnished plainly but comfortably, with the usual Dining, Drawing, Reading, and Smoking Rooms of a Club-house, and in addition a certain number of Bed-rooms."

It is therefore proposed to largely increase the number of Country Members, at a subscription of Two Guineas a-year, with an Entrance Fee of Two Guineas, to cover the capital stock for Furniture, &c. These arrangements will enable the Members to enjoy the advantage of a first-class Hotel at a moiety of the usual charges, as well as the peculiar comforts of a Club-house. Thus, gentlemen visiting London for only six days in the year would save nearly the whole amount of their subscription.

It is proposed that special arrangements be made for the accommodation of Members attending the Monday and Friday Corn and Cattle Markets, and the Annual Christmas Show. A limited number of Town Members will be admitted at a subscription of Three Guineas, and Three Guineas entrance.

Gentlemen desirous of joining under the new arrangement can address themselves to the Chairman or Secretary, or to any Member of the Committee of the Club.

CENTRAL FARMERS' CLUB,
39, New Bridge Street, Blackfriars, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, MARCH 1, 1856.

WE have to add to our last week's report of the English Agricultural Society's meeting that the prize list and conditions of the Paris Exhibition were made known, and it was resolved, on the suggestion of Mr. CAIRD, that a report of that meeting should be made to the Society by a deputation appointed

to represent it on the occasion. We announced last year, on the close of the Exhibition then, the liberal character of the encouragement offered to exhibitors in future years, but for the satisfaction of any who may intend to be present we repeat that the show will open on the 23d of May, and close on June 7th, that live stock and implements for exhibition will be conveyed from the frontiers at the cost of the French Government, and that entries must be made before April 9th. Any intending exhibitor must send before that date to any French consul in this country a declaration, of which the requisite form may be had on application to the consul. Implements are received on May 23d, and tried on May 27th to 30th. Produce is received on May 26th, and examined by jury on May 30th and 31st. Cattle will be received on May 28th, and examined by judges on May 30th and 31st. Food and bedding are provided for foreign live stock at the expense of the Government. Intending exhibitors should immediately apply to the nearest French consular agent for the pamphlet issued by authority, containing all the information which they require.

We may mention that the prizes for live stock are very liberal, 40*l.*, 32*l.*, 24*l.*, 20*l.* being the list for short-horn yearling bulls alone, and a similar list for bulls over one year old. There are similar lists, not so full, for Herefords, Devons, Ayrshire, and other breeds—for Merinos, Leicesters, Cotswolds, Southdowns, and other breeds—for Pigs of large breeds and of small breeds—for Poultry, and for implements.

We add to the information which has already appeared in these columns on the manufacture of sugar and of spirit from Beetroot, the following letter on that subject from the Count De Gourcy, with which we have been favoured by Mr. Caird. The writer is well qualified to give an opinion on the subject, as no one probably has a better knowledge of European agriculture, or is better able to form a judgment based upon so wide an experience. It will be seen that the common Mangel Wurzel, notwithstanding its more abundant produce, is not equal to the Silesian Beet in its profitable yield of sugar.

The letter is as follows :—

"In answer to your questions concerning the distillation from Beetroot, let me say that it is carried on on a great scale in the north of France, where there are distilleries, and new ones spring up continually all over France. A considerable number of our manufactories of Beetroot sugar had commenced distilling instead of making sugar, especially at the time when the Beetroot alcohols were selling as high as 200 francs the hectolitre. Now that they only sell at 100 francs, or about that price, there are already several sugar manufactories which have returned to sugar in place of alcohol; and it is said that when alcohol falls below 70 francs or 80 francs, the large distillers will not be able to go on. But it is thought that in the country distilleries, where the residues from distillation become very profitable in feeding cattle, and thus are the means of producing manures of a highly fertilising character, the owners will be able to bear a greater fall in the price of alcohol than that mentioned above.

"Alcohol can be made from Mangel Wurzel as well as from Globes and other varieties of Beetroot, and from Carrots; but these roots do not give a remunerative quantity of spirit under distillation. For the distilleries, therefore, the white Silesian Beetroot is alone grown, which gives, according to the system of a distiller, Champomois, 3½ per cent. of alcohol; but it is alleged that with the system of another, Leplay, who manages a large distillery near Bassé, a small town 8 leagues from Lille, as much as 5 or 6 per cent. of alcohol is drawn from this kind of Beetroot.

"The stems of Indian corn can also be distilled cut at the time the ear is shooting, but it is maintained that the Sorgho of China has begun to be distilled with more profit. What is certain is that large fortunes have been made all through France, Belgium, Germany, Hungary, Poland and Russia by an extensive cultivation of the Silesian Beeetroot, to be converted into sugar, and during the last few years into alcohol.

"I share your opinion that there is very good husbandry over a large portion of Great Britain, but that the British are wrong not to follow the example of the north of France, Belgium, and part of Germany, in the cultivation of roots for conversion into sugar or for distillation, also of Hemp and Flax and oleaginous plants, which certainly are troublesome, but which in the end are largely remunerative and advantageous."

The London or Central Farmers' Club propose to depart from their original constitution, or rather to extend it beyond the limits of a mere discussional society for the ascertainment and publication of agricultural opinions on matters of professional and general interest. They propose to support a "club house situated in a central situation, furnished plainly but comfortably with the usual dining, drawing, reading, and smoking rooms of a club-house, and in addition about 20 bedrooms." That there is need of some such establishment, and that the prospectus which has been issued may meet with an ample response we do not doubt. The institution contemplated will have its uses, and we are glad to forward its establishment by thus making known the intention of it. At the same time the society as it already exists serves well the purpose for which it was originally established, and there are many members already amply satisfied with what it does in the publication of its monthly agricultural discussions, who have no interest in the extension contemplated. No doubt the establishment of such an institution as they propose is a matter in which the directors of the society must in their individual capacity be interested: whether it be a subject coming properly within the scope of their official duties we do not know. We confess it seems to us that the proper work of the Farmers' Club, hitherto most admirably performed, is that of mutual information and instruction.

AGRICULTURAL STATISTICS.

The leading article in your paper of the 9th inst. directed attention to a contribution from the pen of the fluent and instructive writer who chronicled his doings on a clay farm, on the apparently equally sterile subject of "Agricultural Statistics," and I did as I presume most members of the Society did when they obtained their volume, *i. e.*, turned first to Mr. Hoskyns's communication, and finished it before looking at any other.

The impression it is calculated to produce is a mixture of pleasure and surprise at seeing a naturally dull subject dilated upon through 53 pages in his usual sparkling style, and elucidated by illustrations drawn from a wide circle of observation and comparison. I do not suppose that many, if any, members of the Royal Agricultural Society required to be convinced that the want of agricultural statistics, the want of anything approaching to even a probable guess of the quantity of food produced in Great Britain is discreditable to a country in the van of civilisation. If there were any who required to be convinced on this point, the arguments Mr. Hoskyns marshals together are sufficient, more than sufficient, for his purpose. But I am not so sure that his illustrations of the advantage to be derived, specially by agriculturists, from such a collection are equally convincing. I have long been, in my sphere (where that may be is no great matter, but I write myself a member both of the Royal English and Highland Societies, and a tenant farmer dependent solely on the cultivation of land), an advocate for it: and even the somewhat startling fact that the publication of the Scottish returns, by showing a larger quantity of Wheat grown there in 1855 than in 1854 (though the whole quantity was but 632,817 quarters—a very drop in the bucket of British consumption), was the means of giving a considerable impetus to the downward movement of prices, has not altered my opinion. But Mr. Hoskyns's reference (p. 557) to "needy sellers" who were obliged to sell early in 1846, thereby losing the subsequent high prices, will be met with a chuckle from these snubbed individuals, if any of them read the Journal—"We are the lucky ones this year, we sold at 85*s.*; you, the men with balances at their bankers, are getting but 65*s.*" I do not think many of them would now say with Mr. Hoskyns that "the ascertained facts of the harvest would be most pre-eminently serviceable" to us. Nor do I think that his quotations of prices in 1846 are quite in accordance with his own maxim of "gathering facts together and employing them in masses." It may be that in November of that year the price of Wheat was for a week at 50*s.*; that in June following it was at 102*s.* to 105*s.* also for a week (I have not weekly averages at hand), but I know that the monthly averages give 60*s.* 7*d.* as the price in November, 1846, being a rise of 14*s.* 4*d.* in the three months from August; while 92*s.* 10*d.* is the average for June '47, being another rise of 30*s.* 3*d.* in other six months! Will a collection of our statistics give us an estimate of the crop earlier than November? Would such an estimate then made be more conducive to the nation's weal than was the steady progressive rise, which gradually, but not too abruptly, checking consumption, also sufficed to draw from the very uttermost corners of the earth supplies which reduced the price so much before a single sheaf of the year's crop came into use. Trade—and the provisioning of a nation either from home sources or by importation is the greatest of all trades—will not wait for tables or detailed estimates; it concerts its operations far in advance of clerkly computations by collecting and comparing the information—guesses if you like to call them—floating in the social atmosphere—the result of a wide-spread intercommunication of opinions orally and through the press—and on these it acts, and generally promptly and successfully. The case of 1846 was an exceptional one. In that year there was the destruction—not belived in fully till October or November—of the Potato, the staple food of eight or ten millions of the population of the British empire, an esculent of daily use in every family therein: even this, as we have seen, was met, so far as commerce could meet it (commerce could not feed five millions of Irish peasants who had absolutely nothing to give in exchange), by an importation at steadily advancing prices, which was ultimately found to be greater than our actual wants. Do I, in saying this, desire to throw cold water on the scheme for a national collection of agricultural statistics? Assuredly not. I deem that such will be, ere long, the most trustworthy index of the fixed wealth of the country—the most satisfactory criterion of its yearly condition—the truest record of its progressive advancement.

How are they to be obtained? is the paramount question; but it is one upon which Mr. Hoskyns throws no light. Why have they not been obtained before? is also a question passed over without an indication of opinion further than a vague expression of regret (p. 561) that "one of the first efforts of the Royal Agricultural Society was not directed to the establishment of a system of statistical returns." Now, as I read the rules of the Society, of which Mr. Hoskyns is a prominent director, myself a very humble member, such a proceeding would have been contrary to an express provision of its charter, which binds it to "a total exclusion of all questions of a political tendency or having reference to measures pending or to be brought forward in either House of Parliament." At present possibly statistical returns would not be considered as a political question, though the expense of them would have to be voted for in Parliament even when conducted on a voluntary system, as in Scotland; but would it have been thus a dozen years ago, when the shadows of the coming change in the Corn Laws began to fall heavily on the agricultural mind? What would then have been the progress of the Society had its general meetings been occupied with a controversy on the merits and demerits of statistics? had its directors and official staff been burdened with the organisation and detailed management of such a system? Instead of the happy and harmonious co-operation of men of all parties which has been the cause of so much success and so much usefulness, which has placed the Society at the head of the agricultural "science and practice" of the world—there would have been endless discussions—angry debates, and diligent canvassing of members for party divisions. No, it has been much better that we have gone—it will be far better that we should go—on a great while longer, sailing, to use Talpa's quoted simile, over the ocean on our twelve months' voyage without taking an exact inventory of our provisions (with a latent conviction that "we have aye been provided for, and will yet"), than that the pilots of our agricultural ship should be put to a task which they didn't bargain for, and which the crew are supposed to have a jealousy and suspicion of.

Thus the Royal Agricultural Society has not only not been to blame for the absence of a national system of agricultural statistics, but it has been wise in avoiding what would have been up to the present time, and perhaps would be even now a thorny subject.

But our Government is not similarly to be excused. It did in 1847 propound a measure for the purpose—the provisions of which are given by a witness whom Mr. Hoskyns quotes—but it was not pressed earnestly upon the attention of Parliament, and it perished still-born. If commerce was to be advantaged, commercial men did not then know; if agriculture was to be promoted, landlords, and they are the agriculturist's share of Parliament, did not then care—the first were then drunk with railway gambling, the last mad with anger at Corn Law repeal. The nation then, by its representatives, showed it had no desire for agricultural statistics.

Looking at the subject impartially, and from a little distance, I do not judge that much if any blame is justly to be charged upon the farmers of England. It appears that an experimental trial was made in 11 counties of England and Wales in the year 1854. The direction of this experiment was entrusted to the agency of the assistant Poor-law Commissioners and their subordinate officers, an agency which, though in some respects effective for such a purpose, yet was exposed to the suspicion of the parochial mind. Viewing the measure of success arrived at, I think it is really more than under the circumstances could have naturally been expected. Several of the commissioners, it is true, were startled at the growls and black looks which their inquiries called forth; and one, I dare say very worthy Shropshire yeoman, is by name pointed out as having returned his schedule torn and endorsed with an expression of indignation at such questions: but really these were small stumbling blocks. Had the commissioners been a little behind the scenes where the Scottish returns were collecting—I was nearly writing "cooking"—they would have thought little of such repulses, which Mr. Hall Maxwell, taught by experience in the line, would have shown them some easy way of getting remedied. But though one or two of the commissioners are despondent, as "Red Tapists" will be when returns are not exact to a figure, the success arrived at by others is most encouraging. I find that Sir John Walsham's success in his district, the most important agricultural one perhaps in the kingdom, is almost complete. "In Norfolk a return," he writes, "has been made of 1,281,277 acres. This number falls short only some few thousands of the number stated in the census of 1851: in fact only 70,244 have not been accounted for, out of which 22,727 acres belong probably to woods, forests,

waters, &c., of which the measurements are not to be procured." This is surely a beginning of success which it is but a faint heart that would not follow up through every county in the kingdom. Nor was its sphere small; on the contrary, the district successfully "statisticated" by Sir John Walsham is in extent of tillage more than equal to one-half of the whole kingdom of Scotland. He tabulates 1,101,000 acres, while the whole land tilled in Scotland in the year 1854 is but 2,003,695; and to use his own unassuming words, "The importance of Norfolk and Suffolk as corn growing counties may perhaps be not improperly illustrated by the fact that their last year's harvest realised the produce of 267,000 more acres of Wheat and Barley than the whole kingdom of Scotland." Ay! but to collect the statistics of the whole kingdom of Scotland is a success which Mr. Hoskyns is never weary of lauding, while the success, but little if at all less complete, in the East Anglian counties is passed by unnoticed and uncommended. The poet's "'tis distance lends enchantment to the view," translated into the Scottish proverb—"Far away birds have fair feathers," will perhaps account for the unmeasured laudation of what has been done in Scotland, compared with the depreciation of the very considerable measure of success arrived at in England. Methinks the telescope might easily be turned the other way. I look at Mr. Hoskyns's diagram (page 600) of Scotland, and find it headed with an area of 20,047,462 acres. I turn to the Highland Society's much vaunted returns, and I find that in 1854 they account for but 12,613,345½ acres, while in 1855 they account for but 3,529,902¼ acres. Surely this is a shortcoming with a vengence! and it is a shortcoming which has excited attention and created distrust among many of the most intelligent tenant farmers of Scotland, who observe that while they are asked to give full information as to how they employ the land they rent, the landlords are asked to give no information as to how they use the land they own. On this subject your contemporary the *North British Agriculturist* writes thus: "We think that the mere supplies of cereal and other produce do not exhaust the question of agricultural statistics. That subject embraces land as the raw material of a most important part of our industrial resources, and every question bearing on the development of its resources falls within its range." Nay, so little satisfied was the committee of the House of Lords with the small acreage accounted for, that its report states "the farther changes which are to come in force this year, however unavoidable (why unavoidable?) are unsatisfactory in their nature, as they involve the omission of several important columns of information that were previously given, such as those of pastures, sheep walks, woods, &c." The &c. we shall assume to mean districts from which man and sheep have been cleared away to make room for red deer. For them there is no column in the Highland Society's returns of stock, though witness "Blackwood" for last month, and leaders in the *Times*, they occupy many a fair strath where stalwart men were wont to be found. Cannot Mr. Hoskyns in his next diagram give a square or oblong place to them? I will venture to say that before he has *data* for this, he will be in possession of materials for an exact diagram of every acre of the soil of England, which will much please him and also your very obedient servant *S., Feb.* 19.

Home Correspondence.

Beer is said to be less often adulterated than is supposed: the writer wishes he could join in this opinion. The pernicious ingredients used for this are difficult of detection; and the beer is mostly drunk on the spot, where the seller knows the buyer is at his mercy. So that, the quantity drunk being very large, there is probably more actual poison swallowed in beer than in any other way. The list of adulterants now before me is nearly 50: but being unable to give easy instructions for their sure detection, I can only caution your readers against those most likely to occur. The great object is to pass weak or diluted beer off for strong; first, by satisfying the palate, for which it is bittered by Quassia, made pungent by hot pepper, ginger, or grains of paradise, thickened with mucilage, and sweetened (where required mild) with treacle. All these may be detected by a good palate, being very distinct from the true flavours in good strong beer; nor are they very injurious, except too much of the pungent ingredients. But it must also have the intoxicating quality; and here lies the great evil. The cheapest intoxicators that would readily pass in beer are coculus indicus and nux vomica; both containing deadly poisons, of which minute quantities produce great effects; much worse than the intoxication from genuine strong beer, although undiscoverable by easy chemical tests. Coculus indicus powder is sold, in the north of England, for killing lice on children and animals: so that, while the mother is dusting the outside of the head with it to destroy the intruders there, the father is applying it to the inside of his head through the stomach, to produce a dismal giddiness, without the merriment of vinous intoxication. Of nux vomica (vomit nut), the intoxicating result is a kind of distressing cramp, produced by strychnine, of which the nut contains a small proportion; but so strong that 1-500th of a grain, dissolved in an ounce of water, cramped and killed a frog immersed in it. Both also, as well as the grain of paradise, produce thirst; so that the drinker is never satisfied. And all who value their health should take care, if once entrapped by beer producing such effects, never to buy more of it: the chemical detection of these minute quantities requires much skill. *J. Prideaux.*

Superphosphate.—In your Paper of the 18th inst. in the article "Superphosphate," you are pleased to give your correspondent "J. D." some sound advice respecting superphosphate. May I also be allowed to suggest through your columns to "J. D." and the noble army of martyrs who enter the manure market for cheap superphosphate, that the genuine article is not to purchased at the low figure put down by Dr. Voelcker and others, viz., 6*l.* Some time since there appeared in your columns the result of an experiment made on superphosphate at 6*l.*, and it was clearly shown on analysis that the real commercial value was not more than 3*l.* The present value of fine bones fit for making superphosphate is 8*l.* per ton, and the present price of sulphuric acid from 7*l.* to 9*l.* per ton, but this is merely a question of price for specific gravity, and without doubt the dearest is the best, but take a middle price, and say sulphuric acid at 8*l.* Now these being the prices of the two principal articles that should be used in the manufacture of superphosphate, I ask "J. D." what sort of an article can be expected for the low figure of 6*l.*, and from this sum most liberal percentages are given for the sale of, and carriage paid from long distances. When Dr. Voelcker gave the price of bones at 5*l.* 12*s.* he doubtless meant the rough bones as from the collectors. In London rough bones are fetching 6*l.* 5*s.*, and they have been quoted at Hull at 7*l.* 7*s.* I am writing this from a farm on which we have been making superphosphate for ourselves, and to prevent the imposition of cheap manures we have lately made largely for our neighbours and friends. Having had some experience in the manufacture of superphosphate, I am confident a fair sample, useful to the farmer, cannot be sold under 7*l.* per ton, and then only at a mere shade of profit, and 7*l.* 10*s.* is nearer the fair price for a good sample. *James Crowe, Hampen, Andoversford, Feb.* 26.

Thick versus *Thin Seeding.*—Your correspondent "Falcon" says:—

"There is no greater mistake committed either by farmers or gardeners than leaving any crops too thick upon the ground, excepting those intended for green food; a tree to be fine and healthy must have space to extend its branches and roots. The same holds good with regard to Turnips, Carrots, Mangels, and Onions, &c. It sounds strange to hear men say, 'The soil is poor; you must, therefore, sow more seed.' The contrary is the fact, which they should know more from painful household experience; at least many of them could answer the following question, which comes home to them:—If one child requires a pound of bread per day to keep it in health and condition what would be the result if three were obliged to exist upon the same allowance?"

"Hardy and Son" agree with "Falcon," and mention one plant per square foot as being the most advantageous distance for our corn crops. I presume that "Falcon" and "Hardy and Son" will admit that the object of all farmers is to get the greatest number of bushels per acre at the least expense. This being obtained, there will be no fear of the result to the purse of the farmer, and the community will ultimately reap the benefit by the products becoming cheaper on account of the smaller cost of production. Thin seeding has long had its advocates, but I am not aware that we can count amongst them any of our intelligent agriculturists that depend on the skilful management of their farms for their livelihood. How is this? Because we all ask ourselves before carrying anything into practice, "Will it pay?" What particularly strikes "Falcon" is the ignorance of agriculturists who say—"The soil is poor; you must therefore sow more seed." This is a rule by which farmers abide, as experience has long ago taught them the correctness of the view. Take a square foot of poor soil, enriched a little by the droppings of sheep fed on Turnips. This soil has not more than two-thirds the percentage of ammonia, phosphate of lime, &c., that is to be found in a better description of soil, and therefore the supply must be nearly or wholly exhausted, or a very meagre corn crop will be the result. The question then is, How are we to do this? Can we do this by inserting one solitary plant in each square foot of soil? Would the ramifications of the roots of that plant become sufficiently numerous, thread through the soil and absorb all the soluble ingredients? Would it not require more spongelets or mouths than we find in one plant? I believe it would, and I believe we may in this way account for our experience in the field disproving what has been stated by "Falcon" and by "Hardy & Son." I ought to state that I am speaking of corn crops only. The constituents required by the plants being soluble must come in contact with the spongelets, or they cannot be absorbed, therefore the greater the number of mouths the greater the probability of their being taken into the plant. If we grew a thin crop on a poor soil we should get stouter straw and finer ears, but I fear this would be a poor compensation for the greater number of straws and ears—at least my experience tells me so. The beneficial action of the sun's rays is one argument brought forward by the advocates of thin seeding. The light, heat, and actinism of the sun exert their beneficial influence on our crops, the latter especially, as it is to this agent we owe the chemical processes into which vegetable life resolves itself. This may seem to be in favour of thin seeding, but in reality it is not. In thicker seeding the plants are not so tall, and for this reason do not shade each other more than when thinner in the ground and longer in the straw. By thin seeding we get late harvests, and the corn is in consequence often blighted. What I state here is borne out by my experience in the field. I usually drill 2 bushels of Wheat, 3 bushels of Barley, and 4 bushels of Oats per acre, but of course the quantity of seed varies according to the richness of the soil and the earliness or lateness of the season. It must not be overlooked that I cultivate the highest, and I think I may state some of the poorest land in Dorsetshire. *Geo. Simmons, Houghton Farm, Blandford.*

Steam engine Furnaces.—In this, as in most other matters, inquiry and experience lead us to the conclusion that there is much room for improvement, and that our present system is sadly defective. I always felt dissatisfied with volumes of smoke, red-hot furnace doors, and frequent stoking; but until I had read Mr. Williams's able treatise "On the Combustion of Coal," I knew not how to remedy these evils. Since I adopted his talented and common sense suggestions all is *couleur de rose*—a bright gas fire, no smoke, cool furnace door and ash-pit, diminished stoking, and greatly increased steam. I give the following dimensions of my arrangements:—

Boiler 10 feet long, 3 feet diameter; flue through the centre 18-inch diameter. Furnace 4 feet long, 2 feet wide (exclusive of dead plate); the furnace bars 33 inches below the extreme curve of the boiler. The bridge, a straight one, 7 inches below the extreme curve of the boiler.

Consequently I have about 30 cubic feet of space in my furnace for the proper admixture and combustion of the gases; and I have an area of bridge surface equal to 30 superficial inches to every square foot of fire-grate. These spaces are more than double what I used to have under the old system. My furnace-door is pierced with ½-inch holes, and by a plate equally pierced behind the bridge I have the power of admitting atmospheric air above the fuel according to the power required. The consequence of all this is a flame varying from 20 to 30 feet in length filling the centre flue and side flues according to my requirements. The importance of having flame instead of smoke must be obvious, seeing that flame has 3000 degrees of heat, whereas smoke is barely warm. I found that the ordinary opening in the flue at the end of the boiler put out the flame in its attempt to curve up into the centre flue, but I more than doubled the aperture, since which it not only sweeps through the centre of the boiler but illuminates the side flues. My boiler is kept full to within 8 inches of the top. Having a dome it does not prime, and with high pressure and rapidly generated steam, the old proportion of one-third steam room is quite unnecessary. Instead of being, as I was originally, short of power, I can make my power anything I choose up to 12-horse (or 72 gallons evaporated per hour), the original calculation being a deficient 6-horse. The fact is in most furnaces there is not room enough for the proper expansion and admixture of gases; hence in their attempt to expand we have heated doors, and other inconvenient evidences of the misapplication of heat. I need hardly say that I have convenient trap-doors at each end of the flues, so as to be able to remove any grit or soot in a few minutes—clear flues are indispensable. I hope these remarks may be useful to some of my brother agriculturists. *J. J. Mechi, Tiptree Hall, Feb.* 19. P. S. My remarks will hold good for ordinary coppers, which should always have holes drilled in the furnace doors, the furnace bars being at least 2 feet below the copper—much more if a very large one. The greatest heat from a candle is at an inch above the flame. The flame will smoke if a solid body is pressed upon it, or rather into it. *J. J. Mechi.*

Irish Grasses.—In your notice in the *Agricultural Gazette* of the 16th ult., page 108 *b*, of the proceedings of the Royal Agricultural Society of England, reference is made to a report by Mr. B. Gibbs on the Grasses of this district, with a view no doubt of enabling the Society to obtain definite information as to the alleged superiority of the dairy produce of the south of Ireland. This report is very meagre, Mr. Gibbs not having had sufficient data, and as I should be most willing to aid in any way in my power in such inquiry, I herewith inclose for publication in the *Gardeners' Chronicle*, should you approve of it, a list of about 70 of the Grasses and forage plants indigenous to the county Cork, the whole of which may be gathered in a walk of two or three hours around the city. I have arranged them in six sections, having reference to the nature of the situations where they grow wild; sections one and two include the valuable upland, and section three the marsh Grasses. Amongst the Grasses sent from the land around Blarney Castle, Mr. Gibbs, you will observe, enumerates Carex, Plantain, and Yarrow, which far from enhancing deteriorate pastures, and are mere weeds. I have not included any of the pasture weeds, but were it considered useful to do so, there would unfortunately be no difficulty in drawing up a formidable list.

Sect. 1. *Grasses found in Low Meadows and Pastures.*—Poa trivialis common: Agrostis alba and vulgaris, also in marshes; Dactylis glomerata, and in shaded places and dry banks; Festuca pratensis, common; Lolium perenne, and on upland pastures; Arrhenatherum avenaceum, and on dry banks; Phleum pratense, only in a few places; Alopecurus pratensis, in a very few places; Holcus lanatus, and on upland pastures also; Lotus major (not a Grass, but a forage plant).

Sect. 2. *In Upland Pastures.*—Cynosurus cristatus, everywhere; Anthoxanthum odoratum, everywhere; Agrostis canina, too common; Trisetum flavescens, common; Triodia decumbens, not uncommon; Poa pratensis, common; Briza media, very common; Festuca ovina and duriuscula, very common; Serrafalcus racemosus, here and there.

Forage Plants in Upland Pastures.—Trifolium pratense, medium repens, procumbens, minus, and filiforme; Medicago lupulina; Vicia craca and sepium; Lathyrus pratensis; Lotus corniculatus.

Sect. 3. *In Marshes.*—Phalaris arundinacea, margins of stream; Alopecurus geniculatus; Agrostis alba, also in moist upland pastures; Phragmetis communis, on the sea shore; Aira cæspitosa; Catabrosa aquatica, in water only; Glyceria aquatica, do.; G. fluctans, mostly in water; Sclerochloa maritima, distans, and procumbens, in salt marshes; Hordeum pratense, do.

Sect. 4. On dry Banks and Rocks, and Heaths.—Aira flexuosa, præcox, and caryophillya, Avena pubescens, Sclerochloa rigida, Festuca bromoides and myurus, Nardus stricta, all wholly valueless, agriculturally speaking.

Sect. 5. In Woods and Bushy Places.—Melica uniflora, Molinia cœrulea, Millium effusum, Holcus mollis (also in pastures), Bromus asper and erectus, Brachypodium sylvaticum, Festuca gigantea, Triticum caninum, all of no agricultural importance.

Sect. 6. Grasses which, as Weeds, infest cultivated Lands.—Alopecurus agrestis, not common; Serrafalcus mollis, very common; Triticum repens, but too common; Lolium temulentum, amongst corn and Flax; Lolium arvense, ditto; Avena fatua and strigosa, in corn; Poa annua: Bromus sterilis.

—*E. Murphy, Queen's College, Cork.*

Chalk as a remedy for Finger and Toe.—I have followed the remarks in your Paper, on the diseases called finger and toes and anbury, with great interest, but I do not find that any of your correspondents insist sufficiently upon what is here found to be a perfect remedy, viz. the free use of chalk, wherever attainable. The land in this immediate district is so subject to both diseases, in its natural state, as to make the cultivation of either Swedes or Turnips a loss and vexation. The application of chalk was recommended to me some four or five years ago; a partial trial proved how beneficial it was, and I do not now think of attempting either Turnips or Swedes without it, although the horses have several miles to go for it. I have for the last three years not failed to get good full crops of both roots, and upon the same field in which previous to its application it would have been difficult to find one bushel of clear sound Swedes, it would now be more difficult to find that measure of diseased ones. The quantity of chalk for a dressing is from 10 to 12 waggon loads to the acre; the soil is a loam of every degree of strength, deeply drained; the variation of texture does not much affect the disease but, contrary to expectation, I find the stiffer loams show it with rather more virulence than the light ones. I have used lime at the rates of from 10 to 20 quarters per acre with good effect, but it does not, or has not hitherto in those quantities, so entirely eradicate the disease as when applied in its original form of chalk, nor do I think it so lasting in its results. *R. H. Valpy, Enborne, Newbury.*

Bread.—Until the last few weeks, when a prospect of peace began to dawn, the high prices of corn and flour threatened to be enhanced to an extent so alarming that several writers for the public press suggested means by which Wheat flour might be so prepared as not only to effect a reduction of prices, but also an improvement in the bakers' loaf (as to quality), thus rendering it more salubrious and nutritive. The late Professor James Johnston had shown that the whole meal obtained by simply grinding the grain is equally nutritive as the entire grain, for "by sifting out the bran we render the fine meal less nutritious in proportion, weight for weight," and thus we go on to waste much wholesome human food. The professor dealt with the question chemically, and thus he appears to have overlooked the public baker, and also the great aversion from brown bread which is felt by nine-tenths of the consumers. Now, whole meal must produce a brown loaf, and as such would meet with determined opposition, the more so as the bakers now charge it the full price of the best white loaf. It would be an easy task to address those domestic economists who bake their own bread, and to give them ample practical directions. But as the bakers have the game in their own hands, it would be futile to enlarge on a subject that might obtain very few converts. There are, however, facts in agriculture which must not be passed over in silence. First, then, bread-corn of the highest quality, and in greatly increased quantity ought to be grown; and this it can only be by a much deeper tillage of all sound arable land, and also by a system of thorough drainage carried out to 12 inches below the depth of the pulverised staple earth. An experiment upon a vast scale on the farms of the Marquis of Tweeddale has demonstrated that land, including the upper soil with its subsoil thoroughly broken up and incorporated, to the depth of 20 or more inches in the first instance, has produced great and increasing abundance of cereal and fodder crops, with less manure than is usually doled out by farmers as top-dressings, who are content with the mere scratchings of the surface by the common ploughs with their heavy compressing soles. The two instruments invented by the Marquis—that is the light, but deep cutting plough, which turns a true furrow, say of 12 inches—and the Tweeddale subsoil plough effect every purpose, the latter preparing the land for that effectual drainage above alluded to. Frequent and extensive observations have proved that thousands of acres in East Surrey remain full of water under a thin upper soil. This is shown by the stagnant or running water that exists in the ditches about the fields and by the road sides. This fact leads to the suggestion that ditches might be made to subserve as guages for ascertaining the position of water stagnating in the adjoining lands. If, instead of 12 or 15 inches, the ditches were carefully dug out to the depth of 24 to 30 inches, and finished with a true and gradual fall at bottom, a criterion would be afforded (by the inlet and flow of water) whence to judge the depth at which drains ought to be made, so as to command a good outfall. *J. T.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

The following is the report of a discussion on Dairy Management which took place at the close of last week's meeting:—

Management of Dairy Stock.—Mr. Horsfall stated that he had been placed in communication with Prof. Sullivan, who was extensively engaged in an examination of the different kinds of Irish butter, and to whom Mr. Horsfall had detailed the peculiarities of his own management, and submitted specimens of his own butter, which Prof. Sullivan had undertaken to analyse, in comparison with the Irish samples. Prof. Sullivan thought that the superior excellence of Mr. Horsfall's butter was derived from superior breed in the dairy stock; but Mr. Horsfall was confirmed in his own opinion that all his success had arisen from the peculiarity of his winter feeding, which he found gave a richer cream, and furnished to the butter a greater proportion of the solid and olein fats than the richest summer pastures.—Mr. Miles, M.P., suggested that, as Mr. Brandreth Gibbs had kindly undertaken to examine the character of dairy herbage from Ireland, it would at the same time be interesting to ascertain the quality of Mr. Horsfall's pastures.—Mr. Horsfall expressed his willingness to supply a plot of growing turf from his land for the purpose of that comparison.—At the suggestion of Mr. Caird, Mr. Horsfall again favoured the Council with a recapitulation of the peculiar management of his dairy stock. He had for four years given his dairy cows Rape-cape, which imparted to the butter a finer flavour than any other kind of cake: and in order to induce them to eat it, he blended it with one quarter the quantity of malt-dust, one quarter bran, and twice the quantity of a mixture in equal proportions of Bean-straw, Oat-straw, and Oat-shells; all well mixed up together, moistened, and steamed for one hour. This steamed food had a very fragrant odour, and was much relished by the cattle: it was given warm three times a day, at the rate of about 7 lbs. to each cow (or of 21 lbs. daily). Bean-meal was also scattered dry over the steamed food, cows in full milk getting 2 lbs. per day, the others but little. Mr. Horsfall had found this substance to be an unfailing means of keeping up the condition of cows while giving milk. When the animals had eaten up this steamed food and Bean-meal, they were each supplied daily with 28 lbs. of Cabbages from October to December, of Kohl-rabi till February, or of Mangels till Grass time; each cow having given to her, after each of the three feedings, 4 lbs. of meadow hay (or 12 lbs. daily). The roots were not cut, but given whole. Mr. Horsfall had reverted to this old practice, for four reasons: 1. Less expense. 2. Less trouble. 3. Better mastication; and 4. No instance of choking. The animals were twice a day allowed to drink as much water as they desired.—Mr. Gadsden believed that Mr. Horsfall's Rape-cake was not the ordinary market article sold under that name, but the kind termed "green" Rape-cake, which bore a higher price.—Mr. Horsfall remarked that he could only get this particular cake by giving an early order to the maker. It was made only from the German or English seeds, which were free from the Mustard seed; while the ordinary cake was manufactured from the East Indian seeds, which were intermixed with the Mustard and both kinds were worked up together. He had last October met with a large stock of green cake, for which the dealer could not find a sale. Mr. Horsfall having had a trial analysis of it made for him by Prof. Way, which showed it to contain 30 per cent. of albuminous matter and 13 per cent. of oil, he purchased the supply he then required at 7*l.* 10*s.* per ton, and found it fully to answer his expectations. The dealer soon after sold off all the stock he had on hand, and had also sold 120 tons since. His cows were always kept housed in the winter, and were milked twice a day. They were only put to the bull when their yield of milk fell below 12 quarts a day. Dr. Timm had tried the green Rape-cake, but could not get his stock to eat it, unless steamed, and then only in quantities not more than 2 lbs. a day; when mixed with Linseed-cake they would eat that, and leave the Rape-cake.—Prof. Way stated that a new cake was likely soon to be brought into the market, namely, the Cotton-cake, obtained from Cotton seeds, after the oil, for the candle-manufacturer's purposes, had been pressed out of them by machinery. The husks, however, and the short fibres of Cotton remaining attached to them, might prove indigestible and obstructive when given as food to animals; but the manufacturer was about to employ a process for decorticating the seeds, which would remove such objection to their use. The cake would be of superior quality and moderate price, namely, 8*l.* 10*s.* per ton. The manufacturer also thought it might be advisable to make an intermediate cake of Cotton-seed with Linseed, which would oblige the cattle to eat the Cotton-cake.—Mr. Gadesden remarked that he had at that time some experiments in progress on the subject of Cotton-cake, which, when completed, he would report fully to the Council. As far as he had gone, the Linseed had made more meat at the end of the first month on the six sheep feeding upon it than had been made by the other six sheep which had been feeding for the same period upon Cotton-cake; but the difference of price between the two kinds of cakes equalised, in an economical point of view, the advantage so gained by the feeding properties of the Linseed over the Cotton-cake.—Mr. Holland, M.P., stated that a friend having sent him a supply of Cotton-seeds from Egypt, sufficient to fatten two beasts, the husks were found to be no objection, but the oil in the seeds had imparted a most disagreeable odour to the flesh of the animals.—Mr. Fisher Hobbs thought, from Professor Way's analyses, that Rape and Linseed-cake ought to be very nearly equal.—Mr. Horsfall explained that the steaming process he employed rendered the essential oils in the substances of his mixture more volatile and diffusive, rendering the food more agreeable to the taste of the animals, while they counteracted, at the same time, the bitterness of the Rape-cake. The temperature of his dairy-houses was 60° Fahr. in winter. His cows had no exercise at that season, as the change of temperature would be too great for them. Their yield of milk was more regular in winter. They were tied 3 ft. 9 ins. apart, with 2 ft. 6 ins. at the hind feet of each, and straw was bought for them. They stood when eating on open boards, and rested on a couch of straw covered by a Cocoa-nut matting. This matting he had found to be both cheap and substantial. No water was laid on in his dairy-houses. His fatting animals required none, while his milking cows were supplied twice a day from a tap with as much as they liked to take. They were brushed down once a week, but currying was practised. His butter fetched a penny a pound more in the market than his neighbours'; and the only complaint he heard from his customers was that he could not supply them with a larger quantity. In the purchase of his dairy stock he did not confine himself to any niceties of breed, but selected, from time to time, such a fresh supply of animals as appeared best suited for his purpose. These were generally large cows of the native Yorkshire breeds, improved by intermixture with the short-horned and long-horned breeds. On the average they yielded 25*l.* worth of milk per annum each. He sold his new milk at 2*d.*, and his old at 1*d.* per quart. The cows were in the morning first milked, and afterwards fed: then fed again at noon; and in the evening, after milking, when they were put up for the night. He had found it to be the most profitable to milk the cows down till they gave from five to six quarts a day, and then dry and fatten them. They had the same food as the others, with the exception of the Bean-meal, which was then discontinued.—Mr. Alcock, M.P., referred to the letting-system in Wiltshire and Dorsetshire.—Mr. Caird remarked that in Dorsetshire the dairyman got good prices for his butter and cheese; but he did not feed in the winter. Mr. Horsfall added that he was persuaded that his system was an economical one, otherwise he should have discontinued it, as he himself only farmed for profit. The malt-dust (or coombs) he used was obtained from pale-dried malt, and cost him 10*s.* per quarter. He had only used it since October, having previously employed bran, which was agreeable in its flavour, and contained phosphoric acid, a substance important for dairy cattle. Malt-coombs were also rich in milking properties.—Mr. Fisher Hobbs remarked that in Cambridgeshire malt-coombs were used for breeding ewes.—Professor Way was glad to find that Mr. Horsfall was not in his present practice deviating from the original principle on which he had set out, and that his view of the action of albuminous (nitrogenous) food on dairy stock was borne out by facts. Rape-cake, Oat-straw, bran, and malt, were all of the nitrogenous, or flesh-forming class; while butter itself, although appearing to result from their employment, was not so. This paradox might, Professor Way thought, be explained, by considering that the functions of the milch-cow were intended to produce cheese and butter in the secretion of milk; and that if more oily and less albuminous matter were given as food, less butter would be the result.—Mr. Horsfall remarked that his principle involved two objects:—1. The due supply of albuminous matter in the food. 2. The quality of the oily matter, giving along with the albuminous matter. Tenant-farmers in his neighbourhood had, like himself, obtained an increased richness in their butter from an additional supply of Bean-meal to the food of their cows. Linseed oil alone, without albuminous matter, had been found to have no effect of that kind. Mr. Horsfall obtained 1½ oz. of butter from each quart of new milk.—Mr. Caird moved a vote of thanks to Mr. Horsfall. While on his tour of inspection throughout England in 1850, as the *Times'* Commissioner, he had visited Mr. Horsfall's establishment, and was much interested in what he then witnessed. The important details Mr. Horsfall had communicated at the Council meeting held that day, fully confirmed the selection Mr. Caird had made when deciding on the particular dairy-farms he should visit and report upon, on the occasion to which he had referred.—Mr. Gadesden seconded the motion, and bore testimony to the great readiness Mr. Horsfall had so kindly evinced on all occasions to communicate the results of his experience on the important investigations to which he had so successfully devoted his attention.—This motion being carried unanimously, Mr. Fisher Hobbs hoped that the Weekly Meetings of the session would be attended by many of the practical members of the Society, and lead to friendly discussions as interesting and important as the present had been.

Weekly Council, *Feb.* 27.—Mr. Raymond Barker, V.P., in the chair.

Sea Sand.—Communications on this subject were received from the Rev. S. Kingdon, Mr. Bence Jones, and Mr. Marychurch, and referred to Prof. Way.

Peat-pressers.—Mr. Burness laid before the Council a statement of the peculiarities of eleven machines adapted for that purpose. This communication was ordered to be transmitted to the Danish Minister, as having immediate reference to the inquiry submitted by his Excellency to the Council at a previous meeting.

Cotton-seed Cake.—Mr. Gadesden, of Ewell Castle, Surrey, favoured the Council with the following statement of his experiments connected with the fattening properties of Cotton-seed cake in comparison with Linseed cake:—

"Ewell Castle, Feb. 27, 1856.

"With a view to testing the comparative quality of this cake for feeding purposes, I selected, two months since, a dozen Southdown sheep, dividing them into two pens of six each, in an open shed on boards, supplying them daily with equal quantities of Swedes and chaff, giving to one six a pound each per day of Linseed cake, and to the other six a like quantity of Cotton-seed cake. The sheep were weighed when put up, and again at the end of four weeks, with the following result:—

	Cwt.	qr.	lb.		Cwt.	qr.	lb.
6 fed with Linseed cake, weighed Dec. 26, fasting	5	3	18	6 fed with Cotton-seed cake, wghd. same time... ...	6	0	9
Ditto, wghd. 24th January	6	1	25	Ditto, wghd. 24th January	6	1	15
Increase ...	0	2	7	Increase ...	0	1	6

	£	s.	d.		£	s.	d.
4 weeks consumption of cake, 1 cwt. 2 qrs. 6 lb., at 14*l.* 10*s.* per ton, cost	1	2	6	4 weeks consumption of cake, 1 cwt 2 qrs. 6 lb., at 8*l.* 10*s.* per ton, cost	0	13	3

"It will here be observed that although the cost of the Cotton-seed cake gave a saving of 9*s.* 3*d.* as compared with that of the Linseed cake, the sheep fed on it increased less than the others by 29 lbs. live weight, equal 16 lbs. dead weight, which, at 6½*d.* per lb., would be 8*s.* 8*d.*, being very nearly equivalent to the 9*s.* 3*d.* saved in price of cake. The weighing at the end of the second month gives results so nearly corresponding with the foregoing that I need not trouble you with the details. From these it would seem that, at 8*l.* 10*s.* per ton, Cotton-seed cake is, in fact, no cheaper than the best Linseed cake at 14*l.* 10*s.* At the same time we may rejoice, as agriculturists, at the introduction of another variety of cake likely to be supplied in almost unlimited quantity, useful in itself, and the competition of which with Linseed cake is calculated to render the cost of the latter more moderate to feeders of stock. (Signed) Jas. Gadesden."

Centrifugal Churn.—Count Sparre favoured the Council with the following communication:—

"London, 26th Feb., 1856.

"As being much interested in every improvement in agriculture, and especially in the treatment of milk, I have paid much attention to a new system of churn invented by my countryman Major Stiernsvärd. This churn was exhibited at Paris last year, and received a first-class medal. As it is well known that no country pays so much attention to all improvements in agriculture as England, I have thought it but right to request the opinion of the Royal Agricultural Society, and therefore beg to inform you that I have now with me in London one of these churns, which I shall be happy to place at the disposal of the Society for any experiments they may submit it to. The advantages of this churn are:—1st. The milk is put in at once from the cow, without standing for cream (although cream may be churned in it as well). 2d. After the butter is formed, which is with certainty in a few minutes, the milk is not soured, not being in any sense buttermilk, and can be boiled without coagulation. 3d. The churn is not subject to get out of order; is easily kept perfectly sweet, and is inexpensive in its construction. I have the honour to present to the Society a small treatise by Major Stiernsvärd on the treatment of milk, in which will be found the mode of using his new invention.

(Signed) "Count Ambjörn Sparre."

The Council accepted Count Sparre's kind offer, and arranged that it should be submitted in action before the Council on that day fortnight.

Vitality of Seeds.—M. Salaville explained the various conditions of organisation in grain in reference to its vitality, and to the action of corrosive vapours applied to it by means of his machinery. — Prof. Simonds exhibited to the members under the action of his powerful microscope various portions of Wheat in its original state as well as in the condition in which it had been left by the process to which M. Salaville had submitted it during the previous fortnight. He remarked as the result of his own scrutiny on this occasion that on submitting the dressed Wheat to the microscope several spores of the uredo fetida were seen attached to the hairs of the grain, which did not appear to have undergone any physical alteration; but this Mr. Simonds stated to be no proof that their vitality had not been destroyed through the use of the fumigating agents,

such being alone to be proved by vegetating the grain and comparing the results with undressed samples.

Mr. Riddell exhibited his model of a reaper, and Mr. Collett a model of his proposed plan for raising water. —Mr. Trimmer's letter on Geology connected with Drainage, and Mr. Fulbrooke's further statement of his views on Meteorological Cycles, and the influence of the Moon on Weather, were referred to the Journal Committee.

The Council adjourned to their Monthly Meeting on the 5th of March.

Calendar of Operations.

FEBRUARY.

NORTHUMBERLAND, *Feb.* 28.—February set in with a sharp frost, and bid fair at its commencement to "fill the dyke with white;" but this continued only long enough to enable us to get our yards cleared of manure, and the latter carted out to the fields, where it is required for the Turnip crop, without cutting the land. We are quite ready to admit all the evils of carting out manure to the fields and leaving it in heaps during the spring; but until we can get our fallows wrought, and our Turnips sown by steam-power, it is an evil we must submit to, as the expense of keeping extra horses in Turnip time to cart it direct from the yards or boxes would, in our opinion, be a greater evil still. On the night of the 6th and morning of the 7th the wind rose to a perfect hurricane, unroofing and upsetting stacks, and in at least one instance in this neighbourhood lifting the stack off the stand and setting it down some yards distant. The wind took the frost effectually out of the ground, and so dried it that we were enabled to finish the cleaning of a field which had lain over half-finished from autumn, and which we have now turned over with a 10-inch furrow, and do not expect it will require much more to make it ready for sowing. Lea ploughing has got well through; and those who did not get their spring Wheat sown early in the season are now taking advantage of the present uncommonly fine weather for getting it in. Our own land being ready, and the weather suitable, we finished sowing Wheat last month, and it is now up and looking well. Turnips are getting scarce, and many will be pinched for food for both cattle and sheep ere the Grass arrive, especially should the spring be backward. There has been a considerable loss among hoggets in this district caused by a whitish diarrhœa. About three weeks ago we commenced giving them cut straw and bran mixed with their Oats, and have since lost none; where they have escaped the diarrhœa they have done well. Cattle have also done well in the yards, and though prices are consideraly down, they are still amply remunerative.

Notices to Correspondents.

BEANS: *R Varden.* We would apply 3 cwt. of Peruvian guano per acre or 5 cwt. of the Nitro-phosphate Wheat manure, and should prefer the former. It may be sown without any chance of hurting the seed. Thanks for your note about the fork, to which we shall refer. We have applied for information about isothermal lines.

BUTTER: *A H F C.* The butter not "coming" is a frequent grievance, often baffling explanation. Weather—electrical condition—change in feeding, &c., &c., are all quoted to account for the cream whipping into froth instead of yielding butter. The subject needs experiment and investigation. At present it is so mysterious that the old expedient of a crooked sixpence in the churn bears a very fair relationship to existing knowledge.

CLOVER LOSING ROOT: *A Z.* Try heavy rolling, and apply 2 cwt. of guano per acre, or a top-dressing of well-rotted dung. If that should fail you could sow Vetches six weeks hence, after scarifying and harrowing the land. Any young growing crop will be improved by rolling now when the land is dry.

COW, EWE, SOW: *Armstrong.* Forty, twenty-one, and sixteen weeks respectively.

EGGS: *F R S.* The importation of 1855 was as nearly as possible 100 millions. This is less by 20 or 30 per cent. than in previous years. They come chiefly from France.

GORSE: *D.* would feel much obliged if Mr. W. D. Fox would say at what distance he drills his seed, and whether, as has been stated elsewhere, he thinks that only every alternate row should be cut each year. If he would also state what quantity of land he thinks will supply each cow, he will oblige.

GORSE: *E I* asks if Mr. Fox will kindly say if Gorse will grow in a field rather overshadowed by trees and sloping to the north. Where can the proper Gorse seed be procured?

GRASS SEEDS: *Cheshire.* We would sow the Oats now, and hoe in the Grass seeds in six or eight weeks hence.

GUANO, &C.: *J Shepp.* Sow the guano 3 cwt. per acre broadcast over the whole land as it lies in drills with the sets laid, and then cover in by ploughing or hoeing down the ridgelets. Lime 30 or 40 bushels per acre newly slaked might be applied in a similar manner—not with the guano however. It may be spread out of a cart. It *may* have an influence on the wireworm, but that is doubtful.—*X.* There were 305,000 tons imported last year against 235,000 in the year before.

LIME AND SALT: *Cheshire.* If these are in equal proportions then you may add half a bushel of the mixture to every cubic yard of pond mud, and apply 20 cartloads of the whole per acre as a top-dressing to your Grass land.

MANGEL WURZEL: *D A.* It will produce poor milk. Swedes will give it a disagreeable taste, which may be diminished or destroyed by keeping the milk hot some time after it is put into the dish, when the aroma will leave it. Mangel Wurzel is certainly not injurious to stock. It is better late in spring. See Mr. Horsfall on dairy feeding, in another column.

NITRATE OF SODA: *A.* It contains nitric acid and soda and water, besides foreign matters which accidentally or otherwise may be present. It contains no ammonia. You may learn from the name of a substance what its composition is, when the name given is the style and title, which science has devised. Chemical nomenclature has been devised for that purpose. Nitrates are combinations of nitric acid with certain bases.

POULTRY: *A Subscriber* will find numerous plans and directions for the erection of poultry houses in the "Poultry Book," in fact no other work we have seen treats the subject so well. Eaton is the best authority for anything relative to pigeons.

SPENT GAS LIME: *T B P.* You may mix it with manure or with anything which will enable the access of air throughout it. A heap of it with ditch parings, turf, &c., turned over two or three times, at intervals of a fortnight, will then be fit for use, at the rate of 30 or 40 bushels of the lime per acre, for the farm or garden, arable or pasture.

SUPERPHOSPHATE: *C C Williams.* For Grass lands used for dairying we should prefer applying Nitro-phosphate manure, which is a superphosphate containing a considerable proportion of ammonia as well, to guano, which contains its phosphorus in a less soluble condition and its ammonia in larger proportion than is perhaps desirable under those circumstances.

TALAVERA WHEAT, *M Powell.* It may be sown as late as middle of March in ordinary seasons.

TANK: *Subscriber.* If your difficulty is pressure of water from below upwards, the bottom of your tank should be, or should have been, made basin-shaped, and the bricks laid in cement and properly fitted would have made the tank water-tight.

TRIFOLIUM INCARNATUM: *Agricola.* It should be sown in autumn, and produces in the following summer an abundant crop of forage rather stronger and coarser than the common Clover, but very nutritive and palatable. Sow 20 lbs. on a clean unploughed corn stubble after rain, and harrow it in.

THE PATENT NITRO-PHOSPHATE,

OR

BLOOD MANURE COMPANY.

(LIMITED.)

TRUSTEES.

Abel Smith, Esq., Jun., M.P., Walton House, Ware, Herts.
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Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-General Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.

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Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
James Odams, Esq., Bishop Stortford, Herts.
John Collins, Esq., Middleton Square, Pentonville, with power to add to their number.

Bankers—Messrs. Barnett, Hoare & Co., Lombard Street. | *Auditor*—James Caird, Esq., Baldoon, & 6, Serjeant's Inn, Temple, London.

Solicitors—Messrs. Kingsford & Dorman, 23, Essex Street, Strand. | *Secretary and Chemist*—James Taylor, Esq., F.C.S.

Offices—109, Fenchurch Street, London.
Manufactory, Plaistow Marshes, Essex.

THE DIRECTORS of the above COMPANY (many of whom are extensive Agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact. Ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied. Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a conclusive answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

BLOOD MANURE FOR TURNIPS.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

THE BLOOD MANURE FOR WHEAT, BARLEY, OATS, ETC.

Being rich in nitrogen and other necessary ingredients, it is especially adapted for the Wheat and other Corn crops, and has been used with the greatest success in all parts of England. It is a very remarkable fact that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists,—it contains all the elements which plants require, and when properly prepared, will become the essence of vegetable as well as of animal life. The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat and other cereals, has been fully proved upon all soils by the practical experience of numerous Agriculturists. Should Wheat manured with dung in the ordinary way look unhealthy in the spring, it will be greatly benefited by top-dressing it with Blood Manure, at the rate of 2 to 3 cwt. per acre,—thus strengthening the straw, making it less liable to lodge, and very much increasing the produce. For Barley and Oats, 3 to 4 cwt. per acre of the Blood Manure may either be sown broadcast or drilled with the seed,—if the former, to be well harrowed in.

BEANS AND PEAS.

For Beans or Peas, 3 to 4 cwt. per acre may be used either broadcast and harrowed in, or a portion afterwards, between the drills at the time of horse-hoeing.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre with an equal weight of common salt should be sown broadcast over the field, and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

POTATOES.

The Blood Manure is specially prepared for this crop, and it will be found to give most satisfactory results—it will be most successful if used to the extent of 4 cwt. per acre, with half the usual quantity of farm-yard dung, and the whole earthed up in the usual way. Should the farm-yard manure not be used, then 6 cwt. of Blood Manure may be used alone, put into the bottom of the drill, and the sets on the top and earthed up.

FLAX.

This crop in olden time had the renown of being one of the most exhausting crops which could be put into the land, and this by chemical analysis has been found to arise from the large quantity of nitrogen, phosphoric acid, magnesia, and the alkalies taken up by the Flax plant, which renders it a highly exhausting crop. The Blood Manure is carefully prepared, so as to meet the wants of this crop, and with its aid Flax can no longer be considered an exhauster of the soil. In using Blood Manure for this crop, from 4 to 6 cwt. may be sown broadcast, and harrowed in before the seed is drilled.

HOPS.

It is well known to all Hop growers that Hops require more manure for their proper development than any other plant which they cultivate; the constant withdrawing of the Hops, year by year, from the land necessitates the supply to the soil of a considerable amount of both mineral and organic ingredients, and the Blood Manure has been particularly prepared, with the object of supplying the requirements of this important crop. It contains all the constituents which the plant requires, both mineral and organic, and will be found as cheap and efficacious as any other manure now in use; from 10 to 12 cwt. per acre applied at two different times well worked in between the alleys, will be found a most useful application, or the manure may be put round each hill and covered up with the soil.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents. The following may be taken as a sample:—

Norfolk Farms, Windsor, February 20th, 1855.

Gentlemen,—In answer to your inquiry respecting the results of Nitro-phosphate used on the Royal Farms, Windsor Great Park, I have great pleasure in stating, that after applying it to a field of Swedes, which gained the cup at the Royal East Berks Agricultural Show, I have no hesitation in pronouncing it an excellent manure, and intend using it to a greater extent during the present season.

I am, gentlemen, your obedient servant,
JAMES BREBNER.

Mr. BENJAMIN GOULTON, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Park Farm, Woburn, Bedfordshire, Jan. 18th, 1854.

Gentlemen,—In reply to your inquiry respecting the Nitro-phosphate supplied to his Grace the Duke of Bedford in 1853, I beg to inform you I applied it all for Swedes, and in every instance was very successful, particularly so on a field of 30 acres, where I put on 2 cwt. of it per acre, with a light dressing of farm-yard manure, which has produced the finest crop of Swedes I ever grew. I with great confidence recommend this valuable manure to the notice of the agricultural community.—I am, gentlemen, yours very truly, G. W. BAKER.

PRICE, DELIVERED AT ANY WHARF OR RAILWAY STATION IN LONDON:

Corn and Grass Manure, £7 10s. per Ton.
Turnip Manure, £6 10s. per Ton.
Flax and Hop Manure, £8 10s. per Ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," *and sold only by the authorised Agents of the Company.*

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.

The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit—At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Is intended for all large Establishments where much watering is done by the watering-pot. By its use much time and labour of the Gardener are saved, particularly where the Tank, Pond, or Pump is at a distance from the garden. May be obtained of any ironmonger in town or country for 3*l.* 3*s.*

No establishment offers such a variety of effective machines for hydraulic purposes, whether to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of liquids.

No. 32.
Conservatory Pump, with Warner's Registered Spreader, 27*s.* 6*d.*

Brass Syringes, 9*s.* to 18*s.*

Fountains suitable for Conservatories, Lawns, &c. Sheets of Engravings sent on application.

Manufactured by JOHN WARNER & SONS, 8, Crescent, Jewin Street, London, and may be obtained of any Ironmonger or Plumber in town or country at the advertised prices.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

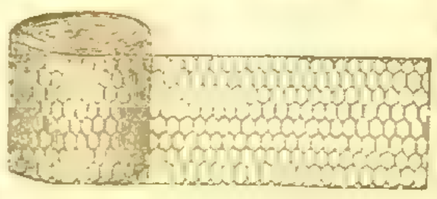
H. J. MORTON AND Co., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALANISED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANISED GAME AND POULTRY NETTING.—



Galvanised, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

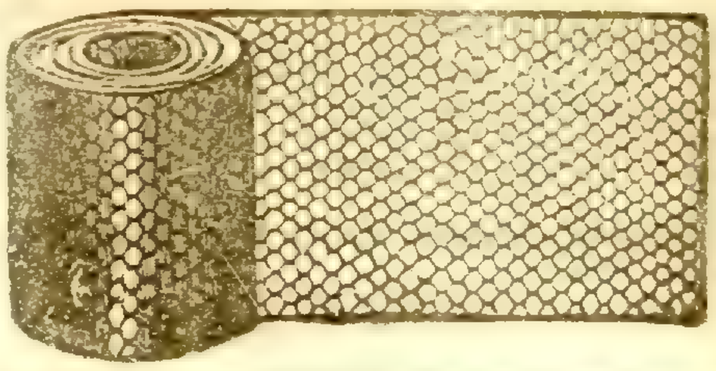
Galvanised, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanised Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d* each.—Galvanised Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

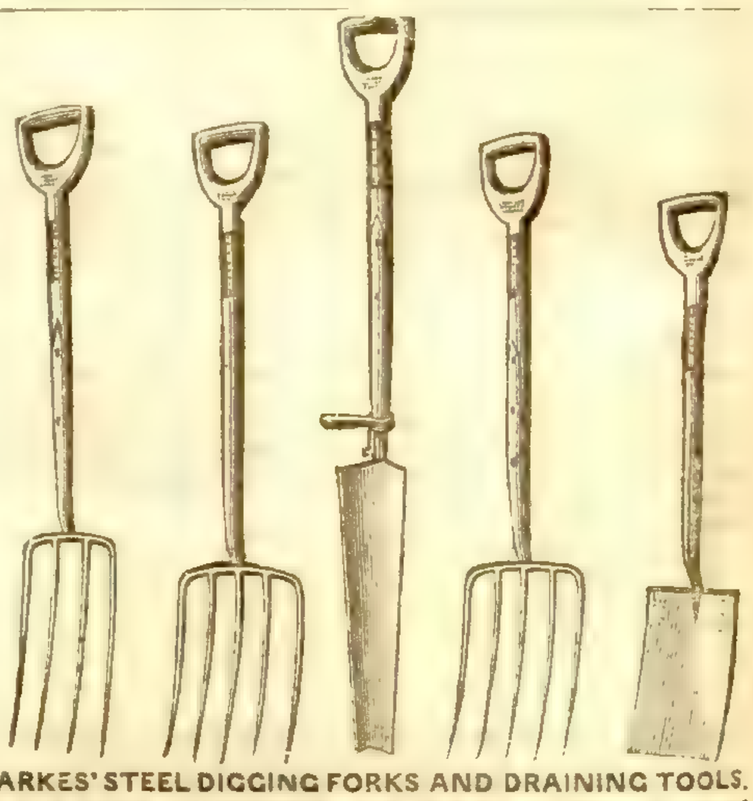
		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	... ...	6 „	4¾ „
2 inch „ intermediate, do.	... ...	7 „	5½ „
2-inch „ extra strong, do.	... ...	9½ „	7½ „
1⅝-inch „ 24 inches wide	... ...	5½ „	4½ „
1⅝-inch „ strong, do.	... ...	6½ „	5¼ „
1⅝-inch „ intermediate, do.	... ...	7½ „	6 „
1⅝-inch „ extra strong, do.	... ...	10 „	8 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.



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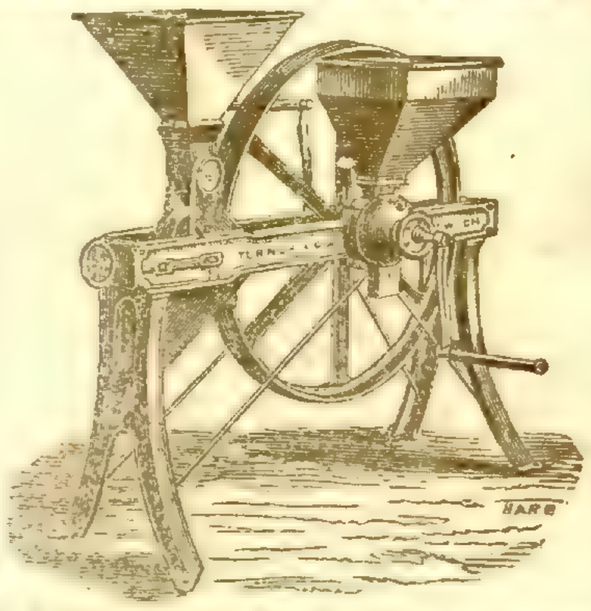

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Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12*s.*

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1*s.* each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1*s.*; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1*s.* per stone of 14 lbs.

100	Fine named Hardy Herbaceous Plants	£1	10
100	" " Alpine Plants	1	10
100	" " Shrubs	2	10
100	" " Cape Heaths	4	10

Fine blooming plants Epacris, 12*s.* per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that all orders entrusted to their care will be thankfully received and promptly executed. F., R., and G. confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality. Catalogues forwarded gratis on application.—82, Bishopsgate Street Within. London, March 1.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

PASTURE AND LAWN GRASS.—Gentlemen laying down Land for Permanent Pasture and Lawns can be supplied with the best Mixed Grasses for the same, (or sorts separate), under the advertised prices by DAWE, COTTRELL & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, & 36, Moorgate Street, London.

PRIZE CALCEOLARIAS.

JOHN HENCHMAN, JUN., has now ready for delivery a few cutting plants from the SEEDLING CALCEOLARIAS to which the prize was awarded at the Great Exhibition at the Crystal Palace; price for 12 distinct varieties, 12*s.* Also Seedling Plants from seed saved from the Prize Plants at 5*s.* per doz.; in 48-pots, 12*s.*, and Specimen Plants in 32-pots at 18*s.* per doz. Seed saved from the Prize Plants, 5*s.* and 10*s.* 6*d.* per packet. This is the proper time to sow for early plants next year.—Edmonton, March 1.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.—Hedenham Rosary, March 1.

NAPOLEON, EUGENIE, AND PRINCESS, three of the most novel and beautiful DAHLIAS coming out this season, will be sent out by Mr. GLENNY, Horticultural Agent, Fulham. Strong plants in May, 10*s.* 6*d.*, in priority of application.

GLENNY'S IMPROVED BALSAM, 6 classes, 37 stamps; mixed, 13; Pink, 37; Geranium, 37; bedding do., 13; Dahlia, 13; sulphur stock, 13; a dozen fine Annuals, 37 stamps.

GLENNY'S COMPANION TO THE GARDEN ALMANACK, the most important of the Author's Works, 1*s.*, publishing by HOULSTON & STONEMAN.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

KINGHORN'S UNEQUALLED NEW SCARLET GERANIUMS.

COUNTESS OF WARWICK.—Beautiful large variegated foliage, white margin, dark horse shoe, banded with pink, strongly marked, large truss of deep scarlet, the individual flowers of fine form, is of vigorous growth, proved to grow and flower well planted out. Received a certificate at the Royal Botanic Exhibition. Plants 10*s.* 6*d.* each.

ANNIE.—This is a decided improvement on "The Flower of the Day," and "Silver King," possessing fine large trusses of bright scarlet, the foliage large and flat, margined with pure white, does well planted out, has produced leaves 4½ inches over, very free grower. Plants 10*s.* 6*d.* each.

GENERAL PELISSIER.—This noble Geranium has been the admiration of all who have seen it, either in pots or bedded out, throwing its numerous globular trusses of orange scarlet flowers, well above the foliage, on strong white flower stalks, flowers of fine form with white eye, is of compact vigorous growth, leaves medium size with dark green margin, distinct horse shoe, paler green in centre. The best scarlet Geranium ever offered. Flowers very free and perfect in the smallest pot. Was awarded a first class certificate at the National Floricultural Society. Plants 10*s.* 6*d.* each.

In compliance with many pressing solicitations, FRANCIS R. KINGHORN has determined on sending out the above in the 3d week of April. The usual discount to the trade. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth, Middlesex, March 1.

THE Manufacture of GARDEN NETTING by ANDREW HALL is now carried on just the same by THOMAS BRITTAIN & CO. in the same qualities, and orders executed with dispatch and care.—ANDREW HALL, Manchester.

CAUTION.

GARDEN ENGINES, SYRINGES, &c.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION.

R. READ begs to caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal arms, and address, "35, REGENT CIRCUS, LONDON."

*** Descriptions sent post free.

GLENFIELD PATENT STARCH
USED IN THE ROYAL LAUNDRY,
AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS TO BE
THE FINEST STARCH SHE EVER USED.
Sold by all Chandlers, Grocers, &c. &c.

BUY OF THE MAKERS.

J. & J. WITHERS, Manufacturers of BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade. Manufactory, 36, Tottenham Court Road (opposite Bedford Street, Bedford Square). Warranted Tooth Brushes, 3*d.*; superior ditto, 4*d.*; the best that can be made, 6*d.* each.—N.B. The lowest price asked, and no abatement.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

Circulars free by post.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 1, 1856.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 10.—1856.] SATURDAY, MARCH 8. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will be held on Tuesday, March 18th, on which occasion the Quality of British Oak Timber will be a subject of inquiry. The chair will be taken at 2 P.M.—N.B. The Meeting will take place on this day instead of March 11, as formerly announced.

UNIVERSITY COLLEGE, LONDON.—ELEMENTARY COURSE OF BOTANY.

Professor Lindley will commence a COURSE of LECTURES on BOTANY to a Junior Class, for the express purpose of teaching Botany in an Elementary manner, especially in its relation to Common Things, on MONDAY, March 10th, at 8 o'clock, A.M. The Lectures are confined to such an account of Vegetable Structure as enables the Student to understand it as regards the Flora of Europe, and will be delivered (with the exception of 12 days for the Easter Vacation), daily at 8 A.M., until the end of April. Fee for the Class, 2*l*.; College Fee, 5*s*. The Course to the Senior Class will commence on the 1st of May.

G. Viner Ellis, Dean of the Faculty of Medicine.
Alexander W. Williamson, Dean of the Faculty of Arts and Laws.
March 8. Chas. C. Atkinson, Secretary.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that an ELECTION of PENSIONERS on the Funds of this Society will take place in JULY next. All persons desirous of becoming Candidates are required to send in their Testimonials and Certificates to the Committee on or before the 1st of April next, after which time they will not be received. Printed forms may be had upon application. By Order. E. R. Cutler, Sec.
March 8. 14, Tavistock Row, Covent Garden.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

JOHN LAW, Curator of the Botanic Garden, Sheffield, begs to inform the nobility and gentry that he has had the privilege from the Directors for the last eight years to practice as LANDSCAPE GARDENER and GARDEN ARCHITECT. Plans and Estimates for Horticultural Gardens; Asphalte for Garden Walks and Carriage Roads laid down on the best improved principles. Terms on application.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible quality upon application from* Messrs. William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

GIANT SAINFOIN.—*The True Giant Sainfoin may be obtained genuine of the undersigned, at* 10*s*. *per bushel. It will thrive on all soils.*
John Sutton & Sons, Seed Growers, Reading, Berks.

CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*
John Sutton & Sons, Seed Growers, Reading, Berks.

TURNIP SEEDS.—Marshall's, Skirving's, Butler's, Matson's Purple Top and other Swedes, Scotch and other Turnips, Mangel Wurzel, and all kinds of Agricultural Seeds.—Prices on application to Dawe, Cottrell, & Benham, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

WILLIAM HUSSEY begs to offer the under-named Collection of ACHIMENES, &c., one strong Bulb of each post free for 2*s*., viz.:—Longiflora, alba, Tugwelliana, pedunculata, Skinneri, rosea, venusta, Jayi, grandiflora, and Gesneria zebrina.
Horticultural Gardens, Norwich.

TO THE SEED TRADE.

WOOD and INGRAM have to offer a few quarters of BEDMAN'S IMPERIAL PEAS, TAYLOR'S WINDSOR BEANS, SCARLET RUNNERS, and DWARF FRENCH BEANS, at a very low rate. Prices on application.
Huntingdon Nurseries, March 8.

WHEAT FOR LATE AND SPRING SOWING—Samples with prices of Talavera, Red Hybrid, Nursery April, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

NEW SORTS OF FARM SEEDS.

A SECOND EDITION of SUTTON'S CATALOGUE is now in the Press, which includes several valuable new varieties of AGRICULTURAL SEEDS.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. Morton, Esq., *is now ready, and can be obtained from the Proprietors,*
William E. Rendle & Co., Seed Merchants, Plymouth.

MESSRS. J. and H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 8.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is Now Ready, and will be sent free by Post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.
Tollington Nursery, Hornsey Road, Islington, London.

SEED GROWING ESTABLISHMENT, WISBECH, CAMBRIDGESHIRE.

CHARLES SHARPE begs respectfully to inform the Trade that his CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS, cultivated and saved under his own management, will be forwarded post free on application.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

CHEAP AND SELECT NURSERY STOCK.

WILLIAM JACKSON and CO., Bedale, Yorkshire, beg to refer purchasers to their advertisement of useful Nursery Stock in the *Gardeners' Chronicle*, page 109, Feb. 16.

HARDY AZALEAS AND RHODODENDRONS.

H. LANE and SON have to offer most of the leading sorts of the above, well set with blooms.
The Nurseries, Great Berkhamsted, Herts.

ROSES.

H. LANE and SON, the Nurseries, Great Berkhamsted, Herts, have still on hand a fine assortment of STANDARD ROSES in variety, also DWARFS, both worked and on own roots, consisting of the most popular sorts. Also Roses in pots for immediate Forcing.

DWARF ROSES.

H. LANE and SON have a fine large stock of DWARF ROSES, such sorts as Alexandrine Bachmeteff, Auguste Mie, Baronne Hallez, Madame Cavaignac, Mrs. Stowe, Triomphe de Paris, William Griffiths, &c., still to offer. Prices may be had on application at the Nurseries, Great Berkhamsted.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the under-named Collection, fine healthy Plants, package included, for 20*s*., viz.:—Carlos, Empress, Duchess of Wellington, Optimum, Magnet, Virginia Rosa, Phaeton, Seraskier, Lucy, Kulla, Cordelia, Mary, Queen of May.—Horticultural Gardens, Norwich.

TO THE SEED TRADE.

G. TABER, Seed Grower, Rivenhall, Witham, Essex, has for sale a few quarters of some of the best sorts of Early PEAS and Green Windsor BEANS; Skirving's Purple-top and other SWEDES, and MANGEL SEEDS of sorts, grown from select roots. Prices on application.

WANTED, strong THORN QUICKS.—Address, stating size, price, &c., Samuel Stafford, Nurseryman, Hyde, near Manchester.

NOTICE TO GROWERS OF PINE-APPLES.

WANTED, FOR THE LIVERPOOL MARKET, a quantity of good PINES, not under 2 lbs. each. Forward immediately.—George Taylor, Jun., Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

DWARF BOX-WOOD FOR EDGING.

WANTED 1000 to 2000 Nursery yards of good DWARF BOX-WOOD fit for immediate use. Please state cash price per yard delivered at a railway station.—Samuel Finney & Co., Gateshead Nursery, Newcastle-upon-Tyne, March 8.

JOHN GRIGOR and CO., Nurseries, Forres, can still supply the Trade with fine one-year old SEEDLING LARCHES, and two years' SEEDLING TRUE NATIVE SCOTCH PINE PLANTS. Prices furnished on application.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

Established 1805.
TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE and HARDY PLANTS, NEW and CHOICE FRUITS, &c. &c. Full particulars of the above are given in Youell & Co.'s Advertisements which appeared on the 2d Feb.
Royal Nursery, Great Yarmouth, Norfolk.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

THOMAS WELLAND, Surrey Gardens, Godalming, Surrey, offers the following CABBAGE PLANTS:—True Field Drumheads, 3*s*. 9*d*. per 1000; a variety of fine Early sorts, 5*s*. per 1000; Red Picklers, 1*s*. per 100. Packed and delivered free to the Godalming Station.

CHARLES DALY and SON beg to inform the Trade that they have still 500,000 good 2-year SEEDLING THORNS to Sell, at 3*s*. 9*d*. per 1000; and 200,000 1-year SEEDLING LARCH, at 1*s*. 3*d*. per 1000. Carriage paid to England; for Cash only.—Nurserymen, Coleraine, Ireland.

FRUIT TREES IN POTS.

H. LANE and SON beg to offer a fine collection of the above, which can be had at the Nurseries, Great Berkhamsted, consisting of Peaches, Apricots, Nectarines, Pears, Plums, Cherries, &c., well furnished with bloom buds, and fit for immediate Forcing. Catalogues may be had on application.
The Nurseries, Great Berkhamsted.

FRUIT TREES IN POTS.

TO BE SOLD IMMEDIATELY, the contents of an Orchard House, consisting of fine large Bearing Fruit Trees, belonging to the late T. Darvell, Esq., Rose Cottage, Berkhamsted, where they can be seen; or particulars can be had of H. Lane & Son, the Nurseries, Great Berkhamsted, Herts.

BLACK HAMBURGH VINES.

TO BE SOLD, Seven very large short-jointed BLACK HAMBURGH VINES in 15-inch pots; stems 6 to 7 feet long; nearly as stout as a walking cane. Raised from eyes and will produce a large crop this season.—Apply to A. B. C., at the Office of this Paper.

TO BE SOLD, six to eight dozen healthy PINE APPLE PLANTS, showing fruit. Also four dozen SUCCESSION PLANTS.—Mr. G. Edwards, Gardener, Winterfold, Kidderminster.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

IMPORTANT TO SEEDSMEN AND FARMERS.

TO BE SOLD, Skirving's Purple-top Swede, Green Globe, and White Globe Turnip Seed, from selected bulbs; White Spanish and White Globe Onion Seed, all of 1855 growth; also Seed Potatoes as follows:—Fluke Kidneys, 90*s*. per ton; Early Shaws, 80*s*. per ton. Delivered either at St. Neots, on the Great Northern Railway, or at Swavesey (Eastern Counties Line).—Apply to Mr. Cooper, Eaton Sacon, St. Neots, and Drayton, Cambs.

BEFORE ORDERING YOUR SEED POTATOES, send for THORNHILL & DICKSON'S DESCRIPTIVE PRICED LIST of the best leading varieties. Observe!—27, Bath Street (facing the Talbot Hotel), Bristol; and Nursery Grounds, Lawrence Hill.
N.B. A complete assortment of Kitchen Garden, Flower, and Agricultural Seeds. Priced Catalogues free by Post.

JOHN HOLLAND begs to offer the FLUKE KIDNEY POTATO (true), in any quantity, at 3*s*. per bushel of 56 lbs.; 5*l*. per ton; strong sacks to hold 5 bushels (2½ cwt.) 1*s*. 9*d*. each.—Bradshaw Gardens, Middleton, near Manchester.

FLUKE KIDNEY POTATOES.

WILLIAM HUSSEY has to offer 120 Sacks of the above valuable Potato, warranted true. Price, per sack or ton, on application.—Horticultural Gardens, Norwich.

FLUKE KIDNEY POTATOES, 5*l*. per ton; in quantities less than 1 ton, 6*s*. per cwt; sacks, 1*s*. per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.
Humphrey Chamberlain, Kempsey, Worcester.

POTATOES FOR PLANTING.—
BRITISH QUEEN and FORTY-FOLD... per bush. 4*s*. 0*d*.
SURREY CHAMPION, very hardy variety ... „ 3 6
Delivered free of charge to London by rail.
Hart & Nicklin, Seedsmen, &c., Guildford.

EARLY POTATOES.

JOHN BELDON, Gardener, Easby Abbey, Richmond, Yorkshire, has for sale Pure ASH-LEAVED KIDNEY POTATOES, at 6*d*. per stone. They will, if required, be delivered free at the Railway Station, Richmond. Purchasers must either send their own sacks or pay cost price for new ones.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

SUFFOLK HERO, Early, Handsome, and Prolific Kidney Potato, may be taken from the open ground in May. 3*s*. per peck, or 10*s*. 6*d*. per bushel, including bag, and carriage free to London. Only a few for sale.—Thomas Wild, Ipswich.

SEED POTATOES.—The following sorts, from true and healthy stocks, may be had as below, namely:—Kidney: Fiftyfold, Fluke, Lapstone, and Painted Lady. Round: Early Oxford, Early Frame, Early Cockney, Fortyfold, British Queen, Early Shaw, York Regent, and Purple Regent.—Prices on application. A descriptive, historical, and comprehensive Catalogue of Flower and Vegetable Seeds forwarded on receipt of three penny stamps. A remittance with order from unknown correspondents.—Hooper & Co., Covent Garden Market.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

SEEDS PURE AND UNADULTERATED.—*We beg most respectfully to call attention to the leading article in last week's* Gardeners' Chronicle, *referring to the importance of "trying Seeds" and will most willingly forward samples for trial to any intending purchasers. If this plan were more generally adopted it would prevent much disappointment and loss of crop. To get seeds new and pure and really cheap, they should be obtained direct from the Growers.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, *Seedsmen to the Gloucestershire Agricultural Society.*

NEW SHRUBBY CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that a descriptive Catalogue of his beautiful new SHRUBBY CALCEOLARIAS is now ready, and may be had upon pre-paid application.

Very choice CALCEOLARIA SEED 2*s.* 6*d.* per packet, or three packets 5*s.* Post free.

The PAMPAS GRASS, a beautiful hardy plant, 2*s.* 6*d.* each, or 1*l.* per dozen. Post free.

Postage stamps will be taken in payment of the Seeds, and for single plants of the Pampas Grass.

THOMAS VEITCH AND Co., Western Counties Seed Depôt, 195, High Street, Exeter, will forward upon application their List of VEGETABLE and FLOWER SEEDS, postage free.

COLLECTIONS OF PRETTY FLOWER SEEDS.

12 varieties, 1*s.*; 12 do, 2*s.*; 12 do., 3*s.*; and upwards, according to quality and quantity. Sangster's No. 1 Pea (the earliest), 1*s.* 6*d.* per quart; Early Morning Star (much approved), 1*s.* per quart; Hair's Green Mammoth (very fine), 1*s.* 6*d.* per quart; other most esteemed kinds, 8*d.* per quart and upwards. Fulmer's Early Forcing French Beans, 1*s.* 6*d.* per quart, and all other articles equally moderate. The best varieties of Seed Potatoes, &c., &c.—March 8.

CHUNAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 2*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

E. MERRY, Chrysanthemum Nursery, Stamford Hill, being a successful exhibitor from the formation of the Stoke Newington Chrysanthemum Society in the year 1846, and having taken prizes at the following Exhibitions in the year 1855:—Stoke Newington, 2d; North London, 1st; the Horns at Kennington, Silver Medal; Old Kent Road, 1st. E. M. having selected the best 36 varieties can strongly recommend the same, from 4*s.*, 9*s.*, and 12*s.* per dozen, by Post Office order.—Stoke Newington.

SPLENDID NEW RHUBARB, SALT'S "CRIMSON PERFECTION."

ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of Rhubarb is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public.

For further particulars refer to *Gardeners' Chronicle*, Dec. 8th, 1855. A few two-year-old roots, 5*s.* each. Price 3*s.* 6*d.* per root, three for 10*s.*, and six for 1*l.*

Orders addressed to Robert Salt, Longton, Staffordshire; or the following agents, will have immediate attention:—Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London; Messrs. Burgess & Kent, Penkhull, Staffordshire; Messrs. Francis & Arthur Dickson, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, 102, Eastgate Street, Chester; Mr. Salsbury, Melbourn, Derbyshire. A liberal discount allowed to the Trade. A Post Office order from unknown correspondents.

Longton, March 8.

NEW CONTINENTAL PLANTS.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. I. Linden, of the Royal Botanic Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following new and beautiful Plants.

ACHIMENES (Locheria) MAGNIFICA.—Dark vermillion red, spotted and rayed with deep violet, almost approaching a black, flowers two inches in diameter.

ACHIMENES (Tydea) AMABILIS.—Delicate rose, with deep carmine markings, throat rayed and marked with white.

CUPHEA EMINENS.—Long bright red and yellow flowers, being larger than any other in this class. It is very abundant and free, and expected to make a fine bedding plant.

GONOCALYX PULCHER.—A beautiful little greenhouse plant, with bright waxy red tubular flowers, tipped with white. This lovely plant is as charming when out of blossom as when in, on account of the young growth being always of a lively rosy purple.

Messrs. E. G. H. & Son take this opportunity of expressing their pleasure in being enabled to offer the above beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

P.S. The above New Plants will be ready for sending out on and after the 1st May.

The following coloured Plates are now ready, and may be had on application at 6*d.* each, or if by post at 8*d.* each, except when three or more are taken, when the postage will not be charged:—

ACHIMENES (Locheria) MAGNIFICA.
" (Tydea) AMABILIS.
CAMELLIA JENNY LIND.
CUPHIA EMINENS.
DIANTHUS ALBO-NIGRICANS.
FUCHSIA EMPEROR NAPOLEON AND VENUS DE MEDICI.

FLOWER AND GARDEN SEEDS.

A Catalogue of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had gratis on application.—Wellington Nursery, St. John's Wood.

TO THE TRADE, AND LARGE BUYERS.

J. MORRISON AND SON beg to offer the following strong well grown Plants.

Evergreen Privet, 1 to 1½ foot	Alder, 5 feet
Native Scotch Fir, 18 inches	Laurels
Ash, 12 inches	Spruce Douglassi
Oak, 2 to 3 feet	Larch, 15 to 18 inches.

Two years' Seedling 1 year transplanted Native Scotch Fir, Silver Fir, Norway Spruce. A few thousand Raspberries and Gooseberries of finest kinds.

Montcoffer Nurseries, near Banff.—March 8.

PANSIES, FUCHSIAS, ETC.

J. MORRISON AND SON, Montcoffer Nurseries, near Banff, beg to call attention to the following selections from their Catalogue of Flowers, &c.:—

PANSIES—100 fine kinds for 40*s.*; 20 superb new vars., 25*s.*
HOLLYHOCKS—9*s.*, 12*s.*, or 18*s.* per dozen.
MIMULUS—20 varieties, at 15*s.*
FUCHSIAS—25 new varieties, at 17*s.* 6*d.*; 12 newest and best of last season, at 20*s.*
ANTIRRHINUMS—50 fine varieties, 40*s.*; 12 at 12*s.*
SCOTCH ROSES, at 9*s.* per dozen.
AYRSHIRE ROSES, at 9*s.* per dozen.
50 Fine selected GREENHOUSE PLANTS for 50*s.*
100 varieties HERBACEOUS PLANTS, at 30*s.*

Plants forwarded free of charge to London, Edinburgh, or Dublin, when orders exceed 40*s.* Catalogues forwarded free.

Established 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices in fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	*s.*	*d.*
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
The finest first-class show Pinks, by name, per dozen pairs ... ... 9*s.* to	12	0

Youell & Co., Royal Nursery, Great Yarmouth.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9*s.*, 12*s.*, and 18*s.* per dozen pairs.
PICOTEES, 9*s.*, 12*s.*, and 18*s.* "
PINKS, 4*s.*, 6*s.*, and 9*s.* "
PANSIES, 4*s.*, 6*s.*, and 9*s.* per dozen plants.
BELGIAN DAISIES, 4*s.* and 6*s.* "
FLUKE KIDNEY POTATO, 3*s.* per bushel of 56 lbs.
SELECTED PANSY SEED, 1*s.* and 2*s.* per packet.
DELPHINIUM BARLOWI, 4*s.* per dozen.
Auriculas, Alpine Auriculas, Primroses, &c.

Priced and Descriptive Catalogues now ready for one stamp. Post-office orders to be payable at Middleton, Lancashire.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE AND CO., Seed Merchants, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "Rendle's *Agricultural Price Current and Farm Directory.*"

Swede Turnip of sorts, 10*d.* per lb., 1*s.* 4*d.* per qt., 5*s.* per gall.
Scotch Turnips ditto, 10*d.* per lb., 1*s.* 4*d.* per qt., 5*s.* "
Common Turnips ... 8*d.* per lb., 1*s.* per qt., 4*s.* "
Tankard Turnips ... ... 8*d.* per lb., 1*s.* per qt., 4*s.* "
White Belgian Carrot . 9*d.* per lb.
Long Red Mangel Wurzel, 6*d.* per lb.
Yellow Globe do. 6*d.* per lb.
Italian Rye-Grass, 9*s.* per bushel.
Scotch Perennial do. 7*s.*, 8*s.*, to 9*s.* per bushel.
Devon Evergreen do. 6*s.* to 7*s.* per bushel.

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

William E. Rendle & Co., Seed Merchants, Plymouth.

VERBENA "TRANBY" will be sent out about the 21st of April, in good healthy plants, at 5*s.* each, or 21*s.* the half dozen. Colour shaded crimson, very large flower, with an immense cream eye, in the way of an Alpine Auricula, quite distinct, and habit good. A fine stock of Choice Geraniums, from 4*s.* to 30*s.* per dozen; good sorts, 2*l.* 2*s.* per 100. Cinerarias, good sorts, strong, 6*s.* per dozen. Bedding Plants, 21*s.* per 100. Dielytras, 6*s.* per dozen. Pimelia decussata, strong and fine, 18*s.* per dozen. See our List of Garden Seeds with prices. Flower Seeds, 20 sorts free for 18 stamps.

Martin & Son, Nursery and Seed Establishment, Cottingham, Hull Branch Junction Street.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	*d.*
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Standard and half Standard Roses, best sorts, per dozen, 12*s.* to	18	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen... 12*s.* to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
24 Choice Ericas, one of a sort	16	0
Fine Pampas Grass, each	3	6
6 new sorts Mimulus, very fine early flowering	6	0
Cinerarias, fine sorts, to flower early, per dozen... ...	10	0
Fine New Double White, Pink and Blush Paeonys, p. doz.	8	0
12 Phlox, new French Perennial varieties	12	0
25 Hardy Herbaceous Plants, by name	10	6
Carnations and Yellow Picotees, per dozen	10	0

FRUIT TREES.

Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, Plums, and Cherries, grown for pot culture, per dozen	18	0

Choice Flower Seeds, 18 papers, 5*s.*; 40 do., 10*s.*, free by post.
New General Catalogue of Plants for 1856 free by post.
Albion Nursery, Stoke Newington, London, March 8.

NOTICE.—Seed Warehouse, 54, High Street, Exeter, opposite the Guildhall.

JAMES VEITCH AND SON, of Exeter and Chelsea, beg respectfully to inform their Friends and the Public generally that they continue to carry on the Seed Business as heretofore, in all its branches, and on the above premises, 54, High Street, where it has been conducted for the last 18 years, and that they have NO CONNECTION WHATEVER with any other Seed Establishment in Exeter.

James Veitch & Son wish it particularly to be understood that their sole motive in giving this Notice is to prevent mistakes and disappointment to their Customers, and to counteract any reports that have been or may be circulated to the contrary.

N.B.—They particularly request that all letters and orders for Seed be distinctly addressed James Veitch & Son, 54, High Street, Exeter.—March 8.

CAMELLIAS.

CHANDLER AND SONS, Nursery, Wandsworth Road, beg to inform their friends and the public that their extensive COLLECTION of CAMELLIAS is now coming into bloom. They have a fine stock of young plants, well set with flower buds, at reasonable prices, and fit for travelling.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

NEW DAHLIAS TO BE SENT OUT IN MAY BY G. WHEELER, Nurseryman, Warminster, Wilts:

ECLIPSE (Wheeler's), fine dark purple, first-rate form, full high centre, and very constant; obtained Certificates at Bath, Clifton, and Salisbury Exhibitions; 3 to 4 ft., 10*s.* 6*d.* each.

LADY RAGLAN (Wheeler's), Buff, a fine back row, flower good form, high centre; obtained Certificates at Troubridge, Salisbury, and Clifton Exhibitions; 4 to 5 ft., 7*s.* 6*d.*

The usual discount to the Trade.

GREENHOUSE AZALEAS.

A. PAUL AND SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s.* the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s.* the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s.* and 30*s.* per dozen. A few larger plants 3*s.* 6*d.* to 5*s.* each. Carriage free to London.—Nurseries, Cheshunt, Herts.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 8*d.*; fine Households, recommended for Bread-making, 12*s.*; Seconds, 11*s.* 4*d.*; Wheat-meal, for Brown Bread, 11*s.* 4*d.*; best coarse and fine Scotch Oatmeal.—Address Horsnaill & Catchpool, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

THE LODDIGES' COLLECTION OF ORCHIDS.—This celebrated and unrivalled Collection, containing upwards of 1200 Species in 2000 Specimens (many of which are unique), and in the finest possible health, is now to be disposed of in One Lot, thus affording to any Nobleman or Gentleman commencing the cultivation of this beautiful tribe of Plants an opportunity of at once obtaining the largest collection in Europe.—For Terms and to view, address C. Loddiges, Hackney.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.—The above kinds of Clovers will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. Sutton's Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply as from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

William E. Rendle & Co., Seed Merchants, Plymouth.
Established 1786.

TO ALL WHO ENJOY DELICIOUS GREEN PEAS, BOTH EARLY AND LATE.

WM. GRIMSTONE, of the Herbary, Highgate, was the fortunate resuscitator of the only EGYPTIAN PEA, reared from those found in a vase presented by Sir Gardener Wilkinson, the Egyptian traveller, to the British Museum. Three were presented to Mr. Wm Grimstone by Mr. T. J. Pettigrew, who opened this relic of the Pharaohs, 2844 years old. The growth, bloom, and bearing is different to those of this country; they are very prolific. The taste is unequalled; they boil much greener, and the skins are so tender you do not taste them in your mouth. A 2*s.* 6*d.* bag will produce enough for a small family; they are planted thus—. . . . . 8 inches apart; they require no sticks. Remember, every bag contains the history of this wonder, with the original letters from Sir Gardener Wilkinson, and directions to cultivate them.—Sold in bags, 2*s.* 6*d.*; three times the quantity, 5*s.*; and seven times the quantity, 10*s.* Each bag is signed and sealed by Wm. Grimstone, London Depôt 52, High Street, Bloomsbury. Agents: John Kernan, Seedsman, Russell Street, Covent Garden; Butler & M'Culloch, Covent Garden.

SEED POTATOES.

WOOD AND INGRAM beg to offer the following, warranted true:—

Per bushel of 56 lbs.—	s.	d.	Per bushel of 56 lbs.—	s.	d.
Golden Dun Kidney ...	4	0	Golden Multiplier ...	4	0
Regents	3	0	Lapstone Kidney ...	3	6
British Queen	3	0	Chapman's do.	4	0
Houghton Park Seedling	3	6	Mitchell's Albion ...	4	0

Nurseries, Huntingdon, March 8.

500 BUSHELS OF POTATOES TO THE ACRE.

THIS ENORMOUS CROP was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s.*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than any other sort, and far more free from disease, planted in the same soil and in every way alike."—MRS. CANNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large.

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s.* per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s.* 6*d.* per peck, or 9*s.* per bushel, delivered carriage free.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

JOHN WATERER has much pleasure in submitting to the attention of gentlemen engaged in planting the following desirable selections from his general NURSERY STOCK. The whole of the Plants are in the best possible condition for removal.

Cedrus Deodara, 4 to 5 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each, bushy to the ground, fit for standing singly as specimens; 5 to 6 and 7 feet, 21*s.* each; 7 to 8 and 10 feet, 31*s.* 6*d.* to 42*s.*; 10 to 12 feet, 63*s.* (most magnificent plants).
Cedrus Lebanon, 4 to 5 feet, 3*l.* 3*s.* per dozen.
Cryptomeria japonica, 5 to 6 ft., 7*s.* 6*d.* each; larger, 10*s.* 6*d.* to 21*s.*
Araucaria imbricata, 2 to 3 feet, 7*s.* 6*d.* to 21*s.*; 3 to 4 feet, 21*s.* to 42*s.* (splendid plants).
Fitz-Roya Patagonica, 2 to 3 feet, 5*s.* each.
Juniperus Hibernica, 4 to 5 feet, 5*s.*, handsome and close grown.
Libocedrus gigantea, 10*s.* 6*d.*; about 2 feet, 31*s.* 6*d.*
Pinus Cembra, 3 to 4 feet, 5*s.*
" Douglasi, 3 to 4 feet, 3*l.* 3*s.* per dozen; 4 to 6 feet, 7*s.* 6*d.* to 10*s.* 6*d.* each; 6 to 8 and 10 feet, 42*s.* to 63*s.*
" Lambertiana, 2 to 3 feet, 10*s.* 6*d.*; 3 to 4 feet, 21*s.* to 31*s.* 6*d.* (very handsome).
" insignis, 1½ to 2 feet, 30*s.* per dozen; 2 to 2½ feet, 42*s.*; larger, 5*s.* to 10*s.* 6*d.* each.
Saxe-Gothæa conspicua, 2 to 3 feet, 5*s.* [21*s.* each.
Yew, Irish, close grown specimens, 5 to 6 and 7 feet, 10*s.* 6*d.* to
Wellington gigantea, good plants, 5*s.* to 7*s.* 6*d.*; larger, very handsome, 10*s.* 6*d.* to 21*s.*
Cupressus Goveniana } 1½ to 2 feet,
" macrocarpa } 7*l.* 10*s.* per 100.
Thuja aurea, about 1 foot, 10*l.* per 100; larger, 3*s.* 6*d.* to 5*s.* each; very handsome, 7*s.* 6*d.* to 21*s.* each.

Rhododendron ponticum, for under cover, strong, fit for immediate planting, 7*l.* 10*s.* to 10*l* per 1000.
" Catawbiense, good bushy plants, 2*l.* 10*s.* to 5*l.* per 100 (a good proportion of these have bloom buds); larger, 7*l.* 10*s* per 100.
" Catawbiense Hybrids, in good varieties, fine bushy plants, 2*l.* 10*s.* to 7*l.* 10*s.* per 100.
" in choice sorts, by name, such as are annually exhibited by us at the Royal Botanic Gardens, Regent's Park, well grown plants, 1½ to 2 and 2½ feet, 30*s.* to 60*s.* per dozen.
" Standards, of the most approved kinds, 21*s.* to 42*s.*, and 105*s.* each.
Azaleas (Hardy Belgian, and others), good mixtures, yellow, pink, scarlet, &c., 1½ foot, 2*l.* 10*s.* to 3*l.* 10*s.* per 100; very superior, 12*s.*, 18*s*, to 24*s.* per dozen.
Hardy Heaths, superior collection, 35*s.* per 100.
Kalmia latifolia, good bushy plants, 1 to 1½ foot, 4*l.* 4*s.* per 100; larger, of all sizes; myrtifolia, a superior variety, 1 to 1½ foot, 3*s.* 6*d.* to 5*s.* each.

J. WATERER feels confident that intending planters would find it greatly to their advantage to make a personal visit of inspection, which can easily be done, the Nursery being near the Farnborough Station, South Western Railway, and Blackwater, South Eastern Railway.

The American Nursery, Bagshot, Surrey.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10*s.* 6*d.* The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

KITCHEN GARDEN SEEDS.

JOHN CATTELL begs to offer to the public a few choice SEEDS, which may be had free by post at the prices annexed:—

	Per packet.—s.	d.
Beet, Cattell's dwarf purple-top	0	6
Brussels Sprouts, fine tall	0	9
" " dwarf	0	9
" Imported	1	0
Scotch Kale, fine feathered, tall	0	6
" dwarf hardy curled	0	6
Couve Tronchuda	0	9
Broccoli, superior Walcheren	1	0
" Cattell's superior new white	1	0
" Dilcock's Bride	1	0
" Ellettson's Emperor	1	0
" fine dwarf Purple Sprouting	1	0
Cauliflower, fine early	1	0
" " dwarf Walcheren	1	0
Cabbage, Cattell's dwarf Barnes	0	9
" " " Reliance (the best known) ...	1	0
" " Paragon	0	9
" " Green Colewort	0	9
Savoy, Cattell's dwarf green curled	0	9
Celery, Cattell's tall solid white	0	6
" Cole's Crystal white	0	6
" Laing's Mammoth Red	1	0
Cucumber, Kerryson's Prize Per doz. seeds	1	0
" Manchester Prize ... ... " ...	1	0
" Sagg's Exhibition ... ... " ...	1	0
" Cattell's fine long black spine " ...	0	6
" " " white " " ...	0	6
Endive, moss curled ... ... Per packet	0	6
" Batavia small green	0	6
Lettuce, Black Seeded Brown Bath Cos	0	6
" Large London White Cos	0	6
" Alphage Cos	0	6
" Marseilles Cabbage	0	6
Leek, thick-leaved Musselburgh	0	6
Melon, Bellegarde, Montreal, Trentham Hybrid, Sarepta, Victory of Bath, Beechwood Per doz. seeds	1	0
Parsley, Cattell's Exquisite Curled	0	6
Turnip, Improved Red American	0	6
Vegetable Marrow, white egg-shaped	0	6
" Custard	0	6

A Post Office Order or Postage Stamps to accompany all orders from unknown correspondents.

Nursery and Seed Establishment, Westerham, Kent.

JOHN CATTELL having a large stock of very strong ground roots of the undernamed, is enabled to offer them upon very advantageous terms to the Trade and others requiring them in large quantities. Prices may be had on application.

Dodecatheon alba, per dozen or per hundred
Œnothera macrocarpa, ditto ditto
Gentiana acaulis, ditto ditto
Hepatica, single blue ditto ditto
" double red ditto ditto
Wahlenbergia grandiflora, ditto ditto
Helleborus niger, ditto ditto
" orientalis, each or per dozen
Lily of the Valley, per hundred; do. double, per dozen
Delphinium Barlowi, per hundred or per thousand
" grandiflorum maximum, ditto ditto
" Wheeleri, per dozen
" hybrida flore-pleno, per dozen [thousand
" Hendersonia, per dozen, per hundred, or per
" Mooreanum, per dozen or per hundred
" magnificum, per dozen or per hundred
Also, Irish Ivy, strong budded, fit for immediate potting, &c., per hundred or per thousand
Early and Late Dutch Honeysuckle, ditto ditto
Evergreen Berberis, from aquifolium and repens, twice transplanted, from 1 to 2 feet, per 100 or per 1000
Hardy Azaleas of all the finest of the Ghent and other varieties, splendid plants, loaded with bloom-buds, per dozen, per 100, or per 1000
Raspberries, Red Antwerp, Fastolff, Turk's Cap Red, and Large-fruited Monthly, per 100.

Nurseries, Westerham, Kent.

JOHN CATTELL offers the following choice SEEDS, selected from his Flower Seed Catalogue, which may be had in packets, post free, at the prices annexed:—

	s.	d.
Azalea indica, finest mixed	1	0
Alstrœmeria acutifolia ...	1	0
Anemone, Single Poppy, extra fine mixed	0	6
Antirrhinum, from finest varieties	0	6
Aquilegia glandulosa (M'Gregor's true)	0	6
Auricula, fine mixed alpine	0	6
Balsam, in six varieties, separate, all saved from very superior double flowers ...	2	0
" the same mixed ...	1	0
Calceolaria, saved from finest spotted and others, carefully hybridised ...	2	6
Calceolaria, from a collection of new colours to any previously sent out by J. C. The flowers are very large, mostly dark, and very rich, on light grounds, warranted to give the greatest satisfaction	5	0
Carnation, from fine vars.	1	0
" from perpetual or winter flowering vars.	1	0
Clitoria plumeri	1	0
Cineraria, from finest vars.	2	6
Geranium, from first-rate florist vars.	1	0
" " fancy vars. ...	1	0
" from newest Scarlet varieties mixed ...	0	6
Geranium, from finest White, Salmon, and Pink vars.	0	6
Gloxinia, very fine mixed	1	0
Heartsease, from finest florist vars. mixed	1	0
" from new French spotted and striped vars.	1	0
Ipomœa rubra cærulea ...	1	0
Lychnis fulgens	0	6
Lotus jacobæus	0	6
Mandavillea suaveolens ...	0	6
Mimulus, finest mixed ...	0	6
Morna elegans	1	0
Myrtle, common	0	6
Nasturtium, Cattell's new Dwarf Crimson and ditto Scarlet, each	0	6
Oxalis rosea	0	6
Passiflora cærulea	0	6
" quadrangularis... ...	1	0
Primula sinensis, from extra fine Fringed, White, Blush, Pink, &c., mixed	1	6
Petunia, finest mixed ...	0	6
Polyanthus, fine mixed ...	0	6
" extra fine mixed ...	1	0
" Red Oxlip	0	3
Phlox Drummondi, extra fine mixed, from very rich dark flowers	0	6
Saponaria calabrica	0	6
Verbena venosa	0	6
" from finest vars. ...	0	6
Violet, Sweet-scented ...	0	3

Post Office Order or Stamps must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES)—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early. Price reduced to 9d. per lb.

From Mr. G. Norrington, Rectory Farm, Taplow, 26th 11, 1855.

"About five years ago I wrote to you to send me a mixture of Grass seeds to sow upon 10 acres of old pasture. At the time I took the farm the 10 acres of meadow was almost useless. I now have a most excellent pasture."

From C. F. Thruston, Esq., Talgarth, August 9, 1855.

"Your seeds have answered admirably. Turnips, Mangels, Carrots, and Parsnips are superb. Your Grass seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable; Clover and other seeds springing up where nothing but the poorest pasture had been previously, and I think that a field of 9 acres sown with your RENOVATING MIXTURE is now one of the finest in our neighbourhood."

From Sir David Cunynghame, Wellesbourne House, Warwick.

"The meadows that were renovated with your seeds are looking very well. I cut nearly 2 tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre. The Garden Seeds I have had from you exceed by far any that I have bought elsewhere.'

SUTTON & SONS *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense,* the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.

Many Meadows and Upland Pastures may be increased in value 50 *per cent. by sowing these Seeds* (*as see the above letters*).

Goods delivered Carriage Free by Rail.
Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

ESTABLISHED 1805.

CHOICE PLANTS, ETC.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the newest and choicest kinds, good bushy plants, in 48-sized pots, 15*s.* p. doz.
CAMELLIAS, in choice new kinds, well adapted for making fine flowering specimens next season, 21*s.* per dozen.
CHOROZEMA, in 6 beautiful varieties, 9*s.*
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per dozen; smaller ditto, 9*s.*
ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen. (A List of these will be found in our Advertisement of Dec. 1.)
GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*
SOLLYA LINEARIS, good plants, 1*s.* 6*d.* each.
" HETEROPHYLLA, 9*s.* per dozen.
STATICE SINUATA, 9*s.* per dozen.
EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.
LILIUM SPECIOSUM, good flowering bulbs, 2*s.* 6*d.* each.
" LANCIFOLIUM ALBUM, 9*s.* per dozen.
" EXIMIUM, 9*s.* per dozen.
CLEMATIS SIEBOLDI, strong plants, 1*s.* 6*d.* each.
" AZUREA GRANDIFLORA, 1*s.* 6*d.* each.
" HENDERSONI, 1*s.* 6*d.* each.
" MONTANA, 1*s.* each.
" FLAMULA, 9*d.* each.
GLADIOLUS INSIGNIS, fine flowering bulbs, 6*s.* per dozen.
" CARDINALIS " 3*s.* "
" BRENCHLEYENSIS, vivid scarlet, 2*s.* each.
GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen.
CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.
PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.
PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 3*s.* 6*d.* each.
PANSIES, a fine collection of all the new and first-rate flowers 9*s.* per dozen.
PRIMROSES, per doz.:—Double Yellow, 4*s.*; Double White, 4*s.*; Double Purple, 4*s.* 6*d*; Double Crimson, in maroon, a fine and scarce old plant, 12*s.*
DELPHINIUM HENDERSONI, 1*s.* 6*d.* each; Mooreanum, 6*s.* per dozen; Barlowi, 6*s.* per dozen.
DEUTZIA GRACILIS, fine strong plants, 9*s.* per dozen.
LILY OF THE VALLEY, strong, 5*s.* per 100.
PÆONIES, a choice collection of 20 new varieties for 20*s.*
ROCKETS, double crimson (strong), 9*s.* per dozen; the old double pure white ditto, 3*s.* per dozen.
STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds, including those adapted for rock-work, 6*s.* per dozen.

ASPARAGUS, Giant, 2 years, per 100	2*s.*	6*d.*
" " 3 years "	3	6
" " extra strong, for forcing, per 100 .	5	0
RHUBARB, Myatt's Victoria ... ... per doz.	8	0
" " Linnæus ... ... "	8	0
" Mitchell's Royal Albert ... ... "	8	0
" Hawke's Champagne, new & fine, 2*s.* each "	18	0
SEAKALE, strong, 2 years, per 100	6	0
" extra for forcing "	10	0

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	*d.*
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed, 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgbaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established more than a hundred years.

MAY'S VICTORIA CURRANT is the largest and best late Red Currant known, per 100, 12*s.*

MAY'S MAGNUM BONUM LETTUCE, well known to be very superior. Per packet, free by post, 1*s.* each.

MAY'S PARAGON CABBAGE is of very superior excellence, tender and crisp. Per ounce, free by post, 1*s.*; per pound, on application. Fine new seed.

EARLY ASH-LEAVED KIDNEY POTATO, 1*s.* per stone of 14 lbs.

100 Fine named Hardy Herbaceous Plants	£1	10
100 " " Alpine Plants	1	10
100 " " Shrubs	2	10
100 " " Cape Heaths	4	10

Fine blooming plants Epacris, 12*s.* per dozen.

All articles connected with the Nursery trade cheap and good. Address, HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

LAWN TREES.

THE FOLLOWING PENDULOUS and FLOWERING TREES have straight clear stems from 5 to 7 feet in height, and can be recommended as highly ornamental:—

Each—	*s.*	*d.*
Acer Lobelii	3	6
Sycamore, purple leaved...	1	6
Horse Chesnut, double flowering...	2	6
Amelanchia (the Snowy Mespilus	1	6
Amygdalus pendula (weeping Almond)	2	6
" communis dulcis ...	1	6
Betula laciniata (Fern-leaved Birch)	1	6
Caragana jubata (very rare)	3	6
" frutescens (pendulous)	2	0
" grandiflora	3	6
" pygmæa	2	6
Cerasus Padus variegata	2	6
Cotoneaster marginata (evergreen & pendulous)	2	6
" microphylla, ditto ...	2	0
" rotundifolia, evergn.	2	0
(These are all grafted on C. frigida.)		
Cratægus pendula nova (new weeping Thorn, beautiful)	3	6
Cytissus elongatus (pendulous)	1	6
" purpureus pendula ditto*	2	0
" atropurpureus, do.*	2	0
" purpureus elongatus*	2	0
" purpureus major* ...	2	0
" purpureus fl. albo* ...	2	0
" purpureus fl. roseo (pendulous)* ...	2	0
" supinus (pendulous)	1	6
" Weldeni	2	0
" caucasicus	2	6
" sessilifolius	1	6

* These are all worked on straight stems of the Purple Laburnum, on which they succeed well.

Each—	*s.*	*d.*
Beech, Fern-leaved ...	1	6
" cut-leaved	1	6
" weeping, two vars. ...	2	6
" smooth-leaved purple	1	6
Ash, Aucuba-leaved ...	2	6
" Willow-leaved ...	1	6
" curled leaved ...	1	6
" silver striped ...	1	6
" golden-twigged weeping	2	6
Althea Frutex, dble. pink	3	6
" dbl. carnation striped	3	6
Juglans regia pendula (Weeping Walnut) ...	10	6
Pavia Californica (Californian Chesnut	5	0
" discolor	2	6
Populus tremula pendula (Weeping Poplar) ...	2	6
" alba pendula ...	5	0
Salix Americana pendula	1	6
Sophora japonica pendula (fine trees, 8 ft.) ...	7	6
Lilac, Charles the Tenth	2	0
" dark red	2	0
" light blue	2	0
" dwarf French white	2	0
" Valleteana	2	0
" Sangeana (red Siberian, or "scarlet" of same)	2	0
Ulmus (the Elm) montana pendula	1	6
" " " nova	2	6
" " " variegata	2	6
" rugosa pendula ...	2	6
" glabra pendula ...	2	0
" stricta purpurea (purple-leaved Elm)	2	0
" viminalis	2	0
" viminalis variegata	2	0
Wistaria, or Glycine sinensis (5 feet, stout) ...	5	0

Carriage Paid to London.

THOMAS RIVERS, The Nurseries, Sawbridgeworth.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3	0
Collection No. 2. in reduced proportions	2	0
Collection No. 3. do.	1	5
Collections for small Gardens ... ... 10*s.* 6*d.* and	0	15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2*s.* 6*d.*
" " in larger packets, mixed 2*s.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	*d.*
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,
IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	s.	*d.*
30 superb vars. dwarf German Stock, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony-flowered French do. (Truffaut's)...	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p.46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 3*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.—Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—
Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester
Messrs, F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.
Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.
Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.
Cedars Red Virginian, 5 to 8 feet.
Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.
Cryptomeria japonica, fine plants, 4 to 7 feet.
Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.
Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.
Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.
Do. recurva, 3, 4, 5, up to 8 feet.
Do. hispanica or thurifera, 2, 3, and 4 feet.
Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.
Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.
Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.
Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.
Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.
Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.
Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.
Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.
Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.
Do. adpressa, 2 and 3 feet.
Do. do., worked on common Yew, as standards.
Do. gold striped, 1½ to 2 feet, by the thousand.
Do. do., a splendid lot of plants, 4 to 6 feet.
Do. do., worked as standards on the common Yew, 8 to 10 ft. high.
Do. do., worked on Irish Yews, 6, 7, and 8 feet high.
Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.
Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.
Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.
Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.
Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.
Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.
Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.
Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts, in trucks throughout, without packing and other extensive additions.—Knap Hill Nursery, Woking Surrey

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

KINGHORN'S UNEQUALLED NEW SCARLET GERANIUMS.

COUNTESS OF WARWICK.—Beautiful large variegated foliage, white margin, dark horse shoe, banded with pink, strongly marked, large truss of deep scarlet, the individual flowers of fine form, is of vigorous growth, proved to grow and flower well planted out. Received a certificate at the Royal Botanic Exhibition. Plants 10*s.* 6*d.* each.

ANNIE.—This is a decided improvement on "The Flower of the Day," and "Silver King," possessing fine large trusses of bright scarlet, the foliage large and flat, margined with pure white, does well planted out, has produced leaves 4⅜ inches over, very free grower. Plants 10*s.* 6*d.* each.

GENERAL PELISSIER.—This noble Geranium has been the admiration of all who have seen it, either in pots or bedded out, throwing its numerous globular trusses of orange scarlet flowers, well above the foliage, on strong white flower stalks, flowers of fine form with white eye, is of compact vigorous growth, leaves medium size with dark green margin, distinct horse shoe, paler green in centre. The best scarlet Geranium ever offered. Flowers very free and perfect in the smallest pot. Was awarded a first class certificate at the National Floricultural Society. Plants 10*s.* 6*d.* each.

In compliance with many pressing solicitations, FRANCIS R. KINGHORN has determined on sending out the above in the 3d week of April. The usual discount to the trade. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth, Middlesex, March 8.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY is now published, and can be obtained from the Proprietors or through any Bookseller in town or country,

It is this season produced under the Editorship of JOHN C. MORTON, Esq., *the Editor of the* Agricultural Gazette," *and the "Cyclopædia of Agriculture."*

It contains 128 closely printed pages, octavo size, and is one of the most valuable works on Agriculture ever published.

From the "Florist" for March, 1856:—

"'RENDLE'S *Price Current and Farm Directory.'—More than* 100 *pages of sound practical information on Farming matters; such is the 'Farm Directory,' a work that should be read by everybody who has a bit of Farming land. * * * * How so much is prepared and published at the small cost of 6d. is a mystery."*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SELECT CULTIVATED GRASSES FOR PERMANENT PASTURE, &c., on Sale by WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. For large quantities special contracts may be made at reduced prices.

Extracted from "RENDLE'S Agricultural Price Current and Farm Directory for 1856."

Our Mixed Grasses for Permanent Pasture, &c., have given the greatest satisfaction to all who have sown them. They are selected according to the best Tables—and will be sold at the lowest remunerative prices. Those who wish to make their own selection can purchase all the kinds separately.

MIXTURE FOR LAYING DOWN LAND TO PERMANENT PASTURE OR MEADOW.—The kinds are most carefully saved, all noxious weeds being excluded. The selections will contain several species of Festucas, Loliums, Poas, and Trifoliums, in such quantities as will best suit the soil for which the selection is intended. We usually send 2 bushels of light seed, and 12 lbs. of heavy seed per acre, which will be sufficient for most soils. The large increasing demand for Grasses for permanent pasture enables us to offer them at the reduced price of from 24*s.* to 30*s.* per acre, according to the sorts required to suit the soil. (Gentlemen in giving their orders are requested to state the quality of the soil, situation, &c.)

FOR LAYING DOWN PERMANENT LAWNS.—In Lawns, or Ornamental Parks, it is generally desirable to have a predominance of fine Evergreen Grasses. All the coarser kinds will, therefore, be entirely excluded, and the sward will at all times present a luxuriant and handsome appearance. The prices of the best Lawn Grass are 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s.* per lb.

FOR PERMANENT PASTURE AND HAY IN ORCHARDS AND OTHER GROUNDS MUCH OVERSHADED WITH TREES.—We can supply a very excellent mixture of Grasses suitable for the above purposes at 30*s.* per acre, comprising two bushels of light seed and 12 lbs. of heavy.

FOR HEATHY OR MOORY LANDS WHICH HAVE BEEN IMPROVED WITH A VIEW TO THEIR PRODUCING BETTER PASTURE.—We can offer an excellent mixture for Heathy or Moory Lands, at 25*s.* per acre, with varieties which will thrive best on such soils. When the order is sent it is desirable that it should be stated whether the soil is of a *moist* peaty character, or of a *dry* nature in a high altitude.

FOR LAYING DOWN SHALLOW UPLANDS AND SHEEP WALKS.—For this purpose we can offer a very excellent assortment suitable for elevated situations, which we can render at 30*s.* per acre, to produce excellent food for sheep.

FOR LANDS IN PREPARATION FOR IRRIGATION, OR WATER MEADOWS.—In this mixture we place those varieties that, from their natural habits, will stand an excessive moisture. Price 24*s.* per acre.

MIXTURE FOR RENOVATING OLD PASTURES, PARK LANDS, &c.—We can supply an excellent selection for renovating Old Pastures, deficient of Clovers, and the finer Grasses, at 7*s.* 6*d.* per acre, comprising about 10 lbs. of seed, at 9*d.* per lb. This renovating mixture is very useful for such lands as do not require to be laid down afresh, when the plant is thin, whether by partial failure of seed, drought, or any other circumstances.

FINE GRASS SEED, FOR ORNAMENTAL PARKS, PLEASURE GROUNDS, &c., KEPT CONSTANTLY UNDER THE SCYTHE.—Our selection of fine Lawn Grass Seeds has always given the greatest satisfaction. We can point to our own Grounds as a remarkable instance of their superiority. In the year 1850, our Gardens in the Union Road were completely altered, the soil levelled, and laid down to fine Grass; the seeds were not sown till the beginning of June, and by the 30th of July following a very superior sward was obtained.

All orders delivered carriage free, see RENDLE'S "*Agricultural Price Current and Farm Directory for* 1856."

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.

SAMUEL FINNEY AND Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery; and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

SAMUEL FINNEY & Co., Gateshead, Newcastle-upon-Tyne.

RHODENDRON, AZALEAS, LEDUMS, ETC.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, begs to offer at very moderate prices—

RHODODENDRONS suitable for Beds, Cover, or Plantations, raised from seed of good and hardy kinds, and all transplanted, from 9 inches to 2 feet high and upwards.

RHODODENDRONS, named kinds, including rosea in varieties, macranthum, magnoliæfolium, Myrtle-leaved, the two good sweet-scented varieties fragrans and Govenianum, a large quantity of pontica alba 2 to 3 feet and upwards, hybrids, scarlets, Nobleanum, &c.

AZALEAS, hardy, in great variety, well set with bloom-buds, 2 feet and upwards.

ANDROMEDAS, VACCINIUMS, LEDUMS, AMERICAN CRANBERRY, GAULTHERIA, MENZIESIA, HARDY HEATHS, &c., all in fine condition.

ROSES, Standard and Dwarfs.

BEECH, 6 feet. LAUREL, 6 to 8 feet. YEW, 4 to 6 feet.

Fine SPRUCE PINE, 4 to 8 feet high.

HERBACEOUS PLANTS, a large collection. The following by the 100:—Campanula carpatica alba, the purest white variety; Czackia, or St. Bruno's Lily; Dielytra spectabilis.

Of CHINESE PÆONIES, Odorata grandiflora, double white; Humei, Reevesi, Pottsi, and Rose-scented. Prices on application.

Fine BULBS of Anomatheca cruenta and Tigridias, conchiflora, and Wheeleri. Small quantities of the above Bulbs free by post at 4*s.* per dozen.

Choice CUCUMBERS at 1*s.* per paper, viz., The King, black-spined, very handsome; Ingram's Hybrid, white-spined, a long and most prolific sort.

CALCEOLARIAS to bloom in May, raised from the finest spotted varieties, in single pots, at 6*s.* per dozen plants; delivered free by post at 6*s.* per dozen by shaking all the soil from the roots.

Fine CALCEOLARIA SEED, 2*s.* 6*d.* per packet.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

THE Manufacture of GARDEN NETTING by ANDREW HALL is now carried on just the same by THOMAS BRITTAIN & CO. in the same qualities, and orders executed with dispatch and care.—ANDREW HALL, Manchester.

POULTRY, ETC., SHOWS.

PORTABLE WIRE PENS FOR POULTRY AND PIGEONS, furnished on hire by THOS. P. HAWKINS, General Wire Worker, 27, Dale End, Birmingham. Game Netting and Wire Goods of every description.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required. 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

NOBLEMEN, CLERGYMEN, GENTLEMEN, AND GARDENERS, are respectfully invited to transmit their address to Mr. J. W. HAYTHORN, Nottingham, who will forward free by Post particulars and patterns of HAYTHORN'S HEXAGON GARDEN NET, the best and cheapest article, highly approved, and now generally used for the protection of bloom, fruit, and flowers, from frosts, birds, wasps, flies, children, and servants, and also for placing on Hothouses, effectually keeping out birds and insects, without preventing the admission of light and air. Parcels carriage paid to London, Liverpool, Bristol, Newcastle, Hull, &c.—Orders by Post directed Mr. HAYTHORN, Nottingham, will have immediate attention.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures. Catalogues, containing prices and every particular, free by post. Warehouse, 42, Ludgate Hill, London.

FIRST PRIZE REAPING MACHINE.

NOTICE.

MESSRS BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

PAGE AND CO.'S

COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use. Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents: but to publish them as previously would take the whole advertising medium of the *Gardeners' Choonicle.*

AGENTS:—

Messrs. Henderson & Co., Pine-apple Place, London.
Messrs. Bass & Brown, Sudbury.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester.
Messrs. Sutton & Sons, Reading.
Messrs. Rendle & Co., Plymouth.
Mr. J. Veitch, Exotic Nursery, Chelsea.
Messrs. Wheeler & Son, Gloucester.
Mr. E. Paul, Derby.
Mr. G. Wheeler, Nurseryman, Warminster.
Messrs. Masters & Son, Canterbury.
Messrs. Downie & Laird, South Frederick reet, Edinburgh.
Mr. W. Barratt, St. John's, Wakefield.
Messrs. Thomas Davies & Co., Wavertree, Liverpool.
Mr. E. Taylor, Malton, Yorkshire.
Messrs. Chandler & Son, Wandsworth Road, London.
Mr. Freeman, Woburn.
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield.
Mr. J. Perkins, Northampton.
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks.
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford.
Mr. C. Turner, Royal Nursery, Slough.
Mr. J. Whomes, Pelargonium Nursery, Windsor.
Messrs. Mitchinson & Co., Seed Merchants, Truro.
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Messrs. Wood & Ingram, Nurseries, Huntingdon.
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Mr. Burham, Hastings.
Messrs. Leake & Smith, Bridgenorth.
Mr. G. Davison, St. Peter's Street, Hereford.
Mr. W. Garraway, Welwyn, Herts.
Mr. Thomas Cridland, Willington, near Taunton.
Mr. Henry Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Bourn.
Mr. Husbands, Talbot Street, Nottingham.
Mr. Caparn, Seedsman, Newark.
Mr. John Cattell, Seedsman, Westerham.
Mr. Morgan, Nursery, Kidderminster.
Messrs. Ivery & Son, Nurseryman, Dorking and Reigate.
Messrs. Veitch & Son, Exeter.
Messrs. Hooper & Co., Covent Garden.
Mr. W. Bower, Moorgate House, East Retford.
Messrs. Wm Drummond & Sons, Dawson Street, Dublin.
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Mr. E. R. Greenus, Nurseryman, Watford.

Pamphlets, with instructions for use, free by post on application to

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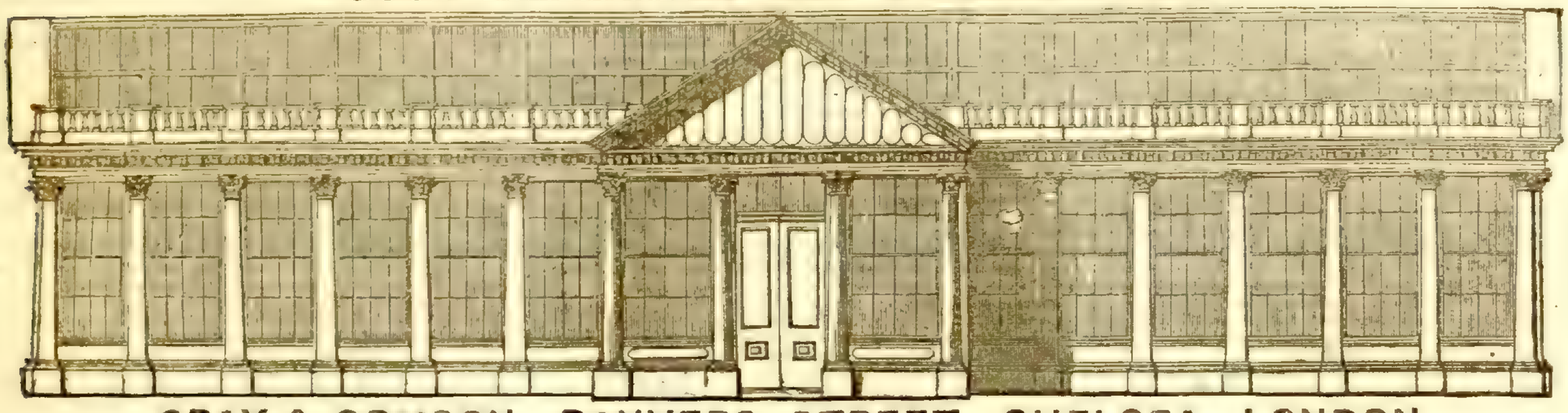
HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

W. HURD AND CO., 1, Smith Street, King's Road, Chelsea, beg to inform the Nobility, Clergy, and Gentry, that they have commenced Business as HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS. Having been practically employed many years in the Firm of Messrs. Weeks & Co., Chelsea, they are thoroughly acquainted with every branch of the Business.

Churches, Halls, Mansions, and Public Buildings Heated by Hot Water. References to Works already executed.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

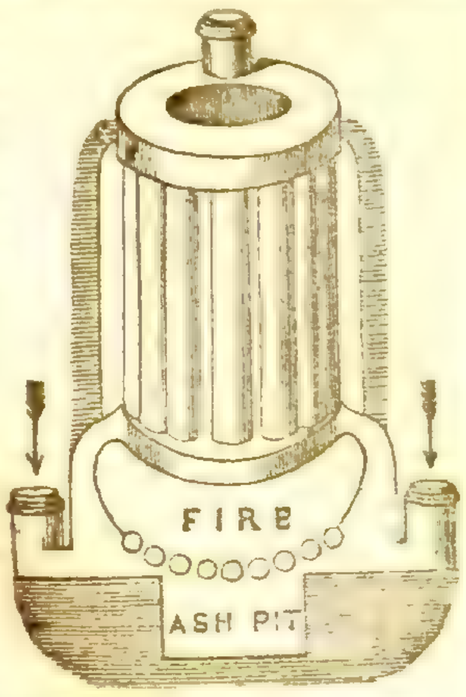
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

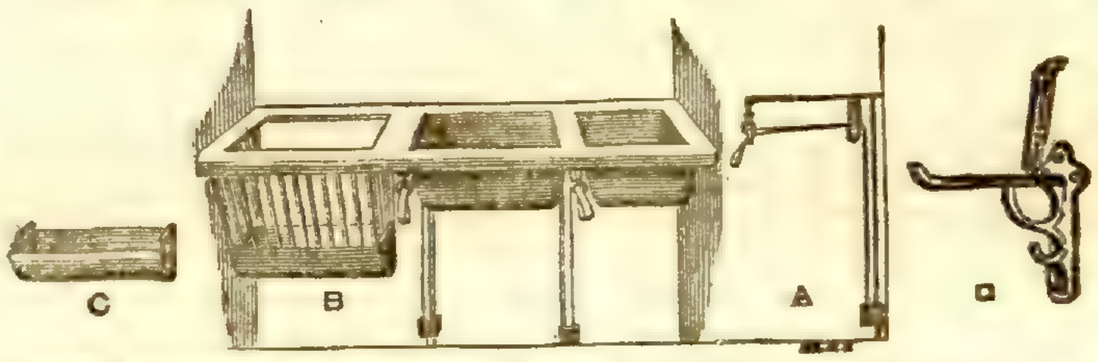
JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

NEW PATENT INVENTIONS FOR STABLE REQUISITES

(OBTAINED THE PARIS EXHIBITION AWARD.)



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

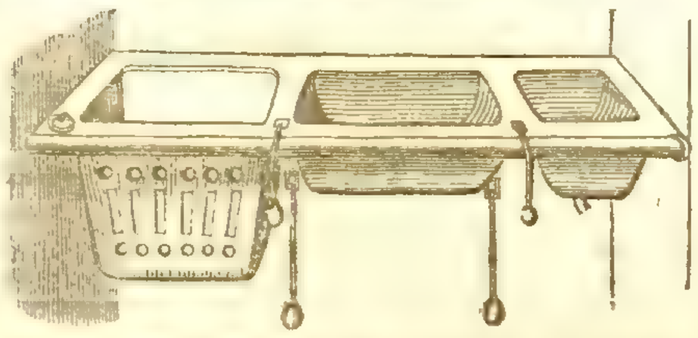
COTTAM'S MANGRS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

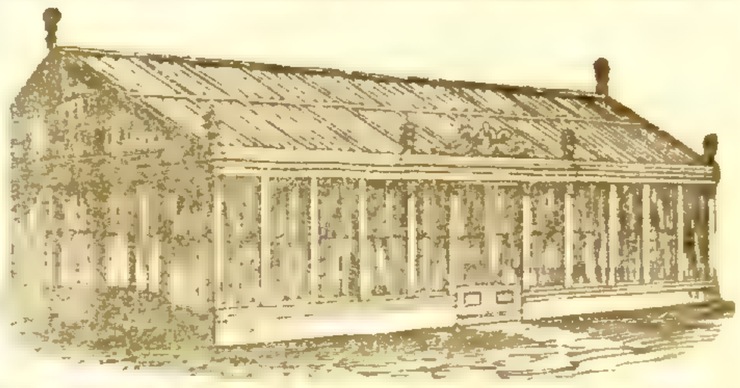
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

THE BEST CURE FOR SMOKY CHIMNEYS.

PATRONISED BY HER MOST GRACIOUS MAJESTY.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25*s.*; Galvanised do., 30*s.*; Cast Iron, 35*s.* each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt—BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers.

Address, JAMES BARTON, 370, Oxford Street, London.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—March 8.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (TRUE).

CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s.* 6*d.* each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

ESTABLISHED 1805.

"NORFOLK HERO" CUCUMBER.—Without exception the very best Cucumber for open ground cultivation that has yet been offered. It is a most prolific bearer, as handsome as any frame variety, the fruit measuring from 16 to 0 inches in length, who will forward per post free (on receipt of postage stamps) packets containg six seeds, 1*s.*; 18 Seeds, 2*s.* 6*d.* To Market Gardeners the above will be found a great acquisition.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s.* The Trade supplied.

T. F. WINSTANLEY, Seed Merchant, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

TO THE LOVERS OF DELICIOUS FRUIT.

ORION MELON, the winner at Regent Street and Crystal Palace, is a fruit of great beauty, from 4 to 6lbs in weight, thin skin, thick flesh, luscious as a melting Peach, fragrant and rich as a Pineapple. 6 seeds out of the pure fruit free per Post, 1*s.* 6*d.*—Address, THOMAS WILD, Ipswich.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2*s.* 6*d.* each, containing about 300 seeds, can now be had of MESSRS. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (comes true from seed); decidedly one of the most lovely things in cultivation, deserving a place on every Lawn in England.

East Dereham Nursery, Norfolk, March 8.

THE BEST EARLY PEAS OUT.—COTTRELL'S SEBASTOPOL and the NEW EARLY WONDER; a few more of these fine Peas may yet be had of the undersigned.

TRUE FLAT RED TRIPOLI and LISBON ONION may be had in any quantity of DAWE, COTTRELL, & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, and 36, Moorgate Street, London. Established 1720 at 28, Cornhill.

PASTURE AND LAWN GRASS.—Gentlemen laying down Land for Permanent Pasture and Lawns can be supplied with the best Mixed Grasses for the same, (or sorts separate), under the advertised prices by DAWE, COTTRELL & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, & 36, Moorgate Street, London.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received fresh Seeds from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s.* 6*d.* each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

CARNATIONS, PICCOTEES, ETC.

CHARLES SCHOFIELD has this spring a fine healthy stock of the above; also PINKS, PANSIES, &c. Catalogues on application containing descriptive lists of those and many other Florist Flowers. Pansy Seed selected from the finest show flowers, 2*s.* 6*d.* per packet. Hollyhock Seed, extra fine, 1*s.* 6*d.* to 2*s.* 6*d.* per packet.—Knowsthorpe, near Leeds.

CEDARS.

A. PAUL AND SON offer for Sale CEDRUS DEODARA, 1 foot to 8 feet, from 1*s.* 6*d.* to 31*s.* 6*d.* each. CEDRUS LIBANI, 3 feet to 10 feet, 3*s.* 6*d.* to 31*s.* 6*d.* each. Magnificent specimens of the above and every intermediate size, *frequently removed*, may be had in any quantity, carriage free to London, from A. PAUL & SON, Nurseries, Cheshunt, Herts.

NOTICE.

JOHN C. SOMMERS, 159, Fenchurch Street, London, begs to inform his friends and the public that he intends to buy on commission, and not on his own account, from respectable Growers and others, GARDEN and AGRICULTURAL SEEDS that may be depended upon for purity and correctness of stocks.

*** Orders from unknown correspondents must be accompanied with a banker's reference.

SKIRVING'S IMPROVED SWEDE TURNIP.—A Grower has for disposal a very superior Stock of the above, raised from selected and transplanted Bulbs, all growth of 1855, and guaranteed to grow not less than 90 per cent. Also a few cwts. of MANGEL WURZEL SEED, of fine selected stocks.—For price, &c., apply to Mr. D. TAYLOR, Nashenden Farm, Rochester, Kent.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s.*

TO THE SEED TRADE.

BASS AND BROWN beg to offer to the Trade True and Fine Stocks of the following. Prices on application.

BEANS.—Taylor's and common Windsor, Sword, Hangdown, and Green Longpods.

PEAS.—Fairbeard's new Nonpareil; also a few quarters of each of Ringwood Marrow, Flack's Victory, Emperor, &c.

KIDNEY BEANS.—Of sorts.

CARROTS.—Altrincham and White Belgium.

Wholesale Seed Lists on application.—Seed Establishment, Sudbury, Suffolk.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that their collection of the above is in the finest possible health, and consists of upwards of 16,000 established struck plants (not grafted).

The peculiar disease which has proved so destructive to some collections not having extended to the Eastern Counties, enables B. & W. to offer an extensive stock of fine Plants, comprising the best show flowers in cultivation ready for immediate delivery. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.—Hedenham Rosary, March 8.

GERANIUMS.

J. CLARK has a large stock of strong flowering Plants of the following varieties to offer at reduced prices:—

Phaeton (Foster), Wonderful (Hoyle), Fair Ellen (Story), Serena (Hoyle), Seraskier (Foster), Topsy (Hoyle), Petruchio (Foquet), Una (Hocken), Omar Pacha (Hoyle), Pandora (Turner), Lord Raglan (Hoyle), Grand Sultan (Turner), Jessica (Foster), Vesper (Cant), Hubert (Hoyle), Yerda (Hoyle), Queen Eleanor (Hoyle), Zoe (Hoyle), King of Portugal (Turner).

The set for 2*l.* 15*s.*; selection of 12, 2*l.*; selection of 6, 1*l.* 5*s.*

Belle Vue Nursery, Cheltenham.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.

THE *most Economical and Convenient Mode of ordering* GARDEN SEEDS *is to send for one of* "SUTTON'S *Complete Collections for one year's supply," particulars of which may be had on application, addressed*—

SUTTON & SONS, Seed Growers and Merchants, Reading.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s.* per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s.* per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. WHEELER & SON,
Nurserymen and Seed Growers, Gloucester.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

ROBERT M. STARK begs to intimate that his Catalogues for the Spring are now ready, and may be had on application. He would more particularly direct the attention of his friends to those containing Vegetable and Flower Seeds, Hollyhocks, and other Florists' Flowers, Herbaceous Plants, Ferns, &c., as they contain in addition to old established favourites every article of recent introduction really useful and likely to interest the Horticulturist, Florist, or Botanist.

Edinburgh: Edgehill Nursery, Dean, and 145, Princes Street.

ESTABLISHED 1805.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. Per Post prepaid.

			Per packet.—*s.*	*d.*
PANSY, saved from	100 of the best varieties, by name ..		2	6
POLYANTHUS "	50 " " ...		2	6
VERBENA "	50 " " ...		2	6
HOLLYHOCK "	60 of the most superb kinds " ...		2	6
CALCEOLARIA "	24 " spotted varieties ...		2	6
GLOXINIA "	30 of the best varieties		2	6
DAISY "	50 of the new Belgian vars., by name		1	6
ANTIRRHINUM "	20 best named varieties		1	0
ANEMONE, from the most showy and brilliant kinds ...			1	0
30 packets of New Choice Flower Seeds, per post, free for			5	0

YOUELL & Co., Royal Nursery, Great Yarmouth.

FRAME CUCUMBERS.

WOOD AND INGRAM offer the following well known kinds at 1*s.* per packet of 18 Seeds:—

Godfrey's Black Spine	Read's Surprise
" White Spine, picked from the above, and a very prolific kind	Kelway's Defiance
Improved Sion House	Manchester Hero
Turnbull's fine Frame	Conqueror of the West
	Snow's Horticultural.

Huntingdon Nurseries, March 8.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

	Per bushel—*s.*	*d.*		Per bushel—*s.*	*d.*
Ashleaf Kidneys ...	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

FINLAY FRASER, JUN. (lately with Messrs. Minier, Nash, & Co., Strand), WILLIAM RICHARDSON, and WILLIAM LEWIS GOAD (many years with Messrs. Jacob Wrench & Sons, London Bridge), beg respectfully to inform their friends, the trade, and public generally, that all orders entrusted to their care will be thankfully received and promptly executed. F., R., and G. confidently refer to their lengthened practical experience as an assurance that the goods they offer have been selected with the greatest attention both as to genuineness and quality. Catalogues forwarded gratis on application.—82, Bishopsgate Street Within. London, March 8.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual, of first-rate quality.* It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at 6d. per lb., or 14 lbs. for 6s.;* WHITE BELGIAN CARROT SEED, *9d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom,

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

ROYAL BERKSHIRE SEED ESTABLISHMENT

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, MARCH 8, 1856.

IF there is any one thing upon which we have insisted from the very commencement of this Journal more than another it is the necessity of finding some method of admitting warm damp air to the interior of glass houses, copiously, and at will, without having recourse to the dry cold blasts which find their way through ordinary VENTILATORS. The interior of a hothouse should feel the breeze as freely and as constantly as an Orchard House. Without some power of this kind good gardening is impossible; some power of the kind has indeed been long possessed, arising, as it does, out of the very nature of glazed buildings, but it has been far below what the demands of horticulture require. And now that glazing with large squares and close laps has become common, it is in most cases wholly insufficient.

"When the external air is admitted into a glazed house containing a moist atmosphere, it, under ordinary circumstances, is much colder than that with which it mixes; the heated damp air rushes out at the upper ventilators, and the drier cold air takes its place; the latter rapidly abstracts from the plants and the earth, or the vessels in which they grow, a part of their moisture, and thus gives a sudden shock to their constitution, which cannot fail to be injurious. This abstraction of moisture is in proportion to the rapidity of the motion of the air. But it is not merely dryness that is thus produced, or such a lowering of temperature as the thermometer suspended in the interior of the house may indicate; the rapid evaporation that takes place upon the admission of dry air produces a degree of cold upon the surface of leaves, and of the porous earthen pots in which plants grow, of which our instruments give no indication."

To this statement, borrowed from the *Theory and Practice of Horticulture*, no objection can we believe be taken. What has been done to meet the difficulty is mentioned in the same work, and in other horticultural treatises; but none of the methods described can be said to be effectual. By far the best is undoubtedly that employed by the late Sir ROBERT PEEL at Drayton Manor, the contriver of which has been supposed to be the celebrated GEORGE STEPHENSON, but which we believe was really carried out for the first time at

Hewell Grange by Mr. John Jones, of Birmingham, so well known as the constructor of the admirable forcing houses in her Majesty's Gardens at Frogmore. Underground drains were sunk, 3 feet deep, at right angles to the front wall, and extending from its inside to a walk about 12 feet distant from the house, and parallel with it. At each end of the drains was a perpendicular shaft; that in the inside opened immediately behind and below the hot-water pipes, and was never closed; that in the open air was closed by a moveable square plug. So long as the plug remained in its place no ventilation took place. As soon as the plug was removed, the denser external air pressed down into the shaft, and, rushing through the drain, delivered itself among the hot-water pipes, expanding rapidly in the house, and dispersing itself among the plants. The drains being always damp, on account of their depth in the moist heavy clay of Drayton Manor, the air which passed through them was always charged with as much moisture as was required.

This plan answered the purpose well as far as it went, but its action was insufficient. Mr. Jones has now shown us some drawings of a plan by which he proposes to augment the ingress and egress of warm air to any extent that may be desired. This is to be effected by hollow back walls in the case of lean-to houses, and a series of counter drains. When houses are span-roofed some modification would be necessary, with the precise nature of which we are unacquainted. In this way air must be brought not merely into motion, but into a state of great activity, so that a quick and perpetual renewal of its particles will take place over every portion of the surface of a plant. Those who wish to know more of the details, which cannot be further explained without drawings, will, we doubt not, meet with attention from Mr. Jones, who is now acting engineer at the Crystal Palace.

In connection with this improvement we may take the present opportunity of mentioning that a new method of constructing light hothouse roofs has also been proposed by the same experienced engineer. Its object is to do away with all movable sashes, all rafters, all drip, and all open laps; advantages which cannot be easily over-estimated where there is a complete command of air, but disadvantages in the absence of that power. The object is attained by the use of what are called "trusses" applied to the roof at intervals, and forming very convenient lines over which Vines or other climbers can be trained. Weak materials may thus be made as efficient as stronger ones, just as was the case with the slight trussed gutters used to carry the ridge and furrow roofs in the original Crystal Palace in Hyde Park.

Whether we take the two contrivances together, or look merely to the perfect command of air thus obtained, it seems to us that we have an improvement introduced into construction, which is only second to that which followed the employment of hot-water pipes.

It will be seen by our correspondence that we did not draw attention to the Frauds in the Seed Trade without very sufficient reason. Much more has been disclosed to us confidentially. We therefore again say to purchasers of seeds be on your guard.

There is no doubt that by means of steam, sulphur, and old age, all sorts of rubbish are made to pass for articles of sterling value. Dead Rape does duty for Turnip seed, Dead Black Medick for Lucerne, and Dead Clover for the living. A little oil here, a little burning sulphur there, with plenty of sifting and shaking and rubbing, will produce samples even finer than what is seen when all is fresh and good. In these cases the eye can do nothing except mislead. Chemical tests all fail. Microscopes are dim. Such frauds can be detected only in one way, and that is the way we lately pointed out. Seeds must be tried.

In one respect only do buyers require to be further advised as to the mode of making the trial. They must not expect any sample of seeds to consist wholly of such as will grow. Various causes combine to produce some mortality; but it should not exceed 10 per cent. If, then, 90 in 100 seeds are found to grow the buyer should be satisfied; if fewer grow he has a case for suspicion.

When we consider how enormous is the consumption of seeds in the gardens and farms of this country, it is evident that mere mixing with only 25 per cent. of bad seeds must be attended with very large loss to the public.

That every buyer should try, or cause to be tried in the manner recommended by us, or last week by a "Shopman," such seeds as he purchases, is the best remedy we can propose for the present state of things. The next best method would be in all cases of considerable purchases of seeds to require a *written warranty* that what is sold will grow to the extent of so much per cent. at least. If this precaution is taken, and the written warranty given, the vendor would be unable to resist successfully an action for damages in case of the seeds sold proving bad. Or, payment might be made conditional upon the seeds when tried proving as good as is warranted. It is, however, not necessary for us to suggest more particularly in what way the existing evil should be met. We confine ourselves to pointing out its existence and the consequences.

Let us not be misunderstood. There is not a more honourable body of men in this country than the seedsmen of the United Kingdom. They include in their ranks merchants eminent for their probity and large transactions, and others who though not merchants have long been known for the truth and skill with which they conduct their business. It is in their interest quite as much as in that of the general public that these remarks have been made. *They* have nothing to fear from trials of their seeds. On the contrary they must feel that the most searching inquiry can only redound to their honour. But there are black sheep in their flock, to whom our words will be as gall and wormword; men who render honesty ruinous, and bring into discredit the best men in the country. It is against them and their practices that we have warned the public; and we have the satisfaction to believe that the warning has not been given in vain.

New Plants.

164. Gonocalyx pulcher. *Planchon and Linden Fl. Columb. ined.*

We have received from Mr. Linden a coloured representation of this pretty plant, which he offers for sale at 25 fr., and of which we translate his description. "A charming (greenhouse) shrub, related to Vaccinium, with close upright branches, clothed with dense foliage, among which appear here and there pretty tubular flowers of a brilliant rose. The leaves are small, almost orbicular, and not very unlike those of an Alaternus. The young shoots and new leaves are of a bright rosy purple colour. It was found by Schlim in

company with Calyptraria hæmantha (a glorious shrub, noticed in our volume for 1854, p. 556) in the provinces of Pamplona and Ocaña at the elevation of 7000 feet above the sea."

THE HORTICULTURAL SOCIETY.

The attention of the horticultural public is at this time occupied with the question of the modification of the Horticultural Society. The Council have put forth their scheme, which is now passing the ordeal of a select committee, of whose labours we are shortly to hear. Various papers on the subject of the present position of the Society and the causes of its financial difficulties, have also appeared in the horticultural periodicals, especially in the numbers of "The Florist" for the present and two preceding months. The subject has naturally produced considerable interest among gardeners and the friends of gardening; but the very one-sided view taken in the papers of the periodical I have mentioned (which is apparently the organ of the exhibitors at the Society's and other flower shows), induces me to beg admission in your columns for another view of the most prominent question discussed in the articles referred to, namely, the causes of the failure of the recent exhibitions of the Horticultural Society, involving in their failure the loss of funds to maintain the Society's garden.

The causes of the failure of the exhibitions, though variously stated, may be summed in the one complaint of the exhibitors at the flower shows; which is a want of liberality in the schedules of prizes, both in respect of the amount given for prizes and in respect of the exclusion of certain objects from the exhibitions.

That there may have been some mistakes made by the Council, amidst the conflicting claims of different classes of flower growers, in arranging their schedules, is not unlikely; but the reason of the failure of the recent exhibitions has not been either the want of exhibitors or the quality of the shows—for though larger collections have been seen elsewhere, the quality of the shows was never anywhere nor at any time finer than in the past year—nor could there be said to be any want of specimens. The reason of failure was not the deficiency of objects exhibited, nor the want of more or higher prizes at the Chiswick shows, it was the want of visitors. And that want is to be accounted for by very obvious reasons.

The rivalry of other societies possessing a more eligible locality, or other attractions for their exhibitions is the true cause of the failure of those at Chiswick. What has filled the gardens of the Botanic Society in Regent's Park, while those of Chiswick have been thinned? Obviously the convenience of the locality—a locality extremely agreeable in itself, and accessible to thousands who can assemble there without interfering with any other engagement of the day. Ladies and loungers of all degrees may choose their own hour, see the show and the company, and listen to the music, during their afternoon drive. The professional man, the official, or the man of business from any quarter of the town, need not quit his chambers, his office, or his practice, earlier than usual, and may still enjoy the same treat on his way home. To go to Chiswick requires arrangements for the whole day, or a great part of the day; the expense of a carriage to those who have no carriage of their own; to those who have a carriage the expense of servants and horses while waiting there. If the enjoyment of a country drive and a visit to a beautiful garden is desired on any other than a show day, Kew and Hampton Court and the Crystal Palace now present attractions which Chiswick can never offer, make what you will of its garden.

True, the Crystal Palace is as distant as Chiswick. But the most resolute stickler for the shows at Chiswick will not pretend that the Horticultural Society can any more vie with the proprietors of the Crystal Palace in the schedules for its shows than in any of the numberless additional attractions which Sydenham presents, in addition to its flower shows, and for a lower price.

The question, in fact, resolves itself into a very simple view:—The Horticultural Society flourished, and covered the costs of its garden in a great measure from the produce of its exhibitions, while it possessed a monopoly of the great flower shows. Flower shows have lost none of their attractions, and never will lose them as long as civilisation lasts. But the public demand now-a-days conveniences alike in their business and in their recreations. And since similar shows can be had in another and an agreeable situation, almost at their doors—and in a third situation, which, though at some distance, can be reached by a cheap railway that sets down the company at *its* door, and then lavishes enjoyments for the eye (and is not wanting in those which grosser senses demand), with a prodigality never before known, and not to be had at any cost elsewhere—it is plain that the Horticultural Society's exhibitions can never compete with either of the other societies in attracting visitors, even if its schedules equalled the others in amount, and filled the pockets of the exhibitors instead of drawing upon them as the Society is now accused of doing.

It is useless in this utilitarian age to appeal to the *prestige* of the Horticultural Society, or to urge its claims on the patrons and lovers of horticulture, as the originator of the great improvements in gardening in our times, and for many years—if not still—the chief promoter of these improvements, as the earliest if not chief contributor to those great accessions of trees and plants which have enriched the catalogues of horticulture since the beginning of this century. A voracious public *will* patronise that Society and those exhibitions which contribute most to its enjoyment at the least cost of time, convenience, and money. These requirements the locality of the Society's garden will not admit of its supplying to the extent which the locality or the accessories of its more fortunate rivals enable them to do. And as without the funds which the exhibitions formerly supplied, the garden at Chiswick cannot, according to the present constitution of the Society, be maintained, the problem which the reformers of the Society have to solve is, how to supply funds by other means if the garden is to be maintained, or to present some other feasible scheme for insuring the continuance and usefulness of the Society without the garden. *Another F.H.S., March 5.*

ON FROST SPLITTING.—By Dr. Robert Caspary.

(*Continued from p. 133*).

I now proceed to consider what are the real causes. And first we must distinguish between fresh frost clefts and old ones which have reopened, as the circumstances attending the two are somewhat different.

First, of the old overgrown frost clefts which broke open again. It struck me at the first glance at many of these trees, that the splitting arose from the wood being more contracted by the frost in a peripherical than in a radial direction. Let us consider the frost cleft of the Lime tree, No. 22, as it presented itself to me from the 3d to the 26th February, and as repre-

sented in the sectional diagram, fig. 6, R is the bark, H the young wood, H' the old. The bark R had in the preceding year been joined by the edge of over growth, *f b* and *g e*, the young wood by *b a* and *c d*. On the 3d February I saw the bark and young wood were torn asunder by a fresh cleft of an inch and a half. The sides of the old cleft *a e* and *d e*, which had evidently often broke out, were full of dirt and dust, but without ice crystals, and already so much decayed that the sides were no longer straight, but much hollowed out, as is shown by the lines *a e* and *d e*. I could insert my rule 8 inches deep into the fissure, the eye reached still farther; the tree was split up to the pith. Let us now represent to ourselves the state of the tree before the cleft burst open again, about the 1st February; a transverse section must then have been as in fig. 5. The bark R and the young wood H closed over the cavity at H, whilst the old wood H' from *a'* to *e* was separated by a radial fissure, the sides of which had become somewhat concave by decay. If we assume that frost clefts are caused by the expansion of the sap by congelation, or that the bursting proceeds solely from the difference of bulk of the inner still warm parts and the colder outer layers at the coming on of severe frost—an assumption I shall presently return to—we should expect that the inner wood, of greater relative bulk than the outer layers, would in the first place have closed up the old cavity in the lime tree in question. We should have expected on its again splitting open to find the fissure closed near the centre of the tree, and the sides lying close one against the other, which, however, was not the case. If the alterations of volume which incontestably did take place by congelation had been relatively the same in a radical and a peripherical direction, no rent of the border of overgrowth would have ensued. But does not a cleft of an inch and a half in breadth yawning to the very pith clearly show that the peripherical contraction (indicated by the arrows fig. 5 A and B), was proportionally much greater than the radial?

I have in vain sought through physical literature for researches on the changes in the volume of wood caused by temperature. The best authorities on physics and architecture give no information, and I do not believe that any experiments have as yet been made on this point, so important for the present inquiry. All that I could find are a few data on the expansion of wood by heat in a longitudinal direction, which are not applicable to my purpose. Kater ("Nicholl's Journal," v. 20, quoted by Bailly, Mem. of the Astronomical Society of London, 1822, v. 1, p. 416) found the linear coefficient of the expansion of white Deal for every degree of Fahr. to be 0.0000022685, and Struve ("Description of the Great Refractor at the Observatory of Dorpat," 1825, p. 4), for the same wood gives 0·0000044 for a degree of Reaumur, that is 0·0000028444 for a degree of Fahr., which is indeed but a very small change. But the alterations of volume by temperature in wood in a radial and peripherical direction are certainly as different from the above and from each other, as are the diversities in wood according to the three directions in respect of heat-conducting, elasticity, cohesion and permeability by fluids (see Tyndall on the Transmission of Heat through Organic Structures, in Trans. Phil. Soc., 1853). The architect Hagen informs me that in aquatic constructions no attention is paid to the contraction of wood by cold. I have heard the same thing from an intelligent official of the Prussian admiralty, a born Swede, who has had much experience in naval architecture. Both have assured me that the splitting of timber, that is of felled wood dried in the air, is unknown. Yet in the absence of all positive data on the relative contraction of wood in a peripherical and radial direction, it appears to me that this reopening of old frost clefts shows that the difference is considerable. It would appear that the decayed wood which lines the clefts is particularly subject to these changes, but that the same cause acts on sound wood, as shown by the frost clefts which reopen without any decayed wood on their sides.

But for frost clefts which burst open for the first time another cause operates, which has less effect at least on the reopening of old fissures. A tree which bursts for the first time is either frozen through, as I have shown in the case of the thin stems and the 14-inch thick Chesnut I have above referred to, or, in some of the thickest trunks, it may not yet be quite frozen to the centre. The bursting takes place at night by severe frost, not less than 15° Reaum. (—1¼° Fahr.) Rameaux has shown that the temperature of the concentric layers of wood by night increases from outside to inside. A very severe sudden frost that cools down considerably the outer layers must occasion an important difference in temperature between these and the inner ones, and at the same time a considerable difference in relative bulk. The inner layers, whether frozen or not, must considerably exceed the outer in relative bulk, and thus increase the strain upon them.

(*To be concluded in our next.*)

VEGETABLE PATHOLOGY.—No. CXI.

442. LETHARGIA* (*Lethargy*). Whenever plants are removed from the ground, with a view to their transplantation, it is impossible, whatever care be taken, to effect the process without breaking off numbers of the finer fibres, on the integrity of which the vigorous growth of the plant immediately depends. In the case of trees, which send out roots to a great distance, it is still more impossible to avoid injury. This is often aggravated by the time which necessarily elapses before they are returned to the soil, when they have to contend not only against the first injury but the destruction of many of those rootlets which were still entire, from the want of moisture, or from close packing. Such plants it is manifest must make fresh roots before vegetation can take place in earnest, and if circumstances have prevented this, when the time comes for the expansion of the buds, they show scarcely any signs of life, the buds remain dormant, and in extreme cases death naturally follows. Life indeed was not for a long time altogether extinct, as was evident on the removal of a portion of the bark, but it was so low, that there was not power enough to contend against difficulties.

443. Such a case may exist in trees planted in the autumn, where the injury has been great or where the plants have suffered from a long voyage; but even where great injury has taken place, if the tree be healthy new roots will soon be pushed out, since vegetation does not cease entirely so long as the soil in contact with the roots is not frozen, and by spring there will be enough to produce short weak shoots, and after another season it will recover entirely from the change unless extraordinary drought has supervened. A great deal of planting, however, is deferred till spring, and seldom with good results. It often happens that weeks of incessant drought succeed during which it is impossible that any rootlets should be formed, and so small a quantity of moisture is imbibed that the buds have nothing to force them into growth except what nutriment is present in the stem, and that is not available because there is not moisture enough to make it soluble. Under such circumstances it frequently happens that at midsummer not a bud has started, and if the branches were not pruned summer may pass away without any sign of life. Even if a midsummer shoot is made, the powers of vegetation have in general been so much impaired that the tree, though it may live for years, never produces free-growing healthy shoots, and the branches ultimately canker and it dies. It is possible indeed, even when a year has gone by without the expansion of the buds, that they may start in the next spring; but this is seldom the case, and if so a few hot days in summer often consummate the evil.

444. In autumn planting, trees seldom get into this lethargic state; if it be delayed till spring, plantations as seldom prosper, and under the latter circumstances if the summer should prove hot and the air dry, it will be necessary to have recourse to artificial irrigation; in the garden the ground must be mulched, and in the field, stones must be placed round the trunk to shade the ground; if the trees are large, the latter practice is good under any circumstances. The reason for spring planting often rests on the impatience of the proprietor, who cannot bear to wait, and sometimes on the ignorance of the planter, but in no case is time gained, as most people know by dearly bought experience. It has been stated before that in trees that have been long packed irrigation of the bark in a shady spot is often requisite, as also that it is wise in many cases in the first instance to administer water cautiously. (¶ 413.)

445. Grafts often show an indisposition to grow, from causes analogous to those which affect late planted trees. It may be necessary sometimes to wet the clay by which they are protected from the outward air, or in cases of peculiar delicacy to put the graft in so low that it may be possible to heap the soil up for its protection. Where they have been kept too long before grafting, moisture previously applied to the bark may be of service. When buds are inserted in dry weather it is in like manner useful to moisten occasionally the worsted or matting by which they are bound. Both grafts and buds, however, though dormant for a time, at length under favourable circumstances wake up from their lethargy and ultimately make strong and healthy plants. Ré informs us that grafting lethargic trees is often of use, but I have no experience on the subject, nor can I find any further information.

446. Lethargy also may exist in bulbs and seeds, in the former generally from injury or disease in the part from whence the leaves and roots are given off, in the latter from imperfect ripeness,† age, or the want of proper conditions of moisture, air, and temperature. In some foreign seeds the external coat is so hard that it is necessary to file it through in order to admit moisture to the embryo. It is the proper business of the gardener to know how to supply the most favourable conditions.‡ With respect to old seeds, as vitality is low, the water absorbed is not readily decomposed, and therefore must be applied very sparingly, otherwise the seed will soon decay. The application of warm water before sowing has sometimes been found efficacious, or even boiling where the integuments are hard§; and chemical applications, as potash, ammonia, lime, &c., have been tried successfully, or water acidulated with nitric and sulphuric acid.

447. In certain tubers, as those of Orchids, vegetation may apparently be suspended for years in the absence of light, as in those cases where such plants as Orchis hircina, Ophrys apifera, &c., disappear for years till the underwood is again cut down. If in these cases there is any growth, it is so suppressed that no external signs of vegetation appear above the surface of the soil. Some roots, as those of Dahlias, will grow for years, increasing in size without producing a single bud. In such cases patience will probably be at last rewarded by the formation of buds after the wounded surface has been entirely healed. Ré mentions a somewhat similar case as regards some tuberous night-blowing Pelargonium. The divided roots, however, at length put forth shoots, except where water had been too liberally administered, in which case they decayed. *M. J. B.*

* From λήθη forgetfulness, and ἀργὸς swift, that which quickly forgets, and thus ληθαργία is applied to indicate a diseased condition characterised by inactivity.

† Some seeds germinate rapidly though not quite ripe if at once committed to the soil, but if they are to be kept, they cannot be expected to retain their vegetative powers long unless properly matured.

‡ See on this subject the chapter on seeds in the Theory of Horticulture.

§ Though the spores of some moulds will bear a temperature equal to that of boiling water, it is not probable that the embryo of any Phænogam could endure such a heat, and still retain its vitality. In the cases on record the heat probably never penetrated beyond the hard shell in any great degree. I remember 30 years since seeds of *Acacia lophantha* germinating at Cambridge after being boiled two or three minutes. The most extraordinary case, however, on record, is that mentioned by Dr. Lindley of the germination of the seeds of Raspberries which had been boiled for jam. In this case the seeds must have been exposed to a higher temperature than that of boiling water. This far exceeds that of the raisins which had been three times steeped in boiling water, as recorded by myself in the "Annals of Natural History." Such reports, however, should always be put to the test of direct and accurate experiment, that the circumstances of time and temperature may be strictly ascertained.

Home Correspondence.

Plane Trees.—The subject of Planes, as a small yet confused genus and one interesting to the ornamental planter, is worthily taken up by the *Gardeners' Chronicle*. It would be useful to turn the London parks and gardens to account by planting in them authentic specimens of such really hardy trees and shrubs as are likely to interest and inform people of all classes. If the common so-called Platanus occidentalis is not the American species, what is it, and whence comes it? The common so-called Platanus orientalis seems to me identical with that of the Levant, fringing the Simöis and other torrents as the Willows do in the north. But there are other varieties or species named in gardens and gardeners' catalogues; and though I have never made them out as distinct, there are certainly slight differences in leaf. There is a very large leaved sort in the Continental gardens. In the Botanic Garden at Vienna was one that the late Prof. Jacquin thought to be the true orientalis, but as it was tender there and never grew beyond the size of a shrub, much reliance cannot be placed on its character. It has a smaller, simpler leaf than our orientalis, cuneate in its general outline, deeply cut, but rarely more than trifid. This might not exhibit the true form of the foliage when developed by the vigorous growth of a large tree, but the plant doubtless exists still, and might be identified. The wood of our common Platanus orientalis is soft, brittle, but very ornamental for joiners' work, being something between the Maple and Satinwood in appearance when polished. The bark of this tree seems to scale off less abundantly in dry weather than that of its congener Platanus occidentalis (the common). This is all I can contribute to the subject. *S.*

Experiments with Charcoal, &c., as a medium for Imparting Heat by means of the Sun.—It is generally understood that a black colour gets the warmest, and we have known of walls having been painted of that colour for the purpose of training fruit trees upon, but with no satisfactory results. Probably one cause of the failure may have arisen from the walls not being sufficiently absorbent. Charcoal has this quality, but its chief value may be found to be under glass, or night coverings of some kind. Another thing which has not been taken advantage of, so far as I know, is the immense heating power from solar influences which is given to a wall from being "battered," or slightly sloped. Taking hold of this, I have formed at by times some banks, at a angle of say 30 or 40 degrees, and have just got them planted with Peach trees, Figs, Vines, &c. I mean to face those banks with different materials for the purpose of experiment, and part of these banks I have already covered with charcoal. From the following figures it will be seen that we have got an agency at work of some power if we can properly apply it. I may remark here, that it is in sunshine that the marked difference appears. The following are the readings of the thermometer to-day (March 4th) after a few hours' sunshine:—

	6 A.M.	12 NOON.	6 P.M.
Perpendicular wall	38°	58°	42°
Battered wall	37	65	44
Earth bank in a sheltered situation...	38	61	40
Earth bank ditto, faced with charcoal	37	66	40
Frames for Gooseberries and Figs surfaced with charcoal	50	80	54
Ditto, without	48	72	50
Frames for Melons surfaced with charcoal...	64	90	75
Frames without	64	84	72
Thermometer exposed	36	45	40

I need scarcely say that the drier the banks are the better, and that a drain should be at the base, and in applying the charcoal in frames the greater slope of the surface the more power the sun will have. I am quite aware many objections may be urged against the successful carrying out of these principles—the cold at night and undue excitement by day—the blister in spring and the spider in summer, and the thousand and one other obstacles which are easy to recount; neither will I assert that early Melons and spring Cucumbers would not suffer so much from cold and damp, nor that the Peach and Vine may not be grown in the cottager's garden as well as that of the prince, nor that the forcing gardener

may not materally add to the best kind of heat—by every blink of the sun—without adding to the coal bill; but I am very desirous that the hints thrown out may be taken up, tried and tried again, and fairly reported on. The subject has a wide application, and seems worthy of some attention. *Geo. M'Ewen.*

Cooking Seeds.—Your remarks on dead seeds must have in some degree opened the eyes of many who have but hitherto complained of the fly, the slug, and the severe frost of some byegone day. Little does John Bull know the "strange ways" that have been practised of late. Our continental neighbours did not join in this unholy and adulterous alliance until recently, but our intimacy has not only taken them to see our very strongholds, but our weakest and most vulnerable points, and the enemy has now gained so much upon us that we may consider ourselves eclipsed. It is true Rape seed has a great affinity to Turnip seed, but we are not Russian enough to prefer the former to the latter to feed upon unless killed—literally dead—and then we may cake it, but not otherwise. You imagine all who buy seeds can try their vitality or percentage; that may be, but that would not detect mixed seeds, which are worse than dead. The fact is, all growers and seedsmen ought to state upon the face of their invoice that the seeds are pure, correct stock, and the year grown; if of a former year and mixed, sell as such, and so state, for it will happen that last year's seeds are better than this, owing to the season. I understand many in the seed trade will only buy with some kind of warrant to certify this (for the most experienced eye cannot detect every kind or variety of seeds), and must possess the character of the seller. There are some, however, who send out seeds wholesale and retail with half dead seeds, and even more, and this depends on the kind and the party who may buy. I have also long conceived it possible that not only the preparatory measures used to kill, but the dry guano — pure or otherwise—helps to kill us, by imbibing directly or indirectly the pernicious poisons made use of. We know and see by experience the effect continued good living has upon our bodily frames, —blotches, boils, &c.; but at first we appear to fatten, unless hereditary gout pinches us; in like manner do all artificial manures, and although we hail all apparent improvements in the increase of our produce and our wealth, it is only temporary. The old system was the natural; the manures made on the farm from cattle, lime, soot, sawdust and ashes, with ammonia, &c., are decidedly the best in the long run; and until we return to our original state our progress in this adulterous generation cannot but tend to our ruin as a nation. Another great evil is the murderous onslaught on birds, which not only encourages slugs, &c., from the artificial manure above named, but the flies, lice, and vermin which are their food, while we are deprived of their songs all the day long. I trust that you will not let either subject drop until we leave off these strange ways and bad ways, for there can be no peace till then. *John Johnson, a Seedsman, Bexley Heath.*——Surely testing seeds is a simple process I remember an old farmer many years ago who always sowed one hundred of his Turnip and Clover seeds in a pot filled with earth, which had a saucer of water under it. This he placed by the side of his kitchen fire upon the oven top, and a very short time sufficed to show whether the seeds would vegetate or not. Nothing can be more simple or satisfactory than this, and nothing more simple than to leave the nurseryman who sends you bad seeds, telling him the reason you do so. *W. D. F.*——A practice has lately greatly increased which I much dislike, *i. e.* placing at the bottom of advertisements "prices on application." I regret to find it followed by some of the most respectable firms in the trade. It is as much as to say, "tell me who you are, and I shall know how much cooking your seeds require." Why not state openly the prices? We can then guess whether you are likely to cook or not. The case is different when a tradesman refers to his printed catalogue. *A Subscriber of 11 Years.*

Weedy Streams.—I have a winding rocky garden through which a stream of water flows, the total length of which may perhaps cover 100 yards; to keep it clean a bed has been made for it of Portland cement, so that in no place it comes in contact with earth. It varies from 4 to 6 feet in width, and 3 to 12 inches in depth, but on account of the water coming from a field pond at some distance, and in spite of a great length of pipe with several openings into gravel to filter it, the would-be stream is always and most rapidly generating thick green slimy weeds, and although it is as clear as crystal where it falls 4 or 5 feet down between rocks into the garden, it becomes within a few yards filthy and slimy-looking. If it be cleaned out thoroughly it returns to its former state in the most incredibly short time of a day or two. Is there any chemical compound that I could put in it to keep it clean? The stream is so slow as to be almost imperceptible; whatever is used must not be of a nature to injure the Portland cement. I have tried salt in vain. *An Amateur.*

Crickets.—In the winter of 1854-55 my stove, houses, and hot pits were overrun by these pests. I killed hundreds of them by scalding them with hot water during the night, but destroyed more by trapping them by means of wide-mouthed pickle bottles with a little treacle and water, or beer, or even train-oil as a bait, the pickle bottles being sunk in the ground, or placed so that the crickets could get into them. This winter the nuisance has partly abated, but my gardener having some in his kitchen, I got a hedge-hog to try the same plan I have adopted with success in the south of England against cockroaches or black beetles. I do not think it did much good. I tried red wafers with no success, and I do not think much of slices of Cucumbers, which are said by some to destroy crickets. *T. B. P., Manchester.*——Roasted Apple and arsenic rubbed together and laid on the floor will tempt the crickets and kill them. Lay it on a piece of thick paper or a thin tile. *P. P. P.*——For the extirpation of cockroaches, crickets, &c., I have used with complete success a paste made and sold by Charles Penny, 4, Roseberry Cottages, Dalston. *X. Y. Z.*——Chase's beetle poison killed hundreds, lots came to the funeral, they have since all disappeared. *F. D.*——By means of a half-crown box of Penny's composition we entirely cleared our kitchen of crickets. *C. D.* [We cannot confirm the statement respecting Chase's poison, which, although effectual with black beetles, we cannot persuade our crickets to eat.]

Ferns.—As regards the temperature necessary for the growth of Ferns, I may mention that for my Fernhouse I only use heat to exclude frost, and I have occasionally found the thermometer down to 29° or 30° when I have omitted to light a fire or to keep it up sufficiently. Under these circumstances I have found the following varieties uninjured by the winter, and also attain a state of great perfection in the summer, viz.:—

Pteris tremula	Asplenium canariense
" hastata and macrophylla	" furcatum
" longifolia	" flabellifolium
" crenata	" bulbiferum
" vespertilionis	" palmatum
Adiantum pedatum	" umbrosum (Allantodia australis)
" pubescens	" lucidum
" assimile	Cheilanthes vestita
" cuneatum	" profusa
" reniforme	" micromera
" formosum	" repens
" hispidulum	Lygodium palmatum
" affine	" scandens
" Cunninghami	Acrostichum alcicorne
Blechnum braziliense	Nothochlæna distans
" australe	" lanuginosa
" lanceola	" Marantæ
Polystichum coriaceum	Anemia fraxinifolia
" æmulum	Pycnopteris Sieboldi
Nephrodium pubescens	Polypodium effusum
" decompositum	Doryopteris palmata
Onychium lucidum	
Todea pellucida	

The following varieties have also with slight injury stood the winter; but they would evidently succeed better with more warmth, especially in the early spring, as it is late in the season before the new fronds appear or become fine, viz.:—

Polypodium aureum	Davallia dissecta
" plumosum	" elegans
Cheilanthes elegans	Darræa cicutaria
" lendigera	Nephrolepis exaltata
" farinosa	Gymnogramma tomentosa
	Pteris geraniifolia

It is evident that some Ferns, chiefly found in nearly tropical countries, will succeed under greenhouse culture here; and I hope that several growers will, by making their experience known, help in determining which they are, for the convenience of many who have not stove-heat at command. *R. W.*

Spring-flowering Shrubs for Beds.—The suggestion of your correspondent, at p. 118, that Daphne Mezereum would form a desirable bed, or group, reminds me that we now possess a variety of ornamental spring-flowering shrubs which might furnish a successive display nearly up to the season for ordinary bedding-out purposes. Is it not surprising that so little has been done in this way of garden decoration? Commencing then with the above-named general favourite (D. Mezereum), which, though essential as the first of its class to greet the opening spring with the rich incense of its grateful odour, as well as for the desirable contrast of white and purple in its variety, is nevertheless much inferior where display alone is sought to the very beautiful Siberian Rhododendron (R. dauricum atrovirens), which is now unfolding its gay violet rosy-tinted blossoms in many of our gardens. A few plants of this very hardy, free-flowering, neat-habited plant, amongst a clump of the first-mentioned, or arranged as a detached mass, would form a fine feature in the distance, and in itself must be regarded as the gayest of our early blooming shrubs; and perhaps the most valuable and universally adapted for picturesque effect, in the cool greenhouse or drawing-room conservatory. Uniform with the above for a separate group may be added the equally gay winter and early spring-flowering Jasminum nudiflorum, furnishing an excellent contrast by its numerous clear bright yellow star-like blossoms, gleaming like early Primroses upon a green ground. When suitably arranged this valuable object would appear most lively when seen against the darker tints of evergreens behind it. In rotation to these succeeds the neat green-twigged Forsythia (F. viridissima), which forms lively looking bushes literally loaded with clear yellow Jasmine-like blossoms, diffusing a balsamic odour, and appearing at a distance like golden Furze bushes—as hardy in growth and as free in flowering. As a pleasing contrast to this would be found the elegant Canadian Rhodora (R. Canadensis), yielding a profusion of small yet conspicuous rosy lilac blossoms. These again are followed by the beautiful little shrubs Deutzia gracilis and Berberis Darwini, the former a Syringa in miniature, with many racemes of snow-white blossoms, and the latter ornamented with numerous drooping spikes of golden-yellow cup-shaped florets charmingly contrasted against its glossy dark green leaves. After these comes the new Himalayan Rhododendron ciliatum, a neat dwarf species, unfolding comparatively large and conspicuous white blossoms, with roseate tint, which when seen *en masse* might readily be mistaken for a bed of Dog's tooth Violets. Among the well known but little appreciated shrubs of highly ornamental character, blooming at a later period, and, like the foregoing, well adapted for portable pot-culture, are the double-flowering Peach, laden with thickly-set clusters of lovely, rich, rosy peach-coloured blossoms, resembling nothing so much as miniature Pompone Roses; the Ribes atrosanguineum, an erect growing variety, its long attenuate branches festooned with pendent racemes of richly shaded crimson flower-spikes; and last, but not least, are the brilliantly-flowered double and single-blossomed dwarf Almond, studded over with bright rosy-tinted bloom, and which would appear very effective as an outer circle in connection with the two previous kinds. *William Wood, York.*

Bees.—The study of the natural history of the honey-bee is surrounded by obstacles. To the difficulty of making experiments it must be ascribed that so little progress has taken place since the days of Huber in arriving at any certainty with regard to those points which were left by him in doubt. Admitting at once that the eyes which he employed were occasionally mistaken, and that he sometimes allowed himself to be borne along to somewhat hasty conclusions, the mind of Huber was eminently of an analyzing cast, and many of his theories have been confirmed by subsequent investigation. The instance referred to lately by a correspondent, (see p. 87) is one, the truth or fallacy of which I have often wished to see proved, but have not had the opportunity of making the necessary experiments. Will your correspondent oblige me by saying if he has done so by placing the hive in the same condition as Huber did with his, removing the queen, allowing the bees to supply their loss by raising an artificial queen in a forced royal cell, then removing her before the date of hatching, and marking those bees which emerge from the cells contiguous to the cradle of royalty. Such, if I remember right, was the process employed by Huber, while his assistant, with wonderful perseverance, watched these marked bees incessantly for 30 hours ere he detected them depositing their eggs. It is evident that the experiment might frequently fail, without disproving the theory, as all depends on the chance of a portion of the nutriment destined for the queen having been dropped into some of the ordinary cells. Yet when we reflect on the wonderful development which the larva of the worker undergoes, changing the instincts, form and functions of the industrious insect into those of the fertile mother, a semi-metamorphosis can scarcely excite surprise, especially when we remember that the functions of these fertile workers are described to resemble those of true queens, whose organisation has been deteriorated, and also that a perfect queen, under certain circumstances, may produce a bee which is neither a perfect drone nor a perfect worker. May I further inquire if it has been ascertained with certainty that the bees ever remove an egg from a cell, except for the purpose of eating it. *G. S.*

New American Shrub.—A new and beautiful flowering shrub has been discovered in the state of North Carolina, Macon County, U. S. It is said to be a nameless and undescribed variety of Rhododendron, the flower of which is second only in magnificence to the Magnolia grandiflora. It grows to the height of 4 or 5 feet, and is easily transplanted and cultivated. It is stated that no American flower exceeds this in beauty; its colour is a bright crimson, approaching scarlet, and the panicles are composed of 20 or 30 flowers, forming a conical mass nearly as large as a man's head. The leaves are evergreen, of a deep colour. The spot where the flower was found is on the top of almost inaccessible mountains. *A Labourer, Hertfordshire.* [We know nothing of this. It is evidently an exaggeration, if nothing more.]

Shepherdia argentea.—In 1843 there was noticed in Loudon's Gardeners' Magazine, page 43, a tree under this name which was said to produce excellent fruit, and to be grown extensively by Messrs Winship at Brighton, near Boston, U. S. It also appears from the article in question that Messrs Osborne of Fulham ordered some of the plants at that time. Now I should like to know how they have succeeded with them, and whether this Shepherdia is worth growing in this country as a fruit tree. *J. Mitchell, jun.*

Orchids wrongly named at Sales.—In August, 1854, my gardener attended a sale of Orchids belonging to Mr. Fairie, of Liverpool, at Stevens's, and one of the lots was marked "fine plant of Lælia purpurata." From its rarity it produced great competition, and my gardener purchased it for 17*l.* 17*s.* I raised the plant with great care until last autumn, when it flowered, and to my great disappointment it turned out to be a very poor variety of "Cattleya Crispa," worth about 20*s.* or less. If the sale had consisted of imported plants such a mistake might have occurred, but coming from a gentleman's collection, I think, under such circumstances, there should be some redress, which I have in vain sought for at Mr. Fairie's hands, who says he bought the plant of one of the London nurserymen. *F. H. S.* [Certainly Mr. Fairie ought to return the money, and proceed to its recovery from him who deceived him.]

Flavourless Pine Apples.—I have seen winter fruit exactly in the condition of those described by "P. P." from being watered with strong guano water and other stimulants when nearly ripe, and also from using an excess of manure at the last shifting for plants intended to fruit in winter. *D. D.*

Rabbits.—Can any of your readers suggest to me a

cheap and effective method of keeping out rabbits from burrowing under wire netting in a light sandy soil? Slates have been suggested, but they are very expensive for so large an area as 400 yards. *O. M. R., Norfolk.*

Pitti Palace, Florence.—It may interest your lady readers (who are fond of memorials of places visited by them) to know that I have just raised seeds found in March in the gardens of this palace under every Bay tree, and a few from a cone of one of the two Cypress trees in the Campo Santo, Pisa. To naturalists these are more natural souvenirs than bad flowers inlaid in slate, or worse alabaster figures, which are the usual substitutes. *Somerset.*

Societies.

LINNEAN, *Feb.* 19.—R. Brown, Esq., V.P., in the chair. A. Hambrough, Esq., and the Rev. C. Popham Miles were elected Fellows. The following papers were read:—1. "Note on the Quantity of Tannin in the Galls of Cynips Quercus-petioli," by Dr. Viner. After alluding to the vast mischief which has resulted from the great abundance of this insect during the past season, and mentioning that the galls had been used in Devonshire for ink-making, Dr. Viner explained the result of his inquiries as to whether the latter contain a sufficient quantity of tannin to render them useful substitutes for the ordinary galls of commerce. By macerating 100 grains of Devonshire galls in ether and water a residue was obtained weighing 26.74 grains, and containing 17 grains, or about two-thirds of tannic and gallic acids. 100 grains of the best Aleppo galls submitted to the same treatment yielded a residue of 58.50 grains, containing 56 grains of tannic and gallic acids. The Aleppo galls were very heavy specimens of the best kind, and had not been perforated by the Cynips, whilst the Devonshire ones had all been perforated, and therefore contained a smaller proportion of tannin than would have been the case if they had been examined at an earlier period. The principal published analyses of commercial nutgalls, which show a varying percentage of from 26 to 77 of tannin, indicate great difference of quality. Dr. Viner thinks these discrepancies are owing to accidental causes, such as the variable nature of the seasons, which it is well known greatly influence the quantity and intensity of vegetable secretions. As to the Devonshire specimens, which contained a less amount of tannin than had been expected, Dr. Viner is of opinion that if examined earlier in the season they would be found to contain a sufficient quantity to justify their collection for commercial purposes. If they were gathered at the proper season, before the Cynips had escaped, and when the gall was in its most vigorous and valuable state, another good result would follow—the insect would be prevented from increasing to what seems likely to be a mischievous extent, threatening the destruction of the Oak plantations.—2. "Description of a New species of Paussus, from Tropical Africa," by J. O. Westwood, Esq.—3. The completion of a Memoir by G. Bentham, Esq., on "Loganiaceæ," which was commenced at the last meeting. This part of the paper contained the descriptions and synonymy of the species which Mr. Bentham refers to this order.

Notices of Books.

A Lady's Second Journey Round the World. By Ida Pfeiffer. 2 vols. 8vo. Longmans.

No one can deny that Madame Pfeiffer is an amusing and enthusiastic traveller. Those who read her former volumes will remember with what vivacity, if not accuracy, she hit off India and its peculiarities, and they may now be glad to follow her in another small excursion from London to the Cape of Good Hope, Borneo, Java, Sumatra, Celebes, Ceram, the Moluccas, California, Panama, Peru, Ecuador, and home by the United States, the whole performed in about four years.

Our horticultural friends will smile at the account given by the authoress of the Chiswick exhibitions:—

"The exhibition only lasts one day; and I should certainly never have imagined that for a display of this kind rainy weather would be desirable—and yet it was so. In fine weather all the gay world of London resorts to these flower-shows; but the purpose of the meeting is rather to display their own finery than to see the flowers. Bands of music play in various parts of the gardens; and the thronging of the perpetually moving multitude makes a real examination of the supposed objects of the exhibition almost impossible.

"I had, however, on my visit the advantage of very favourable weather—that is to say, it rained incessantly, and scarcely any one came to disturb me in my admiration of the glorious specimens exhibited in greenhouses and under tents.

"The splendour of the collection, especially of the exotics, is almost indescribable. I really saw many specimens of these beautiful strangers that were finer and fuller of blossom than I ever saw in their native country. The display of fruit was less remarkable, with the exception of the Pine-apples, which were of extraordinary size, and weighed ten or twelve pounds."

The information she collected respecting our own England, where "the winter often sets in at the end of September and lasts till March," must we fear be taken as a specimen of the kind of accuracy which pervades these volumes. They are, however, not the less amusing. We must, however, always distinguish between the events which Madame Pfeiffer actually witnessed, and the information she received from others. Her powers of walking are not the least remarkable part of this lady's accomplishments; for example, in Borneo she tells us that accompanied by a Chinese and a Dyak they set out on her second walking journey "at a pace as if we were running for our lives, and continued the whole way the same hot haste. I really believe *we ran 20 miles without stopping.*" Two days after she had a "severe march of more than nine hours, through thick wood and high jungle Grass, and only did 20 miles." The next day she and a cooly walked or rather ran the whole day, 20 miles more. The country through which the race was run was nevertheless not particularly favourable for pedestrianism. Madame Pfeiffer gives the following account of it:—

"Yesterday and to-day I had really some hardship to undergo. One-third of the way was through jungle Grass; the other two-thirds up and down high hills covered with dense forests, and right through several marshes; and I was compelled to go barefoot like the natives of the country. Shoes would infallibly have stuck in the mud and been left behind; and high boots would have become so heavy that I could not have walked in them. Another inconvenience was that I was sure to be, at least once a day, drenched through with the tropical rain, and had then to let my clothes be dried on me by the heat of the burning sun. The only thing that made me amends was the constant beauty of scenery displayed in this mountainous region."

When a lady runs rounds the world at this pace she should not be expected to bestow time upon minutiæ. Nevertheless she contrives to find time for everything. She speaks with admiration of the good government of Rajah Brooke in Borneo, and gives much curious information concerning the Dyaks and their love for such "fancy articles" as human heads. With the country itself she was charmed:—

"The scenery of the country we were passing through now became more lovely with every stroke of the oar. The morasses had disappeared, and were succeeded by luxuriant rice-plantations, with smiling hills in the background. Among the trees there were some glorious specimens,—some with trunks 140 feet high,—others spreading out their mighty branches, and hanging their leaves down into the water, so as to form deliciously cool leafy bowers. Large hives of the wild bee were often hanging on lofty slender stems with very few branches; but to reach hives of this kind and rob them of their honey, the natives make a kind of ladder of bamboo, which is fastened to the trunk of the tree at every two feet, stands about six inches from it, and is carried to a height of 80 feet"

"More and more beautiful views are continually presenting themselves. The hills are multiplying and becoming higher and higher. The peak that just now came into sight cannot be less than 3000 feet high. The scenery reminds me of that of Brazil. Here, too, are vast impenetrable primeval forests, with overwhelming masses of luxuriant vegetation, and here, as well as there, but little cleared land and but few inhabited places. The chief difference is that Borneo is intersected by a countless number of small streams or rivulets, whilst Brazil has scarcely any water but the vast floods of her mighty rivers. What might this island become were it peopled by industrious, peaceful, and truly civilised nations! Unfortunately this is very far from being the case. The population is scanty, and more intent on war and mutual destruction than on any kind of productive labour; and for white settlers the climate is a great obstacle."

In Java Madame Pfeiffer of course visited the celebrated Botanical Garden of Buitenzorg, which she thus describes:—

"Beautiful parterres of flowers alternate with groves and lawns, and thickets, and bright clear water glitters through the fresh green leaves. The paths and roads are kept in the most beautiful order, and cross each other in every direction, while elegant seats offer themselves for repose to the weary. Among the plants and trees there are some rare and valuable specimens. Mr. Tressman, the superintendent of the garden, pointed out especially a plantation of Vanilla, a climbing plant, and two delicate exotics, both of which had been lately introduced from America. With the Vanilla the climate seemed to agree extremely well, and its branches were hanging down loaded with large juicy pods." This reads like a poet's description of Paradise.

When visiting Sumatra the famous Camphor trees were inspected. They must certainly be very peculiar productions—for we are assured that the Camphor, which is found in a concrete state *under the bark*, is swept down with long brooms; "but this must be done with the greatest care, for *if the broom goes too deep* (!) the tree is destroyed."

After reading this, one cannot refrain from asking whether the following account of the wild Alforas, a race inhabiting Ceram, is to be entirely depended upon:—

"The Alforas have, as I have said, like the Dyaks, a passion for collecting human heads, and esteem these valuables above every other booty that can be offered them. The most acceptable present that a lover can bring to his fair one is a fancy article of this kind; and if he cannot get a whole one, she will modestly content herself with a portion thereof. Five or six young men will frequently form a company to go on a head-hunt, and divide among them any specimen they may procure. The huts in which they keep these trophies are called Baileo; and when one goes to decay and another is built, it remains without a roof until a new head has been obtained to place in it. Then the roof is put on, and the store of heads brought from the old Baileo."

"Returning home with their prizes, they announce their good fortune, from afar, by a loud piercing whistle, produced with a shell; and the women and children hasten out to see the conquering heroes come, greet them with all due exultation, and lead them in triumph to the Baileo. The heads are then given over to the boys and girls who have passed their 10th year, and they eagerly suck away every drop of blood that may yet be clinging to them—a proceeding which, in the opinion of their parents, tends to inspire them with valour. After this the trophies are slightly roasted, cleared of the flesh, and hung up in the Baileo. The Alforas are not cannibals, and in these feasts, which last several days, they consume several wild hogs and deer."

Pleasant people these to be visited by a travelling gentlewoman; our authoress however adds, that they are represented as "good and honest people, of very fair morals," notwithstanding the awkward habits which exist among them, to which must be added the practice of killing their sick when not likely to recover. Luckily Madame Pfeiffer did not succeed in making their personal acquaintance.

We have no space at present for further extracts. Those which we have given will show the vivacity of the authoress and the intrepidity with which she exposed herself to risks from which the fair sex usually shrinks. Hereafter we may return to the amusing pages of the second volume, which chiefly relates to America, and especially the United States.

The Journal of the Proceedings of the Linnean Society No. I., is the herald of a new mode of publishing the Natural History papers brought before that learned body. The part just issued forms an 8vo. of 96 closely printed pages, with two plates, and only costs three shillings. Four such parts are to appear annually, and will form a handsome volume. This is a great improvement upon the old and costly 4to. Transactions, which we hope and believe will no longer burthen the finances of the Society. We learn from a circular letter from the Secretary that the Council have determined to forward the parts as soon as published, *gratuitously* (by post), to all Fellows of the Society resident in the United Kingdom, whose addresses are known, and whose annual contributions are not in arrear. The "Journal" for the present year will be sold to the public at 12*s.* for the four parts; or the Botanical and Zoological sections may be obtained separately for 8*s.* each. As the publication adds largely to the expenditure of the Society, the Council trust that the Fellows will assist in promoting its sale. All subscriptions *prepaid for the year through a Fellow of the Society at the Society's House*, will entitle the subscriber to the full trade-reduction of 25 per cent.

The part before us contains valuable communications by Messrs Ralf, Bell, Walker, Newman, and the late George Newport on the Zoological side, while Botany is supplied in equal quantity by Mr. Charles Bunbury, Dr. Meisner, and Mr. Kippist. The paper by the first of these gentlemen on the Botany of Madeira and Teneriffe will much interest even the most "general reader."

Things not generally known, is the title of a little volume from the pen of Mr. Timbs (12mo, pp. 247, Bogue). It is a classified scrap-book or common place-book, in which the author gives an account of matters of which, as he says, the world is not generally aware. In his Natural History he has been wonderfully successful. He says, for example, that Mr. Yarrell has proved the eel to be viviparous, because it has milt (printed melt) and roe like other fishes. That was certainly not known before. Pearls, he tells us, are formed by certain *fish* in their shells. Of this also we were quite ignorant. Ranunculus aquatilis and hederaceus are said to differ merely in this, that while the former plant remains in the water its leaves are all finely cut and have their divisions hairy (!); but when the stems reach the surface, or if the seeds fall upon soil merely wet "the result is Ranunculus hederaceus." This nobody knew. Barley, Wheat, Oats, and Rye, are found to be resolvable into one; Oats have been transformed into Wheat; Baobab trees are 5000 years old; Judas hanged himself upon an Elder bush—or else a Fig tree; a Bread fruit tree dying of old age is restored to youth by an Aloe; the Nettle leaf seen through a microscope appears the model of an extensive estate decorated with timber and shrubbery; finally the Potato disease was caused by an Aphis (no doubt the aphis vast tatur of the learned Mr. Smee). Certainly none of these ingenious stories are things generally known—most certainly Mr. Timbs should confine himself to antiquities, which we hope he understands better than Natural History.

Garden Memoranda.

MESSRS. OSBORNE'S, FULHAM.—A visit to this nursery even at this season is not without interest. On the wall of the show house are trained two Camellias, which are now beautifully in bloom. The varieties are Colvillei and imbricata, both of which flower at one time, and their blossoms being of different colours contrast admirably with one another. Camellias managed in this way make charming coverings for walls, and where a border for planting them in does not exist, boxes either of slate or wood answer the same purpose. If made of the former material they are of course more durable

than if wood is employed, but the latter if well seasoned and properly put together has been found to last for years, and well painted they have a good appearance. The shelves in this house were gay with spring bulbs such as Hyacinths, Narcissi, Crocuses, and Tulips, which are flowering here this year unusually well. The Crocuses in this instance were planted in the pots before they began to push, but we need scarcely state that if lifted out of the open border in tufts a little before this season, just when they are coming into bloom, they make an equally good display, and require less attention. Many varieties of Crocuses are grown here in beds out of doors, and as they are now in bloom and all labelled, those interested in their differences and nomenclature may do well to inspect them. That delightful spring bulb, the Siberian Squill, is also now in blossom in the open border, as is likewise S. bifolia; but the former is the earliest, and considerably the handsomest. In one of the stoves the Ageratum-like Conoclinium ianthinum was in flower, and well grown, as this was, in a decorative point of view, this is a truly valuable plant. Its colour, bluish-lilac, being so different from that of other plants which bloom at the same time, renders it especially worthy of attention. Rogieria thyrsiflora was also in flower, and for the decoration of the stove at this season few plants are better adapted, for every shoot will produce flowers, and even pieces struck and placed in small pots blossom freely. A house has lately been erected here for the cultivation of Orchids and tender Ferns, to have collections of which has lately become so fashionable, and at one end of a stove we remarked a miniature aquarium filled with the better kinds of Water Lilies. In one of the greenhouses, which are now gay with Epacrises, was an excellent specimen of Libocedrus Donniana, a small plant of which has survived the winter here unhurt, and quite unprotected in the open border. In addition to Squills and Crocuses, Hepaticas, both white and purple, are as gay now in open beds as they well can be, and that charming early Rhododendron dauricum atrovirens is still, and has been for the last three weeks, one mass of small purple blossoms. In forming a collection of spring flowering shrubs this therefore must not be overlooked, and the same should be stated in reference to Andromeda floribunda, which is just now opening numberless spikes of small white bell-shaped flowers. By means of such materials as these and others, of which every nursery affords examples, our gardens might, with no great difficulty, be rendered almost as gay in spring as at any other time of the year. Among early flowering wall plants nothing can be much handsomer than Jasminum nudiflorum, which blossoms profusely all through the early spring months.

Miscellaneous.

English Oaks.—People who are accustomed to look on Oak trees as plants capable of arriving at an average size of some 40 or 50 feet of timber, as they generally do in the north, and who have not had the advantage of examining them as they are found in many parts of the south, can form no just estimate of what an Oak of first-rate dimensions really is. With reference to this, I may be allowed to state that in the New Forest, Hampshire, there were, two years ago, when I inspected that forest, some fine Oaks, many of which contained upwards of 200 cubic feet of timber. But the most valuable crop of Oak timber which I have ever seen was in Dean Forest, Gloucestershire. There, in 1852, there were 1200 Oak trees felled in order to supply timber for the navy. I happened to be called to inspect this forest while these trees were lying newly cut, and the sight of so much fine timber was truly no common one, as will be acceded to by every forester when I state that many of the stems of the trees measured 50 feet long, and two feet on the side of the square; that I measured the stem of one particularly fine tree, and found it to contain 400 cubic feet, and that the average size of the 1200 trees was somewhat more than 100 feet. These trees were old and fully matured, I should say they were above 200 years old. The size they attained must be acknowledged as first-rate, and is an evident proof that the soil and climate of the south of England are suited to grow the Oak to such dimensions; and from this fact it is to be inferred that they are also adapted to grow most other common kinds to dimensions equally as important, as may be proved from an examination of the many fine specimens of Elm, Ash, &c., &c., found growing on private properties throughout the parts of the country just adverted to. *James Brown in the North British Agriculturist.*

The true value of Weeds.—The weeds of hedge-banks and fences are innumerable: many wild flowers, not in our list, by growing in such situations are weeds. Couch, Cleavers, Bindweed, and Bryony are among the most troublesome, especially when they occur in young Quicks. To insure the growth of the fence these must be removed, and indeed should never be suffered to make head. This can be done with a small fork, handled with judgment, so as not to disturb the roots of the hedge. By this means we may not only remove the weeds, but the operation contributes to the fertility of the soil, and thus the hedge more quickly overtops what but for this attention would completely smother it. In this case, as in most others, it is safer to burn what we remove than to remove it to the dung-heap or to let it lie about. We knew a farmer who offered his cottagers 3*d.* the bushel for weed ashes; and as a description of the manner in which a cottage family proceeded to make them may be useful and interesting, it is here given. The refuse of the garden was first put together in a heap, and covered with turf from the road-side; this, on being fired, burnt in a smothered manner; the children brought all the weeds and refuse they could collect from time to time, and added it green to the rest, and by the occasional addition of turfs a continued smothered fire was kept up for weeks; in one cottage-garden was as much as 50 bushels, and the process still going on. With these ashes the farmer always did well in his Turnip crop; so that not only was an exterminating warfare carried on with our enemies, but they were destined ultimately to be converted into food; and we cannot better conclude this essay than by saying, Always destroy the life and reproductive power of weeds, even by fire, if necessary. *Buckman in Journal of Royal Agricultural Society.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—The operation of watering at this season should be conducted with care, more especially in the case of recently potted plants, which must not be overdosed. Keep them close, and if the weather is not frosty, syringe frequently so as to maintain a rather moist atmosphere; but until the growth of the plant shall have indicated that it has taken to the fresh soil apply water very sparingly at the root. Luculias in pots should be encouraged to make free growth in order to get the wood well ripened, and the plants in flower before those planted in the conservatory border, for it is desirable to prolong the blooming season of this charming shrub as much as possible. Stove.—Some of the Orchids may probably require shading; at all events see that material for the purpose is ready for use, but do without it as long as possible, and with a little care in removing plants likely to be injured to shady positions, it will not be necessary, at least in most cases, to apply it just yet. An increase in the night temperature of stoves may now be allowed, more especially if the weather should prove bright, but this should be obtained not by the use of an extra quantity of coal, but by shutting up early in the afternoon. Maintain a moist atmosphere, and give no quarter to insects of any kind.

FORCING DEPARTMENT.

Pinery.—Give plants swelling their fruit as much liquid manure-water as the state of the soil will permit, and afford them a thoroughly moist atmosphere day and night. Admit fresh air when the thermometer rises to 80° or 85°, but do this by opening the ventilators on one side of the house only, and by no means allow currents to blow through the house and rob the atmosphere of its moisture. See that a steady bottom heat of from 80° to 90° is maintained, but do not exceed the latter. Let succession plants start slowly into growth, which will induce a compact sturdy habit. Do not exceed 60° by night here, and give a little air when the glass rises to 75°; keep the atmosphere moist; also attend to the bottom heat, and see that the soil is not allowed to become too dry or get sodden, which is apt to be the case from syringing heavily, which however is a very bad practice. The syringe should be used merely to dew the plants, and when the soil requires water a good soaking of clear weak manure-water should be given. Vineries.—As the berries swell in the early house look over the bunches carefully, with a view of ascertaining whether they have been sufficiently thinned and go over any bunches at once which may require a second thinning, for it is great injustice to leave the berries to be cut out after they are stoned, which is by no means an uncommon practice. Peaches.—Keep the young shoots neatly and regularly tied in, so as to admit light and air freely to the foliage, and keep green fly and red spider at a distance; also apply sulphur immediately if mildew is perceived. Look to previous Calendars and be careful not to push succession houses too fast. Keep the atmosphere moist, but avoid using the syringe on trees in blossom.

FLOWER GARDEN AND SHRUBBERIES.

Bourbon, Tea, and other tender Roses may now be pruned, and the beds manured and lightly forked. Roses do not, however, dislike a rather firm soil, and care should be taken not to injure their roots by forking or digging. The best manure for these is cloacine, which should be applied after loosening the surface soil, and an inch or two of fresh soil sprinkled over it will prevent any unpleasant smell that may arise from its use. Get walks edged, gravel rolled, &c, and everything put in the neatest order. Also see that a sufficient quantity of plants for "bedding" is in a fair way to be ready when wanted in May. Sow seeds of tender annuals on a gentle hotbed where they can be freely exposed to air when up to keep them dwarf and stocky; hardy annuals may also be sown out of doors where they are intended to bloom.

HARDY FRUIT AND KITCHEN GARDEN.

While favourable weather continues push forward all operations requiring attention here with the least possible delay. If not already done, get nailing finished, borders dug, and paths formed, so as to give an appearance of neatness, and be prepared with covering for the protection of the blossoms. See to keeping up a succession of Peas and Beans; also plant out winter Lettuce on a rich warm piece of ground, and provide a succession of Radishes and other small salads. Manure and dress Asparagus beds. Get Cauliflower plants raised under glass hardened off, and pay every attention to those under hand-glasses, in order to forward them as much as possible. Spinach, Early Horn Carrots, and Stone Turnips should be sown at once on a warm rich border if not yet done; also Leeks, Brussels Sprouts, Savoys, German Greens, Snow's and Early Sprouting Broccoli, and the main crop of Potatoes should be planted without delay.

COTTAGER'S GARDEN.

Fruit trees, if any, and small fruit-bearing bushes, as Gooseberries and Currants, should now be pruned; this, if not already done, must not be longer neglected. Also get the ground amongst bush fruit manured and lightly dug; but in doing so take care not to injure the roots. Pay all necessary attention to Early Peas, and see that they are not injured by mice or birds. Where they are above ground draw the soil to their stems, raising it on the windy side sufficiently to make a kind of shelter for the plants. Plant Fairbeard's Champion of England for succession, and if a few of Fairbeard's Surprise are planted at the same time they will come in about a week earlier than the Champion.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending March 6, 1856, as observed at the Horticultural Gardens.

Feb. and March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep	Wind	Rain
Friday 29	23	30.590	30.473	52	28	40.0	44	44	N.E.	.00
Satur. 1	24	30.606	30.584	44	40	42.0	42	44	N.E.	.01
Sunday 2	25	30.569	30.555	46	37	41.5	42	44	N.E.	.00
Mon. 3	26	30.577	30.530	44	35	39.5	44	43	N.E.	.00
Tues. 4	27	30.539	30.475	44	33	38.5	43½	44	N.E.	.09
Wed. 5	28	30.286	30.177	46	33	39.5	43	44	N.E.	.00
Thurs. 6	●	30.197	30.132	44	27	35.5	43½	43½	N.E.	.01
Average		30.480	30.418	45.7	33.3	39.5	43.1	43.7		.02

Feb. 29—Foggy; dry haze; cloudy; frosty.
March 1—Uniformly overcast; cloudy.
— 2—Overcast; cloudy and cold; slight rain.
— 3—Fine; cloudy and cold throughout.
— 4—Cloudy and cold.
— 5—Slight haze; overcast; cloudy; slight frost.
— 6—Slight drizzle; cloudy and cold.
Mean temperature of the week 1¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending March 15, 1856.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	50.6	32.6	41.6	8	0.47 in.	2	4	3	2	4	8	3	4
Mon. 10	50.5	31.9	41.2	12	0.69	3	4	1	4	3	7	3	5
Tues. 11	50.1	32.8	41.[illegible]	10	1.33	1	4	2	5	3	10	3	2
Wed. 12	51.2	32.2	41.7	13	0.24	5	3	3	3	3	8	4	1
Thurs 13	51.3	34.7	43.0	10	0.36	3	4	4	1	5	8	3	2
Friday 14	51.4	35.0	43.2	13	0.70	—	5	3	—	5	11	4	2
Satur. 15	50.8	34.6	42.7	15	0.47	4	5	—	4	4	6	3	4

The highest temperature during the above period occurred on the 9th, 1826—therm. 63 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

Books: *Cara.* Loudon's Arboretum Britannicum, 8 vols, 8vo. There is an abridgment in one volume.

Dead Vine Roots: *J.* It is impossible to say what has killed them without knowing something of the circumstances under which they have been grown. Such a result is sometimes produced by bad drainage and over dosing with strong manure water.‡

Grafting: *Q B.* Pears will not take on Apples, nor *vice versa.* We do not remember any case where A will take on B, though B will not take on A, but there probably are such instances. For instance Cytisus purpureus will take on C. Laburnum; but we never heard of C. Laburnum taking on C. purpureus; if it did take it could hardly live over the year. You will find all that is known respecting these matters in the Theory and Practice of Horticulture, chapter xii.—*G.* We do not suppose that Wistaria sinensis will graft or bud on Cytisus Laburnum, or on any Cytisus; nor is there any allied tree on which it might be inserted with the least hope of permanent success.

Ipomæa Leari: *Sub.* If properly treated it certainly ought to flower in the situation you mention.‡

Melons: *Tulse Hill.* The Bromham Hall and Beechwood are both excellent varieties.‡

Mildew: *A Silurian.* I have not access at present to the reports of the Central Society of Agriculture of France, and therefore cannot tell you precisely the proportions used by M. Becquerel. I believe 6½ ounces of sulphuret of potassium (liver of sulphur) should be used to 9 pints of water. Half the weight of sulphuric acid, 3¼ ounces, or an equal weight of hydrochloric acid should be added to the sulphuret in solution. This should however be used with caution, a further addition of water may be found necessary in practice. You will soon find whether the solution is too strong. The same principle will apply to sulphuret of calcium and sulphuret of sodium. *M. J. B.*

Miss Murray's New Vegetable: *Mary.* The plant mentioned by this lady under the name of Okro is the common Hibiscus esculentus, cultivated in every country where there is heat enough. In this country it requires a damp stove. No success has yet attended such attempts as have been made to grow it as an esculent. We do not think the seeds can be had, unless of Messrs. Charlwood & Co., of Covent Garden.

Monstrous Hazel: *Thirsk.* It is a very unusual example of a branched catkin. We never saw anything like it before.

Rabbits: *M B.* They will eat any sort of annual if they are hungry. You must keep them out of your flower garden. All the Pears you mention are spring sorts, except the Marie Louise, and that is a late autumnal kind.

Rhododendrons: *Correspondent.* You may graft them now. The Sikkims will take on Catawbiense and other kinds; but whether they will succeed long on them or not we are unable to say.‡

Scotch Firs: *J M.* Plant them in the autumn.‡

Trees in Parks: *A B O.* It is not a bad plan to lay large stones several yards in diameter on the ground round the stems of young forest trees planted in a park. It keeps off the cattle, and it does not keep air and moisture from the roots. The best protection for young single trees is no doubt a good fence of tall laths or poles formed into a circle or triangle. Or if you have plenty of wattles then a close circular fence made like hurdles. The subsoil of your field should be ascertained. "Partial draining" is of little use.

Wash for Walls: *B.* That used at Heckfield consists of the following materials:—1½ bushel of gray lime, 1½ bushel of Roman cement, 6 lbs. of copperas, 6 lbs. of soft soap, 6 lbs. of sulphur, and as much yellow ochre as will bring the whole to the colour desired. The copperas is used as much to destroy moss as insects; gray lime is much the best. Any bricklayer will know how to mix and apply this composition.‡

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

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The Directors beg to announce that no applications for Shares can be received after Wednesday the 12th inst.

C. H. TIDBURY, Secretary.

81? Gracechurch Street, London.—March 8.

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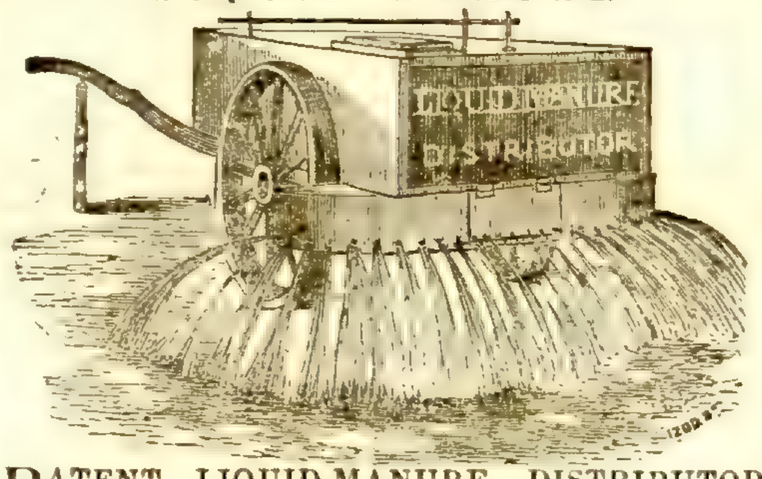

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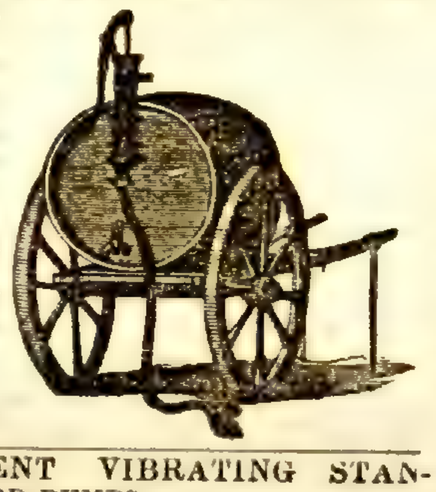

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1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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The Agricultural Gazette.

SATURDAY, MARCH 8, 1856.

WE give elsewhere the paper unabridged which Mr. HOSKYNS read before the Society of Arts last Wednesday. The subject is the History of Agriculture during the past 15 years. It is evidently written by the same pen to which we owe so many brilliant and useful contributions to agricultural literature. It opens with a reference to what may almost be called the ancient history of English agriculture—making use of the progress of land enclosure, of trade, and of population, during the early part of the present century, to indicate indirectly improvements of which we ought to have the history fully and directly in the statistical records of each succeeding year. The period during which the more detailed examination of the subject is conducted dates from 1840, when population had at length overtaken the resource of fresh enclosure—and when, as Mr. HOSKYNS states, the deficiencies of acre No. 1 could no longer be supplied by a mere collateral resort to acre No. 2. It is then that the routine of the practice which has hitherto been sufficient must itself be altered, so that from the unalterable acreage the increasing demand for agricultural produce may be satisfied.

Mr. HOSKYNS refers to four several agencies by which, in the absence of fresh lands waiting for enclosure, agriculturists and their customers have hitherto been benefited. These four "farmers' friends" are guano—LIEBIG, taken as representing the information which we owe to scientific men—the Royal Agricultural Society of England, established at the commencement of the period under review—and improved draining. And the influence of these several "items of new resource, all opening to view for the first time, almost simultaneously, about the year 1840"—forms the main topic of discussion.

It is with reference to the mechanical and chemical necessities of clays and sands respectively that this discussion is conducted, and the probabilities of the future as well as the history of the past are given under both of these divisions of the subject. The whole concludes with an allusion to an agricultural literature which has arisen within the period named, and to that confidence and respect for its teaching which it has at length achieved.

The subject could hardly have been arranged so as more compendiously and instructively to exhibit those facts in agricultural history and practice to which our future progress will most probably be due. And our readers will we are sure agree with us, that it could not have been presented in a manner better calculated to win the regards of the intelligent though generally non-professional audience before whom Mr. HOSKYNS read his lecture. The paper furnishes indeed a capital instance of that singular power of agreeable illustration alluded to by H.R.H. PRINCE ALBERT, who presided on the occasion, as characteristic of its writer.

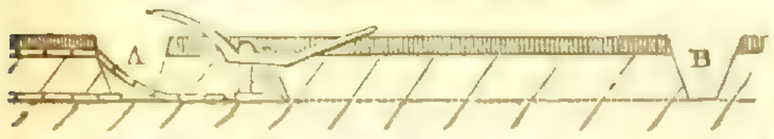
The inference drawn from it by His Royal Highness was that Science, Art, and Commerce were all contributory to the result presented by our agricultural progress in its present stage—and that on their contributions as well as on the information which full statistical inquiry would disclose, the hopes of our agricultural future must depend. The appeal addressed to the audience, so far as it was agricultural, that each in his own sphere would facilitate this inquiry, coming as it does from one who has so good a claim to rank as a British farmer, will, we are sure, be influential.

At the close of the lecture Mr. PAINE, of Farnham, stated what geologists have done for agriculture during the past few years: Mr. LAWES related the progress of agricultural chemistry: Mr. RANSOME re-

ferred to the advances in agricultural mechanism: and Mr. Hudson, of Castleacre, alluded to some of the more important steps in the progress of agricultural practice. We shall report these addresses fully next week. With one exception they were for the most part mere developments of points to which Mr. Hoskyns had previously alluded in his paper—and to that exception alone shall we refer at present.

Mr. Ransome did not agree with all that had been advanced on the subject of agricultural mechanism, and for the credit of machine-makers he contended that the contrast between the exhibitions of Oxford and of Gloucester did not represent the relative positions of their art at those periods respectively. But it is clear that Mr. Ransome in asserting this, however truly, did not take notice of the object of the paper he was criticising; it was not the progress of agricultural machine making but the progress of agriculture that was the point under discussion. The former might have reached perfection, while the latter might be miserably low. Agricultural mechanics might boast a list of perfect agricultural machines, and if so, then if any of Mr. Hoskyns' "farmers' friends" should succeed in effecting their distribution and their general use, that agency would properly have the credit of the agricultural progress which must ensue. We believe with Mr. Hoskyns that the English Agricultural Society have contributed largely to the agricultural progress that was being described, whether their patronage have induced the *invention* of any new machine or not. The invention of Crosskill's clod-crusher may have dated previously to the establishment of the Agricultural Society, yet the great services for which clay land farmers have to thank it are as properly referrible to the influence of that Society, as if the whole history of the implement were included within the lifetime of that third of Mr. Hoskyn's "farmers' friends." There is no point more prominently brought out by Mr. Hoskyns than the fact that agricultural progress has been, and still for long must be, mainly dependent on the publication of what is already known and practised by the few, as distinguished from what may be due to positive additions to existing power or existing knowledge, and the 2000 implements now annually collected at the exhibitions of the Agricultural Society may be fairly quoted, just as the ledger of every agricultural machinist in the country may be quoted, in proof of that enormous extension of agricultural power which the past ten years have witnessed in the distribution and employment of efficient agricultural machinery.

Perhaps no better illustration of the justice of this remark exists than is afforded by Mr. Ransome's own exception from his criticism: "All honour be to him," he exclaimed, "to whom we owe the successful application of machinery to the art of land drainage!" We quote his words from memory, and may not quote them literally; but the impression he conveyed was that Mr. Fowler's drain plough was an exception to his general assertion that our existing agricultural machines date much earlier than Mr. Hoskyns had been supposed to state. But this is not an exception at all. It is 11 years since the engraving, which we here annex, was published in these



columns—long before we heard of Mr. Fowler's name in connection with this subject—and to Mr. Saul, of Garstang, not to Mr. Fowler, is due the origination of the idea of draining by an "iron-strung necklace of pipes" drawn underground behind a mole plough—an idea which the latter has since so energetically and cleverly developed. The conveyance of power, too, from a fixed station in a field to any part of that field for the purpose of dragging such a mole plough as is drawn above is no new thing. And yet we say with Mr. Ransome, "all honour be to Mr. Fowler," for we, more consistent than he, attribute the step in agricultural progress seen in the application of steam power to a draining machine, quite as much to the influences, be they the energy of individuals or the patronage of societies which extend already existing knowledge, as to the inventive genius to which existing knowledge may be due.

It is plain that perfect models may exist either in example farms or in machines, which are useless as indices of agricultural progress until their example shall be generally followed and in operation; and Mr. Hoskyns is right in describing the wonderful extension of good agricultural machines as the very best illustration that exists of the advance in good farming during the period he referred to.

We only add that the paper was listened to with great interest by as large a number as the theatre of the institution would hold, and that the Society of Arts have established a new claim on the confidence and goodwill of farmers by this new instance of attention to their interests.

In common with our agricultural contemporaries we have received many letters on the ravages of a worm which in some localities has attacked the young Wheat plant. Mr. Westwood states below all that the entomologist knows of its history and its habits that can be of any use to the farmer. As, however, considerable alarm has been excited, it may be well to mention that the evidence which has reached us does not wholly confirm the original report from Riseholme on this subject. Those whose memory can retain the history of a dozen years together, know well that a season never passes in which reports of injuries in localities do not excite a general alarm at one time or another of the year in reference to one or other of the crops we cultivate. Present injury is *observed*—and the power of plants to recover is at the best but recollected: it more frequently is forgotten, and complaints arising in places take the form of a general lamentation, and an impression arises which subsequent events generally fail to justify.

A general remark of this kind, however true in a course of years, may of course fail of application to any particular instance. It is, we are aware, moreover, sure to excite displeasure in the locality that may be suffering, and we would not venture to have made it had we not received letters from that very locality which seem to show that the most has been already made of the injury complained of. The following is a passage from one of them:—

"In your remarks on the corn trade in your last week's paper, you allude to the bad appearance of the Wheat on the light lands in Lincolnshire, your remarks being founded upon a letter published in another paper from Mr. Marshall, of Riseholme, near Lincoln. I think this statement is calculated to convey an erroneous impression of the appearance of the Wheat on the light lands in this county at the present moment. Mr. Marshall's statement as to the great destruction of the Wheat plant on summer-eaten seeds is undoubtedly correct; but I believe the general opinion is, that such destruction is to a much less extent this year than usual. The appearance of the Wheat, in this district at least, is certainly good in comparison with other years, not excepting Mr. Marshall's, which I see nearly every week. There is an extra breadth of Wheat sown in this neighbourhood, a much greater portion than usual of the Turnip land that was bared up to Christmas being sown with Wheat."

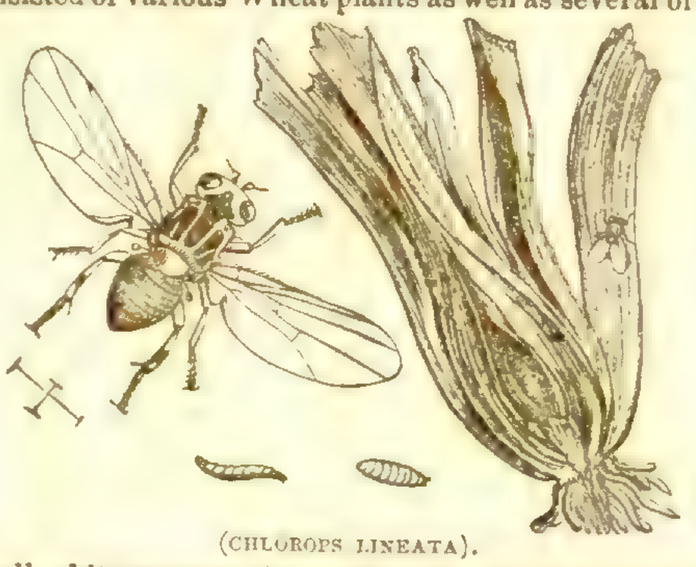
The following is Mr. Westwood's report:—

We have received from a correspondent, Charles P. Tebbutt, Blunt-ham, near St. Ives, Huntingdonshire, a communication, dated the 4th instant, relative to the extensive injury to which the young Wheat plants in that neighbourhood have been subjected during the last two or three weeks, from which the following are extracts:—

"I observe both in the *Gardeners' Chronicle* and the *Mark Lane Express* some complaint of the young Wheat plant in certain localities. The cause of the loss of the plant is also stated not to be fully ascertained. I have a field of Wheat, the plant of which has been rapidly failing during the last fortnight. Upon careful examination I find a small maggot in the centre of the stem which cuts off the main shoot of the Wheat plant, and is, I think, clearly an immediate cause of the evil

"As this matter is one of great importance, I have forwarded to you several specimens which will, I trust, clearly explain my meaning. The maggot has a white body and a small black speck near the head. Much of the plant has been quite destroyed in the field in question; but I think if proceedings are now stopped sufficient remains. I may mention that it is now somewhat difficult to find the maggots than it was a week since, when almost every stem seemed to contain them; I fancy they eat their way out. In my instance these maggots are confined to Wheat after fallow and green crop. They are not new to me this year. I have for several years found them and pointed them out to friends as causing much of the injury ascribed to other causes; but I never found them so numerous as this year."

The specimens sent with the preceding communication consisted of various Wheat plants as well as several of the



(CHLOROPS LINEATA).

small white maggots observed by our correspondent. And there is not the least doubt, both from an examination of these specimens as well as of others which have been submitted to me by the editor of the *Mark Lane Express*, that the maggots are the true cause of the evil in question. Unfortunately it happens, that from having been forwarded in a post letter, the plants and insects have been so crushed that the latter reached me in a dead state, so that I shall be unable to follow their transformations, and ascertain the precise species of fly which is the parent of these destructive larvæ. There is no question however that they are the offspring of minute two-winged flies closely allied to the very injurious Chlorops pumilionis and C. lineata, which also, in the larva state, feed on the interior of the stems of corn plants, but at a later period of its growth, so that the plant is at the time of its attacks in a condition to throw up an abundance of side shoots, which sometimes even more than compensate the damage done by attacks of the fly. But in the cases now before us I fear that the plant is so much injured as not to be able to throw up any side shoots. On looking over Mr. Curtis' admirable series of articles on injurious insects in the Journal of the Royal Agricultural Society, there is one species of minute fly of which that author records the history, and which seems closely to agree in its mode of attack upon the Wheat plant with the insects now doing so much injury. This is the Oscinis vastator (vol. 5, pl. L. fig. 31—34), the larvæ of which were observed attacking young Wheat plants in the middle of June, the fly appearing in the early part of the following month. It is impossible without rearing the insect to determine whether those now attacking the Wheat are specifically identical with those described by Mr. Curtis; the period of the year when they were observed being so different may possibly indicate a distinct species, although it may not be improbable that the June maggots were the offspring of a second brood of the Oscinis which had been produced from larvæ which (like those now before us) had been hatched from eggs deposited in the past autumn and which had become winged flies in April or May, as will in all probability be the case with those larvæ which are now engaged in destroying the Wheat plants. I need scarcely add that I shall be much obliged for specimens of the plants and insects sent alive, so that I may pursue their economy and clear up the doubt which exists as to the particular species of fly. As the maggots do not appear to me to be full grown the question immediately occurs as to the steps most advisable to be taken to prevent their further ravages. Doubtless when they have consumed one plant they crawl to the next and continue feeding, till they have acquired their full size, when they will undergo their change to a pupa and shortly afterwards to the perfect fly, resembling in fact a miniature house fly. To resow the ground without taking any measures previously to cleanse it from these larvæ would be I should conceive but waste of labour; repeated ploughing and turning up the soil would certainly enable the rooks and other birds to destroy a great number of the larvæ, but I would suggest where the injury is very extensive that the surface of the ground should be burnt.

It is proper to observe further that these small white grubs do not appear to be the only agents at work at the present moment in the destruction of the young Wheat plants. At the last meeting of the Entomological Society on the 3d inst., a communication was received from Mr. Botting, of Poynings, Hustperpoint, Sussex, accompanied by specimens of insects which were stated to be committing very great destruction in the Wheat in that neighbourhood by gnawing it off a short distance below the surface of the ground; the land where the insects were most numerous had been Clover and Rye-grass last year, and it was stated that in some instances acres of the young Wheat plant were completely destroyed by them. Mr. Botting's letter was accompanied by a pill box containing earth infested to a very great extent by minute dirty coloured grubs with shining black heads, transversely wrinkled bodies and destitute of legs, which are at once recognisable as the larvæ of some species of Tipula or daddy long legs. The specimens are scarcely more than a line (one-twelfth of an inch) long, and are consequently in a very young state, so that their ravages are not yet at an end. It seems not improbable that they belong to Tipula maculosa or a closely allied species.

(TIPULA MACULOSA).

Now these insects are more easily to be attacked than the Oscinis larvæ, because they do not bury themselves within the stem of the plant, but creep about at large on the earth feeding upon the fibres of roots or upon young fresh shoots as in the instance before us, and hence probably it is that owing to the ground not having been well cleared of the roots of the last year's Clover crop, the parent fly has had the instinct to discover that the earth contained an abundant supply of

food for her progeny, which she deposits in the earth by simply thrusting the sharp end of her body into little crevices in the ground, into each of which she drops an egg. Although lime-water is not sufficiently obnoxious to destroy these larvæ it might be advantageous to try watering the infested spots with brine, nitrate of soda, or even strong liquid manure as a means of destroying them. Their skins are, however, so tough that perhaps the safest way would be repeated ploughing or burning the soil as suggested above. *J. O. W.*

In reference to the meeting this week of the London Farmers' Club we have space only to say that Mr. Jackson's paper, on the best form of agreement between landlord and tenant, illustrated in an effective and often amusing manner the evils of a tenancy at will as well as those which are inseparable from the lease. It advocated the establishment of a tenant-right on a tenancy determinable by a long notice as the best style of bargain for the furtherance of good farming. It commented severely on the relationship between landlord and tenant on the Duke of Northumberland's estates. An animated discussion ensued, which we hope to give next week.

BONE-DUST AND SUPERPHOSPHATE.

Allow me to direct attention in the columns of the *Agricultural Gazette* to a mistake which I cannot pass by unnoticed. Several of your correspondents have represented me as having fixed the value of bones at 5*l.* 12*s.* per ton, and that of superphosphate at 6*l.* per ton. I do not know from what source they have derived their information, since nowhere have I published such a statement. It strikes me, however, that the error into which your correspondents have fallen may have arisen from a superficial perusal of a paper of mine entitled, "On the comparative value of different artificial manures for raising a crop of Swedes," and published in the last July Number of the "Journal of the Royal Agricultural Society of England." Amongst other manures employed in experimental trials upon Swedes, I used bone-dust and superphosphate of lime. The experiments were made in 1853. The bone-dust was purchased at that time at 5*l.* 12*s.* per ton, and the superphosphate, made on our farm, did cost us 6*l.* per ton.

These prices you will observe are stated as plain matters of fact, and I cannot understand how any one can infer from such a statement that I meant to fix the price of bone-dust for all seasons at 5*l.* 12*s.*, and that of superphosphate at 6*l.* per ton. Every farmer knows that bones have risen very much in value, and that consequently a superphosphate like that which in 1853 was obtained at 6*l.* per ton, in 1856 would cost considerably more.

Whilst speaking of the commercial value of superphosphate, I may observe that the question has frequently been put to me:—What ought I to pay for a good superphosphate? Now, if superphosphate were a manure which, like genuine Peruvian guano, or pure bone-dust, or unmixed nitrate of soda, varies but little in composition, a definite answer could be given. But as the most heterogenous mixtures are sold under the common name of superphosphate and as manures, its composition must greatly vary even if it is prepared only from bones and oil of vitriol, and as these ingredients are used in different proportions, it is evident that the above question is just as indefinite as any of the following:—"What ought I to give for a good horse, or a good watch, or a good house?"

Unless it is stated whether a cart-horse or a good hunter is required, or whether a good silver or a gold watch, or a house with three or six rooms is wanted, or in general, unless the essential characters of the object desired are stated, the adjective good becomes very vague in its meaning, and admits of all possible, it may be unsatisfactory answers. A similar case is presented to us in superphosphate, for this manure varies so much in composition that it can be prepared at any price, from 3*l.* upwards to 12*l.* The commercial value of it depends chiefly on the amount of soluble phosphate and next on that of insoluble phosphate of lime contained in it. Thus a sample containing 20 per cent. of soluble phosphate will be better than another sample containing only 10 per cent. A third sample containing only 5 per cent. of soluble phosphate in comparison with the preceding would be termed poor, but compared with a fourth sample, containing only 1 per cent. of soluble phosphate, it would be a good sample. It must not be supposed that these examples are merely imaginary and have nothing to do with what actually occurs in the manure market. Indeed the differences in the relative proportions of soluble phosphate in different samples of superphosphate I have frequently found even greater than the differences here given by way of example. And let it be observed that not only the cheap samples of superphosphate are often poor in soluble phosphate, but occasionally I have found on analysis even the most expensive samples wretchedly poor in phosphates. Although it is quite true that the cheaper samples of superphosphate are more frequently sold at disproportionately high prices, it is equally true that at the present time many expensive samples are sold in the manure-market which are not worth half the money which is paid for them. As long as agriculturists will be content with the declaration of the dealer to supply a good superphosphate, this state of things will remain unaltered; but a change must take place as soon as purchasers of superphosphate generally are determined to insist on demanding from the dealer an analysis of his superphosphate. It would be unjust to the manufacturer to insist on a perfect agreement between the results of the analyses as supplied by him and those obtained on examination of the bulk of the purchased superphosphate. Differences of two or three or even five per cent. in the amount of phosphates may occur in two samples taken from a large heap of superphosphate. But if the differences are much larger it is a proof the manufacturer does not carry on his business with that skill and business-like manner which enables several of our best makers, always to supply superphosphate of a composition, quite sufficiently uniform to afford a guarantee to the purchaser that he has obtained value received for his money.

It is strange that men in the habit of buying and selling do not pay more attention to their own interest, and often are content to buy the cat in the bag. If this were not the case would it be possible for so many unprincipled individuals—ay, and even companies—to drive a lucrative trade in artificial manures? The vague manner in which the expression "a good manure" is used is fraud with mischief. Applied to superphosphate, the question "what must I pay for a good manure?" properly speaking, has no sense. Before the amount of goodness required is mentioned no definite answer can be given; and as the goodness of this manure depends principally on the amount of soluble or insoluble phosphate, the question is fairly put when it is asked: What am I to pay for a superphosphate containing 16 per cent. of soluble and 16 per cent. of insoluble phosphate? Or the question may be reversed, and asked: What amount of soluble or insoluble phosphate ought a sample of superphosphate to contain which is sold, for instance, at 7*l.* per ton?

At the present time I believe a sample containing about 33 per cent. of phosphate of lime, one half of which is rendered soluble by acid, can be obtained in the manure market at the rate of 7*l.* to 7*l.* 10*s.* per ton. Many samples lately analysed by me, and sold at that price, however, have shown me that only few were worth the money that was paid for them. Every buyer of superphosphate for which 7*l.* to 7*l.* 10*s.* is asked, therefore, will do well to obtain from the dealer a written guarantee, stating that the bulk of the manure shall contain about 33 per cent. of phosphate, one half of which is rendered soluble by acid. Unless this precaution is observed, he runs the risk of getting an inferior article, not worth, it may be, half the money which he has paid for it. Most dealers, for obvious reasons, strongly object to such a reasonable guarantee; but inasmuch as there are others who willingly comply with this just request, the purchaser of superphosphate has only to blame himself if he does not get as good a manure as in all fairness he is entitled to ask. *Aug. Voelcker, Cirencester.*

DIARY OF A DAIRY FARM.

March.

The general operations of the dairy in the month of March must of course materially depend upon the time of the coming in of the cows, which, however, usually commences in this month. A great proportion of the milk is required the first fortnight as food for the calves, even if they are not intended to be fattened. If they are, of course it must be continued till they are so'd to the butcher. The milk thus early in the season is not considered of importance as regards cheese making, as if new milk be used for that purpose, it causes fermentation, and this renders the cheese of very inferior quality, and often of very little value; therefore the appropriation of the milk to the purpose of butter-making is much the most advantageous use to be made of it. Independently of the inferior quality of the cheese that is made from the early milk, another objection to using it is the uncertainty of the quantity brought into the dairy after the calves have had their portion, which renders the supply too irregular for making cheese with advantage. On every account, therefore, it is considered most desirable to use the milk entirely for butter. Sometimes when the dairy is very early, persons are induced to begin cheese making towards the end of this month, but in that case only for family purposes, when at least half the cream is taken from it, and even then it is very subject to heave. To prevent this many plans have been adopted; one of simple character has however been tried with much success. After the rennet is put into the milk add a little of the sour whey which is going to be taken from the dairy, about a pint to 40 or 50 gallons will be sufficient. The new milk after the cows have calved should not be brought into the dairy to be set up for butter under three days; if not all taken by the calves it is useless excepting for the pigs; after the third day it may be set up to produce cream, and it has been found, that by skimming the milk every twelve hours the flavour of the butter is better than when it is left on the milk twenty-four hours, which is a plan many persons adopt, with the idea that they obtain a greater proportion of butter from one thick, than from two thin skimmings. If the milk should yield a trifle more in quantity, which is doubtful, the difference is not equal to the improved quality of the butter if the cream has not been allowed to remain on the milk more than twelve hours; this experiment has been tried on succeeding weeks, when the butter has proved decidedly better by the mode of management here recommended. The cream should be kept in tin vessels suited to the convenience of changing it, which should be done every day, and a flat piece of wood or slice kept in the tins used to contain the cream, which the dairymaid should use whenever she has an opportunity by stirring it frequently; this prevents a skin from rising, which is a disadvantage to the butter. The cream should be churned twice a week, when the butter is taken from the churn, a clean cloth that has been scalded and afterwards left to lie in cold water should be used to beat it with; this will absorb all the butter-milk if wrung dry and the beating repeated three or four times; after this a quantity according to taste of fine salt should be added, and worked in with the hands, when it will be ready for making up into any form required, without the use of water. The process of washing it is by some persons thought quite necessary for making good butter, and that the milk cannot be properly extracted from it without using a quantity of water, but if the experiment be tried after the mode of making above recommended, it will be found that no butter-milk whatever remains in it. It has been ascertained from many years' experience that butter made without the application of water retains its sweetness a longer time than when water is used, and it does not appear at all unreasonable that this should be the case, when we recollect that the washing of meat prevents its keeping as long as it would do if no water were applied to it. Some persons have an objection to salt, and there is a method of making butter without it by keeping the small pats or prints, as they are sometimes called, in strong salt and water after they are made; the butter is very delicate thus prepared, but is never sold in the market, and can only be procured by bespeaking it at a dairy.

When calves are intended for weaning, which is usually done this month, or as early as convenient in the season, they should be selected from the best and oldest cows, experience proving to the farmer that a heifer's first and second calf are not so strong and likely to thrive well as those from cows of tried constitution, &c. It has been proved a better method to allow the calves a small quantity of best milk than a much larger quantity when skimmed, and especially so for the first month or six weeks. The proportion of 2 quarts morning, and the same quantity in the evening, will be as much as they will generally take well after they are taken from the cow, before they drink well without sucking it with the fingers. Much patience and care is required by the attendant to induce them to do this, and great loss is often occasioned by their neglect, and letting them remain to be driven by hunger to take the milk. Such a notion shows great stupidity in the holder of it. The stomach of a calf being very delicate, it is most easily affected by any change, and scouring soon follows a little fasting aggravated by the irritation and fear of losing its mother, which often retards the growth of young calves for several weeks, if it does not cost their lives: a little patient teaching, and the observation of their natural habits and instincts being quite necessary in those having the charge of young animals, which of course need to be taught a process of even feeding when it is unnatural to them. When they can drink well one quart of best or new milk will be sufficient, added to which they should get half-a-pint of good oatmeal, or the same quantity of Linseed has been found equally nourishing and sufficient to keep them in good growing condition. Both the meal and seed may be prepared in the same way, viz., thus, take for each calf half a pint of oatmeal or Linseed, mix it in a little cold water, and then add sufficient quite boiling to make the allowance for each calf two quarts of liquid; keep it in a covered vessel till required to be given. The morning's meal should be prepared the night before, as it should stand for some hours, and that given at night made in the morning, and if made in large quantities it retains some heat; a little more boiling water may be added to give it the warmth of new milk, 1 quart of which should be given with 2 quarts of this liquid to each calf.

The milking cows should now get the best food provided for them, with access to good water, the comfort of shelter, and everything tending to secure their good condition, surely tending to greater produce of milk. Roots and good hay can generally be supplied on every farm, and any disagreeable taste in the butter from the food of the cattle can be prevented by putting about a dessert spoonful of saltpetre, finely powdered, to about 3 quarts of cream immediately it is taken off the milk, placing it in a tin vessel to stand in boiling water, and constantly stirring the cream while it is heating and until it cools again; about half an hour is sufficient for the whole process. About a teaspoonful of common salt and half the quantity of saltpetre has proved also of use in preventing any disagreeable flavour in butter occasioned by the food of the cattle, being put into the proportion of 2 gallons of milk, when it is brought in warm from the cow and placed in pans or any vessel provided to receive it, to stand in till the cream is skimmed from it.

Home Correspondence.

Guano with no Guano in it.—Some time since a friend of mine had a sample of guano sent him from Hull highly recommended as of first-rate quality. Hearing the price was 8*l.*, I took it home to see what it was, advising my friend not to buy it. Dried in an oven a

sample of 100 grains lost only about 2 per cent. of water. Burnt in a platinum crucible not a smell of ammonia was given off, nor was a glass rod dipped in muriatic acid in the least degree tarnished when held over it. Instead of losing above 50 per cent. by burning, it, I think, lost two, and in place of turning grey it turned a bright red. I mention this case because it is the first time guano without any guano in it has come under my observation, and also because I believe it to be a new substitute sold for guano. I found, as might be expected, it contained a good deal of iron, a small quantity of lime (I was not at the trouble of weighing), a good deal of clay, and a small percentage of the finest sand I ever saw. Am I right in thinking this was the warp mud from the banks of the Humber dried and ground? This would account for the sand being in so exceedingly fine a state. My friend said it smelt strongly when he first had it, the lime remaining in it; and the fact of its having been kept some weeks would account for no ammonia remaining when tested by me. From some cause I could not get the name of the party who sold it, or rather offered it. Farmers have a great fear of the law, perhaps with reason, and if they escape loss do not like the trouble and risk of exposing a case of this kind, and even when taken in, generally make up their minds to take care next time and say nothing about it. *J. R. Pearson.*

Steam Cultivation.—There are generally two sides to most subjects. It requires a mind quick—not of apprehension but comprehension—to see both sides of a question at the same time with an equally strong eye. I glean from "Y. F. W.'s" letter, Nov. 24, 1855, that he understands my circular method of cultivation, and is able to foresee what the consequence of its introduction, both arable and mechanical, would be. I shall quote all "Y. F. W.'s" objections, and comment upon them as they appear in his letter. 1st. He alludes to economy in land, and points out that by this circular method in tilling 24 acres of land, we should leave 3 or 4 acres untilled (which estimate is incorrect by half the amount stated.) 2d. He alludes to ventilation, and affirms that the land left untilled (if so left) would exercise no beneficial effect on the circular half acre crops. These are the agricultural points; and he then enters upon the mechanical principles involved in the plan, and says, 3d., "C. B." seems to think the well-known mechanical law of what you gain in time you lose in power, does not apply to his case when he talks of tilling land 12 times faster than is now done. 4th. "Y. F. W." assumes the farmer must ever require as large a series of tillage contrivances as he now employs (although he knows the gardener can effect the whole work of tillage with only four, viz. a spade, a rake, a hoe, and a cutting knife, the whole of which he could carry in his great-coat pocket if he had but one "haft" to fit the lot.) 5th. My allusion to reaping-machines, harvest waggons, &c. 6th. How the point d'appui to my machine is to be removed to a new base of operation; how much time such transfer will take; and how the machine is to be moved out of one field into another—its weight, &c. Finally, he does not know where "man" is more worthy than machinery, or machinery more worthy than man. I will first premise for "Y. F. W.'s" information that steam-power is no more needed to my method than it is to a railroad.—The first point to which "Y. F. W." calls attention is the apparent waste of land, and insists upon the necessity of economising land. Now for years past this dogma has been the grand stumbling-block to agricultural advancement; it is the economy of manure, time, labour, and money, not of land which should most be studied in agriculture. No one has more forcibly illustrated than the farmer the story of the "boy and filberts;" or the straining at gnats in one direction, and swallowing whole camels at the other. The farmer, more frequently than otherwise, grasps at a substance he has not the power to embrace, and the result is weakness of hold. It has been demonstrated over and over again in the pages of the *Agricultural Gazette*, without one word from me, that if a farmer of 400 acres lost 50 acres to-morrow, and did then bestow his manures, his means, and his money upon the remaining 350, both himself and his country would be great gainers. It is true that by this circular method we should have to leave a small portion of land uncultivated by machinery, which might afterwards be cultivated by hand, or be applied to some purpose so as to conduce to the fertility of the cultivated acres. I believe there is no want of judgment in such a proposition. My plan of tillage is so devised that if we do but establish the principle, it will compensate the farmer, through diminished horse keep, double cropping, saving of cartage, and by increased fertility in the cultivated areas, for any small loss of land he may suffer. The second point to which "Y. F. W." refers is ventilation: he remarks "'C. B.' supposes the loss of 2 acres in 24 will conduce to the aeration of the plants in the centre of the half-acre circle." Now this is not exactly the fact; in the first place, I say these 2 acres need not be left untilled, still if they were so left many experienced agriculturists will tell him this bonus of space, allowing a reasonable distance between each plant, would be such a boon to the whole that it would greatly conduce to increased produce. Some years since, when I made the theory and practice of farming in the field my especial study, I desired to find out how Nature effected the ventilation of our crops and fields. Is it not possible that in the form of fairy rings and blighted spots among growing crops, Nature accidentally has left a visible mark of her method? "Y. F. W." observes that the blank spaces will not affect the plants in the centre of the circles, they being more than 80 feet distant. Now, I have travelled round the globe, and under many situations witnessed the operations of Nature on a large scale, never losing my interest in tillage and plant-production, and in the *Gazette* I can only offer the sum of a traveller's observation on Nature's method of aëration on the large and small scale: it may be thus stated, viz., that blank or vacant spaces in our fields, although they be 80 feet distant from the plants, by inducing and maintaining an atmospheric current will ventilate those plants, however dense—blank spaces in forests, although they be far distant from certain trees and shrubs, will ventilate them. "Y. F. W." says, "In my opinion the circular method of moving mechanism is wrong; and "C. B." had better employ his inventive talent in trying to work steam-machinery on the present square method." The first reason I have to offer for not blindly following in the wake of those who during the past 60 or 70 years have endeavoured to work field-machinery on the square method, is, that it has either signally failed, or led to no result. It is evident that in 1856 we stand in this position. After years of hammering, by some of our "best hands," on the rusty old nail involved in the rectangular or square method of tillage, the various practices of the fields have not advanced a single degree in time, power, or economy, when placed in the balance and compared with certain other arts and practices, such as road-communication, navigation, &c. Such being the result under the "rectangular" principle of mechanical operating in the field, why should I follow such fruitless exertions and want of success? The truth is, our present method of field operating has been perfected for years past, and to all intents and purposes "used up," quite as much as the old road-method was perfected and incapable of advancement, a few years ago. Now, everybody sees that, in respect to the old turnpike-road method of travelling, even if the coaches had been made of gold, and the bones of the horses of "superphosphate" of lime, that business or practice never would have attained to the present "one mile in one minute;" but certain people having discernment turned aside from the beaten track, and altered the method of operating altogether; and we all see and feel the result. It will be just the same with farming in the field. The past experience of others under the "square" method leading to no result is the rational consideration deterring me from seeking to work tillage machinery after such a method. *C. Burcham, London.*

Agricultural Progress.—The testimony borne to the merits of British farming by Mons. Léonce de Lavergne, in his "Rural Economy of England, Scotland, and Ireland," has been ably noticed in No. 209 of the *Edinburgh Review* just published. The article is composed in a kindred spirit with that of the work, and will tend to make its merits more widely known; it is desirable that this treatise on our agriculture should be extensively read, inasmuch as its laudatory tone is strangely contrasted with the depreciatory terms generally applied to farmers; indeed, a supercilious manner is displayed by almost all persons not farmers, who if blessed with no other qualifications deem themselves at least competent to judge and condemn them without mercy. It has been the fashion for several years to dwell complacently on the progress made by all classes in civilisation, in science, in art, and in general information; but in no class has more real progress been made of late than among agriculturists. Whether it is guano, or mechanics, or chemistry, or war that has effected this transformation we cannot precisely say, or if the attention of men has been diverted from pursuing the phantom of protection to a close examination of business; or if a season of calamity has introduced economy, accounts, and better management; or if the clash and confusion of parties in the State has deprived mere party following of much of the importance which once belonged to it, and has led to a stronger affection for leases, liberal covenants, and a better understanding of the rights and claims of punctual tenants and good cultivation; whether any or all of these influences combined have wrought the change or not, at least it is evident there is a change rapid, continuous, and powerful, as yet in the infancy of development, and promising to become a very fine fellow in its onward march to maturity. These reflections are suggested by the increasing evidences which surround us of the growing intelligence of farmers, as manifested by the readiness with which they avail themselves of every new and reliable source for augmenting their produce, for tilling the land, for feeding stock, or for any other operation worthy of trial and likely to pay. They have awakened as out of a long sleep, and if at last aroused, their vigorous attempts at progress will not be less successful than their compeers, or of less consequence in unfolding the latent riches that abound in the undrained marsh, the hungry clay, the sandy waste, or the meagre sheep walk; rabbits disappear to make way for Turnips; fish and wild fowl resign their dominion to Coleseed and Wheat; Furze and Heather are replaced by food for cattle and sustenance for man; steamers and clod-crushers tax the discrimination of those who one while boasted of "slow and sure;" machines for everything require "'cute" hands to guide them; master and man consult about questions that would puzzle a mathematician and that would inform a naturalist. If a farmer does not yet comprehend botany in its wonderful variety and magnificence, he is the best authority upon the habits and capabilities of a few of the noblest of plants, and if he does not fathom all the theories of comparative physiology he is the best judge of superiority of construction and of adaptation for feeding in those animals which contribute to the provision of our wants and the supply of our luxuries. Year by year the requisite ability to understand the higher processes of his art brings added numbers and a higher standard of excellence into the field, and we finally add that while this progress goes on, and this improvement is notorious in his tastes, his pursuits, and his conduct the British farmer, notwithstanding that a considerable accession to his worldly means has been recently made, shows the reality of his advance by employing more labour, by adding more implements, by reading more books and papers, and by taking a higher status in transacting local public business than has been previously allotted him. *J. W., Peterborough.*

Thick and Thin Seeding.—There is so much difference in "poor land," that before entering upon the subject of sowing Wheat either thick or thin, it should be thoroughly understood what soil comes under the denomination of "poor." The term indicates want of what is required for the growth of a particular seed sown. One description of soil may refuse to perfect Swedes and Mangel, and yet throw off a fine crop of Wheat under judicious treatment; another may produce an excellent crop of Parsnips and fail in sending malting Barley to the market. "Poor," therefore, when applied to land in connection with Wheat, must mean the absence of proper nourishment to insure an average crop. Such being the common sense view of the matter, on what principle does the farmer sow thickly on "poor land?"—that is, on soil deficient in what is necessary to feed both straw and head. If the former grows vigorously and the latter fills well the soil cannot be "poor." It often occurs that hungry land becomes infested with the wire worm and various grubs, in this case it may be requisite to sow thickly in order to compensate for the plant destroyed by the insects. The necessity of thus wasting seed arises, not from the advantage gained in the return of Wheat per acre; but to guard against failure in consequence of bad tillage. Where thin seeding is practised on "poor land," the drills being a considerable distance apart, the barrenness of the soil may be much improved by frequent stirring to admit the air as a fertiliser, which is well known to contain plant food. In thick sowing this is not practicable, nor can weeds, the favourites of poor land, be easily and effectually eradicated. I have never advocated a grain to a square foot, as hinted at by your correspondent. I recommend 1 bushel in the autumn, and 5 pecks in the spring, of Wheat per acre—taking for granted that draining and cleaning are rigidly enforced. If four grains of Wheat will flourish where there is only food for two, it is unlike anything else I know of in the vegetable kingdom, however I may have overlooked this extraordinary property. It is certainly contrary to my slight experience in such matters. *Falcon.*—As the subject of thin seeding meets with but few converts it may be considered futile to enlarge much upon it till our ensuing growing crops on a large scale prove our case more forcibly. It gives us pleasure, however, to know that your correspondent, Mr. G. Simmons, in last week's Number, March 1st, condescends to reason so fairly on our thin seeding principles, expressing only his doubts and fears whether it is practicable to grow only one single plant of corn on each square foot of land. Without criticism and argument the subject would remain too one-sided. Mr. S. admits that he sows from 2 to 4 bushels of seed corn per acre, which of Wheat is about from 1,280,000 to 2,560,000 grains for an acre; or from 8000 to 16,000 on a rod; or from 264 to 528 on a square yard; or from 29 to 58 on a square foot. If he or any of his advocates will take the trouble to plant at an early season, or due time of the year, say his 8000 grains on a rod, or 264 on a yard, or 29 on a foot, which equals 2 bushels per acre; also another square rod with the quantities 250 on a square rod, or nine on a square yard, or one on a square foot, side by side, keeping both clean and treating both crops in every other way alike, either on poor or rich land, he or they may with certainty by the latter experiment obtain many fine ears from each plant, whilst from the thick planted they would assuredly find themselves minus of the solitary number *one* perfect ear of 50 perfect grains from each grain or plant. If he or they should, however, be so fortunate as to secure even this uniformity of produce by such a proceeding, as a matter of course, and as a necessary consequence, it would be a produce of no less than 50 times 2 bushels per acre! which thick seeders never do or can attain. *Hardy and Son, Seed Growers, &c., Maldon, Essex.*

Agricultural Statistics.—Those who oppose the collection of agricultural statistics may now be left alone I think, they must be comparatively few in number, and can have little weight with the more intelligent portion of the agricultural community; but all must agree that statistics should be exact, or they will mislead. There is a certain margin of error in all human undertakings, but this does not much matter, and one error perhaps corrects another. If, however, there is an error in the mode of collecting or ascertaining the data, all will be vitiated more or less, and this I think is the case with the Scottish statistics as now published. In eight counties there are no returns from occupants rented under 20*l.*, while in the others returns are taken from all under 10*l.*; a little consideration will show that this must bring utter confusion on the whole, when totals come to be considered. It is said that these excepted counties are Highland, and the rest Lowland; but with all due deference to the framers of the scheme, this is

not the case. The wildest parts of the Highlands are perhaps situated in Perth, and this, with Aberdeen, is ranked amongst the Lowland counties; parts of Dumbarton and Stirling too are Highland. But why should a difference be made? If it is said that the small tenants in the Highlands do not understand English and would find a difficulty in filling up the forms, the same may be said of many renting above 20*l.*, or even 100*l.* But no real difficulty would arise, all above 4*l.* pay poor-rates, and should be included. There is another point which renders all diagrams of Scotland (like that at p. 90) erroneous. There are no correct maps of the country, and the extent of parishes and estates is not known in many instances; we are worse off in that respect than Englishmen can imagine. I point out these things that the same blunders may not be committed when English statistics are regularly collected, and that the present statistics may not be regarded as facts, as seems to be the case at p. 91. *Att. F. C.*

Wheat Crop of 1855.—So much discussion has taken place in regard to the yield of the last year's Wheat crop that perhaps the observations of a practical farmer may not be altogether unworthy of a place in your Journal. There can be no doubt that in this neighbourhood, and for many miles round it, the best Wheat lands have yielded the least, and the worst and inferior soils the most; and for this reason, that the heavy crops on the low lands were laid, and the moderate ones on the inferior soils stood up; but even with this advantage the produce is very much below what it ought to be. I have been a tolerably good tiller of the soil, anxious to show an example to my worse informed and duller neighbours, and have followed the four-course system—Turnips, Oats sown with Clover, mown twice, and followed with Wheat—instead of the foolish plan of fallow, Wheat, Oats, and fallow again *ad infinitum.* This system, which is according to the absurd agreements with the landlord, results in something like 16 bushels of Wheat on an average of seven years, whilst my produce is as under:—

1852,	32	bushels	per acre,	weight	65 lbs.
1853,	24	"	"	"	62 "
1854,	30	"	"	"	63 "
1855,	23	"	"	"	61 "

Making an average of 27 bushels per acre, weighing rather more than 62 lbs. per bushel. The nature of the land is yellow clay resting on a strong blue clay full of large stones at about 4 feet from the surface, which surface when I took it in hand might have 4 or 5 inches of tolerable soil on. By ploughing a little deeper every time I have now got rid of the yellow clay, and can turn up 10 or 12 inches of soil, off which I can get from 12 to 20 tons of Turnips per acre in a favourable season. This year, which was a most difficult one to produce any Turnips at all from such soil, I have from 12 to 15 tons of Swedes and 18 tons of white Norfolk. The only extra manure I use is 2 tons of Stanhope lime per acre spread on the Clover land before it is ploughed down for Wheat, and 3 cwt. of home-made superphosphate of lime per acre for the Turnip crop; the cost of the lime is about 10*s.* per ton, and that of the acid and bones about 25*s.* per acre—no great outlay for four years' cropping. I use 16 single horse loads of good dung per acre for the Turnips, which are sown on the ridge and all pulled off. *Old Slope, Thirsk, Yorkshire.*

Alcohol from Mangel Wurzel.—In reference to the remarks in your journal of Saturday on distillation from Beetroot, and that "alcohol can be made from Mangel Wurzel," I wish to communicate a fact that has recently occurred on my farm, which may confirm the alcoholic property of Mangel Wurzel, while the latter may furnish the solution of that which has been a puzzle to me and my farm-bailiff. Twice in the last 18 months I have lost suddenly on one occasion six, on the second, about a fortnight ago, eight young porkers, from a seizure which had all the symptoms of water on the brain or determination of blood to the head—giddiness, blindness, slight convulsion, resulting after a few hours in death. The only appearance on opening the animal was a suffusion of lymph on the brain. All the body and inside of the animals appeared perfectly healthy. On both occasions the food of the animals had been Mangel Wurzel, boiled for several hours with some Barley-meal. The Mangels were cut in slices and boiled in a large iron cauldron, but not given to the pigs till cold the next day. Could some distillation have taken place in the process, and the animals have been affected by the alcohol? Your remarks of Saturday seem rather to warrant such a conclusion. The older pigs were not affected. Those that died lately were about four months old, and had been about a fortnight on this course of food. *P. S. L. G.*

Gorse.—I should recommend the drills for Gorse to be 3 or 4 feet apart. Cut the whole crop at once, or you add much to the labour, and if the ground is too poor to grow an annual crop, cut half each year, but not in alternate rows. I cannot state what ground will be required for cows; but at a very rough guess, I should say half an acre of good ground would last a cow through the winter, if the Gorse is two seasons' growth. Gorse will not grow to be of any use under trees. It likes a free open situation. Any nurseryman will supply the seed. *W. D. Fox.*

"Measles" in Pork.—I fear we must infer from the reply which you were so kind as to obtain to my inquiry (see page 108), that but scanty information exists on this curiously interesting if not important subject. A single tape worm, as is well known, may be composed of a thousand or more joints or rings, each of which contains thousands of ova; these microscopic ova, like the spores of fungi, may float in the air, and in that case find their way into the stomachs and circulation of pigs and other animals, whether grossly fed or not. Bad food and impure water may, however, induce a state of the system adapting it for the development of these ova, which then become the measle or Cysticircus cellulosus, as this entozoon is technically designated. A closer attention to this subject may show perhaps that English pigs are not less subject to this affection than Irish. I may further mention that it is a generally received opinion among farmers in these parts that sulphur, antimony, turpentine, &c., have been resorted to for the extirpation of measles without the slightest beneficial result. *E. Murphy, Queen's College, Cork.*

Clinker Manure.—In your notice of my clinker manure, in the report of the proceedings of the Royal Agricultural Society at a meeting held February 13, you speak of this substance as being obtained from the vitreous substances produced in the fluxing of iron and other ores. This is not the case: the "clinker" used as the basis of my manure is the semifused ash of ordinary coal, and is quite unconnected with smelting operations of any kind; it is, in fact, the mere inorganic matter of coals. In a short time the chemical analysis of this new manure will be submitted to the agricultural public. *L. A. Ritterbandt, M.D.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *March* 5.—COLONEL CHALLONER, Trustee, in the chair.

FINANCES.—Colonel Challoner reported from the Finance Committee, that the current cash-balance in the hands of the bankers (including the Chelmsford subscription) was 2748*l.*

GUANO-SUBSTITUTE.—Sir John Shelley reported the preparatory steps he had taken for the trial of Colonel Warrington's manure offered in competition for the Society's prize. He also stated that other competitors had put in claims for that prize. The Council confirmed this report, and referred to the Guano-substitute Committee the subsequent arrangements to be made for the trials proposed.

FOREIGN CATTLE AND SHEEP PRIZES.—Mr. Miles, M.P., reported from the Foreign Prize Committee the following schedule, which was unanimously adopted:—

BULLS, of any pure foreign race.	
Six Prizes, amounting to	£105
COWS, of any pure foreign race.	
Four Prizes, amounting to	50
RAMS, of any pure foreign race.	
Two Prizes, amounting to	40
RAMS crossed: foreign and any other race.	
Two Prizes, amounting to	30
EWES (pens of three), of any pure foreign race.	
Two Prizes, amounting to	30
EWES crossed: foreign and any other race.	
Two Prizes, amounting to	15

The final arrangements of the Foreign prize sheet were specially referred to Mr. Miles and Lord Feversham. The entry of Foreign stock, as in the case of English stock, must be made before the 1st of June.

CHELMSFORD MEETING.—Mr. Fisher Hobbs having reported the favourable progress of the arrangements at Chelmsford for the Society's ensuing country meeting in July next, he was requested by the Council to meet Mr. Brandreth Gibbs and Mr. Wren Hoskyns at that place, at an early date, for the purpose of deciding on the amount of land required for the trial of implements on that occasion.

SPRING LECTURES.—The Council decided on the following arrangements for the spring lectures to be delivered before the members of the Society at the weekly meetings of the Council.

WEDNESDAY, April 9, noon.—Prof. Simonds, on the diseases and injuries arising to domesticated animals from the presence of parasitical insects infesting their skin.

WEDNESDAY, April 23, noon.—Prof. Way, on the progress of chemical science at home and abroad, in reference to agriculture.

WEDNESDAY, May 14.—Prof. Way's second lecture.

WEDNESDAY, June 18.—Prof. Way's third lecture.

The Council then adjourned to their Weekly Meeting on the 12th of March.

SOCIETY OF ARTS.

At a very crowded meeting of this Society on Wednesday last, presided over by H.R.H. Prince Albert, the following paper, which we give entire, was read by Mr. Hoskyns: "ON THE PROGRESS OF ENGLISH AGRICULTURE DURING THE LAST FIFTEEN YEARS.

"Difficile est proprie communia dicere."

A very acute observer of the minor experiences of life has left behind him the remark that no subjects are so difficult to handle as those which are of everyday interest, and come under the definition of common property.

A very strong sensation of this truth came over my mind on being honoured by the request of the Council of this Society to undertake a paper on the recent progress of agriculture as one of its evening topics for discussion. There is no branch of our industry to which the remark I have quoted applies so forcibly; and if it were not that the most difficult tasks and the most discouraging results I have ever met with have been from my own soil, I should never have had the courage to undertake the task, nor that deep interest in the topic which makes pleasure vault over difficulty, an enabled hope to look discouragement in the face without flinching. In fact, if I am not so much afraid of it as I know I ought to be, it is because, with the everlasting exception of my own farm, my agricultural experiences have not verified that stubbornness and tenacity which we used to hear of, but, on the contrary, every idea or suggestion forced out by the reflections that accompany a difficult practice have generally met with a freedom and openness to conviction which of itself has seemed to me to mark a sort of agricultural era, and has led me to watch with a wider interest its contemporary developement throughout the country.

Yet in doing this, and looking back upon its past history, I cannot deny that the comparative universality I have alluded to, of the topic, has appeared in some degree to lay it open to the adage that "what is everybody's business is nobody's business," diverting the eye of public interest from the landmarks of its progress by the very breadth over which its current extends; whilst other industries and arts, lying in more defined channels, are more readily marked and measured, and every invention and improvement mapped down with a precision, not so easily accorded to the progress of a national industry, which, though representing a capital calculated, 20 years ago, at 217,000,000*l.*, has, for the reason suggested, reached our time with no history, no statistics, no representative in the law or the state, no board, no minister, no department, in fact, as Mrs. Gamp would say, "no nothing." So entirely unnoted and unchronicled is its progress, by the state for the public, or by the public on its own account, that if it were possible for me to recapitulate step by step all the forgotten facts of its history during the present century alone, and lay them succinctly under the eye, I do not believe there is a single branch of art or industry of which the particulars would seem to form a more novel or eventful history, or more suggestive of surprise that they should have been allowed to drop astern, as it were, in the wake of time, and fade from view; and this, too, while presenting facts surely as instructive for reflection or foresight as could occupy the attention of the economist or the statesman.

Before attempting any reference to its more recent progress, it seems desirable to premise some statement of the condition at which it had arrived at the opening of the period under review. To form a judgment of the growth one must know the original stature. For this purpose I must hasten over some ground familiar, probably, to many of my hearers.

I need hardly point to the fact that this country, whose average imports are now nearly 10 million quarters annually, was, less than a century ago, doing a large trade as an *exporter* of corn to other countries; that later in the last century than the year corresponding with this, a celebrated French economist (M. D'Augueille), quoted afterwards by Arthur Young, said that England could grow corn enough in one year to support herself for four. The 20 years elapsing between 1773 and 1793 were the turning point of our history in this respect, a sort of pivot period, when exports and imports nearly balanced each other, under almost nominal duties inward and outward. A slow but steady inclosure of land during that interval, began to mark the consumption of a gradually increasing trade and population, of which, however, we have no accurate means of computation or comparison till the opening of the present century. I may just mention that throughout that unique period of 20 years the price of Wheat averaged with great steadiness about 45*s.* per quarter in the money of that day, when rents were from 7*s.* to 10*s.* per acre, which afterwards rose to from 30*s.* to 40*s.* Thus in the memory of men now living, the price of a bushel of Wheat was two-thirds of the rent of an acre of land, not at a time of any severe pressure of war or scarcity, but under circumstances of comparative equability. It would be difficult to adduce a more striking evidence of the fall in the price of food as compared with the producing area, than the change that has since taken place.

With the year 1793 this period terminated, and, with the war, began also a succession of deficient harvests. No account had been kept of the progress of inclosure during the century; but a Committee of the House of Commons which sat in 1797 computed the total quantity at about four million acres.

From the commencement of the present century, down to this time, we have a definite record of the progress of inclosure, of population, of corn imported, of prices, and, in some measure, of the rent of land; and from these we shall be able to form some idea of the point to which our agriculture (using the term in its national or territorial sense) had arrived at the period which forms the starting point of our present inquiry.

Taking it in decennary periods, the account stands as follows:—From 1800 to 1810, the quantity of land enclosed was 1,657,980 acres, the increase of the population of Great Britain 1,506,687, and the quantity of Wheat imported 6,009,468 quarters.

In the second decade, from 1810 to 1820, the inclosure was 1,410,930 acres, the further addition to the population 1,978,523, and the Wheat imported 4,585,780 quarters.

Thus, during these first 20 years, while upwards of three million acres were brought under the plough, the population was increased about three-and-a-half millions. The rent of land advanced during the war to at least three times its former amount, measured at least in a depreciated paper currency. But with the close of the war, in the middle of the second decade (1815), the average price of Wheat given by those 15 years, 84*s.* 9*d.* a quarter, fell to an average of 78*s.* 4*d.* for the last five years of the same period.

Thus, it will be observed, these 20 years present the phenomenon of immense inclosure of land, under the stimulant of the highest prices of food ever known, except in very early recorded cases of famine, in this country. It would seem to have required

no prophet to foretel the collapse that must occur when the stimulating causes were withdrawn, with the increased acreage brought under crop; yet it does not appear that this was the point that drew chief attention in the remedial measures proposed, the tendency of which was rather adverse than favourable to the laying down of land to its original pasture.

From that time—viz. 1820—the whole scene changes, and the most trying period commenced that the business of husbandry has perhaps ever known in this country: the causes of which are now more clearly apparent. Three million of fresh acres, not of the best quality, as the land last brought into cultivation in an old-inhabited country rarely is, and a circulation suddenly contracted to a metallic currency, produced a condition which no prohibition of importations was of any avail to remedy, because the competition lay, in fact, at home, in that increased acreage, held at greatly advanced rents. Nothing but the *steady increase of population*, and the still more rapid increase of trade and capital, could have sustained cultivation at the point it had extended to, nor was this done without considerable reduction of rents, though to nothing like what they had been before the war.

The best expression of this is seen in the strikingly reduced inclosure of the next 10 years (from 1820 to 1830), which reached only 340,380 acres, little more than a fifth of the previous rates. During this third decennary period, the advance of the population by 2,161,495 was gradually bringing round the natural remedy to the farmer for those overdoses of inclosure which the war had prescribed; but the reduction of the average price of Wheat from 78*s.* 4*d.* to 58*s.* 3*d.*, accompanied by no increase of importation, shows an advanced acreable produce under a strong home competition; the rent of land gradually rising to nearly its previous mark.

The next decennary period, from 1830 to 1840, shows, in spite of the facilities afforded by the General Inclosure Act of 1835, a still reduced and almost trifling addition to the cultivated soil amounting to only 236,070 acres, less than a sixth of those first named. Still, though there were 2,249,648 more mouths to feed, and the importation, though increased, was not large, the average price again fell to 57*s.* the quarter, disclosing a still further increased acreable produce against the advancing numbers.

The summary of the whole four decades, then, from the beginning of the century to the year 1840, exhibits on the one hand an addition of rather more than three-and-a-half million acres to the cultivated land, against an increase of nearly six million to the population of Great Britain; whilst the effect of the foreign supplies of Wheat did not amount to so much on the average as *three weeks' consumption* in the year, calculated over the whole period.

It may be remembered that at the time when the question of the free admission of foreign corn was in agitation, it was a common prediction that it would have the effect of throwing land out of cultivation. It will be seen from the preceding account of the immense inclosures during the first twenty years of this century, that had the measure taken place at the close of that period, there might have been some ground for the apprehension on the part of the inferior undrained clays, from the fact that the increased produce, shown by the figures I have given, was chiefly drawn from a remarkable cotemporaneous improvement going on, I might almost say discovered, in the cultivation of the *lighter class of soils*. But it is equally evident, from the same figures, that from 1820 to 1840 not only was this prediction becoming every year less applicable, but, on the contrary, we were beginning to present the opposite phenomenon of a population overtaking the resource of fresh inclosure, and compelled to have recourse to some other means for increasing the produce of the soil.

It is at this period in the history of a country that agriculture begins to assume the most interesting aspect for the purpose of our present inquiry. It is quite obvious that until this pressure arrives, until the tide of population has so risen as to cover that outlying margin which fresh inclosure brings under the plough, the mere routine of practice is not likely to offer much change, or to undergo much intrinsic improvement. As long as the deficiencies of acre No. 1 can be supplied by a mere collateral resort to acre No. 2, the same system will do, the same old implements, the same waste of manure, the same uneconomised apparatus in the field and in the fold, in the barn and in the cowshed, in the dairy and in the piggery, for the simple reason that the second inclosed acre is open to precisely the same process as the first.

But it has been and is the characteristic of our day to have witnessed in this country the comparative exhaustion of this resource. The plough can no longer strike a supplementary furrow in fresh ground; and we have seen, during the fifteen years that have elapsed since 1840, the first-fruits of that opening problem, how the old furrow was to be made the arena of an increased produce, when agriculture is thrown back upon its own resources, and compelled, somewhat tardily at first, to examine those resources by the light of its principles.

No doubt this condition may have befallen other countries; perhaps in the Netherlands and in Tuscany, not to name any other, something of the same phenomena in the exhaustion of territorial resource may have been presented; but certainly never before in any country possessing such characteristics as this in point of capital, inventive power, industry, and skill; and there never perhaps has been a more remarkable exemplification of the proverb—that 'all things are double, one against another'—than in the timely elements that seemed to spring up just when our husbandry had come to need them, more than it was, so to speak, itself aware of.

I allude to four distinct elements of new resource opening to view for the first time, almost simultaneously, about the year 1840, and which, for reasons that will presently appear, I will state in this order:—First, the introduction of the use of guano; secondly, the publication in this country of the works of Liebig; thirdly, the establishment of the Royal Agricultural Society of England; and fourthly, the introduction of an improved system of drainage.

My hearers will perhaps draw rapid mental conclusions on the comparative practical value of these four farmers' friends. No doubt guano is a ready friend, and a quick teacher. But who is there that does not remember the almost universal error that guano brought to light, existing in men's minds as firmly rooted as a first principle, respecting the food of plants and the nature of manures? Who cannot recal the shakes of the head with which 'practical men' pronounced condign judgment upon guano, with the hundred 'artificials' that sprang up after it, as being a mere 'stimulant,' forcing a single crop by some sort of magic, and then leaving the ground no richer than before? The very objection was a challenge, which cried out for an answer as plainly as matter could appeal to mind for explanation. The manure was come, "and the man" was needed to answer that challenge; and the man was found in the distinguished Professor of Giessen, whose publications, if they did not initiate, at least drew attention to, the important and new-sounding fact that the bulk of a plant being not derived from the soil, the bulkiness of a manure had little to do with its value. Let us give the honour due to our first great teacher, Liebig; though it still remained for us to learn a deeper lesson from a quarter nearer home. But this expression regarding 'artificial' manures, that they were 'mere stimulants,' was an error not in husbandry only, but in physiology. The analogy which the phrase assumed, from animal to vegetable life, was false. You cannot 'stimulate' the growth of a vegetable except by supplying it with its natural food: and whether that be conveyed to it condensed into half a bushel, or disseminated through the mass of a cart-load, the elements it feeds on are identical in either case, and the growth and substance produced are the same. It has pleased Creative Wisdom to adapt certain herbs and minerals to the faculty of producing upon the brain and nervous apparatus of *animal* life sudden and temporary exaltations of power and feeling, to meet the sudden emergencies to which animal life is subject from without; and these exaltations are followed by an equivalent depression. But no such necessity, and consequently no such capacity, exists in vegetable life. Light is, in fact, in their case, the only thing to which the term 'stimulant' can for want of a truer expression, be applied. Whatever promotes their growth is their *specific food*; and the more readily and completely a manure yields itself wholly up to the crop it is applied to, the more effectually it obeys the farmer's purpose, by the quick return of his capital, and the production of an ample supply of manure for the coming year, from the consumption of the crop that has been obtained. Mr. Lawes put this truth into few and striking words, when addressing the party assembled last year at the presentation of his testimonial laboratory. "It is sometimes said," he observed, "that farm-yard manure possesses an advantage over artificial manures in its lasting qualities. This is a fallacy. The lasting qualities of farm-yard manure are (in a commercial sense) not an advantage; for it is getting back your money by instalments instead of getting it all at once. A great deal of your capital is placed in the land, where it lies dormant for a long time; but science can correct that evil by enabling you to put *the right manure in the right place*."

I have ventured into this point so far, with the view of showing what a happy collateral commentary upon the introduction of guano were the translated works of such a writer as Liebig, who, whatever his after-suffered breach at certain points, when exposed to the formidable battery of such experimentalists as Lawes and Gilbert, had yet probed into nature's secrets and disclosed the theory of the action of manures, and led to that economy in the *special* application of them to different crops, the effect of which has been to institute a new business and establish a new Manufacture in this kingdom. What would our ancestors have said to the manufacture of an *artificial manure?* Why, thirty years ago, the phrase would have sounded about as rational as the idea of manufacturing a Wheat rick. Yet this is now a large trade ancillary to agriculture, employing thousands of hands, and proceeding upon chemical data that, before the investigations of Professor Liebig, were like an unknown tongue to the agriculturist. The very advertisements of such traders, puffing and exaggerated as they may often be, have had the effect of engrafting into the language of this new agricultural commerce, words and phrases which incidentally assert scientific facts, and involve a sort of rough introduction to the meaning and use of chemical terms for those who would, probably, obtain it in no other way.

There is nothing more remarkable than the rapidity with which the smallest morsel of practical truth, however scientific in its nature, becomes snapped up and digested into the language of commerce. The late Charles Buller used merrily to say that the *Times* advertisements were the best light reading he knew for amusement and instruction at short notice. I often think of his remark when I see the practical doses of chemistry administered to modern husbandry in the weekly advertisement pages of our agricultural periodicals. The revolution, perceptible *to the ear*, that farming has undergone from this cause, strikes me, in truth, as a 'great fact,' so gradually grown up, that it is only by certain landmarks laid down by accident, or by some of those irresistibly ludicrous mistakes which the use of new terms brings to pass, and stamps upon the memory, that one can measure the change wrought in this particular. What a long-winded sentence it used to take, for instance, to paraphrase and explain the now well-known word ammonia, in order to rescue that all-essential 'chemical' from a certain personality of attribute which its feminine termination inconveniently suggested; and what would now be thought if Mr. Paine, of Farnham, in contrasting the geological wealth under the soil with the fertiliser just named existing in the atmosphere above it,—describing, in fact, the fossil dung which he "digs out of the bowels of the harmless earth," and if its antediluvian live-stock, should narrowly escape, as my friend Mr. Huxtable did some ten years ago, being reported as introducing *Coppery Lights* into the dark places of agriculture. I have never forgiven myself for putting an extinguisher on those metallic luminaries which caught my eye in a version of a speech of his that chanced unluckily to come across me before publication, with that now well-known mineral superphosphate, the coprolite, thus brilliantly introduced to the farming world. But to return.

The third element of progress I named was the establishment of that powerful engine of agricultural improvement, combining both the stationary and portable character, the Royal Agricultural Society.

If I were asked to name, in a breath, what I regarded as the greatest achievement of that important body, I should say that, like Aladdin's lamp, it has summoned up a new race of powerful Genii, and set them all at work for the farmer. If any one doubts that fact, let him contrast the exhibition of agricultural implements collected by its first meeting in 1839, at Oxford, where the entries were twenty-two, with that which took place in 1852, at Gloucester, where they amounted to no less than *two thousand and thirty two!* What would have been thought only ten or twelve years ago of the facts disclosed in letters received last year from several of the great firms of English agricultural machine makers, whose engines we were unable, for lack of space, to select for the Paris Exhibition, viz., that being in the habit of exporting from *one to two hundred agricultural steam engines* a year to different parts of the Continent, the non-appearance of one of their manufacture amongst the prize engines in the French Exhibition would operate unfavourably to them with their foreign connection. And these, be it noticed, were the "*un*successful candidates," the less brilliantly distinguished among the decorated throng of prize and medal winners. Such a fact speaks volumes. As it was impossible, of course, to accommodate all, in the space allowed us, of 4000 square yards, in the Exhibition, the only thing left was to "bear it in mind," which I have done ever since, and now beg to offer it as a specimen "highly commended."

The fourth element I named was Drainage. To this I shall have to return.

I refer to these four prominent agencies, presenting themselves to our review, as cotemporaries, not in the tone of an exclusive citation of particular causes, for the causes co-operating with them have been many, much less with the object of stringing upon them a dry chronological narrative of facts. The use of the past does not lie in its catalogues of annual occurrences, little better for our purpose than an almanack or an obituary. The review that gives back life and value to bygone events consists in their analysis; and, following that vein of thought, the causes I have named as dating their origin about the same period (1840), suggest to mind the two great heads into which agricultural improvement naturally mainly divides itself — viz., the Chemical and the Mechanical. And I confess that when I see the extent to which the use of 'chemical manures,' so to call them, has been carried upon the light Turnip husbandry soils—upon those vast Norfolk plains, for instance, which the names of Holkham, and West-acre, and Castle-acre, bring to mind; where the manure merchant is the largest landlord, amongst the large, and the heaviest rent his 'little bill,'—I cannot help identifying those two divisions I have named, with the two classes of soils which form almost separate codes of agricultural practice in this country, and whose history and experiences are so widely different—viz., the Light soils and the Clays.

It must be obvious to any one who considers the nature of our climate, that the treatment of the heavier and more tenacious soils presents by far the greater difficulty, and one that would be the latest surmounted in the natural progress of labour or invention. But the mechanical disadvantage presented by the clays is not the only one, nor the worst. Few men prefer a difficult task to an easy one. Few men, under a weeping sky, prefer a soil which is for ever turning rain into a foe, to one upon where it is not only a friend, but an ever welcome one. Few men prefer a soil upon which, whatever its boasted mineral superiority, that "beast with golden feet," as the Sheep is called in the Persian proverb, gets its four golden extremities screwed into the ground, like the table of a ship's cabin. The consequence is, that we realise upon the clays a sort of travesty of the saying of the old poet, who says that "Love alights with ease on wealthy places." We find, conversely, as it were, that "Wealth alights with love on easy places"—in other words, that every farmer who has capital enough to manage a clay farm in a capital way, goes travelling about in search of "a sheep and Turnip farm." In the track of capital follows, I fear, the main average of intelligence and skill, settling like the Monks of old, upon the choicest spots, where the struggle with Nature is not only lighter, but spreads its easier task over a *longer* and more leisurely year of *twelve* uninterrupted months. The statistics of the rain-fall of this country, of which, happily, we *are* in possession, show that the quantity of rain which falls in the west of England is three times greater than in the east, and that the farmers of the midland and west-county clays have thus had another disadvantage to contend with in their plough-lands: and that the causes which, in the early part of this century, occasioned so much land, which formerly was pasture, to be broken up for corn, in those districts of the kingdom, bequeathed for many years a forced application of the soil, not easy to correct without too long-continued a loss for tenant-farming to encounter. Stiffer land, more rain, a shorter working year, less capital, with its too frequent concomitant, less skill and intelligence, present a formidable array of disadvantages against the heavy soils, in taking a comparative review of our means of advancement. To this the one reply has been, Drainage. But if the drainage statistics are only half true, which we heard read in this room not many weeks ago, the advanced knowledge of this art has sadly outstripped the practice, and what has been done is little compared with what remains to do. What are two or three millions, or five millions, of public money spent in drainage? Would *one hundred* millions drain, at 4*l.* or 5*l.* an acre, all the clay soil, pasture as well as arable, in Great Britain, now undrained or badly drained, and the draining of which would pay 10 per cent. and 20 per cent. upon the outlay? What *can* be the cause that—in a country which has sunk nearly its three hundred millions sterling upon railroads, that can scarcely pay back their 3 per cent. upon the outlay—stints and diverts the free flow of capital from a channel as safe, as certain of return as the arterial blood, to the heart and inner sustenance of the nation?

That this is a matter involving serious points of consideration will, I think, appear from the following facts:—

During the seven years from 1840 to 1846 inclusive, our imports of Wheat had advanced from less than one million quarters per annum in the previous ten years to very nearly an average of two millions; while from 1846 to the present time, under the development of an unrestricted trade, they have advanced to nearly *five million* quarters per annum, or more than half of the whole imports of foreign grain. Now, inasmuch as the Wheat crop occurs only once in the four-course system of Light soils, whilst upon the clays, whether managed upon the six-course system or upon the older three-course shift, it is grown upon a larger oddmark, approaching to the ratio of a *third* instead of a *fourth* of the arable land, and is, therefore, looked to by the farmer as furnishing the profit, which on the light soil is drawn from the Wheat and Barley crop together (beside a wider range of profits derived from the sheep flock;) it seems obvious that the improvement of the clay soils to their utmost extent is the special, I should almost say the only means left to us for operating in any important degree to maintain the produce of Wheat in proportion with our increasing numbers.

The population of Great Britain at the last census in 1851 was twenty-one millions; during the five years ending with that year, the imports of Wheat had averaged four-and-a-half million quarters, thus giving about eleven weeks' consumption instead of three weeks, the quantity I named as supplied by importation during the first forty years of the century. But, it must also be borne in mind, that not one quarter of imported corn do we obtain except by its equivalent in additional labour at home, the wages of which will still be mainly spent in the purchase of fresh supplies of food; whilst, therefore, the extra demand is so far cumulative, the home grower can only avail himself of it by meeting it with an extra produce obtained from the soil at the same cost. We have here a lively challenge to the improvement of the Wheat soils. Drainage first, and some new mechanical aid not yet divulged, are the only resources we can look to with reasonable prospect of success.

It would be, beyond all expression, interesting, if on looking back over the last ten years of increasing population and enormously increased imports, we had any possible means of ascertaining the statistics of our increased home produce; but for this invaluable retrospect we are without the shadow of progressive data.

The weekly returns of corn sold, which regulate the averages, are too imperfect and manifestly untrustworthy to be even worth alluding to; and beyond these we have literally nothing approaching to a guide to go by; all we can do is, to look at our improved implements of husbandry, and their immensely increased sale, indicated by an annual exhibition augmented a hundred fold, from *twenty* to *two thousand*, as a subject of indefinite congratulation, which it is out of our power to estimate, as we should like to do, by an annual table of recorded results. This would be a practical and complete test. But instead of this, we are in the position of a manufacturer who shows you the quantity of fresh machinery he has put up, the new inventions he has made or purchased, the extra

hands he employs, the increased number of his customers, and the superior economy with which his work is accomplished, but can furnish you with no account whatever of the produce! Whoever wishes for an almost provoking argument for agricultural statistics, let him look at this now irreparable fact. In vain do we point to the almost perfected specimen of the plough, from the manufactories of a Ransome, a Howard, a Ball, or a Busby; to Garrett's horse-hoe; Hornsby's drills; to Benthall's broadshare, Coleman's cultivator and scarifier; to Chandler's ingenious water-drill; to Croskill's clod-crusher; to the nearly, but not quite, perfected Reaping machine; to our splendid late improvements in steam-driven barn-works, completing at once, and in the compass of a stage-wagon, the whole operation, from the threshing of the corn to the dropping it into the sack, winnowed and cleaned, and ready for market, recalling, to the above distinguished list, the names of Clayton and Shuttleworth, and Humphris. These names are but a very few even of the most prominent among an army of Titans eternally waging peaceful war, whose machines, like a "list of the running horses" at our annual agricultural Olympics approach each other within the narrowest shades of differing merit. We witness all these fresh accessions of mechanical economy to the various details of husbandry practice, but what their joint comparative effect *has been* upon the national produce we cannot tell, and, what is worse, shall never know. But this we are able to see, that, with the exception of the inimitable clod-crusher, almost every mechanical improvement I have named is, more than at first meets the ear, addressed to light land culture. First, because a greater proportion of them are adapted to the larger holdings, more rarely met with on the clays. But let me take, for instance, that useful class of instruments represented by Benthall's and Coleman's scarifiers for *Autumn cultivation of stubbles*, one of the greatest improvements of modern practice. The farmer of the clays may listen with admiring envy to the virtues of an instrument whose wholesale power of extirpating the annual weed crop bids fair to reduce the Bare Fallow to its narrowest necessary limits, but in the majority of seasons he dare not use it. The utmost exertion of his team is required to get his ploughing done, and his Wheat sown, in the few weeks after harvest when his land is in proper condition for tillage. Had he but an implement that would work *night and day* during those critical six weeks of September and October after his grain is harvested, and before the November fogs and rains set in, he would, indeed, be a debtor to mechanical skill; but the want of this leaves him often overtaken by the approach of winter, with many a task unfinished that comes with redoubled pressure upon the hurried days of Spring-time. I say that this is the specific want upon that large portion of the arable land of this kingdom which the character of our climate renders unfit for winter cultivation. The effect of drainage, even when most perfectly performed, is only comparative. It modifies the evil, but does not cure it. "We have scotch'd the snake, not killed it." Besides, the glazing passage of the plough through a clay in winter time is often detrimental to the operation of the drains; and the elongation of the modern mould-board, one of the features of its improved form, is an elongation of that glazing action, showing that even its very points of excellence and finish—for light land culture—are, to some extent, negatived upon the clays.

Unless the mighty power of Steam will befriend us here, I see no loop-hole of escape from the unequal struggle which has been going on, and is every day widening the distance, in the race between the light soils and the heavy. The resources of the light soils are more readily available, and *followed out through the year*. The Turnip crop, fed off by an ample sheep flock, with the collateral advantage of the Barley crop, renders their quadrennial Wheat crop a thing of almost attained excellence, whilst, in their case, of far different comparative importance to the place it holds upon the clays.

I do not deny that, when I look at the new and extraordinary powers which the use of guano holds out to the heavy land farmer, and not guano alone, but every artificial fertiliser which, like it, can be *applied by hand to the growing crop*, leaving no track of horse or wheel, during the wet months of winter, and rendering these naturally rich staples almost independent of "courses" and "shifts," as they are called, I see a power of almost indefinite increase in the Wheat crop (for whose enlargement we must look to that quarter), could we only overcome the mechanical difficulty, the two-fold problem of hard work and shorter time, in their preparation. That it can be overcome I do believe; that it is worth the effort, not only of a Company, but of a NATION to overcome it, I foresee. To no other country is the problem presented, under the necessity which enforces and *compels* its consideration and solution upon our large acreage of clays, with such a weeping winter sky above them, yet such inexhaustible capabilities within them. The celebrated seven-acre field at Rothamsted, and that perplexing Eden of mystery at Lois Weedon, differing in other aims, agree in this, in showing the unfailing annual produce which a Wheat soil, *unmanured*, will give, *according to its tillage*, if kept free from weeds.

What, then, might not be accomplished on the clays, if, to a more specially adapted mechanism of tillage, we should add the revision and partial abrogation of an ancient system of cropping, and covenants for cropping, which the introduction of Guano has, to a great extent, rendered obsolete.

When we consider the primary rank of the Wheat crop as the direct human food, and the peculiar capacity of the Scotch and Irish climates for the production of Oats and other inferior grain, evinced in the statistical returns that have appeared of those parts of the United Kingdom, is it not forcibly indicated that no blind adherence to custom, or rotation, should prevent our stronger class of soils being put to their full capacity, being *worked on high pressure?* Nor can I see why the farmer of the clays should be forbid to do as the manufacturer does,—adapt his produce to the market, and turn guano into Wheat as fast as the machine he hires will enable him. The idea of "exhaustion of the soil" is a chimera. Let it be only kept free from weeds, the true exhausters of land, and the simple equation remains, that so much applied Nitrogen will make so much Wheat, and when that is reaped, and the land is ploughed and cleaned, the same dose of nitrogen will produce the same result again. If the question be still asked, what chemistry has done for agriculture? let the most original and practical authority in this or any other country on that subject, Mr Lawes, point to that simple fact which he has discovered and proved. The controversy which has made this important discovery memorable, has had the singular fate of outlasting its field-proof and practical adoption in this country. 'Nitrogen for Wheat, and phosphates and sulphates for Turnips,' has received the stamp of successful practice, before the battle of theory has been brought to a close. But Chemistry has full right to its *Retorts;* and it would be ungrateful to suppose that our debt to Professor Liebig is cancelled or affected by the practical disproof of his opposite theory, whose original announcement, regarded as part of a grand research into the principles of manure, awakened attention and investigation to the point, and has thus conferred such lasting benefit on agriculture, "bringing with its surcease, success." The experiments, too, of Mr. Thompson and Professor Way, resulting in the discovery of a specific chemical relation between ammonia and the silicates of alumina, have strengthened our practical reliance on an affinity, the importance of which, in the culture of clays, can hardly be overrated. Regarding the atmosphere as the proved storehouse of that element, shown to be the special food of cereal crops, and repeated fresh exposure of the soil as the surest invitation to its absorption, this subject has become the meeting in our day of the chemistry and the mechanics of agriculture, reflecting new immortality upon the labours and guiding instincts of Jethro Tull, carried out as they have been to more accurate demonstration by the unvarying personal success of his modern illustrator and improver, whose "word" is every year "in season," with 4½ quarters per acre, on the garden-farm of Lois-Weedon, which still produces its annual crop of Wheat without manure, and followers without success.

But to return to the mechanical question.

I shrink from speaking of myself: but let me not be thought to have slackened upon the great subject of steam culture. I have watched the spread and progress of the question from the time when the very name of steam cultivation produced a smile, and have lived to realise a certain prophecy, that the time would quickly come when the reclaim of the thought would be the harder task amidst the throng of speculators on the subject, each enveloped in the believed originality and perfectibility of his own idea. But it is a task which far exceeds, for its accomplishment, the power of a single hand. If all who nurse ideas upon the subject would but agree to sacrifice a little of that self-reliant individuality with which nature has gifted inventive minds, and those who pronounce upon the merit of whole catalogues of others' patents would but sink a little of that generality of which she has been equally liberal to minds that are not inventive, this invaluable object would be on the right road to its accomplishment, and England might add that *one-fourth* to its Wheat crop which it now purchases abroad. The October temper of a clay soil will not wait while horses are eating and sleeping fourteen hours out of twenty-four; and the substitution of a power that needs no rest, at that period when the soil says, "Now or never," is not so much a question of economy in money as in *time*. I cannot desert the principle that that particular *mode* of turning the soil peculiar to the plough, is the mere relative necessity of a particular tool, that it may be done and is done in other ways, and that it will be done with less expenditure and waste of power, in detail, beginning from the top, as the planing-machine would eat through a board, than by upheaving the furrow-slice from the bottom upon the hardened fulcrum of a subsoil already too compact and impervious; and lastly, that by so performing it in detail, the object of *cultivation*, supplementary to that of inversion with the plough, is incidentally comprehended in one operation; a confirmation, to my mind, on the principle of the occult relations of mechanical truth in matters of invention, that the suggestion is a right one. But an union of thought and action, and of all the sinews of enterprise, is the course that indicates itself for the accomplishment of this now widely cherished object. Could the inauguration of such an union be ever more appropriate than in a place and in a presence, which recall to mind the greatest union for the sacred international brotherhood of industry and art that time has yet witnessed?

I turn with anxious interest to such a machine as Fowler's Draining Plough, with its happy incidental adoption of the lately-invented wire-rope, and that most suggestive and satisfactory feature which it embodies in its stationary engine. It is impossible to see this, or, indeed, to read its inventor's practical remarks on steam culture, lately delivered here, without recognising in it the outline of something which may relieve our clay soils as much from the pressure of heavy hoofs and wheels on the surface in the act of cultivation, as his iron-strung necklace of pipes relieves their moisture from below, cutting through the subsoil like a cheese. It is upon the Steam-engine in every form, as it gradually wins its way from the fold into the field, and from the one engine that smoked in our trial-yard at Bristol in 1842, to the *fifty-seven* that stood in row at Lincoln, waiting to prove their speed and power by Mr. Amos's perfected Dynamometer,—it is upon this power that we must rest our hopes for that mechanical progress of agriculture which our climate and our clay demands, and our mines of coal and iron, with equal speciality, present the means of.

There is one striking feature which has marked the period we are looking back upon and has perhaps attracted the notice and interest of the non-agricultural world more than any other, and will hereafter become perhaps a distinguishing landmark of the time; I mean those numerous Example Farms, which, spreading gradually from one or two isolated instances, and weathering a somewhat rude storm during the range of low prices reaching from 1847 to 1852, are now sufficiently numerous to be said to afford a specimen almost in every county of what can be accomplished by a resolute enthusiasm in the adoption and carrying out of all the improved resources which capital and general intelligence can bring to bear.

I use the term general intelligence, as distinguished from practical farming knowledge, not as at all denying the latter qualification, often in a very high degree accompanying the effort, and always gradually attainable, but because I shall not, I think, misdescribe the object and idea of these really patriotic establishments, in speaking of them as the pioneers who, generally speaking, have, explored untrodden paths, and whose more prominent labours and results have been perhaps too much mistaken by the public eye for a general movement of the main line and body of our agriculture, to which they form a sort of advanced company. If, however, foreigners express themselves in terms of admiring astonishment at these examples of applied capital and skill, which they are taken, from one to the other, to visit, and from which, as in the case of that careful investigator and flattering eulogist of British agriculture, M. Lavergne, they naturally gather so high an estimate of our general progress, I think they would be not less astonished could they be made aware how large the bulk of farming is in this country which is literally unreached by the very echo of what is being done even within a few miles of its boundary fence. The terrible *per contra* that might be shown, if a balance were struck of the *agreable proportion of best farming* against the worst, is a subject that would be surprising to those who judge of the whole contents of the basket by the plump rosy apples that lie prominently at the top. The fact is that the revolution which has been taking place in the agriculture of this country presents, like the planetary motion from which the term is borrowed, a *centrifugal* as well as *centripetal* action; as the heavier capitalled portion, which has come to regard the soil as a mere arena for investment, has approached nearer to the utmost limit of profitable produce, a large outer circle of those who vainly persist in looking upon a farm as its own capital, are clinging on to holdings far beyond their means, and to a system which every invention and every improvement, and every addition of capital to agriculture renders more untenable. The condition of the handloom weavers after the introduction of the power loom, more obvious and sudden in its operation and the struggle it presented, was not more hopeless in principle. I fear no honest portrait of the condition of English agriculture could be given which did not include this shadow upon the background. It is the result of an inflexible law which no philanthropic regret can avail to alter. It is true that capital cannot be applied profitably to agriculture beyond a certain limit, as Mr. Lawes has shown by a simple table that submits it to the eye as plainly as an equation, so far as the growth of cereals is concerned: but the proof lies at a point so high, so far above the ordinary scale of farming, that for the present question it is as though that limit did not exist. Every description of improvement that we hear of with so much welcome, can only be of use so far as it tends to lower the cost of production. With every step in that direction the profits of the unimproved farm, of the uncapitalled occupier, are threatened to be left high-and-dry by the sinking level around. No advance of population will come to the aid of this. Occasional high prices, like the present, mask for a while the operation of this law, but in the long run it will be found that the market will not wait for, will not rise to meet the exigencies of a high cost of production. The "Mountain will not come to Mahomet." The remains of *the profit* still left to us lie poised between two elements, and *the miracle* consists in escaping a collapse—viz., between the overcost of cultivation and the level of the market price below.

Nor does this apply to the occupier alone. Our system of landed settlements, like the cropping covenants in farming leases, are the creation of a period when the mere tenanting of a farm was a boon, a sort of grant, by which an old servant or dependant might be pensioned off, when, to use the shortest phrase, the land was its own capital.

It now approaches much more to the character of a mill in which, if the best machinery be not put in, the balance of profit is lost in useless labour and wasteful expense. Reaching the occupier first, it is yet upon the Owners of settled property that the impact of this movement ultimately falls. Improvement is not a choice—it is an imperative necessity. We have tried to reach the case by Government grants for drainage; but drainage is a mere first step, implying a succession and round of investment in the soil, in stock, in buildings, in barn-works, in additional hands, even to *furnish* the farm with its complement of requisite machinery. The annual loss which this country, with all its prominent and boasted agricultural improvement undergoes, by the tied-up hand of ownership, which settled estates, without proper powers for improvement both to owners and trustees, and land held under ecclesiastical leases, with the execrable system of septennial fines on renewal too extensively exhibit, is a subject that sooner or later must find a tongue, and a more efficient and constitutional remedy than Government grants, which struggle with the effect, but leave untouched the cause which they incidentally recognise.

An almost exhausted hour—I fear a quite exhausted patience—warn me to a brief conclusion, while the hydra-headed subject I have merely approached stares me in the face with its numerous and various topics, rising thicker and thicker to my view still untouched upon. Looking back over the space of my own, however limited, experience, and purposing a sketch, I have encountered a history, which no effort at compression could reduce into the narrower space I would gladly prefer. One subject alone I cannot end without a parting word upon, and that shall be as short as those words can be which carry long thoughts. When the cares and difficulties of an intractable soil first drew me from other studies to that of agriculture, what was my dismay to find that *books* were looked upon as the very rocks and shoals ahead to be *avoided*, not consulted, by the home mariner, the plougher of the land, who would escape shipwreck. Strange paradox! Yet of all the prejudices to be surmounted this seemed surely the most difficult which would cut off every chart of information beyond that which the solitary steerer already possessed, or saw around him, in however wild a latitude. It is still, indeed, true, as so discriminately pointed out by one whose toiling and valued pen has ceased among us—PHILIP PUSEY—that books will not teach practical farming; but neither, as he justly rejoined, are they a substitute for the apprenticeship of daily practice *in any other pursuit*. Yet, luckily—as no man better than the farmer knows—'knowledge is no burthen,' and the boy who whistles at the plough, or the man who holds it, much more the master who directs it, walks none the heavier, observes none the less acutely, draws truth from nature none the less easily, is none the less "in league with the very stones of the field," though all "Morton's Cyclopædia," and Stephens' "Book of the Farm," were sublimated into his brain. It would be toiling over a stale furrow to argue the point again, but it is impossible for me to look back over the period I have spoken of, without a keen sense of gratitude to the bold and brilliant pens that have broken through a barrier threatening to immure husbandry within the solitude which is in truth its own greatest deprival, and in some degree inseparable from its steady and industrious pursuit, apart from the civilising thought and intercourse which the city mouse enjoys. But who is there whose labour is not cheered and lightened by the words of those who, too far away for personal intercourse, are yet struggling with the same task as himself? Whether the scene lie among the now too classic fields of Pusey, in Berkshire, or amidst the liqui-fertilised and startled acres that once bore the dry and barren name of Tiptree Heath, in Essex—whether we imbibe long draughts of chemistry from the fountain-head at Rothamsted, in Hertfordshire, or seek a *too short* oblivion or enjoyment of 'Present Prices' upon the chalky downs of Dorset—or whether, invited by the active spirit of the times, deserting these hospitable homesteads, we start forth upon a roving commission, with the "chiel amang ye taking notes, from the Solent up to John o' Groat's"—do we find that such fireside companions as these diminish our practicality, or invade our winter evenings less usefully and pleasantly than the *Gazette*, or *Express*, or *Messenger*, or other weekly page which brings us tidings of the markets of the world, to which not more the trade than the mind of British Agriculture has been opened? I, at least, for one, must acknowledge that in the steady and progressive change which "Practice with Science" has wrought upon the aspects of farming during the 15 years past, the most striking, the most complete of all has been, where I saw most to despair of in the outset—in its LITERATURE both practical and scientific (for even in its literature these two classes must co-exist). Did I need a token—a convincing attestation—that in the threefold character of farming, as an 'Art,' a 'Manufacture,' and a 'Commerce,' and, let me add, an *Education*, its interest and progress are *felt* as among the highest objects of the highest mind, in the spirit, if not the words, of a well-known epigraph, "*Si indicium requiris circumspice*," I might gratefully recognise it here, before my brother-members and the Council of this Society, and the Presiding presence of one who, amidst the absorbing

avocations of a life devoted to the promotion of the useful, the beautiful, and the good, has practically earned, and freshly dignified, a name associated of old with the Throne and Royalty of England—the name of a British Farmer.

After the remarks of Messrs. Paine and Lawes' Ransome, and Hudson, which we will report next week, his Royal Highness the PRESIDENT said, "I feel I am only carrying out your wishes in proposing to you that we should return our best thanks to Mr. Hoskyns for the very valuable paper which he has read to us. He has given us a very accurate and succinct history of the progress of agriculture, in that peculiarly agreeable and epigrammatic style which is familiar to every one who has read his amusing and valuable little work, the 'Chronicles of a Clay Farm.' He has not only interested and amused us for the hour, but he has given us much to think on; and if he has taught any one lesson of greater importance than another, it is that the future progress of agriculture will mainly depend upon the close and intimate union and the hearty co-operation of science, art, manufactures, and commerce, and that the primary condition of a successful progress for the future will be the obtaining of accurate and complete agricultural statistics. And here I hope I am not trespassing in asking you gentlemen, and every one of you, in his particular circle, to contribute his mite in obtaining those statistics which are so much wanted, and which Government is now trying to collect. I merely repeat our thanks to Mr. Hoskyns for his interesting paper."

Farmers' Clubs.

TAUNTON: *On Clay Soils.*—Professor Voelcker, of the Agricultural College, of Cirencester, at the request of the Council of the Bath and West of England Agricultural Society, delivered a lecture on this subject, of which we give the following abridgment from the columns of the Taunton Paper:—

"The subject of my present lecture has been selected because, in the first instance, clay soils abound in this neighbourhood; secondly, because no soils repay better the outlay for judicious improvements; and thirdly, because there is hardly a subject which illustrates in so many different ways the connection of theoretical chemistry with practical farming. The very formation of clay soils is depending on chemical action, for the chemical influence of the atmospheric oxygen and carbonic acid upon various mineral matters contributes principally to the formation of clay soils. Clay soils are formed during the decomposition of granite and other rocks, which the geologist calls volcanic. In granite we find three minerals, quartz, mica, and felspar. Felspar is a combination of silica, *i. e.*, sand with alumina and potash. On exposure to the air the carbonic acid of the atmosphere acts upon this felspar, and gradually separates it into silicate of alumina and silicate of potash. Silicate of alumina is China clay; it is insoluble. Silicate of potash is soluble. It is washed away and further decomposed into soluble silica and carbonate of potash. This explains why clay soils that are naturally deficient in sand or silex produce, notwithstanding, Wheat with strong straw. All kinds of clay contain more or less soluble silica, and consist principally of silicate of alumina or a combination of silica with alumina. Agricultural clays are produced principally from the decomposition of granite, or felspathic rocks; the clay being washed away and transported from one locality to another, becomes intermixed with other constituents, and these foreign constituents are the principal cause of the fertility we observe in most agricultural clays. The foreign matters in agricultural clays contain potash, soda, lime, manganese, phosphoric acid, and a few others, which I will not mention at present. All these foreign constituents we find again when we burn any vegetable produce raised for food of man or beast, and as these constituents are always found in the ashes of plants we are entitled to conclude that they are necessary for the existence and perfection of the plant; indeed, it may be laid down as a principal rule that those manuring constituents which form the foreign admixture in all agricultural clays are absolutely necessary, for the plants which we cultivate cannot come to perfection without them. But often they are contained in such a combination in the soil as to be comparatively useless at the time, and the question is how to get at them. Into the composition of sandy soils but a very small amount of those substances enter that are food for plants. Clay soils contain insoluble silicates and undecomposed materials, from which the clay is formed. These materials furnish, on gradual decomposition, potash, one of the most fertilising constituents. By working the land, fresh quantities of undecomposed granite are brought under the influence of the atmosphere, and the felspar contained in it is gradually decomposed and furnishes soluble potash. This benefit is not reaped by stirring a sandy soil. However much we may stir a sandy soil, we cannot eliminate such a result from it, because there is not potash present in any considerable quantity; but in many clay soils the supply of potash, one of the most useful fertilising substances, is almost inexhaustible. All clay soils possess in a remarkable degree the power of absorbing moisture and fertilising gases from the atmosphere. They possess in a high degree the power of absorbing carbonic acid gas and ammonia—two constituents which furnish the materials with which the plant builds up its organic structure. This power of absorption is dependent in a great extent on the surface of the soil which is exposed to the influence of the atmosphere. The more we plough the glebe, the more readily we give access of the atmosphere to the soil; the more the soil is pulverised, the greater is the absorbing surface, and the more beneficial the result; and this teaches us at once the great advantage of stirring clay soils when there is an opportunity. In wet seasons, I am aware you do harm to clay soils by working them; but I am likewise acquainted with the fact that all do not take the advantage of the most favourable seasons for working them as much as possible, especially before the setting in of frost, which in a purely mechanical way, by the expansion of the ice which is formed, contributes towards the pulverising of clay soils, and effects the chemical decomposition of these substances, which furnish potash to the growing plant. But clay soils have not only the property of absorbing fertilising gases from the atmosphere—ammonia and carbonic acid gas—but have also the power of absorbing and retaining soluble salts, which are articles of food to our cultivated plants. If you take a solution of a salt of ammonia, or take a solution of soluble salt of potash, and throw it on a clay soil, you will find the latter will retain the ammonia and potash of the soluble salt; or if you take liquid manure and pour it over a clay soil, you will find the most fertilising constituents contained in liquid manure are retained by the clay soil. This is a very remarkable property, which explains many facts with which all practical farmers are acquainted. We know, for instance, that sandy soils are frequently described as hungry soils, merely receiving, without yielding much, because the manuring substances are washed out by showers of rain, and the most useful constituents are lost. It is not so with clay soils. It is impossible to wash out from them the most useful fertilising constituents. Let us now inquire into the best means of improving clay soils. Draining not only takes away the excess of water, but brings into the soil large quantities of atmospheric air, which, plying its influence on the constituents of clay soil, gradually renders them soluble; hence draining not only removes an excess of water, but brings likewise into the soil atmospheric air, and with it organic fertilizing constituents. The advantages of deep ploughing, a second mode of improving clay soils, become more and more apparent from year to year. But when you have to deal with a soil resting on cold sterile barren subsoil, you may run a risk of burying a good soil amongst the subsoil, which only in a number of years will again come into good cultivation. The nature of the subsoil then must determine whether it is advantageous at once to plough very deep, or more advantageous gradually to improve the condition of land by going a little deeper and bringing up the subsoil every year or two; and it may be advantageous not to bring up the subsoil at all. You have heard of Mr. Smith's system of growing corn year after year; Mr. Smith (I mean of Lois-Weedon) grows corn year after year, by leaving between the rows space sufficiently large for him to work between them, and by this means he succeeds in bringing the soil between the rows in a state of fertility which will next year enable him to grow another crop of corn on the same field on which the crop of the preceding year had been grown. By constantly working the land in this way, Mr. Smith has succeeded in growing for a succession of years abundant crops. I do not doubt for a moment that in many localities his plan may be carried out with very great advantage, but at the same time I would observe that not all soils—not even all clay soils—are in a condition to enable the farmer to follow out this plan with success. If there is plenty of useful material to work upon, plenty of undecomposed felspar, plenty of insoluble lime, plenty of phosphoric acid in the soil, the working of the land will bring those fertilising constituents which naturally are present in an insoluble state into a condition in which they can be assimilated by the growing plant; but in land which does not contain these materials it is not well to follow out such a plan; and this accounts for the fact that whilst many persons who have followed Mr. Smith's plan with advantage and speak highly in its favour, others term it an irrational and unprofitable system. Many clay soils, I believe, will enable the farmer to grow corn for a succession of years, but this is to be said, regarding Mr. Smith's system, that you have not always men sufficient at hand to work the land, and therefore you cannot practically carry out that system. Nothing, I believe, improves clay soils so much as the system of burning and paring. Many of you have heard of Mr. Randall, who has been to a very great expense in testing this system in regard to clay soils, and the effects produced have been really remarkable. In burning, clay undergoes remarkable changes—potash becomes soluble, and all those fertilising constituents are rendered soluble which plants require; or, to speak in a somewhat sweeping way I would observe that burning produces exactly those changes in clay soils which fallow produces; and this, there can be no doubt, is a very great advantage, for if, instead of waiting from year to year or even six or eight months, you can at once realise the benefit of this process of improving clay soils, the advantages are apparent. Liming is another mode of improvement. Many clay soils are deficient in lime, and consequently are improved by the application of that substance; however, as clay soils differ much in composition, it must not be taken as a universal rule that all clay soils are improved by liming. Drop a few drops of spirits of salts on the soil, and if it effervesces lime is not wanted; but if, on the contrary, it produces no effervescence, it shows a deficiency of lime, and such soil will in all probability be benefited by its application. Another improvement of clay soils is, the application of artifical manures. If you have not home-made manure in sufficient quantities to enable you to give a fair dressing to all your fields, and have on your farm light and heavy soils if you have sandy and clay soil—it is decidedly more advantageous to apply home manure to sandy soils, and to apply to heavy clay soils (provided it is in a fit state of cultivation) a specific artificial manure: the consequence will appear at once. Sandy soils contain, as a principal constituent, silex—some as much as 96 per cent, and comparatively small quantities of other fertilising constituents. Now, farm-yard manure may be called a universal manure, containing all the elements of nutrition which plants require, and consequently it produces in the soil naturally deficient in these elements greater and more beneficial effects than in soils in which we have not this deficiency. For instance, ammonia is one specific manure for corn crops; nitrate of soda is another manure which may be used with very great advantage on clay soils—guano I ought to mention as one of the most useful fertilisers. Now guano and nitrate of soda contain much nitrogen, which exercises a specific action, highly beneficial to our Wheat crops. The application of guano, however, in sandy soils, is not the best. Guano is not a perfect manure, because in sandy soils there is a deficiency of phosphoric acid, and this deficiency is not supplied in sufficient quantities by the phosphoric acid contained in guano. But by the application of guano to clay soils we can get additional corn crops. There is another instance, showing how a knowledge of clay soils will enable us to make the best of artificial manures. We find that in the cultivation of root crops specific manures are required. A specific manure for root crops is superphosphate of lime—bones in a soluble form. Superphosphate of lime produces most beneficial effects on clay soils—in fact, much greater than it is observed to produce on sandy soils; indeed, I have heard of some sandy soils in which it did not act beneficially at all. I do not wonder at this, for if you apply a manure which contains principally phosphate and lime, or only two fertilising constituents, to a soil deficient in most fertilising constituents, it cannot produce any very striking effect. But in clay soils there is very little chance of superphosphate not acting; and it is to a very great extent wasting good material to grow root crops on good clay soil with too abundant a supply of home-made manure. What is wanted for Turnip crops is superphosphate of lime or bone-dust. Well-rotted manure contains a large amount of ammoniacal salts, the specific function of which is to produce leaves; by using, therefore, too heavy a dose of well-rotted dung on clay soils you are apt to produce an abundant crop of tops, but, comparatively speaking, small bulbs; thence the great advantage of using a specific manure which supplies just that constituent which is deficient in a clay soil. It is true there is phosphoric acid in most clay soils, sufficient to supply the crops of Wheat with the necessary amount; but in the case of Turnip crops, an important point should be borne in mind. If you look to the organism of a Turnip and the organism of Wheat, there will be observed a remarkable difference; for Wheat spreads out its fibrous roots to the extent of several feet in search of food; but the Turnip is confined for its nourishment to a small space; consequently if we place phosphate close to the bulb of the root, it will produce great effect, while the same constituent produces no effect on the corn crops.

Miscellaneous.

Book Farming.—On the general subject of book farming we suppose that all the world knows there is a schism among farmers. The old conservative farmers don't believe in it. The young progressive farmers do. Now we are on both sides; we are for book farming, and we are against book farming. If the farmer applies the book to the soil, instead of his own head, we are sure that his farming will be poor enough. But if books and papers are used on the farmer's mind—to give it habits of reflection and observation; to possess it with the elements of Nature with which he deals, and if then he directs that mind thus stored and trained to his work, we are sure that he will benefit as much by education as any other man. *Colman.* [For this quotation we are indebted to the columns of the Journal of the Albert Agricultural Training Institution.]

Calendar of Operations.

MARCH.

WEST SUSSEX, *March* 3.—We have now got past that part of the season in which the cares for the weather do not disturb us so much, and now every day is of importance to get in Oats and Barley. Peas have been got in and in the best of order, and the land is now in fine order for sowing the other spring Corn. And if we are not careful to work it closely after the plough, it will get hard, as it was very wet during January. The Wheat looks extremely well, there are yet no signs of those failures that we hear of in other parts of the country. The young Clovers look well and now are in good order for rolling—neither dry nor wet. The Turnips have not stood the winter well, we have seen them very much rotted in some places, especially on flinty land, and here I may remark that they suffered most last autumn on the same land. Is it because the land in getting hard brings the stones so close as to injure the bulb? There is no doubt that soil, as well as the sort of Swedes, has a good deal to do with their keeping good through the winter, and I rather think as a rule that the roughest and most unshapely roots stand best—at least this season it has been so. Mangels will now be found useful, as they will come between the Swedes and seeds; and as it is all out of the way of the plough no delay is caused in sowing spring corn where they grew, and they will keep till most wanted, even through the summer. Every year proves their importance more and more, and one advantage of them is that they can be sown earlier than is judicious to sow Swedes, thereby dividing the work more equally over the season. The preparation for this crop will be our first care after Barley is sown and Wheat rolled. Our markets for lean sheep are much lower than last year; "down couples" are 10*s.* to 12*s.* lower than they were then; but lean cattle are still at a high price, such as to leave little to the fatter, and the common system of laying a heavy charge on the dung has to be adopted, where any attempt is made to keep accounts, which is seldom done. *G. S.*

Notices to Correspondents.

BROADCAST OATS: *R H.* As you cannot handhoe you may sow the seeds when the plant is fully up, and harrow them in.

COLTSFOOT: *J A B.* says I observe at page 95 of Messrs. Rendle's Farm Directory, a notice of that troublesome weed Tussilago Farfara or common Coltsfoot. It may not, therefore, be out of place to mention that I have lately succeeded in effectually destroying it by cutting off the crown of the plant and immediately applying a small quantity of common salt. [There would be as little trouble in digging the root out altogether.]

CYDER: *J M.* Can any one tell us what quantity of sulphate of soda should be added to a cask of cyder containing 100 gallons.

EWES AFTER LAMBING: *J J.* This is a very fatal disease indeed. Bleeding, aperient medicine (Epsom salts one ounce), and sedatives, such as tincture of opium two drs., with gruel, are the proper remedies. *W C S.*

FLUKE POTATOES: *A Farmer* writing in a Scotch paper regarding the above very valuable variety of the Potato, says, "The Flukes are expensive to plant, as cut sets do not answer, and the whole ones being generally of a large size, the seed bears a disproportion to the return that can be calculated upon, though an almost entire freedom from disease has hitherto marked their growth." On this a practical gardener gives his experience—"I obtained last season 1 peck of seed Potatoes of the Fluke variety from Edinburgh: I cut them all up, leaving only one eye to each set (even the smallest were cut), not a single plant failed. The produce from the peck was 5 bushels of beautiful Potatoes, with only two diseased tubers in the whole crop. They were grown in garden soil, but in rather an unfavourable situation, being under the shadow of large fruit trees. I have no doubt if they had been more favourably situated, the produce would have been greater." Will some growers on a large scale give their experience as to cutting or not cutting for planting?

GORSE: *C H.* We should think it the most likely fence plant to succeed under the circumstances, but Mr. Fox's answer to the questions which have been addressed to him will include your case.

GUANO: *Subscriber.* You may use it in water as strong as ordinary liquid manure, say at the rate of 1 lb. of ammonia in 200 lbs. of water; add 1 cwt. of guano to 400 gallons of water, and give the hedges a good watering with this liquid once a fortnight.

HOEING WHEAT: *J H W.* It does good though the land be clear. It has two effects—it brings fresh particles of soil in contact with one another, and it brings fresh particles of air in contact with the soil, and in both of these respects does the soil benefit as a storeroom of food for plants and as a laboratory in which their food is prepared. The former effect is obtained by preparing the land, and so is the latter in a measure. We would recommend if your Wheat on light soil is a good strong plant to harrow it across the rows, having first rolled it; but if there be weeds it must be hand-hoed. Crosskill's is the best presser. Wheat benefits by sheep feeding when the land is loose by the treading, when it is poor by the manuring, and when the Wheat is "proud" by the feeding which it thus receives.

ISOTHERMAL LINES: *Sleaford.* In answer to our correspondent, Mr. Russell, of Kilwhiss, states that the direction of the Isothermal lines on the 1st of May in England will be nearly from east to west. Dove's charts, published by Taylor & Walton, London, contain much interesting information on Isothermal lines for the different months. But they cannot altogether be relied upon, as Dove has made use of many observations which were taken under different schemes, but as an outline they are admirable.

SALT: *Mr Gadesden.* Thanks. The paper was received by us as a "proof," from which the words "To the editor of the *Plymouth Herald*" had been erased, leading us to suppose that the sender wished it to appear as an original contribution to this Paper. We add the correction which you have been kind enough to elicit. Mr. Prideaux states:—"It is still my practice to recommend weight for weight of used Pilchard salt with guano (except in special cases), as tending to improve the quality of the products, where it may not increase them in quantity, which, however, in many cases it also does, as you are well aware. Guano I would seldom use without either salt or nitrate of soda (nitrate of potass rather, if the price allowed), believing that the strong alkaline condition of guano, while pushing forward vegetation, has a tendency also to promote putrescent disease." This is in correction of the paper on Salt published a few weeks ago, in which the writer did not intend to recommend that in the employment of sulphate of ammonia, guano, &c, so much as three times their weight of common salt should be applied with them.

SEEDS IN A POUND: *X.* We should be glad if any one has ascertained the number of seeds in a lb. of our common agricultural plants, to receive information on the point. There is many a young student of agriculture who might contribute information of this kind. He may be assured that it will be better for him to determine these and many other points by actual experiment than by searching for information on them in books.

SWEDISH TURNIPS: *Tyro.* We would not sow till the first week in June in Hampshire.

UNCULTIVATED SOILS: *C W D.* We had hoped to have discussed your question fully this week. It shall be made the subject of a leading article in our next number.

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Manufactory, Plaistow Marshes, Essex.

THE DIRECTORS of the above COMPANY (many of whom are extensive Agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact. Ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied. Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a conclusive answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

BLOOD MANURE FOR TURNIPS.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

THE BLOOD MANURE FOR WHEAT, BARLEY, OATS, ETC.

Being rich in nitrogen and other necessary ingredients, it is especially adapted for the Wheat and other Corn crops, and has been used with the greatest success in all parts of England. It is a very remarkable fact that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists,—it contains all the elements which plants require, and when properly prepared, will become the essence of vegetable as well as of animal life. The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat and other cereals, has been fully proved upon all soils by the practical experience of numerous Agriculturists. Should Wheat manured with dung in the ordinary way look unhealthy in the spring, it will be greatly benefited by top-dressing it with Blood Manure, at the rate of 2 to 3 cwt. per acre,—thus strengthening the straw, making it less liable to lodge, and very much increasing the produce. For Barley and Oats, 3 to 4 cwt. per acre of the Blood Manure may either be sown broadcast or drilled with the seed,—if the former, to be well harrowed in.

BEANS AND PEAS.

For Beans or Peas, 3 to 4 cwt. per acre may be used either broadcast and harrowed in, or a portion afterwards, between the drills at the time of horse-hoeing.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre with an equal weight of common salt should be sown broadcast over the field, and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

POTATOES.

The Blood Manure is specially prepared for this crop, and it will be found to give most satisfactory results—it will be most successful if used to the extent of 4 cwt. per acre, with half the usual quantity of farm-yard dung, and the whole earthed up in the usual way. Should the farm-yard manure not be used, then 6 cwt. of Blood Manure may be used alone, put into the bottom of the drill, and the sets on the top and earthed up.

FLAX.

This crop in olden time had the renown of being one of the most exhausting crops which could be put into the land, and this by chemical analysis has been found to arise from the large quantity of nitrogen, phosphoric acid, magnesia, and the alkalies taken up by the Flax plant, which renders it a highly exhausting crop. The Blood Manure is carefully prepared, so as to meet the wants of this crop, and with its aid Flax can no longer be considered an exhauster of the soil. In using Blood Manure for this crop, from 4 to 6 cwt. may be sown broadcast, and harrowed in before the seed is drilled.

HOPS.

It is well known to all Hop growers that Hops require more manure for their proper development than any other plant which they cultivate; the constant withdrawing of the Hops, year by year, from the land necessitates the supply to the soil of a considerable amount of both mineral and organic ingredients, and the Blood Manure has been particularly prepared, with the object of supplying the requirements of this important crop. It contains all the constituents which the plant requires, both mineral and organic, and will be found as cheap and efficacious as any other manure now in use; from 10 to 12 cwt. per acre applied at two different times well worked in between the alleys, will be found a most useful application, or the manure may be put round each hill and covered up with the soil.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents. The following may be taken as a sample:—

Norfolk Farms, Windsor, February 20th, 1855.

Gentlemen,—In answer to your inquiry respecting the results of Nitro-phosphate used on the Royal Farms, Windsor Great Park, I have great pleasure in stating, that after applying it to a field of Swedes, which gained the cup at the Royal East Berks Agricultural Show, I have no hesitation in pronouncing it an excellent manure, and intend using it to a greater extent during the present season.

I am, gentlemen, your obedient servant,
JAMES BREBNER.

Mr. BENJAMIN GOULTON, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Park Farm, Woburn, Bedfordshire, Jan. 18th, 1854.

Gentlemen,—In reply to your inquiry respecting the Nitro-phosphate supplied to his Grace the Duke of Bedford in 1853, I beg to inform you I applied it all for Swedes, and in every instance was very successful, particularly so on a field of 30 acres, where I put on 2 cwt. of it per acre, with a light dressing of farm-yard manure, which has produced the finest crop of Swedes I ever grew. I with great confidence recommend this valuable manure to the notice of the agricultural community.—I am, gentlemen, yours very truly,
G. W. BAKER.

PRICE, DELIVERED AT ANY WHARF OR RAILWAY STATION IN LONDON:

Corn and Grass Manure, £7 10s. per Ton.
Turnip Manure, £6 10s. per Ton.
Flax and Hop Manure, £8 10s. per Ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," *and sold only by the authorised Agents of the Company.*

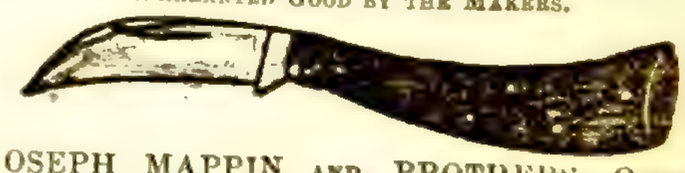
PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

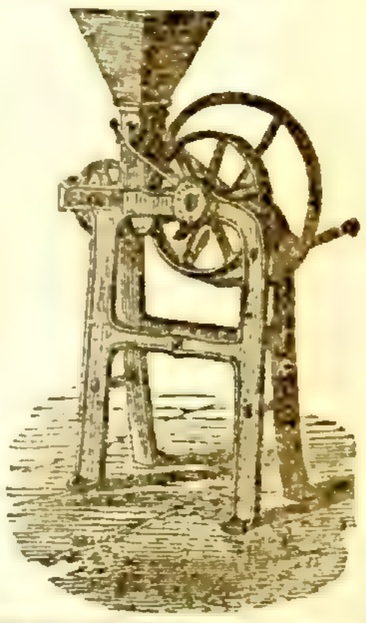
MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15*s.* 6*d.*

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l* 19*s.*, to hold 10 gallons. Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet out of ground, 5 bars ... ... 5*s.* 3*d.* each.

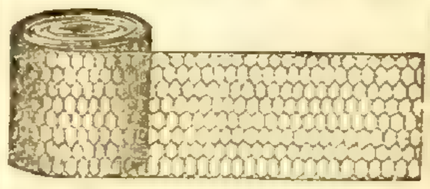
H. J. MORTON AND Co., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALANISED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANISED GAME AND POULTRY NETTING.—



Galvanised, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

Galvanised, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanised Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanised Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co. 2, Basinghall Buildings, Leeds.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium, 10*s.* each.—Catalogues free.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of—

PROPAGATING GLASSES.

	£	s.	d.			£	s.	d.	
2-in. diameter	0	3	6	per doz.	11-in. diameter	0	18	0	per doz.
3 " "	0	4	6	"	12 " "	1	1	0	"
4 " "	0	5	6	"	13 " "	1	4	0	"
5 " "	0	6	6	"	14 " "	1	10	0	"
6 " "	0	8	0	"	15 " "	1	16	0	"
7 " "	0	10	0	"	16 " "	2	2	0	"
8 " "	0	12	0	"	17 " "	2	8	0	"
9 " "	0	14	0	"	18 " "	3	0	0	"
10 " "	0	16	0	"	19 " "	3	12	0	"

CUCUMBER TUBES.

12 inches long	...	1s. 0d. each	20 inches long	...	1s. 8d. each
14 " "	...	1 2 "	22 " "	...	1 10 "
16 " "	...	1 4 "	24 " "	...	2 0 "
18 " "	...	1 6 "	26 " "	...	2 2 "

AQUARIA.

With French polished Stands, 10s. each.
Vase-shaped ditto with Glass Pedestal, 25s. each.
Glass Tanks, warranted perfectly watertight, 36 inches long by 18 inches deep, 3l. each. Intermediate sizes at various prices.

GLASS FERN SHADES AND STANDS.

	s.	d.		s.	d.
6 inch diameter, each ...	3	0	12 inch diameter, each ...	8	0
7 " " " ...	3	6	13 " " " ...	10	0
8 " " " ...	4	0	14 " " " ...	12	6
9 " " " ...	5	0	15 " " " ...	17	0
10 " " " ...	6	0	16 " " " ...	22	0
11 " " " ...	7	0			

Fern Cases with Ferns complete, suitable for the Drawing-room, from 25s. each.
Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.
Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.
116, Bishopsgate Street Without.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12s.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	13s.	9 by 7, and 10 by 8 ...	13s. 6d.

AT 14s. PER 100 FEET
12 by 9, 13 by 9, 14 by 9, 15 by 9, 16 by 9.
12 by 10, 13 by 10, 14 by 10, 15 by 10, 16 by 10.
12 by 11, 13 by 11, 14 by 11, 15 by 11, 16 by 11, 17 by 11, 18 by 11.
AT 16s. PER 100 FEET.
13 by 12, 14 by 12, 15 by 12, 16 by 12.
AT 18s. PER 100 FEET.
17 by 12, 18 by 12, 19 by 12, 20 by 12, 14 by 13, 15 by 13, 16 by 13, 17 by 13, 18 by 13, 19 by 13, 20 by 13, 20 by 15.
LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz. from 6d. to 7½d., per foot superficial, according to size and quantity.
SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.
Double-crown Glass of various dimensions in 100 feet boxes.
HARTLEY'S PATENT ROUGH PLATE GLASS.
HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼d. per foot. Twenty-one Ounce, 3½d.
Foreign Sheet Glass, in cases of 200 feet 34s., 38s., 40s., and 42s. per case.
Fern Cases with Ferns complete suitable for the Drawing-room, from 25s. each.
Aquariums with French polished stands, from 10s. each. Vase shaped ditto, on Glass stand, 25s.
Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.
Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.
Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.
Lists of Prices and Estimates forwarded on application, for ATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.
See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in.	and 6 in.	by 4½ in.	...	...	12s.	0d.
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	6
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.				
Ditto, not exceeding 1 foot	...	2½	"	
Ditto " 2 feet	...	3½	"	

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.
Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, Varnishes, see Colour List, which can be had on application.
Established more than 100 years.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.
MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.
Circulars free by post.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.
CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired gentleman having cured himself of Deafness, Defect of Sight, and General Debility, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, by E. J. ROBERTS (late Army Surgeon), 9, North Terrace, Moor Edge, Newcastle-on-Tyne.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dullness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1s. 1½d. and 2s. 9d. per box.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1s. 1½d. and 2s. 9d. per box.

PARR'S LIFE PILLS immediately eradicate any vicious, acrid, or dangerous matter which may have accumulated in the system, and the moment the tone of the stomach is restored, the patient finds new life and vigour, the appetite comes back again, and, with a little perseverance, even the oldest man discovers that he has the chance of living a little longer.
*** ASK FOR PARR'S LIFE PILLS.
Sold by E. EDWARDS, 67, St. Paul's Churchyard; BARCLAY & SONS, 95, Farringdon Street; SUTTON & Co., 10, Bow Churchyard; HANNAY & Co., 63, and SANGAR, 150, Oxford Street, London; and by all respectable Chemists and Medicine Vendors in town and country. In boxes, price 1s. 1½d., 2s. 9d., and in family packets, 11s. each. Directions with each box.

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Brussels Sprouts (foreign seed, fine), per oz. 0 9
" English do. 0 6
Kohl Rabi, per paper ... 0 6
Savoy, green curled, per oz. 0 6

BROCCOLI. Per oz.

Myatt's Early Purple Cape 1 0
Miller's Dwarf 1 0
Chappell's Cream 1 0
Dancer's Early White ... 1 0
Somner's Late White ... 1 0
Willcove White, late ... 1 0
Grange's Early White—from the original raiser 1 0
Invisible White 1 0
Purple Sprouting 1 0
Walcheren 1 0
Imperial Winter 1 0
Dwarf Siberian 1 0
Purple Syrian 1 0

CABBAGE. Per oz.

Nonpareil 0 6
Shilling's Queen 0 6
Atkin's Matchless ... 0 6
Enfield Market 0 6
Knight's Early Dwarf ... 0 6
Early York 0 6
Large York 0 6
Early Battersea 0 6
Couve Tronchuda, p. paper 0 6
Red Dutch 0 6
And all other kinds in cultivation.

CARROT. Per oz.

Early forcing Horn ... 0 6
Early Scarlet Horn ... 0 4
Long Orange 0 3
Fine Surrey 0 3
Altringham, per lb. ... 1 0
White, for Agriculture, p. lb. 1 0
Parsnip, Hollow-crown, per oz. 0 3

CAULIFLOWER. Per oz.

Mercer's fine Pearly ... 1 0
London Particular ... 1 0
Large Asiatic 1 0
Walcheren 1 6

PARSLEY. Per bush.

Plain, for sheep-walks and early lambs 14 0
Extra curled, per oz. ... 0 3

CRESS.

Plain, per pint 0 6
Curled 1 0
American, per oz.... ... 0 3

CRESS. *s. d*

Water, per paper... ... 0 6
Mustard, per pint... ... 0 6

CELERY. Per oz.

Coles's Superb Red ... 0 6
" White 0 6
Seymour's Superb White 0 6
" Superb Red ... 0 6
New Rose, solid 0 6
New Giant... ... ... 0 6

CUCUMBER. Per paper.

Crawshay's Ne Plus Ultra 1 0
Victory of Bath 0 6
Acme of Perfection ... 0 6
Syon House 0 6
Weedon's Free Bearer ... 0 6
Early Frame 0 3
Kerrison's 0 6
Walker's Rambler ... 0 6
Windsor Prize 0 6
Early Handglass 0 3
Early Ridge 0 3

MELONS.

Seymour's Golden Perfection 0 6
True Syon House... ... 0 6
Snow's Hybrid Green-flesh 0 6
Beechwood... ... ... 0 6
And all the better sorts grown for this market.

ENDIVE.

New Imperial, per packet 0 6
Batavian, per oz. 0 6
Green curled 0 6
White curled 0 6

Herbs, all the kinds, p. pkt. 0 6

LETTUCE. Per oz.

Bath Cos, black seeded ... 1 0
Brighton Cos 1 0
Imperial Cos 1 0
Victoria Cabbage... ... 1 0
Green Paris Cos 1 0
White Summer Cabbage 1 0
Fine London White Cos ... 1 0
Paris Cos 1 0
Drumhead 1 0
Bath Cos and others ... 1 0

ONION. Per oz.

James's Long Keeping ... 0 6
Fine White Spanish ... 0 6
Globe 0 6
Strasburgh... ... ... 0 6
Deptford 0 6
Silver-skin 0 9
Tripoli 0 6
Blood red 0 6
Two-bladed, for pickling 0 6

RADISH. Per oz.

New Scarlet Olive-shaped, a delicious new variety 0 3
New Rose 0 3
Early frame, per pint ... 1 6
Long Scarlet 1 6
Red and White Turnip ... 1 6
Black Spanish, per oz. ... 0 3

SPINACH.

New Flanders, per pint ... 0 6
Round, or Summer ... 0 6
Lettuce-leaved (new) ... 0 6
New Zealand, per oz. ... 0 3

TURNIPS. Per oz.

Early Snowball 0 3
Red American Stone ... 0 3
Teltow, for stewing ... 0 3
Early Dutch 0 3
Yellow Maltese 0 3
" Stone 0 3
Early Snowball, per lb. ... 2 0
Early Dutch (earliest), true imported 2 0

Vegetable Marrow, p. pkt. 0 3
Gourds, ornamental ... 0 6
" cw't 0 6

AGRICULTURAL TURNIPS

Yellow Bullock per lb.—1 0
Skirving's Swede... ... 1 0
Laing's ditto 1 0
Ashcroft ditto 1 0
Dale's Hybrid 1 0
Red Round 1 0
White Round 1 0
White Globe 1 0
Oxheart 1 0

Per lb.

Drumhead Cabbage ... 2 6
Thousand Headed ... 1 6

Furze, per lb. 2*s*. Broom, 1*s*.
Coarse Grasses for Game Covers, 8*s* per bushel.
Yellow Globe and Long Red Mangel Wurzel, per lb., 1*s*.
White Silesian or Sugar Beet, per lb., 1*s*.
Chevalier Barley; Hopetoun, Tartarian, Sandy, and other Oats.
Flax, from Riga seed, one year grown in this country.
A fine collection of all the best Permanent Grasses (hand picked), separate or mixed. If mixed, per bushel, 8*s*.
Sweet Vernal, the earliest and most suitable Grass for early Lambs, 2*s*. per lb.
White, 1*s*., and Red Clover, 9*d*.: Lucerne, 1*s*.; and Trefoil, 6*d*.
Kohl Rabi, for Agriculture, per lb., 2*s*.
Italian Rye-grass. Spring and Winter Tares.
A few of the very finest Grasses for Lawns, per lb., 1*s*. 6*d*.
24 papers of Hardy Annuals, 5*s*.

Myatt's fine new Strawberries.
Asparagus plants, according to age, per 100, 2*s*. 6*d*. to 5*s*.
Seakale plants, according to age, per 100, 5*s*.; do. for forcing, 10*s*.
Dulley's Early Scarlet Admirable Rhubarb, per root, 1*s*.
Myatt's Victoria do. (the largest in cultivation), 1*s*.
Mushroom Spawn, per bushel, 5*s*.
Cornwell's Victoria Raspberry, per dozen, 2*s*. 6*d*.
All the fine new Raspberries, 2*s*. 6*d*. to 3*s*. per dozen.
Seeds of all the new Strawberries, Raspberries, Gooseberries, and Currants, per paper, 6*d*.; with Tree Seeds recommended to Emigrants.

POTATOES.

Per bushel—*s. d.*		Per bushel—*s. d.*	
Soden's Early Oxford ...	8 0	Ash-leaved Kidney ...	8 0
Barnard's Early Frame	8 0	Fluke Kidneys	5 0
Shilling's Early Prolific	8 0	Forty-fold	5 0
Kirke's True Ash-leaved Kidney	8 0	Early Hen's Nest ...	5 0
Walnut-leaved Kidney...	8 0	Early Shaw	5 0
		Prince Regent's	5 0

And many other most productive late kinds; also seed saved from the best varieties, 6*d*. per packet.
Garlic, per lb., 6*d*. Shallots, per lb., 8*d*.
Budding and Pruning Knives.
Russia Mats, 2*s*. each. Cuba Bass, per lb., 2*s*.
Buckwheat, Indian Corn, Rape, Hemp, &c., for Aviaries.
The trade supplied on moderate terms with every article true to its kind. Catalogues may be had on application.

FLOWER SEEDS.

Superb German and Prussian Stocks, 24 distinct varieties, for exhibition, the collection, 8*s*.
12 varieties of do., distinct in colours, 4*s*.
12 autumn flowering do., in distinct colours, 4*s*.
A mixture of all the finest varieties of Ten-week, per paper, 6*d*.
12 varieties of Brompton Stocks, 4*s*.
A mixture of Brompton do., per packet, 6*d*.
12 named varieties of Hollyhocks, 3*s*. [Shrubberies.
8 named varieties of Marvel of Peru, 2*s*. 6*d*., fine, for the front of

Per packet—*s. d.*		Per packet.—*s. d.*	
Abronia umbellata ...	0 6	Convolvulus minor, striped	0 3
Achimenes, seeds & bulbs		Clary, white topped ...	0 6
Ageratum albiflorum ...	0 6	CLIMBERS.	
Alstrœmeria, of sorts ...	0 6	Cobœa scandens	0 6
Anagallis, of sorts ...	0 6	Cucumpelis scaber	0 6
Amethystea cærulea ...	0 3	Lophospermum erubescens	0 6
Anemone, fine mixed ...	0 6	" Hendersoni	0 6
Antirrhinum (all the new kinds)	0 3	Loasa aurantiaca	0 6
Argemone grandiflora ...	0 3	Maurandya Barclayana ...	0 6
" Barclayana ...	0 3	" new scarlet ...	0 6
" speciosa ...	0 3	Tropæolum peregrinum...	0 6
Aquilegia glandulosa, fine	0 6	" pentaphyllum	0 6
" fragrans ...	1 0	" tricolorum	
" fine mixed German varieties	0 6	" grandiflorum	1 0
Asters, 12 distinct German vars., in sealed packets	4 0	" trimaculatum	0 6
A mixture, including all the colours of above ...	0 6	" minor coccineum	0 6
Asters, 12 distinct French vars.	4 0	Ipomœa rubra cærulea ...	0 6
A mixture, including all colours of above	0 6	" punctata	0 6
Auricula, from fine named flowers ...	1 0	" rosea	0 6
" alpine	0 6	Thunbergia alata	0 6
Brachycome iberidifolia ..	0 6	" " alba ...	0 6
" alba, new ...	0 6	" aurantiaca ...	0 6
Balsams, 12 very fine distinct colours, all double ...	5 0	" new yellow ...	0 6
" mixture of above	0 6	Collinsia grandiflora ...	0 3
Bartonia aurea	0 3	" bicolor	0 3
Blumenbachia insignis ...	0 6	" Bartsiæfolia ...	0 6
Browallia, of sorts ...	0 6	" multicolor ...	0 6
Calceolaria, new sp. (annual)	1 0	Cowslip, fine mixed ...	0 6
Calceolarias, from a collection of named shrubby kinds	1 0	Dahlia scabigera, dwf. lilac	0 6
Calceolarias, from Herbaceous do....	1 0	" fine mixed	0 6
Calendrinia discolor ...	0 3	Datura fastuosa, purple ...	0 6
" grandiflora ...	0 3	" " white ...	0 6
" umbellata ...	0 6	" ceraticaule ...	0 6
Campanula pulcherrima...	0 3	Delphinium or Larkspurs	0 3
" Lorei, blue ...	0 3	Ditto, biennial and perennial varieties...	0 3
" " white...	0 3	Digitalis or Foxglove ...	0 3
" stricta ...	0 3	Dianthus, double white Indian pink	0 6
" sylvatica ...	0 3	" double Indian	0 3
" grandis ...	0 6	" Cherii	0 3
Catananche bicolor ...	0 3	" Garnierianus	0 6
Chænostoma fastigiata ...	0 6	" superbus nanus	0 6
Cistus guttatus, very dwf.	0 6	" imperialis, very double ...	0 6
Clintonia pulchella ...	0 6	And others.	
" elegans	0 3	Didiscus cæruleus ...	0 6
Cockscomb, dwarf scarlet	0 6	Eucharidium grandiflorum	0 3
Cuphea, all the kinds ...	0 6	Eutoca viscida	0 3
Cineraria, selected from the latest new kinds ...	1 0	Egg plant, white	0 3
Commelina alba	0 3	" purple	0 3
" cœlestis ...	0 3	Eschscholtzia, 3 sorts ...	0 3
Carnation, from named flowers	1 0	" new, white	0 6
Clarkias, all the varieties	0 3	Erysimum Perofskianum	0 3
Coreopsis, new marb'ed ...	0 6	Fuchsia from named sorts	0 6
" tinctoria ...	0 3	Gaillardia picta	0 6
" Drummondii ...	0 3	" Josephus, new	0 6
" nigra new) ...	0 3	" Richardsoni ...	0 3
Candytuft, new crimson ..	0 3	" aristata	0 3
" purple... ...	0 3	Gaura Lindemani	0 6
" white	0 3	Globe Amaranthus, of sorts	0 3
" sweet-scented .	0 3	Geum splendens	0 6
Convolvulus major	0 3	Geranium, from fine sorts	1 0
" minor	0 3	Gilia, of sorts	0 3
" do. new dark	0 3	Grahamia aromatica ...	0 6
		Grammathes gentianoides	0 6
		Godetia, all the new sorts	0 3
		Heartsease, from first-rate prize flowers	0 6
		Humea elegans	0 6
		Helichrysum macranthum	0 6
		" bracteatum album	0 3
		Heliotropium peruvianum	0 6
		" Voltaireanum	0 6
		Hibiscus, of sorts... ...	0 3

FLOWER SEEDS.

Per packet.—*s. d.*		Per packet—*s. d.*	
Heliophila araboides ...	0 3	Papaver marcelli	0 3
Helianthemum, Rock Cistus	0 3	" nudicaulis ...	0 3
Hollyhock, Chinese ...	0 6	Poppy, carnation, mixed	0 3
" fine mixed ...	0 3	Peas, sweet, all the colours, separate or mixed ...	0 3
Ipomœa coccinea	0 6	Pentstemon, of sorts ...	0 6
" Burridgi	0 6	Perilla nankinensis ...	0 6
" quamoclit ...	0 6	Phlox Drummondi ...	0 6
Ipomopsis elegans ...	0 6	" " white	0 6
Isotoma axillaris	0 6	" Leopoldi (new) ...	1 0
Jacobæa, double crimson...	0 3	" new, scarlet ...	0 6
" " purple ...	0 3	" oculata	0 6
" new lilac ...	0 3	" perennial mixed ...	0 6
" yellow	0 6	Picotee, from named flowers	1 0
Kaulfussia ameloides ...	0 3	Platystemon californicus	0 3
HANDSOME ORNAMENTAL GRASSES .. ... per paper, 6*d*.		Potentilla	0 3
Larkspurs, 12 distinct Per pkt.		Polyanthus, fine mixed ...	0 6
German vars.	2 6	Portulacca splendens ...	0 6
" mixed dwarf Rocket ...	0 3	" Thellusoni ...	0 6
Leptosiphon densiflores ...	0 3	" grandiflora ...	0 6
" androsaceus	0 3	" striata alba ...	0 6
" luteum ...	0 6	" Gilliesi ...	0 6
Loasa aurantiaca	0 6	" yellow ...	0 6
Limnanthes grandiflora ...	0 6	Primula sinensis (white fringed) ...	1 0
" Douglasi ...	0 3	" lilac	1 0
" rosea ...	0 6	" large crimson ...	1 0
" sulphurea odorata ...	0 6	" cortusoides ...	0 6
Linum grandiflorum album	0 6	" rubra striata ...	2 6
" " rubrum	0 6	Rhodanthe Manglesi ...	0 6
Lobelia heterophylla major	0 6	Salpiglossis, new scarlet,	1 0
" ramosus alba ...	0 6	" fine mixed...	0 6
" " rosea ...	0 6	" new yellow...	0 6
" gracilis alba ...	0 6	SalviaRæmeria	1 0
And others ...	0 6	Salvia, of sorts	0 6
Lotus Jacobæus	0 3	Sanvitalia procumbens ...	0 3
" nova sp.	0 6	Saponaria calabrica ...	0 6
Lupinus Hartwegi ...	0 3	" ocymoides ...	0 6
" " roseus	0 6	" multiflora ...	0 6
" nanus	0 3	Schizanthus Hookeri ...	0 6
" Cruikshanki ...	0 3	" Grahami ...	0 6
" affinis	0 3	" retusus alba	0 3
" monogynia ...	0 6	" humilis ...	0 3
Lychnis, of sorts	0 3	" Priesti ...	0 3
Malope grandiflora ...	0 3	" venustus ...	0 3
Mallow, new zebra ...	0 3	Schizopetalon Walkeri, very sweet	0 6
Malva miniata	0 3	Sphænogyne speciosa ...	0 3
Madaria corymbosa ...	0 6	Streptocarpus Rexi ...	0 6
Marvel of Peru	0 3	Silene pendula alba ...	0 6
Marigold, dwarf pigmy French	0 6	" Schafta	0 6
Other varieties	0 3	" compacta	0 6
Maurandya, new white ...	1 0	Stock, white pyramidal ...	0 6
Mesembryanthemum tricolor	0 6	" Buck's Intermediate, 16 out of 20 will come double ..	0 6
Mignonette, new large, per oz.	0 6	" Chapman's Scarlet Ten-week ...	0 3
Mignonette, per oz. ...	0 6	" Shepherd's White ...	0 3
Mimosa sensitiva... ...	0 6	" " Purple ...	0 3
Mimulus, from 12 distinct named varieties ...	0 6	Sedum cæruleum, for rockwork	0 6
" moschatus ...	0 3	Sultan, yellow	0 3
Martynia fragrans ...	0 6	" white and purple .	0 3
Myosotis palustris (Forget-me-not)	0 6	Tagetes signata	0 3
Nasturtiums, of all sorts	0 3	" lucida	0 3
Nemesia floribunda ...	0 6	Thunbergia (*see* Climbers).	
" vesicolor, new ...	0 6	Tropæolum (*see* Climbers).	
" compacta, new ..	1 0	Tropæolum speciosum ...	1 0
Nemophila insignis major	0 3	Viscaria oculata	0 3
" insignis alba	0 6	" new dwarf ...	0 6
" discoidalis ...	0 3	" white	0 6
" maculata ...	0 3	Violet, Russian (ever-flowering	0 6
" aurita alba ...	0 6	Verbena, a mixture of best sorts	0 6
" striata ...	0 6	Wallflower, blood red ...	0 3
Nierembergia splendens	0 6	" Double German	0 6
" violacea ...	0 3	" changeable ...	0 6
" fine mixed	0 6	" 8 vars. of imported German	2 6
Nolana atriplicifolia ...	0 3	Zinnia elegans coccinea ...	0 6
" paradoxa	0 3	" purpurea	0 6
" grandiflora alba...	0 6	" aurea	0 6
Nycterinia selaginoides ...	0 6	" mixed from 20 separate varieties ...	0 6
" capensis ...	0 6		
Œnothera Drummondi ...	0 6		
" macrocarpa ...	0 6		
And others...	0 3		

Ornamental Trees and Shrubs of all descriptions.
Cedrus Deodara, Cryptomeria japonica, Taxodium sempervirens, 2*s*. 6*d*. to 10*s*. 6*d*. each; all the new Pinus.
Named Double Anemones and Ranunculuses; Gladiolus Brenchleyensis and gandavensis; Tigridia pavonia and conchiflora, with many other flowering Bulbs, and Herbaceous Plants, which may be planted out till the middle of May.
Carnations, Picotees, and Pinks, per pair, from 1*s*. to 3*s*. 6*d*.
All the better named Heartsease from 6*s*. to 30*s*. per dozen.
Fine named Dahlias, per dozen, 12*s*.
" Chrysanthemums, new kinds, 12*s*.
Standard Dwarf and Climbing Roses, 1*s*. to 2*s*. 6*d*. each.
Rivers' Miniature Fruit Garden, with directions for culture and root pruning, 2*s*. Rivers' Orchard House, 2*s*.
Rivers' new edition of the "Rose Amateur's Guide," 3*s*. 6*d*.
Rivers' new Fruit Catalogue, 6*d*. [should distribute to cottagers.
Paxton's "Cottage Calendar," 3*d*., which ladies and gentlemen
Collections of 24 Annuals, mixed, recommended by Dr. Lindley as suitable for Shrubberies, 5*s*. [on the most liberal terms.
Seeds for distribution by gentlemen to their tenants and cottagers.
Seeds selected and carefully packed for Australia, North and South America, India, and New Zealand, in the most secure way to arrive safe at any of the above places.

Ladies and gentlemen relying upon the judgment and experience of JOHN KERNAN, instead of being supplied (as is often the case) with what is neither useful nor ornamental, may depend upon having a selection of the most useful and indispensable Vegetables to any amount named, by the parties forwarding him their orders. The same economy will be observed in the choice of Flower Seeds. J. K. feels it almost needless to observe that the liberality of discount will be with the amount.

Old Meadow Turf, which will take a considerable time to decompose and char by the regular or natural means, may be produced by the following simple and short process:—Place four bricks raised two on two above 3 feet distance from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine, and allowing your Turf to remain until charred it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin of the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other *until October*.

SEEDS SELECTED AND CAREFULLY PACKED FOR ALL CLIMATES.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 8, 1856.

THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 11.—1856.] SATURDAY, MARCH 15. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will be held on TUESDAY, March 18th, on which occasion the Quality of British Oak Timber will be a subject of inquiry. The chair will be taken at 2 P.M.—N.B. The Meeting will take place on this day instead of March 11, as formerly announced.

CRYSTAL PALACE FLOWER SHOWS.—It is intended to have THREE FLOWER SHOWS during the coming season, on the following days:—1. SATURDAY, May 24; 2. WEDNESDAY and THURSDAY, 25th and 26th June; 3. WEDNESDAY, THURSDAY, and FRIDAY, the 10th, 11th and 12th September. Schedules of the Prizes at the first Flower Show are now ready, and may be had on application to the Secretary. Particulars of the other Shows will be duly announced.

By Order, G. GROVE, Secretary.
Crystal Palace, 15th March, 1856.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.

Prizes are offered on THURSDAY, March 27th inst., for 6 HYACINTHS; 6 Pots of other Bulbs; 3 Plants of PRIMULAS; 3 Blooms of CAMELLIAS. Three prizes to each. All subjects intended for competition must be staged by 12 o'clock, after which time none can be received.

NOTE.—If one or more Camellia Blooms be shown on the Plant instead of in a cut state, such will not disqualify from competition. Seedlings as heretofore.

On THURSDAY, April 24th, the subjects invited, and to which Prizes may be awarded, are, 4 AURICULAS, 4 POLYANTHUSES, 4 CINERARIAS. Three Prizes to each. Seedlings as heretofore. JOHN EDWARDS.

Part VIII., completing Vol. I. of the Society's Transactions, is in the Press, and will, together with the Schedule of Prizes for 1856, be published and distributed in a few days.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

JOHN LAW, CURATOR OF THE BOTANIC GARDEN, Sheffield, begs to inform the nobility and gentry that he has had the privilege from the Directors for the last eight years to practice as LANDSCAPE GARDENER and GARDEN ARCHITECT. Plans and Estimates for Horticultural Gardens; Asphalte for Garden Walks and Carriage Roads laid down on the best improved principles. Terms on application.

CRYPTOMERIA JAPONICA.
R. GLENDINNING has just received fresh Seeds from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10s. 6d. each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.
Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.
Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. WHEELER & SON,
Nurserymen and Seed Growers, Gloucester.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

TURNIP SEEDS.—Marshall's, Skirving's, Butler's, Matson's Purple Top and other Swedes, Scotch and other Turnips, Mangel Wurzel, and all kinds of Agricultural Seeds.—Prices on application to DAWE, COTTRELL, & BENHAM, 3, Laurence Pountney Lane, and 36, Moorgate Street, London.

THE BEST EARLY PEAS OUT.—COTTRELL'S SEBASTOPOL and the NEW EARLY WONDER; a few more of these fine Peas may yet be had of the undersigned.
TRUE FLAT RED TRIPOLI and LISBON ONION may be had in any quantity of DAWE, COTTRELL, & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, and 36, Moorgate Street, London. Established 1720 at 28, Cornhill.

NOTICE.
JOHN C. SOMMERS, 159, Fenchurch Street, London, begs to inform his friends and the public that he continues to buy on commission, and not on his own account, from respectable Growers and others, GARDEN and AGRICULTURAL SEEDS that may be depended upon for purity and correctness of stocks.
*** Orders from unknown correspondents must be accompanied with a banker's reference.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. MORTON, Esq., *is now ready, and can be obtained from the Proprietors,*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 15.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is now ready, and will be sent free by post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.
Tollington Nursery, Hornsey Road, Islington, London.

THOMAS BARNES' CATALOGUE is now ready, and may be had on application, containing Descriptions and Prices of Dahlias, Fancy Dahlias, Fuchsias, Verbenas, Phloxes, Hollyhocks, Chrysanthemums, Mimulus, Petunias, Roses, Daisies, and Miscellaneous Plants for bedding, &c. &c.
Dane Croft Nurseries, Stowmarket.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1l. to 5l. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

ESTABLISHED 1805.
TO GENTLEMEN ENGAGED IN PLANTING.
RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Advertisements which appeared on the 2d Feb.
Royal Nursery, Great Yarmouth, Norfolk.

ASPARAGUS AND SEAKALE.
YOUELL AND Co. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100	... ...	2s. 6d.
Ditto 3 years old, per 100	... ...	3s. 6d.
Seakale, per 100	...	6s. 0d.

Royal Nursery, Great Yarmouth.

NOTICE TO GROWERS OF PINE-APPLES.
WANTED, FOR THE LIVERPOOL MARKET, a quantity of good PINES, not under 2 lbs. each. Forward immediately.—GEORGE TAYLOR, Jun., Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1s. The Trade supplied.
T. F. WINSTANLEY, Seed Merchant, Manchester.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of WM. BARRATT, Nurseries, Wakefield.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible description from* Messrs. WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

NEW CLOVER SEED, COW GRASS, AND ALSIKE CLOVER, *new and genuine, without any admixture of old or inferior seed, can be obtained from*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEAKALE SEED.—*Several Bushels of home-grown Seed can be procured from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEAKALE AND ASPARAGUS.—*Several hundreds of thousands still remain, and can be had at the lowest wholesale prices, on application to*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

COLE'S DEFIANCE RED CELERY.—*The best Celery of the season, of most excellent quality,* 1s. *per packet.*

BOSTON NEW VEGETABLE MANURE.—*A new and valuable introduction from America,* 2s. 6d. *per packet, can be obtained genuine from*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

GOOD CLOVER SEED.
GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SKIRVING'S IMPROVED SWEDE TURNIP.—A Grower has for disposal a very superior Stock of the above, raised from selected and transplanted Bulbs, all growth of 1855, and guaranteed to grow not less than 90 per cent. Also a few cwts. of MANGEL WURZEL SEED, of fine selected stocks.—For price, &c., apply to Mr. D. TAYLOR, Nashenden Farm Rochester, Kent.

NEW BRITISH FERN.
ASPLENIUM REFRACTUM (MOORE). FOR DESCRIPTION AND PLATE SEE MARCH PART OF "NATURE PRINTING."
R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10s. 6d. each.
Paradise Nursery, Hornsey Road, Holloway.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

JOHN GRIGOR AND CO., Nurseries, Forres, can still supply the Trade with fine one-year old SEEDLING LARCHES, and two years' SEEDLING TRUE NATIVE SCOTCH PINE PLANTS. Prices furnished on application.

CARNATIONS AND PICOTEES.
WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1s. to 1s. 6d. per pair.—Nurseries, Huntingdon, March 15.

BOX EDGING.
MR. JAMES VEITCH, Jun., of the Exotic Nursery, being in want of a considerable quantity of BOX EDGING, will be glad to receive offers, stating quantity and price per 100 yards from such persons as have any to part with. It must be dwarf and good, and warranted to plant at least 3 yards for 1. The terms to include its delivery free into a railway truck at the nearest station.—March 15.

DWARF BOX-WOOD FOR EDGING.
WANTED 1000 to 2000 Nursery yards of good DWARF BOX-WOOD fit for immediate use. Please state cash price per yard delivered at a railway station.—SAMUEL FINNEY & Co., Gateshead Nursery, Newcastle-upon-Tyne.

TO BE SOLD, CHEAP, a large quantity of excellent TURF.—Apply to WM. CUTBUSH & SON, Highgate.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

BEFORE ORDERING YOUR SEED POTATOES, send for THORNHILL & DICKSON'S DESCRIPTIVE PRICED LIST of the best leading varieties. OBSERVE!—27, Bath Street (facing the Talbot Hotel), Bristol; and Nursery Grounds, Lawrence Hill.
N.B. A complete assortment of Kitchen Garden, Flower, and Agricultural Seeds. Priced Catalogues free by Post.

POTATOES FOR PLANTING.—
BRITISH QUEEN and FORTY-FOLD... per bush. 4s. 0d.
SURREY CHAMPION, very hardy variety ... „ 3 6
Delivered free of charge to London by rail.
HART & NICKLIN, Seedsmen, &c., Guildford.

SUFFOLK HERO, Early, Handsome, and Prolific Kidney Potato, may be taken from the open ground in May. 3s. per peck, or 10s. 6d. per bushel, including bag, and carriage free to London. Only a few for sale.—THOMAS WILD, Ipswich.

HENRY STROUD, Junr., Dane Nursery, Margate, Kent, has a few bushels more SEED POTATOES left, as advertised February 23d, which see for price and description; the same can be highly recommended for general culture.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

FLUKE POTATOES.—A Large Quantity of the celebrated FLUKE KIDNEY and TASKER'S SEEDLING POTATOES to be disposed of, for Seed or Eating. Price 5s. per bushel of 64 lbs., or 16s. for three bushels, sack included.—Apply to Mr. H. P. JONES, Hulcote Farm, Towcester.

JOHN HOLLAND begs to offer the FLUKE KIDNEY POTATO (true), in any quantity, at 3s. per bushel of 56 lbs.; 5l per ton; strong sacks to hold 5 bushels (2¼ cwt.) 1s. 9d. each.—Bradshaw Gardens, Middleton, near Manchester.

H. AND R. STIRZAKER, NURSERYMEN, can supply a few tons of the true FLUKE POTATO, at 3l. 10s. per ton for cash. Also Scotch Drumhead Cabbage plants fine, 10l. per 100,000, or 2s. 6d. per 1000. They have still Sycamore, Wych Elm, and Spruce Firs to offer transplanted (fine). Price on application.—Lancaster.

FLUKE KIDNEY POTATOES, 5l. per ton; in quantities less than 1 ton, 6s. per cwt; sacks, 1s. per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.
HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

SEED POTATOES.—The following sorts, from true and healthy stocks, may be had as below, namely:—Kidney: Fiftyfold, Fluke, Lapstone, and Painted Lady. Round: Early Oxford, Early Frame, Early Cockney, Fortyfold, British Queen, Early Shaw, York Regent, and Purple Regent.—Prices on application. A descriptive, historical, and comprehensive Catalogue of Flower and Vegetable Seeds forwarded on receipt of three penny stamps. A remittance with order from unknown correspondents.—HOOPER & Co., Covent Garden Market.

SPLENDID NEW RHUBARB, SALT'S "CRIMSON PERFECTION."

ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of Rhubarb is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public.

For further particulars refer to *Gardeners' Chronicle*, Dec. 8th, 1855. A few two-year-old roots, 5*s.* each. Price 3*s.* 6*d.* per root, three for 10*s.*, and six for 1*l.*

Orders addressed to Robert Salt, Longton, Staffordshire; or the following agents, will have immediate attention:—Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London; Messrs. Burgess & Kent, Penkhull, Staffordshire; Messrs. Francis & Arthur Dickson, 1 6, Eastgate Street, Chester; Messrs. James Dickson & Sons, 102, Eastgate Street, Chester; Mr. Salsbury, Melbourn, Derbyshire. A liberal discount allowed to the Trade. A Post Office order from unknown correspondents.

Longton, March 15.

BALSAMS.

F. and A. SMITH, Florists, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. Smith, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. Lindley, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th*, 1855, *page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. Smith have appointed as Agents:—
Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

SELECT CULTIVATED GRASSES for PERMANENT PASTURE, &c., on Sale by William E. Rendle & Co., Seed Merchants, Plymouth. For large quantities special contracts may be made at reduced prices.

Extracted from "Rendle's Agricultural Price Current and Farm Directory for 1856."

Our Mixed Grasses for Permanent Pasture, &c., have given the greatest satisfaction to all who have sown them. They are selected according to the best Tables—and will be sold at the lowest remunerative prices. Those who wish to make their own selection can purchase all the kinds separately.

MIXTURE for LAYING DOWN LAND to PERMANENT PASTURE or MEADOW.—The kinds are most carefully saved, all noxious weeds being excluded. The selections will contain several species of Festucas, Loliums, Poas, and Trifoliums, in such quantities as will best suit the soil for which the selection is intended. We usually send 2 bushels of light seed, and 12 lbs. of heavy seed per acre, which will be sufficient for most soils. The large increasing demand for Grasses for permanent pasture enables us to offer them at the reduced price of from 24*s.* to 30*s.* per acre, according to the sorts required to suit the soil. (Gentlemen in giving their orders are requested to state the quality of the soil, situation, &c.)

FOR LAYING DOWN PERMANENT LAWNS.—In Lawns, or Ornamental Parks, it is generally desirable to have a predominance of fine Evergreen Grasses. All the coarser kinds will, therefore, be entirely excluded, and the sward will at all times present a luxuriant and handsome appearance. The prices of the best Lawn Grass are 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s* per lb.

FOR PERMANENT PASTURE and HAY in ORCHARDS and other GROUNDS much OVERSHADED with TREES.—We can supply a very excellent mixture of Grasses suitable for the above purposes at 30*s.* per acre, comprising two bushels of light seed and 12 lbs. of heavy.

FOR HEATHY or MOORY LANDS which have been IMPROVED with a view to their PRODUCING BETTER PASTURE.—We can offer an excellent mixture for Heathy or Moory Lands, at 25*s.* per acre, with varieties which will thrive best on such soils. When the order is sent it is desirable that it should be stated whether the soil is of a *moist* peaty character, or of a *dry* nature in a high altitude.

FOR LAYING DOWN SHALLOW UPLANDS and SHEEP WALKS.—For this purpose we can offer a very excellent assortment suitable for elevated situations, which we can render at 30*s.* per acre, to produce excellent food for sheep.

FOR LANDS in PREPARATION for IRRIGATION, or WATER MEADOWS.—In this mixture we place those varieties that, from their natural habits, will stand an excessive moisture. Price 24*s.* per acre.

MIXTURE for RENOVATING OLD PASTURES, PARK LANDS, &c.—We can supply an excellent selection for renovating Old Pastures, deficient of Clovers, and the finer Grasses, at 7*s.* 6*d.* per acre, comprising about 10 lbs. of seed, at 9*d.* per lb. This renovating mixture is very useful for such lands as do not require to be laid down afresh, when the plant is thin, whether by partial failure of seed, drought, or any other circumstances.

FINE GRASS SEED, for ORNAMENTAL PARKS, PLEASURE GROUNDS, &c., KEPT CONSTANTLY UNDER THE SCYTHE.—Our selection of fine Lawn Grass Seeds has always given the greatest satisfaction. We can point to our own Grounds as a remarkable instance of their superiority. In the year 1850, our Gardens in the Union Road were completely altered, the soil levelled, and laid down to fine Grass; the seeds were not sown till the beginning of June, and by the 30th of July following a very superior sward was obtained.

All orders delivered carriage free, see Rendle's "*Agricultural Price Current and Farm Directory for* 1856."

Apply to Wm. E. Rendle & Co., Seed Merchants, Plymouth.

Established 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL and CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices in fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
The finest first-class show Pinks, by name, per dozen pairs ... ... 9*s.* to	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

Youell & Co., Royal Nursery, Great Yarmouth.

Established 1805.

CHOICE PLANTS, ETC.

YOUELL and CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the newest and choicest kinds, good bushy plants, in 48-sized pots, 15*s.* p. doz.
CAMELLIAS, in choice new kinds, well adapted for making fine flowering specimens next season, 21*s.* per dozen.
CHOROZEMA, in 6 beautiful varieties, 9*s.*
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per dozen; smaller ditto, 9*s.*
ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen.
(A List of these will be found in our Advertisement of Dec. 1.)
GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*
SOLLYA LINEARIS, good plants, 1*s.* 6*d.* each.
" HETEROPHYLLA, 9*s.* per dozen.
STATICE SINUATA, 9*s.* per dozen.
EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.
LILIUM SPECIOSUM, good flowering bulbs, 2*s.* 6*d.* each.
" LANCIFOLIUM ALBUM, 9*s.* per dozen.
" EXIMIUM, 9*s.* per dozen.
CLEMATIS SIEBOLDI, strong plants, 1*s.* 6*d.* each.
" AZUREA GRANDIFLORA, 1*s.* 6*d.* each.
" HENDERSONI, 1*s.* 6*d.* each.
" MONTANA, 1*s.* each.
" FLAMULA, 9*d.* each.
GLADIOLUS INSIGNIS, fine flowering bulbs, 6*s.* per dozen.
" CARDINALIS " 3*s.* "
" BRENCHLEYENSIS, vivid scarlet, 2*s.* each.
GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen.
CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.
PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.
PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 3*s.* 6*d.* each.
PANSIES, a fine collection of all the new and first-rate flowers 9*s.* per dozen.
PRIMROSES, per doz.:—Double Yellow, 4*s.*; Double White, 4*s.*; Double Purple, 4*s.* 6*d*; Double Crimson, in maroon, a fine and scarce old plant, 12*s.*
DELPHINIUM HENDERSONI, 1*s.* 6*d.* each; Mooreanum, 6*s.* per dozen; Barlowi, 6*s.* per dozen.
DEUTZIA GRACILIS, fine strong plants, 9*s.* per dozen.
LILY OF THE VALLEY, strong, 5*s.* per 100.
PÆONIES, a choice collection of 20 new varieties for 20*s.*
ROCKETS, double crimson (strong), 9*s.* per dozen; the old double pure white ditto, 3*s.* per dozen.
STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds, including those adapted for rock-work, 6*s.* per dozen.
DAISIES, 30 of the best new German varieties, by name, 4*s.* per dozen.
CHRYSANTHEMUMS, of the handsomest of the large flowering varieties, 9*s.* per dozen.
Do. do., of Pompons, 9*s.* per dozen.

		s.	d.
ASPARAGUS, Giant, 2 years, per 100		2	6
" " 3 years "		3	6
" " extra strong, for forcing, per 100 .		5	0
RHUBARB, Myatt's Victoria	per doz.	8	0
" " Linnæus	"	8	0
" Mitchell's Royal Albert	"	8	0
" Hawke's Champagne, new & fine, 2*s.* each	"	18	0
SEAKALE, strong, 2 years, per 100		6	0
" extra for forcing "		10	0

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

KITCHEN GARDEN SEEDS.

JOHN CATTELL begs to offer to the public a few choice SEEDS, which may be had free by post at the prices annexed:—

	Per packet.—s.	d.
Beet, Cattell's dwarf purple-top	0	6
Brussels Sprouts, fine tall	0	9
" " dwarf	0	9
" Imported	1	0
Scotch Kale, fine feathered, tall	0	6
" dwarf hardy curled	0	6
Couve Tronchuda	0	9
Broccoli, superior Walcheren	1	0
" Cattell's superior new white	1	0
" Dilcock's Bride	1	0
" Ellettson's Emperor	1	0
" fine dwarf Purple Sprouting	1	0
Cauliflower, fine early	1	0
" " dwarf Walcheren	1	0
Cabbage, Cattell's dwarf Barnes	0	9
" " " Reliance (the best known) ...	1	0
" " Paragon	0	9
" " Green Colewort	0	9
Savoy, Cattell's dwarf green curled	0	9
Celery, Cattell's tall solid white	0	6
" Cole's Crystal white	0	6
" Laing's Mammoth Red	1	0
Cucumber, Kerryson's Prize Per doz. seeds	1	0
" Manchester Prize ... ... " ...	1	0
" Sagg's Exhibition ... ... " ...	1	0
" Cattell's fine long black spine " ...	0	6
" " " white " " ...	0	6
Endive, moss curled ... ... Per packet	0	6
" Batavia small green	0	6
Lettuce, Black Seeded Brown Bath Cos	0	6
" Large London White Cos	0	6
" Alphage Cos	0	6
" Marseilles Cabbage	0	6
Leek, thick-leaved Musselburgh	0	6
Melon, Bellegarde, Montreal, Trentham Hybrid, Sarepta, Victory of Bath, Beechwood Per doz. seeds	1	0
Parsley, Cattell's Exquisite Curled	0	6
Turnip, Improved Red American	0	6
Vegetable Marrow, white egg-shaped	0	6
" Custard	0	6

A Post Office Order or Postage Stamps to accompany all orders from unknown correspondents.

Nursery and Seed Establishment, Westerham, Kent.

PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply as from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

William E. Rendle & Co., Seed Merchants, Plymouth.
Established 1786.

SEED POTATOES.

J. C. WHEELER and SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than any other sort, and far more free from disease, planted in the same soil and in every way alike."—Mrs. Canning, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. Bromfield, Sprouston Manse, N. B.

J. C. Wheeler and Son beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

The Rev. R. O. Bromfield, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large.

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s.* per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s.* 6*d.* per peck, or 9*s.* per bushel, delivered carriage free.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

J. C. WHEELER and SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	d.
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed, 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom." *Mr. Vertegans, Florist, Edgbaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society
Established more than a hundred years.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

ITALIAN RYE-GRASS SEED.

SUTTON AND SONS *having in anticipation of the present great demand for this invaluable article provided an extra large stock of the best quality seed, are still able to execute orders for either Sutton's Improved, Dickenson's, or Fresh Imported Seed. Instructions for cultivation are sent with the Seed. Early orders will be necessary. Priced Lists of Agricultural Seeds may be had gratis (post free).*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

PERMANENT PASTURE GRASSES.—*Gentlemen intending to lay down Land to Permanent Pasture, or for two or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 30s. per Acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

PERMANENT PASTURE GRASS, *of the finest quality, can be obtained from the Subscribers. For a full description of all the best and most useful kinds, see* "RENDLE'S *Price Current and Farm Directory for* 1856." Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at 6d. per lb., or 14 lbs. for 6s.;* WHITE BELGIAN CARROT SEED, *9d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom,

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "RENDLE'S *Agricultural Price Current and Farm Directory.*"

Swede Turnip of sorts, 10d. per lb., 1s. 4d. per qt., 5s. per gall.
Scotch Turnips ditto, 10d. per lb., 1s. 4d. per qt., 5s. "
Common Turnips ... 8d. per lb., 1s. per qt., 4s. "
Tankard Turnips ... ... 8d. per lb., 1s. per qt., 4s. "
White Belgian Carrot ... 9d. per lb.
Long Red Mangel Wurzel, 6d. per lb.
Yellow Globe do. 6d. per lb.
Italian Rye-Grass, 9s. per bushel.
Scotch Perennial do. 7s., 8s., to 9s. per bushel.
Devon Evergreen do. 6s. to 7s. per bushel.

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES)—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

PERMANENT PASTURE

MR. SMITHE'S MIXED GRASS SEEDS for various soils are now ready for sale.—Cost per acre, 24s., allowing 4 bushels to the acre. The Seeds will be delivered free of expense to the nearest Railway Station. Reference will be required from parties unknown.—Eastling, Feversham, Kent.

IMPORTANT TO SEEDSMEN AND FARMERS.

TO BE SOLD, Skirving's Purple-top Swede, Green Globe, and White Globe Turnip Seed, from selected bulbs; White Spanish and White Globe Onion Seed, all of 1855 growth: also Seed Potatoes as follows:—Fluke Kidneys, 90s. per ton; Early Shaws, 80s. per ton. Delivered either at St. Neots, on the Great Northern Railway, or at Swavesey (Eastern Counties Line).—Apply to Mr. COOPER, Eaton Socon, St. Neots, and Drayton, Cambs.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.—The above kinds of Clovers will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

PASTURE AND LAWN GRASS.—Gentlemen laying down Land for Permanent Pasture and Lawns can be supplied with the best Mixed Grasses for the same, (or sorts separate), under the advertised prices by DAWE, COTTRELL & BENHAM (successors to Frederick Warner), 3, Laurence Pountney Lane, & 36, Moorgate Street, London.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10s. 6d. The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

GEORGE LEE, MARKET GARDENER, &c., Clevedon, near Bristol, offers the remaining surplus stock of POTATOES and STRAWBERRIES at a great reduction in price. The Potatoes are all Seconds, fit for planting whole, strictly his surplus stock and of varieties he can confidently recommend true to name. The following Potatoes round varieties at 10s. the sack of 240 lbs.; 5s. 6d. half sack; 3s. quarter sack:—Grigor's Prolific, Early King, Early Manley, Nelson's Favourite, Rylott's Flourball, American Native, York Regent, and Lincolnshire White.

Jackson's Improved Kidney 16s. a sack; 8s. 6d. half sack; 4s. 6d. quarter sack.

Strawberries of the following varieties true to name at 1s. 6d. per 100:—Keens' Seedling, Princess Alice Maude, British Queen, Myatt's Prolific, Swainston's Seedling, Trollop's Victoria, Stirling Castle Pine, Deptford Pine, Royal Pine, Eleanor, Elton, Nimrod, and several other old varieties. New Strawberries true to name:—Patterson's SCARLET NONPAREIL, 5s. to 20s. per 100; 3s. to 12s. 6d. for 50 according to the strength of the plants. BONUM MAGNUM, 5s. to 20s. per 100, &c. ADMIRAL DUNDAS 5s. to 20s. per 100, &c. OMAR PACHA, 7s. 6d. to 30s. per 100; 4s. to 16s. for 50. (UNDERHILL'S) SIR HARRY, 20s. to 50s. per 100; 12s. 6d. to 30s. for 50.—Post-office Orders payable at Clevedon, to GEORGE LEE.

VERBENA "TRANBY" will be sent out about the 21st of April, in good healthy plants, at 5s. each, or 21s. the half dozen. Colour shaded crimson, very large flower, with an immense cream eye, in the way of an ALPINE AURICULA, quite distinct, and habit good. A fine stock of Choice Geraniums, from 4s. to 30s. per dozen; good sorts, 2l. 2s. per 100. Cinerarias, good sorts, strong, 6s. per dozen. Bedding Plants, 21s. per 100. Dielytras, 6s. per dozen. Pimelia decussata, strong and fine, 18s. per dozen. See our List of Garden Seeds with prices. Flower Seeds, 20 sorts free for 18 stamps.

MARTIN & SON, Nursery and Seed Establishment, Cottingham, Hull Branch Junction Street.

NEW CONTINENTAL PLANTS.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. I. LINDEN, of the Royal Botanic Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following new and beautiful Plants. And in accordance with the above arrangements, M. I. LINDEN has handed over to them for execution, when ready, the orders he had already received from the following gentlemen:—

S. Rucker, Esq., Wandsworth
W. Saunders, Esq., Wandsworth
Mr. J. Veitch, Jun., King's Road, Chelsea
Messrs. H. Lowe and Co., Clapton
Messrs. Rollisson and Sons, Tooting
Messrs. Backhouse and Co., York
Messrs. A. Henderson and Co., Pine-apple Place.

ACHIMENES (LOCHERIA) MAGNIFICA.—Dark vermillion red, spotted and rayed with deep violet, almost approaching a black, flowers two inches in diameter.

ACHIMENES (TYDEA) AMABILIS.—Delicate rose, with deep carmine markings, throat rayed and marked with white.

CUPHEA EMINENS.—Long bright red and yellow flowers, being larger than any other in this class. It is very abundant and free, and expected to make a fine bedding plant.

GONOCALYX PULCHER.—A beautiful little greenhouse plant, with bright waxy red tubular flowers, tipped with white. This lovely plant is as charming when out of blossom as when in, on account of the young growth being always of a lively rosy purple.

Messrs. E. G. H. & Son take this opportunity of expressing their pleasure in being enabled to offer the above beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

P.S. The above New Plants will be ready for sending out on and after the 1st May.

The following coloured Plates are now ready, and may be had on application at 6d. each, or if by post at 8d. each, except when three or more are taken, when the postage will not be charged:—

ACHIMENES (LOCHERIA) MAGNIFICA.
" (TYDEA) AMABILIS.
CAMELLIA JENNY LIND.
CUPHIA EMINENS.
DIANTHUS ALBO-NIGRICANS.
FUCHSIA EMPEROR NAPOLEON AND VENUS DE MEDICI.

FLOWER AND GARDEN SEEDS.

A Catalogue of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.—Wellington Nursery, St. John's Wood.

SUTTON'S SELECTED MANGEL WURZEL.—*The* MANGEL WURZEL ROOTS *grown from* Messrs. SUTTON'S *Seed gained the First Prizes at the Birmingham and many other Root Shows last season—(see* Times *Newspaper, December* 12, 1855.)

They were also much admired on Messrs. SUTTON'S stand at the Smithfield Club, shown in Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express,* and other papers of December last. At present, Messrs. SUTTON can supply any quantity of Seed. Price of their selected Yellow Globe 9d. per lb. The prices of other kinds and of large quantities may be had on application.—Royal Berkshire Seed Establishment, Reading, March, 1856.

ROYAL BERKSHIRE SEED ESTABLISHMENT

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

NOTICE.

Seed Warehouse, 54, High Street, Exeter

(OPPOSITE THE GUILDHALL).

JAMES VEITCH & SON,

OF EXETER AND CHELSEA,

BEG respectfully to inform their Friends and the Public generally that they continue to carry on the Seed Business as heretofore, in all its branches, and on the above Premises, 54, HIGH STREET, where it has been conducted for the last 18 years, and that they have

NO CONNECTION WHATEVER

with any other Seed Establishment in Exeter.

JAMES VEITCH AND SON wish it particularly to be understood that their sole motive in giving this Notice is to prevent MISTAKES and DISAPPOINTMENTS to their Customers, and to counteract any reports that have been or may be circulated to the contrary.

N.B.—They particularly request that all LETTERS and ORDERS for SEED be distinctly addressed

JAMES VEITCH & SON, 54, High Street, Exeter.

Seed Warehouse, 54, High Street, March 15.

The Gardeners' Chronicle.

SATURDAY, MARCH 15, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 18—Horticultural..... 2 P.M.

IN another column will be found a report of the proceedings at the meeting of the Horticultural Society last Tuesday. It will be seen that nothing has yet been determined as to the future action of the Society. Many reasons deter us from expressing at present any opinion upon the report of the Committee; nor indeed would it be useful to do so, because the public can deal with mere matters of business, such as the discussion in Regent Street, without our assistance. We would only point out one thing, but that is important. The Council shrink, and we think most properly, from risking any further the financial position of the Society; were it not for that they would be as ready as the most eager Fellow to re-enter the field of Exhibition in the Garden. They doubtless think that in an association of English gentlemen the first consideration is to preserve inviolate the honour of the Society, which would be compromised were they to consent to measures that should ultimately lead to an inability on the part of the Society to meet its engagements. In short, they are responsible for their acts, not only to the Fellows but to the world, and they feel that responsibility. On the other hand, gentlemen eager for the promotion of Horticulture and sincere friends of the Society, overlook, or under-estimate difficulties, and persuade themselves that no risk attends a further prosecution of what the Council think dangerous.

The question at issue seems then to be in what

manner risk is to be removed or at least much diminished, and it was doubtless the perception of this which led one of the Fellows who addressed the meeting on Tuesday to suggest the formation of a guarantee fund. This is a practical view of a practical matter, and deserves consideration. If any such plan could be devised the Council would then be somewhat relieved from a serious responsibility, which although not legal is moral, and therefore imposes the highest of all obligations; and we should hope that it will be found when the Society reassembles on the 31st of March, that this question has not been overlooked.

The other day, at the Society of Arts, Mr. Archer, in a very interesting account of some of the foreign commerce of Liverpool, mentioned that the use of Salep has revived in an unexpected manner. Our readers, doubtless, know that the knobs of which this substance consists are the roots of such terrestrial Orchids as our Orchis mascula, &c., and that they once formed a pleasant beverage sold at the corners of streets in the early morning under the name of "hot saloop," just as Coffee is now sold. Mr. Archer tells us that he should have been much puzzled at the importation of Salep not only continuing, but increasing, had he not traced a lot of the root to the manufactory of a chocolate maker, from which he presumes that it is occasionally employed in that preparation. At all events he is persuaded that Salep might be advantageously employed in the manufacture of cocoa and chocolate. This conjecture seems to us to derive support from the nature of the aromatic principle which is present in well prepared Salep. One of the most costly ingredients in chocolate is Vanilla—the pod of a climbing Orchid—valued not only for its fragrance, but its stimulating qualities. The weak odour of Orchis roots appears to us to be identical with that of Vanilla, as indeed is the fragrance of the whole race, however much it may be modified or disguised by the presence of other "essences." Possibly we have here the commencement of a new source of employment for women and children in the districts where the common Orchis grows wild abundantly; possibly, also, some of the S. African species, whose roots are so much larger than our own, may pay for collecting at the Cape of Good Hope and the adjacent colonies.

Another circumstance was mentioned by Mr. Archer, to which we also take the opportunity of drawing attention. There is not a more dangerous poison than *nux vomica*, the seed of a tropical bush called Strychnos. It is used medicinally in very small quantities, but has no other legitimate application. In the year 1838 duty was paid on 1017 lbs. of the drug; in 1839 on only 478 lbs.; in 1840 on 550 lbs. "Ten years since," Mr. Archer remarks, "a ton of this article would have been a large annual import—it now exceeds sometimes a hundred tons. Its use in medicine will not account for this large increase, and our sanitary officers will do well to make observations upon the symptoms which attend the dying ale-drinker, for notwithstanding the fine testimonials of the recipients of casks of pale and bitter ales, my firm conviction is, that the pure bitter of strychnine is a valuable auxiliary to the brewer. Great efforts were made a few years since to introduce the wood of *Picræna excelsa*, a large tree producing a wood as intensely bitter as quassia, and, indeed, this wood was supposed by the importers to be quassia, but they entered it as *billet wood*, in order to evade the duty. The trick was eventually discovered, and this, together with the high rate of duty, prevented the brewers receiving their supply of bitter wood. They have, doubtless, found a substitute."

We recommend this statement to the attention of the Custom House authorities. We know not whether brewers, or rather publicans, are consumers of nux vomica; but it is certain that its employment is secret; and it is not fitting in a country like this that vast quantities of so deadly a poison should be permitted to enter with impunity into consumption for purposes which it is to be feared cannot but be destructive of human life. Prohibition, or prohibitory duties, might stop the evil and remove the scandal.

We have received a letter from our kind correspondent, Sir W. C. Trevelyan, in which after microscopical examination he subscribes entirely to the view we have put forth as to the absence of a nucleus consisting of the dung of some animal in the curious ball-shaped Lichen which we lately figured (p. 84). It was stated that the Lichen was supposed to be a form of *Parmelia cæsia*, or some species of the group to which that species belongs, but Sir W. J. Hooker believes that it is rather a variety of *Parmelia saxatilis*, in which opinion Sir W. C. Trevelyan now coincides. Sir W. J. Hooker has indeed shown us a specimen in which some of the lobes of the frond are very broad, and the surface corrugated, which certainly bear a strong resemblance to that species. The question can only be decided by the discovery of the fruit, which differs greatly in the two groups. Our correspondent believes that portions of the Parmelia are blown off the trees and carried from a considerable distance to the downs by west or south-west winds, to which the spot where the specimens were collected is most exposed, and there lodged amongst the short herbage. In this position they continue to grow, though liable to be rolled about continually by the wind, as he saw them on the 10th of last October. There is no good reason why they should not fructify, and we hope much that now attention has been turned to the subject we shall be able to procure fruiting specimens. In connection with the esculent Lichen of Pallas, Dr. Hooker has conceived a notion that it is not autonomous, but that it is a state of some well-known species. This is of course at present but conjecture; but as good conjectures often lead to truth, the notion is worth recording. At present the curious arrangement of the gonidia, like spores in an ascus, and the occurrence of several allied species, one of which has a fruticose habit, militate against the notion, which may, nevertheless, eventually prove true. *M. J. B.*

We understand that the account of the Stanwick Nectarine Fund has been closed—and that his Grace the Duke of Northumberland has directed the proceeds, amounting to 242*l.* 16*s.*, to be transferred to the Trustees of the Gardeners' Benevolent Institution. Mr. Stevens had previously paid over 12*l.* 7*s.*, and Mr. Rivers 12*l.* 6*s.*, the amount of the sums they were severally entitled to for their commission on sales, so that this plant has yielded to the charity 267*l.* 9*s.*

The public will not fail to appreciate properly the kind feeling of the Noble Duke which first led his Grace to entertain the idea of making this valuable plant serve the cause of Charity.

We have very great pleasure in announcing that to Mr. Veitch, Exotic Nursery, Exeter, has been awarded in the 2d Class of the great Paris Exhibition a Silver Medal, for important services rendered to botany and horticulture, by the introduction of a great number of new and rare plants to our gardens, both from the old and new world. Although this took place in the autumn of last year, it is, we believe, only now officially announced in this country, in the "Jury Awards," No. 141, recently published for the United Kingdom. Mr. Veitch does not come under exhibitors, but "co-operators" in furthering the cause of science. This is a high compliment very gracefully paid, and let us add most thoroughly deserved, as will be unanimously admitted by every lover of plants who is acquainted with the great merits of Mr. Veitch.

GRASS AND CUCUMBER VIBRIOS.

Dr. Hooker has kindly communicated to me a curious production on some species of Grass from the Arctic Regions, where it was gathered by Captain Pullen in 1850, and which for several reasons deserves notice in this Journal. The germen is converted into a brown hard flask-shaped body furnished with a long white-tipped neck, like a Florence oil-bottle. The walls are hard and rather thick; the cavity is destitute of anything like seed, the albumen of which is replaced by a little white cottony pellet, consisting of an infinity of little worms about $\frac{1}{33}$ of an inch long and $\frac{1}{1300}$ in thickness. In the midst of the mass are a few eggs with a young worm perfectly formed within them, of much greater diameter than the worms themselves, which have consequently not arrived at their full development. All this agrees perfectly with the Earcockle which occasionally occurs in Wheat, except that the thickness of the Vibrios is slightly less, and the form which the diseased germen assumes is very different. The Vibrios did not revive on immersion in water, though the specimens have not been gathered quite so long as some in which Professor Henslow informs me that he has witnessed this wonderful phænomenon. Vibrios have not been found before in any except cereal Grasses, and in nature they seem to be confined to Wheat. Professor Henslow, however, observed "that Barley, Rye, and Oats may become infected by sowing them in the same hole with the grains of Wheat, which are filled with the Vibrio. The experiment however succeeds with difficulty and only to a small extent."

I have no information as to the exact spot where the specimen was obtained, but it is quite clear that the Vibrio must be able to endure a very great degree of cold, as it is destined to be developed, after the long winter, in the young germinating Grasses—a remarkable circumstance taken in conjunction with the fact that the Wheat Vibrio will revive when brought to such a degree of dryness, that the slightest touch would reduce it to powder.

The Vibrios are all as nearly as possible uniform in size. The mother worms must, therefore, have died, leaving behind them a mass of eggs, of which far the greater part were already hatched when the specimen was gathered. In the Wheat Vibrio the increase in size is enormous from the condition in which the worms generally appear in the blackened grains. From dimensions of $\frac{1}{33}$ by $\frac{1}{1200}$ they increase to $\frac{1}{4}$ by $\frac{1}{80}$, and from the size of the eggs the increase must be as great in the Arctic Vibrio. I do not indeed imagine that the species is different. I have no details as to the comparative differences of appearance assumed by the germen of Rye, Barley, and Oats, when affected by the worm, but they are probably considerable, as in the analogous instance of Ergot. In size and form the Wheat Ergot is extremely different from that of Rye and Barley. I have lately received from Mr. Bailey, of Nuneham, a specimen of a Cucumber plant affected by Vibrio, similar to that which I had last year the opportunity of figuring in this Journal (1855, p. 220).

It completely confirms my observations in that place, but I have derived no fresh light upon the subject. There are the same delicate transparent cysts as before, and as in the former instance dispersed, but sparingly, through the substance of the tuberous masses which the worms generate upon the root. The obtuse head in this case seems to indicate that the species is distinct from the Wheat Vibrio.

It is almost impossible to guard completely against the attacks of such minute animals. The soil may be changed, and new modes of cultivation adopted, and yet the mote may be conveyed by the air to the young plant, notwithstanding all our precautions. The best hope is that like the Wheat Vibrio it may be extremely local. I have received the Wheat Vibrio from Surrey and Sussex, but after the most diligent search I have never been able myself to find a single specimen of Earcockle. The Cucumber Vibrio has occurred to other cultivators, I believe, besides Mr. Bailey. The affection is so strange that it ought not to be confounded with the prevalent Cucumber disease, which has scarcely a point in common. The caution is, however, necessary, and the more so because mistakes in such matters stultify remarks which would otherwise be useful.

The figure represents the affected germens of the Grass and Wheat magnified, and highly magnified figures of the Grass Vibrio and eggs. The three processes at the tip of the Earcockle of the Wheat seem to indicate that the germen is composed of three carpellary leaves. These processes are not, however, constant. *M. J. B.*

ON FROST SPLITTING.—By Dr. Robert Caspary.

(*Concluded from p.* 153.)

This inequality of relative bulk in the inner and outer layers has been given by Schübler, Pfeil, and formerly by myself as the sole cause of frost splitting. Schübler says:* "When the outer layers of wood and bark are once frozen, which soon happens, there is nothing more to cause these layers to increase in volume; they will rather contract with increasing cold, as is the case with all solid bodies. These outer layers are thus no longer capable of containing the inner wood when in the act of freezing and thereby increasing in bulk, and they often split with great force." Schübler here assumes, and I formerly followed him, that the trees are not yet frozen through when they burst, which is, however, certainly not the case in thin trees, and very questionable for the thickest ones. Pfeil ("On Forest Use and Technology," part iv., 1845, p. 112) thus explains frost splitting: "Frost splitting takes place when suddenly a severe frost contracts the outer layers of wood, whilst the inner ones are still distended by a higher temperature." This not very precise expression leaves one to conjecture that Pfeil also considered the interior of the tree as not yet frozen. But the contraction of the wood in a peripherical direction, which far surpasses the radial contraction, is not taken into account in the above propositions. *This cause, combined with the strain occasioned by a sudden and considerable cooling down and consequent contraction of the outer layers, whilst the inner ones are still warmer and relatively more distended (and perhaps sometimes unfrozen), effects a splitting of the stem where there may be some weak point in its tissue, such as a knot, an old stump, or some injury to the bark.*

Duhamel and Buffon, in the above quoted works, are of opinion that frost splitting is more frequent in wet soils than elsewhere—"Les arbres qui sont dans les terroirs marécageux ont le tissu de leurs fibres ligneuses plus faible et plus rare, et leur sève est plus abondante et plus aqueuse que dans les terroirs secs; ce qui fait que l'effet de la raréfaction des liqueurs par la gelée est plus sensible et d'autant plus en état de désunir les fibres ligneuses qu'elles y apportent moins de résistance." The

* Quoted by Wiegmann, "Diseases and Diseased Monstrosities of Plants," 1839, p. 140. I know not from what part of Schübler's writings this is taken.

alleged cause, in so far as it is derived from the congelation of the sap, has been already refuted. But a distinguished gardener, Mr. J. Reinecke, is also of opinion that trees in a wet soil, which are otherwise quite healthy, are especially liable to frost splitting. He has sent me the following communication :—

"Observations on the splitting of fruit trees made during the continuous severe frosts of 1822-3 and 1829-30.

"During my engagement in the above years in the well-known nursery gardens of Kniestedt, in the Sudenberg suburb of Magdeburg, it happened that in the month of January, 1823, as also in December and January, 1829-30, whilst the frost was continuous from 18° to 24° Reaumur (— 8° to — 22° Fahr.), the young healthy fruit trees of 6 or 8 inches in thickness used to split open in the evenings and nights. I observed it chiefly on young sappy Cherry trees, which were without a defect. The bursting took place on all sides; the consequence was that the Cherry trees suffered much the next year from the flow of gum, became sickly, and gradually died.

"I must remark also, that the garden was laid out in 1816 on very moist meadow land. Till the year 1822 all the fruit trees grew with extraordinary vigour ; after that time some of the finest specimens began to sicken, which has brought me to the conviction that we do very wrong when we plant orchards on a watery soil. Trees are here much more liable than on a dry soil to split in severe winter, when the frost lasts at a degree of from 18° to 24° Reaumur. JUL. REINECKE.

"Berlin, Feb. 25, 1855."

As to Mr. Reinecke's assumption that the trees in question were quite sound, it may be a question whether such was really the fact. The Horse Chesnut tree, No. 29, was shown to me as having been quite sound, although the injury with which the frost cleft was connected showed itself to me at first sight. A knot, a stump, a defect in the bark is easily overlooked, and is yet precisely the occasion of the frost split. Those Cherry trees may have had their bark ripped to bleed them, which no gardener would certainly reckon as an injury, and yet may cause frost splitting, as in the Ash trees Nos. 31, 32, and 33. That those trees may have been bled is, however, a mere conjecture, and it is a question whether in wet soils even perfectly sound trees may not be liable to frost splitting, for possibly, owing to rich moisture and over luxuriance, the tissue of trees may be weak enough to burst in severe frost even without any local injury. This point is open for further investigation, but my observations are all against any more ready splitting of trees in wet than in dry situations. The trees on the Charlottenburg road which showed the most frost clefts are on the highest and driest part of it ; and in the lower parts of the Park, which are very wet and in the year in question were already under water in November, as for example, west of Frederick William III.'s monument, I observed no frost clefts.

The splitting of the stems of trees, of which I have been treating, has only been observed by me or by the other authors I have quoted in winter after very severe frosts. Reum ("Vegetable Physiology," 1835, p. 172) is however of opinion that these clefts do not occur in winter only, but also in summer, on a diminution of heat, but only in stems whose pith is excentrical, whence they cannot be properly called frost clefts. Reum says that he has observed these splittings in summer to take place after hot days in cool nights, in the case of Weymouth Pines and Sumachs. As to the latter fact it seems to me that it should rather be attributed to hygrometrical than to thermometrical changes. Unfortunately I have never had occasion myself to observe any trees split in summer. As to the supposition that it is only trees with excentric piths that are liable to splitting, this does not appear to me to be generally the case. I have not indeed had any opportunity of cutting any of the trees I observed across, so as to ascertain the position of the pith ; but their stems were quite round, and showed no signs of excentric growth. The figure of the transverse section of an Oak which had a frost cleft given by Häring ("Distinctive Characters of the Kinds of Oak growing in Germany," p. 109) also shows the pith in the centre.

The disruption of the tissue of exotic annuals and small perennials (Perilla arguta, Tagetes bonariensis, etc., Botan Zeit., 1854, No. 38), is distinguished from frost splitting by the following marks.

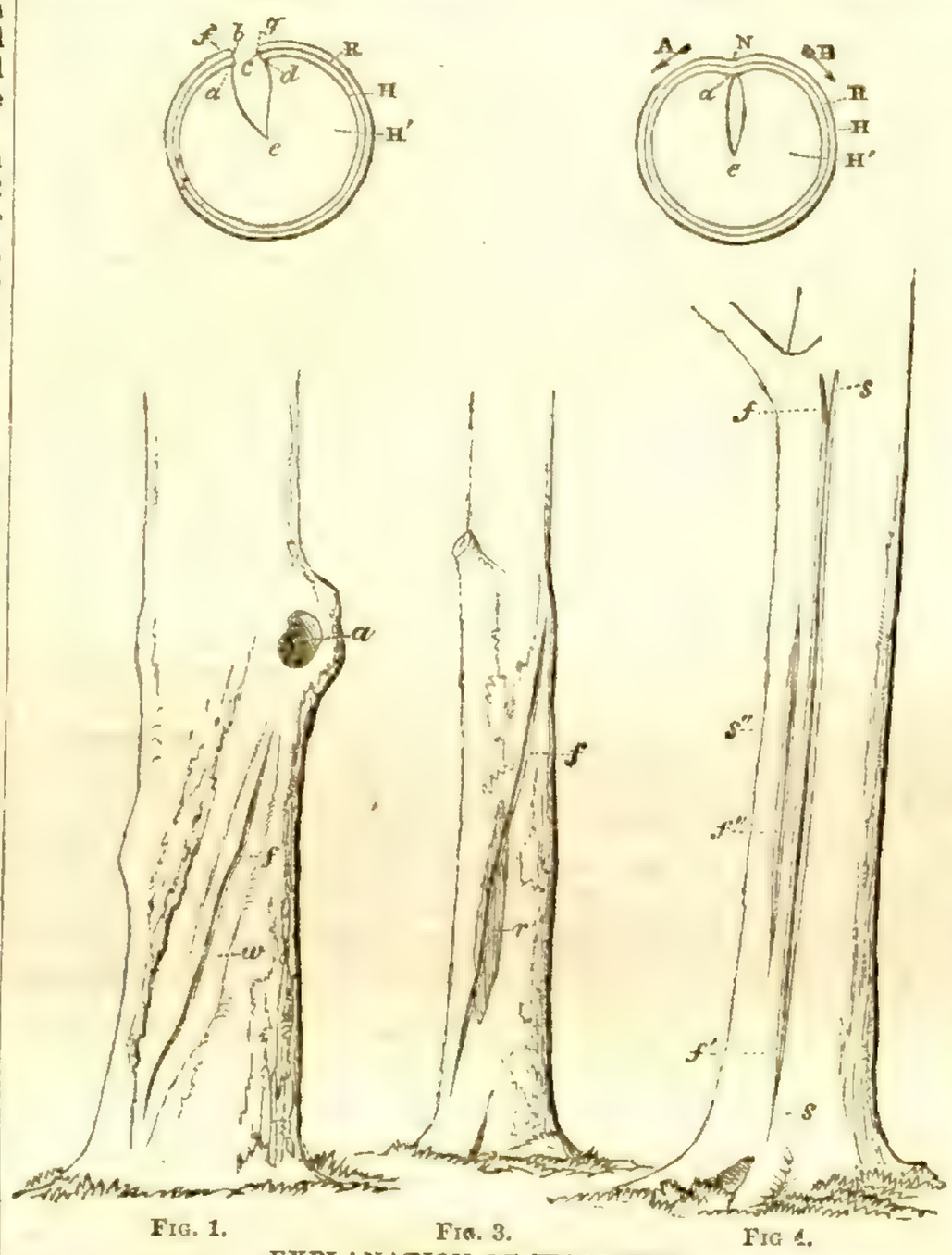
Exotic Annuals and Small Perennials.	*Hardy Indigenous Trees.*
1. The disruption of the tissue occurs at the first relatively sharp frost of the season at the commencement of winter, but at no great cold (—3° Reaum. in the cases observed).	1. The frost clefts only burst open in severe frosts, at least —14° Reaum. at a later period in winter.
2. The disruption of the tissue is caused by the expansion of the abundant sap in congealing, especially in the layers of cambium.	2. The frost splitting is caused by the preponderant peripherical contraction of the wood in connection with the strain occasioned by the disproportionate volume of the inner warmer wood and the colder outer layers.
3. The disruption shows itself in perfectly round plants and uninjured parts (or on half dead stems if they are still green, according to Leconte).	3. The stem bursts at a part where the tissue is weakened by decay or injury, although the tree may be in other respects sound.
4. From the stem issues either fibrous or leafy ice, which owes its origin to the sap which was rising in the tissues at the time of congelation.	4. No ice issues from the fissures.

My views on the causes of frost splitting require further confirmation by the working out of two questions, one of which has as yet not been investigated at all and the other very unsatisfactorily, and to which I would therefore invite attention. They are :—

1. Researches on the temperature of trees. To determine its daily and annual periods in connection with the daily and annual periods of the temperature of the air and of the earth for trees of every diameter, during at least one year's observations made three times a day (6 A.M., 2 and 10 P.M.), and hourly during a few days in each month, especially during the colder winter season.

2. Researches on the changes in the bulk of wood, especially when fresh and sappy, in its three different dimensions at different degrees of temperature.

The following are the woodcuts alluded to in the preceding papers on this subject.



EXPLANATION OF WOODCUTS.

FIG. 1.—Oak (No. 3 of the Observations) with a frost cleft *f* under a knot *a* ; *w*, border of over-growth.

FIG. 3.—Horse Chesnut (No. 29) with a frost cleft *f*, which crosses an injury in the bark *r*, whence the decay had penetrated into the wood to the depth of half an inch.

FIG. 4.—Ash (No. 31). The frost cleft *f—f'* follows the cut made for bleeding *s—s'*, except in the upper part where it diverges to the left. In the cut for bleeding *s''* there is a second frost cleft *f''*.

FIG. 5.—Diagram of a supposed section of the Limetree (No. 22) before it burst open in February 1855 ; *a e*, cavity of the old frost cleft ; H', old wood ; H, young wood ; B, bark ; N, place where it is overgrown.

FIG 6.—Diagram of the same tree after it burst open in February 1855. B H H', as in Fig. 5 ; *f b g c*, line of rupture of the bark ; *b a, c d*, line of rupture of the young wood ; *a e, d e*, concave sides of the cavity.

VEGETABLE PATHOLOGY.—No. CXII.

448. LANGUOR (*Decrepitude*).—The disease indicated under this name by Ré and Léveillé * is a sort of decrepitude or premature old age to which many trees are subject from various causes. It is not the natural decay of age which in trees arises principally from the decomposition of the older tissues which gradually communicates with and impairs the younger growth, but a decrepid state under which, though the trunk is still sound, the buds become few in number, small, and weak, producing meagre unhealthy shoots, the scanty blossoms do not set readily, and if fruit should set, it is inferior in size and general aspect, and devoid of flavour. The leaves, meanwhile, are pale, soon discolouring, and falling off many weeks before the ordinary time. Year by year these conditions become worse, the fruitfulness decreases, the branches are suffocated with Lichens, and at last death inevitably consummates the evil. This malady is not, however, confined to the orchard ; it is well known in French vineyards under the name of *goupissure*, and is not uncommon in the avenues with which the roads on the continent are so often bordered.

449. It is evident that such a condition may arise from constitutional weakness, but outward causes also may produce it, such as the stagnant water of ill-drained ground by depressing the proper temperature of the soil, and therefore not maintaining a due proportion between the atmospheric and subterranean heat, on which health so greatly depends, but much more commonly it arises, and especially the form just mentioned called *goupissure*, from sterile soil at a certain depth below the surface, accompanied frequently by a want of moisture.

450. The remedy in the first instance is easy enough. No person should think of planting fruit trees where he is not certain that there is a good drainage ; but even where trees have suffered considerably from this cause, health may, except in very aggravated cases, be restored by attention to this point. In Grape-houses there is no more fruitful system of mischief than inattention to the soil in which the roots are placed. As the leaves and branches are subjected to a high temperature, and therefore have an active interchange of fluids, and a considerable waste by perspiration and evaporation, except the temperature of the roots is conformable fresh fluid will not be supplied with sufficient speed and constancy, and matters cannot go on very prosperously. The branches will throw out roots, the leaves become pale and warty, and the fruit will shank, ripen imperfectly, or exhibit symptoms of decay. Where the ground is well drained, provided the temperature should not be sufficiently high, it can be raised by protection from the external air by mulching or the application of fermenting manure, but where it is saturated with wet, which can obtain no exit, such applications are almost useless.

451. The cause, however, of languor or decrepitude may be the barrenness and dryness of the soil, separate or combined. This of course is not the case for the most part with the superficial soil. No one would fix upon a dry barren sand as the site of an orchard or vineyard. In general the upper stratum is good, and the trees planted in it flourish well for a time. After a few years, however, health gives way, various unfavourable symptoms appear, and gradually signs of dissolution, increasing every season, are too evident to admit of mistake. In such case it will generally be found that there is a bed of dry unprofitable soil into which the roots have penetrated, which yields neither nutriment nor moisture, and the tree is imperfectly nourished by the old roots which creep along the surface. It frequently happens moreover that this bed is terminated by an impenetrable crust of indurated gravel or conglomerate, so that the tree is precisely in the condition of a plant growing in a garden pot, which receives a little superficial moisture, while the soil below is completely parched and exhausted, and every gardener knows that such a condition cannot long be continued without injury. This case does not admit so readily of alleviation as the former. Irrigation where it can be employed, and the application of manure well mixed with the superficial stratum is the most available. On a small scale something may be effected by digging out the sterile substance and replacing it with better, but trees will after all seldom flourish permanently on land which is naturally unsuitable to their nature. In most cases the wisest plan is if possible to give up the ground to the cultivation of something which does not require so great a depth of soil and to choose a new and better site for the fruit trees, and if timber trees are in question, the land should at once be grubbed up and put under the plough, for the produce otherwise will scarcely repay the expense of fencing. As regards fruit trees, it may answer the cultivator's purpose to plant them even where the subsoil is bad, provided they last sufficiently long to make a profitable return for the space they occupy. When they begin to fail, or, as the phrase is, as soon as they strike into the Kale, the earlier in general they are removed the better. The question is, however, one of pure calculation. *M. J. B.*

* Almanac du Bon Jardinier, 1852, p. 174.

Home Correspondence.

Spinach and Turnip Failure.—I don't agree with your correspondent "Colo" in attributing the failure of autumn-sown Spinach crops to "over rich soil." The garden I have to cultivate certainly cannot be complained of on that score, for I will venture to say that the soil is naturally quite as poor as that of "Colo's" neighbour, and yet the Spinach I depended upon for a winter supply nearly all went off in the manner described by "Quercus." The disease has also been general in this neighbourhood, whatever the quality of the soil. Is not a more probable cause to be found for it in the excessive wetness of the autumn ? We had here the unusual quantity of 8½ inches of rain between Sept. 29th and Nov. 4th, which being followed by cold nights and one or two sharp frosts, so paralysed the young and tender plants that instead of growing they gradually dwindled away. In this part of the country we have also to deplore the loss of another autumn-sown crop—the Turnip, not only in gardens but in the fields. I always sow a good breadth of the Stone Turnip as soon as the second early Potatoes have been taken up, which sowing furnishes a very useful supply of small bulbs during the early spring months ; but this season that crop was entirely destroyed by a species of aphis. In the spring and early part of summer our gardens were, with the exception of the Gooseberry caterpillar, remarkably free from this and other injurious insects ; the aphides, however, were determined to pay us their

annual visit, so as they could not come early in summer they came late in autumn. *J. B. W.*

Discoloured Rain.—On Saturday the 2d of February, Candlemas day, the morning having been previously warm and bright at Whalley, Lancashire, about 1 o'clock, P.M., the sky became suddenly overcast, when two flashes of lightning were succeeded by torrents of rain for an hour. The rain that fell was the colour of pale ink, as dirty as the Irwell at Manchester, but without smell, and the ditches and brooks were deeply and darkly discoloured for hours afterwards. The rain-water tubs of some of the houses were emptied, as it was useless to think of washing with such a mixture. After 2 o'clock the storm moved off towards the north, up the valley of the Ribble, and the evening was again warm and clear. How is the discolouration of the water to be accounted for? Are any of your correspondents aware of similar occurrences? and is the effect beneficial? On these points I should like to have the opinion of your readers. *Cliviger, March* 10.

Rhododendrons.—The great celebrity of these flowering evergreen shrubs, and the tempting descriptions given in our "Trade Catalogues" have induced me to purchase and plant about twenty specimens of the best sorts. Having so done all my friends as they look at or see them at once say, "Oh they will never do any good—all money thrown away—they want a peculiar soil—nothing but peat will do;" and with a variety of similar consolations I am daily rewarded for my hazardous outlay of about a ten pound note. Well now, will some kind friend say if my case is hopeless? The soil is rather a light loam. I have dug holes for them about two feet deep and two feet wide, which were filled with decayed turf and black bog soil, but I am willing to get peat or anything else if I can get them to flourish and flower. I buy guano, blood manure, &c., for different crops of "The London Manure Company," and on looking over their list of manures my eye caught with delight on "Irish Peat." Who will tell me if this is the food these splendid shrubs will luxuriate in? or if not where I can get it, and what to get? My neighbours are all laughing at me for my folly, so those who will help me will be friends in need, and friends indeed to *A Farmer in a Fix.* [Don't use Irish Peat. Your plants will do well enough if you have mixed your sandy loam with the peat, provided the soil is not too dry.]

The Buffalo Berry (*Shepherdia argentea*).—Some 10 or 12 years ago I was much taken with Loudon's description of this "fruit bearing" tree, and accordingly I imported some hundreds from the United States; many of these were from the late Mr. J. A. Downing, then a nurseryman at Newburgh; these, I remember, were all sent in pairs, it being, as is well known, diœcious. I planted out three pairs with the hope of obtaining fruit; they proved true, the difference between the male and female trees when in bloom being quite apparent, although from the flowers being very small they require close observation. These trees have blossomed every year most abundantly, but owing to their precocious habit of unfolding their flowers the first mild days in February, and then being killed by the first frost, I have never obtained a berry from them. Two years ago I placed a pair of young trees raised from layers in a large pot, tying their stems together, so that their branches should be mingled. This pot with its hopeful pair I placed in my orchard house; they both blossomed in February, 1855, and owing to the dry atmosphere did not suffer from the frosts of March, so that last autumn I had the felicity of tasting real Buffalo berries in England. Let me quote Loudon* and then guess my hopes. "Its fruit, which is much relished in America, is about the size of the Red Currant, much richer to the taste, and forms one continuous cluster in every branch and twig." My berries were in colour and shape like very small red Currants, and their flavour just ten times more acid than the sourest Currants ever tasted; alas for my hopes! Still to a dusty-mouthed tired buffalo hunter with no red Currant bushes in view, they would probably seem "much richer" than any Currants, in the same way that a very crabby Apple eaten in the middle of a hard day's grouse shooting in hot weather in August will have a Ribstone Pippin flavour. *T. R., Herts.*——The Shepherdia argentea has been grown by us since 1843, but it has never produced fruit. We consider it of no value as a fruit-bearing tree for this country, the summers being too short in our latitude. *Osborn & Sons, Fulham.*

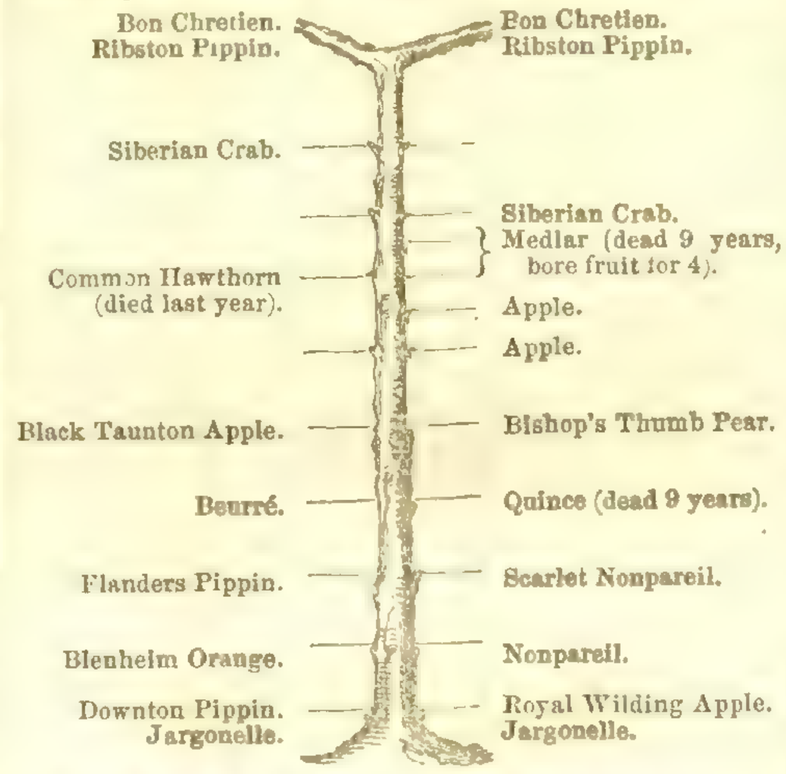
Warming by Charcoal.—Mr. M'Ewen says charcoal has a great power for absorbing heat, and so it has, as all black coloured substances have. And so far well, but it has an equally great power of radiation, so that it will produce the greatest extremes of heat and cold unless the heat that it acquires by day be retained by some artificial means, such as Gulliver's philosopher was employed about. This I think his own figures prove, or at least they do not disprove it. In the three experiments in which he tried it there is only 1° in its favour in the morning, while the difference at noon is 19°, and at night 7°, so that it produces a more unsteady temperature than where it was not applied. This may perhaps account for the ill success that has attended painting walls black. *G. S.*

Asparagus.—Having a garden on the south coast of Ireland running down to the sea with a warm aspect, though rather exposed to westerly gales, about an acre of which is nearly a pure sand, I have been advised to plant Asparagus as the most profitable crop, and I would be greatly obliged for information from any of your readers who have had experience in growing that vegetable near the sea, as to whether it will grow and give a fair produce in nearly a pure sand with only a top dressing of guano. Also if heavy westerly winds and an occasional overflow of the highest tide would be detrimental, and whether the sand would require to be laid as dry as possible in banks, as the roots could not otherwise be drained; also the best way and time to plant it. *A Subscriber.*

Durability of Larch and other Posts.—Are there any scientific grounds for a remark in the *Builder* that if Larch and other timber posts are inserted in the earth with the top part downwards they will be more durable than if used in the contrary manner? *J. Abell, Limerick.* [We should require very strong evidence before crediting such a statement.]

Rabbit Fence (see p. 154).—Try burying a length of the wire netting well tarred under ground, or a tarred brick all round under the surface will have a considerable effect if your rabbits are not very determined. *Nemo.*

Grafting.—The following example of fruits grafted on a Jargonelle Pear was furnished to you by me in 1850, and will be found in your volume for that year, p. 758. I now repeat the diagram with such alterations as have



taken place in it since that time. Grafted in 1840; all luxuriant, and bore fruit last year. *F. Davies, Pershore, March,* 1856.

Pea-leaf Soup.—As many seem to doubt the excellency of this soup, permit me to state that ever since it has been mentioned in your columns, we have had it frequently, and it is pronounced by all to be excellent; equal in fact to the best Pea soup. The Peas tried were Knight's Marrow, Victoria Marrow, and Thurstane's Reliance, all of which answered well. They were grown with free access to light and air, and were well hardened off before cooking. This gave them a deeper colour and more substance, which is what is required for Pea-leaf soup in the middle of winter. The Pea leaves must however be put into the hands of an experienced cook to bring the soup to perfection. Green Mint is of course required and other things to suit the palate, but this a cook well knows. *D. L. B., Lincoln.*

Seed Sowing.—It would appear from the evidence collected by Mr. Hall Maxwell for Scotland, the Police of Ireland, and the Poor-law Commissioners for England, that the following is the probable quantity of land under four crops for which seeds easily adulterated are required, namely—

	England.	Scotland.	Ireland.	Total.
	Acres.	Acres.	Acres.	Acres.
Turnip	2,267,200	449,372	366,311	3,082,883
Mangel	177,263	2,297	22,278	201,838
Carrots	12,638	1,191	?	13,829
Cabbage, &c.	97,334	1,209	24,080	102,628

The quantity and value of the seeds required for this acreage may be taken as follows:—

Turnips, 3 lbs. per acre at	1*s.* per lb....	...	=	£462,432
Mangel, 6 lbs. "	9*d.* " ...	...	=	45,413
Carrots, 5 lbs. "	1*s.* " ...	...	=	3,957
Cabbage, ½ lb. "	4*s.* " ...	...	=	10,262
				£522,064

This is a very low estimate, but if 25 per cent. of these seeds is bad it is clear that the country sustains a clear annual loss of more than 130,000*l.* Let us look at the matter from another point of view. I find that a pound of each of three of the above seeds contains the following quantities, viz.:—Turnip, 248,128; Mangel, 15,520; Cabbage, 143,776. Carrot is difficult to count, and I have not ascertained its numbers. Now an acre of Turnips or Beet set a foot apart will hold rather more than 43,500 plants; and I believe that of Cattle Cabbages 10,000 per acre is the usual number. If so, and all seed was good, and there were no loss from the fly or other enemies, or the hoe, 3 lbs. of Turnip seed ought to sow, not an acre, but 17 acres; 6 lbs. of Mangel not one acre but two acres; ½ lb. of Cabbage seed not one acre but seven acres. Of course I do not mean to say that there is much precision in these figures, because we all know how much the Turnip crop suffers from a variety of causes. Still 17 times more than is necessary in that crop if set so close as a foot apart, does seem an amount of provision that could not be required if the seed was what it ought to be. This is much more striking in the Cabbage crop, which is sown in beds and afterwards pricked out. A deservedly great agricultural authority tells us that 2 oz. of Cabbage seed is required for a *rod* of ground; this is 20 lbs. weight per acre. I however presume that he meant *rood*, not rod, in which case half a pound or 71,888 seeds would be needed to produce 10,000 plants. He also expressly says that 2 ounces of seed or nearly 18,000 seeds will only return 4000 or 5000 plants. I shall not pretend to say what amount of waste there really is *ex necessitate rei* in these cases, but it certainly does appear to be very much beyond what can be accounted for unless we assume the seed to have received the assistance of some gentleman whose cleverness far outruns his honesty. *Cocker.*

Seed Cooking.—We thank you for the excellent articles on adulteration of seeds, the frequency of which would appear from the simple fact that while A is charging 1*s.* for Mangel Wurzel, B charges 9*d.*—and another house only 6*d.*, and many other seeds in similar proportion, the last price being below the cost. *R.*

Peach Houses.—Having erected several Peach houses (or glass lean-to's against my garden walls without fire), I have found a difficulty in getting any book or information as to their proper management at different seasons of the year. They are now becoming so general that I thought some one might be induced to write a short treatise on the subject, or to give the necessary information in your columns. A hint or two on the subject would be considered a favour. *Thos. Broadwood,* 17, *Cadogan Place.*

Societies.

Horticultural, *March* 11.—A Special General Meeting assembled to-day to receive a report from the Committee appointed Feb. 5 (see p. 87), "to investigate the whole of the accounts, and consider what is best to be done as to the continuance of the Society." The Marquess of Salisbury having taken the chair, Mr. Godson, the chairman of the Committee, read the following report:—

The Committee of Inquiry have met from time to time, and after a full and minute investigation of the accounts, have great pleasure in reporting that they have been well and correctly kept, and do credit to the Officers of the Society; nor must they omit to acknowledge the readiness of those Officers to impart every information which might aid the inquiry.

Before they proceed to the consideration of the next part of their business, your Committee think it necessary to state, that all the information which has reached them concurs to show that the Fellows are extremely anxious to preserve the Gardens; and the strength of this feeling has been further proved by some of them having been induced, by the mere rumour that the surrender of them was intended, to withdraw their subscriptions. Indeed, it almost amounts to a forfeiture of the Charter, for the Society was incorporated expressly, "for the improvement of Horticulture in all its branches, ornamental as well as useful;" and it is obvious that it cannot be practically improved, if no example of improved practice in the cultivation of fruits and flowers can be exhibited for imitation, and if there were no opportunity of testing the value of any new horticultural theories by actual experiment; in short, a Horticultural Society without a garden would be like a crew of sailors without a ship, or an army without weapons.—In answer to this it may be said that, according to the scheme propounded by the Council, enough of the Garden was to be retained for experimental purposes; but this is impossible. The Duke of Devonshire has signified to the Committee, through his agent, that the Society must have all or none; his Grace will not let us retain a mere fragment for ourselves, and throw up the remainder. Moreover, the preservation of these Gardens in their entirety for its present purposes is an object of national importance; the Arboretum contains one of the most valuable and diversified collections of rightly-named trees and shrubs to be found in this country, or, perhaps, in all the world; and there young gardeners and foresters may learn the names, and characters, and habits of the plants by which gardens and parks may be adorned. But the Orchard, however little it may be visited by those who repair to the Garden only for amusement, or to see the flowers, is a still more valuable feature of the property; for it is without any competition elsewhere, and its value is increasing every year, for it takes a great length of time to bring a collection of this sort to perfection. Many sorts of fruits that are rashly or ignorantly praised have to be tried, their names have to be verified, for they are often incorrect, and their merits have to be proved and described, if they possess any; some are shy bearers, and are easily affected by unfavourable seasons, and it is not thought fair to pronounce sentence upon them till they have been tried for several years, when they are rejected as worthless (and this has been the case with very many), their places have been supplied by others, which have to undergo the same lengthened ordeal: but the result has been, that though some of the more recent introductions are yet young, and have not arrived at their full bearing, yet the Orchard contains almost every variety of tree which is likely to be useful in this country. How great, then, is the advantage of this to the whole of the British Islands, both directly and indirectly! for not only the Fellows of the Society have it in their power to obtain grafts of the most valuable sorts for their own orchards, without any fear of a mistake in the name, but those too, who, not being Fellows of the Society, depend entirely for the supply of their Gardens upon the respectable nurserymen who are, have the same assurance that the trees which they purchase are correctly named. The number of choice trees thus named, from which grafts may be obtained, is about 1600.

Since, then, it would not only be a disaster, but also a disgrace, to English Horticulture, if a Garden of this description were sacrificed without some overwhelming necessity, we next proceed to the task assigned to us, of devising some means to avert this calamity, for with the Gardens the Society itself must stand or fall.

We have come to the conclusion that much may be done by reorganising the management of the Garden, and that the income of the Society may be much increased. At present, for the management of the Garden there are two head gardeners with a salary of 100*l.* each, both able and excellent men in their own departments, but both independent of each other, and placed under the general superintendence of Dr. Lindley. Of the scientific attainments of the Vice-Secretary it is impossible to speak too highly, or of the advantage which the Society has derived from his unwearied exertions to maintain its character: but we are of opinion that he has been treated unfairly by the Society in this,—that its officers have laid upon him the whole burden of the most minute details in the Garden, as well as in the correspondence, and have exacted more from him than any one man could usefully perform: and this view of the case is confirmed by a resolution recently proposed by the Council; namely, to institute a regular system of inquiry into subjects of importance connected with horticulture, throughout the kingdom, by means of Special Committees, whose reports will be communicated to the monthly meetings, and otherwise made public; these Special Committees, which would form so

* Encyclopædia of Trees and Shrubs under article Shepherdia

many centres, from which the love and study of horticulture would be diffused through their respective neighbourhoods, and by which attention would be called to the operations and merits of the Society, can best be organised by the Vice-Secretary, and would entail upon him a large amount of administrative labour, and a great increase of correspondence; nor is this all, for other projects are announced to be in contemplation, which would be highly valued by all those who look to the Society, not only for amusement or profit, but for instruction too. The success of these schemes will very much depend upon the assistance of the Vice-Secretary, and occupy a great portion of his time, besides that which is required for the determination of new seeds and plants. It is desirable, therefore, on every account, that he should be enabled to devote himself entirely to the science of horticulture, by relieving him from all other responsibility.

The Committee therefore propose, that the management of the Garden and the Exhibitions shall be confided to some one practical man of first-rate skill and energetic character, who shall have the superintendence of every department, and try to raise the reputation of the Garden as a model of good management for all other gardens, while at the same time he may be able to develope the resources of the Society, and thus to improve its finances. It is absolutely necessary that the person filling this office should thoroughly identify himself with the interests of the Society; and though never losing sight of a proper economy, yet he should manage the Gardens in the most efficient manner with regard to beauty, utility, and profit; for which purpose he should have the absolute control of all the persons employed in the garden, subject only to the authority of the Garden Committee, selected from the Council, who will take care that nothing is done to conpromise the character of the Society, or to involve it in an unnecessary expense. But while the Committee would have this kept in view, they are of opinion that it should be conducted more as an experimental Garden than heretofore; that experiments should be there tried, not only on seeds, plants, and roots, but also on implements, boilers, manures, &c., provided that the persons bringing them to be tested do so at their own expense, and that honest and trustworthy reports of their success or failure be inserted in any publications which the Council may see fit to sanction. Should the plan here proposed for the management of the Garden be adopted, and should it consequently be necessary to dispense with the services of any of those at present employed in the Garden, the Committee earnestly recommend them to the good offices of the Council, if other situations can be found for them: especially for Mr. Thompson and Mr. Gordon, both having been for a great many years faithful servants of the Society, both of the highest character and worth, and the Society, which has so long enjoyed the advantage of their services, cannot now dismiss them without some sense of self-reproach, nor without some discredit in the estimation of all right-feeling persons.

There are two other alterations in the construction of the Society, which we deem essential to its future success: having noticed that three at least, if not more, of the Members of Council named in the Charter were practical Horticulturists, we consider it expedient that the same principle should still be our guide, and that one-third of the whole number should consist of such persons, as the most competent judges of the condition of the Garden, and most likely to take a professional interest in its proper management, one being always included in the annual change directed by the Charter. Provided always that, while in office, no Member of the Council shall be allowed to take advantage of the position, in obtaining plants for themselves without a recorded permission from the Council. The other alteration, which we recommend on the same grounds, will be much facilitated by the adoption of this Rule. At present the Garden Committee consists of five Members of the Society, besides three of its Officers. We consider that those three ought to be practical Horticulturists, and on the Council.

With respect to the increase of income, it is obvious that one mode of increasing it is by diminishing expenditure; but your Committee have looked minutely into the details, and are of opinion that the Council has already reduced it as low as the circumstances of the Garden will permit. There is one point, however, to which they wish to call the attention of the Council: while they quite approve of a liberal distribution of grafts and cuttings and seeds, and plants introduced by the Society, they do not approve of an unprofitable waste of time and labour, and house-room and expense, in the wholesale propagation of common things for the benefit of a few Fellows, who might easily obtain the same things at a trifling cost elsewhere. A revision of the rules in this department would be very serviceable. The income deriyed from the sale of fruits might be increased.

Doubtless something might be gained by discontinuing all publications; but it would ill become a Horticultural Society to refuse to disseminate horticultural knowledge through the land, and it would be a great hardship upon those distant Members, who, being only occasionally resident in London, derive little other benefit from their subscriptions, except a few seeds and cuttings. The recent experience of the Exhibitions at Chiswick has filled the minds of timid people with misgivings, which, after all, may be unfounded, and if, in future years, they are confined to two, one in June and one in July, and the tickets if not used in the Garden are understood to give admission to the Exhibition in Regent Street, there is reason to hope that they may at least be self-supporting, notwithstanding the expense which must necessarily be incurred by a wise liberality in encouraging exhibitors to encounter the risk, expense, and inconvenience of sending their plants for exhibition. The untoward circumstances which operated so disastrously upon the finances of the Society the last two years may be looked upon as an unhappy accident which may never occur again. With such means and appliances as the Society possesses in its Garden for exhibitions of unsurpassable excellence, why should the Society despair? The season cannot always be unpropitious; brighter days may yet be in store for the Society. So long as the Society is solvent, some risk should surely be incurred to secure the continuance of a reunion which contributes so much to the happiness of so many families; we venture, therefore, to exhort the Fellows not to be faint-hearted, but to trust to such a reinforcement of their numbers, by increasing the popularity and celebrity of the Society, as may carry it through all its difficulties in triumph. We would advise that Monthly Meetings should be held at Regent Street, as heretofore, at which prizes should be given for any articles of vegetables, fruit, and flowers of great merit or novelty. The basis of this increased popularity is to be found in the sixteenth and seventeenth resolutions of the Council, but the Committee suggest some important alterations therein. It is proposed, therefore, to admit two classes of subscribers, one paying four guineas, as at present, who shall not only enjoy the exclusive privilege of sharing in the distributions from the Garden, but shall be entitled to a transferrable ivory ticket, which shall admit the holder to all the Exhibitions, to the use of the Library, and to all Meetings in the Society's rooms; the second class would consist of two-guinea subscribers, paying an admission fee of only one guinea, and entitled to free admission to all Exhibitions and Meetings, and to all the other privileges of Fellows, except the ivory ticket and a share in the distribution of seeds and plants, &c. It is not proposed to interfere with the Life-Members and early Subscribers, who will be left on the same footing as heretofore; but that the present four-guinea Members may not have cause to complain, we propose to give them the option of either continuing with the same privileges as heretofore, with the addition of the transferrable ivory ticket, or of dividing their present four-guinea subscription into two two-guinea subscriptions, thereby remaining themselves, and bringing in some member of their immediate family, as a two-guinea subscriber without payment of fees. Of course, the Subscribers so dividing their present four-guinea subscription would hereafter enjoy only the same privileges as the new two-guinea subscribers. All payments should be due on the day of election, and annually on the first of May, being paid in advance, as is the usage in other societies.

Lastly: since there are some heavy subscriptions remaining unpaid, and it is most essential to ascertain how far we can rely upon the assistance of the existing Fellows in carrying out the proposed experiments, it is highly desirable that a letter should be sent by the Council to every Fellow, the object of which would be, not only to obtain the most important assurance of continued support—at least, for a year or two—but to remind them, also, of their privileges, by reciting them, with which some are very imperfectly acquainted, and at the same time to test their feeling, and, through them, the feeling of the public, with respect to the value of those privileges respectively, so that the Council may be able to judge what those are with which it would be undesirable to interfere.

As one means of lessening the expenditure of the coming year, Dr. Lindley has given a noble example of self-denial, by voluntarily offering to give up his salary of 500*l.* for one year, while this* experiment to revive the Society is in progress, without withdrawing his valuable assistance. He made the same handsome offer in a letter to the Council, dated 18th July, 1854.

It is the earnest wish of some of the best friends of the Society, that a subscription should be raised to pay off the loans, which bear an interest of 6 per cent., to the amount of 2,400*l.*

Considerable donations have been promised, in the hope of extricating the Society from its difficulties.

S. HOLMES GODSON, Chairman.

A long discussion succeeded the reading of this document, the several speakers remarking that the Committee had failed to point out in what way funds were to be raised for the immediate purpose of carrying out the plans they recommended. It was therefore contended that the report could not be adopted until it had been submitted to the Council, in whom is legally vested the entire management of the corporate affairs, and who had had no opportunity of considering it, the report having been delivered to them only half an hour before the chair was taken. This course having been objected to, it was moved by Colonel Challoner, seconded by Mr. Gadesden, "That the report of the Committee appointed on the 5th of February last now presented be referred to the Council, with a request that the Council do report to a future meeting on the practicability and advisability of adopting the recommendations of the Committee, or any part of them." Upon a show of hands the noble chairman declared the motion carried, by Ayes 24 to Noes 11. We believe about 30 Fellows abstained from voting. It was then settled that the meeting should adjourn till Monday, March 31, at one o'clock.

Notices of Books.

Domestic Scenes in Russia, (small 8vo., Murray,) is a republication of very interesting letters describing country life in Russia, by the Rev. R. L. Venables. Recent events have rendered the work more than ever acceptable to readers, and it always enjoyed much reputation as a faithful account of what few are likely to see. One extract will illustrate the author's style.

"In almost every house some female art is carried on, useful or ornamental; and the women are employed in spinning, weaving, knitting, carpet-making, &c.; for the raw material in Russia is worth little, and the manufactured article alone is valuable in the market.

"The ladies of England, however, 'who live at home at ease,' little know the disagreeable and troublesome duties of inspection and correction which thus devolve upon the mistress of a family in Russia, from all the various branches of domestic industry which she is obliged to superintend. The discipline of the estate and of the household is maintained by means of the lash, from which neither sex is exempt. The frequency and severity of its use depends on the character of the master or mistress, many of whom, like those among whom I have lived, voluntarily limit the application of this punishment to male offenders, and always resort to it with great reluctance. The system, however, is revolting in itself, and it necessarily opens the door to frequent scenes of gross oppression and cruelty, where, as sometimes happens, the power is vested in hands nearly as rude as those of the serf himself. All owners of serfs are *noble*, but the law cannot make them all *gentle*.

"The following anecdote, which I am assured is true, will illustrate the results of serfdom, while it will remind you of my remarks in a former letter on the Russian system of military rank, as furnishing the universal rule of precedence. Among the serfs owned by a widow lady was a girl, who had been brought up with unusual indulgence in the household, receiving a superior education, and acquiring manners far beyond those of her class; to which advantages was added the natural gift of an attractive person. At a proper age she was apprenticed at Petersburgh to a French dressmaker or milliner; and having attained to some skill in the business, she was after a time offered profitable employment. This her mistress permitted her to accept, on the usual payment of an *obrok* to herself in lieu of personal service. The girl conducted herself well in her situation, acquiring a knowledge of French, and forming habits of some refinement. Here she attracted the notice of an officer of the rank of colonel, who in due time proved his attachment by offering her marriage. The girl accepted his proposal, and nothing remained but to obtain her freedom from her mistress, the consideration for which—or in plain words the purchase-money—the colonel was eager to pay. This ought to have been regulated by the *obrok* which the girl had paid, calculated at so many years' purchase. The lover, however, was not inclined to dispute the price the lady might demand, but on applying to her, and unfortunately explaining the state of affairs, he received for answer that on no terms whatever would she emancipate her slave. Every effort was used to shake the resolution, which appeared unaccountable; but argument, entreaty, and money were alike unavailing, and the lady remained inexorable; giving in the end the clue to her obstinacy by observing that she would never see her serf take precedence of her, as she would do if married to a colonel, while she was herself but the widow of a major. The match was necessarily broken off, and the girl's prospect of happiness destroyed. To complete her misery, her mistress revoked her leave of absence, and ordered her immediately to return to her native village; an order which the system of passports and police rendered it impossible to resist or evade. Arrived in the village, the unhappy girl accustomed to the habits and comforts of civilised life was clothed in the coarse garments of an ordinary peasant, and was moreover ordered forthwith to marry a rough-bearded *moujik*, or common country labourer. Revolting at this tyranny, and refusing to obey, she was flogged, and, though she still resisted for awhile, a long continuance of cruel and degrading treatment conquered her in the end, and she was forced to submit to the miserable lot entailed upon her by the wretched jealousy of her remorseless mistress. The story of this barbarity was told me with an indignation as strong as could be felt among ourselves, but there was no redress for the sufferer. The mistress up to a certain point had the law on her side, and where she had not, as in the compulsory marriage, might overpowered right. That such a case should be possible sufficiently condemns the whole system of serfdom."

Typical Forms and Special ends in Creation, by Drs. M'Cosh and Dickie, (Edinburgh, Constable, 8vo., pp. 539), is an ingenious well written dissertation upon final causes—one of the best that has appeared since "*Ray's Wisdom of God in the Creation*," now obsolete. Such a work requires a more critical examination than we can at present give it. We can therefore only recommend it to the attentive perusal of the careful reader. We shall take an early opportunity of adverting to some of the views advocated by the learned authors, especially to that of Dr. M'Cosh, who finds a correspondence between trees and leaves in several respects, one of which is that a stalkless leaf indicates a trunk naturally branched from the ground, and a long stalked leaf the contrary. Dr. M'Cosh goes so far as to believe that this speculation is confirmed by the manner of growth of the English Oak tree, whose leaves have no stalks. That is surely going very far.

Garden Memoranda.

MR. GLENDINNING'S, TURNHAM GREEN.—Perhaps the most interesting object at present in flower here is a new Camellia from China, discovered and sent home by Mr. Fortune. It is a carnation striped kind, very different however from any we have hitherto possessed inasmuch as the stripes, rosy pink, are much more brilliant than in any variety we now have of this class, and the general outline and form of the flowers are all that the most fastidious in such matters could desire. This therefore must be regarded as an acquisition of no mean importance. It may be mentioned that the plant which has flowered is half starved and nearly destitute of foliage; therefore the blooms, handsome as they now are, may be expected to be much more so when produced by healthy specimens.

On a front shelf in the same range of houses in which we noticed the Camellia were a dozen of as fine Chinese Primulas as perhaps ever graced a greenhouse stage. They consisted of double varieties, white and pink, covered with flowers, each plant measuring about 15 inches in height, and as much in diameter. The effect produced by such a row of specimens may therefore easily be conceived. Though comparatively common, what have we so valuable for conservatory decoration at this season of the year as this charming Primrose; and for bouquets, we need not state, it will furnish an inexhaustible supply. It therefore well repays every attention that may be bestowed on it, and it may be induced to keep blooming for weeks together. These specimens were, we understand, raised from cuttings struck in April last on a little bottom heat; they were kept growing and shifted on all through the summer, till at last they were moved into 11-inch pots, in which they have been flowered.

Young Chusan Palms we observed here in abundance. The few introduced in the first instance by Mr. Fortune made this plant dear and unobtainable, but now that it has been raised so plentifully from seed by Mr. Glendinning, its price has become comparatively so moderate that we may soon expect to meet with it in every garden in the country. What species of Chamærops it is we believe is still uncertain; but its hardiness at Kew,† Bagshot, Osborne, and other places where it has been planted out is said to have been established. Here, then, we at last possess the means of varying our landscapes with one of the most peculiar forms of vegetation of the tropics, and Palm trees growing in the open air in England may even be expected to be a matter that will excite little surprise. By the way, we may observe that in our advertising

* There is evidently some misconception here on the part of the Committee. Dr. Lindley could not have undertaken to support THIS or any other particular experiment, because he did not know what experiment would be proposed at the time when he made the offer alluded to.

† We regret to say that the specimen in the Garden of the Horticultural Society, planted in a low cold clay bank overshadowed by trees and exposed to the North, is now dead.

columns last week the name was accidentally misprinted Chunan Palm, and its price set down at 2*s* a plant. We need scarcely state that it should have been Chusan Palm, and the price instead of 2*s*. should have been 21*s*. each.

Another plant from which much is expected is Abies Kæmpferi. Of this Mr. Glendinning has some thousands raised from seed, and also a number of young plants dug up in woods in China by Mr. Fortune, and sent home in Wardian cases, in which they arrived safely, and are all doing well. This fine Conifer is said to have been found in the central, northern, and eastern provinces of China, and is stated by Mr. Fortune to be a very beautiful tree, and no doubt perfectly hardy. As a good account of it will be found in our volume for 1854, p. 255, and a representation of its cone at p. 455 of the same volume, little needs to be said respecting it here. The plants in their present state look exactly like so many young Larches.

Of other Coniferous trees both rare and common Mr. Glendinning has a good collection. In a houseful of them in pots we remarked charming specimens of the handsome Libocedrus chilensis, Dacrydium Franklini—the famous Huon Pine, Pinus parviflora, Bungeana and Padufia, Picea Nordmanniana, grafted on the Silver Fir, a stock which apparently suits it perfectly, as the union of the top with the stock in this instance was so complete as to be scarcely perceptible. In the same house were also Thujopsis borealis, a singular dwarf Juniper called echiniformis, and other interesting plants. Out-of-doors we noticed an extremely handsome Picea Nordmanniana, 3 feet in height, and as much through. This had been raised from seed.

Among new plants were the Primrose-leaved Campanula, the Green Dye plant of China, and other novelties, of which little is at present known.

The general stock under glass is in excellent condition, more especially a span-roofed house full of Heaths, both specimens fit for exhibition and smaller plants, all in the best of health, and many such as Westcotti and other winter kinds in blossom. In this house were also admirable specimens of Araucaria Bidwilli and Cunninghami, as well as of Cupressus funebris. The latter were nearly five feet in height.

In a lean-to house put up a year or two ago were some thriving young Vine plants, for which this nursery is celebrated. This house is warmed by hot water, and also by dung linings, and the young plants are started on a tan bed. Under such circumstances need it be wondered at that excellent results are obtained? On the back wall are permanent Vines of all the best sorts, from which the eyes to be propagated are got, and therefore the sorts may be relied on as being true to their kinds.

Several acres of new ground have lately been added to this nursery chiefly for growing fruit trees on, a purpose for which, being a good loam well trenched, it seems well adapted. On this we remarked some excellent pyramidal Pear trees, both on Quince and Pear stocks. On either side of a long straight walk lately made here have been planted all the more ornamental kinds of Conifers, and also some excellent standard Portugal Laurels, of which there is here a capital stock. Small Orchard-house trees for the forthcoming season have been potted. Of last year's supply few have been left, which would seem to indicate that the demand for these dwarf trees is on the increase. Orchard-houses are now being erected everywhere; we understand that they are even pushing their way into the far north of Scotland.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now is the time to set about ascertaining whether or not there is a sufficient quantity of plants for the decoration of the conservatory during the summer and autumn. If this is attended to at once very much may yet be done towards making good any deficiencies which may happen to be discovered, for it is not yet too late to provide multitudes of showy plants for blooming early in autumn. Young plants of Allamandas, Clerodendrons, Torenias, &c., and many other things if encouraged with a brisk bottom-heat and other favourable circumstances will form nice-sized specimens in a few months; and large masses of Statices, than which few plants are more useful, will, under kind treatment, be obtained in a short time. The old Cassia corymbosa is a useful plant, and should not be overlooked where better things are scarce, as it grows rapidly and produces a long succession of bright yellow flowers. Those, also, who possess Impatiens Jerdoniæ should encourage it by every possible means to make wood and propagate it as quickly and freely as possible, for it is just the plant that is wanted for autumn decoration. Then there are quantities of useful things which may be raised from seeds, as Thunbergias, Ipomœas, Cockscombs, Globe Amaranths, Balsams, Lobelias, &c., and cuttings of Fuchsias made of young wood will root in warm sand in little more than a week, and may be grown into nice-sized specimens by July. The pretty dwarf variety of Heliotropium Voltaireanum, although too delicate for the flower garden, will be found useful for blooming under glass where sweet-scented flowers are in request. In fact, where the stock in hand is deficient not a day should be lost in making every possible effort to provide considerably more than is likely to be wanted, so as to be prepared against any accident or extra demand should such occur. Push on Camellias that have fairly started their buds with a warm moist atmosphere and plenty of weak manure water. Also get a portion of the Epacrises into a gentle heat as soon as they have sufficiently recruited their energies after flowering. By starting them into growth about this time and getting their wood ripened early they will be in full blossom in November, at which season their flowers retain their beauty much longer than after the sun becomes powerful in spring. Proceed as diligently as possible with the repotting of such of the hard-wooded greenhouse plants as require it so as to afford them every chance to make a vigorous growth. Be careful however before potting to have the ball in a nice moist state, and avoid giving large shifts to weakly growers.

FORCING DEPARTMENT.

PINERIES.—Attend carefully to the bottom heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is exceedingly apt to do after fresh materials have been added, either during bright weather, or where there are pipes under the bed. Where much fire heat is used it requires some practice and attention to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast until we may be favoured with more sunshine, when if all is right at the roots there will be no danger of drawing the plants, as would be the case in the present state of the weather. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom with the syringe. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up a regular succession of plants, which is the surest way of providing for a succession of fruit. VINERIES.—See that the houses in which the Vines are not yet started are properly cleaned, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary in the succession houses, and see that the inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of this to Vines in pots.

FLOWER GARDEN AND SHRUBBERIES.

Sweep and clean lawns and give them a double rolling with a heavy roller in order to make the turf smooth and solid. This is sometimes put off until dry weather sets in, after which the roller makes comparatively little impression, whereas, if done now, the lawn will be greatly consolidated and improved for the season. If any alterations or planting still remain unfinished every available hand should be concentrated on this work so as to get it completed as soon as possible. Planting done after this time will require much attention in watering, and this at the very busiest season of the year, especially if large plants are removed, and it is too common a practice to put off such work to the last. Look over beds planted with bulbs, and where necessary stir the surface soil so as to keep it open and friable, and also to give it a fresh appearance. If the stock of bedding plants is still deficient get in cuttings in the most favourable position without loss of time. See to the propagation of Dahlias and Hollyhocks; the latter have of late years become so much improved that many consider them superior to the Dahlia in the effect which they produce when planted skilfully, and therefore especial attention should be paid to having a good supply of them. Cuttings slipped off the old plants with a heel, planted in very sandy soil, and afforded a gentle bottom heat, keeping the leaves as cool as possible, will be found to root perhaps more freely at this than at any other season. Get Calceolarias hardened off by removing them to a cold frame, and exposing them freely to air preparatory to planting them in turf pits to make room under glass for more tender things.

HARDY FRUIT AND KITCHEN GARDEN.

Cauliflowers and Lettuces that have been wintered under glass may soon be planted out, selecting a sheltered deep rich piece of ground. It is a very good practice in planting-out things that are at all tender at this uncertain season to throw up the ground in good strong ridges running east and west, planting on the south side of the ridge. The plants are thus sheltered from the north winds and fully exposed to the sun. Peas, &c., that have been raised under glass, if properly inured to the weather, should be planted out at once, giving them the most favourable situation at command, and it is a very good practice to shelter them for some time after planting out, by placing some branches of Spruce Fir, or any other suitable evergreen along the rows so as to break the wind, &c. Take advantage of dry days to stir the surface of the ground among growing crops, and to prevent weeds from making their appearance.

COTTAGER'S GARDEN.

Follow up sowing the necessary crops, as in the kitchen garden portion of the Calendar, Carrots and Onions on trenched ground, the manure in the bottom. Sow a little Celery on a warm slope; throw small sifted ashes over the surface to prevent the depredations of slugs, and cover up with a little litter. Celery seed must be kept constantly damp, and the bed should be very rich. Grafting, if any, should be finished off hand. Potato planting should be proceeded with, both with the early kinds and the late, although it has been too much the practice to set the late crops in May and even June, the consequence of which is that the "seed" is never ripened as it ought to be, and this circumstance (coupled with fermentation in bags or pits) is at the bottom of much of that tenderness of constitution that renders the plants a prey to disease. The cottager should sow a few hardy annual seeds directly, plant out his Carnation layers, finish planting the Ranunculus, and attend to his flower beds if any generally.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending March 13, 1856, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 7	1	30.350	30.230	44	21	32.5	42	43½	N.E.	.00
Satur. 8	2	30.341	30.297	52	26	39.0	43	42	S.E.	.00
Sunday 9	3	30.232	30.131	51	25	38.0	43	44	W.	.00
Mon. 10	4	30.120	30.079	51	35	43.0	43	44	N.	.00
Tues. 11	5	30.080	29.983	44	19	31.5	43	43	E.	.00
Wed. 12	6	30.005	29.944	43	31	37.0	42½	42½	N.E.	.00
Thurs. 13	}	30.070	29.988	42	31	36.5	42	42	E.	.60
Average		30.171	30.093	46.7	26.8	36.8	42.6	43.1		.06

March 7—Overcast; cloudy and cold; frosty at night.
— 8—Frosty and foggy; fine; slight frost.
— 9—Fine; overcast; cloudy at night.
— 10—Foggy; fine; cloudy.
— 11—Foggy; hazy; sharp frost at night.
— 12—Clear and frosty; cold and dry; cloudy and windy.
— 13—Brisk wind; very cold, and excessively dry air.

Mean temperature of the week 4½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending March 22, 1856.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16	51.3	34.5	42.9	11	0.26 in.	—	8	4	—	4	8	4	2
Mon. 17	49.7	33.0	41.4	13	0.36	4	6	3	—	3	6	5	3
Tues. 18	49.6	33.2	41.4	7	0.19	3	8	1	1	2	5	8	2
Wed. 19	50.6	33.2	41.9	9	0.33	3	3	6	—	2	9	5	2
Thurs 20	51.7	34.0	42.8	11	0.36	1	3	4	2	—	11	3	6
Friday 21	51.5	34.3	42.9	14	0.21	6	3	1	3	4	6	5	2
Satur 22	50.6	35.9	43.2	15	0.34	5	3	3	2	6	6	4	1

The highest temperature during the above period occurred on the 19th and 20th, 1846—therm. 69 deg.; and the lowest on the 17th and 20th, 1845—therm. 16 deg.

Notices to Correspondents.

A HOUSEKEEPER WHO IS A TERROR TO ALL THE SERVANTS ABOUT THE PLACE: *A Gardener in the North.* Very sorry to hear that the good woman is such a termagant; but what advice can we give you, except to appeal to your master, if you cannot do otherwise? Whatever else you may do avoid going to law. You will be beaten and laughed at into the bargain.

ANTS: *Juvenis.* They are pests in Glass houses, and you had better get rid of them. If you burn sulphur you will kill your plants. If you mix it with whitewash and paint with it your flues or pipes you will do no harm but will drive away the red spider, if it is troublesome.

DAPHNE MEZEREUM AUTUMNALE: *Spring Gardens.* It may be increased either by means of cuttings or by grafting it on the common Mezereum. ‡

GRASS SEEDS: *A Five Years' Subscriber.* It is impossible to answer your inquiry without further information. Is your Grass mowed as a lawn, or allowed to grow roughly? What is your soil? Under what trees does it refuse to grow? Such points are in need of full explanation before any advice worth having can be given. We do not see Camomile in the trade lists. It forms an excellent turf mixed with other plants on heavy clay provided it is kept close down. The wild plant produces its seeds. You would, however, find it most convenient to introduce it in the turves employed for laying down fine lawns.

GREENHOUSES: *Limerick.* Flues are cheaper than hot water, but not so easily managed. The place is too large for a stove. You had better plant Black Hamburgh and Black Prince, White Sweetwater and Royal Muscadine Vines. You must carry your pipes one above the other round the house, as near the outside walls as you can conveniently get them.

GYNERIUM ARGENTEUM: *P.* This noble Grass has been fully described in our Volume for 1854, p. 708. Sow the seeds directly, with little or no covering, in pans or pots, well drained and filled with a mixture of light sandy loam and peat in equal parts, and keep the soil rather dry after sowing for a few days; then water freely. Place the pans or pots in a warm frame or pit, until the young plants are fairly up, afterwards place them in a cooler and more exposed situation, in a pit or greenhouse; but not in a drying situation. When the plants are large enough, pot them singly in small pots, giving a liberal supply of water afterwards, at all times; in no case whatever must the young plants be allowed to get dry at the roots, from the time they first vegetate until they have been planted out.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*A B.* It is a pale variety of Zygopetalon Mackaii.

MEALY BUG: *E P N.* The only mode of getting rid of this pest is continual brushing, sponging, and washing with a mixture of tobacco water and soft soap. Plant Nymphæa Devoniana now. Croggon's Felt, which has been often advertised, will probably answer your purpose.‡

VINE MILDEW: *Amateur.* Nothing has been found so good as sulphur applied *the moment the mildew appears.* Grison's mixture undiluted would, we fear, be too strong, and might injure the Vines. If you try it it should be on a small scale at first, and merely as an experiment ‡

VINES: *A Sub.* The holes should be under the rafters, and ought to be altered. It is not quite impossible to make shift with your present arrangement because you can make each Vine form two rods, and lead them right and left to the rafters. Keep your Vines on the rafters leading the laterals under the sashes, but do not form a permanent trellis of branches under the lights, because, if you do, the inside of the house will be inapplicable to any useful purpose.—*Sub.* It is impossible to say with certainty what ails them without more information as to the circumstances under which they have been grown than what you have furnished. Hard forcing with too dry a heat, currents of cold air, or borders in bad condition might all or any of them cause the young and tender bunches to curl up into knots and become blind. Of these, however, cold currents are most likely to have caused the evil.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE LONDON MANURE COMPANY have the following ready for immediate delivery:—
CORN MANURES.
CONCENTRATED URATE, for Roots, Grasses, &c.
NITRO-PHOSPHATE, or BLOOD MANURE.
SUPERPHOSPHATE of LIME.
PERUVIAN GUANO direct from importers' warehouses, Nitrate of Soda, Sulphate of Ammonia, and every artificial Manure of known value.
40, Bridge Street, Blackfriars. E. PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

MANURES.—On Sale, NITRO-BI-PHOSPHATE, or BLOOD MANURE, SUPER-PHOSPHATE OF LIME, GUANO, BONE-DUST AND HALF-INCH, GYPSUM, SULPHURIC ACID, SALT, and all other MANURES of known value. Sole Agents for the Peat Charcoal Company.—Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—
SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.
SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.
N.B. Manures specially prepared for Grass and Flax.
The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

THE CONSERVATIVE LAND SOCIETY.—
Trustees:—
The Lord Viscount Ranelagh. | Right Hon. R. Christopher N. Hon. Colonel Lowther, M.P. | Hamilton, M.P.
J. C. Cobbold, Esq., M.P.
The Fourteenth Quarterly Meeting will be held at Exeter Hall, on Thursday, March 27, at Three o'clock, Viscount Ranelagh in the Chair, when 100 Rights of Choice will be drawn, and 50 added by seniority. Shares taken up to the time of the Drawing will be included in the advantages thereof, and Shares drawn may have the Right of Choice on the following valuable estates, to be allotted on Thursday, April 3, 1856, viz.:—1, Maldon, South Essex; 2, St. Catherine's Close, Lincoln, North Lincolnshire; 3, Round Hill Park Estate (third portion), Brighton, East Sussex; 4, Brockley Hill Park Estate (reserved lots), Forest Hill, West Kent. For Prospectuses, Shares, Plans of Estates, &c, apply to CHARLES LEWIS GRUNEISEN, Secretary.
33, Norfolk Street, Strand, London.

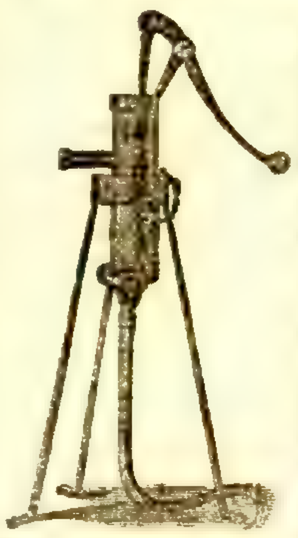
THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

WARNER'S IMPROVED LIQUID MANURE, OR GENERAL PORTABLE PUMP.



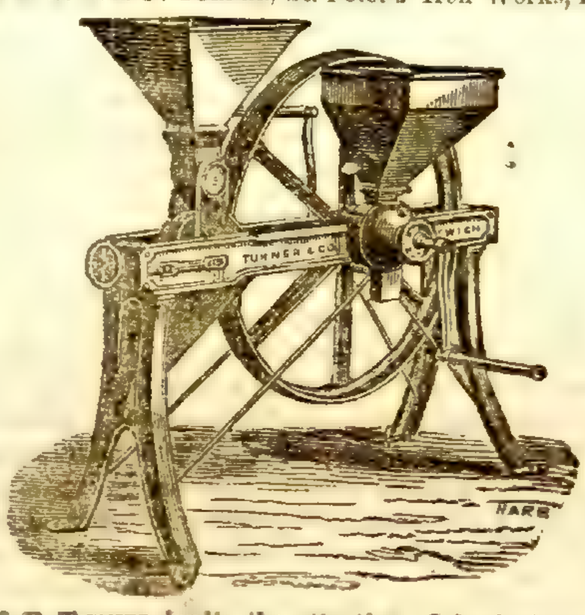
The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
AT THE NORWICH, GLOUCESTER, LINCOLN, and CARLISLE SHOWS,
The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—
ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.
PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l.*
CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.
OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*
FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.
Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.
Illustrated Price Lists sent free on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, fo preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

IRON FENCE, HURDLES, ETC.
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.
T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures.
Catalogues, containing prices and every particular, free by post.
Warehouse, 42, Ludgate Hill, London.

CUPISS'S CONSTITUTION HORSE BALLS.—To Sportsmen, Agriculturists, Postmasters, and all Proprietors of Horses, these Balls are particularly recommended in all cases of swelled legs, cracked heels, loss of appetite, and vital energy; for Coughs, Colds, Fever or Inflammation, they are the best Medicine that can be exhibited, moreover their operation, though effectual, is so mild, that they require no alteration of diet, and if given with a bran mash on Saturday night, will not interfere with the ensuing week's regular work.
NEAT CATTLE.—The Constitution Balls are strongly recommended by many highly respectable Gentlemen (see Testimonials) for Cows and Oxen as a most valuable medicine in cases of Hove or Blown, Scouring or turning out to Grass, or from bad food, Gargate, Hide Bound, Loss of Appetite, Staring Coat, Distemper, Epidemic, or Influenza. Bullocks fat much faster by occasionally giving a Ball.
Prepared only by FRANCIS CUPISS, M.R.V.C.S., author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and Treatment of the Horse whilst taking them. Also a Pamphlet of testimonials from many Gentlemen who have used the Balls in various Complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

LONG'S NON-POISONOUS SHEEP AND LAMB DRESSINGS.—These important Sheep Dressings have already been the means of producing the finest Hogget Fleeces that have ever been seen in the United Kingdom. Specimens were exhibited at the principal Agricultural Meetings of last season, showing an increased Growth of Wool equal to 25 to 30 per Cent. Further specimens even of a more extraordinary character are preparing for exhibition at the different Meetings of 1856.
BARRY BROTHERS, Sole Agents for the Introduction of Long's Non-Poisonous Sheep and Cattle Dressing Compositions throughout the United Kingdom, and for Shipment. Meriton's Wharf and Shad Thames, London.
Appointed Agents in all principal Towns, of whom Catalogues with Testimonials can be obtained; or from above.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
PROFESSORS, &C.
Chemistry—J. A. C. Voelcker, Ph. D., F.C.S.
Zoology, Geology, and Botany—Jas Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—F. Armstrong, C.E.
Manager of Farm—G. Austin.
Students are admitted after the Summer and Winter Vacation; also in April and October. The annual fees for boarders vary from 55 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

The Agricultural Gazette.
SATURDAY, MARCH 15, 1856.

THE following letter, descriptive of an uncultivated soil, has reached us from a correspondent:—

"I have a park of friable land of which the component parts, per analysis, are as follows:—

Silica	81.60
Iron and aluminum	3.20
Carbonate of lime	8.71
Carbonate of magnesia	0.31
Moisture	6.40
	100.22

"What would, in your opinion, be the best class of manures to begin applying to bring such land into cultivation? As large quantities of land somewhat similar in character exist, I think it would be a subject of much interest to landlords if the subject of soils was fully discussed; each proprietor could apply the arguments to his own case, subject to

such particular alterations as the analysis of his own soil suggested."

The analysis is neither sufficiently full nor sufficiently explicit. There are, we doubt not, other things present besides those named — quantities which, though mere traces in 100 grains, would in the quantity traversed by the roots of a single plant be large enough to exercise a very material influence on its growth.

If there be any vegetable covering at all at present, the soil contains the alkalies potash and soda—it also probably contains some quantity, however small, of phosphoric acid; vegetable matter exists in it to some extent; and perhaps ammonia, if a sufficient weight had been examined, might have been detected. The quantity of these things which is present is precisely the point one wants to know by which to guide an answer to the question put. It should be remembered that it does not need a thick or heavy covering of soil to make 1000 tons per acre, and the very slight indications which the chemist here has neglected to observe may correspond to such a dressing of bone-dust or of guano as not even Mr. Telfer or Mr. Mechi ever yet applied. How much less, then, is such an analysis fitted to indicate the deficiencies which might lead one to advise the application of a few cwts. only of one manure or the other.

We may add here that we gather from the published notice in the Journal of the English Agricultural Society that such an analysis as the above is made in their laboratory for 1*l.*; but the higher sum, 3*l.*, charged for "a complete analysis," is evidently much more than three times as valuable for any purpose of information or of guidance.

But the analysis quoted, as well as being imperfect, is not sufficiently explicit. It states that 81 per cent. are silica—but in what state is this silica? It may be almost undistinguishable mechanically from clay—that is, it may be so finely divided that a very small percentage of alumina may give the soil the character of a clay, or it may be so coarse grained that a much larger proportion of alumina would leave it still a sand; but upon the lightness or stiffness of a soil might depend advice as to the condition in which bone-dust, farm-yard dung, and many other fertilisers should be applied. It states that 3.2 per cent. are iron and aluminum, but one does not know from this whether the soil may not be a ferruginous and barren sand; it may be full of poisonous iron salts, or it may almost be a fertile loam. The entire absence of vegetable matter in the figures given strikes us as particularly noticeable, for the quantity put down as moisture would lead us to suppose organic matter would be present in very considerable degree. It is plain, then, that the analysis given is not sufficient to enable an answer to the question.

Our answer, however, is less dependent now upon such information as is so imperfectly given above than it would have been ten years ago. "Ten years ago," said Mr. Lawes last week, "it was thought that every description of soil would require special manures to suit them; it is no small addition to our stock of knowledge to have ascertained with certainty that when once we know the most suitable manure for any particular crop, it will be applicable for all soils. The farmer who leaves the light soil of Norfolk to cultivate the heavy clay of Warwickshire, requires no analysis of his soil to tell him that the same artificial manure which he used successfully to grow his Wheat on one soil will be equally applicable to the other. I would go further, and say that the same rule would hold good in any part of the world where Wheat is cultivated."

A perfect analysis of a soil would indeed enable one to manure more economically—but, after all, the true economy in manuring is to apply it as abundantly as the crop will take it up, and excess of fertilising matter is often economically applied.

We suppose, then, that the soil in question is a comparatively infertile sand, and in that case we should recommend to grow a crop of Rye or Mustard, using 2 cwt. of Peruvian guano as a dressing, and plough it in in autumn, work it well in spring, and with 2 cwt. of Peruvian guano and 3 cwt. of superphosphate, grow a crop of Turnips next summer and feed them off with sheep, giving them plenty of cake, and following that with Barley, seeds, &c., in the usual rotation for light soils.

It is possible, however—and the presence of lime would almost indicate as much—that we are wrong in supposing the land so light and sterile; and it may be possible by the addition of these "artificials," along with as much farm manure as can be spared, to grow a crop of Turnips at once. That of course will save a year in the process of improving it.

Reference is made in another column to the prices of manures based upon the testimony of the London Manure Company last year. We have now a report from them at the present date. The following particulars are almost wholly from them. As, however, it is of the manure market generally that we have to report, we may add that superphosphate varies in price on comparing the lists of different manufacturers, and from 6*l.* to 7*l.* for honest superphosphate is a more accurate quotation. The manure market varies but very little from week to week in its quotations, and it is therefore needless to give a weekly report. If a rise or fall should happen we shall intimate the fact in time.

The imports of guano during the last week have been 7650 tons, the whole of which is readily taken from ship's side, the demand being extremely brisk. The stock of nitrate of soda is small and holders firm. Superphosphate of lime and all manures of value are in active demand.

		£	s.	d.		£	s.	d.
Ammonio-phosphate ...	per ton	8	0	0	to	0	0	0
Blood manure	„	6	10	0	„	7	10	0
Bone dust	per qr.	1	4	0	„	1	5	0
Bones (½-inch)... ...	„	1	2	0	„	1	3	0
Brown vitriol	per lb.	0	0	0¾	„	0	0	0
Concentrated urate ...	per ton	7	10	0	„	0	0	0
Coprolites	„	3	10	0	„	4	0	0
Ditto and sulphuric acid	„	5	0	0	„	0	0	0
Fishery salt	„	1	15	0	„	2	0	0
London Manure Company's Corn Manure...	„	7	10	0	„	0	0	0
Gypsum	„	1	12	0	„	2	0	0
Nitrate of potash ...	„	25	0	0	„	32	0	0
Nitrate of soda... ...	„	19	0	0	„	20	0	0
Peruvian guano ...	„	11	5	0	„	11	10	0
Rape cake	„	6	10	0	„	7	0	0
Salt	„	1	1	0	„	1	6	0
Soda ash...	„	10	0	0	„	0	0	0
Soot	„	0	0	0	„	0	0	0
Superphosphate of lime	„	6	0	0	„	6	6	0
Sulphuric acid (concen.)	per lb.	0	0	1	„	0	0	0
Sulphate of ammonia ...	per cwt.	0	17	0	„	0	18	0

A very striking instance of the spurious character of some of the oilcakes now in the market is given in a recent number of our contemporary, the *North British Agriculturist.* High prices are of course a premium upon adulteration—just as low prices are upon that inferiority in quality produced by carelessness. A mixture of dust, earth, rubbish, is however very much less objectionable than one with the husks of other seeds, added quite as much for the additional bulk they give the cake as for their addition to the oil expressed. Such seeds, whether present unintentionally or added with a fraudulent intention, carry this further effect, that they are often poisonous. And so Mustard seed is sometimes complained of, and in the instance now alluded to the seeds of some Polygonum, a weed common in the north of Germany. A liability so serious, to which both ignorance and fraud subject the purchaser of oilcakes, should make him very wary of entering at once upon their use as food. They should be tried on a single head before the whole herd is fed, and their quality will then appear. In the case referred to by our contemporary, 90 cattle were affected by it. On the second day after feeding on the cake, Mr. M'Gregor of Invergordon, who relates the case, says:—"In November last I was called by express, and when I arrived I found upwards of 90 head of cattle, including feeders and year-olds, attacked with the most violent purging that ever I witnessed. On making inquiry, I found the whole were getting oilcake, and that this was the second day they were getting this same cake. The year-olds did not get above a pound a day of it, and the feeders not more than 4 lbs. They were getting oilcake previous to this, but not of the same parcel. A few hours after I arrived two of the feeding cattle died, and having made a *post mortem* examination of one of them, I found the most of the intestines inflamed, and coming to the conclusion that it was the cake given them that caused the violent purging and death, I sent the intestines of the other stot, and a sample of the cake given them, to Professor Dick, to be analysed."

Dr. Kemp, to whom the cake was sent for examination, writes:—"I tested nearly all the contents of the stomach and intestines for the usual common poisons, but no trace of any could be detected. I next ascertained that good oilcake should not contain the same number of these black seeds, if, indeed, it should contain any. They are the seeds of a plant belonging to the natural order Polygonaceæ, some members of which possess acrid properties that would account for the symptoms witnessed by Mr. M'Gregor during the life of the dead animal, and also of those similarly affected, but which recovered. The particular genus and species of the seeds found in the cake is, or at least almost certainly, the Polygonum lapathifolium, a seed that I believe infests ill-cultivated soil in Belgium and the north of Germany, where the cake in question was probably purchased."

THE POTATO CROP.

As the season for planting Potatoes is approaching, I thought I would give my experience of the way in which I have been most successful in planting them, as well as the sort to be planted (which, by the way, has a deal to do with it). I grew some acres last year on Wheat stubble without any dung, dug up in the winter and allowed to lie till the beginning of April, when I commenced planting them in the following manner (the ground I should say is a very strong clay subsoil, but has been well drained 3 feet 6 inches deep):—we use a tool called a Tubal, made in Devonshire, with which we make a drill as if for Peas, but about an inch deeper, the drills 2 feet apart, and then lay in the sets about 10 or 12 inches apart. After they are in draw in the drill on one side sufficient to cover the sets and leave the other side till the plant is up a fortnight; then draw in the other side, and this will be as good as hoeing. If, however, the ground is very foul, you must hoe again and heap them up if wanted. They will require nothing more done to them before they are ripe, save only the top dressing, which I sow broadcast about 3 weeks after they are up; 1½ cwt. guano, or not having this 2½ of superphosphate of lime will answer the purpose. Now, I have planted several sorts in this way—Regents, Kidneys, Early Oxford, and others, all of which succeeded very well, but none like the Early Oxford; they were ready to take up the latter end of July or beginning of August, quite soon enough for a crop of Turnips. The yield was remarkably good, more than 130 sacks to the acre, and the mode in which we get them up is as follows:—The Potatoes being planted near the surface, we have a tool like a dung fork, only turned down, with which a man can with ease get up 60 bushels a day, and being so near the surface there has not been half a bushel of diseased Potatoes to an acre. The Oxford Potato keeps so much better than any other and is best for all purposes. *Richard Webb, Calcot Farm, Reading, March* 6.

At page 164 you requested a few remarks respecting the Fluke Potato. There seem but two opinions respecting the quality of this Potato, and these seem candid: viz., "first rate," and "good for nothing." Many speak of it in such high terms as to pronounce it unequalled, while others condemn it as decidedly the worst Potato they ever grew. Now, when doctors differ who shall decide? By which party shall we be advised? I offer these remarks respecting this Potato in consequence of the divided opinion as to its merits. I have on several occasions heard people exclaim, "Somebody must be wrong, for one highly recommends while another condemns it." On several occasions I have witnessed different persons digging up their Flukes, and have frequently asked them their opinion, which may be summed up as follows: "Well, master," I would say, "are they good?" The reply would be: "Ah, good for the pigs! I will never plant another Fluke as long as I live." Another perhaps would be more favourable, and say: "They are the best croppers and boilers I ever saw in my life." On the other hand others would raise the following objections: "Too rank in the haulm; too much deformed;" or, as your correspondent observed—"not one-half came up that was planted." When the Fluke was so extensively advertised last season, it was recommended in the following high terms: "This fine variety is less liable to the disease than any other, is of excellent quality, large, and very productive." How has it sustained the high character thus given of it? It is certainly very productive, large, and pronounced by some unequalled in flavour. But has it escaped the disease more than any other variety? I must say, as an eye-witness, in some districts it has been diseased more than other varieties, while in others it has been less subject to it than many; I believe there are but few, if any, districts in which it has entirely escaped, but for this last point I consider that it merits the high character given to it last season. For the benefit of those who may again grow the Fluke (to which, by the way, I trust all will give another trial), I beg to say it should be borne in mind that last season was a very unfavourable one for the cultivation of the Potato, more especially on high soil. The dryness of the early part of the summer caused the tops to lose their vitality, in consequence of which the tubers commenced to ripen their skins before attaining half their full size, and when the season changed we had a long continuance of wet by which the newly-formed tubers were excited into growth and formed a second lot, which accounts for so many deformed Flukes. My opinion is that the Fluke, being naturally a coarse grower, should be planted on poor soil; when planted on rich manured land, the tubers become deformed, the haulm exceedingly coarse, the Potatoes in consequence get neither warmth to the tubers nor sun and air admitted through the haulm; the tubers do not get thoroughly ripened; the strength of the haulm keeps up the sap until so late in the season that the skin on the tubers merely gets set, and not properly matured; such Potatoes cannot be expected to boil like a ball of flour, or eat in flavour like a well-ripened variety. The Fluke, planted on poor soil, new broken upland or sandy land, will bring perfect tubers of moderate size; the haulm being of moderate strength dies down in sufficient time to ripen the tubers as they should be, while the quality is of the first class. The fault thus lies not in the Potato, but in the soil and cultivation. The grower of these pets no doubt selected his very best piece of land, and over-manured it in order to excel, by which means he overshot the mark, for while poor ground will grow Flukes of

the first quality, over-manured land would only grow them fit for pigs. There is as much difference in the constitution and the culture required in some varieties from others as the treatment required between a donkey and a race-horse. With respect to cutting the sets, I find they will bear cutting as well as most Kidney Potatoes. There were planted here last season 12 bushels, the greater part being cut sets, and every one was frozen as hard as a s one, and I believe not 30 sets failed in the batch: these were purchased of Mr. Holland, of Middleton, Lancashire. I have no doubt, there being so many complaints respecting this Potato coming up so badly, that many of them were dried in a kiln and got roasted too much, as the Potatoes appear to be perfectly sound—the eyes only seem to be affected, as if dried completely up. I have seen perches of land with not more than a score Potatoes above ground. I have no doubt all parties have spoken of the Fluke as they have found it; be persuaded, and grow it again on poor land, and you that have condemned it will next season sing its praises. *Edward Bennett, Gr. to Sir Offley Wakeman, Bart., Perdiswell Hall, Worcester, March* 10.

I cannot lay claim to the appellation "grower on a large scale" of Fluke Potatoes; but my mite of experience may be useful as far as it goes. I planted last year about an acre of ground, half with cut sets, half with uncut, side by side, and treated as to manuring and all other circumstances exactly alike. The result was, that so few of the cut sets vegetated, that I ploughed up the ground and sowed it with Turnips. The uncut sets produced a moderate crop, which were the soundest Potatoes we had last year. I ought to mention that our ground is a wet, stiff soil, not well suited for Potatoes, of which we grow but a small quantity for home use. We had but a moderate crop with much disease last year. *A Cheshire Subscriber.*

THE WHEAT GRUB.

SINCE I wrote to you last week I have received several communications on the subject of the destruction of the young Wheat crop by insects. "R. F. W." from Southam has forwarded some Wheat plants infested by the larvæ of the supposed Oscinis vastator, but having been pulled up without any earth left at the roots, and then sent by post in a letter, they are crushed and dried up, so that I cannot hope to succeed in rearing any of the larvæ to the perfect state. A few plants with a little mould packed in a small tin box would answer my purpose well. "R. F. W." says that for several years past he has found the maggot far more destructive of the young Wheat than the wireworm, which may be easily accounted for, because the parent fly deposits its eggs upon the young plant as soon as it appears above ground; whereas the wireworm, being at large in the ground, only by chance happens to come upon the young plants in burrowing through the ground. "R. F. W." further says that this maggot is found more or less in the Wheat after Clover and Rye-grass, which I cannot account for by any peculiarity in the insect's habits, for it is not to be supposed that the larvæ feed on the stems of the young Clover, although they may do so on the Rye. "R. F. W." adds, that he always finds the Wheat which has been eaten by these maggots in February and March suffer from the wireworm in April. There is, however, no other natural connection between the two insects than that arising from both being fond of the young shoots of cereals. "R. F. W." lastly observes that the only check which he has found is the clod-crusher, and as the body of the maggot is very soft and fleshy this seems a reasonable mode of extirpation.

From other quarters I have received specimens of infested Wheat, which prove that several other kinds of insects are engaged in the work of destruction of the Wheat plant. In the neighbourhood of Brighton the Wheat grounds seem to be extensively infested with the young larvæ of the Tipulæ, of which I should be very glad of specimens, sent as above mentioned, in order to determine the history and identify the species. In other parts of the country the little grub described by Mr. Markwicke in the Linnean Transactions as biting off the young plants below the surface, in the same way as the wireworm, has reappeared, and I have now specimens alive and trust I shall be able to trace the species to the final state; Mr. Curtis considering it to be a species of Carabidæ; I, on the contrary, believe it to be a Rove beetle (one of the Staphylinidæ), as I find it to be identical with the larva figured in my Introduction to the Modern Classification of Insects, vol. i., fig. 16, No. 10, and which I discovered more than 20 years ago gnawing the young Turnips in the early spring. I find also in the mould of infested plants specimens of a Snake millepede, and also of a very small and slender white worm, like a young Filaria. *J. O. Westwood, Hammersmith, March* 13.

Home Correspondence.

Meadow Land Farming.—Can it be ascertained with accuracy what is the produce of and expenditure upon meadow land of good quality, say in Middlesex, where the supply of hay to the London market makes meadow land, producing hay, valuable? I think this is an interesting and useful subject of inquiry, and as one of your readers I shall feel obliged if you can assist in procuring information which can be relied on. I should be glad to learn the quantity of hay produced per acre, and let it be stated in cwts., so as to be understood by all persons—whether familiar with loads or trusses, or other measures of quantity, which are local terms. Let it also be stated whether one or two crops of hay are taken in the season, and if two, the proportional quantity and value of each. Let the kind, quantity, and money value of the manure applied to the land be stated, and whether applied annually or biennially. Let the manure and all other expenditure be charged against the meadow, per acre, and let the money value of the hay be stated to its credit, and a balance struck. I think this information will be useful in reference to the actual value of land managed in this manner, and the possibility of increased value being given to meadow land by any other mode of treatment. It is to be hoped that accurate details can readily be had. I do not doubt you will willingly lend your assistance. The information will be thankfully received. *A Grass Farmer, March* 10.

Chivas' Orange Jelly Turnip.—During the spring of 1855 your Paper was more than once speaking in praise of Chivas' Orange Jelly Turnip as being the most nutritious, and resisting the frost better even than the Swede. From the representations of your correspondents I was induced to sow an acre of them, and most heartily do I regret it, as every Turnip was utterly destroyed by the first hard frost, worse even than the common white or red. I have been hoping to see that others have tried it, and what the result in their case has been. *J. D. H.*. [In the last notice of this Turnip we expressly referred to the very contradictory reports given of it.]

Seeds.—I have been very much pleased by the perusal of your article in the *Chronicle* with respect to seeds, and it has shown me the reason why it is recommended by some to sow so much seed per acre. In this part of Somerset (West) we never sow more than 1 lb. per acre, whilst in a catalogue before me it is said that of Swedes 2 lbs. or 3 lbs. is required for an acre; of Early Large Turnip 2 lbs. to 3 lbs.; and of Stubble Turnip, 4 lbs. Whilst in my opinion ¼ lb. of new Turnip seed would be sufficient if we could manage to drill or sow it even. With respect to trying seeds I find the best way is to wet my finger in my mouth and dip the top of it into the seed, count the number of seeds and proceed as you direct; by my plan you get good and bad if these be mixed together, and so have a better chance of ascertaining the percentage of good and bad seed. *Thomas Cridland, Seed Grower, &c.*

Central Farmer's Club.—The plan circulated by the committee for establishing this club in a house of its own with bed-rooms, &c., does not, as has been stated, involve any deviation from its original constitution. The club was established in 1843 for the express purpose of affording opportunities of social intercourse to agriculturists visiting London. For want of sufficient funds it was located at the York Hotel, where a limited number of beds at a fixed price and the use of two rooms were secured for the use of the members. It was not until the following year that the discussions on agricultural topics, by which the club has become best known, were commenced. At present the club has overgrown the accommodation of an hotel. There is little doubt that increased numbers, attracted by the comfort and economy of a club-house, would add interest to the discussions. *S. S., one of the Committee of the Club.*

Agricultural Drainage by the Military Authorities at Aldershot.—I believe no question can now be said to exist with landowners as regards the superiority of 4-feet drains over 18 inches for the more perfect drainage of sandy and gravelly soils; and it is also well known that under the advice of the most experienced draining engineers, and supported by the Parliamentary evidence taken before several committees on the subject of land draining, the Inclosure Commissioners, who have the passing the plans of the draining by means of the public loans of four millions and the advances of the several land drainage companies, do not consider any drains as perfect that are not of the depth of 4 feet. This being so, what shall be said of the care of the public expenditure when we find the public money is to be spent, or rather, my readers may say, to be wasted, upon plans that no landowner would allow tiles for, or that the Commissioners would admit to be of any use, and involving an expenditure of at least double what would be thought necessary by any agricultural engineer to do the work well? I refer to the proposed plans and specifications, as made public, for tenders for the drainage of the site of the Aldershot Camp, about 258 acres of sandy moorland, which are as follows: viz., with drains 18 inches deep and 12 feet apart, made of pipes of 3 inches inside diameter, with collars connecting the joints, and which under the specification and conditions will cost between 20*l.* and 30*l.* an acre. As soon as I learnt these particulars I thought it advisable to inform the military authorities of the mistake they were about to commit, and accordingly on the 23d February I wrote to the commanding royal engineer at Aldershot, informing him I was a draining engineer and a Government inspector of drainage, and had had large experience in draining in that locality, and advising him that the proposed plans would be imperfect as regards laying the land dry and sound, and the expenditure would far exceed, by some thousands of pounds, what was necessary for that purpose, and referring him to the Inclosure Commissioners for further information on the subject. On the 8th inst. I received a letter from Sir Frederick Smith, inclosing me back my letter with a memorandum of his clerk of the works, wherein he explains that the sand and gravel form the lower stratum only, and is not the chief consideration, and that the deep draining I had referred to as successful in clay would form no criterion as to the most judicious plan to be carried out at Aldershot (I had informed him I had successfully drained the Regent's Park for public use, a strong clay, with 4-feet drains, at a cost of 10*l.* 15*s.* an acre, to show him that on the worst draining soils, and for other than mere agricultural purposes, 4 feet had been chosen as not too deep, and an expenditure of 10*l.* 15*s.* an acre was the utmost thought necessary); and he winds up by saying that the nearer the pipes are to the surface after securing them with earth sufficiently to preserve them from accident, the better. To this communication I immediately replied, expressing my surprise at the confidence with which his clerk of the works had given an opinion on draining, and stating that I had for nine years been an agricultural drainer in large practice, as well as a Government inspector of draining, and I would undertake to drain the land in question far more effectually, at half the cost involved by the proposed plans, and enclosing him a little work called "Agricultural Drainage," drawing his attention to it and more particularly to Lord Lonsdale's evidence there given, as to the depth of drains with reference to road-making and laying the surface dry and hard, where he speaks of the failure of shallow drains to take the water from the surface, and the advantage of drains of 5 and 6 feet deep in laying the land dry and strengthening and hardening the surface. In doing this I expected I had done enough to bring about some inquiry, with a view to securing some attention to the subject; but no further notice has been taken of my communication, and I suppose the return of my first letter should have told me to expect none. The soil of the site of the camp will be known to most agriculturists as being composed of so large a proportion of sand and gravel, with so little a mixture of clay as to be considered one of the most barren in the south of England. The surface for a few inches is sandy peat; underneath this there extends down for many feet a mixture of sand and gravel, which from having an impervious bed underneath becomes full of water in winter. By this description there are few of your readers conversant with draining, who will not see that the soil in question is one of the easiest to drain, and most calling for very deep drains. *Hewitt Davis, 3, Frederick's Place, Old Jewry, March* 12.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, March 12.—Mr. MILES, M.P., Vice-President, in the Chair.

CHURNS.—At a weekly meeting of the Council, on the 24th of April, 1850, Messrs. Burgess and Key submitted their box churn to the inspection of the members, and exhibited its simple and peculiar action in the production of butter from cream. At this meeting on the 12th of March, Count Sparre favoured the Council with an opportunity of witnessing the performance of Major Stiernsvärd's Swedish centrifugal churn, to which a medal of the first class had been awarded last year at the Paris Exhibition. These two churns were on the present occasion tried before the Council in juxta-position and under the same circumstances, the same milk and cream being in each case used:—

I.—CHURNING WITH NEW MILK.

Churn.	Milk.	Temperature of milk.	Revolutions per minute.	Persons successively employed at wheel.	Butter produced in	Quantity.
Stiernsvärd ...	5 quarts.	64° F.	120	3	5 m.	7¼ oz.
Burgess & Key	6 quarts.	63°	60	2	6 m.	7½ oz.

II.—CHURNING WITH CREAM.

Churn.	Cream.	Temperature of cream.	Revolutions per minute.	Persons successively employed at wheel.	Butter produced in	Quantity.
Stiernsvärd ...	5 quarts.	60° F.	120	3	12 m.	Not in a state to be weighed.
Burgess & Key	5 quarts.	60° F.	60	2	14 m. 52 sec.	3¼ lbs. good butter.

The Swedish churn was then tried, with the remaining cream, at less than its usual speed; but in consequence of its not being charged with the *exact* quantity of cream required in its case, no result was obtained. In the former trial with cream, at the full speed of revolution, the butter on being taken out of the churn was too soft to be weighed; and on being put into cold water, it was found too incoherent, without undergoing the regular process of "making," to be weighed.—The churn of Messrs. Burgess & Key required little labour to be kept in action, and the butter was almost at once turned out in a fine marketable state. Count Sparre thanked the Council for their kind attention in witnessing the performance of his countryman's churn, and regretted that its performance on that occasion, from circumstances for which he could not account, was not so satisfactory as it had been on former trials.

HANOVERIAN AGRICULTURE.—His Royal Highness Prince Albert communicated through the Hon. Colonel

Phipps a present of two agricultural works to the Society, from Dr. C. H. Meyer-Altenburg, of Ebstorf, in the principality of Lüneburg, entitled respectively: "Die Vorzüge der Minorats-Erbfolge in sittlicher, materieller, und national-ökonomischer Hinsicht," and "Die Einführbarkeit der Spaten-Cultur, in der grössern landwirthschaftlicher Betrieb;" the latter work being the prize essay on spade cultivation of the Royal Hanoverian Agricultural Society at Celle. The Council ordered their best thanks to his Royal Highness Prince Albert, and to the author, for the favour of these presents.

Value of Dairy Cows.—Mr. Horsfall stated at a former meeting of the Council that he valued his dairy cows on the average at 25*l.*; he has since communicated the following explanation of that estimation:—"My milch cows give, on the average, about 9 quarts each per day; which, at the price stated, 2*d.* per quart, gives 25*l.* per year."

The Council stands adjourned over Passion week, to Wednesday the 26th of March.

Society of Arts: *March 5—Agricultural Progress.* The following addresses were delivered at the close of Mr. Hoskyns's paper: Mr. J. M. Paine, of Farnham, spoke on the geological resources of agriculture. He said:—

"I fear that it must be admitted that geology has not hitherto done much for agriculture, and although its resources are manifold, that it has not done what it ought and might do. Still some good things have been effected by its means, and more particularly within the fifteen years of the interesting review so ably presented to us by Mr. Hoskyns. But geology without the aid of chemistry as an interpreter will not profit the farmer. Chemistry must tell us what to find, or when we have found it what it is, while geology teaches us where to search for it. It has been said, however, in disparagement of such combined investigations, that the knowledge of the constituents of the true geological subsoils is of little value, inasmuch as the greater part of our cultivated fields is composed of superficial drifts, oftentimes differing widely in character from the soils they overlie. That this is usually the case is most true; and still more these drifts are generally of so mixed a character, that it is not likely we should obtain much advantage from a chemical knowledge of their ingredients, as such information would not admit of general application. Geology, however, would here serve agriculture in another manner, by teaching the extent, depth, and direction of these diluvial drifts; and this knowledge is often very useful in the drainage of land. I need scarcely remind my present hearers how this has been signally and successfully exemplified in the case of Lord Berners, at Keythorpe. On a much humbler scale I have derived similar benefit in draining some of my own land at Farnham. But I consider that agriculture would ultimately reap many advantages, did it possess an analytical knowledge of the true geological subsoils as they outcrop in various parts. From my own experience, I can confidently state, that the soil of one field is frequently the most appropriate manure for another. And it sometimes happens that examinations of this nature lead to the discovery of beds of peculiar substances, which act as specific manures, and will bear the expense of distant carriage. Such discoveries have been made, and, I think, there are sufficient grounds for indulging in the sanguine hope that a more diligent research would be rewarded both by pecuniary and scientific success. In confirmation of this opinion, I need only remind you of the several sources of phosphates which geology has already developed, and many of which agriculture has wisely appropriated to its use. It is sufficient merely to name the mineral phosphate of lime which Dr. Daubeny introduced to our notice from Estramadura; the so-called coprolites from Suffolk—a name about as happily chosen as the "coppery lights" applied to my friend Mr. Huxtable; the phosphatic nodules from Cambridgeshire; the fossils and nodules of the upper and lower green sand from Farnham, and the base of the chalk hills generally; the mineral phosphate from New Jersey; and, lastly, and perhaps the most important, a very pure *apatite* recently imported from Norway by Mr. Lawes, from which superphosphate of a most superior quality is now manufactured containing from 30 to 40 per cent. of the soluble phosphate of lime. These discoveries are due to geology, and I think they ought to stimulate us to undertake more complete investigations; and I confess that I should heartily rejoice to see set on foot a carefully conducted chemico-geological examination of all the subsoils of this kingdom. I have endeavoured to commence this task, so far as relates to one well known geological division—I mean the chalk; and having obtained the eminent chemical assistance of Professor Way, I have hitherto been well rewarded for my pains. The Royal Agricultural Society, I am persuaded, would willingly assist gentlemen in kindred investigations, and if this recommendation were systematically carried out, I believe very valuable results would ensue. Might we not hope to discover in our granitic districts rich veins of phosphate of lime like those I have just mentioned? For phosphoric acid is of frequent occurrence in these rocks; it is, I imagine, one of the primeval existencies of our globe, as it in fact constitutes a large proportion of that "dust of the earth" out of which man and all other animals were created. Geology, too, with the help of chemistry, has shown us on what lands to grow specific crops. It is well known that the peculiar botany of any district is chiefly determined by its geology. So also does it indicate the description of agricultural crop to be cultivated with profit and advantage. I may perhaps be permitted to illustrate this remark by reference to the growth of the Hop, a perennial plant requiring the richest soil. Until I brought geology and chemistry to bear on some of my own fields, they did not pay me 5*s.* per acre rent. I compared their soils, both geologically and chemically, with Hop grounds worth 20*l.* per acre, and I found them alike in geological position and chemical analysis. There now remained only one obstacle to their being placed in a very different category of value—that impediment was water;—the land was deeply drained, and the fields became worth 10*l.* per acre. My attention, as I stated just now, has been more specifically directed to the chalk formation, as my land affords peculiar facilities for its examination. In a section of about two miles, running from S.E. to N.W., I obtain every outcrop, from the lower green sand to the plastic clay. These have been examined, as it were, step by step, and we found beds of phosphate of lime, clay with a large per centage of potash, thick beds of the soluble or gelatinous silica, and carbonate of lime in every variety. Some of these carbonate of lime strata furnish an excellent marl, as they are intimately commingled with alumina, potash, silica, and phosphoric acid. This marl is applied to other parts of the farm whenever opportunities offer for its transit. It is a marl of this description in the lower chalk which has been so abundantly used from time immemorial throughout the south of England, and probably to a greater extent formerly than at the present time, if we may judge from the immense old marl pits of this district. Here, as in many similar instances, practice derived from experience first indicated a rich and peculiar soil, the real value of which was not known until science told us what were its ingredients and their fitting application. The soluble silica beds of the chalk form a very remarkable soil. On my farm at Farnham, they are about 100 feet thick, and from the lower to the upper member of the series, the per centage of the soluble silica ranges from 20 to 76. This substance has not received much attention hitherto, either from agriculturists or chemists; indeed, prior to this discovery, soluble silica was far too costly an article to be employed for agricultural purposes. If it be useful, it can now be procured at a very trifling expense. I use large quantities of it on my farm, and immense quantities are used in the neighbourhood. The soft parts are spread like mud over the fields, or employed as a covering to, and as a bottom to dung-heaps, and also to spread over the bottom of the fold-yards and farm-yards. The hard parts are dried, and ground up into a fine powder. This is used to absorb the urine in the tanks, and to litter up the fattening pigs, as a substitute for straw. It thus forms an excellent drill-manure for root-crops. As an absorbent and deodoriser it is equal to charcoal dust, and I need scarcely add, that it is much cheaper. Possibly, the best way of using this substance is to convert it into silicate of lime, which is very easily effected. The methods are fully described by Mr. Way in Vol. XIV. of the Journal of the Royal Agricultural Society. At Binsted and Selborne, in Hampshire, lime is largely employed on the out-croppings of the silica soils. The farmers there speak highly in praise of its application, while on the gault soils below, they say that lime does very little good. I formerly laughed at them for what I considered their misapplication of lime. but the farmers were right,—for the gault there contains much carbonate and sulphate of lime, while the silica rock, which resembles a piece of impure chalk, contains scarcely a trace of lime. Here, again, practice was in advance of agricultural science. I will not detain your Royal Highness and the meeting by any further remarks, observing only in conclusion, that the earth furnishes supplies of organic as well as inorganic manures, and that our coal-fields might furnish us with an abundance of ammonia, now wasted in the ordinary consumption of coals. and that many of our clay soils contain latent stores of this valuable article; and if chemists would set their brains to work, and teach us how to avail ourselves of these riches, it would indeed prove a great boon, not only to farmers, but to the community at large.

Mr. J. B. Lawes, F.R.S., spoke on the chemistry of agriculture. He said:—

The period which Mr. Hoskyns has selected as the starting point in his most interesting and instructive paper just read to us, although comprising so small a portion of time in the history of British agriculture, refers back to a period sufficiently remote to include the whole history of the chemistry of agriculture, so far as it relates to this country. Whatever might have been known or practised in other countries before that period, certainly neither attracted the attention nor influenced the practice of the agriculturists of Great Britain. It is to an illustrious countryman of his Royal Highness, to Baron Liebig alone, that is due the merit of having effectively roused the attention of British farmers to the importance of applying chemical science to advance the practice of their art. Although 15 years have elapsed since the first work of Baron Liebig was published, the foundation of this new science can hardly yet be said to be laid, or the first truths admitted without dispute. When we consider the wide distinction which exists between the man of science and the practical farmer, and the very different points of view from which they would regard the use of this new science, it could hardly be expected but that serious disagreements should arise between them. The question of profit and loss naturally enters largely into all the views and considerations of the practical farmer, while the scientific man entirely disregards it. To obtain the same increase in vegetation by the employment of a few pounds of white crystallised salts as would be produced by a cart-load of dung, is to the man of science a phenomenon of great interest, irrespective of any question of cost, but to recommend this salt to be used for agricultural purposes would depend upon economical questions, having no connection with science. For want of practical knowledge the man of science, although correct in his principles, has often erred in the application of these principles to practice. For want of scientific knowledge the agriculturist has expected from the teachers of science rules to guide and improve his practice, which the science of the day was quite incapable of supplying. Hence the farmer is inclined to regard the man of science as visionary, theoretical, and unpractical, while the man of science accuses the farmer of indifference to science, or applying to it only to furnish him with recipes to enable him to fill his pockets more rapidly. It has of late years been too much the custom to explain everything connected with the practice of agriculture by means of chemistry alone. I would, however, venture to claim for agriculture the rank of an independent science, in close alliance, it is true, with chemistry, botany, physiology, and some other sciences, but still distinct from them all. Its truths can alone be investigated and explained by experiments conducted in the field with all the aids and refinements which modern science affords. It is a science abounding in difficulties, and yielding its fruits but sparingly to those who cultivate it with the greatest assiduity. Although it would not be easy, or even possible, to point out distinctly in what way science has advanced the practice of agriculture from year to year, there is evidence of a very marked progress, if we compare two periods sufficiently remote. When we consider that, ten years ago, it was thought that every description of soil would require special manures to suit them, it is no small addition to our stock of knowledge to have ascertained with certainty that when once we know the most suitable manure for any particular crop, it will be applicable for all soils. The farmer who leaves the light soil of Norfolk to cultivate the heavy clay of Warwickshire, requires no analysis of his soil to tell him that the same artificial manure which he used successfully to grow his Wheat on one soil will be equally applicable to the other. I would go further, and say that the same rule would hold good in any part of the world where Wheat is cultivated. Ten years ago, nothing certain was known of the value of manures in connection with their chemical composition; at the present time, there are many in this room who would be willing to accept the chemical composition of any manure as the measure of its value. If time permitted, I could point out to you that more correct views are also entertained on the subject of feeding animals; that we begin to know that a rotation of crops is not a necessity, but merely an economical process for obtaining certain ingredients essential to our corn crops. With increased knowledge, the necessity for any fixed routine will be no longer apparent, and the former will be free to pursue that system which freedom of competition and fluctuation in price render necessary to enable him to realise the full reward for his skill and capital.

Mr. Allen Ransome spoke on the mechanism of agriculture. He said:—

I have listened with great pleasure to the interesting paper read by Mr. Hoskyns; and in venturing to make a few remarks on that portion of it which is more immediately connected with my vocation as an implement maker, I am desirous to lay before the meeting such facts as will enable it to form a just estimate of the comparative state of agricultural mechanics during the period referred to by Mr. Hoskyns. I do not entirely agree with Mr. Hoskyns as to the amount of improvement which has taken place, within the limited time he has assumed, as coincident with the establishment of the Royal Agricultural Society, nor am I prepared to go the full length of attributing the present state of agricultural mechanics so exclusively to the influence of that body. It is very far from my desire to depreciate the workings of that Society, or in the slightest degree to detract from the vast amount of good it has conferred on the cause of agriculture generally, and on that portion which involves its mechanics in particular, but I should hardly do justice to those who for many years before the establishment of that Society were contributors to the advancement of agriculture through the medium of its mechanics, if I did not avail myself of this opportunity to vindicate the position which they had attained long antecedent to the establishment of the Royal Agricultural Society. The first meeting of that Society at Oxford could hardly be supposed to afford very fair evidence of the state of agricultural mechanics at that period; the Society was little known—its rules less so, its motives doubted, and many held back from contributing to its exhibitions, in order that they might see what others would do, and how they were likely to fare. The meeting was limited certainly, but, limited as it was, at this meeting and the one succeeding, one or more good specimens of all the best implements then in general use were exhibited, and if I might be allowed to lay before you the names and character of the instruments then in use and there exhibited, you will be enabled to judge to what state agricultural mechanics had at that date arrived. There were drills by Garrett, Hornsby, and Smith; ploughs by Ransome, Howard, and Barrett; zig-zag harrows by Howard; portable threshing machines by Ransome, Garrett, Barrett and Exall, and Hart; winnowing machines by Cooch and Hornsby; clod crushers by Crosskill; Turnip cutters by Gardner; haymaking machines by Wedlake; chaff engines of great variety by Cornes, Ransome, Garrett, Richmond and Co., and many others; and rollers of every description. It is no less a fact that all these implements remain at the present day standard implements, little if at all altered in their principles, though perhaps generally improved in their details. In the subsequent period many new inventions have from time to time made their appearance at the Society's exhibitions, many crudities, and many novelties. Most of these have had their short hour of fame and trial, and eventually have disappeared for ever. Amongst those introduced during the last 15 years, which have since proved their title to be added to the original list of standard implements, the following stand as the most prominent:—Garratt's lever horse-hoes; Grant's, Smith's, and Howard's lever horse-rakes; Bentall's broad share plough; Bushe's, Baxter's, and Phillips's root pulpers; Biddell's Bean-cutter, and many improvements and varieties of chaff-cutters and of mills. These, with those mentioned as existing previously to the Oxford meeting, may be considered as mainly comprising the class of standard implements of the present day. I have not included in this list the reaping machine, upon which much ingenuity and cost has been expended to adapt it to the requirements of this country, by several makers, because it has not as yet assumed the character of a standard implement; but I think another season will not pass without at least one specimen which may secure for it that position. Having now, I trust with all becoming modesty, shown the position to which agricultural mechanics had attained—both prior to 1839 and since—I will endeavour to explain the causes to which the present general use of the standard implements is mainly attributable. 1st, to the improvements in all machinery and tools for working in wood and iron, producing a superior style of workmanship at ordinary cost. 2d, to the facility of transit afforded by railways. 3d, to the necessity of economising all farming costs by means of every labour-saving machine; and last, not least, to the opportunities afforded by the itinerant annual exhibitions of the Royal Agricultural Society, for general observation, test, and comparison of all the best implements throughout the length and breadth of the land. This has enabled the makers of implements in every district to profit by the examples of the best implements of all other districts, and the standard being selected as of the highest class, the best implements have become more generally diffused; the advantage obtained to the agricultural community, arising less from the introduction of new inventions, than from the general adoption throughout the country of the best implements of every district, with a general improvement in the style and quality of workmanship. Hitherto, I have spoken of the instruments only as ordinarily used by horse or hand power; but the introduction of steam-power in its portable form has opened up a wide field for the ingenuity and enterprise of the manufacturer; inasmuch as, by its aid, machines of a much more comprehensive character, which are beyond the limits of ordinary horse-power, can be constructed; and in this direction the energy and the ability of the agricultural machine manufacturer has been largely called into action, and with most satisfactory results, especially in relation to the steam engine itself, and to the threshing machine, which combines, with the merely threshing operation of beating out the corn, the further stages of separation from offal and the production of a perfect sample, fit for market. Important, however, as has been the application of steam power, whether to fixed or portable machinery, greatly more important would it be if it could be brought to bear upon the tillage of the soil. All honour to the inventor of the steam tile draining machine, who by his persevering exertions has at last effected the first stage of this desirable object; but a very much wider field remains yet to be accomplished in the tillage of land by steam; and honour to all those who have attempted the further stages. The mode in which it is to be accomplished is at present only seen in the distance. There are many and various views as to the best means of effecting it, but certain it is that the experiment is too great for any one individual—too large for individual enterprise. The cost of inventions, of experiments, of trials, and of errors, is enough to drain the deepest purse, and break the strongest heart. I have no hesitation in saying, that if the object is to be accomplished within a reasonable time, as it is a matter hat would result in great national good, it should be made a matter of national cost. The funds, I believe, are all that is wanting to bring about some arrangement which will have a practical effect. Until some such general fund is obtained, we shall go on hoping, each hope to end in disappointment. This is not the time for the place to enter upon the plan, but I should be most happy to confer with any one on the subject, and throw my information into the general fund for the accomplishment of such a desirable end.

Mr. John Hudson, of Castle Acre, spoke on the practice of agriculture:—

I have been requested to speak a few words upon the subject of the progress of Practical Farming during the last fifteen years. The scientific gentlemen who have preceded me this evening have entered so fully into the subject, that they have left me an almost barren field to work upon. I must, therefore, crave your Royal Highness's indulgence to be allowed to allude to the early part of the present century, when Thomas William Coke, the late Earl of Leicester, adopted and recommended the improved system of practical agriculture. At that time the county of Norfolk consisted of large tracts of wild heaths and rabbit warrens. Rye was extensively grown, but very little Wheat was produced there. Mr. Coke recommended the farmers to cultivate the Turnip crop upon an extended scale, and it was at that time the drill superseded the broad-cast method of sowing both corn and Turnips. Mr. Coke spent large sums of money in building convenient farm premises for his tenants, and encouraged them to improve their farms by granting them 21 years' leases, with liberal covenants. And it was his pleasure, at the latter part of his life, to give his improving tenants the best tenant right they could have—a renewal of their leases four years before the expiration of the term, and that without taking undue advantage of the outlay of the tenants' capital. Up to 1821, he held annual meetings at Holkham, in the month of July, where he gathered around him all the scientific skill and practical experience he could obtain at that time. I have there seen Sir H. Davy, Sir Jos. Banks, Dr. Rigby, and the only agricultural chemist of the day, Mr. Grissenthwaite. They thought there was something "looming in the future," but it remained to the period named on the paper for discussion this evening, for the further development which chemical science has brought to bear upon agriculture. It is to Liebig, Lawes, Paine, Way, and others, that we are indebted for the discovery of the method of converting the hard bone into food for the infant plant of our root crop. In my early days, the Turnip crop was a most uncertain one to obtain; but now that our chemists have made these important discoveries, it is almost reduced to a certainty. It was about 15 years ago that

the Royal Agricultural Society of England was formed, under the auspices of his Grace the Duke of Richmond and the late Earl Spencer, Mr. Pusey, and Mr. Handley. That Society has offered prizes for improved implements, as well as improved breeds of cattle, sheep, horses, &c., and held out inducements for chemical science to aid practical farming. When I first put my hand to the plough, it was a very primitive implement, and performed its work imperfectly. Ransome and Howard have improved our ploughs; Garrett has improved Cook's drill and the inverted horse-hoe, which was invented by Francis Blaikie in 1816, and which I first used on my farm at Castle Acre in 1823. These improved implements have very much tended to the progress of practical farming during the last 15 years. Ransome, Clayton, and Shuttleworth, Hornsby, Tuxford, and others, have brought out the steam threshing machines. These have greatly lessened the cost of production. The legislature of this country has also done much towards the progress of agriculture. Some 20 years since the alteration of the tithe-law took place, and labour was set free by the repeal of the old poor-law, without which improved practical farming could not have progressed as it has done. The people require cheap food. This can only be obtained by lessening the cost of its production. The three great items in the farmer's expenditure are rent, labour, and the purchase of artificial manures. As the area of these islands cannot be extended, we must not expect the first to be much decreased, and the labourer is not too well paid. It appears to me that the best way to reduce the cost of agricultural production is to endeavour to obtain the manures at less cost. We are told that many of the uninhabited islands in the Pacific abound in fertilising matter; and could it be supplied at about half the present price, it might enable the farmers of England to raise an abundant supply of food, both bread, corn, and meat, for the increasing population. I trust the farmers of England will not be considered drones in the busy hive of industry, as, in my opinion, they have endeavoured to keep pace with the advancement of the manufacturing and commercial community of these realms.

Notices to Correspondents.

CLOVER: *J D H.* We would apply 3 cwt. of guano per acre. It will have more effect than 30 bushels of soot and 5 cwt. of gypsum.

DAIRY: *An Old Subscriber.* For two cows the smallest-sized American churn, four milk pans, a vessel to hold cream, a slab, and the wooden hand implements for manufacturing the butter will be needed.

GRASS SEEDS: *A Farmer.* We extract a passage in answer to your question from "Rendle's Farm Directory," which contains notices of crop cultivation of the following kind:—"For common alternate husbandry: 8 lbs. of Red Clover, 4 lbs. of White Clover, 4 lbs. of Trefoil, and 1 bushel of Rye-grass are abundant seeding. Where the land is to remain down for more than one year, especially where the land is clayey, 1 or perhaps 2 lbs. of Timothy Grass, Phleum pratense, may be added, and if Italian Rye-grass is taken it should be sown as late in April as possible. The above Clovers without Grass seeds will give an abundant plant. In permanent pasture the seeds chosen should vary according to the character, especially as to stiffness, of the soil; the quantity altogether may be about 40 lbs. an acre, made up however of seeds which vary between 5 and 8 lbs. a bushel, as in the case of the Foxtail, up to 12 or 14, as in the case of the Poas and Festucas; 16 to 18 as in the case of Italian and other Rye-grasses, and 40 and upwards as in the case of Timothy Grass. This last must be sown by itself, or with the Clover in a Grass seed machine set for Clover, and the other Grass seeds may be mixed and sown afterwards, the whole being bushed or rolled in. In permanent pastures the following quantities per acre may be sown:—8 or 10 lbs. of both Perennial and Italian Rye-grass, and 2 or 3 lbs. each of three or four of the best Fescues, 2 lbs. of Catstail and Timothy Grass, and 2 or 3 lbs. of the Foxtail Grass, 2 or 3 lbs. of the rough and smooth stalked Poas, and about 4 lbs. of the Cocksfoot, along with a mixture of equal quantities of the White and Red Clovers, in all about 10 lbs. per acre. This in the maximum figures given will be 34 lbs. of Grass seeds and 10 lbs. of Clovers. In the case of lighter soils the Catstail Grass may be reduced. In the stiffer soils the Cocksfoot may be increased."—*Tyro.* Sainfoin is generally sown without a mixture of Grass seeds, and we should so recommend it. Four bushels of the rough seed per acre.

IMPORTATION OF GRAIN: *C H.*

	Wheat and Wheat flour.	Barley and Barley-meal.	Oats and Oat-meal.	Rye, Indian Corn, and other grain.	All sorts.
	Qrs.*	Qrs.	Qrs.		Qrs.
1849	4,802,475	1,131,373	1,292,707	?	1,169,661
1850	4,830,203	1,035,935	1,158,290	?	1,019,590
1851	5,830,412	829,574	1,200,136	?	9,618,026
1852	4,164,602	625,602	980,578		7,746,668
1853	Flour 4,915,430 / 4,621,506 cwts.	824,008	1,028,409		Flour 8,847,608 / 4,638,010 cwts.
1854	Flour 3,431,227 / 3,646,505 cwts.	552,972	1,014,949		Flour 5,729,243 / 1,922,218 cwts.
1855	Flour 2,667,702 / 1,904,224 cwts.	349,110	1,038,727		Flour 6,850,193 / 3,705,161 cwts.
1856					

* The meal and flour imported are converted into grain at the rate of 392 lbs. of Wheat flour, 176 lbs. of Oatmeal, 424 lbs. of Rye-meal, and 384 lbs. of other meals to the quarter of grain.

SEEDS: *L B.* We cannot recommend seedsmen. You are doubtless, if not near the Drummonds of Stirling, the Gibbs's of London, the Rendles of Plymouth, the Suttons of Reading, near one or more of the customers of one or other of these firms. Ask advice from them.

SMALL FARM: *W T B.* Next week.

THE BEST REMEDY FOR THE HEAVING IN SHEEP after yeaning is a teaspoonful of laudanum in half a pint of gruel every half hour. It is the result of spasm, therefore the remedy is a specific. *F D.*

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

THE PATENT NITRO-PHOSPHATE,

OR

BLOOD MANURE COMPANY.

(LIMITED.)

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Offices—109, Fenchurch Street, London.
Manufactory, Plaistow Marshes, Essex.

THE DIRECTORS of the above COMPANY (many of whom are extensive Agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact. Ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied. Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a conclusive answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

BLOOD MANURE FOR TURNIPS.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

THE BLOOD MANURE FOR WHEAT, BARLEY, OATS, ETC.

Being rich in nitrogen and other necessary ingredients, it is especially adapted for the Wheat and other Corn crops, and has been used with the greatest success in all parts of England. It is a very remarkable fact that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists,—it contains all the elements which plants require, and when properly prepared, will become the essence of vegetable as well as of animal life. The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat and other cereals, has been fully proved upon all soils by the practical experience of numerous Agriculturists. Should Wheat manured with dung in the ordinary way look unhealthy in the spring, it will be greatly benefited by top-dressing it with Blood Manure, at the rate of 2 to 3 cwt. per acre,—thus strengthening the straw, making it less liable to lodge, and very much increasing the produce. For Barley and Oats, 3 to 4 cwt. per acre of the Blood Manure may either be sown broadcast or drilled with the seed,—if the former, to be well harrowed in.

BEANS AND PEAS.

For Beans or Peas, 3 to 4 cwt. per acre may be used either broadcast and harrowed in, or a portion afterwards, between the drills at the time of horse-hoeing.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre with an equal weight of common salt should be sown broadcast over the field, and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

POTATOES.

The Blood Manure is specially prepared for this crop, and it will be found to give most satisfactory results—it will be most successful if used to the extent of 4 cwt. per acre, with half the usual quantity of farm-yard dung, and the whole earthed up in the usual way. Should the farm-yard manure not be used, then 6 cwt. of Blood Manure may be used alone, put into the bottom of the drill, and the sets on the top and earthed up.

FLAX.

This crop in olden time had the renown of being one of the most exhausting crops which could be put into the land, and this by chemical analysis has been found to arise from the large quantity of nitrogen, phosphoric acid, magnesia, and the alkalies taken up by the Flax plant, which renders it a highly exhausting crop. The Blood Manure is carefully prepared, so as to meet the wants of this crop, and with its aid Flax can no longer be considered an exhauster of the soil. In using Blood Manure for this crop, from 4 to 6 cwt. may be sown broadcast, and harrowed in before the seed is drilled.

HOPS.

It is well known to all Hop growers that Hops require more manure for their proper development than any other plant which they cultivate; the constant withdrawing of the Hops, year by year, from the land necessitates the supply to the soil of a considerable amount of both mineral and organic ingredients, and the Blood Manure has been particularly prepared, with the object of supplying the requirements of this important crop. It contains all the constituents which the plant requires, both mineral and organic, and will be found as cheap and efficacious as any other manure now in use; from 10 to 12 cwt. per acre applied at two different times well worked in between the alleys, will be found a most useful application, or the manure may be put round each hill and covered up with the soil.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents. The following may be taken as a sample:—

Norfolk Farms, Windsor, February 20th, 1855.

Gentlemen,—In answer to your inquiry respecting the results of Nitro-phosphate used on the Royal Farms, Windsor Great Park, I have great pleasure in stating, that after applying it to a field of Swedes, which gained the cup at the Royal East Berks Agricultural Show, I have no hesitation in pronouncing it an excellent manure, and intend using it to a greater extent during the present season.

I am, gentlemen, your obedient servant,
JAMES BREBNER.

Mr. BENJAMIN GOULTON, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Park Farm, Woburn, Bedfordshire, Jan. 18th, 1854.

Gentlemen,—In reply to your inquiry respecting the Nitro-phosphate supplied to his Grace the Duke of Bedford in 1853, I beg to inform you I applied it all for Swedes, and in every instance was very successful, particularly so on a field of 30 acres, where I put on 2 cwt. of it per acre, with a light dressing of farm-yard manure, which has produced the finest crop of Swedes I ever grew. I with great confidence recommend this valuable manure to the notice of the agricultural community.—I am, gentlemen, yours very truly,
G. W. BAKER.

PRICE, DELIVERED AT ANY WHARF OR RAILWAY STATION IN LONDON:

Corn and Grass Manure, £7 10s. per Ton.
Turnip Manure, £6 10s. per Ton.
Flax and Hop Manure, £8 10s. per Ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," *and sold only by the authorised Agents of the Company*

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

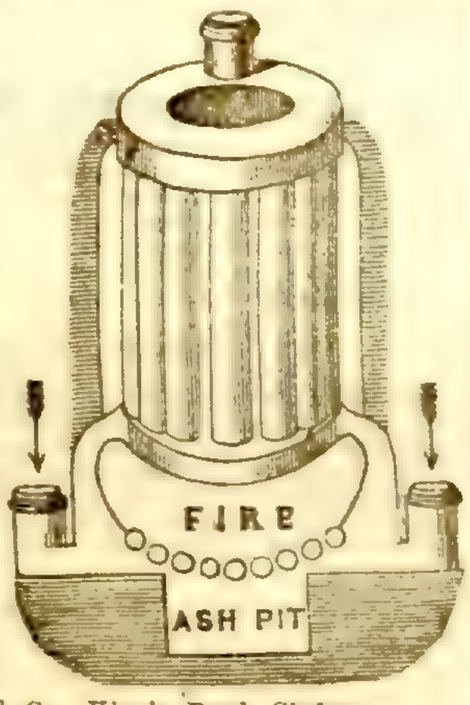
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. John Weeks & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "One Boiler System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to one boiler. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. Weeks & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. John Weeks & Co. *have done for me in heating a great number of our hot-houses from* one boiler. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. John Weeks & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their one boiler system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by one boiler, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

John Weeks & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

John Weeks & Co., King's Road, Chelsea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,
Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

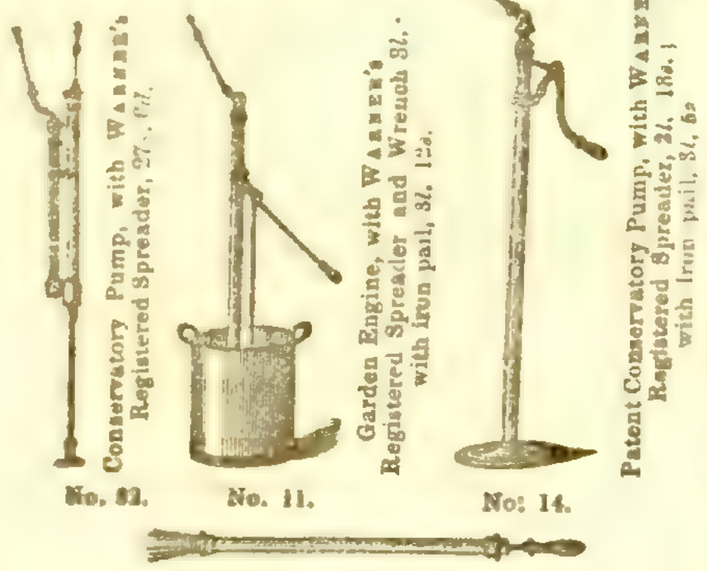
NEW TWINE NETTING, Tanned if required. 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c., from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
Warranted Good by the Makers.

JOSEPH MAPPIN AND BROTHERS, Queen's Cutlery Works, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

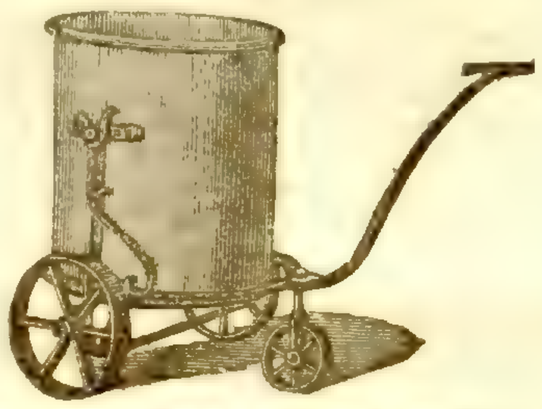
JOHN WARNER AND SONS, 8, Jewin Crescent, London, Manufacturers of FIRE ENGINES, PUMPS, GARDEN ENGINES, and SYRINGES



Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.



WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

BLOSSOM OF WALL FRUIT TREES.—WORSTED NET to effectually protect Blossom and the Ripe fruit afterwards from Wasps and Flies, in various widths, at 7*d.* per square yard. Thread ditto, 6*d.* Transparent Sheeting, 2 yards wide, 1*s.* per yard run. N.B. Old tanned nets, 6*s.* 3*d.* per 100 yards.

R. Richardson, 21, Tonbridge Place, corner of Judd Street, New Road, London.

GARDEN EMBELLISHMENTS AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory, for aviaries, poultry houses, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to Cottam & Hallen, Iron Works, 2, Winsley Street, Oxford Street.

NEAT AND DURABLE LABEL.—Send three Postage Stamps for a specimen label, painted and lettered in oil, to F. H., Post Office, Lydbury, North Salop.

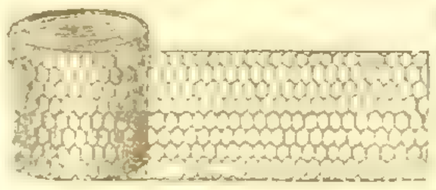
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

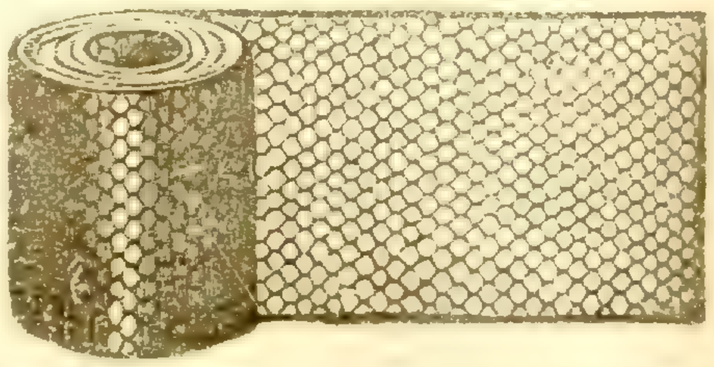
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

THE BEST CURE FOR SMOKY CHIMNEYS.
Patronised by Her Most Gracious Majesty.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25*s.*; Galvanised do., 30*s.*; Cast Iron, 35*s.* each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt—Barton's Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers.

Address, James Barton, 370, Oxford Street, London.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of—

PROPAGATING GLASSES.

	£	s.	d.			£	s.	d.	
2-in. diameter	0	3	6	per doz.	11-in. diameter	0	18	0	per doz.
3 " "	0	4	6	"	12 " "	1	1	0	"
4 " "	0	5	6	"	13 " "	1	4	0	"
5 " "	0	6	6	"	14 " "	1	10	0	"
6 " "	0	8	0	"	15 " "	1	16	0	"
7 " "	0	10	0	"	16 " "	2	2	0	"
8 " "	0	12	0	"	17 " "	2	8	0	"
9 " "	0	14	0	"	18 " "	3	0	0	"
10 " "	0	16	0	"	19 " "	3	12	0	"

CUCUMBER TUBES.

12 inches long	...	1s. 0d.	each	20 inches long ...	1s. 8d. each
14 " "	...	1 2	"	22 " " ...	1 10 "
16 " "	...	1 4	"	24 " " ...	2 0 "
18 " "	...	1 6	"	26 " " ...	2 2 "

AQUARIA.

With French polished Stands, 3s. 6d. each. Vase-shaped ditto with Glass Pedestal, 20s. each. Glass Tanks, warranted perfectly watertight, 36 inches long by 18 inches deep, 3l. each. Intermediate sizes at various prices.

GLASS FERN SHADES AND STANDS.

	s.	d.		s.	d.
6 inch diameter, each ...	3	0	12 inch diameter, each ...	8	0
7 " " " ...	3	6	13 " " " ...	10	0
8 " " " ...	4	0	14 " " " ...	12	6
9 " " " ...	5	0	15 " " " ...	17	0
10 " " " ...	6	0	16 " " " ...	22	0
11 " " " ...	7	0			

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2d. to 3d per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for ATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in.	and	6 in. by	4½ in.	...	...	12s.	0d.
6½ " 4½	"	7 "	5	...	...	12	6
7½ " 5½	"	8 "	6	...	...	13	0
8½ " 6½	"	9 "	7	...	...	13	6
9½ " 7½	"	10 "	8	...	...	13	6
10½ " 8½	"	11 "	9	...	...	14	0
12 " 9	"	13 "	9	...	...	14	0
10 " 10	"	10½ "	10½	...	...	14	0
11 " 10	"	11½ "	10½	...	...	14	0
11 " 11	"	11½ "	11½	...	...	14	0
12 " 11	"	12½ "	11½	...	...	14	0
13 " 11	"	13½ "	11½	...	...	14	0
13 " 12	"	13½ "	12½	...	...	16	0
13½ " 13½	"	14½ "	13½	...	...	16	0
15½ " 13½	...	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

THE Manufacture of GARDEN NETTING by ANDREW HALL is now carried on just the same by THOMAS BRITTAIN & CO. in the same qualities, and orders executed with dispatch and care.—ANDREW HALL, Manchester.

PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

TESTIMONIAL TO N. B. WARD, ESQ., F.R.S. F.L.S., &c.—The great services rendered by Mr. WARD to the Science of Botany by his invention of the Wardian Cases, are considered by many lovers of the science to be deserving of acknowledgment, and it has been thought that the most enduring testimony of Mr. WARD's merit, as well as the most gratifying proof of the esteem in which he is held, would be the placing his portrait in the Meeting Room of the Linnean Society.

The following gentlemen have therefore agreed to act as a Committee, and to receive the names of all who are desirous of forwarding this object. The subscription is limited to one guinea, and it is proposed that each Subscriber shall receive a Lithograph Copy of the Portrait.

Committee.

Prof. Allman, Trinity College, Dublin.
Dr. Ansell, Harley Place, Bow.
C. C. Babington, Esq., St. John's, Cambridge.
Prof. Balfour, University, Edinburgh.
T. Bell, Esq., New Broad Street.
Prof. Bentley, Argyle Square, New Road.
Dr. Billing, 6, Grosvenor Gate, Hyde Park.
E. W. Cooke, Esq., the Ferns, Kensington.
Dr. Hooker, Montague Villas, Richmond.
R. Hudson, Esq., Clapham Common.
G. Jackson, Esq., Church Street, Spitalfields.
Dr. Lankester, Saville Row.
Dr. Parker, Finsbury Square.
Prof. Quekett, Royal College, Surgeons.
A. M. Randall, Esq., Finsbury Square.
Dr. Wright, Grazeley Lodge, Reading.

Treasurer—James Scott Bowerbank, Esq., 8, Highbury Grove, Highbury.

Secretary—Henry Letheby, Esq., M.B., Medical College, London Hospital.

About 160 names have already been received, and the portrait, which is nearly finished, is expected to be ready for the next exhibition of the Royal Academy.

The Committee are desirous to complete the List of Subscribers as soon as possible, in order that the Lithograph may be prepared and sent out.

THE PELARGONIUM; or, Practical Observations on its Cultivation. By JOHN DOBSON, Woodlands Nursery, Isleworth. Price 6d.; or post free from the Author, 8d. London: HAMILTON, ADAMS, & Co.

Second Thousand, price 3d, (or post free 4d.,) No. 1. of

A MANUAL OF BRITISH BUTTERFLIES AND MOTHS. By H. T. STAINTON, Editor of "The Entomologist's Annual."

To be completed in about Thirty Monthly Numbers. The first four Parts will comprise the whole of the Butterflies!

"Contains an excellent and concise description of the various species, illustrated with woodcuts, with their peculiar locality, time of appearance, &c."—*Brighton Gazette.*

London: JOHN VAN VOORST, 1, Paternoster Row; and to be had of all Booksellers and News agents.

CHEAP BOOKS.

SECOND-HAND COPIES OF MACAULAY'S ENGLAND, Vols. III. and IV., SYDNEY SMITH'S MEMOIRS, WESTWARD HO! and many other works of the past and present season are now on sale at MUDIE'S Select Library. Lists of prices for March may be obtained on application.

CHARLES EDWARD MUDIE, 511, New Oxford Street, London; and 76, Cross Street, Manchester.

Post free One Shilling.

MEDICAL GALVANISM AND KINESIPATHY, for the Cure of Chronic Diseases of the Liver and Digestive Organs, Nervous, Rheumatic, Scrofulous, and Paralytic Affections, Tumours, Spinal Weakness, &c. By Mr. H. DOHERTY, 10, Conduit Street, Regent Street, London.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1d. per square yard; 200 yards, 14s; 500 yards, 30s.; 1000 yards, 50s.; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

METCALFE, BINGLEY, AND CO'S OATMEAL and CAMPHOR SOAP, in tablets (registered Nov. 3, 1854). Price 6d. each. This soap will be found the purest and most perfect winter soap ever introduced to the public. It preserves the hands from chapping and renders the skin soft and agreeable. Sold wholesale and retail by the inventors and sole manufacturers, METCALFE, BINGLEY, & Co., Brushmakers and Perfumers to H.R.H. Prince Albert, 130B and 131, Oxford Street.

CAUTION.—To prevent fraud, each table bears the registered mark and the names and address of the inventors, as above.

METCALFE'S ALKALINE TOOTH POWDER, 2s. per box.—The above may be obtained of most respectable Chemists, Perfumers, &c.

HOLLOWAY'S PILLS AN EXCELLENT MEDICINE.—Perfect digestion and Pure Bile produce good blood, and if the functions of either the Stomach or the Liver are disordered, Holloway's Pills will assuredly repair the mischief, and enable them to supply the channels of circulation with an uncontaminated fluid. Then in cases of Bile, Indigestion or disordered stomachs, why not use this invaluable remedy, which has cured thousands when every other medicine failed? The number of years these Pills have been in use confirm the efficacy of their good effects.—Sold by all medicine vendors throughout the world; at Prof. HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dullness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1s. 1½d. and 2s. 9d. per box.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16s. per Ton, less quantities 1s. 6d. per bushel, delivered five miles, or to any London Wharf or Railway.

PEAT and LOAM of various kinds. Sacks cost price (or hire 6d. each). Terms cash. J. KENNARD, Swan Place, Old Kent Road.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

WANTED TO RENT, a SMALL FARM, from 10 to 40 Acres, with suitable House and Buildings for the quantity of Land. To enter at Lady-day next.—Direct to W. S. Ranelagh House, Fulham, near London.

WANTED TO RENT, for a term of years, a FURNISHED HOUSE, on a Moderate Scale, with a little land, and good Partridge and Covert Shooting well preserved, in any of the counties near London, or in Norfolk, Suffolk, or Dorsetshire. The soil must be dry and Turnips grown abundantly.—Mr. IMPSON, 23, Park Street, Grosvenor Square.

AVISFORD HOUSE, SUSSEX.

TO BE LET, FURNISHED, for one, two, or three years, this charming and commodious country residence, with Stables, Gardens, and Hothouses. Situate four miles from the sea, and within 10 minutes' drive of the London, Brighton, and South Coast Railway; equidistant between Brighton and Portsmouth; four miles from Arundel, and seven from Chichester. No keeper of a Seminary, a medical, or other establishment of this nature, needed apply.—For terms, &c., apply to Mr. ELGOOD, 98, Wimpole Street, London.

TO BE LET, A HOUSE very pleasantly situated, overlooking Buckingham Palace Gardens. Lease Seven years at 90l. a year. Stables may be had attached to the house.—To be seen by inquiring at 9, Lower Grosvenor Place.

HAMPSHIRE.

TO BE LET, in the neighbourhood of the Winchester, Ramsey, and Dunbridge Railway Stations and Markets, in one or two FARMS, about 626 acres (of which 235 acres are now in the occupation of the proprietors), consisting of 532 acres arable, 70 acres downs, 20 acres pasture, and two Farm-houses, one of them of a superior description, with a variety of Farm-buildings, Manure-tanks, and Shed, suited to modern farming, in good repair. Entry at Michaelmas. If the land is let as one farm the best of the two houses will be let with it. Offers may be sent in on or before April 6. The outgoing tenant not a bidder. The highest offer will not be accepted, irrespective of other considerations. The Farms may be seen on application to the bailiff.—A. B., Post Office, Stockbridge, Hants.

TO BE LET, PAWLETT HAMS, near Bridgewater, in Lots, for GRAZING, from March 25th until December 31st, 1856.—For particulars, apply to Mr. HENRY SMITH, Pawlett, Bridgewater.

SEED DRAWERS.

TO BE SOLD, an excellent Nest of SEED DRAWERS, 10 feet by 4, containing 30 drawers 11 by 9 inches, and 10½ inches deep, and 45 drawers 8½ by 7 inches and 6½ inches deep, all having solid mahogany fronts and lettered with black on a gilt ground. Price 6l.—Apply to WOOD & INGRAM, Huntingdon.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15s. per dozen, including case.—Address, Holme, Stilton, Hunts.

SILVER PENCILLED HAMBURGH EGGS.

MR. EDWARD ARCHER, Malvern, will supply EGGS from the birds stated below at 15s. a set of 13, packing box included:—The run contains a Cock and seven choice Pullets. The Cock is two years old, and has taken 1st prize at Birmingham, 1854; the Liverpool Cup, 1855; several first and second prizes since, and 1st at Liverpool, 1856. Four of the Pullets have been exhibited alternately, and have taken the following prizes:—2d at Anerley; 1st at Bridgnorth; 1st at Bedford; 1st at Taunton; 3d at Birmingham; and the Silver Cup at Liverpool, 1856. The three sister Pullets have not been exhibited. Post Office Order must accompany the order for Eggs. The birds may be viewed at any time.—Malvern, March 15.

Sales by Auction.

FANCY POULTRY.—EXTRA SALE 18TH MARCH.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 18th March, at 12 o'clock precisely, CHOICE POULTRY, including Sebright Bantams, first class Birds from the yard of a well-known Fancier, and some from Mr M. Leno; Hamburghs and Polands from C. E. Coleridge, Esq.; a selection of Various Breeds from the Rev. J. H. Gandy, of Taunton, including Prize Birds, Dorkings, Spanish, Cochins, Game, &c., many of which are first class Birds; also some first-rate Carrier and other Pigeons from Mr. Geo. Potter, of Old St. Pancras Road.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden

AN IMPORTATION OF BULBS AND SEEDS FROM INDIA.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on SATURDAY, the 22d March, at 1 o'clock precisely, about 50 Flowering Bulbs of LILIUM GIGANTEUM in capital condition, and 90 lbs. of Seeds of CONIFERS, including Cedrus Deodara, Pinus excelsa and Pindrow, Cupressus torulosa, &c.—May be viewed on the morning of sale, and Catalogues had.

ROSE TREES.

MR. J. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden, on SATURDAY next, 22d inst., at 1 o'clock precisely, 800 ROSE TREES, of the best sorts of Hybrid Perpetuals, Bourbons, Noisettes, Standards, Half Standards, and Dwarfs; and 100 TEA ROSES in Pots.—May be viewed on the morning of Sale, and Catalogues had.

MR. J. WILLMER will Sell by Auction at the Mart, Bartholomew Lane, City, on WEDNESDAY, March 19th, at 12 o'clock, a choice Collection of CARNATIONS, PICOTEES, PINKS, ROSES, DAHLIAS, LANCASHIRE GOOSEBERRIES, AMERICAN PLANTS, &c.—On view the morning of sale. Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, March 20, at 12 o'clock, about 150 fine Double Camellias, from 1 to 5 feet, comprising all the best kinds, well furnished with bloom buds. Also fine Standard and Dwarf Roses, choice American Plants, Ornamental Trees and Evergreens, together with Verbenas, Fuchsias, Pæonias, Dahlias in dry roots, &c.—On view the morning of Sale. Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual, of first-rate quality.* It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—March 15.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.

Hedenham Rosary, March 15.

CARNATIONS, PICCOTEES, ETC.

CHARLES SCHOFIELD has this spring a fine healthy stock of the above; also PINKS, PANSIES, &c. Catalogues on application containing descriptive lists of those and many other Florist Flowers. Pansy Seed selected from the finest show flowers, 2*s.* 6*d.* per packet. Hollyhock Seed, extra fine, 1*s.* 6*d.* to 2*s.* 6*d.* per packet.—Knowsthorpe, near Leeds.

TO THE LOVERS OF DELICIOUS FRUIT.

ORION MELON, the winner at Regent Street and Crystal Palace, is a fruit of great beauty, from 4 to 6lbs in weight, thin skin, thick flesh, luscious as a melting Peach, fragrant and rich as a Pineapple. 6 seeds out of the Prize fruit free per Post, 1*s.* 6*d.*—Address, THOMAS WILD, Ipswich.

CHOICE CALCEOLARIAS.

JOHN COLE begs respectfully to offer a few dozen strong healthy unbloomed Seedlings of his matchless Calceolarias, saved from select sorts carefully impregnated. J. C. is happy to say his Seedlings have given great satisfaction the past two seasons, and many parties have written again for them. 3*s.* per doz., 25*s.* per 100. A remittance expected from unknown correspondents.—Keyfield Nursery, St. Albans, Herts.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

NEW CINERARIA, "DUCHESS OF LANCASTER."

H. WATKINSON, NURSERYMAN and FLORIST, Manchester, intends sending out for the first time, on the 19th inst., the above splendid new CINERARIA, which is decidedly one of the best that is coming out. Colour, pure white ground, with bright blue tips, and dark purple disc; flower, large and stout, of superior form; dwarf, compact habit, and of free growth. As a show flower quite indispensable, as it is so very attractive. Took first prize at the Manchester Botanical and Horticultural Exhibition last year, and was the admiration of all that saw it. Strong healthy plants 5*s.* each. Early orders are respectfully solicited.—March 15.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.

N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from his establishment.

THE LODDIGES' COLLECTION OF ORCHIDS.—This celebrated and unrivalled Collection, containing upwards of 1200 Species in 2000 Specimens (many of which are unique), and in the finest possible health, is now to be disposed of in One Lot, thus affording to any Nobleman or Gentleman commencing the cultivation of this beautiful tribe of Plants an opportunity of at once obtaining the largest collection in Europe.—For Terms and to view, address C. LODDIGES, Hackney.

THOMAS VEITCH AND Co., Western Counties Seed Depôt, 195, High Street, Exeter, will forward upon application their List of VEGETABLE and FLOWER SEEDS, postage free.

COLLECTIONS OF PRETTY FLOWER SEEDS.

12 varieties, 1*s.*; 12 do., 2*s.*; 12 do., 3*s.*; and upwards, according to quality and quantity. Sangster's No. 1 Pea (the earliest), 1*s.* 6*d.* per quart; Early Morning Star (much approved), 1*s.* per quart; Hair's Green Mammoth (very fine), 1*s.* 6*d.* per quart; other most esteemed kinds, 8*d.* per quart and upwards. Fulmer's Early Forcing French Beans, 1*s.* 6*d.* per quart, and all other articles equally moderate. The best varieties of Seed Potatoes, &c., &c.—March 15.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

SEED POTATOES.

WOOD AND INGRAM beg to offer the following, warranted true:—

Per bushel of 56 lbs.—	s.	d.	Per bushel of 56 lbs.—	s.	d.
Golden Dun Kidney ...	4	0	Golden Multiplier ...	4	0
Regents	3	0	Lapstone Kidney ...	3	6
British Queen	3	0	Chapman's do.	4	0
Houghton Park Seedling	3	6	Mitchell's Albion ...	4	0

Nurseries, Huntingdon, March 15.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

Per bushel—	s.	d.	Per bushel—	s.	d.
Ashleaf Kidneys ...	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to inform Gentlemen, Amateurs, &c., that he can supply them with the following, from a Stock of 20,000 Plants well rooted, and in robust health, including every choice variety grown.

CARNATIONS, 9*s.*, 12*s.*, and 18*s.* per dozen pairs.
PICCOTEES, 9*s.*, 12*s.*, and 18*s.* "
PINKS, 4*s.*, 6*s.*, and 9*s.* "
PANSIES, 4*s.*, 6*s.*, and 9*s.* per dozen plants.
BELGIAN DAISIES, 4*s.* and 6*s.* "
FLUKE KIDNEY POTATO, 3*s.* per bushel of 56 lbs.
SELECTED PANSY SEED, 1*s.* and 2*s.* per packet.
DELPHINIUM BARLOWI, 4*s.* per dozen.
Auriculas, Alpine Auriculas, Primroses, &c.

Priced and Descriptive Catalogues now ready for one stamp. Post-office orders to be payable at Middleton, Lancashire.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d.*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s.*

ROBERT M. STARK begs to intimate that his Catalogues for the Spring are now ready, and may be had on application. He would more particularly direct the attention of his friends to those containing Vegetable and Flower Seeds, Hollyhocks, and other Florists' Flowers, Herbaceous Plants, Ferns, &c., as they contain in addition to old established favourites every article of recent introduction really useful and likely to interest the Horticulturist, Florist, or Botanist.

Edinburgh: Edgehill Nursery, Dean, and 145, Princes Street.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2*s.* 6*d.* each, containing about 300 seeds, can now be had of Messrs. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (comes true from seed): decidedly one of the most lovely things in cultivation, deserving a place on every Lawn in England.

East Dereham Nursery, Norfolk, March 15.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

JOHN HENCHMAN, Jun., Edmonton, has still for sale a few collections of Cutting Plants from the Prize Calceolarias exhibited at the Great Crystal Palace Show. Price for 12 varieties, 12*s.* Seedling plants from same varieties, 5*s.* per dozen strong, 12*s.* and 18*s.* per dozen. Prize seeds, saved from plants exhibited, for early sowing, 5*s.* and 10*s.* 6*d.* per packet.

Fine healthy Double White Camellias, full of flower buds, at 24*s.*, 27*s.*, 30*s.*, 36*s.*, and 42*s.* per dozen.

Choice Indian Azaleas, full of flower buds, at 15*s.*, 18*s.*, 24*s.*; and choice specimen plants, 30*s.* per dozen. Remittance or reference requested from unknown correspondents.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

NAPOLEON, EUGENIE, AND PRINCESS, three of the most novel and beautiful DAHLIAS coming out this season, will be sent out by Mr. GLENNY, Horticultural agent, Fulham. Strong plants in May, 10*s.* 6*d.*, in priority of application.

GLENNY'S IMPROVED BALSAM, 6 classes, 37 stamps; mixed, 13; Pink, 37; Geranium, 37; bedding do., 13; Dahlia, 13; Sulphur Stock, 13; a dozen fine Annuals, 37 stamps.

GLENNY'S COMPANION TO THE GARDEN ALMANACK, the most important of the Author's Works, 1*s.*, publishing by HOULSTON & STONEMAN.

CHOICE PELARGONIUMS, ETC.

JOHN DOBSON AND SON are now sending out the following in good strong Plants, all requiring an immediate repotting:—

PELARGONIUMS (BECK'S).—New and beautiful varieties, and the best of other raisers. Choice show varieties, 12*s.*, 18*s.*, 24*s.*, 42*s.*, and 63*s.* per dozen, in extra strong plants.

FUCHSIAS.—The best of last season, including the white corolla varieties, 15*s.* per dozen; older varieties, 6*s.*, 9*s.*, and 12*s.* per dozen.

VERBENAS.—The best varieties (both continental and English) sent out last season, 12*s.* per dozen.

PANSIES.—A very large and healthy stock of all the best sorts sent out up to the present time, 6*s.*, 9*s.*, 12*s.*, 18*s.*, and 24*s.* per dozen.

A Descriptive Catalogue of Pelargoniums may be had on application. A liberal allowance in plants is made for distant carriage.—Woodlands Nursery, Isleworth.

SAMUEL FINNEY AND Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery; and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

SAMUEL FINNEY & Co., Gateshead, Newcastle-upon-Tyne.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

500 BUSHELS OF POTATOES TO THE ACRE.

THIS ENORMOUS CROP was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l.* 2*s.*, inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 8*d.*; fine Households, recommended for Bread-making, 12*s.*; Seconds, 11*s.* 4*d.*; Wheat-meal, for Brown Bread, 11*s.* 4*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 15, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 12.—1856.] SATURDAY, MARCH 22. {Price Fivepence. Stamped Edition, 6d.

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NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.

Prizes are offered on THURSDAY, March 27th inst., for 6 HYACINTHS; 6 Pots of other Bulbs; 3 Plants of PRIMULAS; 3 Blooms of CAMELLIAS. Three prizes to each. All subjects intended for competition must be staged by 12 o'clock, after which time none can be received.

NOTE.—If one or more Camellia Blooms be shown on the Plant instead of in a cut state, such will not disqualify from competition. Seedlings as heretofore.

On THURSDAY, April 24th, the subjects invited, and to which Prizes may be awarded, are, 4 AURICULAS, 4 POLYANTHUSES, 4 CINERARIAS. Three Prizes to each. Seedlings as heretofore. JOHN EDWARDS.

Part VIII., completing Vol. I. of the Society's Transactions, is in the Press, and will, together with the Schedule of Prizes for 1856 be published and distributed in a few days.

A GRAND FLOWER SHOW, open to all England, will take place on the occasion of the visit of the Royal Agricultural Society to Chelmsford, in the third week in JULY next. Further particulars will be announced in future Papers.
W. W. DUFFIELD, FRED. CHANCELLOR, Hon. Secs.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Exhibitions of this Society for the year 1856 will be held at Chatteris as follows, viz.:—The First Exhibition on WEDNESDAY, July 2; and the Second Exhibition on WEDNESDAY, September 10.

In addition to the usual Prizes the following will be offered, viz.: at the July Exhibition, for the best 48 varieties of Roses, single blooms, First Prize, a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l.* 10*s.* At the September Exhibition, for the best 36 Dahlias, dissimilar, First Prize, a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l.* 10*s.* All further information may be obtained on application to WILLIAM FRYER, Hon. Sec.
Chatteris, March 22.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.
An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

JOHN LAW, CURATOR OF THE BOTANIC GARDEN, Sheffield, begs to inform the nobility and gentry that he has had the privilege from the Directors for the last eight years to practice as LANDSCAPE GARDENER and GARDEN ARCHITECT. Plans and Estimates for Horticultural Gardens; Asphalte for Garden Walks and Carriage Roads laid down on the best improved principles. Terms on application.

CARNATIONS AND PICOTEES.
WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1*s.* to 1*s.* 6*d.* per pair.—Nurseries, Huntingdon, March 22.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s.* The Trade supplied.
T. F. WINSTANLEY, Seed Merchant, Manchester.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible description from* Messrs. WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

NEW CLOVER SEED, COW GRASS, AND ALSIKE CLOVER, *new and genuine, without any admixture of old or inferior seed, can be obtained from*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

GIANT SAINFOIN.—*The True Giant Sainfoin may be obtained genuine of the undersigned, at 10s. per bushel. It will thrive on all soils.*
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

GOOD CLOVER SEED.
GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of WM. BARRATT, Nurseries, Wakefield.

PERMANENT PASTURE
MR. SMITHE'S MIXED GRASS SEEDS for various soils are now ready for sale.—Cost per acre, 24*s.*, allowing 4 bushels to the acre. The Seeds will be delivered free of expense to the nearest Railway Station. Reference will be required from parties unknown.—Eastling, Feversham, Kent.

NEW FARM SEEDS.
SUTTON'S CATALOGUE *will be sent gratis and post free on application.*
SUTTON & SONS, Seed Growers, Reading.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. MORTON, Esq., *is now ready, and can be obtained from the Proprietors,*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 22.

THOMAS BARNES' CATALOGUE is now ready, and may be had on application, containing Descriptions and Prices of Dahlias, Fancy Dahlias, Fuchsias, Verbenas, Phloxes, Hollyhocks, Chrysanthemums, Mimulus, Petunias, Roses, Daisies, and Miscellaneous Plants for bedding, &c. &c.
Dane Croft Nurseries, Stowmarket.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is now ready, and will be sent free by post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.
Tollington Nursery, Hornsey Road, Islington, London.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l.* to 5*l.* The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—March 22.

AMERICAN PLANTS.
WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

WANTED IMMEDIATELY IN LIVERPOOL MARKET.

PINES, not under 2 lbs.	CUCUMBERS
SMALL MUSHROOMS	FRENCH BEANS
NEW POTATOES	LARGE ASPARAGUS

Forward to GEORGE TAYLOR, Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.
Terms—Cash.

TO THE SEED TRADE.
WOOD AND INGRAM have to offer a few quarters of BEDMAN'S IMPERIAL PEAS, TAYLOR'S WINDSOR BEANS, SCARLET RUNNERS, and DWARF FRENCH BEANS, at a very low rate. Prices on application.
Huntingdon Nurseries, March 22.

CEDARS.
A. PAUL AND SON offer for Sale CEDRUS DEODARA, 1 foot to 8 feet, from 1*s.* 6*d.* to 31*s.* 6*d.* each. CEDRUS LIBANI, 3 feet to 10 feet, 3*s.* 6*d.* to 31*s.* 6*d.* each. Magnificent specimens of the above and every intermediate size, *frequently removed,* may be had in any quantity, carriage free to London, from A. PAUL & SON, Nurseries, Cheshunt, Herts.

CHOICE CALCEOLARIAS.
JOHN COLE begs respectfully to offer a few dozen strong healthy unbloomed Seedlings of his matchless Calceolarias, saved from select sorts carefully impregnated. J. C. is happy to say his Seedlings have given great satisfaction the past two seasons, and many parties have written again for them. 3*s.* per doz., 25*s.* per 100. A remittance expected from unknown correspondents.—Keyfield Nursery, St. Albans, Herts.

CRYPTOMERIA JAPONICA.
R. GLENDINNING has just received fresh Seeds from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s.* 6*d.* each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

NEW BRITISH FERN.
ASPLENIUM REFRACTUM (MOORE). FOR DESCRIPTION AND PLATE SEE MARCH PART OF "NATURE PRINTING."
R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10*s.* 6*d.* each.
Paradise Nursery, Hornsey Road, Holloway.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (TRUE).
CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3*s.* 6*d.* each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

TO THE LOVERS OF DELICIOUS FRUIT.
ORION MELON, the winner at Regent Street and Crystal Palace, is a fruit of great beauty, from 4 to 6 lbs in weight, thin skin, thick flesh, luscious as a melting Peach, fragrant and rich as a Pine Apple. 6 seeds out of the Prize fruit free per Post, 1*s.* 6*d.*—Address, THOMAS WILD, Ipswich.

FOR BEST CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, &c., apply to JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

W. STEWARD AND CO., SEED STORES, Drake Street, Plymouth, can supply all the PRIZE CUCUMBERS, MELONS, &c., 6*d.* to 1*s.* per packet (post free). Imported and other FLOWER SEEDS, 100 sorts (post free), 14*s.* 6*d.*

NOTICE.
JOHN C. SOMMERS, 159, Fenchurch Street, London, begs to inform his friends and the public that he continues to buy on commission, and not on his own account, from respectable Growers and others, GARDEN and AGRICULTURAL SEEDS that may be depended upon for purity and correctness of stocks.
*** Orders from unknown correspondents must be accompanied with a banker's reference.

SKIRVING'S IMPROVED SWEDE TURNIP.—A Grower has for disposal a very superior Stock of the above, raised from selected and transplanted Bulbs, all growth of 1855, and guaranteed to grow not less than 90 per cent. Also a few cwts. of MANGEL WURZEL SEED, of fine selected stocks.—For price, &c., apply to Mr. D. TAYLOR, Nashenden Farm, Rochester, Kent.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

SEED BARLEY FROM THE CHALK.
MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

DICKINSON'S ITALIAN RYE-GRASS SEED is sold by himself (he has no deputed Agent) to Agriculturists only, 60*s.* per quarter for present payment.—New Park, Lymington, Hants.
The Pamphlet, 1*s.*, by Messrs. RIDGWAY, Piccadilly, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.
Fine selected GRASSES for PERMANENT PASTURE, 30*s.* per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.
Fine LAWN GRASS, 1*s.* per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. WHEELER & SON,
Nurserymen and Seed Growers, Gloucester.

TESTUDINARIA ELEPHANTIPES OR ELEPHANT'S FOOT.
WANTED, a PLANT of the above.—Apply to HUGH LOW & Co., Upper Clapton.

SALVIA PATENS.
TO BE SOLD, 120 fine old Roots of this beautiful Blue Salvia, price 2*l.* Terms cash.—Apply to A. B., the Post Office, Kingston Blount, near Tetsworth, Oxon.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

T. AND G. SWAILES offer fine one-year Seedling ASH, and two-year Seedling BEECH. Also EVERGREEN OAK, twice transplanted, 1½ to 2 feet, very fine, and well rooted.—Beverley, March 22.

JOHN HOLLAND begs to offer the FLUKE KIDNEY POTATO (true), in any quantity, at 3*s.* per bushel of 56 lbs.; 5*l.* per ton; strong sacks to hold 5 bushels (2¼ cwt.) 1*s.* 9*d.* each.—Bradshaw Gardens, Middleton, near Manchester.

FLUKE KIDNEY POTATOES, 5*l.* per ton; in quantities less than 1 ton, 6*s.* per cwt; sacks, 1*s.* per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.
HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS and Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s*. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s*. per acre.
Mixtures for improving and renovating old Grass Land, 1*s*. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s*. 3*d*. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS and CO., the Seedsmen to the Royal Agricultural Society of England, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.
Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to Thomas Gibbs & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE and CO., Seed Merchants, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "Rendle's *Agricultural Price Current and Farm Directory.*"

Swede Turnip of sorts, 10*d*. per lb., 1*s*. 4*d*. per qt., 5*s*. per gall
Scotch Turnips ditto, 10*d*. per lb., 1*s*. 4*d*. per qt., 5*s*. "
Common Turnips ... 8*d*. per lb., 1*s*. per qt., 4*s*. "
Tankard Turnips ... ... 8*d*. per lb., 1*s*. per qt., 4*s*. "
White Belgian Carrot ... 9*d*. per lb.
Long Red Mangel Wurzel, 6*d*. per lb.
Yellow Globe do. 6*d*. per lb.
Italian Rye-Grass, 9*s*. per bushel.
Scotch Perennial do. 7*s*., 8*s*., to 9*s*. per bushel.
Devon Evergreen do. 6*s*. to 7*s*. per bushel.

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

William E. Rendle & Co., Seed Merchants, Plymouth.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, and DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. Sutton *have a supply of true Seed, of each sort. Early application is requested.*

John Sutton & Sons, Seed Growers, Reading, Berks.

SUTTON'S SELECTED MANGEL WURZEL.—*The* MANGEL WURZEL ROOTS *grown from* Messrs. Sutton's *Seed gained the First Prizes at the Birmingham and many other Root Shows last season—(see* Times *Newspaper, December* 12, 1855.)

They were also much admired on Messrs. Sutton's stand at the Smithfield Club, shown in Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express*, and other papers of December last. At present, Messrs. Sutton can supply any quantity of Seed. Price of their selected Yellow Globe 9*d*. per lb. The prices of other kinds and of large quantities may be had on application.

Royal Berkshire Seed Establishment, Reading, March 22.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of Sutton's Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leas, Sutton's Renovating Grass Seeds may be sown with great advantage *in all such cases.* Price reduced to **9d.** per pound.

Sutton & Sons *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address John Sutton & Sons, Seed Growers, Reading, Berks.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND and SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—Free Delivery.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND and SONS,
Seed and Implement Warehouses, Stirling and Dublin.

GREENHOUSE AZALEAS.

A. PAUL and SON have to offer fine healthy plants of the following beautiful varieties of AZALEA INDICA in large 60 and 54-sized pots, 12*s*. the dozen; Alba, Smithi coccinea, Herberti, Fielder's white, Speciosissima, Carminata, Colorans, Diana, Grenvilli, Coronata, Aurora, Symmetry.

The following, of the same size, 18*s*. the dozen:—Lateritia, Variegata, Rubra plena fulgens, Murrayana, Optima, Prince Albert, Rosea Superba, Reine des Belges, Holfordi, Iveryana, Perryana.

The same sorts, in 48-sized pots, well set with bloom, 24*s*. and 30*s*. per dozen. A few larger plants 3*s*. 6*d*. to 5*s*. each. Carriage free to London.—Nurseries, Cheshunt, Herts.

SUPERB HOLLYHOCKS.

JOSEPH BUTLER, Gardener to R. Hills, Esq., Colne Park, Halstead, Essex, begs to inform the Nobility and Gentry that he has now ready for sending out most of the leading varieties of this beautiful flower from 4*s*. to 1*l*. 10*s*. per dozen. Catalogues will be forwarded on application, by enclosing one postage stamp.

CHOICE FLOWER SEEDS AT REASONABLE PRICES:—

100 packets	Choicest	Annuals and Perennials	...	17*s*. 6*d*.
75	ditto	ditto	ditto	... 13 6
50	ditto	ditto	ditto	... 10 0
25	ditto	Hardy Annuals	...	... 5 0

The above Seeds are all of last year's saving, and warranted to be free from any mixture of dead seeds, in full sized packets, with printed directions as to best mode of cultivation, describing height, colour, &c. The first three collections delivered free to any part of town. Imported German Collections in original sealed packets. Every description of Vegetable Seeds of the finest quality at moderate prices.

Charles Southby (late Fairbairn), Clapham.

POTATOES.

W. and S. GAINES respectfully invite attention to the following List of POTATOES:—

	Per bushel—*s*.	*d*.		Per bushel—*s*.	*d*.
Early Bath ...	... 5	0	Bread-fruit ...	... 4	0
" Flourball	... 5	0	Walnut-leaf Kidney	... 4	0
Hicks's Early ...	... 5	0	White Blossom do.	... 4	0
Ash-leaf Kidney	... 6	0	Cambridge do.	... 4	0
Nevill's Defiance	... 6	0	Fluke do. ...	... 4	0
Thruston's Conqueror	... 6	0	Jackson's Improved do.	6	0
Shilling's Early	... 6	0	Red Ash-leaf Kidney	... 6	0
Oxford " ...	... 6	0	Lapstone do. ...	... 4	0
Cockney " ...	... 6	0	Americans ...	... 6	0
Frame " ...	.. 6	0	Fortyfold	... 4	0
Tiley's Conqueror	... 6	0			

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2*s*. 6*d*., 15 varieties; packet at 5*s*., 30 varieties; Scarlet Runners, packet, 10*s*.; Dwarf French Beans, 12*s*. of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. Gaines, Seedsmen and Herbalists, Covent Garden Market.

WILLIAM KNIGHT, Florist, &c., begs to offer the following SUPERB FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—*s*.	*d*.
Antirrhinum, from 100 striped and spotted varieties	... 0	6
Balsam, from 25 best double varieties	... 0	6
Calceolaria, from 50 best spotted varieties	... 1	0
Cineraria, from 50 choice new kinds	... 1	0
Double Daisy, from 60 fine named varieties	... 0	6
Hollyhock, from 50 superb varieties	... 0	6
Mimulus, from 20 choice kinds	... 0	6
German Aster, from 24 fine large quilled varieties ...	... 0	6
Pansy, from 100 best show flowers	... 1	0
Sweet William, from 50 large double varieties ...	... 1	0
Verbena, from 100 of the newest varieties	... 1	0
Phlox, from 50 best perennial varieties...	... 0	6
Phlox Drummondi, 30 finest varieties	... 0	6
Dianthus atropurpurea plena, large double purple ...	... 0	3
" atrosanguinea plena, large double red ...	... 0	3
" sinensis plena, from 20 varieties	... 0	3
Alstrœmeria, from Van Houtte's Chilian varieties ...	... 0	6
German Aster, 12 fine varieties in separate colours ...	... 1	6
German Stocks, 12 ditto ditto ...	... 1	6
Double Wallflower, 12 ditto ditto ...	... 1	6
Double Poppies, 12 ditto ditto ...	... 1	0
Marigold, African and French, 12 ditto ...	... 1	6
Larkspur, double dwarf, 12 ditto ditto ...	... 1	6
Brompton Stocks, 12 ditto ditto ...	... 1	6
Salpiglossis, 12 ditto ditto ...	... 1	6
Zinnea elegans, 8 ditto ditto ...	... 1	0
Ipomœa limbata, a splendid climber	... 0	6
Primula sinensis, fine large varieties	... 0	6
Potentilla, from the best new varieties	... 0	6

Cucumber, Knight's Improved Hardy Ridge; this is the best variety ever offered for ridge culture, 1*s*. per packet.

Choice Hardy Annuals, 100 most approved varieties, 5*s*.; 50 ditto, 3*s*.; 36 ditto, 2*s*. 6*d*.; 12 ditto, 1*s*. 2*d*. Hardy Perennials, 50 choice varieties, 4*s*.; 25 ditto, 2*s*. 6*d*.—Catalogues may be obtained on application inclosing a postage stamp.

67, High Street, Battle, Sussex.

SPLENDID NEW BEDDING CALCEOLARIA CATTELL'S BEAUTY OF WESTERHAM.

JOHN CATTELL has much pleasure in informing the public that he has now strong healthy plants ready to send out of this very fine CALCEOLARIA. The foliage and habit is like Sultan, but the flower-stems not so tall, and the flowers are produced in the greatest profusion; the colour is a bright deep rich crimson, with a velvety centre, almost black; from its fine free habit, and striking colours, J. C. has no hesitation in saying it will become the most popular of the dark bedding varieties. Good plants in 4-inch pots, 5*s*. each, postage or hamper included.

J. C. has also the following fine Bedding Plants:—

	s.	*d*.
GERANIUM Beauty of Chipstead.—Most brilliant scarlet, of the cerise habit, extra fine bloomer, each ...	2	6
" Trentham Scarlet Gem.—Intense bright deep scarlet, the best of the large growing scarlets, each ...	1	6
" Virginium.—Pure white, with a very small spot of pale light purple in the upper petals, immense trusser, and extra free bloomer, each	2	6
Variegated Varieties.		
" Attraction (Gaines')	1	0
" Attraction (Kinghorn's).—Habit and foliage like Flower of the Day, with deep pink horseshoe mark, 21*s*. per dozen, each	2	0
" Silver King, each	1	6
" Silver Queen, each ... ... 2*s*. 6*d*. to	5	0
" Brilliant, 6*s*. per dozen, each	0	9
" Golden Chain, 6*s*. per dozen, each	0	9
GENTIANA acaulis, very strong, 8*s*. per dozen, each ...	0	9
DELPHINIUM Hendersoni, strong ground roots, 5*l*. per 100, 15*s*. per dozen, each	1	6
" magnificum, each	2	6
" Barlowi, 35*s*. per 100, per dozen	6	0
" grandiflorum maximum, 40*s*. per 100, 6*s*. per doz., each	0	9
CALCEOLARIA, strong plants of unbloomed seedlings from J. Cattell's established collection, in single pots, per dozen	4	0
" seedlings from store pans, per dozen	3	0
" from J. C.'s collection of new colours, very superior, in single pots, per dozen	6	0

A remittance or reference must accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

HOLLYHOCK, RED BEET, AND CELERY SEED

JOHN HOADE and SON, Nurserymen, of Addlestone, near Chertsey, Surrey, beg to offer to the public the following really choice Seeds:—

HOLLYHOCK.—Saved from 50 first-rate named varieties, no others being kept, at 2*s*. 6*d*. per packet.

RED BEET.—Of a peculiar high coloured and dwarf kind, for which they have been long famous, at 1*s*. per packet.

CELERY.—Solid, white, compact in its growth, and stands far longer than the ordinary kinds, at 1*s*. per packet.

Payment taken in postage stamps.

UNEQUALLED NEW MELONS.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath, Somerset, begs to state that he can supply the following:—

M'Ewen's Arundel Hybrid Scarlet and Green Flesh MELONS, and Monro's Crystal Palace and Golden Gauge ditto, 2*s*. 6*d*. per packet, or two packets for 4*s*.

The Champion Kidney and Early Emperor POTATOES, 5*s*. 6*d*. per peck, hamper and package included. For further particulars see Advertisements in this Paper March 1st, 1856, pages 130, 131.

All the CUCUMBERS can also be supplied as advertised January 26th, 1856, page 50.

PRIMULA SINENSIS saved from all the best coloured fimbriated varieties, 1*s* 6*d*. per packet.

DIGITALIS, or FOXGLOVE SEED, saved from 20 of the most superb striped and spotted varieties, 1*s*. per packet.

HOLLYHOCK SEED, saved from all the best varieties in cultivation, 1*s*. per packet; if required a packet containing 24 distinct sorts, all to name, will be sent for 5*s*.

Unequalled quilled GERMAN ASTER, 1*s*. per packet.

FRENCH ASTER, or PÆONIFLORA TRUFFAUT, about 20 of the most striking varieties, 1*s*. per packet.

CINERARIA SEED, saved from the most superb distinct varieties, 1*s*. per packet.

BALSAM SEED, saved from the most superb distinct varieties, 1*s*. per packet.

Very superior DWARF LARKSPUR, 6*d*. per packet.

A remittance must accompany every order by cash or penny postage stamps, when the whole or any part (as the case may be) will be immediately forwarded.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

500 BUSHELS OF POTATOES TO THE ACRE.

THIS ENORMOUS CROP was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was originally reared in Scotland, and is called by the grower the Scottish Champion, and has again proved to have surpassed all other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2*l*. 2*s*., inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. William Gowland, 4, Crooked Lane, London Bridge, London; or to Thos. B. Atkinson, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"Edward Bennett, Gr. to Sir Offley Wakeman, Bart.,
"Perdiswell Hall, Worcester."

SEED POTATOES.

J. C. WHEELER and SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s*. 6*d*.; per bushel, 9*s*.

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than any other sort, and far more free from disease, planted in the same soil and in every way alike."—Mrs. Canning, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. Bromfield, Sprouston Manse, N. B.

J. C. Wheeler and Son beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s*. 6*d*.; per bushel, 9*s*.

The Rev. R. O. Bromfield, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large.

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s*. per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s*. 6*d*. per peck, or 9*s*. per bushel, delivered carriage free.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

NEW AND BEAUTIFUL PLANTS.

THE ANNEXED LIST OF VALUABLE PLANTS has been selected from a large and rich collection of novelties; and the Advertisers having proved them to be desirable acquisitions, have therefore no hesitation in strongly and confidently recommending them. They will be severally announced, and SENT OUT FOR THE FIRST TIME DURING THE PRESENT YEAR BY

MESSRS. WILLIAM ROLLISSON & SON.

In answer to numerous Subscribers that have kindly ordered our NEW PLANTS, we beg to say that Nos. 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, & 24, will be ready for delivery as soon as our New Catalogue (which is now in the press) is issued. We have adopted this course in consequence of our new Catalogue containing names, with prices and description, of upwards of 200 New Plants in species and varieties, which will enable those that have ordered some of our novelties to have any others forwarded in the same package that they may be pleased to select therefrom.

1. MEYENIA ERECTA.—This beautiful plant is a native of the south-west coast of Africa, and was first discovered by Dr. Vogel, in the Niger Expedition, and introduced by us in 1854.

It is of easy culture, growing very freely in an intermediate house, or stove; of shrubby habit. By plant cultivators it will be hailed as a great acquisition, being of a colour so much to be desired in plants grown for show purposes, which is of a beautiful bluish purple, much superior to Thunbergia chrysops, or the well-known Maurandia Barclayana, with a distinct yellow eye or throat.

The blossoms are produced in the greatest profusion from the axils of the leaves, and shaped somewhat after the style of a large Achimenes flower, but with a tube considerably larger, and about 2 inches in length.

Without enlarging further on the merits and extreme beauty of the plant, we deem it quite sufficient to quote the opinion of Sir W. Hooker, who pronounced it to be the most beautiful plant of modern introduction.

During the past season it was exhibited as a new plant at the principal Horticultural Exhibitions, and received various prizes, with the highest encomiums that could be passed upon it. 21*s.* each.

2. AZALEA INDICA EMPRESS EUGENIA.—An Indica variety, of an excellent and compact habit, and blossoming in the most profuse manner: its colour is extremely pleasing, of a beautiful transparent rose, with intense spotting on the upper petals; the flowers are large and exquisitely formed.

We have much pleasure in being able to offer this superb variety, and make no doubt that it will be an universal favourite for many years to come: as some proof of its merits, we may add that during the past season it has received the following prizes:—First Class Certificate at the Horticultural Society's Rooms, Regent Street; Silver Medal at the Royal Botanic Society's Gardens, Regent's Park; First Class Certificate at the Horticultural Society's Exhibition, Gore House, Kensington. Plants 21*s.* each.

3. AZALEA INDICA IMPERATRICE JOSEPHINE.—Colour bright cerise, blossoms of good form, spotted on upper segments, free growth and excellent habit. 10*s.* 6*d.* each.

4. HOYA GRANDIFLORA.—This beautiful species was first discovered in the dense forest near the shore of the Island Næsa Kambangan to the south of Java and forwarded to us by our collector Mr. John Henshall; the flowers are equal in size to H. imperialis, but of a pure white, the foliage elliptic, and slightly lanuginous. 42*s.* each.

5. DENDROBIUM CYMBIDIOIDES.—This interesting pseudo-bulbous Orchid has been sent to us from Java: our Collector found it on one of the small hills adjoining the Mountain Megamendung in the western district; the flowers are of a lemon colour, freely produced in short spikes. 5 guineas each.

6. DENDROBIUM AMBOINENSIS.—This pretty dense flowering species was introduced by our collector Mr. John Henshall from the northern valleys of Amboina; the flowers are of a bright rosy red colour, tipped with pale green, and produced in clusters up the stem. 105*s.* each.

7. RHODODENDRON COCCINEUM PUNCTATUM.—This peculiar free flowering variety will be a desirable addition to our thoroughly hardy kinds: the habit is good, colour a crimson scarlet, and the flowers are richly spotted on all the petals, after the style of an Alstrœmeria. 15*s.* each.

8. RHODODENDRON INCOMPARABILE.—A useful, hardy, and very late blooming kind, with noble trusses of finely shaped bright red blossoms. 15*s.* each.

9. RHODODENDRON STAMFORDIANUM.—This variety is an immense acquisition, possessing all the sterling qualities which constitute a good Rhododendron, being perfectly hardy, late, and a profuse bloomer, with unexceptionable growth; colour crimsonish purple, with intense black marking on the upper petals, which renders it extremely attractive. 31*s.* 6*d.* each.

10. RHODODENDRON PAVONIUM.—A very conspicuous, late, and free blooming hardy variety, of a deep blush colour and rich dark blotch on the upper petals, similar to a Geranium. 15*s.* each.

11. RHODODENDRON CLOWESIANUM.—A free flowering thoroughly hardy kind; the blossoms are pure white, of exquisite shape, and the upper petals are strikingly marked with dark spots. 10*s.* 6*d.* each.

12. RHODODENDRON MAGNIFLORUM.—A late blooming hardy variety, with remarkably fine foliage, immense truss, and most gigantic blossoms; colour lilac purple, shaded with red, intensely spotted with greenish brown on the top petals. 21*s.* each.

*** A set of the above Six Rhododendrons, 4*l.* 15*s.*

13. DICTAMNUS ELEGANS.—A beautiful herbaceous plant with reddish crimson flowers, the spikes of blossom are much larger than in the older varieties; altogether it is a great improvement. 10*s.* 6*d.* each.

14. GERANIUM FULGENS
15. GERANIUM MODESTUM

Two charming little free flowering bedding varieties; full description will be hereafter announced. 10*s.* 6*d.* each.

16. ABIES CRASSIFOLIA.—This very distinct and handsome species has been raised from seed, being perfectly hardy; it will be a great acquisition. Grafted plants, 31*s.* 6*d.* each.

17. AZALEA HARTNELLI.—A new hardy variety that we can very strongly recommend; it blossoms freely with very large trusses, the flowers individually are also large and well formed: the colours are pleasing, and distinct from other existing varieties; top petal yellow; all the other petals of a light orange, peculiarly shaded with scarlet, and each spotted in a remarkable manner with brown at the base. We offer this variety with confidence, having selected it from several hundred seedlings, all of which were pretty, but not possessing sufficiently distinctive properties to entitle them to be named. 21*s.* each.

18. ERICA PHYSODES VIRESCENS.—This new and interesting distinct species we have lately imported from the Cape of Good Hope: the plant is of pretty close habit; the flowers somewhat resemble in shape the old and well-known E. physodes, but are considerably longer, and instead of being white, as in the last-named species, they are of a clear transparent green. 21*s.* each.

19. ERICA AMABILIS.—A very distinct and pretty variety, of good habit, belonging to the "retorta" section: it is a most abundant bloomer, the flowers individually are large and flask-shaped; colour white, shaded with rose. This variety will be very useful for autumnal exhibition purposes, as it blossoms from July to October. 15*s.* each.

20. ERICA AFFINIS.—This is a nice variety, much resembling our well-known E. Cavendishi, but for exhibition purposes it will be found a desirable acquisition, as it blossoms earlier than the last-named variety; the flowers are also a shade lighter, being more of a lemon colour; the habit is good, and the blossoms are produced in the most profuse manner. 10*s.* 6*d.* each.

21. FAGRÆA MORINDÆFOLIA.—This splendid stove plant has been sent to us from the district of Indramaya, in the western part of Java, by our collector Mr. John Henshall; its Magnoliaceæ-like foliage makes it extremely ornamental, added to which it blossoms with fine long terminal spikes, from which the flowers are produced in clusters; they are trumpet-shaped, of a soft rosy colour, with a pure white mouth. 21*s.* each.

22. FAGRÆA PEREGRINA.—A very handsome free-growing stove plant, collected by Mr. John Henshall at Bantam, in the western division of Java; it has fine lanceolate foliage, and blossoms with large bunches of white flowers. 21*s.* each.

23. RHODODENDRON RETUSUM.—A very distinct green house species, discovered by Mr. John Henshall on the "Pangerangse," one of the lofty volcanic mountains in the western part of Java, at an elevation of 10,000 feet above the level of the sea; the flowers are of a tubular form, freely produced, and of a beautiful golden yellow colour. See drawings in "The Florist," May No., 1855. 42*s.* each.

24. HUNTLEYA CERINA.—This is really a lovely orchid from St. Paul, of a delicate canary colour, very showy, and by far the handsomest species in this section. 210*s.* each

The following is a List of New and Good Plants, selected from our general stock of novelties, that were introduced by us and other horticulturists, and sent out for the first time during the past year: it contains the new plants imported from foreign growers that we have proved to be of sterling merit; and we also include in this list a few new plants of especial merit that we have imported from foreign horticulturists during the present year.

25. GESNERIA MIELLEZI.—This plant will be found a most desirable acquisition, and some idea may be formed of its beauty when we say that it is more handsome than G. Donkeleari; the flowers in shape are similar to the Gloxinia erecta, but produced after the manner of a Gesneria; colour, lilac purple, with a white throat. 63*s.*

26. BEGONIA SPLENDIDA.—This exquisite plant was discovered in Java by our collector, Mr. John Henshall, during his researches in the Indian Archipelago. It is an extremely beautiful plant, of ornamental foliage, the stems and leaves of which are covered over with a bright crimson hirsute down; altogether it presents so striking an appearance that it is alone much to be desired for its magnificent foliage, for which we are now offering it, the plant not having yet flowered in this country. 21*s.*

27. WEINMANNIA TRICOSPERMA.—A greenhouse plant from Valdivia, exceedingly handsome for its fine foliage, which is equal in beauty to that of a Fern; it is of good habit and easy cultivation. 10*s.* 6*d.*

28. MANDIROLA ROEZLI.—An extremely handsome Gesneriaceous plant, producing fine spikes of lilac-coloured blossoms. 7*s.* 6*d.*

30. VACCINIUM ERYTHRINUM.—A most beautiful evergreen shrub, from the volcanic mountains in Java, sent to us by our collector, Mr. John Henshall, who found it growing about 10,000 feet above the level of the sea; the habit of the plant is very dense and bushy, the foliage of a very dark green colour, ovate and thickly set: the flowers are of a fine bright crimson, produced in bunches at the axils of the leaves. This magnificent species will probably prove hardy, as V. Rollissoni has done. 21*s.*

32. AZALEA INDICA EULALIE.—This distinct variety we can strongly recommend; the blossoms are large, of thick waxy substance, blush colour, intensely and richly spotted with carmine. 7*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

33. LOMATIA FERRUGINEA.—This fine evergreen shrub was found in Chiloe and Patagonia, and is remarkable for its beautiful Fern-like foliage; as a fine-leaved greenhouse or conservatory plant, it is perhaps without a rival. 10*s.* 6*d.*

34. TYDÆA ELEGANS.—A beautiful stove plant from New Grenada, with bright scarlet flowers; very showy. 7*s.* 6*d.*

35. BIGNONIA CHRYSOLEUCA.—A distinct species, and a great addition to our stove creepers; the blossoms are yellow, tipped with white, exceedingly handsome and attractive. 10*s.* 6*d.*

36. MANDIROLA LANATA.—A pretty Gesneriaceous plant, of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; very fine bloomer. 10*s.* 6*d.*

37. ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; altogether this is a very distinct variety. 15*s.*

38. ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower, and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first seedling prize at the Royal Botanic Gardens, 1852. 21*s.*

39. HABROTHAMNUS ZEPHIRINÆ.—This is a very distinct plant; it produces its red blossoms in corymbs very profusely when only a few inches high. 15*s.*

40. BIOTA MELDENSIS.—This distinct ornamental plant is a valuable addition to our evergreen Coniferæ. It has been raised from seed, and is reported to be a hybrid between the Red Cedar (Juniperus virginica) and the Chinese Arbor-vitæ (Thuja occidentalis); being quite hardy, and a handsome free growing plant, we can strongly recommend it. 50*s.*

41. AMPHICOME EMODI.—A beautiful greenhouse plant from Northern India; flowers large, funnel-shaped, with an orange tube, and pale rose-coloured limb. 21*s.*

42. GENETYLLIS HOOKERIANA (syn. G. fuchsioides).—This is the extremely rare scarlet species, and the plant alluded to in Dr. C. F. Meisner's paper "On new Species of Chamælancieæ," recently read before the Linnean Society. It has been introduced from West Australia, and succeeds well in a greenhouse. 21*s.*

43. RHOPALA ORGANENSIS.—An exquisite ornamental stove plant, far exceeding in beauty any other sort in this family. 42*s.*

44. AUBRIETIA MOOREANA.—A distinct and very free flowering Alpine plant, of a purplish blue colour. 5*s.*

45. BIGNONIA ROLLISSONI.—A first-rate stove climber from Brazil; the blossoms are of a bright golden colour, tipped with white, which make a pleasing and striking contrast; the plant is of good habit, and the flowers freely produced in bunches. 21*s.*

46. RHODODENDRON PELARGONIÆFLORUM (Van Houtte's).—Pink, shaded with yellow, beautifully spotted; a splendid hybrid, extra. 42*s.*

47. BEGONIA SCAMANNI.—A very distinct species from Panama; leaves beautifully spotted. 10*s.* 6*d*

48. DAMMARA OBTUSA.—A most distinct and handsome species from New Caledonia; a great acquisition to our greenhouse Coniferæ. 63*s.*

49. CASTANEA CHRYSOPHYLLA (the Golden Chesnut of California).—This extremely interesting, hardy, and magnificent evergreen shrub we have much pleasure in offering as a great novelty; as an ornamental plant, it will rank foremost among our evergreens; any description we may give of this beautiful plant would but imperfectly convey a true representation of its character; the foliage is of a dark green on the upper surface of the leaves, and the under part of a beautiful golden colour, which gives to the plant a most remarkable feature. 63*s.*

50. RHODODENDRON FERRUGINEUM ALBUM.—This is precisely the same as the old R. ferrugineum, with the exception that it has blossoms of snowy whiteness; it is an interesting plant, and extremely rare. 31*s.* 6*d.*

51. RIBES SUBVESTITUM.—This new species has been introduced from California; its flowers are of a deep crimson, and the foliage highly ornamental. 10*s.* 6*d.*

52. SALISBURIA ADIANTIFOLIA INCISA.—This is a very interesting plant, with pretty laciniated foliage. 10*s.* 6*d.*

53. CALYPTRARIA HÆMANTHA.—A beautiful plant from Panama, easily cultivated in an intermediate house; the blossoms are produced in spikes, which are 2 feet long, having on each from 15 to 20 flowers, of a rich bright plum colour. 21*s.*

54. PTERIS ASPERICAULIS.—A stove Fern from the East Indies, and one of the most handsome of this pretty tribe; an indispensable plant in every collection where Ferns are grown. 15*s.*

55. CROTON DISCOLOR.—A truly magnificent ornamental stove plant, dark green on the upper surface of the leaf, with bright red underneath, which makes a striking contrast. 31*s.* 6*d.*

56. DIDYMOCARPUS POLYANTHUS.—A very free flowering, handsome, and desirable plant; the leaves are few, lying on the pot; the flowers are of a delicate pale lilac blue colour, and produced in a panicle, which rises from the base of the leaf. 15*s.*

BEGONIA OPULIFLORA MINIATA.—This remarkable hybrid has been obtained by fertilising B. opuliflora with B. miniata, and the result is that the variety now offered has the bright-coloured flowers of the last-named variety, but produced in umbels similar to B. opuliflora. 21*s.* each.

MESSRS. WILLIAM ROLLISSON & SONS, THE NURSERIES, TOOTING.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2*s.* 6*d.* each; also mixed, at 2*s.* per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th, 1855, page* 520.

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be; among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. C. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

WATERER AND GODFREY respectfully invite the attention of parties engaged in Planting to their fine Stock of the following HARDY ORNAMENTAL TREES, &c.

Araucaria imbricata, 2, 3, 4, 5, 6, 7, and 8 feet high, in quantities, all stocky well grown plants; the larger sizes especially it would be difficult to match.

Cedrus Deodara, 1½, 2, 3, 4, and 5 feet, by the thousand; do. a fine lot of larger, 6, 7, and 8 feet; do. some magnificent Trees, 10 to 15 feet. These are all in a famous condition for Transplanting, having been annually removed.

Cedars of Lebanon, 3, 4, 5, and 6 feet; do. a few splendid Trees, 10 and 12 feet.

Cedars Red Virginian, 5 to 8 feet.

Cedars, variegated white, 2, 3, and 4 feet, one of the handsomest variegated plants we know. We have a large stock. It is extensively planted at Elvaston Castle.

Cryptomeria japonica, fine plants, 4 to 7 feet.

Cupressus macrocarpa or Lambertiana, 3, 4, 5, 6, 7, and 8 feet. Nothing can be handsomer than some of the specimens of this fine hardy plant.

Juniper, Chinese, 2, 3, 4, and 5 feet; a fine lot of large plants, 6 to 8 feet.

Do. Irish, upright, 3, 4, 5, and 6 feet; do. larger, up to 8 and 10 feet. Our stock of the two last mentioned Junipers we believe to be quite unequalled, the Irish especially; the larger sizes are perfect columns.

Do. recurva, 3, 4, 5, up to 8 feet.

Do. hispanica or thurifera, 2, 3, and 4 feet.

Abies Douglasi, 2, 3, and 4 feet. A fine lot of large and very handsome plants, 7, 8, 10, and 12 feet.

Picea nobilis, several hundreds of nice plants, 1½ to 2 feet, well grown, and with good lead. None are grafted. A few taller specimens up to 6 feet.

Do. Nordmanniana, a large quantity of remarkably handsome plants, 1½, 2, 3, and 4 feet. Nothing can exceed the vigour of these plants, and all from seed.

Do. Pinsapo, magnificent plants, 4 to 7 feet high, in perfect health.

Pinus insignis, 1½ to 3 feet; a few good specimens up to 7 feet.
" Lambertiana, from seed, 4, 5, and 6 feet.
" Cembra, 3, 4, 5, up to 10 feet.
" Montezumæ, fine plants, 4 and 5 feet.
" macrocarpa, 2 and 3 feet, from seed.

Weeping Larch, clean, stems good, heads 7 feet high.

The following 10 varieties form a very singular group. They are of dwarf habits; the well known Abies Clanbraziliana may be taken as the type of the whole. We believe our collection to be quite unique, and, we may add, most interesting.

Pinus strobus pumila (the dwarf Weymouth).
" sylvestris pumila (the dwarf Scotch).

Abies Clanbraziliana	Abies pumila	All dwarf varieties of the Spruce Fir.
" compacta	" diffusa	
" pygmæa	" Gregori	

Picea pectinata pygmæa (the dwarf Silver Fir), Hudsoni.

Yew, common English, 3, 4, 5, 6, and 7 feet, in large quantities.

Do. upright, Irish, 4, 5, 6, and 7 feet; some splendid plants, 8 to 12 feet.

Do. Dovaston or Weeping, a great many fine plants, worked on straight stems, 7, 8, and 10 feet high, with good heads.

Do. adpressa, 2 and 3 feet.

Do. do., worked on common Yew, as standards.

Do. gold striped, 1½ to 2 feet, by the thousand.

Do. do., a splendid lot of plants, 4 to 6 feet.

Do. do., worked as standards on the common Yew, 8 to 10 ft. high.

Do. do., worked on Irish Yews, 6, 7, and 8 feet high.

Do. elegantissima, or new gold striped; a large quantity, 1½ to 2½ feet, and also worked as standards on the common and Irish Yews. We may safely assert our stock of Golden Yews is unsurpassed.

Do. yellow berried (true), very beautiful when in fruit as we have it, 1½ to 3 feet.

Libocedrus chilensis, 2 to 3 feet, very handsome and bushy.

Thuja Wareana, fine bushes, 3, 4, 5, 6, and 8 feet. This is one of the most useful, and, at the same time, ornamental hardy plants we possess.

Do. American, for hedges, doubtless the very best, 4, 5, and 6 feet.

Do. aurea, or Golden Arbor-vitæ. This plant originated at this Nursery; it has now, as it deserves, become a universal favourite. Our stock of it enables us to offer a choice of many hundred fine specimens, from 1½ to 3 and 4 feet high, and as much through—in fact, perfect globes.

Wellingtonia gigantea, a few of the finest plants in the country, being near 1½ feet high, and as much wide.

Hollies variegated, by the thousand, 2, 3, and 4 feet high. Some splendid Plants, 10 to 15 feet high.

We may here remark with reference to the large specimens alluded to in this Advertisement that every one of them is in a condition to transplant, and travel any distance with perfect safety. They have one and all been annually removed in our Nursery, and in soliciting a personal inspection of our stock, we believe we are justified in stating it offers a choice which is to be found in but few establishments of its kind in this country.

The Nursery may be reached in 40 minutes by Train from the Waterloo Station; and the South Western Railway Company having a Branch on to the North Western, enables us to send plants to all parts in trucks throughout, without packing and other extensive additions.—Knap Hill Nursery, Woking, Surrey.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3 0
Collection No. 2. in reduced proportions	2 0
Collection No. 3. do.	1 5
Collections for small Gardens ... ... 10*s.* 6*d.* and	0 15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2*s.* 6*d.*
" " in larger packets, mixed 2*s.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	*d.*
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8*s* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stock, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony-flowered French do. (Truffaut's)...	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p.46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 3*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.—Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	*d.*
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed, 1*s.*; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1*s.*; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Fu[illegible]e, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgbaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free; the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society
Established more than a hundred years.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.—The above kinds of Clovers will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHOICE PELARGONIUMS, ETC.

JOHN DOBSON AND SON are now sending out the following in good strong Plants, all requiring an immediate repotting:—

PELARGONIUMS (BECK'S).—New and beautiful varieties, and the best of other raisers. Choice show varieties, 12*s.*, 18*s.*, 24*s.*, 42*s.*, and 63*s.* per dozen, in extra strong plants.

FUCHSIAS.—The best of last season, including the white corolla varieties, 15*s.* per dozen; older varieties, 6*s.*, 9*s.*, and 12*s.* per dozen.

VERBENAS.—The best varieties (both continental and English) sent out last season, 12*s.* per dozen.

PANSIES.—A very large and healthy stock of all the best sorts sent out up to the present time, 6*s.*, 9*s.*, 12*s.*, 18*s.*, and 24*s.* per dozen.

A Descriptive Catalogue of Pelargoniums may be had on application. A liberal allowance in plants is made for distant carriage.—Woodlands Nursery, Isleworth.

SEAKALE SEED.—*Several Bushels of home-grown Seed can be procured from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEAKALE AND ASPARAGUS.—*Several hundreds of thousands still remain, and can be had at the lowest wholesale prices, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

COLE'S DEFIANCE RED CELERY.—*The best Celery of the season, of most excellent quality,* 1*s. per packet.*

BOSTON NEW VEGETABLE MARROW.—*A new and valuable introduction from America,* 2*s.* 6*d. per packet, can be obtained genuine from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SELECT CULTIVATED GRASSES FOR PERMANENT PASTURE, &c., on Sale by WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. For large quantities special contracts may be made at reduced prices.

Extracted from "RENDLE'S Agricultural Price Current and Farm Directory for 1856."

Our Mixed Grasses for Permanent Pasture, &c., have given the greatest satisfaction to all who have sown them. They are selected according to the best Tables—and will be sold at the lowest remunerative prices. Those who wish to make their own selection can purchase all the kinds separately.

MIXTURE FOR LAYING DOWN LAND TO PERMANENT PASTURE OR MEADOW.—The kinds are most carefully saved, all noxious weeds being excluded. The selections will contain several species of Festucas, Loliums, Poas, and Trifoliums, in such quantities as will best suit the soil for which the selection is intended. We usually send 2 bushels of light seed, and 12 lbs. of heavy seed per acre, which will be sufficient for most soils. The large increasing demand for Grasses for permanent pasture enables us to offer them at the reduced price of from 24*s.* to 30*s.* per acre, according to the sorts required to suit the soil. (Gentlemen in giving their orders are requested to state the quality of the soil, situation, &c.)

FOR LAYING DOWN PERMANENT LAWNS.—In Lawns, or Ornamental Parks, it is generally desirable to have a predominance of fine Evergreen Grasses. All the coarser kinds will, therefore, be entirely excluded, and the sward will at all times present a luxuriant and handsome appearance. The prices of the best Lawn Grass are 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s* per lb.

FOR PERMANENT PASTURE AND HAY IN ORCHARDS AND OTHER GROUNDS MUCH OVERSHADED WITH TREES.—We can supply a very excellent mixture of Grasses suitable for the above purposes at 30*s.* per acre, comprising two bushels of light seed and 12 lbs. of heavy.

FOR HEATHY OR MOORY LANDS WHICH HAVE BEEN IMPROVED WITH A VIEW TO THEIR PRODUCING BETTER PASTURE.—We can offer an excellent mixture for Heathy or Moory Lands, at 25*s.* per acre, with varieties which will thrive best on such soils. When the order is sent it is desirable that it should be stated whether the soil is of a *moist* peaty character, or of a *dry* nature in a high altitude.

FOR LAYING DOWN SHALLOW UPLANDS AND SHEEP WALKS.—For this purpose we can offer a very excellent assortment suitable for elevated situations, which we can render at 30*s.* per acre, to produce excellent food for sheep.

FOR LANDS IN PREPARATION FOR IRRIGATION, OR WATER MEADOWS.—In this mixture we place those varieties that, from their natural habits, will stand an excessive moisture. Price 24*s.* per acre.

MIXTURE FOR RENOVATING OLD PASTURES, PARK LANDS, &c.—We can supply an excellent selection for renovating Old Pastures, deficient of Clovers, and the finer Grasses, at 7*s.* 6*d.* per acre, comprising about 10 lbs. of seed, at 9*d.* per lb. This renovating mixture is very useful for such lands as do not require to be laid down afresh, when the plant is thin, whether by partial failure of seed, drought, or any other circumstances.

FINE GRASS SEED, FOR ORNAMENTAL PARKS, PLEASURE GROUNDS, &c., KEPT CONSTANTLY UNDER THE SCYTHE.—Our selection of fine Lawn Grass Seeds has always given the greatest satisfaction. We can point to our own Grounds as a remarkable instance of their superiority. In the year 1850, our Gardens in the Union Road were completely altered, the soil levelled, and laid down to fine Grass; the seeds were not sown till the beginning of June, and by the 30th of July following a very superior sward was obtained.

All orders delivered carriage free, see RENDLE'S "*Agricultural Price Current and Farm Directory for* 1856."

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.

PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

SAMUEL FINNEY AND Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery; and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

SAMUEL FINNEY & Co., Gateshead, Newcastle-upon-Tyne.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l.*; 80, 3*l.* 13*s.* 6*d*; 60, 2*l.* 16*s.*; 40, 1*l.* 18*s.*; 20, 1*l.*; in pots for forcing, not less than 10, 2*s.* each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s.*

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

		s.	d.
25	Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25	Azaleas, American varieties, do. do.	16	0
	Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25	Hardy American Plants, one of a sort, by name ...	10	6
12	Rhododendrons, including scarlet, white, and rose ...	12	0
	Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
	New yellow Rhododendrons, in pots, each ... 3*s.* 6*d.* to	5	6
	Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12*s.* to	18	0
	Cedrus Deodara, and other choice Coniferæ (see List).		
6	Fine hardy Magnolias, one of a sort	10	6
50	Dwarf Roses, two of a sort, on own roots	15	0
	Standard and half Standard Roses, best sorts, per dozen, 12*s.* to	18	0
	Fine Climbing Roses, per dozen	6	0
	Greenhouse Azaleas, best new vars., per dozen... 12*s.* to	18	0
	Camellias, fine sorts, well set with buds, per dozen ...	30	0
50	Choice Greenhouse Plants, one of a sort	45	0
12	Orchidea Plants, one of a sort, fine species	40	0
24	Choice Ericas, one of a sort	16	0
	Fine Pampas Grass, each	3	6
6	new sorts Mimulus, very fine early flowering	6	0
	Cinerarias, fine sorts, to flower early, per dozen... ...	10	0
	Fine New Double White, Pink and Blush Pæonies, p. doz.	8	0
12	Phlox, new French Perennial varieties	12	0
25	Hardy Herbaceous Plants, by name	10	6
	Carnations and Yellow Picotees, per dozen	10	0

FRUIT TREES.

	Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s.* each, or, per dozen	30	0
	Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
	Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
	Filberts, new, thin shelled, and red skinned, per dozen	4	0
	Strong Vines from eyes, and layers in pots, per dozen...	18	0
	Peaches, Nectarines, Apricots, Plums, and Cherries, grown for pot culture, per dozen...	18	0

Choice Flower Seeds, 18 papers, 5*s.*; 40 do., 10*s.*, free by post.
New General Catalogue of Plants for 1856 free by post.
Albion Nursery, Stoke Newington, London, March 22.

GARDEN EMBELLISHMENTS AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory, for aviaries, poultry houses, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to COTTAM & HALLEN, Iron Works, 2, Winsley Street, Oxford Street.

THE Manufacture of GARDEN NETTING by ANDREW HALL is now carried on just the same by THOMAS BRITTAIN & CO. in the same qualities, and orders executed with dispatch and care. ANDREW HALL, Manchester.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required. 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

NEW CONTINENTAL PLANTS.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. I. LINDEN, of the Royal Botanic Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following new and beautiful Plants:—

ACHIMENES (LOCHERIA) MAGNIFICA.—Dark vermillion red, spotted and rayed with deep violet, almost approaching a black, flowers two inches in diameter.

ACHIMENES (TYDEA) AMABILIS.—Delicate rose, with deep carmine markings, throat rayed and marked with white.

CUPHEA EMINENS.—Long bright red and yellow flowers, being larger than any other in this class. It is very abundant and free, and expected to make a fine bedding plant.

GONOCALYX PULCHER.—A beautiful little greenhouse plant, with bright waxy red tubular flowers, tipped with white. This lovely plant is as charming when out of blossom as when in, on account of the young growth being always of a lively rosy purple.

Messrs. E. G. H. & Son take this opportunity of expressing their pleasure in being enabled to offer the above beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

BEDDING CALCEOLARIA, Rosy Morn (Henderson's), bright orange and crimson shaded, free and very showy. 7*s.* 6*d.*
" General Canrobert (Henderson's), rich ruby or plum crimson, fine and distinct ... ... 7*s.* 6*d.*
" General Pelissier (Henderson's), scarlet orange, with yellow cap and edging ... ... 7*s.* 6*d.*
" Don Francisco (Henderson's), very dark velvety plum, with orange lip ... ... 7*s.* 6*d.*
" Ethel Newcome (Henderson's), deep golden yellow, profuse and fine habit, producing its blossoms in large bunches, and continues throughout the season a mass of flower. 7*s.* 6*d.*
" Don Saturnino (Henderson's), dark maroon, very dwarf and free ... ... 7*s.* 6*d.*
" Shirley (Henderson's), orange buff, fine habit, and profuse flowerer ... ... 7*s.* 6*d.*
" Little Dorrit (Henderson's), crimson shaded with orange, yellow cap ... ... 7*s.* 6*d.*

With the exception of General Pelissier, any six of the above, 36*s.*

Shirley and Little Dorrit belong to the class of Shrubby Calceolarias, with small narrow leaves, such as the old Augustifolia, and like it they have small flowers, which are produced in large bunches in the greatest profusion. All the others have large flowers in the way of Sultan, with the exception of Ethel Newcome, which is a hybrid between the two classes.

VARIEGATED GERANIUM.—Mountain of Snow.—The entire stock of this variety we purchased of J. T. Lennox, Esq. It is the most beautiful white variegated leaved Geranium in cultivation; in habit it is dwarf and spreading, like Tom Thumb; the foliage is large and fine, edged and marked with pure white, and which is in greater proportion than usual in this class of Geranium. The flowers are fine, and of a rich scarlet. ... ... 10*s.* 6*d.*
" Fairy Nymph.—This is another variety from the same raiser as the above, but quite distinct from it in habit, etc. The growth is very free and erect, similar to Mrs. Lennox: indeed, we need only remark that it is an improvement in every way on that variety. The white of the leaf is very pure, and the plant makes a good bedder. ... 7*s.* 6*d.*

GLOXINIA, Jacqueline (Henderson's), porcelain blue, with clean white blotch on the lower petals, towards the centre of which are small plum-coloured spots, flowers large. 7*s.* 6*d.*
" Ferdinand (Henderson's), French white, the three lower petals violet blue, with deep edging of white, large and fine ... ... 7*s.* 6*d.*
" Caterina (Henderson's), clear white, with dense narrow stripe of plum colour through the lower petals, distinct ... ... 7*s.* 6*d.*
" Battista (Henderson's), white, with large broad blotch of violet puce, throat spotted at base, flowers very large. 7*s.* 6*d.*
" Bletso (Henderson's), deep violet purple, with narrow stripe of white ... ... 7*s.* 6*d.*
Any four of the above ... ... 1*l.* 5*s.*

The above Plants and six of the best new FUCHSIAS of 1856 (for description of which see back Nos.) will be sent out in May, and next week will be advertised those Nurserymen throughout the United Kingdom who will have them for sale, and also parties able to supply the New Continental Plants.

The following coloured Plates are now ready, and may be had on application at 6*d.* each, or if by post at 8*d.* each, except when three or more are taken, when the postage will not be charged:—

ACHIMENES (LOCHERIA) MAGNIFICA.
" (TYDEA) AMABILIS.
CAMELLIA JENNY LIND.
CUPHEA EMINENS.
DIANTHUS ALBO-NIGRICANS.
FUCHSIA EMPEROR NAPOLEON AND VENUS DE MEDICI.

FLOWER AND GARDEN SEEDS.

A Catalogue of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.—Wellington Nursery, St. John's Wood.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

AGENTS:—

Messrs. Henderson & Co., Pine-apple Place, London.
Messrs. Bass & Brown, Sudbury.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester.
Messrs. Sutton & Sons, Reading.
Messrs. Rendle & Co., Plymouth.
Mr. J. Veitch, Exotic Nursery, Chelsea.
Messrs. Wheeler & Son, Gloucester.
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Messrs. Ivery & Son, Nurseryman, Dorking and Reigate.
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Messrs. Wm. Drummond & Sons, Dawson Street, Dublin.
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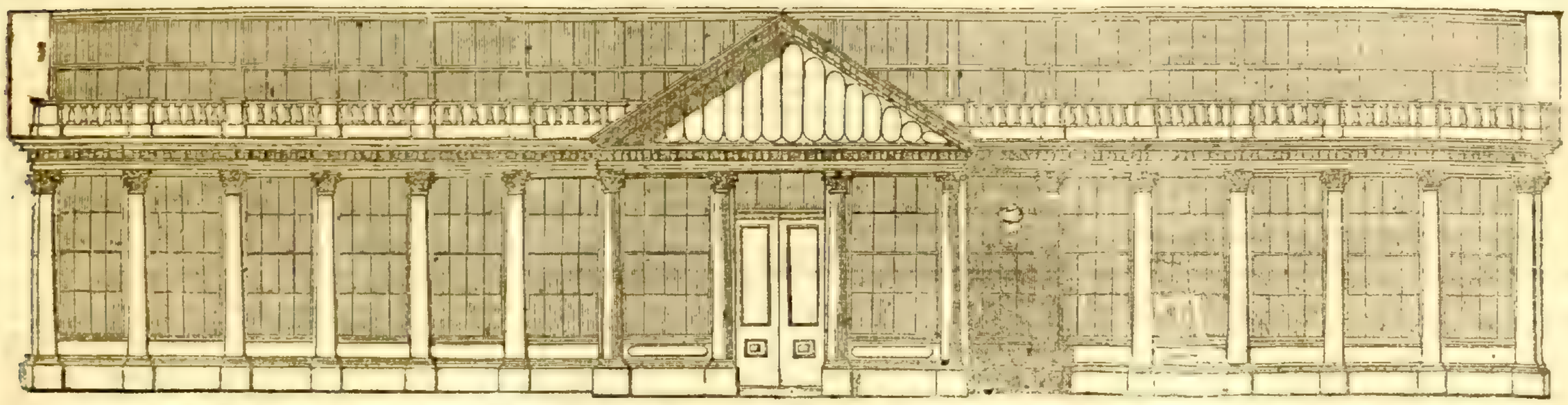
HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

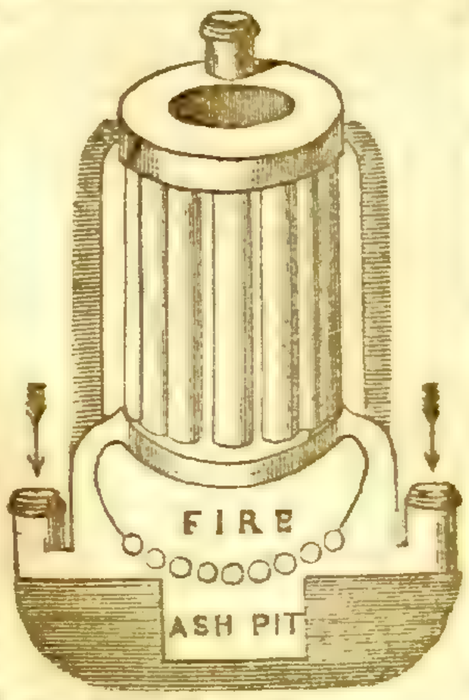
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

READ'S GARDEN ENGINES, SYRINGES, &c.

CAUTION.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of placing cards in shop windows, with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION. R. READ begs to caution the public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the ROYAL ARMS, and Address—35, REGENT CIRCUS, LONDON.

☞ *Descriptions sent post free.*

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

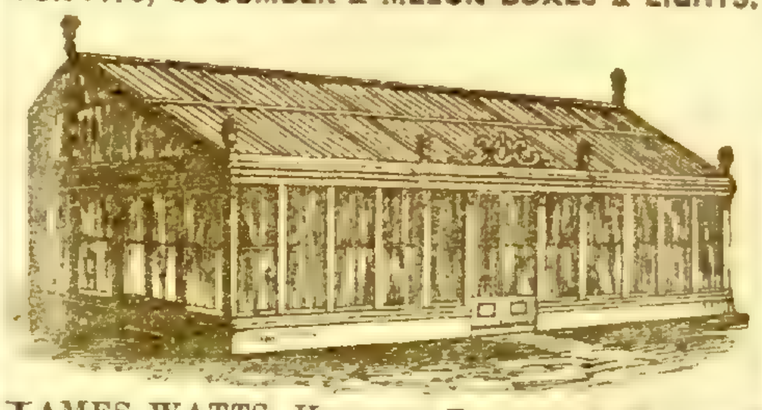
HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—Reference may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

W. HURD AND CO., 1, Smith Street, King's Road, Chelsea, beg to inform the Nobility, Clergy, and Gentry, that they have commenced Business as HORTICULTURAL BUILDERS AND HOT WATER APPARATUS MANUFACTURERS. Having been practically employed many years in the Firm of Messrs. Weeks & Co., Chelsea, they are thoroughly acquainted with every branch of the Business.

Churches, Halls, Mansions, and Public Buildings Heated by Hot Water. References to Works already executed.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE,

WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice.* Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THE KITCHEN GARDEN.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, continue to supply Collections of VEGETABLE SEEDS for large or small gardens, from 1*l.* to 5*l.* and upwards; these selections, made with the greatest care, and comprising the most useful and approved varieties, *have hitherto never failed to give purchasers the most complete satisfaction.*

J. C. & Co. beg to observe that all NEW SEEDS advertised, should they *not* be in their Catalogue, can be however supplied by them at the current prices. Their CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, will be forwarded *free of charge* upon application, and *post paid* to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2*s.* 6*d.* each, containing about 300 seeds, can now be had of MESSRS. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (comes true from seed); decidedly one of the most lovely things in cultivation, deserving a place on every Lawn in England.

East Dereham Nursery, Norfolk, March 22.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.

Hedenham Rosary, March 22.

SKIRVING'S IMPROVED SWEDE TURNIP.

MR. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, March 22.

JOHN HENCHMAN, Jun., Edmonton, has still for sale a few collections of Cutting Plants from the Prize Calceolarias exhibited at the Great Crystal Palace Show. Price for 12 varieties, 12*s.* Seedling plants from same varieties, 5*s.* per dozen strong, 12*s.* and 18*s.* per dozen. Prize seeds, saved from plants exhibited, for early sowing, 5*s.* and 10*s.* 6*d.* per packet.

Fine healthy Double White Camellias, full of flower buds, at 24*s.*, 27*s.*, 30*s.*, 36*s.*, and 42*s.* per dozen.

Choice Indian Azaleas, full of flower buds, at 15*s.*, 18*s.*, 24*s.*; and choice specimen plants, 30*s.* per dozen. Remittance or reference requested from unknown correspondents.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

NAPOLEON, EUGENIE, AND PRINCESS, three of the most novel and beautiful DAHLIAS coming out this season, will be sent out by Mr. GLENNY, Horticultural agent, Fulham. Strong plants in May, 10*s.* 6*d.*, in priority of application.

GLENNY'S IMPROVED BALSAM, 6 classes, 37 stamps; mixed, 13; Pink, 37; Geranium, 37; bedding do., 13; Dahlia, 13; Sulphur Stock, 13; a dozen fine Annuals, 37 stamps.

GLENNY'S COMPANION TO THE GARDEN ALMANACK, the most important of the Author's Works, 1*s.*, publishing by HOULSTON & STONEMAN.

SWEDISH TURNIP SEEDS.

JOHN B. WRIGHT, Hedderwick Hill, Dunbar, begs to offer to Agriculturists "Improved East Lothian Purple-top Swedes," grown by himself from carefully selected pure bulbs of crop 1855. The above is warranted quite free from all adulteration, and will be sent free to the chief railway stations, in quantities of not less than 50 lbs. Price 1*s.* 3*d.* per lb., including package.—March 1856.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10*s.* 6*d.* The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 8*d.*; fine Households, recommended for Bread-making, 12*s.*; Seconds, 11*s.* 4*d.*; Wheat-meal, for Brown Bread, 11*s.* 4*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

NEW TURNIP.

WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

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BENJAMIN WHITHAM, NURSERYMAN, &c., Clough Nursery, Mottram, near Manchester, can warrant that he has the best strain now out of CALCEOLARIAS, which he offers at the following low prices, viz.: in Pans at 1*s.* 6*d.* per dozen; No. 60 pots at 2*s.* 6*d.*; No. 48 pots at 4*s.*; and No. 36 pots at 6*s.* per dozen.

The cheapest place for miles round Manchester for Dahlias, Fuchsias, and all other bedding-out plants. The Spring Catalogue may be had on application as above.

GERANIUMS.

W. H. WHEELER, FLORIST, Hendon, Middlesex, has fine plants of the following at reduced prices:—Zoe (Hoyle's), King of Portugal, Jessica, Pandora, Una, Topsy, Petruchio, Seraskier, Serena, Fair Ellen, Phaeton, Lord Raglan, Omar Pacha, Floretta, Cato, Vesper, Frances, Attraction, Foster. The above for 2*l.* 10*s.*; a selection of 12, 2*l.* Cucumber Plants at 1*s.* each. Prices of small plants of the Geraniums on application. An Apprentice wanted.

POTATOES AND STRAWBERRIES.

GEORGE LEE, MARKET GARDENER, &c., Clevedon, near Bristol, offers the remaining surplus stock of POTATOES and STRAWBERRIES at reduced prices. They are of varieties he can confidently recommend. For names and prices see Advertisement March 15, 1856.—Post-office Orders payable at Clevedon, to GEORGE LEE.

N.B. The Strawberries which attracted so much attention at the Clevedon Horticultural Show last season were from Spring planted plants. It is now a good time for planting.

SEED POTATOES.

WOOD AND INGRAM beg to offer the following, warranted true:—

Per bushel of 56 lbs.—	s.	d.	Per bushel of 56 lbs.—	s.	d.
Golden Dun Kidney ...	4	0	Golden Multiplier ...	4	0
Regents	3	0	Lapstone Kidney ...	3	6
British Queen	3	0	Chapman's do.	4	0
Houghton Park Seedling	3	6	Mitchell's Albion ...	4	0

Nurseries, Huntingdon, March 22.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

Per bushel—	s.	d.	Per bushel—	s.	d.
Ashleaf Kidneys ...	6	0	Regents	3	6
Fluke ditto	5	0	Cockney	7	0
White Blossom ditto ...	5	0	Early Frame	10	0
Lapstone ditto	5	0	Snowballs...	4	0
Early Shaws	3	6	Fortyfolds	5	0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s.* 6*d.* to 40*s.*

PERMANENT PASTURE GRASS, *of the finest quality, can be obtained from the Subscribers. For a full description of all the best and most useful kinds, see* "RENDLE'S *Price Current and Farm Directory for* 1856." Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at 6d. per lb., or 14 lbs. for 6s.;* WHITE BELGIAN CARROT SEED, *9d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PERMANENT PASTURE GRASSES.—*Gentlemen intending to lay down Land to Permanent Pasture, or for two or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 30s. per Acre.

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ITALIAN RYE-GRASS SEED.

SUTTON AND SONS *having in anticipation of the present great demand for this invaluable article provided an extra large stock of the best quality seed, are still able to execute orders for either Sutton's Improved, Dickenson's, or Fresh Imported Seed. Instructions for cultivation are sent with the Seed. Early orders will be necessary. Priced Lists of Agricultural Seeds may be had gratis (post free).*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

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TO BE SOLD, Skirving's Purple-top Swede, Green Globe, and White Globe Turnip Seed, from selected bulbs; White Spanish and White Globe Onion Seed, all of 1855 growth; also Seed Potatoes as follows:—Fluke Kidneys, 90*s.* per ton; Early Shaws, 80*s.* per ton. Delivered either at St. Neots, on the Great Northern Railway, or at Swavesey (Eastern Counties Line).—Apply to Mr. COOPER, Eaton Socon, St. Neots, and Drayton, Cambs.

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ROBERT SALT begs leave to inform the Gentry, Nurserymen, Gardeners, &c., that this splendid variety of Rhubarb is now ready for distribution; it is universally allowed to be the most early, prolific, and delicious variety ever offered to the public.

For further particulars refer to *Gardeners' Chronicle*, Dec. 8th, 1855. A few two-year-old roots, 5*s.* each. Price 3*s.* 6*d.* per root, three for 10*s.*, and six for 1*l.*

Orders addressed to ROBERT SALT, Longton, Staffordshire; or the following agents, will have immediate attention:—Messrs. HURST & M'MULLEN, 6, Leadenhall Street, London; Messrs. BURGESS & KENT, Penkhull, Staffordshire; Messrs. FRANCIS & ARTHUR DICKSON, 1 6, Eastgate Street, Chester; Messrs. JAMES DICKSON & SONS, 102, Eastgate Street, Chester; Mr. SALSBURY, Melbourn, Derbyshire. A liberal discount allowed to the Trade. A Post Office order from unknown correspondents.

Longton, March 22.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

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GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM SEEDS *of genuine and superior quality, warranted all of the growth of* 1855.

Agriculturists residing in the most remote parts of the kingdom, can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

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PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

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PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

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Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

NOTICE.

Seed Warehouse, 54, High Street, Exeter

(OPPOSITE THE GUILDHALL).

JAMES VEITCH & SON,

OF EXETER AND CHELSEA,

BEG respectfully to inform their Friends and the Public generally that they continue to carry on the Seed Business as heretofore, in all its branches, and on the above Premises, 54, HIGH STREET, where it has been conducted for the last 18 years, and that they have

NO CONNECTION WHATEVER

with any other Seed Establishment in Exeter.

JAMES VEITCH AND SON wish it particularly to be understood that their sole motive in giving this Notice is to prevent MISTAKES and DISAPPOINTMENTS to their Customers, and to counteract any reports that have been or may be circulated to the contrary.

N.B.—They particularly request that all LETTERS and ORDERS for SEED be distinctly addressed

JAMES VEITCH & SON, 54, High Street, Exeter.

Seed Warehouse, 54, High Street, March 22.

The Gardeners' Chronicle.

SATURDAY, MARCH 22, 1856.

AT the last meeting of the Horticultural Society in Regent Street, some remarkable illustrations of the timber of the common OAK (Q. pedunculata), and of the Durmast (Q. sessiliflora), were brought under consideration; the object of doing so being to show three things—that these Oaks may be distinguished by their timber as well as other marks, that Durmast timber is at least as good as that of the common Oak, and that the belief in its want of durability is not only unsupported by proof, but directly contrary to evidence.

The large size of the medullary rays is well known to afford the means of distinguishing the timber; so that a practised eye can hardly fail to recognise the one or the other in cases where fair specimens can be examined. That small pieces of these Oaks may resemble each other is no proof that sections of mature wood cannot be distinguished. It is the large size of these processes which makes it so easy to rend the common Oak, while the Durmast refuses to submit to the operation. When genuine Durmast is contrasted with genuine common Oak, the distinctions are obvious; but in the opinion of all woodmen of experience there are varieties, or as some say hybrids, of each, which partake of an intermediate character in the foliage and acorns, and which may therefore be supposed to offer an intermediate condition of the wood. Of this we have an example now before us in a specimen from the county of Norfolk, which, because the acorns are on a very short stalk, has been supposed to be Durmast, although other circumstances show it to be merely a sessile-fruited variety of the common Oak, the only species we ever saw in the eastern counties.

An experiment as to the value of Durmast was made some years since in Portsmouth Dockyard upon

timber taken out of the Vindictive, a ship into which some marked specimens had been purposely introduced in 1832. When tested as to strength it was found that while common Oak from the same ship broke on an average under a weight of 931 lbs., only bending 4¼ inches, the Durmast sustained on an average the weight of 1032 lbs., and was deflected 5⅝ inches before breaking. This important experiment unfortunately stands alone, as far as we remember, but it seems to have convinced the dockyard authorities that they were wrong in rejecting Durmast, as had been the case for a great many years, and it is now in great request in the Royal forests, at least in the New Forest. It is very much to be desired, as we said some months since, that further experiments on this subject should be made carefully in different parts of the country. If the Durmast is found everywhere, under equal circumstances, to be tougher, or only as tough, as the common Oak, a very great fact will have been ascertained; for it grows considerably faster than the common Oak, is far handsomer, and moreover will thrive on land too light for the common species.

All writers admit that it grows faster; in this we find no difference of opinion; our personal experience is the same, and a series of specimens produced in Regent Street on Tuesday, bore evidence to the same fact. Two "rounds" were sent from the New Forest, *of the same size*, and growing in the same place. They had been selected by Mr. Cumberbatch as fair objects of contrast, and had been growing near each other; the Durmast had acquired its size in 107 years, while the common Oak had required 132 years to gain the same girth. A second case was still more striking. While at Arniston Mr. Brown selected for comparison two trees on that estate, slabs of which were produced; the Durmast had gained a diameter of 14 inches in 41 years, while the common Oak had done no more in 80 years.

Undoubtedly it is a common belief that fast-grown timber is less valuable than slow grown, and *vice versâ*. It is, however, very far from being proved that this is true. Indeed, we gave some striking instances to the contrary several years since, and we shall endeavour to revert to the question in a week or two.

For the purpose of showing that the prevailing belief of the want of durability in Durmast is a mistake, a number of interesting ancient specimens, still in good preservation, were exhibited. The durability of the common Oak hardly requires proof; it was nevertheless illustrated by pieces of timber taken out of Windsor Castle when under repair, and by portions of an ancient canoe or coracle, which had been discovered about 10 feet deep at the bottom of the "Slopes" of Windsor Castle by some workmen employed in digging a foundation for a bridge; with it were found deer's horns, Hazel-nuts, &c. The age of this relic although unascertainable must be very great, inasmuch as it was probably left where it was found at some period when the Thames, or a branch of it, reached the foot of the Slopes, a time no doubt far more remote than when "Cowy Stakes" were driven into the bed of the Thames. These examples were furnished by Mr. Ingram, H.M's gardener at Frogmore. Other specimens of common Oak were taken from the venerable church of St. Cross at Winchester, furnished by the Rev. the Master; from the foundation of the pier of Old Ouse Bridge at York, dating back to the 13th century; and a piece of one of the piles of Old London Bridge from Mr. Murray.

The specimens of ancient Durmast compared with these were as follows:

1. Timber from Glasgow Cathedral, from the Hon. J. K. Howard, F.H.S. 2. Part of a beam from West Boldon Church, co. Durham (a. d. 1300), furnished by Capt. Collinson, R.E. 3. A portion of a rafter in the church of St. Cross. 4. Pieces of the roof of Westminster Hall. 5. The end of a beam from Heslington Hall, a seat of the Yarburgs, built in the beginning of Elizabeth's reign. 6. Part of a staircase in the Abbot's house at York, prior to being occupied by Charles and James. 7. Part of the timber of the Hospitium of St. Mary's Abbey, York (about 1400 a.d.). 8. Part of a a Saxon log coffin; in excavating for new houses in Parliament Street, York, great numbers of these coffins were found. 9. Part of a huge boss from the centre of the roof of the choir of York Minster (end of the 14th century), saved from the fire in 1829. The five last had been contributed by Mr. Baines, of York.

It was impossible to say that the Durmast specimens were in any degree less durable than the others. The beam, indeed, from Heslington, and the half-burnt boss from York Minster, were in part as sound as when they were introduced into the buildings.

Nothing, therefore, can be clearer than that in the cases now mentioned the Durmast yielded in no respect whatever to the common Oak in strength and durability. There, however, still remains the unanswered question, viz., How far the quality of the Oak timber of either one species or the other is dependent upon soil or climate? It is certain that the Scotch foresters condemn the modern Durmast as they find it with them; it is equally certain that the woodmen of Dean Forest and the New Forest hold an opposite opinion. May we not suppose that Durmast, which is the common French species, requires a better climate than that of Scotland?

Surely this is an inquiry that ought not to be allowed to sleep; and which should engage the most serious attention of country gentlemen.

Under the head of "botanical geography" we propose to present to our readers comments upon some chapters in M. Alphonse De Candolle's "Geographie Botanique Raisonnée," which relate to meteorology and other subjects which have a direct bearing upon the every day operations of the gardener and agriculturist. From our notice of the work in question in September, 1855, (p. 615) it will readily be understood how high a value we place upon its contents, and we need therefore do no more here than assure our readers that the subjects we shall select have never been so ably treated by any naturalist; and that whether for their value and interest, or for their importance in a practical and economical point of view, they deserve to be carefully studied and followed out by those who possess the means and ability for doing so. With regard to the instruments required, they are of the simplest and cheapest construction; for their observation no great amount of skill or expenditure of time is demanded; and for working out the conclusions to be derived from them, none but the simplest rules of arithmetic are needed.

Hitherto the very facility of observation, the simplicity of the formulæ, and the cheapness of the instruments, have too often proved obstacles to the progress of meteorology, from having led to carelessness in the observations. The thermometers in common use are faulty to a proverb, and it is not too much to say that in nine cases out of ten no one attaches any confidence to the temperatures recorded by gardeners, though there is no reason whatever why these should not be as accurate as a record of Greenwich Observatory. The thermometer itself is so cheap that its goodness is seldom inquired into; and it is moreover often imagined that the relation of the mercury to the scale is analogous to that of the magnetised end of the compass needle to its card, and that as all magnetised compass needles must always point to the magnetic north, so all columns of mercury must stand at the same height at the same time, if placed in reasonable proximity to one another. As little regard is paid to the reading off as to the selection of the instrument, and the fact that it often makes several degrees of difference in the result, whether the observer looks from above or from below to the point of the scale where the mercury stands, is very often disregarded. So, too, with regard to the position of the instrument, its exposure and height from the earth; provided it is out of the sunshine few care where it is put. Paradoxical as it may seem, it is not the less true, that were the thermometer a costly instrument and one troublesome to consult, the science of meteorology would now be far advanced beyond its present stage, for few would have bought any but a good instrument, or failed to place it in a good position, to observe it accurately, and to work out the results conscientiously. Nine-tenths of the observations would then be available to science, whereas now the converse is the rule. Let any one who thinks these statements exaggerated, examine the records in our columns at the next accession of an unusual temperature, whether high or low, and ask how it is that places not a mile apart show differences of temperature of 10° and upwards at the same time, and this at times when the temperature is steadiest; and if he is still inclined to attribute this difference more to the influence of locality than to the causes we have named, let him read M. De Candolle's chapter upon the different temperatures of the air at heights of only a few feet above one another. Accurate instruments are now accessible to all at a most moderate price (though not to be procured for the trifle that is generally expended upon a gardener's thermometer); and simple rules for placing and observing them have been drawn up by men of experience, and whose position in the country commands our confidence; and to these we would refer such of our readers as wish to have something better than a toy for an instrument, and a deception for an observation.

On the Temperature of the Air at different Distances from the Ground.—Thermometers are usually hung 4 feet above the level of the earth, a height which gives the temperature to which many bushes are exposed, but which corresponds neither to that which the majority of herbs experience, nor to that of the foliage, flowers, and fruit of trees; it is, in short, that to which a very small proportion of the vegetable kingdom is exposed.

The formation of dew and hoar frost are familiar examples of the fact that the temperature of the surface of the soil is occasionally very much lower than that of the air above it; but though the observations of Marcet of Geneva, and of James Forbes of Edinburgh, have shown how the temperature varies at different elevations and under different circumstances, data are wanting from which any general laws may be deduced for calculating the ratio of diminution at different localities, seasons, and hours, from the surface of the soil up to 300 feet above it; at about which elevation the diminution due to the action of the soil itself is no longer appreciable.

At Brussels M. Quetelet made a series of observations, which are detailed by M. De Candolle, on the effects resulting from hanging the thermometer at higher or lower levels, and the following are the degrees indicated:—

Mean temperature of the year.

At the level of the soil	46°6	Diff. 3°
At 10.8 feet above it	49°6	

Mean temperature at 9 a.m.

	Surface.	10.8 feet elev.	Difference.
Winter	34°6	34°4	—0°2
Spring	44°1	49°3	+ 5°2
Summer	58°8	64°4	+ 5°6
Autumn	48°6	50°5	+ 1°9

Maximum temperature at 9 a.m.

	Surface.	10.8 feet elev.	Difference.
Winter	46°9	52°0	+ 5°1
Spring	57°9	67°6	+ 9°7
Summer	70°0	79°5	+ 9°5
Autumn	58°6	65°3	+ 6°7

Minimum temperature at 9 a.m.

	Surface.	10.8 feet elev.	Difference.
Winter	20°7	7°3	— 13°4
Spring	35°4	33°1	— 2°3
Summer	52°0	51°3	— 0°7
Autumn	37°0	34°5	— 2°5

These results are highly instructive. It has often been the subject of remark that the extreme temperature registered by the thermometer at the Horticultural Society's gardens at Chiswick (whose accuracy is undoubted) are respectively higher and lower than those of neighbouring localities; and the importance of the appended notice, that the instrument is placed only 4 feet above the soil (the best elevation for many horticultural purposes) is overlooked; whereas, if duly considered, the difference should be no matter of surprise at all: some of the thermometers about London being hung at least 7 feet from the ground, and against the trunks of trees; which, being warmed during the day, radiate heat during the night. In Brussels the thermometer at 10.8 feet elevation stands in summer 5°6 above one placed on the surface of the soil, and in winter a trifle below it; and at extreme temperatures, when the observations differ most and are most commented upon, the upper thermometer in summer and autumn stands on the mean 9°7 above the lower, and in winter 13°3 below it.

Further, as it is not at all unusual to hang thermometers both outside windows of upper storeys, the differences between good observations that find their way into print may be expected to be even greater than the above; and lastly, when it is added that an error of 2° is a common instrumental one, and that defective shading from radiation from surrounding bodies will engender errors of 6° or 8° more, it may readily be conceived that but for the fortunate circumstance that in the long run these errors in some degree compensate one another, the thermometer would run the risk of being banished from common use.

M. De Candolle says that, according to M. Marcet's observations at Geneva, the temperature ordinarily increases with the elevation above the ground, and that this difference is greater in summer than in winter, but that nevertheless in particular cases of extreme cold the difference is enormous; as for instance on the 20th of January, 1838, when an elevated thermometer stood 14° above another 50 feet below it.

In continental countries the differences are greater than in islands, because of the clearness of their skies, and their more variable temperature.

These observations prove that a tree, a bush, and a herb, growing side by side, are exposed to very different degrees of temperature; and we may add that it invalidates the means of comparison of a vast number of facts accumulated in England as to the effects of frost; for, putting aside the errors of instruments and observation, and the local disturbing causes that affect every place, it follows

that no available information is given by such facts as that at Brighton a temperature of 18° killed such and such a plant, whereas in London a temperature of 10° did not affect it; unless the height of the individuals be given, their elevation above the main level of the soil if planted on mounds, and that of the thermometer also.

M. De Candolle indeed observes that whereas the height of one and the same species is everywhere the same, whatever correction is to be applied to the observed temperature will probably not differ much in different countries; but from this opinion of the uniformity of the height of a species we altogether dissent, except it be greatly modified; for there are many of our native bushes, and far more of trees, that are on the average 3 feet higher over one large area than over another (of which the Oak, Furze, Broom, Juniper and Alder are conspicuous examples), and 3 feet may, as we have seen, be accompanied by a difference of cold which is far more than enough to kill, at a season when the temperature is already low.

Before dismissing this subject, we may so far digress as to observe, that happily for the practice of Horticulture, the injurious effect of cold depends primarily upon the suddenness of its accession, and secondarily on the epoch of the plant's life and of the year at which it supervenes; and that, except in extreme cases, the correction due to the elevation of the plant and of the thermometer is of subordinate importance; to which we may add the fact, that all species will under favourable circumstances endure unhurt a wide range of temperature above and below the mean which usually suits them best. The most conspicuous proof we can give of this is that in the Himalaya a large proportion of the species have on an average a range of 4000 feet in elevation; this corresponds to a difference of mean temperature of 13°. Take for example a tree growing from 9—13,000 feet, as the Himalayan Larch; it is exposed to mean annual temperatures of 44° at the lower and 36° at the upper limits of the range; and as the mean temperature of the hottest month at 9000 feet is about 55°, and that of the winter at 13,000 feet is 18°, this species is exposed to a range of 37° between these two extremes: further, the difference between the mean maximum of 9000 feet and the mean minimum of 13,000 feet is 24°, to which difference of temperature two specimens of the same species may be exposed under ordinary circumstances on the same mountain. This is independent of the effects of exceptional temperatures, and of solar and terrestrial radiation, which would far more than double the amplitude. That this is not at all an exaggerated statement every one conversant with the statistics of mountain meteorology will admit; and yet not only has the Himalayan Larch proved most difficult to cultivate in England, but the scarlet Rhododendron, which has a vertical range of nearly 8000 feet (or almost double that of the Larch), is still more so in the open air.

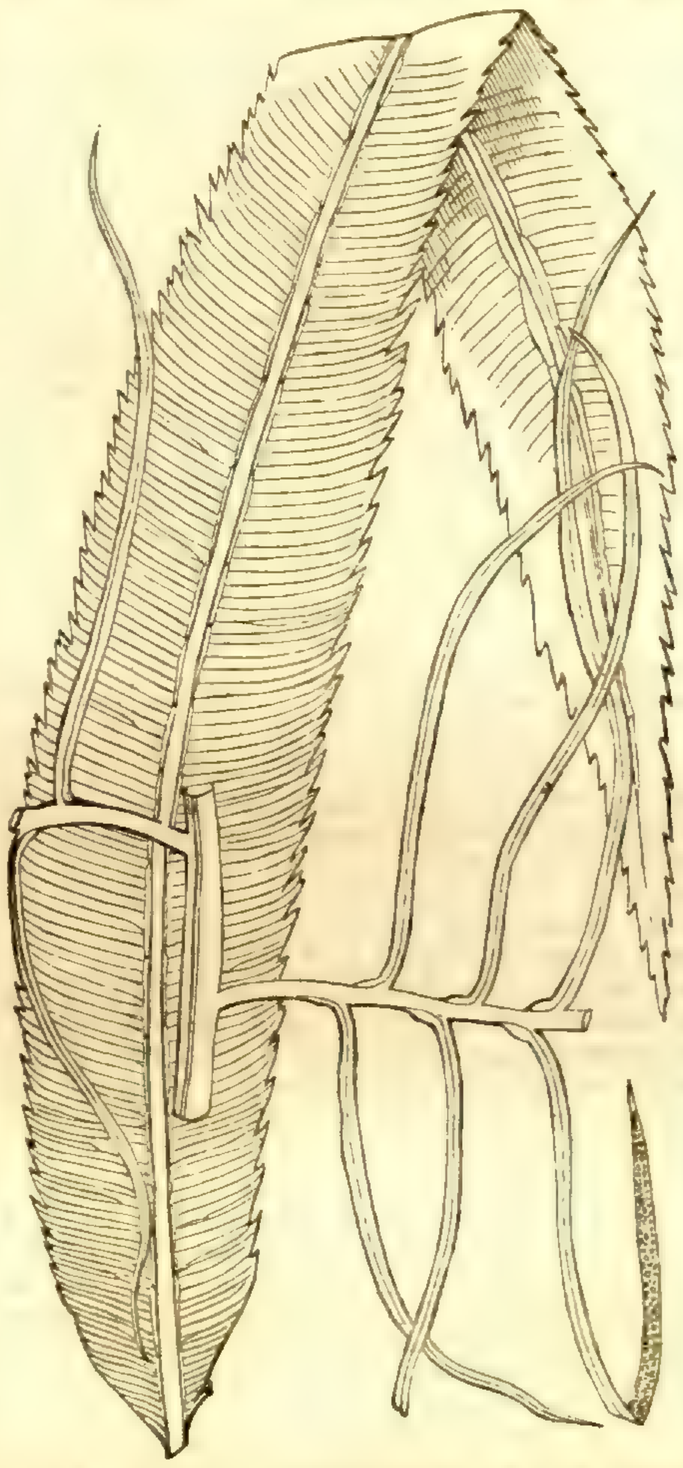
We may conclude this subject with M. De Candolle's own words, that it is no doubt vexatious to be so little able to appreciate the probable limits of the errors thus engendered, but that in the present state of the science it cannot be helped. *J. D. H.*

NEW GARDEN FERNS.—No. VIII.

19. Stenochlæna tenuifolia, T. Moore. Lomaria tenuifolia, Desvaux, Berl. Mag. v. 326. Lomariobotrys tenuifolia, Fée Gen. Fil. 46. Stenochlæna scandens, J. Sm. Bot. Mag. 1846, comp. 17; and of English, and probably all continental gardens.

Fronds dissimilar; sterile ovate pinnate; pinnæ linear-lanceolate, much acuminated, argutely cartilagineo-serrate, the lower stalked, the upper sessile; fertile bipinnate; pinnæ stalked, glanduliferous, and sporangiferous on the petiole; pinnules linear (3-4 inches long) sessile and decurrent posteriorly; stipes lateral and adherent to an elongated scandent rhizome.

This Fern, which is known in gardens under the name of S. scandens, was received at Kew in 1841 from the Berlin garden, and was supposed to be the Acrostichum scandens of Linnæus; but from specimens which have fructified at Wentworth, and subsequently we believe at Kew, it proves to be a very different species, correctly placed however in Mr. Smith's genus Stenochlæna. This group of Acrostichoid Ferns is a very natural one, marked by certain peculiarities in the venation, and also by the production of a very obvious gland on the anterior base of the pinnæ, similar to those which occur on the phyllodia of some species of Acacia; these glands occur near the base of the lamina in the sterile fronds, and on the petiole in the fertile ones, and are equally present in the original pinnate and the African bipinnate species, the latter differing however in having the pinnæ continuous with the rachis, whilst in the former they are articulated. The peculiarity in the venation is this, that the parallel forked and apparently free veins are in reality venules, that is secondary veins, springing from a series of veins which form very narrow costal areoles, sometimes not seen without a careful examination, at other times very obvious. It is the presence of this costal areole and of the gland, neither of them represented in any of the figures we have seen except in a small woodcut in the "Gardeners' Magazine of Botany" (iii., 130), which best distinguishes this from M. Fée's allied genus Lomariopsis. The Lomariobotrys of Fée cannot be separated from Stenochlæna. The cultivated plant forms one of the most elegant of evergreen stove Ferns, its rhizome climbing extensively, and its numerous large, smooth, shining, pendulous fronds having a strikingly beautiful appearance, when covering the wall of a damp Fern house, for which it is especially adapted. The sterile fronds are 2 to 4 feet long, with linear-lanceolate pinnæ sometimes nearly a foot long, acuminate at the apex, somewhat obliquely wedge-shaped at the base, and furnished with sharp, unequal, cartilaginous serratures on the margins. The gland is produced on the anterior side of the



wedge-shaped base. The fertile fronds are bipinnate the pinnæ stalked and narrowly margined at the base and there often sporangiferous as well as glanduliferous; the pinnules alternate, distinct, linear, 2 to 4 inches long, sessile, and somewhat decurrent at the posterior base. The plant agrees with Presl's Stenochlæna Meyeriana, the Lomaria Meyeriana of Kunze, in its bipinnate fertile fronds, and continuous pinnæ, but in South African specimens of the latter before us the proportions and attachment of the fertile pinnules are so different that they cannot well be associated, and our plant seems to agree more exactly with the Lomaria tenuifolia of Desvaux, with which Kunze compares his L. Meyeriana, the former, he says, differing in its sessile and much longer fertile pinnules, the very points in which ours differ so remarkably from the South African specimens. Desvaux's plant is a native of Madagascar, and this furnishes another inference in favour of its identity with the garden plant, which will not with us survive the winter in a greenhouse, as it should do, if a native of Natal or the Cape of Good Hope. The more obvious points of difference presented by the garden plant are the more acuminated and less decurrent pinnæ of the barren frond, the more distinct arcuate veins, and the two or three times longer fertile pinnules, which are not stalked but sessile and decurrent, and so long (often 4 inches) as to cross the rachis of two or three adjacent pinnæ, producing an intermingled mass of linear segments. The accompanying figure does not show the gland, which is present on the stalk of the fertile pinnæ. *T. M.*

VEGETABLE PATHOLOGY.—No. CXIII.

452. Albefactio* (*Blanching*). — One of the most important agents in the growth of plants is undoubtedly light. In its absence scarcely any function is rightly performed; perspiration is impeded, the tissues are weak, chlorophyll is not formed, and all the peculiar secretions are either entirely suppressed or greatly diminished; and as light is a complex body, under peculiar circumstances, where it does not reach a plant in its normal condition, as when for instance it passes through coloured glass, its effect even when present will not always be the same. It has been found by experiment that the effect of the luminous calorific and chemical rays are greatest when passing through a colourless medium, and that they do not pass through different coloured mediums in the same proportions.

453. All vegetables, however, do not require the same intensity of light. Seaweeds require frequently a very faint degree of light for their perfect development, and some fungi as Truffles grow in the complete absence of light, as is the case also in the artificial growth of Mushrooms † But even amongst Phænogams the powers of endurance are very different, mainly because exhalation and absorption are principally excited by its presence, and if the rootlets cannot absorb as fast as the moisture is abstracted from the leaves death must follow. Coloured glass, therefore, in the shape of lights or bells has been recommended, but it does not appear that any modification of light by such means is nearly so successful as simple shading. The only exception perhaps which should be made is in favour of those plants (as Ferns) which usually grow under the shade of trees, and therefore receive their light modified by passing through green leaves, and this perhaps is effected better by simply painting the glass with a thin coat of green than by any tinting in the glass itself.

454. Though light is necessary wherever green leaves are to be perfected, and on their perfection the health of plants in great measure rests, roots in general where they depend upon matter already stored up in a plant, as in a bulb or tuber, are developed more rapidly in its absence, and hence the benefit of placing bulbs which are to be grown in water in a dark room till sufficient roots are developed to supply moisture to the pushing bud. Where, however, they rely upon the leaves, as in cuttings, they require light for their development, as in the absence of light the leaves cannot remain healthy. In such a case the bell glass, if coloured, might be expected to be injurious, its object being merely to insure the cutting against the injury of too dry an atmosphere.‡

455. It sometimes happens accidentally that plants are completely shaded from the influence of light by being covered or obscured by some obstacle which will not admit the passage of its rays. Such a state it is obvious, if continued for any length of time, must end in death. Where there is the slightest admission of light, however, it is quite curious how plants under certain circumstances will travel after it, exactly as roots will travel after water. A Potato left in an obscure corner of a cellar has been known to send out shoots of many feet in length towards a crevice admitting light, and the same may be said of other plants under similar circumstances, and of all in some degree where light is not equally intense on all sides.

456. Plants grown in darkness are characterised by their tender tissue and the absence of peculiar secretions. These are qualities which render blanching an important process in horticultural practice. A Lettuce, for instance, when grown freely contains so large a quantity of Lactucarium as to make it unpalateable and unfit for food, and the same principle applies in many other cases, as in Celery, Asparagus, Cardoons, &c. Such varieties, then, are sought as by the natural conformation of the outer leaves protect some portion of the plant from the influence of light; hence we have Cabbages, Broccoli, Cabbage-Lettuces, and a variety of other excellent culinary productions, and where nature modified by art is not sufficient, the same purpose is obtained by tying up the leaves themselves, throwing up earth against them, forcing the plants to vegetate in cellars or other places to which light has no access, or to pass through such a depth of soil that a long mild succulent shoot is produced, instead of one hard in texture and harsh in flavour.

457. Where plants have suffered from absence of light, provided they do not remain too long in darkness, and the shoots are not too thin and lanky, its admission soon restores health. Pelargoniums, for instance, which have sprouted in a dark cellar, provided they are protected from a dry atmosphere soon acquire a green tint, and become perfectly healthy; and the same plant may be subjected to a similar process some years in succession without permanent injury. *M. J. B.*

* From *albus* white, and *fio* I am made.

† In the absence of light, however, fungi are not always perfected. Many species in mines, for instance, never attain their normal appearance. A beautiful production was forwarded to us some years since from a cellar at Bristol by Mr. Thwaites, resembling a Cauliflower without a vestige of hymenium. When placed under the influence of light numbers of pilei were developed, and the species proved to be Agaricus ostreatus. In this case, at least, the dictum of Fries that the hymenium is the creature of light was perfectly verified.

‡ In seedlings the first root depends on the nutriment collected in the seed. Light is unfavourable to germination however on other accounts. The translator of Lindley's "Theory of Horticulture," in his remarks on the germination of the Pæony does not seem to have noticed that the cotyledons of the Pæony remain imprisoned in the shell of the seed, like the cotyledons of the Acorn, Chesnut, Water Lily, &c. See Lindl. Theory of Hort., p. 25, ed. 2.

Home Correspondence.

Construction of Hothouse Roofs.—At page 152 you mention a proposal by Mr. Jones of Birmingham to support hothouse roofs with trusses applied to the roof at certain intervals apart. I beg to state that we have at this place a house 60 feet in length, 22 feet in width, 13 feet in height in the centre, and four feet six inches at the sides, supported with trusses, having no rafters or sliding sashes—bars the entire width of the house have only been used, the bars being very light, two and a quarter inches in depth, by one and a quarter in width, and 13 feet six inches in length. There is a longitudinal bar running the entire length of the house, half way up the roof on each side; the trusses occur at

every seven and a half feet, and are connected with the longitudinal bar by a strutt 18 inches in length, all being firmly screwed together; the trusses are well adapted for climbing plants although we have not used them for that purpose. The house is glazed with 15 oz. sheet glass, the squares being three feet five inches in length, and one foot six inches in width. The trusses are of half inch round iron. This house was erected in September 1855, the work all being done by workmen from the neighbouring village under plans devised and superintended exclusively by ourselves. It is much lighter than any house we have either seen or heard of, and it is said by all who have seen it to be a very elegant structure, and it is quite strong enough. The bottom ventilation is in the sides in the brickwork close to the ground, the top ventilation in the ridge in the shape of small rising lights, acting very efficiently, and when open there is a fine gentle breeze passing continually through the house. I have reason to believe this to be the first house that has been erected in this country on this light, elegant, and economical principle. *John Page, Gardener to Abraham Dixon, Esquire, Birches Green, Erdington, near Birmingham.*

Mixing Seeds.—As investigations are now taking place respecting the adulteration of articles of human food, I am gratified to find that through your exertions the shameful system of adulterating horticultural and agricultural seeds which has been carried on so extensively and profitably for some years past, will not be allowed to escape unnoticed. In this country we are almost entirely dependent for our supply of seeds on England, and it is therefore a matter of serious moment to us to find that this disreputable process of "cooking," as some of your correspondents aptly term it, is so well understood and so extensively practised there. But I will endeavour to show that the seed merchant is far too astute and cunning a man to go to the expense and labour of purchasing and killing Rape seed to mix with Turnip, notwithstanding that the former may be had at a much lower figure than the latter. The different sorts of Turnip seed can, in plentiful seasons, be bought at a very reduced rate; four or five years ago, for instance, Swedish Turnip could be had at Mark Lane at 80*s.* or 90*s.* per quarter, and the other varieties even at much less than this, and accordingly at that time large quantities were purchased and have been kept in stock ever since, this species of stock being known by the technical designation of 000 or trio, 4, 5, or 6 trio, according to its age, and is always at hand to mix with the neat seed in proportion to the vegetating faculties of the latter article. The trio has then merely to be winnowed by machine, well shaken up, with the addition of a little oil to give the necessary polish and new appearance, and this precious article goes forth to the world as "genuine" Turnip, Clover, &c., as the case may be. Last year afforded a good example of this; Swedish Turnip was sent out at 65*s.* and 70*s.* per bushel, though the original cost of the one half of it did not exceed 10*s.* or 12*s.*, and the other kinds of Turnip proportionately less; and if any of your readers will refer to the price lists of the different London wholesale seed houses, they will find that the quotations of this year, though under those of last, are still very high, especially when we consider how large an ingredient the 4, 5, and 6 year-old trio forms in the composition of any parcel of seeds quoted. Seedsmen may well chuckle at the great ignorance of the trade mysteries displayed by the uninitiated in their account of the Rape "cooking" process; and as for the proposal to appoint a man like Mr. Cuthill to report on the quality of seeds, it is, I fear, too impracticable to be entertained. In the present state of things, the only remedy the purchaser has, should he have been duped with a spurious article, is to bring an action at law for the amount of loss sustained on the deficiency of the crop. There is another point in connection with the subject of seeds to which I wish to allude, and one which I should like to see determined. It is well known that a large quantity of gas is burned in all large seed stores, and as gas is proved to be detrimental to books and furniture, there is some reason to fear that it may also act prejudicially on the vital powers of seeds; at all events, it is a point worth the attention of those interested in having good seeds, and might be easily set at rest by any of our eminent chemists. *Veritas, Dublin.*

The Barometer in N. S. Wales.—In a recent (!?) work on New South Wales, the author, Mr. Barron Field, observes, that in that country, where many things seem to be the exact opposite to our experience on this side of the globe, "the barometer rises before bad weather and falls before good." Can any of your correspondents give any explanation of the cause of this? *H. J. B.*

What to do with Sand.—A correspondent wants to know what to do with an acre of sand in the south of Ireland, near the coast. Why not set Liquorice?—there is a ready sale for any quantity, as it is very useful in mixing with wines, beer, &c., being innocuous. Guano on sand would be soon lost. Pinus Pinaster, if protected from rabbits, and planted thickly, will pay well in pure sand in a moist climate; in Peranzabuton (Cornwall) the sand rises some feet up the stem of the trees, and yet they are quite vigorous. *Somerset.*

Hothouses at Drayton Manor.—At page 152 you have done me the unsolicited kindness of mentioning the plans I took the liberty of submitting to you, of an improved mode of hothouse structure, in so flattering a way that I cannot resist the feeling to return you my grateful thanks. On perusing the article in question I think most of your readers would consider that Mr. George Stephenson had something to do with the ventilation of the hothouses at Drayton Manor, but in the whole arrangement and construction of those houses I was interfered with—and shackled—only by my own inability or want of knowledge to make them more perfect. The late Sir Robert Peel never knew of, or saw the ventilating drain-pipes until they were laid and in operation, when they were pointed out and their effect, as to altering the temperature of the air, shown to him, by the application of two thermometers, one in the descending pipe outside, and the other in the ascending one inside (the difference being full 10°). The late Sir Robert adopted the mode of construction of the present hothouses at Drayton Manor from his having frequently seen (and I believe approved of) the Frogmore houses during their erection. He placed the Drayton Manor matter in the hands of his architect, Mr. Sydney Smirke, and that gentleman was pleased ultimately to place the whole arrangement in the hands of myself and the then gardener (Mr. Milne), a confidence which I trust the result justified. I have not the honour of being "acting engineer" to the Crystal Palace Company, that office being most efficiently filled by Mr. A. T. Cooke, C.E. *J. Jones, Clerk of Works Office, Crystal Palace, Sydenham.*

Weedy Streams.—In the name of all that is natural, tasteful, and picturesque, what can your "Amateur" correspondent be thinking of, when he cements the bottom of "a winding rocky stream" through his garden "to keep it clean," and asks for a chemical compound to prevent the weeds from growing! Let him sell his winding rocky stream to some one who knows what to do with it, and go and buy a place near some well-filtered water supply where he can lead through Portland cement banks as much clean water as he likes, with no envious weeds to disturb its cleanness, or hide the "bed of cement" that keeps it from "contact with the earth." If he will not do this, let him try fish, snails, molluscs of all sorts, or waterfowl, to keep down the growth of weeds, which form their natural pabulum, rather than convert his winding rocky stream into a "dead sea" by chemical process. *J. G., Bury St. Edmunds.*

Rabbit Fence.—A cheap and effective method of keeping rabbits from burrowing under wire netting or an upright wooden frame, is as follows:—Take a narrow spade and dig out a rut under the wire netting from 9 to 12 inches deep, and fill the rut with broken brick-bats or rough gravel, then pour in thin hot lime grout till all the space is completely filled. I have been in the habit for these last 20 years of walling in the roots of fruit trees in the same way—a plan which I find answers remarkably well. I also find that these under-ground walls are very good for forming tanks for holding liquid manure in. *William Henderson, Dunkeld.*

Transplanting Evergreens.—I shall feel obliged by Mr. Rogers informing me whether he considers the middle of April the suitable season for removing common Yews. The strong reasons he has given for moving Hollies in April, instead of November, induce me to make this inquiry. *C. B.* [We cannot withdraw our objections to transplanting any kind of evergreen in the spring. Why take the risks of spring when you have October without risks?]

Pea-leaf Soup.—From what has been stated in your columns we have been induced to try this. Our first and second attempts did not come up to our expectations. The second was however an improvement on the first so far as colour and flavour were concerned; the only deficiency was substance, and that I am happy to say we successfully obtained in the third attempt. At the suggestion of a first-rate cook, we boiled a small quantity of a blue variety of Pea (the Prussian blue), put them through the tammy, mixed the two well together, and the Pea soup for colour, flavour, and body could not be surpassed even by midsummer productions. A quantity sufficient to serve a party of 14 can be raised at the expense (labour and space included) of from 2*s.* to 2*s.* 6*d.* One quart of the strong growing varieties is enough for sowing, and half a pint of Prussian blue or any other blue variety of Peas to boil separately. Mint ought not to be used; the less artificial it is the better. *Pea Green, Herefordshire.*

Cheap Reading Room.—Why cannot your correspondents do as I propose doing, open their infant schools every evening from 6 to 9, and on Sunday also between services, and charge nothing? This "is the rub" with countrymen, who, whatever they be, farmers or labourers, have a morbid dislike to parting with hard cash. *Somerset.*

Experiments with Charcoal, Sloping Banks, &c.—Permit me to inform "G. S." (see p. 174) that my object in directing attention to this subject was, as stated, to show "that we had an agent of some power at work if properly applied." I also said that it might be found most efficient under glass or coverings of some kind, and that it was in sunny weather that the effects were chiefly felt. But from the figures given—from a few hours' sun in March—enough was elicited to justify the hope that some practical good might result from repeated experiments. The figures in fact demonstrated the heating and radiating powers, and also showed their difference under covering; this having been done I do not see the aim of such remarks as the following: "And so far well, but it has an equally great power of radiation so that it will produce the greatest extremes of heat and cold * * * And again it produces a more unsteady temperature than where it was not applied." So far well, or so far not well, if it pleases "G. S." better; but he must know what everybody else knows, that though a black coat is the warmest in summer and the coldest in winter, yet it can be and is adapted to the comfort and welfare of the wearer even in the most "extreme" occasions, and by those too who need not be what "G. S." is pleased to call "Gulliver's philosopher" I may here state that before the earth banks, &c., can prove generally useful for the purposes shadowed forth, experiments should extend over at least two years. A correspondent thus writes—"My Strawberries and French Beans were all cut down in June last year—these are sad difficulties." Well, but just as you will plant Strawberries and French Beans as before, so do not give up the banks because your hopes may be blasted once or twice. But learn where your plans fail, and rectify them for the future. It requires no foresight to see that it would be madness to plant fruit trees, unless in favourable situations, close against those banks without attending to preventives to retard the action of the sap and expansion of blossom buds, as shading with leafy boughs, &c., while such as Peach trees and Vines might be removed entirely until, say the middle of April, and we are pretty certain that the summer and autumn heats, and the night dews, for which we have a great affection, will more than make up for a late start. Again, by means of broad shutters made to fold back by day, or temporary copings as applied to walls on brackets, or even by calico, radiation might be stopped. Another way, which may be useful, but only applicable where early forcing is carried on, is this—and I can testify from experience, both in Scotland and England, that to no better treatment can you subject early houses, when cleared of their fruit (say in June) than to expose them fully. The earth banks then, in a variety of ways, might have the use of the sashes. However these are only suggestions, and enlightened practice, adapting different plans to different circumstances, must ultimately decide. I may remark that last autumn I thoroughly ripened Vines and Strawberry plants in pots on such banks, long after the sun had lost its power in the open garden and sheltered border. There is nothing new in all this; it is as old as the hills, and the Vine-clad mountain sides in other lands exemplify the principle. We have tried experiments with coloured glass, why not coloured and uncoloured banks? Covered and also uncovered? Perhaps I should say that in some cases a temporary trellis, 2 and 3 inches, even a foot from the soil, may be necessary, and that the more sheltered the situation is the better. *Geo. M'Ewen.*

Seed Associations.—Much has been written in your Journal about the adulteration and mixing of seeds. Adulteration of all kinds should be most strenuously opposed, but there has of late years been such a mania for cheap seeds that some houses in the trade have been tempted, in order to compete with others, to reduce the quality of their seeds. An association of seedsmen was formed in Scotland some years ago to prevent the mixing and adulteration of seeds, and every member was pledged to sell nothing but neat and genuine seeds. It would be a most excellent thing if at the present juncture an association of English seedsmen could be formed to carry out this most desirable object. I feel assured that such a step would be hailed with the greatest pleasure by all the respectable houses in the trade. You would be doing the "State much service" if you would help in the formation of such a society. The quantity of Clover sold every year is immense, and there is no description of seed so doctored and tampered with, and samples during the present season can be had to vary from 60*s.* up to 90*s.* per cwt. for Red, and even to 115*s.* for White Clover. A pound of the best will sometimes contain as many living seeds as 3 or 4 lbs. of the worst samples. The competition in the Clover trade is so severe that retailers do not get much more than from ½*d.* to 1*d.* per lb. profit. This would scarcely be believed by your correspondent "R.," who states that seedsmen who sell Mangel seed at 6*d.* per lb. do so at less than cost price. He evidently knows little of the agricultural seed business, because it can be proved that Mangel Wurzel seed retailed at 6*d.* per lb. will give a profit of more than 60 per cent. over the price paid to the growers. If seedsmen could get even one-quarter of this profit on Clover they would be very content. In conclusion I do sincerely hope that much good may arise from the correspondence in your Journal—and I trust to hear the opinions of others respecting the formation of an association such as I have described. *B.*

Hints to Woodmen from an Amateur.—The best axe for any tree but large Oak or Elm (which are rarely cut with the axe) is an American, 3 lbs. head, with — inch handle. I have had a 5 and 8 lbs. axe with me, and have always found the small axe do more work, and a short handle in "sideling" ground is preferable. Thick shoes with very protruding hobnails, without which in steep ground you cannot get a firm purchase; a flannel belt, as the small of the back is very tender, and is much exposed; a loose waistcoat with short flannel sleeves and short trousers, not breeches, which hamper the stretch, and a loose flannel cap are best. *Somerset.*

Large Portugal Laurel.—At Springwood Park, Roxburghshire, the seat of Sir George Douglas, Bart., there was lately dug up what was two years ago a magnificent Portugal Laurel, the dimensions of which were as follows:—circumference of trunk 10½ feet, height 22 feet, extreme circumference 122 feet. I may mention that it would doubtless have covered a much greater surface had it not been that the extreme twigs had for years been annually cut off. It was killed by the frost in February, 1855, when the thermometer fell here to 7° below zero. *G. W., Roxburghshire.*

Wasps.—I send you a sketch of a weapon which I

have found most effective in killing the large wasps which appear early in the season. Being strung with wire of ¼-inch mesh there is no resistance to the air, and a wasp when struck is cut to pieces. I have given the pattern to Mr. Whitehead, the agricultural implement maker at Preston, who will be glad to execute orders. Nothing could possibly answer the purpose better than it does, and therefore every garden should possess one. *T. S.* [The instrument in question is like the racket used by players at tennis, viz. a battledore with wire substituted for parchment.]

Societies.

HORTICULTURAL, *March* 18.—Rev. F. BEADON in the chair. Many interesting plants were furnished on this occasion. Among novelties was a hybrid Rhododendron from I. Anderson, Esq., of Edinburgh. It was stated to have been raised between R. davuricum and R. formosum, the former being the female parent. Its blooms were considerably larger than those of R. davuricum and of a pale peach colour, and it was mentioned that the plants were perfectly hardy, some of the brood, the specimen exhibited included, having stood two winters in the open air near Edinburgh. It has, in short, united the colour of the male parent with the hardy constitution of the female, and thus a valuable addition has been made to early flowering shrubs. A Certificate of Merit was awarded it. Messrs. Lee showed the Clivia-like plant called Imatophyllum miniatum, bearing a noble cluster of orange blossoms on the top of a stiff upright flower-stalk; Oncidium maculatum, and four charming varieties of Camellia. The latter consisted of Jubilee, a carnation striped kind, a rosy-pink sort called Normani, and Archduchess Augusta, a variety new in colour, being violet purple, with a white stripe down the centre of each petal. From Messrs. Veitch came a fine pale-flowered Rhododendron named picturatum superbum, a double red Chinese Almond loaded with blossoms and extremely ornamental. This was reported to have been flowered in their Orchard-house, and for the decoration of a conversatory at this season nothing could possibly be handsomer. The same firm also contributed various specimen Epacrises, and the following Orchids, viz., Cypripedium villosum, Dendrobium Farmeri, and Trichopilia suavis, all in admirable condition both as regards health and bloom. Messrs. Henderson, of Pine-apple Place, produced an extremely well flowered Phaius grandifolius, also Dendrobium Pierardi, and some plants remarkable for fine foliage, among which was Pteris aspericaulis, which is one of the handsomest tender Ferns we possess. From Mr. Charles Adams came what was called the "Berkshire Rake," an implement with handle and head of wood, the former about 5 feet long, the latter 18 inches; and teeth of iron, long and slightly bent forward. It appeared to be an old pattern revived and no improvement on the iron rake. Of fruit there were bunches of Black Barbarossa Grapes covered with bloom, plump and fresh, from Mr. Butcher, of Stratford-on-Avon. They received Honourable Mention, as well they might, for no new Grapes could look more tempting than they did; not even a fruit stalk was in the slightest decayed. On the contrary they were fresh and green, and the bunches looked as if they would keep good yet for weeks to come. Among plants from the Society's Garden the more remarkable were Echeveria retusa and rosea, two useful succulents; Conoclinium ianthinum, Lachenalia aurea, and Azalea obtusa. The latter was a complete mass of small red flowers, which render it one of the gayest greenhouse shrubs we have at this season of the year. The Vice-Secretary offered some remarks on this occasion, "On the subject of British Oaks." It was unnecessary, he stated, to go into any poetical description of Oak. It is universally acknowledged to be one of the staple products of England. The question is, whether there are two kinds of Oak. This has been disputed, and he doubted much whether any two persons would agree as to what constitutes the difference between them. He would, however, direct attention to a sketch of the appearance they present in their most dissimilar state. There grows, he stated, in the New Forest what is called the Durmast Oak, which is known to botanists as Quercus sessiliflora. Another is the Common Oak, or Q. pedunculata, so called from the acorns being produced on long footstalks. In the opinion of foresters there are several varieties of these two sorts of Oaks. It is generally supposed that the Durmast and Common Oak differ only in the acorns; but that is a misconception of the difference between them. It will be seen, he said, that the Durmast has broader and rounder leaves with long yellow footstalks. They are also more glossy and not so deeply cut as in the Common Oak. Moreover, if a young sprig of the Durmast is compared with the other it will be found that there is a considerable difference between the two—the buds are larger and, as compared with the Common Oak, there is also a difference in the structure of the wood. It will be seen, he remarked, that what are called the medullary rays are large and broad in the one case and small and thin in the other. A specimen of the wood of each was here exhibited, which plainly showed that the rays in the Durmast were small whilst those in the Common Oak were large and much more easily distinguished. The wood of the latter was also stated to rend, which the other refused to do. Of the relative value of the wood of the two kinds, as well as other points to which attention was directed, an account will be found in a leading article in another column of this day's paper.

LINNEAN: *March* 4.—The President in the chair. Dried specimens of about 130 species of East Australian plants, collected and presented by Dr. Müller, and a collection of Arctic plants collected by Dr. Rae, presented by Sir John Richardson, were laid before the meeting. The following papers were read:—1. Note "on some Larvæ voided by Children," by Mr. E. Newman.—2. Notice "on the occurrence of Sepia biserialis in Cornwall," by J. Couch, Esq.—3. A memoir "on the Developement of the Ovule of Santalum album, with some remarks on the phenomena of impregnation in plants generally," by Prof. Henfrey. The observations detailed in this memoir were undertaken with the object of confirming Mr. Henfrey's views on this subject, as detailed in the 21st volume of the Society's Transactions, which views coincide generally with those of Amici, Von Mohl, Muller, Hofmeister, and Tulasne, and are in opposition to those of Schleiden and Schacht. Even among the disciples of Amici, however, a certain degree of discrepancy exists in regard to the origin of the germinal vesicle, as to whether it exists before or is formed after fecundation. Hofmeister says before; Tulasne says he never could find it anterior to the fertilisation; though, he adds, "this delicate question no longer (1849) possesses all the interest which was accorded to it by MM. Mirbel and Brongniart, and more recently by Mr. Henfrey. It is true the existence of the embryonary vesicle at a period anterior to the arrival of the pollen-tube would, if placed beyond doubt, prove invincibly that this vesicle could not owe its origin to the latter organ; even now that the error of the pollenists is no longer uncertain, the question seems worthy of attention, especially on account of the theoretical consequences involved." Confidently as Tulasne expressed himself as to the origin of the germinal vesicle independently of the apex of the pollen-tube, this very point is most warmly contested by Schacht. Notwithstanding a tolerably positive opinion, derived from a number of cases in which the end of the pollen-tube and the germinal vesicle were seen together, but distinct, in one preparation, the objects are so delicate, and the causes producing obscurity so difficult to guard against, that Mr. Henfrey cannot but think the demonstration of the pre-existence of the germinal vesicle in the embryo-sac must be considered the most important fact that can be brought forward in opposition to the views of Schleiden. As remarked by Tulasne, it has great philosophical importance in reference to the speculations as to the source of the vitality of the new being; and it is no less important for the establishment of the relations of the processes of embryogeny in the various classes of plants, and of the analogy which these present to phenomena attending the reproduction of animals. The details of Mr. Henfrey's researches were given with great exactness, and were illustrated by many excellent sketches. The memoir was chiefly occupied in describing the course of developement of the ovule of one plant, in which the complete series of observations have been repeated many times. Other fragmentary corroborative researches being set aside, the facts detailed, though not now brought forward for the first time, were offered as supplementary, partly confirmatory, partly emendatory, of the memoirs on the same subject by the late Mr. Griffith. "The investigation itself," Mr. Henfrey remarked, "had derived a melancholy interest from the materials having been furnished by the late lamented Dr. Stocks." After describing many of his microscopic examinations. Mr. Henfrey continues, "I have directed my utmost efforts to the accurate observation of the ends of the embryo-sacs with the pollen-tubes adherent. They are tolerably easily extracted with needles under a low doublet. I have examined at least five-and-twenty, and have applied every means to make the structures clear. * * * The end of the pollen-tube adheres so firmly to the end of the embryo-sac, that it cannot be torn away in a really fertilised ovule. My decided opinion is that Griffith was in error in stating that the pollen penetrates into the embryo-sac; I believe that it only applies itself firmly against it, over the point where the line of division exists between the two coagula lying in the apex of the embryo-sac. But I incline to believe that a phenomenon analogous to *conjugation* takes place. Moreover, very soon after the pollen-tube becomes adherent, the nucleus acquires a proper coat of cell-membrane, becomes a real cell, the germinal vesicle from which the suspensor is developed. I think the contents of the pollen-tube, after it becomes adherent to the summit of the embryo-sac, pass into the latter, reach the nucleus, and determine its conversion into a cell. * * * The facts relating to the germination of the Fucaceæ and Confervæ described by Thuret and Cohn, together with those brought forward in this paper, tend to prove that the process of impregnation in plants consists in the absolute admixture of the protoplasmic substance of two cells ("male" and "female") of which the female (or germinal) substance or body always pre-exists in the form of a nucleus, or "protoplast," while the male (or spermatic) substance exists in the form of a granulose fluid. In the flowering plants the spermatic fluid is conveyed directly into the embryo sac by the channel of the pollen-tube; a similar process appears to exist in the conjugation of the lower Algæ; in other cases the spermatic fluid is conveyed from organs situated at a distance from the parent cell of the germinal vesicle by the agency of the locomotive structures (spermatozoids) developed in the spermatic cells, bathed in and discharged with their contents, and themselves composed of the nitrogenous protoplasmic matter of cell contents. A series of 36 clever microscopic figures was given in illustration of the memoir.

Garden Memoranda.

CRYSTAL PALACE, SYDENHAM.—Many have been of opinion that plants would not succeed in the interior of this building; experience has however shown this to be a mistake—a fact which we think will be obvious to anybody who may pay the Palace a visit even at the present time; for although the plants generally have not yet begun to grow, their condition after having passed through the ordeal of a moderately severe winter is in all respects as satisfactory as could possibly be desired. The Palms in the warm end of the house have apparently suffered little or nothing. Musas have already begun to push, and the same onward movement is observable in other examples of tropical trees. Five or six of the large Date Palms imported from Egypt have thrown up leaves from their tops, and some of them have even made new roots. That some of them will live may therefore be set down as a matter of certainty. The scarlet flowered Inga pulcherrima appears to thrive admirably here, and so do Ficuses of different kinds. Asiatic Crinums have been planted in corners of beds, and their peculiar forms and long deep green leaves render them well adapted for such places. Among Ferns Cibotiums, and others of the less tender sorts do well; but very delicate kinds look as if they were not quite at home. Some of the pillars are becoming nicely covered with the Granadilla (Passiflora quadrangularis), so that in course of time this department may be expected to present a rich luxuriant vegetation. Round the edges of the beds has been planted a broad verge of the Common Toothed Lycopod, the lively green of which to the eye tired by looking at more gaudy objects has a pleasing and refreshing effect. The aquarium in this end of the building is being cleaned out, and the bottom freshly cemented. The water has been drawn off and the soil in which the Lilies and other plants grew last year is being removed. Hitherto the bed of mould has been made to cover the whole bottom of the tank, but this season Mr. Eyles intends to confine it in wooden boxes placed at certain distances apart in the water, and sufficiently large to accommodate the plants to be grown in them. This it is considered will be an improvement on the former practice, and less soil will be thus required than when spread all over the bed.

It is not, however, alone in the warm end of the building that the plants look thriving, they appear in equally good condition in the temperate portion of the house. Many of the Camellias here are at present loaded with flowers; the old Double White is the only variety that has to any extent dropped its buds, but even of it some plants promise a fair display of bloom. Some of the hardier Palms that have been planted in front of the Egyptian Court live and even make new leaves; but as may be expected they do not succeed equally with the same kinds in warmer situations. When it is stated that the temperature of this portion of the Palace has been down on several occasions nearly to freezing, it is rather a matter of surprise that they grow at all. Cycases seem more impatient of the cold; one or two planted out here look yellow and sickly. Although well drained and otherwise placed in conditions most favourable to growth, one of the two immense masses of Elephant's Foot which had been planted in front of the Sheffield Court has died. It is however the smaller of the two. That which remains looks thoroughly established, and has pushed several healthy shoots. The different kinds of tender Araucarias with which the building is well furnished are in excellent order. The noble A. excelsa presented by the Horticultural Society from the great conservatory at Chiswick is however dead. Though after being replanted its stem and branches were enveloped in moss, which was kept damp to prevent exhaustion, it never recovered the effects of removal, and the loss of the ball of earth which was shaken from it in travelling from Chiswick to Sydenham. The magnificent Orange trees which grace the nave and central portions of the Palace may be said to be as green and healthy as they possibly could be. True, some of them appear to have put on the "sear and yellow leaf;" but these are such as were out of health when they came. They had mostly been brought from France, and had been subjected to a rough passage. In consequence of their bad appearance Mr. Eyles has been led to retub some of them, and in doing so he found that their drainage was most inefficient, so much so that he recommends all who import Orange trees from the Continent to look to that matter the moment they arrive, or they will probably have to pay for the omission by the death of their trees. Since the drainage has been repaired and fresh soil added, their condition has somewhat improved. Azaleas planted out in the borders on slightly elevated platforms, supported by tree roots and other material that would secure perfect drainage, are as full of flower buds as they can hold, and there is scarcely a decayed leaf on any of them. All New Holland plants have succeeded remarkably well. Blue Gum trees grow with wonderful rapidity, more especially the Eucalyptus globulus, which it will be remembered was killed out of doors near London during the severe winter before last. The aquarium in the west end of the building has just been put in order for the summer. The vases and dry basins round the sides of the water are full of spring flowers, and are as gay as it is well pos-

sible for them to be. Among the different objects of decoration were Hyacinths, Tulips, Heaths, and Cinerarias, the whole being mixed with Epacris not in bloom, but placed there in order to set off the flowering plants to more advantage than they otherwise would be. The fountains in the Alhambra which are not in use have also been converted into floral vases, which, being full of Tulips and other early blooming plants, have an excellent effect. Indeed, the condition of the indoor plants is most satisfactory. The aquatics, it will be remembered, were last year truly magnificent, and the display this season promises to be equally grand.

Out of doors the grounds are now all but completed, and the various basins and lakes are well supplied with water; the fountains however do not play during the winter months. Numbers of beds in the terrace garden have been filled with Crocuses and other bulbs which are now in flower; but owing to the dulness of the weather they do not open well. Protections of Oak branches have been put round the different specimens of Araucaria imbricata which have been brought at considerable expense from Elvaston. This Araucaria is well known to be hardy, but it has been considered advisable to afford it some protection until the trees shall have become better established. The walks and grounds are in excellent order, and even at this season form an agreeable promenade.

FLORICULTURE.

Cinerarias.—"P." (see p. 71) does not appear to recommend retaining any part of the old stools of these plants for potting. He prefers increasing them by offsets. The following is a system which I have practised with complete success. Last August I prepared a quantity of friable loam and one part leaf-mould. I shook away the old compost previous to potting off the old roots, which I put into 4½ inch pots. I placed them in a cold frame where they had plenty of air, regularly shading them from the mid-day sun; they soon started into growth. About the middle of September I shifted them into 10-inch pots, using the same compost as before, and placed them as near the glass as possible. As soon as severe frosts set in they were removed to a late Vinery. Before removal there was not a green fly on them, but it afterwards gradually made its appearance and commenced its work of destruction. By means however of a little tobacco and Brown's fumigator my plants were soon restored to health and vigour. By following the above method I am confident that no cultivator need despair, as "P." justly terms it, of growing respectable specimens of Cinerarias. *J. M.*

Miscellaneous.

Leaf of the Pigeon-Pea Tree.—The leaf of this tree (Cajanus indicus) on its upper surface is covered with a fine down. When incinerated, it yields a large proportion of fixed matter, derived from the soil, consisting chiefly of the vegetable alkali, of phosphate of lime, of carbonate of lime, of magnesia, and silica. The silica is derived from the down. Under the microscope it exhibits the same form as the down, viz, that of spiculæ, in shape not unlike the poison-fang of the serpent, tubular to a certain extent, and slightly curved, from about $\frac{1}{300}$ to $\frac{1}{200}$ of an inch in length, and in width at the base about $\frac{1}{3000}$. The substance of these spiculæ—that is what remains after incineration—I infer to be silica, from its being infusible before the blow-pipe, and insoluble in the mineral acids. Were the soil in which the plant grows to be examined, probably after a few years, these spiculæ might be found deprived of their vegetable organic portion, the residual silicious matter preserving their forms, and they might be mistaken for the skeletons of infusoria. The leaves examined were from a plant growing in a volcanic soil, that of St. Kitts, where it is much used as a green dressing to the Cane fields, and is considered very fertilising. As its roots penetrate deeply, and the roots of the Cane spread near the surface, it seems well adapted to counteract the exhausting influence of the Cane. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Many of the structures which go under this name are very unfit places for Heaths, being generally too lofty, and kept too warm; but such varieties as E. vernix coccinea, Westcotti, hiemalis, Lamberti rosea, Burnetti, Linnæoides, &c., which bloom in winter when the house is generally kept cooler than at any other season are invaluable, flowering as they do, when well grown, most profusely. These varieties should be largely cultivated for the decoration of conservatories, and for supplying cut bloom. They should be pruned back severely as soon as they have done flowering, giving them a liberal shift when they start into growth, using rich strong peat, and if they are well attended to during the growing season they will overcome any injury they may sustain through occupying a somewhat unsuitable position while in bloom. What with Azaleas, Camellias, Roses, Double Red Chinese Almonds, &c., and a sprinkling of New Holland plants and forced bulbs, show houses should now be a blaze of flowers. Let every plant, however, be placed in the most suitable position, and aim at maintaining a pleasing uniformity of arrangement and displaying the colours to the greatest advantage, bearing in mind that no amount of floral display will compensate for bad arrangement, but will rather serve to make the latter more apparent. Pick off decaying flowers and leaves directly they make their appearance, and endeavour to replace the plants with others as soon as they shall have begun to get shabby. Sprinkle the surface of the beds frequently, so as to assist in keeping the atmosphere moist, and also see that the under soil is kept in a uniformly moist condition. Watch for insects and attack them as soon as they are perceived, which is the only way of preventing them from doing mischief.

Stove.—Proceed with the repotting of such plants as require it, and give all necessary attention to those in active growth, using every means to induce rapid growth, combined with strong short-jointed wood. The only way of effecting this is by securing a vigorous root action, and keeping the plants near the glass. Specimens that were started early in the season will require rearrangement in the way of placing them in positions suitable to their state of growth. Ixoras, Clerodendrons, Allamandas, &c., that have become well rooted, will be greatly benefited by a careful supply of manure-water, but see that it is given in a tepid state and not over strong. Look sharply after mealy bug and thrips, for if these are allowed to establish themselves at this season, they will furnish plenty of work for leisure hours during the summer.

FORCING DEPARTMENT.

Pineries.—Where the Pines are grown in pots, it is by no means a bad practice to occasionally rearrange those in the fruiting pit, placing those showing by themselves, so as to be able to afford them a rather drier atmosphere while in bloom; for at this season there is some danger of badly-formed fruit if the atmosphere is kept too moist, or the syringe used too freely while the plants are in flower. Those expected to show shortly should also be kept as much together as circumstances will admit, so as to avoid having to disturb the arrangement for some time to come. Indeed, where a regular supply of fruit has to be furnished from only a moderate quantity of plants, frequent rearrangements will be necessary; for it is, perhaps, impossible to regulate the treatment so as to get every plant to fruit just at the desired time, and hence it will be necessary to use every means to regulate the supply, such as removing a portion of the plants to the coolest division when too many happen to show at once, which is frequently the case at this season, and forwarding others as much as can be done. Plants swelling their fruit can hardly be afforded too moist an atmosphere, and they must be carefully attended to with water at the root, giving clear liquid manure in a rather strong state, and some of this should also be sprinkled upon the tan, &c., so as to make the atmosphere resemble that of a dung pit. Shut up early in the afternoons of bright days, letting the thermometer rise to 85° or 90°, moistening the plants with the syringe, and sprinkling the passages so as to saturate the atmosphere with moisture, but avoid high night temperatures or a too free use of fire-heat. Vineries.—If fermenting materials have been used for warming the borders these must be turned occasionally, adding fresh dung as may be necessary to maintain a gentle warmth in the border, for it will not be safe to neglect this at present. Ventilate cautiously, on cold windy bright days admitting air on the sheltered side of the house only, and keep the inside borders moist by occasional sprinklings, so as to counteract the drying effects of cold air and bright sunshine. If it is desirable to prevent the Vines in the late house from starting for some time yet, they should be let down as far from the glass as can be conveniently done, and the house shaded, unless the Vines can be taken out, which would allow of the house being used for other purposes, and there is little danger of the weather being such after this season as to injure the Vines. Houses starting should be kept thoroughly moist, syringing the Vines morning and evening, and the rods should be bent as may be necessary to induce the buds to push regularly. Peaches.—Where the fruit is fairly set, maintain a nice humid atmosphere, giving the trees a good washing with the syringe just before shutting up in the afternoon, so as to keep them clear of red spider, and see that the soil about the roots is in a properly moist state. Attend to disbudding and tieing in the shoots, keeping them thin and regular. Here as elsewhere it will be a work requiring careful attention, while the present state of the weather lasts, to properly regulate the ventilation, but this must be attended to at any expense of time or trouble.

FLOWER GARDEN AND SHRUBBERIES.

Look over all recently transplanted shrubs and trees for the purpose of ascertaining whether they are securely staked, for if these are allowed to roll about with the wind the tender roots are often broken off and the plants are consequently deprived of their only means of obtaining nourishment. Mowing will soon require attention; therefore have the turf swept, well rolled, and made thoroughly firm without loss of time, and remember that if the first mowing is deferred till the Grass has got long it will require much time and labour to get the turf again into proper order. Also get the walks edged and otherwise put into proper repair. Attend carefully to the stock of bedding plants, and get rooted cuttings potted off as soon as they are fit, and encourage them with a gentle bottom-heat and careful management to make quick growth, for after this season there is no time to be lost with young stock. Calceolarias if well established may be planted out in a turf pit on poor sandy soil, where they can be protected from frost or cold winds, but they must be prepared for this by previously inuring them to full exposure to sun and air, &c., whenever the weather will permit. Their place under glass can be profitably occupied with recently potted off stuff, and with ordinary care they will do better planted out than stunted in small pots.

HARDY FRUIT AND KITCHEN GARDEN.

Get in the main crop of Carrots the first fine day when the ground is in good working order. Attend to keeping up a succession of Peas by planting every fortnight a breadth proportionate to the demand. Soil up and stake those above ground and protect them from the ravages of mice and slugs, which are often very destructive at this season. Blanch Seakale in the open ground by placing inverted flower pots over the crowns and covering these with light soil or any material which will effectually exclude light. Prick out on a slight hot-bed Cauliflower plants raised in heat. The gentle bottom-heat will greatly assist in pushing them along without their being weakly and drawn, as is the case when they are grown under glass. Also prick out Celery on a gentle bottom-heat, and protect it with a frame or hand-glasses till it has become well established, and sow seed for the main crop. Attend to providing succession crops of Spinach, and keep the surface-soil regularly stirred among growing crops; also do not forget small salad, as Radishes, &c., and sow sweet herbs for transplanting.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending March 20, 1856, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer.		Temperature.					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 14	8	30.140	30.103	43	28	35.5	40	42	E.	.00
Satur. 15	9	30.144	30.090	46	32	39.0	40	42	E.	.00
Sunday 16	10	30.023	29.949	50	39	44.5	40	41½	E.	.08
Mon. 17	11	29.951	29.924	44	39	41.5	41	41½	E.	.02
Tues. 18	12	29.930	29.764	50	41	45.5	42	42	E	.34
Wed. 19	13	29.909	29.734	51	41	46.0	44	43	N.E.	.00
Thurs. 20	14	29.953	29.932	52	40	46 0	45	43	N.	.01
Average .		30.007	29.928	48.0	37.1	42.5	41.7	42.1		.56

March 14—Dry cold wind, clear and cold; slight frost at night.
— 15—Cloudy and windy; overcast; fine; cloudy.
— 16—Slight haze; cloudy; constant rain at night.
— 17—Hazy throughout; slight rain.
— 18—Hazy; fine; rain.
— 19—Hazy; fine; cloudy.
— 20—Hazy; overcast; fine; cloudy.
Mean temperature of the week equal to the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending March 29, 1856.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	50.1	34.1	42.1	14	0.60 in.	6	5	2	1	4	7	3	2
Mon. 24	49.5	30.9	40.2	10	0.11	4	5	3	—	2	2	5	7
Tues. 25	50 1	32.5	41.3	11	0.50	3	3	4	—	3	2	6	4
Wed. 26	51.6	32.5	42.0	12	0.17	—	6	4	3	4	4	3	6
Thurs. 27	53.6	33.9	43.7	10	0.37	1	5	4	3	2	5	10	—
Friday 28	53.0	33.5	43.2	11	0.68	2	6	6	2	3	3	6	2
Satur. 29	52.6	33.4	43.5	8	0.33	1	4	7	3	1	5	5	4

The highest temperature during the above period occurred on the 27th, 1830—therm. 75 deg.; and the lowest on the 25th, 1830—therm. 14 deg.

Notices to Correspondents.

Azalea: *A A.* It is very handsome, and we think, for a double variety, new in colour.‡

Dioscorea Batatas: *W.* It is better to treat this as a hardy plant. They should be treated like Potatoes, only they must be planted on ridges, beneath the crest of which the soil should be trenched 2½ feet deep.

Evergreens: *Anon.* Common Laurels are *best* pruned in April. They *may* be pruned at almost any time, especially in the warm parts of England. Fruit trees may be pruned at any time during winter. A week or two more or less can make no difference in the operation of layering Laurels.

Ferns: *Jessie.* Any of the smaller hardy species will thrive in such a place as you describe. As to Osmunda regalis it would probably do very well; but it should have soft peaty or fibrous material if it is to flourish grandly.—*J S W.* They may be obtained through any of the great nurserymen.‡

Gas Tar: *F G.* On no account paint your hot-water pipes with this: it will be certain to injure your Vines ‡

Ginseng: *J B.* It is the root of a Panax, and cannot be obtained from the trade in this country. You must send to China for it; and will most likely be unable to procure it alive. The North American plant is said to be different from the Chinese.

Insects: *Amateur.* Your pots of Verbenas are infested by the larvæ of a small Tipula, possibly T. maculosa (of which figures were given in our Journal a week or two ago), which have doubtless gnawed off the plants; the remainder should be repotted in clean soil, the earth having been carefully shaken from the roots and burnt. *W.*

Moss: *Sub.* Water your lawn with gas-water. The Moss will die and the Grass flourish. If you cannot do this use a good top-dressing of guano mixed with one-third of sulphate of ammonia. ‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*E M G.* 1. Probably Abies Khutrow. 2. A. Pinsapo. In sowing Deodar seeds regard need not be paid to setting them in any particular position: if wrong they will afterwards rectify themselves.‡—*G M & Co.* Aerides teretifolium.

New Garden: *A B C.* We adhere to the recommendations and opinion formerly given. If this soil has a "pan" below the draining and trenching you will do no good with it unless the pan is broken through. We should not like to have the management of such soil.

Raisins: *Pan* is desirous of knowing where Muscatel and Valentia raisins, raised from seeds in this country, have produced their fruit.

Steam Heating: *H B.* Perhaps it will be as well to coat the small stones with mortar if you have any doubt of possessing full control over the steam. We should however, in the first instance, ascertain how the apparatus works, which can be easily effected with a plunged thermometer or two. Steam is very unmanageable in gardens under ordinary circumstances.

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SEWAGE CHARCOAL MANURE.—This highly fertilising Manure, which is Peat Charcoal completely saturated with London Sewage, will be found most efficient for every species of crop; more especially for Peas, Beans, Turnips, Mangel Wurzel, and other root crops. It will produce a greater return for the outlay than Guano or any other Manure at an equivalent value: it also possesses the property of retaining its fertilising power longer than any other Manures now in use. It may be obtained at the SEWAGE MANURE WORKS, Stanley Bridge, Fulham, at 4*l.* per ton, and in quantities less than half a ton at 5*s.* per cwt., for ready money only; and in quantities not less than a ton, will be delivered at the London Termini of the Railroads free of charge for cartage. No charge for sacks.

It may also be had from Messrs. G. GIBBS & Co., 26, Down Street, Piccadilly, Agricultural Seedsmen, Agents for London, and from all the other Agents of the Company.

MANURES.—On Sale, NITRO-BIPHOSPHATE, or BLOOD MANURE, SUPER-PHOSPHATE OF LIME, GUANO, BONE-DUST AND HALF-INCH, GYPSUM, SULPHURIC ACID, SALT, and all other MANURES of known value. Sole Agents for the Peat Charcoal Company.—Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street.

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J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
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LONG'S NON-POISONOUS SHEEP AND LAMB DRESSINGS.—These important Sheep Dressings have already been the means of producing the finest Hogget Fleeces that have ever been seen in the United Kingdom. Specimens were exhibited at the principal Agricultural Meetings of last season, showing an increased Growth of Wool equal to 25 to 30 per Cent. Further specimens even of a more extraordinary character are preparing for exhibition at the different Meetings of 1856.

BARRY BROTHERS, Sole Agents for the Introduction of Long's Non-Poisonous Sheep and Cattle Dressing Compositions throughout the United Kingdom, and for Shipment. Meriton's Wharf and Shad Thames, London.

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WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

BOYD'S PATENT SELF-ADJUSTING SCYTHE.—Sole Makers, WILLIAM DRAY & Co., Swan Lane, London. May be had of all respectable Ironmongers and Seedsmen.

SCYTHES.—Order BOYD'S Patent Vulcan Scythe; it is the cheapest and best. It is sold ready for immediate use, avoiding loss of time and Blacksmith's fees. Price only 4*s.* 6*d.*, or with handle complete, 6*s.* 6*d.* Prospectus on application.

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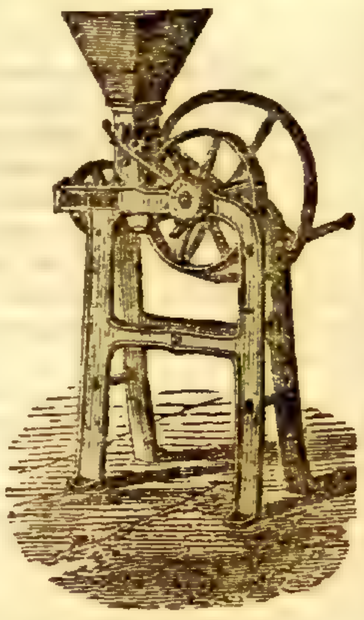
OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



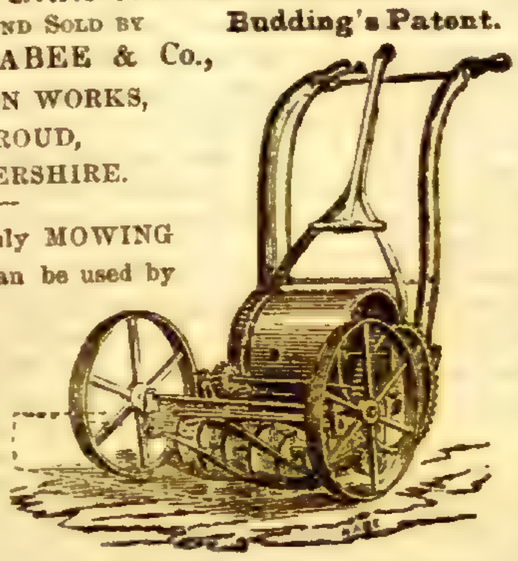
Price £5 15*s.* 6*d.*

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY JAMES FERRABEE & Co., PHŒNIX IRON WORKS, NEAR STROUD, GLOUCESTERSHIRE.

Budding's Patent.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

DRAINING BY STEAM POWER.

JOHN FOWLER is prepared to undertake Contracts for DRAINING LAND by his PATENT STEAM PLOUGH, at prices varying, according to depth and distance, from 3*l.* to 5*l.* 10*s.* per acre, inclusive of tiles, main drains, and all other expenses. Contracts executed with great rapidity, and tiles manufactured on the spot, where suitable clay exists.—Havering, near Romford.

FIRST PRIZE REAPING MACHINE.

NOTICE.

MESSRS BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
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Manager of Farm—G. Austin.

Students are admitted after the Summer and Winter Vacations; also in April and October. The annual fees for boarders vary from 55 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—PRIZE SHEETS for the Rotherham Meeting may be had of the Secretary, Mr. JOHN HANNAM, Kirk Deighton, Westerby.—March 22.

The Agricultural Gazette.
SATURDAY, MARCH 22, 1856.

IT is curious to observe how knowledge which in one age was considered only speculative or theoretical, and as such left entirely in the hands of daring adventurers on the confines of the territory of forbidden mysteries, becomes in a little while longer connected with the most practical concerns of our everyday life. If, for example, an agriculturist of 50 years back had been told that the science of geology could be made available in assisting him in his conclusions as to the value of land, could point out to him important facts which should guide him in relieving the soil of superfluous water, or direct him as to the position and depth below the surface of a spring of well water, the smile of incredulity (if disbelief had manifested itself in so mild a form) would soon have given place to scorn at the presumption or imbecility of the scientific pretender.

But so much have matters become altered in the present day that there is little difficulty in gaining at least a respectful audience for the conclusions of the geologist in respect to any of the points just mentioned, and we therefore need offer no apology for a few remarks on the teachings of geology with respect to the agricultural value of land.

If for a moment we consider the aims of geology and agriculture, we shall see their intimate connection. The former has for its object the making us acquainted with the structure of the earth, and as a science in itself, is complete just in proportion as its conclusions are based upon knowledge of other sciences—the latter comprehends the best method of dealing with this same earth, so as to make it available to the bringing forth the greatest amount of produce.

Now the teachings of the geologist show us that the earth is made up of very different rocks, and that in one county one kind of rock or "*formation*" may prevail, whilst in another may be one of a totally different kind. In both these we may have the same climate, the same elevation, and but a slight variation in rain and other atmospheric results; and yet how varied the kind and quality of the agricultural productions of each. The question, then, naturally arises, is this the result of caprice or of different management, or do the manners, cus-

toms, and generally prevailing farming peculiarities of any given district derive their origin primarily from the rocky foundation upon which they are laid, the surrounding surface conditions merely modifying them?

The inquiry will perhaps be best answered by bringing together the results of an examination of the prevailing crops on some of the more important rocks, as in the following table:—

Agricultural Comparison of Crops on six Geological Formations.	Rent per Acre.	Cider.	Perry.	Wheat.	Barley.	Oats.	Beans.	Natural Meadow.	Artificial Grasses.	Saintfoin.	Hops.	Turnips.	Remarks.
	PROPORTIONALS OF PRODUCE.*												
1. Old Red Sandstone—prevailing in Herefordshire	30s.	2	...	30	16	12	8	12	16	2	2	10	Most farms have a Hop garden; the produce, however, is easily distinguished from that of Kent or even Worcester.
2. New Red Sandstone—Worcestershire	25s.	12	4	12	8	2	18	35	2	...	2	5	Soil well suiting all kinds of farm produce, the decomposed sands yielding light, the marls a heavier soil.
3. Lias Shales and Clays—vale of Gloucester ...	15s.	...	...	15	15	12	6	6	18	19	...	16	Land heavy, and for the most part in small occupations. Dairy produce abundant.
4. Oolite—the Cotswold District of Gloucester and part of Wilts	40s.	...	...	20	15	8	8	10	10	...	19	10	Farms large; sheep runs extensive. Dairy produce usually scant.
5. Green Sand—Kent ...	20s.	2	...	30	16	12	9	12	16	2	2	10	Hop gardens most frequent. Corn crops good.
6. Chalk—parts of Wilts, Kent and Surrey.													Much of the same character and aspect as the Cotswold farms.

This table, though confessedly only an approximation to the truth, yet points out to us such broad differences that it is impossible to disconnect them from their geological basis, and had we time and evidence at command it would not be difficult to show that each of the formations tabulated presents diversities in its different parts. Hence, taking the new red sandstone as one formation, though formed of widely different parts, its upper division of marls, and its lower of sandstones, on breaking up into agricultural soil, present such a line of demarcation that the state of the crops no less than the mechanical and physical aspect of the land itself will afford a most efficient means of tracing the boundary lines of each. These differences are doubtless due to such causes as mechanical texture and chemical composition, which are not the mere accidents of particular spots but affect large districts, inasmuch as the area occupied by each geological formation was usually of large extent and was throughout its whole deposited under the same circumstances of climate, materials and time.

Now, if we examine more fully the details of the table, the facts here insisted upon will only be brought before us in a clearer light.

In the matter of rent no one fact can be clearer than that this item, the touchstone as regards value, is very variable, for although in all districts will be bits of land bearing a fancy price affected by its amount of *accommodation*, yet each district depends for this not so much upon the surface as the substance. Of course patches here and there will be found to be made up of mixed materials deeply covering up the original formation, and indeed it has been stated that this is the rule; but here again, whenever this is the case, another difference will be distinguished by the accurate observer, so that the lines of demarcation between local deposits upon formations, and the lines of the older deposits themselves, will at all times show themselves by the difference in the wild plants which elect to grow thereon, as also by the peculiarities of the cultivated vegetation.

Here, then, it is not too much to say that geological and agricultural maps, in the main, mean the same thing; but for the latter, superficial deposits, especially where of any thickness, should be carefully coloured, and this done, a well-executed map of any district or county might lead the student of nature to speculate upon the prevailing wild plants and the nature of the more civilised cultivated ones with as much certainty as the palæontologist or student of fossils decides upon the nature of the animal remains he may find entombed in certain rocks.

Let us now review the productions of formations as put down in our table. Fruit trees succeed on deep soil, and therefore the marls of the old and new red sandstone and the lias are particularly favourable to the growth of orchards; if, however, we trace the lias lands to the scarps of the Cotswolds, we shall see that the moment they disappear orchards will not succeed; the condition of fruit trees, and we may add of forest trees, shows at once the line of separation between the lias and its superincumbent oolite. Now, on following out the different beds of the oolite formation we pass over beds of clay, such as fullers' earth clay, forest marble clay, Oxford clay; the moment each of these appears in a passage across the oolite rocks, those spots are marked by the reappearance of orchards to a greater or less extent, showing that this is due to the reappearance in the rocks of the proper mechanical conditions for their growth; but the differences in the manner in which they succeed, and the variations in the produce are so marked that we can only refer them to causes affecting individual rocks.

As regards grain, the different varieties of different districts, the amount of yield per acre, the variation in quality, though all confessedly affected by methods of cultivation, yet these, with even the latter element itself, are matters dependant mainly upon the staple—that is, the rock we have to act upon. But it would be idle to multiply instances tending to show that if agriculture be limited to merely a matter of plant growing, it will be more or less affected in its operations by the structure of the substratum of the soil to be cultivated, and hence geology on this principle alone must be viewed—as it is daily becoming—more and more as an eminently practical science.

The clothing of the earth with wild and cultivated plants, the kinds and condition of its animals, even the occupations and accommodation of man in his business, the materials of his dwellings, whether of brick, or stone, or wood, and the position of his villages and towns—are all matters dependant upon geological formation; and if we examine the now important question of water supply, as we hope to do in a future paper, we shall see that every person engaged in a practical pursuit will be none the less skilful for comprehending the truths of a science once held to be entirely speculative, as was GEOLOGY.

* These numbers, be it remembered, are not intended to signify relative extents, but relative *values* of produce. At best they are mere speculations.

PRICES OF MANURES.

I BEG to call your attention to the enclosed letter received by me last year from the secretary of the London Manure Company. After reading this letter I think we may come to the decision that some of the ingredients found in superphosphate of lime can be supplied to us at a less cost per pound than is stated by Professor Way. If we add a fair percentage of the other constituents found in superphosphate of lime besides the phosphates, we shall arrive at the following results:—

			£	s.	d.
Moisture	11.00	... ...	0	0	0
Organic matter ...	12.00	... ...	12	0	0
Sand	6.00	... ...	0	0	0
Soluble phosphate	17.00	... ...	561	0	0
Insoluble	16.00	... ...	112	0	0
Sulphate of lime...	37.00	... ...	37	0	0
Ammonia... ...	1.50	... ...	84	0	0
			806	0	0

or fully 8*l.* per ton, according to Professor Way.

Thus it will be seen that the Manure Company can supply us with superphosphate of lime at 1*l.* 14*s.* per ton less than Professor Way admits that it can be supplied to the public. *Geo. Summers.*

[The following is the letter referred to; its date is July 6, 1855, which materially affects its value as evidence now in the spring time of 1856]:—

"Sir,—In reply to yours, received this morning, I beg to inform you that I shall be glad to supply you with the manures you require at the undermentioned prices:

Peruvian guano, at	11*l.* 10*s.*	per ton,	at the West India Docks.
Nitrate of soda, at	17*l.* 0	"	at the Docks.
Sulphate of ammonia, at	16*l.* 0	"	at Isle of Dogs, bags extra
Manure salt (white) at	1*l.* 8*s.*	"	at Isle of Dogs, do.

"The price of bones varies very much, so I cannot insure any price, but we would supply you at the market value, I should think from 21*s.* to 23*s.* per qr. Our superphosphate of lime is 6*l.* 6*s.* per ton at our works; we warrant it to contain from 16 to 18 per cent. of soluble phosphate of lime, and from 15 to 17 per cent. of insoluble. It also contains a large amount of alkaline salts and organic matter."

In the *Gazette* of last week a quotation from Professor Way's paper in the Journal of the Royal Agricultural Society of England is given stating the relative costs of different kinds of manures, with their respective values as shown by analysis. I think, however, it should have been mentioned that the prices there given were the wholesale cash prices for large quantities as imported, and not the retail price delivered at the farmer's nearest station or wharf. It should be borne in mind that merchants and manufacturers cannot be expected to embark a large amount of capital, attend markets, risk bad debts, and give credit merely for the pleasure of the thing. I therefore consider that the merchant's profit ought to have been added, or the retail prices should have been given. Again, 6*l.* 10*s.* per ton is shown as the price of half-inch bones, whilst the Hull weekly price current for a long time past has given the price of cattle bones by the cargo before they are landed or crushed as 7*l.* to 7*l.* 5*s.* per ton. Phosphate of lime too is valued at ¾*d.* per lb, which I consider is too low, for calcined bones, yielding 70 per cent. of phosphate of lime, are worth 6*l.* per ton wholesale. Now this will be 1*d.* per lb. within a fraction. These matters, though apparently trivial, are really of importance. *S.*

A STEAM-CULTURE REVERIE.—No. V.

ONE of the mechanical curiosities among which I found or rather lost myself was a diminutive but evidently powerful locomotive engine—running up steep acclivities, tripping harmlessly over water-furrows, working a digging machine in a strong loamy soil, yet without any visible appearance of boiler, steam, or fire. To quench my ebullition of inquiries as to whether its motion was derived from steam, air, gas, ether, &c., my friend Digland handed me an old number of the "Literary Gazette," (for August 20th, 1840), containing an article on what was termed "the New Agrarian System."

It seems that a Mr. Pinkus, cogitating the question of cultivating by steam, perceived the unavoidable waste of power involved in making an immensely heavy steam-engine travel at a smart pace over arable ground; hence the merit of Heathcoat's method of ploughing by bands and pulleys, in a direction at right angles, to that of the engine's slow progression. Yet for some tillage operations, especially deep delving, it seems better to apply the power in direct connexion with the tool rather than to transmit it by horizontal traction; in other words, spades or revolving diggers will be most advantageously worked by a locomotive power. How then obtain an exceedingly light engine? "At the Colosseum in the Regent's Park," writes the editor, "we attended and witnessed the working of a model of certain machinery by which this is proposed to be attained. It consists of a stationary steam-engine, which communicates by pipes laid a few inches underground, and branching in all the necessary directions, with the machinery for performing every kind of agricultural labour—ploughing, harrowing, sowing, reaping, draining, levelling, cutting down wood, &c. By these improved methods distant fields, comprising many square miles near to or surrounding a station, are connected with it through the medium of the underground pipes leading from the station and passing into the fields in such proportion that in every square mile there shall be a half-mile in length of mains or pipes. Through these the power of the stationary engine is transmitted into the fields by *an auxiliary vacuum power*, which in any part of the fields can put in motion a locomotive engine of light weight and without boiler or furnace. To this locomotive engine actuated by atmospheric vacuum power, various implements of husbandry are from time to time appended, performing all the operations above enumerated. The power is transmitted to the engine by a *hollow flexible tube*, working round a roller parallel to the axle, and which may be reversed at pleasure so as to operate backwards and forwards and in any direction."

Now Digland had not precisely copied this idea; instead of laying down pipes all over his estate to convey power as you would water or gas, or indeed as we distribute manure, he merely adopted the flexible tube, to connect a pneumatic locomotive with a stationary portable steam-engine. I could not fail to perceive in the principle of this invention a promised solution of many difficulties involved in steam-culture, and alike perplexing whether we attempt to propel a steam-engine about an arable field or haul our tilling machinery by ropes and pulleys. However, I must defer a full consideration of my friend's atmospheric scheme by way of preserving the chronological order of my descriptions. I may here add, that Mr. Pinkus, in 1840, patented also a scheme for working implements by *electricity*: wires taking the place of the main-pipes in the previous system.

Of the rather unfortunate tribe of rolling diggers or forkers intended to be drawn by horses, I saw the earliest representatives; the very first, indeed, being a rotary grubber patented May 1st, 1821, by W. Thomas and Joseph Lobb. One was patented by Joseph Hall, July 6th, 1842, consisting of a number of rotary delvers or discs on one axle, having spades or cutters attached to their periphery. These cutters project radially; but instead of being immoveably fixed are hung by joints allowing them a little play, so as to facilitate their entrance into the soil and delivery of the loosened earth behind, and the axis of the digger is placed longitudinally, or nearly so, instead of across the frame of the carriage.

Another machine was a simple cylinder studded with spades (somewhat after the model of the "bear" or spade-machine with which the fen-men cleanse their muddy rivers,) patented by Lady Ann Vavasour, July 7th, 1842, and first exhibited, I believe, at the

Liverpool meeting of the Royal Agricultural Society. Of the performances of these implements it is hardly necessary to speak: the latter clogged itself and became useless in the most favourable soil; and the former cut holes and creases in the land, raising a few lumps here and there, but neither inverting nor stirring in a workmanlike manner.

Among my friend's collection of models on a small scale was one of a design patented April 2d, 1844, by William Stace and Phillip Vallance, *farmers*, of Borwick, Sussex.

This is for drawing ploughs or other implements by *portable horizontal windmills*. I need not devote a sheet of paper to the description of these mills; the fickle though cheap motive-power of the winds having given place to that evolved at will out of fuel and cold water. But one or two details of the tackle or dragging apparatus (not included in the patentees' claims), deserve a little attention.

Two mills are employed, one erected in one corner of a field, and the other in the corner diagonally opposite. A doubled endless rope is extended along one headland and one side of the field; and by means of guide-pulleys shifted on each headland, it can thus be made to range from end to end, and coincide with every furrow in turn, without altering the length of the rope. Instead of digging a fresh anchor-hole for each furrow, *each pulley is hooked to a wooden beam, and shifted along it as required*, the beam or rack being attached by short chains to stakes driven into the ground. The plough of course traverses between the two anchored pulleys; and it is fastened to the rope by a pincer-shaped clip, which releases its hold when the implement comes in sudden contact with any excessive resistance.

It will be seen that the above method of shifting the pulleys has been adopted, with slight modifications, by some very recent inventors. *I. A. C.*

ON MIDDLE CLASS EDUCATION.

[Lord Ebrington has been kind enough to send us a memorandum on this subject, read at the October meeting of the council of the Bath and West of England Society for the encouragement of agriculture, arts, manufacture, and commerce, which had been prepared in relation to the proposed competition within the districts of the Society which the offer of a prize was intended to produce. We give portions of it in the following columns.]

HAVING already repeatedly made public, both in writing* and by word of mouth, my impression as to the extent and causes of the relative deficiency of the means of education for the middle classes in general and for the farmers in particular, I need not here go into the whole question again. Nor need I repeat how sincerely anxious I feel that farmers and farming should keep pace with the progress of other classes and other arts. I will observe, however, that if things go on as they do now, I augur more favourably for some time to come of the professional than of the social prospects of the farmers. And for this reason. Though, on the one hand, I am convinced, from the decided advance which agriculture, like all other arts, has latterly been making, that a combination of science with practice, and an acquaintance with the experience of a wide circle of agriculturists, attainable only by the well-educated, will become gradually more and more indispensable to profitable farming; yet, on the other hand, the more I see of farming and farmers, the more sensible I become of the very great amount of valuable practical knowledge they, for the most part, have of their particular business. And though highly-educated gentlemen, on the strength of the really fuller knowledge they have derived on certain agricultural points from their wider range of reading, reflection, and travels, sometimes flatter themselves they can give regular farmers general lessons in their trade; yet the more I am able to learn of the comparative pecuniary results of professional and of amateur farming in general, the more highly I am inclined to rate the regular farmer's superiority in whole branches—and those among the most important—of that business. This, however, makes me only regret the more that, for want of some additional education, so many good farmers and sensible men should, to so great an extent, be restrained from advancing agriculture by the freer communication of their knowledge to others, and from more usefully serving the public in various capacities; and should be thus prevented from doing more justice to themselves in the eyes of the community.

My object in offering the present prize is not merely to give young farmers an incentive to exertion, but also to endeavour to ascertain, with a view to its amendment, if necessary, the means of education at present practically available for that class in Devonshire. I mean of general education, as distinguished from business training. I cannot believe that in the present day any ascertained deficiency will long be allowed to continue in this country without some effort being made to supply it, more especially if the class affected be one so powerful and so capable of manfully overcoming difficulties as the agricultural body has recently shown itself to be. In the present instance this accurate knowledge is the more essential, because we have some reason to believe, not only that more has latterly been done for improving the education of the classes both above and below the farmers than for them, but also that the present generation of farmers find, with regard to the education of their children, some disadvantages which their predecessors did not before the days of Government grants, when such local schools as existed were, for the most part, self-supporting. As it is to the masters of the surviving schools of this class that we shall be mainly indebted for the preparation of the candidates that may present themselves, so it is to them also that we must chiefly look for information on this subject. In this investigation none can be more interested than these teachers. And I would put it to all able and earnest masters of middle class schools whether they have not experienced the want of some impartial and recognised standard in their too often unequal competition with unscrupulous pretenders to the honourable office and title of preceptors. I would ask them to consider whether the institution of some public test of their pupils' proficiency would not, while encouraging those pupils to increased exertions and longer stay at school, at the same time supply to their establishments an evidence of due qualification or certificate of excellence such as the examinations for University degrees and honours have long furnished to the schools of the higher classes—and have furnished, I will venture to say, with great advantage to them all; but more especially to those which, though some of them simply grammar-schools by their foundation, have, thanks very much to these examinations, won a world-wide distinction as the public schools of England.

The establishment of special examinations to test qualifications with a view to the selection of the right men for the right places, is becoming one of the questions of the day. Witness the examinations recently set on foot for the Indian service by the Indian Government; for the engineers and artillery service by the war department; for lawyers by the inns of court; and last, not least, those projected for our civil service by the late Government. But it is to be observed, that as yet the more general character of University education does not appear by the results to have at all unfitted University men for distinguishing themselves in these more technical and special examinations; nor does the value of academical distinctions appear to have been at all depreciated by the lucrative prizes held out at these newly-instituted contests. It has yet to be proved whether the establishment of something like a standard of middle class education, by means of some examinations analogous to those of our Universities, would not prepare the way for, instead of obstructing, and be assisted, instead of obscured by, any subsequent trials of more technical or professional qualifications. I believe this to be a desideratum much wanted. Whether it can be supplied remains to be seen. The Society of Arts, by the examinations it has lately instituted, has made a vigorous effort to do so. As I stated in my letter to Mr. Chester, the Society's comprehensive character, its more than centenary existence, its ties of affiliation with almost every town in England, and the countenance of its Royal President and distinguished Vice Presidents, afford it great advantages for this work. We shall see by the result of this year's examinations whether the Society has hold enough upon the nation at large to succeed in its object. I hope it has. I fear, however, it certainly has not upon the rural part of the population; and it is in them I, as a country gentleman, must feel the deepest interest.

It was under these impressions that, before making trial of the Society of Arts, I was led to think of the plan of county honours and county degrees mentioned in my letter to Mr. Chester. As this obviously, however, could not be carried into effect without larger and more influential co-operation than I had any right to expect for any project of mine, I determined to take the step which the Council were so kind as to honour with a vote of approval when I mentioned it to them at Tiverton. Having said thus much to put the Council fully in possession of my views, and to secure those views, as far as may be, from misconception, I will proceed to the details of my scheme.

1. With regard to the candidates for the prize, my own idea is that they should be young men *bonâ fide* engaged in agriculture, the sons or relatives of Devonshire farmers (whether freeholders or tenants), mainly depending for their incomes upon the pursuit of agriculture. If occasion should arise for a more stringent definition in this respect, the 50*l.* franchise would perhaps the more fairly indicate the minimum for renting farmers, because it is with their educational qualifications for their position as Englishmen of the middle class, and for their duties as citizens of a free country, that we are here concerned, rather than with their technical or professional knowledge as persons engaged in the business of farming. The standard adopted for tenant-farmers would furnish a sufficient basis for determining the limitations in the cases of freeholders or copyholders. It seems unnecessary to fix a maximum; as the Committee would practically, I believe, find no difficulty in deciding whether or not any one offering himself as a candidate was or was not, from present position in society, or from past advantages of first-rate school or college education, so far above the standard of the class I seek to benefit as to be an unfair competitor for the others to have to encounter.

2. The object of limiting the age of candidates to 18 and 23 inclusive, is simply to insure their having all fairly committed themselves to the pursuit of agriculture, and being so far removed from boyhood as not to repel from competition those just arrived at manhood, and already entering upon the business of life. But as I have announced my intention of offering the same prize for three years in succession, those who are yet rather too young to come forward as candidates may look to doing so hereafter, and begin forthwith to prepare themselves accordingly.

3. I will refer to my often cited letter to Mr. Chester for the reasons which lead me to require from the candidates certificates of competent scriptural knowledge as a necessary part of an Englishman's acquirements, on grounds not religious only, with reference to a future world, but also purely secular, with reference to the world that now is, to society as at present constituted in England, to our English laws and English institutions.

4. With regard to the subjects of examination, they have this year been purposely limited to three, viz. the English Language, the History and Geography of the British Empire, and Practical Mathematics—some acquaintance with all of which is undeniably required by every Englishman of the middle class who can be considered educated up to the standard of his position.

5. With regard to the points chiefly to be aimed at in examining upon these subjects, I have conferred with the three gentlemen who have so kindly undertaken the laborious duty of conducting the examinations, and I am happy to find a general concurrence between their views and mine.

a. The knowledge of the English language I seek to test and elicit relates not so much to correct grammar, though that of course is implied, as to some acquaintance with the force and value of words, and the power of faithfully representing thoughts and things in language; that is, of expressing what is meant, so as to convey within a reasonable compass neither more nor less than the sense intended to be conveyed. Mere grammar, the dry bones, so to speak, of the language, cannot of itself perform this higher, and, as it were, vital function. Indeed if there must be a deficiency in either one or the other, it had far better be in grammar than in expression. No one who has not the command of a vocabulary sufficiently full and appropriate upon any given subject can without undue prolixity make himself thoroughly understood about it; or speak or write effectively, even if he can himself think accurately, upon it, which, since words are thoughts, is in many cases far from easy. On the other hand the employment of exaggerated language in the attempt at oratory or fine writing, while it is far more repugnant to good taste than the want of point and precision resulting from a defective vocabulary, for the same reason tends to convey impressions at least equally inaccurate. But every one must have heard and read much that was more or less incorrect in grammar, and yet perfectly intelligible and to the point, often very graphic and sometimes even eloquent. This classical scholars well know from occasional examples in the best authors. Still, even were it otherwise, the practical character of the classes here in question requires that their education should deal with substance in preference to form.

b. The History and Geography of the British Empire may, I think, be well taken together, as they happen in the case of our particular country to be closely connected with each other. What I should especially seek here in the candidates would be a fair acquaintance with the outline of the History of the Empire, of its principal events, particularly of its wars and conquests, or discoveries, and, in connexion with these, of the course of its colonisation. To this, as of not less importance, especially for men engaged in the business of raising food for the population, I should add a good general idea of the character, products, and resources of the United Kingdom, and of those numerous colonies and dependencies which together make up the British Empire. The consideration of the History and Geography of that mighty empire in this point of view seems to me better calculated to kindle sentiments of pure and undivided patriotism in Englishmen, than would be the study, to an equal extent, of the history of the English people, of the growth and development of our social organisation and political institutions; because such a study necessarily brings men into contact with party and controversial questions still debated at the present day. Moreover, the study without which a real knowledge of our history viewed in the latter aspect is not to be acquired, must be far deeper and more systematic, and demands powers of philosophical reflection hardly to be attained without longer and severer mental training than it is reasonable to pre-suppose in the candidates to whom I offer my prize.

c. With regard to the third subject, viz. Practical Mathematics, what ought to be required would seem to be a thorough knowledge of the earlier rules of arithmetic, and of the first principles of the mechanical powers, of bookkeeping, and of mensuration. I say of the principles, because it is far more important to have a thorough understanding of principles than a familiarity with those convenient formularies which, though invaluable in the daily business of life, cannot of themselves enable any man to deal with new and unexpected cases; and, if merely learnt by rote, give none of the valuable mental training furnished by the process of thoroughly mastering any subject.

In conclusion I will only add how anxious I am that the three examiners† should be relieved from all trouble about this matter not inherent in the nature of their duty. And indeed it would seem on every account desirable that a Committee should take off their hands any questions that may arise as to the admission of

* See my letter to Mr. Chester, of June 28, 1854, in the Journal of the Society of Arts; my speeches at the Conference of the Society of Arts in July, 1854; at the Tiverton dinner last June; and again at the North Molton and Castle Hill dinners last October.

† Sir Stafford Northcote, Bart., M.P.; the Rev. Chancellor Martin; R. Dymond, Esq., C.E., who most kindly undertook at my request to conduct the first examinations next Easter.

persons proposing to present themselves as candidates, &c. I would therefore venture to ask the Council to designate some Devonshire members of the Bath and West of England Society,* whose assistance I might solicit for this purpose with the high sanction of the Council.

Extract from the Minutes of the October Meeting of the Council of the Bath and West of England Society for the Encouragement of Agriculture, Arts, Manufactures, and Commerce.

Established 1777.

After some remarks upon the above statement of his Lordship, it was proposed by Mr. T. D. Acland and seconde l by Mr. A. H. D. Troyte—That the Council beg to thank Lord Ebrington for communicating to them the arrangements which he proposes to make for awarding the prize which he has offered to the sons and relatives of farmers in Devonshire, and to assure him that whatever tends to promote so desirable an object cannot fail to be a matter of interest to them.

It was proposed by Mr. Acland and seconded by Mr. Dymond —That the Council understanding that his Lordship does not propose to make the Society responsible for the details of the proposed examinations, are happy to learn that there is reason to believe that some active members of this Society are prepared to co-operate with his Lordship in carrying out the proposed plan.

Both resolutions were carried *nem. con.*

THE POTATO CROP.

Having observed in your Notices to Correspondents in the *Agricultural Gazette* some remarks on the Fluke Potato I beg to offer a few observations thereon. Four years ago I purchased one cwt. of Flukes; I was told at the time not to do more than split them, or they would not come up. Being anxious to set a certain portion of ground with them, I cut them all to single eyes; they all came up with the exception of ten, the failure of those I attribute to the sprouts being rubbed off in the sack, when brought to the garden. In the autumn when taken up, they were a splendid crop, yielding 17 stone for every stone planted, or 136 stone of sound potatoes, and eight stone of diseased ones, making 144 stone in all. The ground on which they were planted is a very stiff clay soil, they were indifferently manured, and planted on the 9th of May, which was very late—the quality was excellent. The following season having more seed wherewith to plant, and having picked out the middle sized ones for seed, they were planted whole on ground contiguous to where they were grown the year before, they came up well, but when the crop was taken up it was quite inferior to the previous one, yielding not more than 12 stones per stone of seed, with a great deal more decayed ones from disease. From the same Potatoes this last season I planted still more largely upon some new ground that had been trenched for a plantation. This was a light gravelly soil; about one half of the sets were cut, the other half middle sized ones set whole. All came up well; at the time of taking up, those from cut sets had the advantage over the other of about three stones per stone of seed, or thus, cut sets 15 stone per stone, uncut 12 stone per stone. Those planted in the garden from the same seed, and grown on the same ground on which they grew the previous year, were quite equal to those of the first year I had them, indeed the tubers were larger; the quality is first rate, in none of these seasons were the sets planted more than two inches deep. I attribute the failure of the Fluke to over deep planting, and buying the seed just when it is wanted and having them put in sacks, and nearly all the sprouts rubbed off. The Fluke is nothing but a late Kidney; any one is aware that the early Kidney suffers very much by losing its first sprout. As to field planting, the above mode is as applicable as in the garden, having grown them there for my own use. My neighbour, a large farmer, purchased some Flukes the last season. He had been told if he cut them they would not come up; he planted them whole and at 2 feet apart in the line; I had 5 stone of cut sets in the same field. About a dozen missed of mine, and my crop was quite equal to his; in comparing the expense of seed his would cost five times as much, as the seed was large in size. The Fluke when planted in the field should be covered as light as possible, or the ridges harrowed down immediately after planting. There are two sorts of Fluke in this vicinity: one is excellent, the other worthless; it is a large Potato, when cut into very yellow, and when boiled is always sweet as though it were frosted; this variety has brought the good one even into bad repute, as people are jealous of being taken in. *Kirkby Lonsdale.*

I see a correspondent in the agricultural part of your Paper writes to know if the Fluke Potato may be planted with cut sets. I have grown it in considerable quantities for the last three years, and I prefer whole small Potatoes, and at digging up time save them for seed; but I cut some bushels of the medium sized ones longitudinally, and have very few blanks in the piece. I consider the Fluke Potato to require good garden ground in preference to field culture. The crop here from the garden is immense—from the field hardly an average; I have in the former dug 17 Potatoes, weighing 20 lbs., in a row of 10 yards. *G. Bond.*

I have grown Potatoes to a considerable amount for some years, and my experience has taught me that all Kidneys are more liable to rot when cut than round ones. Last year I planted one cwt. of Flukes, a portion being cut; strong frost succeeded, and then smart rain; the cut ones perished, the others flourished. A neighbour had a like case. Even a few cut ones that were kept covered on a bare floor mildewed and became useless. I plant very early for an early market and prefer the waste of planting whole Kidneys to the risk of cutting them. The fact is whole sets are hardier against the action of manure, against rain frost and vermin. If Kidneys are cut they should be so some weeks before planting, that the cut part may form a new firm skin. In the case of large Flukes the cook might daily before dressing those allotted for dinner cut off the crown; these crowns being dried would I think be sufficiently hardy to succeed in dry ground when planted, say in March, when the worst winter frosts and heaviest rains have ceased. But if we are driven to plant large whole Potatoes let us give them more room in proportion, and (I have found) we shall have our reward in a greatly increased produce. *P. V. R.*

Last year on April 17th I set 11¾ lbs. of Flukes, cut into 777 sets. I believe none of them would have failed had it not been for a kind of worm which destroyed nearly a third part of them. The others produced a satisfactory crop. On the same day, but in a different part of the garden, I set 11 lbs. of the same variety, cut into 377 sets; of these the worm above alluded to destroyed about a twelfth part. The remainder succeeded admirably. I did not weigh the produce in either case. I had previously set on March 15th 6 lbs. of Dean's Seedling Potato (a seedling raised from the Fluke, and which it much resembles). I did not count the number of sets, but they were put in about 12 inches apart in eight rows 2 feet apart, the aggregate length of which was 170 feet. The produce was 93 lbs. of very fine and excellent Potatoes. Four other persons in this neighbourhood procured Fluke Potatoes last spring. All of them cut them into ordinary sized sets, and a satisfactory crop was the result. *G. W. Manning, St. Juliet Parsonage, Cornwall, March* 17.

I am induced to state in consequence of the diversity of opinion expressed by your correspondents what my experience of the Fluke is. Early last spring I planted 3 acres of marsh land that had been drained, pared, and burnt, and had received 10 cart-loads of manure per acre with Flukes, all of them cut into sets. I was cautious not to take more than three or four from the largest Potato, and many were simply divided in half. My crop was magnificent. Taking the whole throughout, each set produced 45 well grown tubers. Many reached the high amount of from 60 to 76 tubers. This statement may seem almost incredible, but I can verify it by friends who personally inspected my field. After this who can say that the Fluke is not, not only a good, but the A 1 Potato. The poor people round me have rightly judged of its merits, and if I had 200 bushels to sell I am certain that they would all be parted with within a week, such is the demand for them. I am planting nearly 3 acres this year in the same fashion, being satisfied from experience that no harm can arise from dividing the Fluke Potato. *C. F. Thruston, Talgarth Hall, Merionethshire.*

* The following members of the Council—Mr. Sillifant, of Coombe, Mr. Thomas Hussey, of Waybrooke, Mr. Farrant, of Growing, Mr. Fry, of Culmstock, and Mr. Widdicombe, of Ugborough—most kindly undertook to act as a Committee in compliance with this request.

Home Correspondence.

Thick versus Thin Seeding.—I agree with "Falcon" in his description of poor land, and was not aware but I had pointed out the common sense principle on which the farmer sows thickly on this description of soil. The greater number of plants found in the soil where thick seeding is practised produces a greater number of spongeolets than where there are fewer plants, and these having each the power to absorb the pabulum of the plants a greater weight of corn per acre results from thick seeding. With the greater number of plants is increased the facility for the collection of the constituents necessary to the formation of corn. If all the soluble food found in a barren soil could be placed in juxtaposition with the spongeolets or mouths, as can be effected in animal life, then would "Falcon's" theory be correct. I would ask "Falcon," if he possessed two fields of Turnips on land of equal texture and richness, one manured with 3 cwt. of superphosphate of lime per acre, and the other sown without manure, would he allow the former to be left 10 inches only asunder and the latter 20 inches? This, I believe, is what "Falcon" would call a common sense principle. No person rejoices more than myself to see any prejudice removed that tends to retard the advancement of our profession, nor would any person enjoy more than myself the sight of a field of corn grown by the application of science to that perfection which we cannot yet attain to. Science is not yet sufficiently advanced—science may some day enable us to grow corn with that certainty which Messrs. Hardy & Son would have us believe is now possible. The time may come when we may deposit 4½ pints of grain per acre and say with satisfaction we shall reap 84 bushels per acre in the coming harvest. Messrs. H. & Son may feel assured that there are few farmers who do not too often experience the loss resulting from the plants being too thin in the soil, and this in soils in a high state of cultivation. Chemistry must teach us more about manures before we can with profit sow so thinly, and the destruction of insects must be more studied, and much more must be known about them, before we sow as little as 1 bushel per acre on land that is naturally poor, or I think I may say on land that may be placed amongst the medium quality. On some land rich in the constituents of Wheat 1 bushel per acre may be sown with advantage, provided that it is drilled in good season, but there are few soils that do not even then require 6 pecks. I vary the quantity per acre according to the earliness or lateness of the season and the state of the soil, 2 bushels per acre being the medium quantity drilled by me on my poor land. The Marigold Wheat contains 528,000 grains in 1 bushel, or 1,056,000 grains per acre. This will be about 24 grains per square foot. It must not be lost sight of that we do not plant our Wheat but drill it in the ordinary way, therefore I have not 24 plants per square foot, as Messrs. H. and Son would have us believe, but 17 plants per square foot, some grains not having germinated, others being destroyed by the attacks of birds and insects. I have grown Barley in my garden 8 inches asunder, and found it amply thick, which is a proof that overfed plants may be grown very thin with advantage to the grower, but this is no proof that it will pay to cultivate so high and seed so thin. Perhaps this Barley was sown where no corn ever grew before, and and on a naturally rich soil dug often and deep; in fact, such a soil as we do not often find cultivated in a manner that would not pay for the production of corn. Does this description of soil correspond with that on which Messrs. H. & Son grew 84 bushels per acre from 4½ pints, and 15 bushels only from 3 bushels per acre? If so, I am not so much surprised at the result, for it would be madness to seed so thickly on a soil containing a superabundance of the constituents necessary for a crop of Wheat. Twenty-one sacks of Wheat per acre! Is it possible? I have full confidence in Messrs. H. & Son, but how was this result obtained? I presume that it was a few yards of transplanted Wheat, and that Messrs. H. & Son's calculation was based on a calculation of the production of a plant from every seed, therefore their statement would require a little modification. Much praise is due to Messrs. Hardy & Son for their perseverance in what they think will ultimately be of benefit to the community. Now that they cultivate Wheat by the acre their results will gain more attention, and consequently they may gain more converts, especially if they give us a balance sheet showing greater profits than we now obtain. *Geo. Summers, Houghton Farm, Blandford.*

The Storm of Feb. 6.—It will probably be in the recollection of your readers that in the night of February 6-7th ult., a most destructive hurricane passed over the south-west of Scotland, and especially the city of Glasgow. In perusing the details which were given in the *Times* of Saturday, Feb. 9, I was struck with the fact that the nearer the different points of damage lay towards Ireland, at so much an earlier hour of the night did they begin to suffer from the violence of the wind; whereas those which were situated further inland, or on the eastern coast of England, did not experience this visitation until a later hour, and towards the morning. Conceiving, therefore, that this was a true progressive storm, and that its probable line of movement would be from west to east, across the north of Ireland and centre of Scotland, I made application to the Trinity Board for copies of the reports from the undermentioned lighthouses, an abstract of which I subjoin in Table I., and if your readers will draw a line E.N.E and W.S.W. through the city of Glasgow, and then draw others from it to the different stations in the following table, they will I think clearly perceive how regularly the barometers, there observed, fell and rose again, as the storm's centre travelled the course I have indicated. The general direction of wind was from South and S.W., veering to West; the hours of its greatest force coincide very closely with those of the greatest depression of the barometer.

Stations.	Highest previous observation of Bar.		Lowest observation, noted at		Difference.
Scilly ... ... Cornwall.	5th, 9 a.m.	29,91	29,35	6th, 3 p.m.	,56
Edystone ... ... Devonshire.	9 a.m.	39,21	29,70	3 p.m.	,51
South Bishop ... Cardiganshire.	9 a.m.	29,95	29,22	3 p.m.	,73
Dublin	10 a.m.	30,02	29,20	1 p.m.	,82
St. Catherine's ... I. of Wight.	3 p.m.	29,81	29,34	9 p.m.	,47
St. Bees, Cumb. ...	3 p.m.	29,64	28,80	9 p.m.	,84
Longstone ... ... Northumb.	3 p.m.	29,84	28,79	7th, 3 a.m.	,85
Flamborough ... Yorkshire.	3 p.m.	29,87	29,04	3 a.m.	,83
N. Foreland ... ... Kent.	9 p.m.	30,08	29,57	3 a.m	,51
Heligoland	6th, 3 a.m.	29,86	29,22	9 a.m.	,64

At St. John's Point, Dundrum Bay, at the height of the storm the barometer fell to 28,91 at 11 p.m. of the 6th.

I think it probable that the logs of the outward bound American and West India steamers may carry back my *data* beyond the west of Ireland. *F. P. B. Martin, Oxford and Cambridge Club, March* 18.

Covered Yards or Box Feeding.—Since I last addressed you on this subject, I removed 100 half-bred hoggets from an open boarded floor and placed them on straw in a walled and covered shed with paved bottom. The space allowed is 10 superficial feet per head, including in this space the necessary feeding troughs. Of course there is proper ventilation by openings in various directions to carry away the impure corporeal exhalations. Each sheep receives daily 10 lbs. of Mangel, three-quarters of a pound of Rape-cake, and some finely cut Wheat straw chaff. Their appetites and condition are in every way satisfactory. They have been now 8 weeks in this shed without any removal of manure, and by an almost daily examination of the condition of the manure I am enabled to arrive at definite conclusions. If straw was too abundantly supplied the

manure became warm—too warm; by stopping the supply it became cool. In fact the degree of wetness of the manure regulated its temperature; when wet it was cool, when moist it heated. Finely cut straw or short stuff absorbed moisture quickly, and had to be very sparingly supplied. A light covering of straw once a day keeps the manure in perfect order, solid and free from smell, but disturb it with a fork, and the odour is all-powerful. One pound and a half of straw per head per day for sheep is a sufficient foddering, and 9 to 12 lbs. for a bullock. We must not forget that 13-14ths of the manure is liquid. I was never before satisfied or confident as to feeding on straw bed, but now I see clearly that the failure or success depends upon the proper management of the manure. I read Mr. Lawrence's remarks with much satisfaction, and know that box-feeding with him at Cirencester has been quite successful; but there is much difference between the hard glassy cereal straws of Essex and the far more soft and spongy straw of the elevated Cotswold Hills. The former are more hard and reedy, and admit air readily, whilst the latter pack closely and exclude air. In the former case it is necessary to effect this exclusion by ample saturation. The late dry weather has caused the manure in many open farmyards in this neighbourhood to heat violently, and then "fire-fang." As my last communication on this important subject was considered valuable by many practical farmers, I trust the present may not be deemed inopportune. The quantity of straw I have named for litter would have to be increased where the animals were fed entirely on roots. *J. J. Mechi, Tiptree, March* 17.

Nature v. *Art, or Poultry* v. *Wild Birds.*—There is a sad war going on from time to time, as it suits the convenience of correspondents, about rooks, sparrows, and moles, and such like so-called farmers' friends. Mr. Wilkins, in your Number for February 2d, has treated us to the last essay on the subject; and as he calls on us to reason together, let us do so for a few minutes, for there is yet a "Greening" not so convinced by his argument as the happy issue of his interesting dialogue brought out. He asserts, what nobody denies, that all things were made good, and hence infers that we ought to let them remain as they are. But is not one of our first commands "to replenish the earth and subdue it?" The reverend gentleman seems to be a great admirer of Nature in some things, but I do not think he is so, so far as he himself supposes. Suppose we were to allow her to manage things her own way, what would the result be? All our life is a struggle against Nature, not to kill her, that we cannot do, but to subdue her; without her we could not get on at all; but we must see if we cannot set her properly to work, and where we find any ravages committed among crops we must not say it is Nature's tax, but art's imperfection. Let us then remove the evil even at the risk of having the cure as bad as the disease, and then see if art will not find a remedy. I think if the rooks and moles were destroyed we might put more manageable substitutes to do the work, and which would at the same time be profitable. What does any of these vermin do that our common barn-door fowls cannot and do not do? They can eat slugs, grubs, and insects of all kinds, and also corn, and most seeds; in short they are omnivorous, and more than that they are industrious. They will pick all off the surface, and even go down to a good depth. Well now that we have found them how are we to set them to work to do it properly? I think that we shall manage it by having our poultry houses built like gipsy vans, so that we can take the whole flock to where they are wanted, not where they only please to go. Let them be taken in the morning when the ploughs go to work, and as their house is with them they will stop contentedly and work with pleasure, requiring little more food and converting a scourge to a profit. We know it is said that few will go where there is nothing to be got, and so with them, yet see how incessantly they scour the one or two fields that adjoin their house; and if they get so much there, how much will they get if sent over all the farm? By this means they could exist in great numbers at little cost and with better health than they do, sometimes confined to one spot. And then, perhaps Mr. W.'s friends would disappear, because there would be no grub left for them. The work will be done at less cost and by more tractable workers, and they might be made to answer as well in the garden (they could be confined by netting to the spot they are wanted in), so as not to injure any crop, and then we should hear no more inquiries how to kill wire-worms. The farmer has, and I dare say always will have, lots of friends, but many of them are very selfish, and among such are Mr. W.'s protegees. Such a plan might perform a cure and solution for the game-laws, by gathering up all stray grains after harvest, so that nothing be lost nor left for these wild beasts. *G. S.*

Sundries.—In the first place I recommend your inquirer "J. M." in the Number for March 8, 1856, not to put any sulphate of soda to his cyder. It may be that he does not know that sulphate of soda is the common purgative salt called Glauber salt, the use of which is now almost superseded by Epsom salts. [It is not sulphate but sulphite, or rather hyposulphite of soda that is recommended.] Next as to Gorse—I think it extraordinary that a spineless Furze bush, or at least a bush with soft and harmless spines has not been discovered among the millions of bushes growing almost everywhere, for if found it could most easily be multiplied by small cuttings, so as to be sold in rooted plants at a shilling, or for less per hundred. In 1852, in July or August, I cut from bushes of the double blossomed Furze more than a thousand cuttings, trimmed and planted them very close together in sandy soil within a two-light frame to protect them from drying winds, all within five hours, and of them full a thousand became rooted, and in the subsequent spring were put out into rows a foot apart and nine inches asunder, and became beautiful plants. Now I want somebody to discover a spineless Furze bush, from which to propagate, and then so valuable a fodder plant for winter use will soon become plentiful. A reward should be offered for a living spineless Furze bush.—Lastly, in answer to the wish expressed in your notice to "X" as to seeds in a pound, I send you the weight of a pound of seed of each sort of a number of Grasses, and of some plants ascertained in the years 1838 to 1843, during which period I was in the habit of occasionally collecting seeds of Grasses, of other plants and of trees for the purpose of sending parcels or specimens to N. S. Wales, of most of which I carefully cleaned and weighed portions with scales so accurate that two seeds of Agrostis alba would alter their balance.

Number of Seeds to a lb. weight avoirdupois, when very well cleansed, of the afternamed Grasses and Plants.	Seeds in 1 lb. avoirdupois.
Agrostis alba stolonifera	4,838,400
Aira aquatica	1,244,160
" flexuosa	748,800
Alopecurus pratensis	529,920
Anthoxanthum vernum	672,000
Avena flavescens...	1,728,000
" sativa, var. Winter Oat	12,480
Bromus erectus	69,120
Briza media	929,280
Cynosurus cristatus	952,320
Dactylis glomerata	395,520
Festuca duriuscula	445,440
" gigantea	126,720
" elatior	230,400
" Ovina	1,113,600
" pratensis...	207,360
Glyceria fluitans	276,480
Holcus avenaceus...	122,880
" lanatus	1,950,720
Lolium perenne	199,680
Phalaris arundinacea	506,880
" canariensis, cultivated for bird-seed ...	64,512
Phleum nodosum	2,119,680
" pratense	948,480
Poa annua	1,543,680
" compressa	2,023,680
" trivialis	2,380,800
" pratensis	1,405,440
" " var. angustifolia	1,278,720
" " var. subcœrulea	1,363,200
Triodia decumbens	192,000
Nasturtium officinale (Water-cress)	2,457,600
Lathyrus pratensis	34,304
Orobus tuberosus	38,912
Reseda luteola (Dyer's Weed or Weld)	1,612,800
Rumex acetosa (Common Sorrel)	441,600
Trifolium incarnatum	104,448
" medium (true wild zigzag Clover) .	437,760
" pratense (wild common Perennial Clover)	322,560
" pratense bienne (cultivated Clover) ...	253,440
" repens (White Dutch Clover)	821,760
Vicia sepium	28,672

J. C. X.

Superphosphate of Lime.—In your Paper of the 8th of March there is a communication from Professor Voelcker of Cirencester upon the subject of supherphosphate of lime which contains some extremely useful information and some practical remarks founded upon sound sense and prudence, but it would be highly desirable if he would go one step further in the chemical information which he affords. He states that the value of superphosphate of lime when sold varies extremely in consequence of the mode of preparing it, and that he does not consider that it can be deemed good, (a relative term) unless it contains 33 per cent. of phosphate of lime one half of which has been rendered soluble by acid, and that such an article can be now furnished at from 7*l.* to 7*l.* 10*s.* per ton. The question which I should be anxious to have solved is, of what the remaining 67 per cent. is expected to consist, whether of water contained in the acid, or of ashes, sand or other ingredients mixed with it by the manufacturer. Again supposing that no admixture has been made, that nothing but acid has been applied to the bones, and that the substance formed is in a tolerably dry state, what he then considers to be the proportion of phosphate of lime. I have been in the habit, since the time Mr. Pusey recommended the practice, of purchasing crushed bones and sulphuric acid separately, and of mixing them in the simplest manner possible. Generally for the purpose of drying the mixture and convenience in using it, some ashes or sand have afterwards been added, but I should feel much obliged to Professor Voelcker if he would say whether his remark of 33 per cent. applies to the pure substance of bone and acid. I conceive not, but this point in his remarks is obscure. As far as I understand the chemical change which takes place, it is this: that bones consist entirely of phosphate of lime, that by adding sulphuric acid two substances are formed, one being sulphate of lime, the other a biphosphate of lime which is easily soluble in water. These having performed this operation without any other admixture, what does he consider to be the proportions of the various ingredients? This appears to me to be the only true mode of estimating the real market value or cost of superphosphate of lime, and the value which is obtained in the article purchased. Considering the great adulteration and worthlessness of many artificial manures which Professor Voelcker has so often explained, and the doubtful value of what is sold as superphosphate of lime, it is surprising to me that more agriculturists do not follow the simple directions of Mr. Pusey, which would obviate all chance of deception. *Scotus.* [Bone rarely contain more than 50 or 60 per cent. of phosphate of lime.]

Drainage and Irrigation.—A correspondent of yours appearing desirous to have a confirmation of my statement that I had frequently caused deep drains in strong clays to discharge liquefied manure abundantly, I beg to state that it has been no uncommon occurrence. He may be more surprised when I tell him that the manure was the solid as well as liquid, all mixed together with water. I have no doubt Professor Way was quite right in saying that clays will retain ammonia; but if our nitrogen has not become ammonia do we not lose it by filtration? There is unmistakeable evidence given by the rich verdant colour of the vegetation which grows where the drainage flowed that we lose much valuable manure through our drains. A few years ago, during heavy rains, I saw the drains discharging rich streams of manure, and on examination found that it proceeded from a dung-heap 200 yards distant from me, which was on the surface of the soil; but through which, and through the soil the essence was carried by the falling rain. *J. J. Mechi, Tiptree, March* 17.

Soils.—I am extremely obliged by the notice you have taken of my communication in respect to soils. In reference to the completeness or incompleteness of the analysis I am not responsible. I forwarded the soil to Mr. Medlock, of Great Marlborough Street, and he charged me three guineas, the highest sum named by you in page 178. *D.*

Farmers' Clubs.

LONDON, OR CENTRAL FARMERS' CLUB: *Farm Agreements.*—At the late monthly meeting Mr. Jackson read a paper on this subject. His first inquiry was—Are verbal agreements, or, in other words, agricultural customs, best calculated to give a stimulus to agricultural improvement? From the evidence given by witnesses before the Tenant-right Committee, it appears that a system of compensations for improvements has within the last 20 or 30 years grown up into a custom in parts of Lincolnshire; and that this, combined with tenant right agreements, has in those districts almost magically changed the fens and rabbit-warren wilderness into fruitful fields. The following is from the evidence of Major Francis Brown, landowner, occupier, and tenant farmer:—

"Lincolnshire, in my early period, was in a very bad state of cultivation indeed; in short, one-third of the whole county was entirely uncultivated; the four-field system was gradually introduced, and artificial manures were introduced also; and then, after a lapse of time, when tenants had to quit their farms, valuers began to make allowances to them. It was a very gradual thing in its early progress; it was fought very stoutly against, but it is now, I believe, universal."

It thus appears how improvement and security (the incitement to improvement) have gone hand-in-hand, even without security of tenure; for there appear to have been few leases.—The description of farm agreement best calculated to give a stimulus to improve, is of course that which conveys to the occupier the ownership or freehold. This is the best inducement to improve, for there are no consents to ask or penalties to fear. Here is perfect fixity of tenure; entire security for investment. But there are two things which preclude the possibility of this being the description of farm agreement best calculated to give a general stimulus to agricultural improvement: First, few farmers have the capital wherewith to purchase land; and, secondly, only a small proportion of English freeholds ever come into the market for sale. If, however, perfect fixity of tenure and perfect security for investment form together the highest inducement to improve, does it not follow that the next highest inducement to improve is a long lease?—99 years if you like. Formerly "long leases," and leases for one or more lives, were frequently given. Some of the latter even in my own neighbourhood are not run out; but I never knew an instance in which they were renewed at rack rent. Many may, and in reference to holdings of from 500 to 1000 acres probably do, believe that leases for 21 years, with few restrictions and tenant-right clauses, are "best calculated to give a stimulus to agricultural improvement." If we compare such leases with tenant-right agreements, I think we shall find that their single advantage is fixity of tenure or certainty of occupation for a given term. This undoubtedly secures to the lessee both the pleasure and the profit of his improvements for the period; but it must be kept in mind that the profit in improvements is made more secure to the tenant by agreement, or even by tenant-right custom, where it has kept pace with improvement, as it has in some favoured spots—for example, in parts of Lincolnshire; because compensation is then calculated from the date of improvement, while in the other case the term may be too nearly run out to allow of a return. I am aware it may be contended that certainty for a given time is better than uncertainty for double that time; as under the former the tenant can calculate up to a given date, whereas under the latter he cannot calculate at all. But it must be borne in mind that we do not contend, on behalf of the lease, for the "profit" of the outlay—that has been conceded to agreements—but only for the pleasure and enjoyment; and as these are brighter in anticipation than in retrospect, I do not see how we can refuse to concede, in reference to agreements and Lincolnshire customs, that on a bush so well birdlimed two birds are better than one. I have here an agreement of this kind, for a farm of over 200 statute acres, dated 1817; and the compensation clause is in these words:—"That, if the tenant shall be turned off the farm at any time, and shall not have

reaped the benefit of such permanent improvements as he may have made thereon, he shall be allowed for the same such sum or sums of money as two impartial persons shall fix upon, one to be chosen by the landlord, and the other by the tenant; and in case they shall not agree, an umpire shall be chosen by them, whose determination shall be final." As this is the oldest farm agreement in which I have found a tenant-right clause, it is gratifying to perceive that it has stood the test of 39 years' experience. The tenant, feeling that the clause secured his improvements, so that the owner could not take an advantage of him, soon changed the farm from a bad to a good condition, and is continuing, up to the present time, to reap the harvest of his own sowing, having brought up his family in great respectability, and become independent in his circumstances. Many of the tenant-right agreements draw a proper distinction between acts of husbandry and permanent improvements, limiting the previous consent of landlords to the latter, as in clause 9 of the Cheshire agreement; and the approved invoices put the matter beyond dispute. Whether such agreements, reserving to the landlord annually the power, but depriving him of all pecuniary motive for cutting short the tenure, be "the description of farm agreement best calculated to give a stimulus to agricultural improvements?" is the question I have now much pleasure in submitting to the agricultural world. However much we may differ on this question, I doubt not we shall all agree that every farm agreement, however good, will fail in giving a stimulus to improvement, unless it obtain the entire suffrages of the tenant-farmers.

Mr. Sidney said: Many landlords still acted in some degree under the influence of the feeling that they were conferring a favour on their tenants by allowing them to occupy their land; and in all such cases that notion was a great hindrance to good cultivation. The first trace of any general improvement in this respect was to be found about 25 years ago. He had been told by Mr. Hudson that if he let his farm "go out of heart" during the last four years of his term, it would still be in as good condition as when he first entered upon it; for at that time it only produced 92 coombs of Wheat, whereas it was now producing, and had produced for 14 years in succession, upwards of 1300 coombs. This high state of cultivation had been brought about by Mr. Hudson every year putting into the land more than he took out of it; consequently he had always a vast amount of capital thus employed, with which the landlord could have nothing to do. The question on the card was, "The form of farm agreement best calculated to give a stimulus to agricultural improvement;" and was not that form of agreement the best which induced the tenant to put as much of his floating capital into the soil as he could employ at a profit? They were all agreed as to these points:—That they must have a rotation of crops, use the best descriptions of farm implements, lay out very large sums in concentrated manures, and maintain a numerous stock upon the land. Was there one among them, then, whether Mr. Hudson of Castleacre, Mr. Thomas of Lidlington, or any other man, who would go and put his 8*l.* or 10*l.* an acre into the soil upon an annual agreement which placed it in the power of the landlord, or the landlord's trustee, agent, or even gamekeeper, if there happened to have been a quarrel with that individual, to give him notice to quit, turn him out at the end of 18 months of his tenancy, and leave him to a lawsuit or an arbitration for compensation? In considering this question they must not keep their eye upon certain model landlords, but bear in mind that they were asked to sanction a form of agreement which might be adopted under all or any circumstances between two different men. With regard to the broad and general principles on which all farm agreements should be founded, in order to develope to the utmost the agricultural resources of the soil, the following circumstances were essential:—

1. That the landlord should provide the buildings, farm steadings, roads, drains, fences, suitable and required for the cultivation of the farm.
2. That the tenant should, in addition to experience, possess capital sufficient to provide the implements, machinery, stock, seeds, artificial manures, and labour required by the acreage and quality of the farm.
3. That the tenancy should be on terms that would enable the tenant to put the farm through at least one complete rotation of crops, with security for return of unexhausted capital sunk in the soil.
4. That as minute restrictions hampered a good tenant, and did not restrain a bad tenant, the restrictive clauses should be as few and simple as possible.

Mr. R. Baker, of Writtle, had always held the opinion that in making an agreement for letting lands, it was more advisable to secure the tenant in the money he invested by way of improvement as he went on, than to pay him an amount of compensation upon leaving. It was no remuneration merely to pay him for the improvements which were unexhausted. That was only the last act of justice which could be done him in taking the farm out of his hands, or letting it to another tenant at an increased rent. It must be obvious to every one who regarded the matter in the light of a commercial transaction, that, in taking a farm and looking to it to repay him his investment of skill and capital, to bring it into a cultivable state, it was more necessary to have security for repaying himself the outlay in improvements, than defer it until the expiration of the tenancy, when it would have to be paid by another. The object of the present discussion should be, he thought, rather to convince the landlords as to what their real interests were, than to dictate the terms upon which they should let their farms; and in all their arrangements they should be governed by this principle, that, whatever the improvements on an estate, they should be suffered to remain there, and not be withdrawn by the tenant at the end of his term. It had been very much the custom in his neighbourhood, where the farms were let for 14 years, for the tenant to go on farming exceedingly well for the first seven or eight years, but after that time he made it his business to exhaust the improvements, until, at the expiration of the term, the farm was left in as bad condition as, or worse than, when he first took it. Now, he wished to see that system obviated by restrictions being introduced into the clauses governing the latter portion of the lease, so that the tenant should not be allowed to exhaust his improvements, but should be paid compensation upon the principle laid down in the Cheshire agreement, or some principle analogous to it, in proportion as they remained unexhausted. Mr. Sidney had stated that which the practical farmer would see was not exactly correct, namely, that until lately there had been no permanent investment of the tenant's capital in the land. Now, he maintained that 50 years ago the amount so invested was very little different from what it was at present. At that time marling, chalking, and draining were understood and applied to the land. He granted that the drilling of Turnips was a recent practice, but he did not know that it had much increased the production. The old system of growing Turnips was just as good as the present, and every practical farmer would say that as good beef and mutton were made with Turnips alone then, as with oilcake and Turnips now. If they had increased the growth they had not improved the quality of Turnips, for every year they deteriorated. But the point they had to discuss to-night was, "The form of farm agreement best calculated to give a stimulus to agricultural improvement;" and he held that the best form of agreement would be that which would give the tenant sufficient interest in the soil to induce him to invest his capital therein; that would give him sufficient time to make a return upon it, so that at the expiration of his term he should not feel compelled to withdraw his capital with the knowledge that if he did not withdraw it he would not be paid for it, but that compensation should be secured to him in proportion to the amount of capital he had invested over and above what was invested under the ordinary modes of farming, and over and above what he might have extracted and returned to his own pocket. He (Mr. Baker) should say that that would be best effected by a running lease extending from 10 to 15, 20, or 25 years, and terminable by either party giving to the other five years' notice in writing to that effect. But no tenure of land should be commenced without a written agreement. Everything should be reduced to writing, which would prevent a vast deal of trouble in the end; and as the stamps on leases were reduced, there would be no difficulty in effecting it on that account.

Mr. Mechi said, the combination of a fair and moderate valuation of improvements with a lease was, perhaps, the most desirable arrangement that could be made; and, of course, if custom recognised that practice in a particular district, it had in effect the power of a law. At the same time it would not interfere with the general right of individuals to make their own agreements. Practically, at present there was nothing like harmony of action throughout the kingdom; for while in many parts of the country—in Lincolnshire, Norfolk, and Bedfordshire—liberal and enlightened arrangements were carried out, in others the whole system was so backward that they were really not in a condition to avail themselves of the improvements of the age; and if an attempt were made suddenly to force upon some miserable districts the high notions and progressive sentiments prevailing in others, the results would be anything but satisfactory. He had often heard landlords complain of the difficulty of getting tenants with capital; but his answer to that was simply that it was their own fault, and that to obtain men of capital for tenants they should offer them advantages which would compensate them for whatever investments they might make in improving the cultivation of the soil.

Mr. Thomas, Lidlington, Beds., maintained that if they wished to have an honest, independent, persevering, wealthy, and intelligent tenantry, they would never obtain them, in the long run, under the system recommended by Mr. Jackson; that was, a yearly tenure determinable at the will of the landlord or a crusty or bilious agent, even though, on leaving, the tenant had an undoubted right to claim a money compensation for the outlay he had made in the soil. There were higher and more generous feelings than those which originated in pounds, shillings, and pence, which ought to dictate the arrangements between landlord and tenant. It was not right that the latter should be in continual dread lest he should be turned out, with a present in money, or what he had invested during the last two or three years of his tenancy; but, before agricultural improvement could be pushed forward at an accelerated pace, mutual good feeling should be established between proprietor and occupier; and that could only be effected by the former giving such a tenure as would attract the best men to the land, and encourage them to lay out their capital, with the prospect of its being returned them tenfold.

Mr. J. Pain, Felmersham, Beds., said that in travelling through the kingdom he never had occasion to ask the question whether the land in particular districts was held under fixity of tenure or not. He thought he could always tell, without making any inquiries of the sort; and the conclusion to which he came was that the farms of tenants-at-will were seldom in the high state of cultivation that with a lease they would have been in.

On the motion of Mr. R. Baker, the following resolution was passed unanimously:—

"That the form of farm agreement, or lease, best calculated to give a stimulus to agricultural improvement, is that which gives security to the tenant during his occupation, with compensation for unexhausted improvements at the expiration of the term."

MID-LOTHIAN.—*Cultivation of Red Clover.*—The following is part of a paper by Mr. Walker, of Kilpunt, read at a recent meeting of this association:—

The kinds of soil in which this plant thrives are of a class distinguished by several qualities, all of which conduce to the preservation, development, and growth of the Clover plant. Red Clover, as we all know, belongs to the family of lime plants; hence those soils that are calcareous, and contain lime in abundance, are suitable in part. But while all suitable Clover soils exhibit the presence of both lime and potash, as also other chemical ingredients of lesser note, it is not less necessary that they should possess a large proportion of clay. Speaking of leading constituents to make a perfect Clover soil, we must have lime, clay, and humus. These argillaceous lands occur chiefly in genuine richness in the carses of this country. I shall now advert to the character of those lands upon which this useful forage plant refuses to grow. Most plants grow and thrive on very different kinds of soil, the cereals, Rye-grass, leguminous and bulbous plants generally, and although certainly there are lands in which all do not thrive alike, yet in few instances in the record of good farming does it happen that any of the above-named plants have been sown on land farmed according to the rules of good husbandry and refused to vegetate, or after having vegetated for a while, have sickened and died; thus these appear, although belonging to different and distinct families, to find enough of nutriment in all ordinary fertile soils as serve for the purposes of developing their growth, and bringing them to maturity. Far different is the case with red Clover; on all light soils, as a rule, its growth is uncertain, and this appears to prove that this plant adheres to certain soils, as before described, these having certain constituent parts in their composition, as likewise before mentioned. But while the causes of failure may be attributed to the want of a proper constitution of soil, or rather to the land having become exhausted of the food required for the Clover plant, yet other causes are at work which render the successful culture of this uncertain plant even more uncertain. The sowing out of Grasses along with a crop has, no doubt, a tendency to militate against a luxuriant forage crop; and when liberal applications of guano, or top dressings, are applied to the white crop along with which the Grasses are sown, a rankness of growth is induced so as to exclude light and air from the germinating Grasses, and it is impossible in nature but that the Clover plants must be wholly or partially choked, or, at the least, so sickly that the succeeding winters' frost kills the delicate shoot. But while I say that it appears many soils do not possess sufficiency of mineral ingredients for the nourishment of the Clover plant, yet I am of opinion that failure often happens even in soils when most, if not all, necessary mineral substances are present. Our system of improved farming is greatly a cause of this; first, draining has the effect of rendering the soil less compact, its cohesive nature is much lessened—as a consequence, air gains admission more freely, and makes the land lighter and more open, so that its texture is considerably changed; and many of us have proved that openness of the soil is inimical to preservation of Clover. How frequently have we seen a capital braird, strong healthy plants at the cutting of the white crop, and when March and April came round, the goodly appearance had vanished, the red Clover especially having died out during the winter and spring months. Now, we may be apt to blame the constitution of the soil for this, while the truth is, the young plants have been destroyed by the frosts. And as a proof of this, how often do we find that ill planted Grass lands usually succeed frosty winters. If we take the severity of last winter and spring as an instance fresh in our remembrance, and note how barren the land was last summer of Clover plants on all moderately light soils, I think we must come to the conclusion that the action of frost, especially if it happens late in the spring, has a very disastrous effect in killing young Clover, and on very shaly soils it kills Rye-grass too. The kinds of crops we cultivate in our rotation, which have the effect of loosening the soil, exercise great influence in hurting red Clover. The growth of Beans, especially, seems antagonistic to its successful culture, when sown immediately after them, and this antagonism seems to arise from the deep-rooted plant rendering the land open, and easily penetrable by frost, and likewise because the Bean takes lime largely from the soil; thus using up the most essential mineral manure for the growth of Clover. Its frequency as a crop in our rotation is perhaps the most universal of all the causes that I have attempted to enumerate for rendering land Clover-sick. Many practice the 5-shift course, sowing red Clover, grow or not grow, once every four or five years, while it should be sown only once every second shift, that is once in 10 years, provided it cannot be made to grow oftener.

The most important part of this subject is now reached—viz., how may Clover failure be partly or wholly remedied?

While it is difficult to get at a specific remedy, it is possible by remarking general and known characteristics of Clover-growing lands, and by practical trials to acquire a pretty good idea what applications may be necessary for the several cases with which we are or may be connected. In moorish soils, whether peat, clay, or bog, the application of lime has been found most beneficial as a fertiliser, and although on moorish soils of high altitude red Clover is rare, yet, of all known mineral manures there is none that causes the land to produce such an abundance of sweet herbage, and if broken up so improve its capability for growing cereals, as well as root crops. Such soils, however, are incapable of keeping succulent vegetation alive during a severe winter; and are, therefore, especially unsuited for the growth of the plant in question. Much better to sow white Clover alone with the natural Grasses than to force the growth of a plant which the soil and often the climate forbids. On many of the chalky soils of England red Clover will not grow. I am told, however, that claying such lands has had the best effects. Of sandy and gravelly soils, there is considerable diversity, and although especially suited for Turnip husbandry, they have in the usual course of farming proved very precarious in the growth of red Clover. Of restoratives applied to this description of soils, I have seen lime do well, when applied as composts. But as the application of composts is more costly than many farmers think, I am of opinion that the better way is to apply a moderate quantity of caustic lime before the Turnips are sown, and to consume one-third or a half of the Turnip crop on the ground with sheep, and this management of light soils will, next to certainty, restore the growth of the Clover plant. On very light gravelly soil I have witnessed the process of claying. This was performed by the late Dr. Drew, farmer, Carmyle, near Glasgow, in a most extensive way. The texture of the soil altered quite perceptibly. A very marked increase of all succeeding crops ensued, and none more so than Grass and Clover seeds. The cost per Scotch acre would be from 12*l.* to 15*l.*; but it depends on the quantity applied. I think about 500 carts per acre were applied, and the last field that was done got even more. The landlord employed the men to fill the carts, and he did all the horse work and spread it. I will just remark that the incorporation of strong clay with the light soil made the land of a

stronger texture, capable of retaining in store, and not losing by evaporation from heat or filtration from rain, the food of plants, which was put into it in the application of manures, and likewise by this stronger texture being made better able to resist the severity of frosts, and the sudden alternations of heat and cold, which are so prejudicial to the winter life of the Clover plant. This is the part that clay performed here. 150 to 200 cub. yards per acre would be a good dressing. I have now reached the last description of land that frequently—sometimes altogether—refuses to grow Clover. Of all the foregoing this is the most eminently fertile, and in all cases of clover-sick, loamy land, treatment of this is the best repaid. On my own farm I have a considerable breadth of this description, which, I am told, grew red Clover well 20 years ago; long since it has continuously failed, and it is only of late years that I have been tolerably successful in restoring this plant, by applying court-yard manure to the white crop along with which the Clover is sown. And in my experience, both from practice and observation, I have found, where lime was very expensive and difficult to obtain, or where the lease was wearing to a close, when the expense of liming could not be expected to be repaid, that this method has proved satisfactory. But while I have proved to my own satisfaction that the application of court-yard manure in the way just stated is a tolerably sure method of restoring the growth of red Clover, I have also proved that consolidation of soils of this description is also highly necessary. Last autumn I had a field in young Grass; the Clover seeds were sown along with a crop of Barley, after Turnips; in this case I gave guano to the Barley, not court-yard manure. When it was removed, I had a fair appearance of Clover throughout the field. Having occasion to cart home grain from a distant part of my farm, I used as most convenient for a road one of the ridges of this field—this ridge so used was beaten and trod in consequence—and when winter had passed away, and along with it almost the whole of the Clover plants of my field, I remarked that this roaded ridge, lying in the middle of the park, retained its original thickness both of Clover and Ryegrass; and more, when the growth of spring came this solitary ridge shot away, and the Rye-grass, as well as Clover, was far enough advanced to afford a bite for stock 10 days before the rest of the field; and this is nothing new, for how invariably are the tramped and kneaded head ridges of our fields the best planted with red Clover, going to prove where such occurs that the land needs consolidation as much as re-invigorating treatment. As to the general rules which I think may be tried in the management of land that refuses to grow red Clover; I will say, first, that on all non-growing Clover lands try the six years rotation, instead of the five, and let court-yard manure be applied to the white crop with which the Clover seeds are sown. If by this application the Clover comes up thick enough, but dies out during winter, then I would say, press or roll the land in autumn, after the removal of the white crops; or, better, if the climate is early enough, sow spring Wheat after Turnips, instead of Barley, giving court-yard manure; of course selecting a damp enough till in early spring to cause the land to knead together, by which consolidation both the Wheat and Clover crops will be greatly benefited. The most successful crop of red Clover that I ever had was in this way—viz., manure applied to spring Wheat after Turnips, and sown with Grasses. If the application of manure fails to revive its growth, I would on moorish and loamy soils apply lime; while on sand and gravel it would be right to apply clay. Nevertheless, I again state, that the judicious application of court-yard manure, along with proper consolidation of soil and the recurrence of the Clover crop less frequently in our rotation, will have a satisfactory effect.

Notices of Books.

The Gorse; its Use, Abuse, and Culture. M. Wedlake & Co., 118, Fenchurch Street.

This is a collection of all the information which has appeared on the subject in agricultural journals and periodicals, garnished with poetical illustrations according to the taste of the compiler, and with trade illustrations in the shape of frequent foot-note references to the fact that Mary Wedlake & Co. manufacture the best chaff-cutters, Gorse-crushers, Oat-bruisers, &c. &c.

We are quite sure that manufacturers, merchants, and seedsmen seeking the custom of agriculturists do well to present along with their price lists, catalogues, &c., such information as shall secure the currency and perusal of their advertisements; and seeing that all cultivators have annual if not more frequent occasion to read such lists, this is really a way of securing for useful agricultural information attention and publicity which it might not otherwise receive. But we confess that we do not admire the manner in which the task has been performed in the case before us.

The object is the sale of Wedlake's Gorse mill, and the subject accordingly is Gorse—and readers are treated to a high-flown and exaggerated advocacy of its culture in an ill-arranged set of extracts, of which magniloquence, tautology, and extravagance—all extremely out of place in connection with so simple a subject—are the characteristic features. As an illustration both of the language employed and of the opinions given, we extract an absurd little question and answer from the 61st page :—

The author asks :—"Why is Welsh mutton an *epicurean desideratum?*" (!)

And he answers :—"Simply because the sheep are fed on Gorse" (!!)

The book consists of some eighty 8vo pages.

Farm Memoranda.

HADDENHAM MANOR FARM.—The summer of last year (1853) the whole of the farm was very foul with couch and other weeds, much impoverished, and out of condition. The first process was thoroughly to clean and manure the land, and to drain it where required. The next was to get it into something like a rotation of crops as near as possible on the four-course system.

1st. The Swede crop.—The land having been well cleaned in the spring was drawn out into deep trenches, 26 inches apart from each other, which were filled with 15 loads of pig manure per acre, then covered in as lightly as possible, rolled and drilled with 2 pounds of Swede seed and 40 bushels of peat ashes per acre, and upon some portion 3 cwt. of superphosphate per acre, over and above the manure and peat ashes. The land was then rolled with a very heavy roller. When the Swedes were in rough leaf they were hoed out at intervals of 12 inches apart in the rows, and the land between the rows was well and repeatedly stirred with Smith's horse-hoe during the whole of the summer, until the Swedes were too large to admit of this operation. The Swedes are an excellent crop for the season, and are now being sliced with the turnip-cutter for the sheep and cattle, which, with artificial food, are thriving fast.

2d. The Barley crop—after the Swedes were fed off last winter by the sheep, having corn, oil-cake (½ pint of Beans and ½ lb. of cake daily,) and clover-hay—was partly dibbled and partly drilled upon the land (being once ploughed and scarified), at the rate of about 2½ bushels per acre, in rows of 8 inches apart; the land was then well harrowed and crushed with Crosskill's roller. When the Barley was sufficiently high, it was alternately horse-hoed and clod-crushed several times: the horse-hoe raising the mould so as to enable it to absorb the moisture and the nitrogen from the air, and by this means increasing the bulk; the clod-crusher pressing and consolidating the land, so as to enable it to retain what it had absorbed, and by this means stiffening and glazing the straw so as to prevent it from falling. This process was adopted on all the Barley which was planted in February and March; and where it was adopted the Barley did not fall although it was a very full crop. Where this system was not entirely carried out, as was the case with the Barley planted in April, the Barley did fall. The last hoeing was done by men in order to hoe instead of to harrow in the Clover seed which was sown upon one-half of the Barley land, the remaining half being left for winter Beans or Pulse (Beans and Peas).

3d. The Clover crop—being French Red Clover seed, was hoed in at the rate of 18 lbs. per acre on the Barley land, 20 bushels of soot and 20 bushels of ashes being sown upon every acre in the month of March. The first crop was mown for hay in June, the second crop partly mown and partly fed off by sheep. Where the second crop was mown the sheep were folded, and woollen rags were applied at the rate of 6 cwt. per acre.

4th. The Wheat crop was planted on the Clover lea, once ploughed, the weeds and Couch having been forked out by men and boys; the Uxbridge white Wheat, the Spalding and Cone Wheats, were then planted in three separate portions in drills 10 inches apart; the land was then trodden by the sheep and clod-crushed several times in the autumn to consolidate it for the winter. 15 bushels of soot and 3 cwt. of salt per acre were sown upon it in the spring, the soot being intended to increase the bulk of straw, and the salt to stiffen, glaze, and prevent it from falling, as well as to increase the weight of the grain. The 10-inch rows fully allowed of Smith's horse-hoe being used in such a manner as to raise plenty of mould, and then the clod-crusher so consolidated the land and strengthened the roots of the Wheat, that the straw very much resembled a reed in respect of its stiffness; this process of alternate horse-hoeing and clod-crushing was repeated several times during the spring, until the crop became the largest, and at the same time the most upright, which was perhaps ever seen when the land had been previously in so bad a state.

The pigs during the last winter were fattened upon Swedes, Barley, and Pulse, steamed by Stanley's apparatus. The cattle in the yards were some of them fed upon Swedes, hay, and oil-cake, some upon hay, and some of the very lean ones upon straw and cut Swedes. The horses work in pairs, and in Scotch carts, one horse in a cart; they are light in the leg, and yet full of bone and muscle, and are generally strong carriage horses, purchased with a blemish, which does not affect their work, and yet prevents the price from being very extravagant. *Mr. Read in the Journal of the English Agricultural Society.*

Miscellaneous.

The late Mr. John Haxton of Drumnod, Fifeshire.—Mr. Haxton had been long connected with the literature of Agriculture. For some years he edited the *Dublin Farmers' Gazette*—he had for many years been a valued contributor to our own columns, and he wrote many of the articles on the Practice of Agriculture in the Cyclopedia published by Messrs. Blackie of Glasgow. It is with unfeigned grief that we announce his death on Sunday last. His loss will be deeply felt in his own neighbourhood, as that of one actively engaged in promoting the religious and social welfare of his humbler neighbours; it will be deplored by a large circle of sincere friends attached to him by the quiet unassuming modesty of a character in which substantial intelligence, warm sympathies and pleasant humour were delightfully united. It will be felt throughout his native country, as the removal of one of the most intelligent of the public men among its agriculturists for many years.

Length of Leases.—I have been accustomed to think where no unusual outlay was required for improving a farm, that 15 years was a sufficient length of term for an owner to relinquish the power over his property, and for a tenant to have a fair course of crops; and in holdings of small size, I see no need to alter that opinion. But in offering two large farms to let last autumn, believing that tenants of large means are not willing to remove and establish themselves in concerns demanding great capital without the prospect of lengthened occupation, I offered them on leases of 15 or 21 years, as parties might propose. The result was, that of ten proposals for one farm, which was eventualy let at a rent of 2,000*l.*—only three offered for both terms, and mark the difference of the offers. One for 15 years was 1630*l.*, but for 21 years 1760*l.*, viz. 130*l.* more for the longer term, during the whole lease. Another for 15 years was 1620*l.*, but for 21 years 1730*l.*, being a difference of 110*l.* per annum. Another for 15 years was 1400*l.*, and for 21 years 1626*l.*, making the great difference of 226*l.* The other seven competitors offered only for a term of 21 years. Then, for another farm offered on the same conditions, and let for 1305*l.*, of six parties, not one proposed for the shorter term. Having stated that the tendency of the times is for long leases, I shall now venture on another assertion, and say that the tendency is equally for large holdings. It used to be the argument against the policy of large farms, that there was less competition for them, in letting. I must again appeal to facts and practical demonstration. Of six farms which I have recently let—for one of 2000*l.*, I had ten offers; for one of 1305*l.*, six; for one of 1050*l.*, seven; for one of 258*l.*, six; and for one of 180*l.*, two. Hence, then, for a large farm of 2000*l.* a-year were ten offers from highly respectable and eligible tenants, and for a small farm of 180*l.*, with good buildings and in good condition, only two. *Mr. Grey at Hexham.*

Sprouted Wheat good for Seed.—A correspondent of the *Rural New Yorker*, W. Garbut, Wheatland, New York, states that sprouted Wheat is about as good for seed as that which is uninjured by wet weather. Mr. Garbut says :—The excessive wet weather in harvest sprouted so much of the Wheat in this section, that many of the farmers are very anxious to procure sound Wheat for seed. I can assure them that they need not be solicitous on that account, for Wheat that has been sprouted will germinate as freely a second time as it did the first, and with equal vigour. To test the fact, on the 17th of this month I took some of the worst sprouted Wheat that I had; every kernel of it had grown, and it was so thoroughly dry that the sprouts all rubbed off. I put it into rich soil of suitable moisture. On the fifth day much of it made its appearance, and now, on the eighth day, many of the spears are 3 inches long, and as strong and as vigorous as I ever saw young shoots of Wheat. Every kernel of it has grown. *The Year-Book of Agriculture.*

A History of Low Land Drainage.—Last year I drained a swamp in which were numerous springs; the natural drainage of the surrounding porous lands to a considerable extent had all found vent here, and formed a channel for escape, and in course of time had washed away the soil to the extent of about half an acre, and depth of two or three feet below the level of the surrounding land. In this case, we had to cut our outlet drain to the depth of about seven feet, and to lead all the springs into it, nearly filling a six-inch pipe, which is constantly running and conveyed to the farm-house. Had the water which breaks out here not found a vent, a bog would probably have been formed, and raised considerably above the adjoining surface: this we frequently meet with, and when drained the land will subside. I know meadow lands, which were drained some years ago, that have subsided and left the roots of Alder trees more than two feet above the present surface. Where fall can be obtained, I would in no case put my drains at less depth than three feet; but it happens sometimes that this depth cannot be obtained without incurring too much expense, and in a case of this kind I drained a meadow last year at a shallower depth with good effect: this meadow was nearly of a dead level, and I could barely obtain three feet for an outfall into an open channel; consequently, I had to obtain the fall in the drains by diminishing the depth at the higher end to 30 inches. A large quantity of water is discharged, and with it a ferruginous matter commonly called "car," which we find deposited in the open drain at the outlet. This meadow is occasionally flooded. This summer it was flooded to considerable depth, and when the flood subsided, the rush of water at the outlet of the drains was with great force, and was perceptible when the water in the open drain was several inches above it. This is an important consideration, as many gentleman are of an opinion that an outlet should never be so low as to be within the influence of flood water, and to underdrain meadows subject to floods is money thrown away. This is a great mistake, as the greatest improvement that I know of in draining has been on such lands. The temporary filling of the drains with water tends to loosen the ferruginous matter which adheres to them, and the rush when the flood subsides clears them out. Wherever ferruginous matter exists in the water, it will be necessarry to flush out the drains occasionally. In meadows subject to floods this operation will be performed by the floods to some extent, but when water can be brought from a higher level and used at pleasure, it can be best performed. This has been done with good effect on Sir Robert Peel's estate of Drayton Manor by Mr. Josiah Parks, and I have recently adopted the same plan on Mr. Ashton's estate at Wervin. Besides flushing the drains, the plan has this further advantage: in a dry season, when the meadows become parched, water can be let into the drains, and, by stopping the outlet, will rise in the soil, through the cracks and fissures, to an height limited only by the head of water, and effect what Mr. Parks calls sub-irrigation, the great advantage of which must be sufficiently obvious to all practical farmers who know the effect of a dry season on their hay crop. Where water cannot be brought from a higher level, the same effect

may be obtained to some extent by stopping the outlet of the drainage water. I adopted this plan on a farm at Withington, belonging to Wilbraham Egerton, Esq., which was drained by the Drainage Company. A great portion of this farm, "Withington Old Hall," was sand loam on sand substrata, and at two feet from the surface it was full of water, and in cutting our drains to the requisite depth of four to six or seven feet, we found it a tedious operation to keep our line of drain true (which was necessary on account of the slight fall), and the sand out of the pipes. This we effected by a process too tedious for minute description here, and by putting a sluice at intervals along the main drain (which was a six-inch pipe), with a plug to stop it at pleasure, we could from the great flow of water soon fill all the pipes above the sluice, which, on being released, would effectually clear the pipes from any deposit. At first, being uncertain at what distance the drains would effectually draw in the sand land, I put them at 24 yards apart, but soon found we might safely extend the distance, and we then put them at 48 yards apart. In wet weather, the flow of water was so great that the six-inch main was over-charged, and we put in a relief drain below every sluice, from the main into the brook, with which it was parallel at the distance of about a rood. We frequently find the upper part of a field a dry sand loam on a porous substrata to some depth, resting on a strata that water will not readily penetrate, and the lower part of the field clay loam on clay or marl, marking a line where the water from the upper portion finds vent at the surface; in this case I cut a drain across the fall, above where the water shows itself, through the porous into the impervious strata, for a catch drain for the upper portion and then put parallel drains, in the direction of the fall, to the main drain at the bottom of the field. It happens sometimes that the impervious strata which throws up the water is merely a narrow seam or band, and the soil below is porous; again in this case, a catch drain with a proper outlet will be sufficient: I have found it quite effectual. *Mr. Palin, at Chester, Oct. 9, 1855.*

Notices to Correspondents.

Agricultural Statistics: *C.* The remarks of Lord Ellenborough will excite amusement more than anger. They may possibly have been true once upon a time of very limited districts of small farms, but that any general difficulty in obtaining returns can arise from the cause alleged is simply absurd. We hope to refer to the whole subject once more next week.—*F R S.* Scottish returns are the added items of each separate farm in the country sent in by the farmer. Irish returns are estimates and information collected by the police. English returns are an estimate of the whole country founded on information collected in 11 counties. The whole together gives the following results as to the acreage of green crops:—

	England.	Scotland	Ireland.	Total.
Turnips	2,267,200	449,372	366,311	3,082,883
Mangel Wurzel ...	177,263	2,297	22,278	201,838
Carrots	12,688	1,191	?	13,829
Cabbages, &c.	97,534	1,209	24,080	102,623
Potatoes	*192,287	146,962	982,028	1,321,278
Bare Fallow	895,969	22,462	?	?
Total under crop ...	15,261,842	3,529,902	5,612,992	24,404,736

Ash Bark: *E C Stevens.* There is no doubt that the production on Ash bark is a species of Coccus. It is very common on the bark of Ash, and of some other trees. *M J B.*

Crosskill: *G C.* We have not used the new crusher in which large and small discs alternate on the same axle; but we should suppose it to be an improvement on the other.

Cyder: *G. S.* Gather the fruit when thoroughly ripe and dry and store it in some cool room in heaps. Grind in November in cold weather. Add sugar or malt wort to bring the juice to specific gravity 1070 or 80; ferment in a vat until the specific gravity is reduced to 1060. Transfer it to casks, until at length it may be transferred to a clean barrel, previously filled with sulphur vapour, and placed in a cool cellar.

Economical Manure: *P V R.* We have no doubt it is the same.

Forks: *A Correspondent* says that although he supplied his man with many of the improved kinds of digging fork, they have recently discontinued using them in favour of one said to have been accidentally invented in the neighbourhood from a broken hollow spade, which, when the centre was gone, worked well. They now supply their own tools of this pattern in preference to using the three pronged and four pronged ones he provided, and say they can do much more with them on clays or strong loams. The tines are of iron, shod with steel, kept sharp. They cut well, and disengage the earth quickly.

Poultry: *Gallus.* Cochin China fowls are more liable to the malformation you mention than any other variety, and the cause is ascribed to their propensity to roost on the ground. It might also be caused by a too hasty descent from a lofty perch, but as ducks, geese, and every variety of poultry are liable to it, we can but ascribe the majority of cases to natural causes.

Sea Sand: *X.* We believe that the practice is justified by the result in Cornwall and in Ireland. The sand in question is calcareous, being chiefly comminuted shells. It is not however invariably approved of. Thus Mr. Allanson of St. Columb has very lately said in the Cornish papers: "About ten or twelve years since, doubting much the value of sea sand as a manure, I commenced to make field experiments with it, desiring to discover if possible whether it would be profitable to increase or diminish that article in agriculture; and in no experiment that I made could I discover any benefit from sand: I therefore felt it to be my duty to show the public what I had done, and to recommend the disuse of that article as a manure. Experiments have been annually carried on by me up to the present time, and I hesitate not to say that the use of sea sand, in general cultivated land is, in my opinion, one of the greatest delusions in agriculture: in fact, sand, as an increaser of grain either in quantity or quality, on such land is, in my opinion, a humbug, and to this opinion I can get the ready response of practical men in every parish I know between Camelford and Truro."

Soot from Locomotive Engines: *Z.* Soot is valuable in proportion as the draught through the chimney is slight. The soot from the chimneys of locomotives is as nearly as possible worthless. It might be used for drying up Cloacine. We used some gas lime for that purpose.

The Economical Manure: *Inverness.* Thanks for your letter. If farmers *will* buy without analysis or guarantee no remonstrance will avail. Their conduct is a sort of suicide which cannot be "put down."

* This seems untrustworthy.

THE PATENT NITRO-PHOSPHATE,

OR

BLOOD MANURE COMPANY.

(LIMITED.)

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THE DIRECTORS of the above COMPANY (many of whom are extensive Agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact. Ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied. Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a conclusive answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

BLOOD MANURE FOR TURNIPS.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

THE BLOOD MANURE FOR WHEAT, BARLEY, OATS, ETC.

Being rich in nitrogen and other necessary ingredients, it is especially adapted for the Wheat and other Corn crops, and has been used with the greatest success in all parts of England. It is a very remarkable fact that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists,—it contains all the elements which plants require, and when properly prepared, will become the essence of vegetable as well as of animal life. The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat and other cereals, has been fully proved upon all soils by the practical experience of numerous Agriculturists. Should Wheat manured with dung in the ordinary way look unhealthy in the spring, it will be greatly benefited by top-dressing it with Blood Manure, at the rate of 2 to 3 cwt. per acre,—thus strengthening the straw, making it less liable to lodge, and very much increasing the produce. For Barley and Oats, 3 to 4 cwt. per acre of the Blood Manure may either be sown broadcast or drilled with the seed,—if the former, to be well harrowed in.

BEANS AND PEAS.

For Beans or Peas, 3 to 4 cwt. per acre may be used either broadcast and harrowed in, or a portion afterwards, between the drills at the time of horse-hoeing.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre with an equal weight of common salt should be sown broadcast over the field, and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

POTATOES.

The Blood Manure is specially prepared for this crop, and it will be found to give most satisfactory results—it will be most successful if used to the extent of 4 cwt. per acre, with half the usual quantity of farm-yard dung, and the whole earthed up in the usual way. Should the farm-yard manure not be used, then 6 cwt. of Blood Manure may be used alone, put into the bottom of the drill, and the sets on the top and earthed up.

FLAX.

This crop in olden time had the renown of being one of the most exhausting crops which could be put into the land, and this by chemical analysis has been found to arise from the large quantity of nitrogen, phosphoric acid, magnesia, and the alkalies taken up by the Flax plant, which renders it a highly exhausting crop. The Blood Manure is carefully prepared, so as to meet the wants of this crop, and with its aid Flax can no longer be considered an exhauster of the soil. In using Blood Manure for this crop, from 4 to 6 cwt. may be sown broadcast, and harrowed in before the seed is drilled.

HOPS.

It is well known to all Hop growers that Hops require more manure for their proper development than any other plant which they cultivate; the constant withdrawing of the Hops, year by year, from the land necessitates the supply to the soil of a considerable amount of both mineral and organic ingredients, and the Blood Manure has been particularly prepared, with the object of supplying the requirements of this important crop. It contains all the constituents which the plant requires, both mineral and organic, and will be found as cheap and efficacious as any other manure now in use; from 10 to 12 cwt. per acre applied at two different times well worked in between the alleys, will be found a most useful application, or the manure may be put round each hill and covered up with the soil.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents. The following may be taken as a sample:—

Norfolk Farms, Windsor, February 20th, 1855.

Gentlemen,—In answer to your inquiry respecting the results of Nitro-phosphate used on the Royal Farms, Windsor Great Park, I have great pleasure in stating, that after applying it to a field of Swedes, which gained the cup at the Royal East Berks Agricultural Show, I have no hesitation in pronouncing it an excellent manure, and intend using it to a greater extent during the present season.

I am, gentlemen, your obedient servant,
James Brebner.

Mr. Benjamin Goulton, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Park Farm, Woburn, Bedfordshire, Jan. 18th, 1854.

Gentlemen,—In reply to your inquiry respecting the Nitro-phosphate supplied to his Grace the Duke of Bedford in 1853, I beg to inform you I applied it all for Swedes, and in every instance was very successful, particularly so on a field of 30 acres, where I put on 2 cwt. of it per acre, with a light dressing of farm-yard manure, which has produced the finest crop of Swedes I ever grew. I with great confidence recommend this valuable manure to the notice of the agricultural community.—I am, gentlemen, yours very truly,
G. W. Baker.

PRICE, DELIVERED AT ANY WHARF OR RAILWAY STATION IN LONDON:

Corn and Grass Manure, £7 10s. per Ton.
Turnip Manure, £6 10s. per Ton.
Flax and Hop Manure, £8 10s. per Ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," *and sold only by the authorised Agents of the Company.*

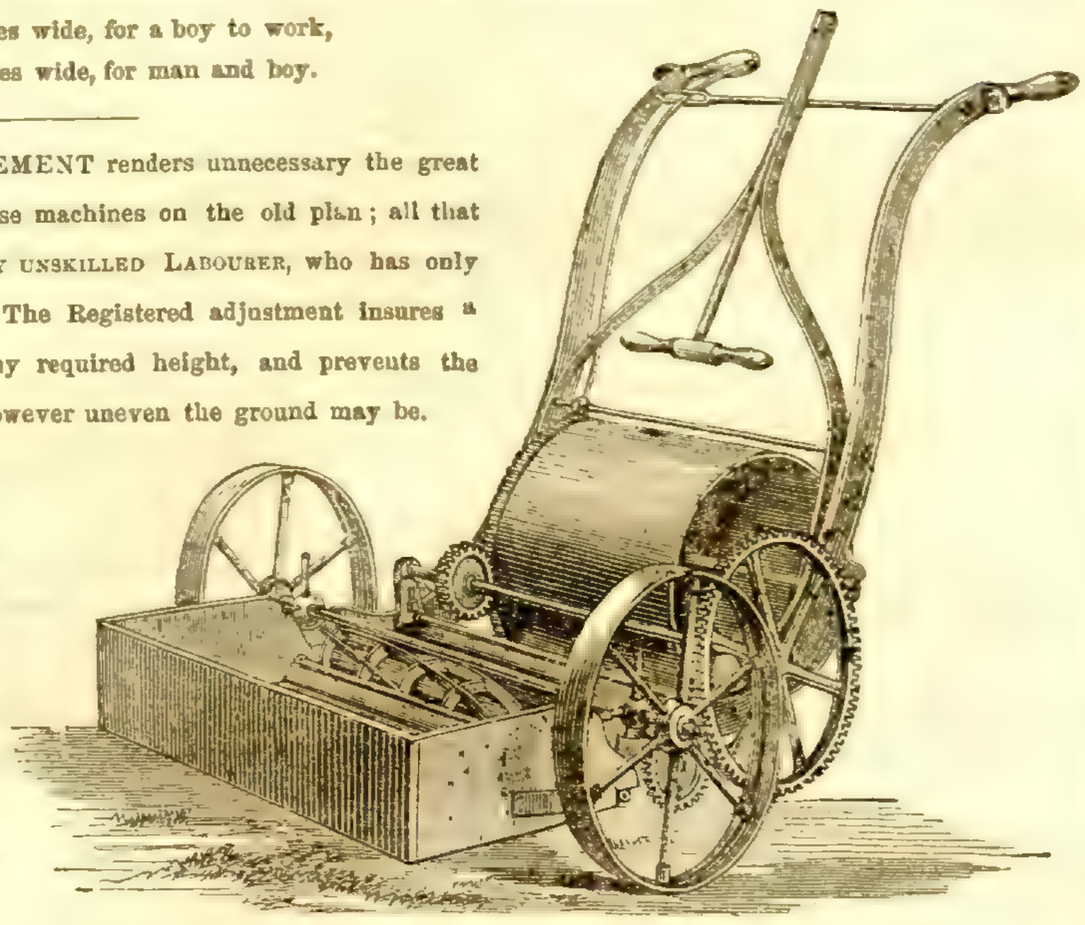
SAMUELSON'S REGISTERED LAWN MOWING MACHINES.

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and boy.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



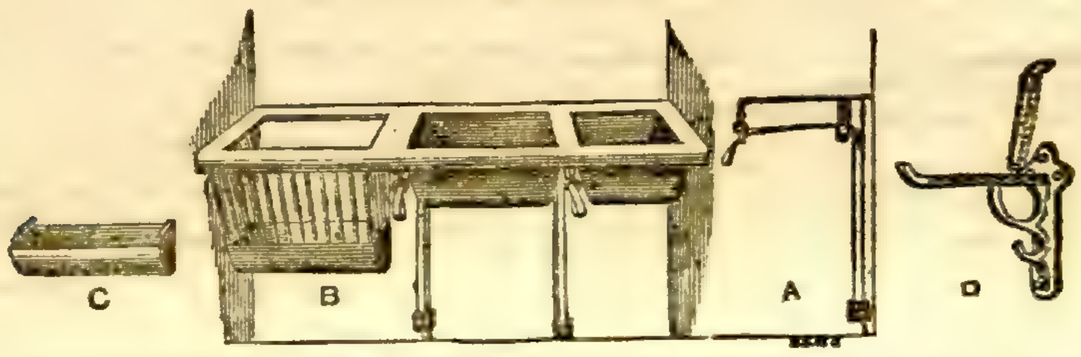
ILLUSTRATED PRICE LISTS, with copies of Testimonials, will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; and of all respectable Ironmongers and Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

NEW PATENT INVENTIONS FOR STABLE REQUISITES,

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

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COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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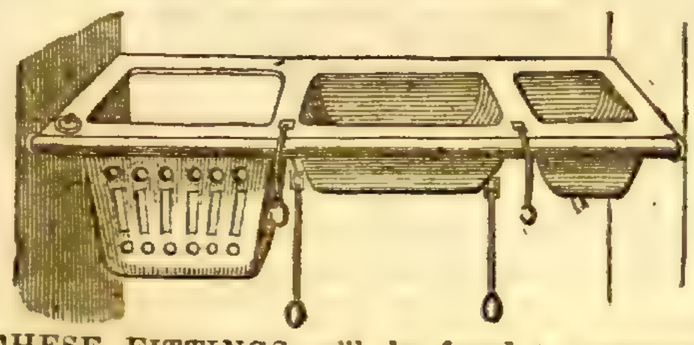
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps. JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

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212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

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JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of—

PROPAGATING GLASSES.

	£	s.	d.			£	s.	d.	
2-in. diameter	0	3	6	per doz.	11-in. diameter	0	18	0	per doz.
3 " "	0	4	6	"	12 " "	1	1	0	"
4 " "	0	5	6	"	13 " "	1	4	0	"
5 " "	0	6	6	"	14 " "	1	10	0	"
6 " "	0	8	0	"	15 " "	1	16	0	"
7 " "	0	10	0	"	16 " "	2	2	0	"
8 " "	0	12	0	"	17 " "	2	8	0	"
9 " "	0	14	0	"	18 " "	3	0	0	"
10 " "	0	16	0	"	19 " "	3	12	0	"

CUCUMBER TUBES.

12 inches long ...	1s.	0d.	each	20 inches long ...	1s. 8d. each
14 " " ...	1	2	"	22 " " ...	1 10 "
16 " " ...	1	4	"	24 " " ...	2 0 "
18 " " ...	1	6	"	26 " " ...	2 2 "

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With French polished Stands, 3s. 6d. each. Vase-shaped ditto with Glass Pedestal, 20s. each. Glass Tanks, warranted perfectly watertight, 36 inches long by 18 inches deep, 3l. each. Intermediate sizes at various prices.

GLASS FERN SHADES AND STANDS.

	s.	d.		s.	d.
6 inch diameter, each ...	3	0	12 inch diameter, each ...	8	0
7 " " " ...	3	6	13 " " " ...	10	0
8 " " " ...	4	0	14 " " " ...	12	6
9 " " " ...	5	0	15 " " " ...	17	0
10 " " " ...	6	0	16 " " " ...	22	0
11 " " " ...	7	0			

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Glass Milk Pans, 21s. per dozen; Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the trade.

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See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

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T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12s. 0d.
6½	"	4½	"	7	"	5	...	... 12 6
7½	"	5½	"	8	"	6	...	... 13 0
8½	"	6½	"	9	"	7	...	... 13 6
9½	"	7½	"	10	"	8	...	... 13 6
10½	"	8½	"	11	"	9	...	... 14 0
12	"	9	"	13	"	9	...	... 14 0
10	"	10	"	10½	"	10½	...	... 14 0
11	"	10	"	11½	"	10½	...	... 14 0
11	"	11	"	11½	"	11½	...	... 14 0
12	"	11	"	12½	"	11½	...	... 14 0
13	"	11	"	13½	"	11½	...	... 14 0
13	"	12	"	13½	"	12½	...	... 16 0
13½	"	13½	"	14½	"	13½	...	... 16 0
15½	"	13½	...	...	...	...	...	... 16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

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Ditto, not exceeding 1 foot ... 2½ "
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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

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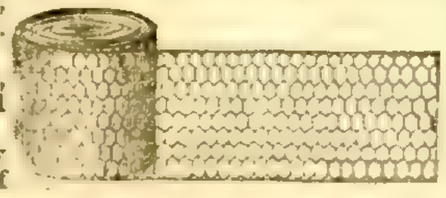

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	Fiddle Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Tea Spoons, per dozen	18*s.*	26*s.*	32*s.*
Dessert Forks „	30*s.*	40*s.*	46*s.*
Dessert Spoons „	30*s.*	42*s.*	48*s.*
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Tea and Coffee Sets, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.*	28*s.*	30*s.*
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FERNS OF GREAT BRITAIN

NATURE-PRINTED (Life-size).

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MESSRS. PROTHEROE AND MORRIS will sell by Auction at the Mart, Bartholomew Lane, on THURSDAY and FRIDAY, March 27th, and 28th, at 12 o'clock, a first-class Collection of Carnations, Piccotees, and Pinks; also about 600 choice Standard Dwarf Roses; a superb collection of fine Double Hollyhocks from a celebrated Grower; also an assortment of American Plants, Camellias, Azalea Indica, Fuchsias, Verbenas, Dahlias in dry roots, &c. May be viewed the morning of Sale.—Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

BAINBRIDGE AND HEWISON,

NURSERYMEN, SEEDSMEN, AND FLORISTS, YORK,

INFORM their Friends and the Public that their CATALOGUE OF PLANTS FOR 1856 is now ready, and will be sent post free on application. Its contents are DAHLIAS, GERANIUMS, FUCHSIAS, VERBENAS, CHRYSANTHEMUMS, ANTIRRHINUMS, PETUNIAS, CINERARIAS, HOLLYHOCKS, STOVE PLANTS, GREENHOUSE PLANTS, STOVE AND GREENHOUSE FERNS, ERICAS, AZALEAS, CAMELLIAS, PHLOXES, BEDDING AND BORDER PLANTS, CARNATIONS AND PICOTEES, PINKS, PANSIES, HARDY FERNS, HERBACEOUS PLANTS, CONIFERÆ, RHODODENDRONS, &c. The Azaleas and Camellias, of which a full List is given below, well deserve the notice of Amateurs who may want such to furnish new houses, &c., as suitable for producing at once good effect, being fine, strong, and beautifully formed Plants, and well set with flower buds. They have given also below other Selections from their Catalogue.

B. & H. having devoted considerable attention to the selection of the new and older choice varieties of Plants, which greatly increases their stock, and by their unremitting attention to business, hope for a continuation of that patronage with which they have been so liberally favoured. When the selection is left to them, purchasers may rest assured of their only forwarding such as cannot fail to give satisfaction; but it is desirable that parties should specify the varieties they already have. Post-office Orders or reference will be expected from unknown correspondents.

CAMELLIAS.

	s.	d.
Alba insignis, 1¼ feet ...	2	0
Alba plena, 1 to 1½ feet 2s.	3	0
„ 3 to 4 feet... 25s.	40	0
Almuti, 3½ feet	35	0
Althæflora rosea, 3½ feet	30	0
Amabilis triumphans, 1½ ft.	2	0
Anemonæflora, 1 to 1½ feet	2	0
„ rubra, 2 to 4 feet 10s. 6d.	40	0
„ alba, 1½ to 3 feet 2s.	25	0
Augustifolia superb, 1½ ft.	2	0
Atrorubens, 3 feet	25	0
Augustine superb, 1 to 1½ feet ... ... 2s.	2	6
Bachante, 2 feet	7	6
Blackburniana, 1½ feet ...	2	6
Bonne Diredighim, 1½ ft.	2	6
Candidissima, 1 foot ...	2	0
Carswelliana, 1½ to 3½ ft. 2s.	25	0
Cavendishi, 1 to 3 ft. 2s.	25	0
Centonia, 1 to 1½ ft. 2s.	2	6
Chamylolof, 1 foot	2	6
Chandleri, 3 feet	25	0
Carlotta Grisi, 1 foot ...	2	0
Colvilli rubra, 2 feet ...	7	6
Constantiana, 1 foot ...	2	0
Cooperi, 3½ to 4 feet 30s.	40	0
Coquette, 1 to 4 ft. 2s. to 30s.	40	0
Dahliæflora igna, 1 foot...	2	6
Daviesi, 2½ feet	35	0
Duchess de Orleans, 1 to 1½ feet ... ... 2s.	3	0
Eclipse, 1½ foot	2	6
Elegans, 1½ foot	2	6
Elphanstoni, 2 feet... ...	5	0
Emilie Cachlochi, 1½ foot	2	6
„ grandiflora, 1½ foot	2	6
Excelsa, 3½ feet	35	0
Eximia, 3 and 4 feet 30s.	40	0
Feasti, alba, 1 foot	2	0
Fimbriata, 1 to 1½ foot 2s.	2	6
Floribunda, 9 inches ...	2	0
Forbesi, 3½ feet	35	0
Fordi, 3 to 3½ feet 30s.	35	0
Fortinta, 1 foot	2	6
Fulgens, 1½ foot	2	6
Galessi, 1½ foot	2	6
Garviesi, 1½ to 4 ft., 2s. 6d.	35	0
Grandiflora nova, 1½ foot	2	6
Granti, 1 foot	2	6
Grunelli, 1½ foot	2	6
Hendersoni, 1 to 3 ft. 2s.	30	0
Henrie Favre, 1 foot ...	2	6
Imbricata, 1, 1½, and 3 ft. 2s., 2s. 6d.	30	0
„ alba, 1 to 2½ feet, 2s.	15	0
Jacksoni, 3 feet	35	0
Jarratti, 2 feet	10	6
Latifolia macrantha, 1 to 1½ foot ... ... 2s.	2	6
Laurentiana, 1 foot ...	2	0
Leeana superba, 1 foot ...	2	6
Madoni, 1 foot	2	6
Masmetto, 1 foot	2	6
Marchioness of Exeter, 1½, 3, & 3½ ft. 2s. 6d., 25s.,	30	0
Minuta, 1 foot	2	6
Nassmani, 1 foot	2	0
Nobelissima, 1 foot ...	2	0
Ochroleuca, 1 to 1½ ft. 2s.	2	6
Palmer's Perfection, 3 and 3½ feet ... ... 30s.	35	0
Parade, 1½ foot	2	6
Pendula, 1½ to 2½ ft. 2s. 6d.	10	6
Picturata rosea, 2 feet ...	7	6
Pœoniflora rosea, 4 feet...	40	0
Pratti, 1 foot	2	0
Pressi eclipse, 3 feet ...	30	0
Prince Albert, 1 foot ...	2	0
Princess Cochlochi, 1 foot	2	6
Punctata, 1 foot	2	0
Queen Victoria, 1½ to 2 ft. 2s. 6d.	5	6
Rawsi, 1½ to 3½ ft. 2s. 6d.	35	0
Reticulata, 1½ to 3½ feet 2s. 6d.	35	0
Reevesiana, 1½ foot ...	2	6
Rhynderis, 3 feet	25	0
Rosette, 2½ feet	20	0
Rubescens, 1 to 1½ ft. 2s.	2	6
Rubria, 2½ feet	20	0
Sieboldi, 1 foot	2	6
Sovereign, 1½ foot	2	0
Spineo, 1½ foot	2	6
Striata, 1½ foot	2	6
Sweeti, 1½ foot	2	6
Tricolor, 1 to 3 feet 2s.	20	0
Vandesia carnea, 2 feet ..	7	6
Walter Fred Campbell, 1½ foot	2	6
Welbankiana, 3½ feet ...	35	0
Woodsia, 1½	2	6

Our selection, 30s. to 5l. per dozen.

AZALEA INDICA.

Abbreviations: F., Fraser; S., Smith; K., Knight & Perry; L. P., Lucombe, Pince & Co.; S. and N., Standish & Noble; I., Ivery.

	s.	d.
Alba ... ... 1s. 25s.	0	d.
„ magna, F., fine white, sometimes striped, good form 2s. 6d.	5	0
„ magniflora, large fine white ... ... 2s. 6d.	7	6
„ perfecta, S. pure white ... ... 2s. 6d.	7	6
Alberti, K. large scarlet, dark spots ... ... 2s. 6d.	5	0
Amæna (species) bright rosy purple, very hardy, extra ...	5	0
Apollo, K. orange scarlet... ... ... 2s.	3	0
Aurora, L. P. scarlet, large	2	0
Beali, S. and N. rich vermillion and white striped, extra, 2s.	10	6
Barclayana, fine white	7	6
Beauty of Europe, pink, striped with carmine, very distinct ... ... 2s. 6d.	3	6
Beauty of Reigate, T. white, striped with rose	5	0
Bianca, white ... ... 2s. 6d.	3	6
Broughtoni, S. stout, light salmon pink, finely spotted, 2s. 6d.	3	6
Buckinghami, bright scarlet crimson, fine ... ... 2s.	25	0
Carminata, fine scarlet, distinctly spotted ... ... 2s.	5	0
Chelsoni, K. orange scarlet, fine form...	5	0
Coronata, bright rosy red ... ... 2s.	10	6
Criterion	7	6
Crispifolia, S. and N. rich rosy lake, flowers late, large and very reflexed petals, extra ... ... 3s. 6d.	10	6
Danielsiana... ... ... 2s. 6d.	7	6
Delecta, rose, large and fine	3	6
Decora, K. rich violet rose, distinct colour ... ... 2s. 6d.	5	0
Delicata, I. very good rose, fine form	3	6
Duc de Brabant, scarlet, early flowering ... ... 2s. 6d.	7	6
Duke of Devonshire, L. P. a good free blooming scarlet, 2s.	40	0
Garland	2	6
Gledstanesi, white, sometimes striped with red	3	6
„ formosa, fine formed white, well striped with cerise...	5	0
Glory of Sunninghill, F. fine double rich pink flowers 2s.	10	6
Herberti ... ... 2s. 6d.	7	6
Hebe	3	6
Iveryiana, white, with red stripes	3	6
Juliana, K. a fine crimson, good shape ... ... 2s.	7	6
Lateritia, light orange red, good form ... ... 3s. 6d.	120	0
Magnifica ... ... 3s. 6d.	10	6
Minerva, K. deep scarlet... ... ... 2s. 6d.	3	6
Mrs. Fry, bright carmine, very large flower...	3	6
Mutabilis ... ... 2s. 6d.	3	6
Murrayana, large carmine pink ... ... 3s. 6d.	60	0
Narcissiflora, a double white and free flowerer, very novel ... ... 2s. 6d.	7	6
Optima, K. large scarlet, dark spots ... ... 2s. 6d.	5	0
Perryana, K. splendid dark orange scarlet ... ... 2s. 6d.	5	0
Præstantissima, K. light orange red, much spotted and large ... ... 2s. 6d.	5	0
Prince Albert	2	6
Punctata... ... ... 2s. 6d.	7	6
Refulgens, K. dark scarlet, large and fine ... ... 2s.	5	0
Rosea punctata .. .. 2s.	5	0
Rubra plena, a good distinct double scarlet ... ... 2s. 6d.	10	6
Rhododendroides	10	6
Semiduplex maculata, S. fine double rosy pink ... 2s.	3	6
Sinensis	2	6
Speciosissima, S. rosy purple, spotted ... ... 2s. 6d.	3	6
Splendens, S. orange pink, spotted ... ... 2s 6d.	5	0
Speciosa ... ... 2s.	3	6
Stanleyana, deep bright rose, with brown spots, splendid form ... ... 3s. 6d.	10	0
Symmetry, K. salmon pink, richly spotted with crimson ..	3	6
Variegata, salmon pink, white margin	3	6
Vesta, L. P. fine white, good form ... ... 2s.	10	6
Vittata, white, beautifully striped with purple ... 2s.	5	0
Violacea superba, S. fine rich purple violet, good and showy	3	6

Our selection, 12s, 18s., and 30s. per dozen.

STOVE PLANTS.

Those marked thus † are Stove Climbers.

	s.	d.
Achimenes, Ambroise Verschaffelt	2	6
„ Dr. Hopf...	2	6
„ Earl Wolforth ...	1	6
„ Edmond Boissier ...	2	6
„ Edward Otto	2	6
„ gigantea	1	6
„ longiflora major ...	1	0
„ Sir Trehern Thomas	1	6
Adamea versicolor... ...	1	6
Æschynanthus splendidus, 2s.	15	0
Allamanda neriifolia, 1s. 6d.	25	0
„ schotti	2	6
Aphelandra Leopoldi ...	2	6
Balsamina jerdoniæ ...	2	6
Begonia Ingrami	2	0
„ marmorea ... 2s.	10	6
„ Natalensis	3	6
„ opulifolia...	2	0
„ Prestoniensis superba	2	0
„ Thwaitsi... ... 5s.	10	6
„ zanthina...	2	6
Caladium bicolor...3s. 6d.	20	0
„ discolor...3s. 6d	20	0
„ pictum ...	7	6
Cissus discolor	2	0
Clerodendron fallax superba	2	0
Cyrtanthera magnifica ...	2	0
Cyrtocerus reflexa ...	2	6
Dracæna nobilis	5	0
†Echites picta	2	6
Franciscea confertiflora, 2s. 6d.	7	6
Gardenia florida	2	6
„ Fortuni ..2s. 6d.	10	6
„ radicans ...	2	6
Gloxinia Comte de Talleyrand	3	6
„ flammea ...	3	6
„ Hauptmann Wuthe ...	3	6
„ Rex igneus ...	3	6
Hebeclinium ianthinum	2	6
†Hexacentris lutea ...	3	6
„ mysorensis ...	2	6
Hetrocentrum roseum ...	2	0
Hippiella atrosanguinea	2	6
Hindsia logiflora ...	2	6
„ alba	2	6
Hoya bella	2	6
„ Paxtoni	2	6
„ variegata	2	6
†Ipomœa Leari	2	0
Impatiens Jerdoniæ, 2s. 6d.	7	6
Medinella magnifica, 3s. 6d.	10	6
†Passiflora amabilis, 2s. 6d.	3	6
‡ „ Belotti, ... 2s. 6d.	3	6
Pentas rosea	2	6
Sciodocalyx Warscewiczi	3	6
Sonerila margaritacea, 5s.	10	6

GREENHOUSE PLANTS.

Those marked * thus are climbers, or adapted for covering pillars, rafters, or blank walls.

	s.	d.
Acacia armata ... 1s.	20	0
„ grandis (true) ...	3	6
„ oliefolia elegans...	2	6
„ rotundifolia ...	3	6
Aphelexis argenteum, 1s.	2	0
„ conspicua ... 2s. 6d.	3	6
„ humilis... ... 2s.	3	6
„ macrantha purpurea ... 2s. 6d.	10	6
„ macran. rosea, 2s. 6d.	7	6
„ rupestris grandiflora ... 2s. 6d.	10	6
„ Sesmoides nova, 2s. 6d.	3	6
„ speciosissima, 2s. 6d.	10	6
„ speciosa ... 2s. 6d.	7	6
*Bignonia jasminoides nana ... .. 1s. 6d.	2	6
Boronia Drummondi, 3s. 6d.	10	6
Calla, new sp. ... 5s.	20	0
*Cassia corymbosa ...	1	6
Cestrum aurantiacum 1s.	2	0
„ regalli ...	2	6
Chorozema cordata 1s. 6d.	2	6
„ cordatum splendens 2s. 6d.	7	6
„ flavum ... ... 2s.	10	6
„ Lawrenceanum 1s.	2	6
„ varium nanum 1s.	2	6
„ „ Chandleri 1s.	2	6
Citrus Japonicus (or Otaheite ... 2s.	3	6
Citrus Mandarin 2s.	5	0
*Clematis Helena 2s.	3	6
* „ Sophia 2s.	3	6
*Clianthus magnificus 1.6d.	25	0
Correa speciosa major ...	2	6
Cyclamen persicum rubrum ... ... 2s.	3	6
Cytisus racemosa fragrans ... 2s.	3	6
„ „ superba ... 3s.	10	6
Daphne indica alba 2s.	3	6
„ japonica 2s.	3	6
„ odorata 2s.	3	6
Dielytra spectabilis 1s.	2	0
Dillwynia Cinnabarina	2	0
„ Drummondi	2	0
„ scabra ...	2	0
Diosma ambigua ...	2	0
Dracophyllum gracile 1s 6d.	15	0
Epacris elegantissima 1s 6d.	5	0
„ grandæflora 1s. 6d.	7	6
„ „ rubra 2s. 6d.	3	6
„ Hyacinthiflora ...	2	6
„ impressa 1s. 6d.	5	0
„ „ alba 1s. 6d.	3	6
„ „ carnea 1s. 6d.	3	6
„ „ coccinea 1s. 6d.	3	6
„ miniata 2s. 6d.	5	0
„ „ grandiflora ...	3	6
„ „ splendens ...	3	6
Eriostemon myoporoides 3s. 6d.	30	0
„ intermedius 3s. 6d.	10	6
Eugenia Ugni 1s. 6d.	5	0
Eutaxia floribunda 1s.	2	6
„ myrtifolia 1s.	2	0
Fagelia bituminosa 1s. 6d.	10	6
Hovea celsi ... 1s. 6d.	2	6
Hydrangea japonica variegata ... 2s.	7	6
„ Europeus	2	0
Kalosanthes coccinea 1s.	3	6
„ „ superba 1s.	2	6
„ miniata ... 1s.	2	0
„ Louis Napoleon Bonaparti ... 2s.	3	6
*Kennedya monophylla 1s. 6d.	2	6
* „ andomariense 1s. 6d.	2	6
* „ coccinea 1s. 6d.	2	6
* „ ovata alba 1s. 6d.	2	6
*Lapageria rosea ...	10	6
Lilium lancifolium album ... 1s. 6d.	3	6
„ „ rubrum ... 2s.	3	6
„ „ speciosum rubrum 2s.	3	6
„ „ punctatum 2s. 6d.	3	6
„ „ Wallichianum ...	7	6
Lobelia Ghiesbrechti ...	7	6
* Lonicera odoratissima	2	6
Lychnis Sieboldi ...	3	6
*Mandevillea suaveolens 1s.	2	6
Phlox, Drummondi, Gen. Radetzky 1s.	2	0
„ depressa criterion 1s.	5	0
Pimelia Hendersoni ...	2	6
„ Nieppergiana, 2s. 6d.	5	0
„ spectabilis ...	2	6
Polygala cordifolia 1s.	2	6
„ Dalmasiana 1s.	2	6
„ gracilis... 1s.	2	0
„ grandiflora 1s.	2	0
„ Myrtifolia 1s.	2	0
„ oppositifolia, 1s. 6d.	2	6
„ speciosa 1s.	2	0
Rhododendron Gibsoni, 5s.	25	0
*Rhynchospermum Jasminoides ... ... 1s. 6d.	2	6
Sarracenia purpurea ...	5	0
Salvia porphyranta ...	2	0
Shuthiolia erecta 1s. 6d.	2	6
*Sollya Drummondi 1s.	15	0
* „ heterophylla, 1s. 6d.	25	0
Statice Halfordi ... 2s.	15	0
*Swainsonia galegifolia, 1s.	10	6
* „ „ alba, 1s.	10	6
* „ Greyana, 2s.	3	6
Tetratheca ericifolia 2s.	7	6
„ verticillata, 1s. 6d.	7	6
Tritonia aurea	2	0
*Tropæolum azureum, 2s. 6d.	7	6
* „ Jarretti 2s.	5	0
* „ Fentelmani, 2s. 6d.	5	0
* „ tricolor 2s.	5	0
Veronica Andersoni 1s.	2	6
„ variegata, 1s.	10	6
„ Liemani, 1s.	10	6
*Zichia coccinea... 2s.	3	6

FUCHSIAS.

	s.	d.
Beauty of the Bower, Banks', tube scarlet, dark corolla, smooth perfect flower	2	0
Climax, Banks', tube rich crimson, sepals reflex back, the points touching the seed vessel corolla very large, of a splendid violet blue	2	0
Dominiana, a fine hybrid, with large scarlet flowers ...	1	6
Empress Eugenie, Story's, crimson tube and petals, corolla fine white...	2	0
Fairy Queen, Banks', tube white, corolla rich plum-coloured puce, immense bloomer	2	0
Grand Sultan, Banks', tube rich crimson, corolla large and very dark velvety purple, a noble flower, first-rate for exhibition	2	0
Lady of the Lake, Story's, tube fine deep crimson, corolla blush white	2	0
Maid of Kent, Banks'; this is pronounced to be the best white Fuchsia out	2	6
Mrs. Story, Story's, tube fine scarlet, corolla fine substance and clear white	2	0
Napoleon III., Banks', a dark var., fine smooth flower, good habit	2	0
Omar Pacha, Banks', a large and well-proportioned flower, tube dark crimson, corolla intensely dark velvety purple: excellent habit	2	0
Prince Albert, Banks', tube scarlet crimson, with a rich violet corolla, fine	2	0
Queen Victoria, Story's, tube scarlet crimson, and a lovely clear white corolla	2	0
Raffaelle, Story's, tube and sepals crimson, corolla rich chocolate, flaked with rose	2	0
Snowdrop, Story's, tube and sepals crimson, corolla clear white	2	0
Water Nymph, Story's, tube light scarlet crimson, corolla fine clear white	2	0

SELECT PHLOXES.

	s.	d.
Abbé Belanger	0	9
Abdul Medschid Khan, white, rose centre	0	9
Alexandrina, white, deep rose centre, fine	1	6
Alice Allain, large rose, pink centre, dark	0	9
Annibal, white, fine	0	9
Antagonist, white	0	9
Boileau	1	0
Browni, rosy pink, fine ...	0	9
Candidissima, white, with crimson centre...	0	9
Captivation, rose, crimson eye	0	9
Chateaubriand	1	0
Colonel Dundas, superb dark purple self, large and of extra form	1	6
Comte de Talleyrand, rosy crimson	3	6
Countess of Home, white, lilac centre, extra	3	6
Criterion, white, rosy purple stripe, extra	1	0
Don Revel	1	0
Dr. Andry, crimson, dark eye	1	6
Dr. Guersant	1	0
Dr. Leroy, dark rosy crimson	3	6
Exquisite, blush lilac, white eye	1	0
Fanny Adam	1	6
General Radetzky, crimson and white striped	1	0
Gerard de St. Troud, mottled and striped	0	9
Gloire de Neuilly	1	0
Hebe, large white, rose centre	0	9
Hendersoni	0	9
Henry Rougier	1	0
Madame Adam, lively rose, red centre	0	9
„ Bosville	1	6
„ Courcelles, lavender, light centre	3	6
„ Domage	1	6
„ Fontaine	0	9
„ Lierval, blush white, violet centre	0	9
„ Millenett	0	9
„ Vaillard	0	9
Marianne	0	9
Maria Bontagne	0	9
Marchionesse Giovanni St. Cyr	1	6
Mr. Domage	2	0
Napoleon, fine striped ...	0	9
President Doscaine	1	6
Primulæflora, pure white...	0	9
Queen Victoria, white, with rose centre, beautiful ...	3	6
Rachel	0	9
Reine des Phlox, blush, dark centre	0	9
Roi Leopold, rosy crimson, striped with white... ...	0	9
Rosini, clear lilac, white centre...	3	6
Scarbro' Gem		
Spenceri, rose, fine truss, dwf.	0	9
Van Houtte, white, rose striped	0	9
Veronique, rosy blush, white centre	0	9

Our Selection, 7s. 6d. to 21s. per dozen. Purchaser's Selection, 30s.

PANSIES.

	s.	d.
Alfred the Great, Turner's 0s. 9d.		
Argo	1	6
Ariel, Dickson's	1	6
Climax, Bell's	0	9
Constance, Turner's ...	1	6
Defiance	0	9
Duke of Perth, Handasyde's	1	6
Emperor, Hale's ...	1	6
Fair Rosamond, Brown's	0	9
Father Gavazzi, Holland's	1	6
Gem, Turner's	0	9
Gliffe, Dickson's ...	1	6
Joe Miller, Turner's ...	0	9
Lady Carrington, Hunt's	1	0
Lord Palmerston, Turner's	2	0
Lord Raglan, Turner's ...	1	6
Marchioness of Bath, Wheeler's	1	0
Memnon, Turner's ...	2	0
Minerva, Dickson's ...	1	6
Miss Steward, Hale's ...	1	6
Miss Talbot, Dickson's... 1s.	0	d.
Mrs. Beck, Turner's ...	0	9
Mrs. M. Hamilton, Nasmyth's	0	9
National, Turner's ...	1	0
Nonpareil, Dickson's ...	1	6
Nonsuch, Turner's ...	1	0
Omar Pacha, Dickson's ..	1	6
Phœnix, Hale's	1	6
Pompey, Hale's	1	0
Queen Victoria, Dickson's	2	0
Royal Albert, Turner's ..	1	6
Royal Visit, Dickson's...	1	0
Satisfaction, Turner's ...	1	6
Seraph, Dickson's ...	1	0
Sir John Cathcart, Turner's	1	0
Sir Joseph Paxton, Betteridge's	1	0
Sir Philip Sydney, Fellowes'	1	0
Triumphant	1	0
White Flag	1	0

Selections left to B & H. as follows:—

	Per doz.—s.	d.
Dahlias ... ... 6s.	18	0
Show Geraniums 6s., 9s.	50	0
Fancy do. 12s., 18s., 24s.	36	0
New class of Show do. 12s., 18s.	24	0
Fuchsias ... 6s.	21	0
Verbenas ... 6s.	12	0
Chrysanthemums, large flowering	6	0
„ Pompon ...	6	0
Antirrhinums	6	0
Petunias	6	0
Cinerarias...	7	6
Hollyhocks 10s., 12s., 18s., 24s.,	36	0
„ good border ...	6	0

	Per doz.—s.	d.
Stove Plants ... 12s.	50	0
Greenhouse do. ... 12s.	50	0
Stove and Greenhouse Ferns ... ... 12s.	24	0
Hardy do. .. 8s.	18	0
Azalea indica 12s., 18s.	30	0
Phloxes .. 7s. 6d.	21	0
Bedding and Border Plants in great variety ...	6	0
Pansies ... 6s., 9s.	12	0
Herbaceous Plants 4s., 6s.	9	0
Coniferæ ... 24s.	180	0
Named Auriculas 12s.	24	0
Carnations and Picotees per doz. pairs—12s., 18s.	24	0
Pinks ... ... 6s.	12	0

N.B. The usual allowance to the Trade.

A Choice Collection of Roses, Dwarfs, Standards, and Half Standards. Also, in pots, Ornamental Trees and Shrubs, Fruit Trees, &c. Excellent assorted Grasses for Lawns, Flower Seeds, Kitchen Garden, and Agricultural Seeds of finest quality. ☞ All orders will meet with prompt attention either by letter or at the Seed Shop, 7, Bridge Street, which is within five minutes' walk of the Railway Station; but to prevent inconvenience to those who wish to go direct to the Nurseries, they beg to observe that their Stove and Greenhouse Plants will be seen at Layerthorpe, and their Ornamental Trees and Shrubs, Fruit Trees, &c., at Lawrence Street Without, Walmgate Bar.——**7, BRIDGE STREET, YORK, March 22.**

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 22, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 13.—1856.] SATURDAY, MARCH 29. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT in the Gardens of the Society this season will take place on WEDNESDAY, May 28th, June 18th, and July 9th, and of AMERICAN PLANTS, on SATURDAY, June 14th.

Tickets of admission are now being issued, and can be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, before May 17th, 4*s*.; after that day, 5*s*. each.

Extensive improvements are in progress in the American Garden.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Exhibitions of this Society for the year 1856 will be held at Chatteris as follows, viz.:—The First Exhibition on WEDNESDAY, July 2; and the Second Exhibition on WEDNESDAY, September 10.

In addition to the usual Prizes the following will be offered, viz.: at the July Exhibition, for the best 48 varieties of Roses, single blooms, First Prize, a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l*. 10*s*. At the September Exhibition, for the best 36 Dahlias, dissimilar, First Prize, a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l*. 10*s*. All further information may be obtained on application to WILLIAM FRYER, Hon. Sec.

Chatteris, March 29.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD, HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

MR. DAVIDSON, who is extensively engaged in LANDSCAPE GARDENING and GARDEN ARCHITECTURE, respectfully offers his services to Noblemen, Gentlemen, and the Public, in Designing and Directing New Works and Improvements in Parks, Gardens, Cemeteries, &c.

Offices, 36, Great Russell Street, Bedford Square, London.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible description from* Messrs. WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

NEW CLOVER SEED, COW GRASS, AND ALSIKE CLOVER, *new and genuine, without any admixture of old or inferior seed, can be obtained from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. SUTTON *have a supply of true Seed, of each sort. Early application is requested.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s*. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s*. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

DICKINSON'S ITALIAN RYE-GRASS SEED is sold by himself (he has no deputed Agent) to Agriculturists only, 60*s*. per quarter for present payment.—New Park, Lymington, Hants.

The Pamphlet, 1*s*., by Messrs. RIDGWAY, Piccadilly, London.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of WM. BARRATT, Nurseries, Wakefield.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, Red Hybrid, Nursery, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. RAYNBIRD, Basingstoke.

NOTICE.

JOHN C. SOMMERS, 159, Fenchurch Street, London, begs to inform his friends and the public that he continues to buy on commission, and not on his own account, from respectable Growers and others, GARDEN and AGRICULTURAL SEEDS that may be depended upon for purity and correctness of stocks.

*** Orders from unknown correspondents must be accompanied with a banker's reference.

NEW FARM SEEDS.

SUTTON'S CATALOGUE *will be sent gratis and post free on application.*

SUTTON & SONS, Seed Growers, Reading.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. MORTON, Esq., *is now ready, and can be obtained from the Proprietors,*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.

Conservatories and Gardens furnished by Contract.

Albion Nursery, Stoke Newington, London.—March 29.

THOMAS BARNES' CATALOGUE is now ready, and may be had on application, containing Descriptions and Prices of Dahlias, Fancy Dahlias, Fuchsias, Verbenas, Phloxes, Hollyhocks, Chrysanthemums, Mimulus, Petunias, Roses, Daisies, and Miscellaneous Plants for bedding, &c. &c.

Dane Croft Nurseries, Stowmarket.

GEORGE SMITH'S NEW AND PRICED CATALOGUE is now ready, and will be sent free by post on application. It contains Select Lists of Verbenas, Geraniums, (of Show, Fancy, Variegated and Scarlet kinds), Dahlias, Hollyhocks, Petunias, and Chrysanthemums.

Tollington Nursery, Hornsey Road, Islington, London.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.

Seed Warehouse, 28, Market Place, Manchester.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons.

The American Nursery, Bagshot, Surrey.—March 29.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.

Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

CAMELLIAS.

CHANDLER AND SONS, NURSERYMEN, Wandsworth Road, beg to inform their Friends and the Public that their extensive collection of CAMELLIAS is now in bloom.

CARNATIONS AND PICOTEES.

WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1*s*. to 1*s*. 6*d*. per pair.—Nurseries, Huntingdon, March 29.

FRUIT TREES IN POTS.

H. LANE AND SONS have fine healthy Plants of the above, with Bloom Buds for bearing this year. Prices will be sent on application.

The Nurseries, Great Berkhamstead, Herts.

INDIAN AZALEAS.

H. LANE AND SONS beg to offer large quantities of fine healthy Plants of the above. Also small specimens for Growing or for Exhibition. Prices and Catalogues can be had on application.—The Nurseries, Great Berkhamstead, Herts.

HARDY AZALEAS AND RHODODENDRONS.

H. LANE AND SON have to offer most of the leading sorts of the above well set with blooms.

The Nurseries, Great Berkhamstead, Herts.

DWARF ROSES.

H. LANE AND SON have a fine large Stock of DWARF ROSES, such sorts as Alexandrine Bachmeteff, Auguste Mie, Baronne Hallez, Madame Cavaignac, Mrs. Stowe, Triomphe de Paris, William Griffiths, &c., still to offer, both worked and on own roots. Prices and Catalogues may be had on application at the Nurseries, Great Berkhamstead, Herts.

HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.

Hedenham Rosary, March 29.

SUPERB HOLLYHOCKS.

JOSEPH BUTLER, Gardener to R. Hills, Esq., Colne Park, Halstead, Essex, begs to inform the Nobility and Gentry that he has now ready for sending out most of the leading varieties of this beautiful flower from 4*s*. to 1*l*. 10*s*. per dozen. Catalogues will be forwarded on application, by enclosing one postage stamp.

NEW BRITISH FERN.

ASPLENIUM REFRACTUM (MOORE). FOR DESCRIPTION AND PLATE SEE MARCH PART OF "NATURE PRINTING."

R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10*s*. 6*d*. each.

Paradise Nursery, Hornsey Road, Holloway.

TO THE LOVERS OF DELICIOUS FRUIT.

ORION MELON, the winner at Regent Street and Crystal Palace, is a fruit of great beauty, from 4 to 6 lbs in weight, thin skin, thick flesh, luscious as a melting Peach, fragrant and rich as a Pine Apple. 6 seeds out of the Prize fruit free per Post, 1*s* 6*d*.—Address, THOMAS WILD, Ipswich.

CHOICE CALCEOLARIAS.

JOHN COLE begs respectfully to offer a few dozen strong healthy unbloomed Seedlings of his matchless Calceolarias, saved from select sorts carefully impregnated. J. C. is happy to say his Seedlings have given great satisfaction the past two seasons, and many parties have written again for them. 4*s*. per dozen, 25*s*. per 100. A remittance solicited from unknown correspondents.—Keyfield Nursery, St. Albans, Herts.

N. GAINES has a few fine specimen RHODODENDRONS now in flower for Sale; also an immense collection of Geraniums, both Show, Fancy, and French varieties, including Azaleas, Fuchsias, Dahlias, Cinerarias, Ericas, Epacris, Camellias, &c., &c. N. G. begs to invite purchasers to pay a visit to the Nursery.—Nursery, Surrey Lane, Battersea.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety. To be had in sealed packets at 1*s*. The Trade supplied.

T. F. WINSTANLEY, Seed Merchant, Manchester.

T. F. WINSTANLEY, SEED MERCHANT, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s*. 6*d*. to 40*s*.

PERMANENT PASTURE

MR. SMITHE'S MIXED GRASS SEEDS for various soils are now ready for sale.—Cost per acre, 24*s*., allowing 4 bushels to the acre. The Seeds will be delivered free of expense to the nearest Railway Station. Reference will be required from parties unknown.—Eastling, Feversham, Kent.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—THOMAS JACKSON & SON, Nurseries, Kingston, near London.

TO NURSERYMEN AND GARDENERS.

TO BE SOLD, a large quantity of first-rate TOP-SPIT LOAM off an old Sheep Pasture.—Apply to Mr. JOHN A. WATSON, Agent for the Ealing Rectory Estate, Ealing, Middlesex.

TO BE SOLD, FLOUR BALL POTATOES; as the stock is limited, orders attended to in rotation. Price 2*s*. per peck, in quantities of not less than 10 pecks; prepayment by Post-office Order to WILLIAM BECKETT, Welham, Retford, Notts.

JOHN HOLLAND begs to offer the FLUKE KIDNEY POTATO (true), in any quantity, at 3*s*. per bushel of 56 lbs.; 5*l* per ton; strong sacks to hold 5 bushels (2¼ cwt.) 1*s*. 9*d*. each.—Bradshaw Gardens, Middleton, near Manchester.

H. AND R. STIRZAKER offer the true FLUKE POTATO at 3*l*. 10*s*. per ton; also SCOTCH DRUMHEAD CABBAGE PLANTS, fine, 10*l*. per 100,000, or 2*s*. 6*d*. per 1000, for cash.—Lancaster.

FLUKE KIDNEY POTATOES.

FISHER, HOLMES, AND CO. beg to offer the above, true and good, at 10*d*. per peck of 20 lbs. Parties requiring large quantities will be liberally dealt with.

Handsworth Nursery, Sheffield, March 29.

FLUKE KIDNEY POTATOES, 5*l*. per ton; in quantities less than 1 ton, 6*s*. per cwt; sacks, 1*s*. per cwt. The above are grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.

HUMPHREY CHAMBERLAIN, Kempsey, Worcester.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. WINSTANLEY, Seed Merchant, Manchester.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS; imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	d.
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds ...	5	0
Ditto ditto 12 varieties ...	2	6
Packets of the above vars. mixed, 1s.; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate ...	5	0
Ditto, assortment of 12 most splendid varieties ...	2	6
The above varieties mixed, 1s.; small packets ...	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties ...	2	6
The above varieties mixed, 1s.; small packets ...	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds ...	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce ...	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce ...	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Fu.e, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l.*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30*s.*, carriage free: the third Collection for a small garden, price 15*s.*

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society Established more than a hundred years.

SELECT CULTIVATED GRASSES FOR PERMANENT PASTURE, &c., on Sale by WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth. For large quantities special contracts may be made at reduced prices.

Extracted from "RENDLE'S Agricultural Price Current and Farm Directory for 1856."

Our Mixed Grasses for Permanent Pasture, &c., have given the greatest satisfaction to all who have sown them. They are selected according to the best Tables—and will be sold at the lowest remunerative prices. Those who wish to make their own selection can purchase all the kinds separately.

MIXTURE FOR LAYING DOWN LAND TO PERMANENT PASTURE OR MEADOW.—The kinds are most carefully saved, all noxious weeds being excluded. The selections will contain several species of Festucas, Loliums, Poas, and Trifoliums, in such quantities as will best suit the soil for which the selection is intended. We usually send 2 bushels of light seed, and 12 lbs. of heavy seed per acre, which will be sufficient for most soils. The large increasing demand for Grasses for permanent pasture enables us to offer them at the reduced price of from 24*s.* to 30*s.* per acre, according to the sorts required to suit the soil. (Gentlemen in giving their orders are requested to state the quality of the soil, situation, &c.)

FOR LAYING DOWN PERMANENT LAWNS.—In Lawns, or Ornamental Parks, it is generally desirable to have a predominance of fine Evergreen Grasses. All the coarser kinds will, therefore, be entirely excluded, and the sward will at all times present a luxuriant and handsome appearance. The prices of the best Lawn Grass are 18*s.* per bushel, 2*s.* 6*d.* per gallon, or 1*s* per lb.

FOR PERMANENT PASTURE AND HAY IN ORCHARDS AND OTHER GROUNDS MUCH OVERSHADED WITH TREES.—We can supply a very excellent mixture of Grasses suitable for the above purposes at 30*s.* per acre, comprising two bushels of light seed and 12 lbs. of heavy.

FOR HEATHY OR MOORY LANDS WHICH HAVE BEEN IMPROVED WITH A VIEW TO THEIR PRODUCING BETTER PASTURE.—We can offer an excellent mixture for Heathy or Moory Lands, at 25*s.* per acre, with varieties which will thrive best on such soils. When the order is sent it is desirable that it should be stated whether the soil is of a *moist* peaty character, or of a *dry* nature in a high altitude.

FOR LAYING DOWN SHALLOW UPLANDS AND SHEEP WALKS.—For this purpose we can offer a very excellent assortment suitable for elevated situations, which we can render at 30*s.* per acre, to produce excellent food for sheep.

FOR LANDS IN PREPARATION FOR IRRIGATION, OR WATER MEADOWS.—In this mixture we place those varieties that, from their natural habits, will stand an excessive moisture. Price 24*s.* per acre.

MIXTURE FOR RENOVATING OLD PASTURES, PARK LANDS, &c.—We can supply an excellent selection for renovating Old Pastures, deficient of Clovers, and the finer Grasses, at 7*s.* 6*d.* per acre, comprising about 10 lbs. of seed, at 9*d.* per lb. This renovating mixture is very useful for such lands as do not require to be laid down afresh, when the plant is thin, whether by partial failure of seed, drought, or any other circumstances.

FINE GRASS SEED, FOR ORNAMENTAL PARKS, PLEASURE GROUNDS, &c., KEPT CONSTANTLY UNDER THE SCYTHE.—Our selection of fine Lawn Grass Seeds has always given the greatest satisfaction. We can point to our own Grounds as a remarkable instance of their superiority. In the year 1850, our Gardens in the Union Road were completely altered, the soil levelled, and laid down to fine Grass; the seeds were not sown till the beginning of June, and by the 30th of July following a very superior sward was obtained.

All orders delivered carriage free, see RENDLE'S "*Agricultural Price Current and Farm Directory for 1856.*"

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.

CUCURBITA PERENNIS.

W. THOMPSON, Tavern Street, Ipswich, begs to offer a few Seeds of this remarkable plant, described recently in the *Gardeners' Chronicle*, in packets of four seeds each. Price 1*s.* Also the following selection from his catalogues of desirable new or rare seeds:—

Alonsoa Warczewiczi, light scarlet, distinct new species ...	6*d.*
Ageratum conspicuum, new white, abundant bloomer, good habit ...	6*d.*
Convolvulus Cantabrica, pretty dwarf perennial, rose... ...	4*d.*
Erysimum arkansanum, fine new species, orange, fragrant	1*s.*
Lupinus subcarnosus, deep violet and white, very beautiful	6*d.*
Leptosiphon aureum, very pretty ...	6*d.*
Matricaria eximia, good dwarf white bedder, free bloomer...	3*d.*
Monopsis debilis, dark blue, pretty dwarf annual ...	3*d.*
Papaver commutatum, very pretty dwarf species ...	4*d.*
Tropæolum Smithi, rare, eight seeds ...	1*s.*
Whitlavia grandiflora, deep violet, a beautiful annual ...	4*d.*
Ten Week Stock, new large flowered varieties, mixed ...	4*d.*
Emperor Stock, six beautiful vars., mixed ...	4*d.*
Quilled Asters, 10 finest varieties, mixed ...	3*d.*
Truffaut's Peony-flowered ditto splendid mixed, imported...	6*d.*
Camellia Balsams, very fine colours, mixed ...	6*d.*

With every novelty of the season, and many rare seeds.

The "Gardening Book of Annuals," by W. THOMPSON, favourably noticed in the *Gardeners' Chronicle* for August 18th, 1855, and in all the leading publications of the day, may be had Post-free of the Author for 30 stamps.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

COLE'S DEFIANCE RED CELERY.—*The best Celery of the season, of most excellent quality,* 1*s. per packet.*

BOSTON NEW VEGETABLE MARROW.—*A new and valuable introduction from America,* 2*s.* 6*d. per packet, can be obtained genuine from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "RENDLE'S *Agricultural Price Current and Farm Directory.*"

Swede Turnip of sorts, 10*d.* per lb., 1*s.* 4*d.* per qt., 5*s.* per gall.		
Scotch Turnips ditto, 10*d.* per lb., 1*s.* 4*d.* per qt., 5*s.*		"
Common Turnips ... 8*d.* per lb., 1*s.* per qt., 4*s.*		"
Tankard Turnips ... ... 8*d.* per lb., 1*s.* per qt., 4*s.*		"
White Belgian Carrot .. 9*d.* per lb.		
Long Red Mangel Wurzel, 6*d.* per lb.		
Yellow Globe do. 6*d.* per lb.		
Italian Rye-Grass, 9*s.* per bushel.		
Scotch Perennial do. 7*s.*, 8*s.*, to 9*s.* per bushel.		
Devon Evergreen do. 6*s.* to 7*s.* per bushel.		

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

SUTTON'S
GRASS SEEDS FOR PERMANENT PASTURE,

Including the True Perennial, Red, White, and Alsike Clovers (Carriage Free), price 24s. to 30s. per Acre.

From Professor Lindley.—"Messrs. SUTTON,—We have already made trial of your Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. "JOHN LINDLEY.

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

Sutton's Renovating Grass Seeds for Improving Parks, Pastures, and Meadows,

Quantity of Seed required, 8 lbs. to 12 lbs. per acre. Price reduced to 9*d.* per lb., or 80*s.* per cwt.

From C. F. Thurston, Esq., Talgarth, August 9, 1855.

"Your Seeds have answered admirably. Turnips, Mangel Wurzel, Carrots, and Parsnips, are superb. Your Grass Seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The After-Grass is remarkable—Clover and other seeds spring up where nothing but the poorest pasture had been previously; *and I think that a field of nine acres sown with your Renovating Mixture is now one of the finest in our neighbourhood.*"

From Mr. G. Norrington, Rectory Farm, Taplow, 26th 11, 1855.

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pastures. At the time I took the farm, the 10 acres of Meadow was almost useless. I have now a most excellent pasture."

SUTTON'S RENOVATING GRASS SEEDS consists of the finest and most nutritive kinds of Perennial Grasses and Clovers, and the price, which is now reduced to 9*d.* per lb., or 80*s.* per cwt., is lower than the same kinds of Clovers and Grasses can be purchased separately at any Seed Establishment in the Kingdom.

Permanent Pasture Grass Seeds for any Soil at moderate charges.

SUTTON AND SONS have been often requested to appoint Agents for the sale of their Seeds in different localities; knowing, however, that Agencies seldom prove satisfactory, they have adopted the practice of *paying the Carriage* to most parts of England. By this arrangement gentlemen residing in those parts of the kingdom where Seeds are not grown can be supplied with genuine new *Seeds direct from the Growers,* whereby much disappointment and loss of crops may be avoided.

SUTTON'S *Price List of Farm Seeds post free.*

Royal Berkshire Seed Establishment, Reading.

SUTTON'S
SELECTED MANGEL WURZEL.

THE ROOTS *of this superior* MANGEL WURZEL, *which were exhibited at the Birmingham and other Agricultural Shows, took the First Prizes in every instance.* (See *Times,* December 12th, 1855.)

Messrs. SUTTON'S ROOTS were also much admired on their Stand at the Smithfield Club Show in the Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express,* and other papers of December last.

The following Extracts from Letters also show the superior quality of SUTTON'S *Mangel Wurzel:—*

From Mr. F. MANDER, *Inlease, near Hungerford.*

"I will send you one of the Yellow Globe Mangels which will astonish you. There have been a great many people to see them."

From JOHN FRYER, Esq., *Manor House, Chatteris, October* 13, 1855.

"I shall in a week or ten days be pulling one of the finest crops of Mangel Wurzels from the Yellow Globe Seed you sent me, that I have grown for many years. I find it very beneficial changing seed from your soil to ours."

From Mr. W. MOORE, *Steward to A. Fountain, Esq.*

"Our Mangels and Turnips we had of you are splendid; we have 200 acres, without a rood missing. Send 200 lbs of Yellow Globe Mangel such as we had last year. If any gentleman had offered 400*l.* for ours (17 acres) it would not have been accepted."

From the REV. HENRY CRIPPS, *Preston Vicarage, Cirencester.*

"My Mangels are the most regular, and the finest I have ever had."

From Mr. ALEXANDER, *Agriculturist to the Irish Church Mission Clifton, Connemara.*

"The Farm Seeds with which we were favoured (gratuitously) from Messrs. Sutton and Sons were excellent, principally the Long Red and Yellow Globe Wurzel, Swedish Turnips, and Parsnips."

From Mr. T. HIBBARD, *Bishopstone.*

"Your Mangel Wurzels did remarkably well;—the finest I saw anywhere."

From C. J. PARKE, Esq., *Henbury House, Wimborne, Dorset, January* 14, 1856.

"You will please keep a sufficient quantity of your Elvetham Mangel Seed for 7 acres. My last crop was magnificent; my bailiff informs me that he weighed a part of the field, and calculated the roots at over 48 tons per acre."

From J. C. SLEMAN, Esq., *West Cliff Cottage, Bideford.*

"I have had a most excellent crop of Mangel Wurzel from the Seed I had of you last April. I have had the Elvetham weighing 31 lbs. and 32 lbs., and Yellow Globe upwards of 25 lbs. each. I shall require a considerable quantity of each sort the ensuing season."

From the REV. W. CORNWELL, *Crossen's Parsonage, Southport.*

"Your Lincolnshire Red Turnips, and your Elvetham Mangel, have succeeded so admirably, that I should like to try your other seeds."

From ROBERT STRATTON, Esq., *Box Bush House, Brinkworth.*

"I am very much pleased with your Elvetham Mangel. Its quality I believe to be very superior, as I find my pigs like it much better than any other sort. Your Grass seeds also gave me great satisfaction."

At present Messrs. SUTTON *can supply any quantity of Seed. Price of their Selected Yellow Globe,* 9*d. per lb.; Fine Long Red,* 9*d., or cheaper by the cwt.; Elvetham (new sort),* 1*s.* 6*d. per lb. For prices of other kinds, see* SUTTON'S *Priced List of Farm Seeds, which will be sent post free.*

SUTTON & SONS, Seed Growers, Royal Berkshire Seed Establishment, Reading.

UNEQUALLED NEW MELONS.

EDWARD TILEY, NURSERYMAN, SEEDSMAN, and FLORIST, 14, Abbey Church Yard, Bath, Somerset, begs to state that he can supply the following:—

M'Ewen's Arundel Hybrid Scarlet and Green Flesh MELONS, and Monro's Crystal Palace and Golden Gauge ditto, 2*s.* 6*d.* per packet, or two packets for 4*s.*

The Champion Kidney and Early Emperor POTATOES, 5*s.* 6*d.* per peck, hamper and package included. For further particulars see Advertisements in this Paper March 1st, 1856, pages 130, 131.

All the CUCUMBERS can also be supplied as advertised January 26th, 1856, page 50.

PRIMULA SINENSIS saved from all the best coloured fimbriated varieties, 1*s.* 6*d.* per packet.

DIGITALIS, or FOXGLOVE SEED, saved from 20 of the most superb striped and spotted varieties, 1*s.* per packet.

HOLLYHOCK SEED, saved from all the best varieties in cultivation, 1*s.* per packet; if required a packet containing 24 distinct sorts, all to name, will be sent for 5*s.*

Unequalled quilled GERMAN ASTER, 1*s.* per packet.

FRENCH ASTER, or PÆONIFLORA TRUFFAUT, about 20 of the most striking varieties, 1*s.* per packet.

CINERARIA SEED, saved from the most superb distinct varieties, 1*s.* per packet.

BALSAM SEED, saved from the most superb distinct varieties, 1*s.* per packet.

Very superior DWARF LARKSPUR, 6*d.* per packet.

A remittance must accompany every order by cash or penny postage stamps, when the whole or any part (as the case may be) will be immediately forwarded.

SEAKALE SEED.—*Several Bushels of home-grown Seed can be procured from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEAKALE AND ASPARAGUS.—*Several hundreds of thousands still remain, and can be had at the lowest wholesale prices, on application to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

RHODODENDRONS, AZALEAS, ETC.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, begs to offer, at very moderate prices:—

RHODODENDRONS from good hardy kinds, transplanted suitable for beds, cover, or plantations, 9 inches to 2 feet and upwards.

RHODODENDRONS, good named sorts of fine hardy varieties, including fragrans and Govenianum, both of which are sweet; Nobleanum and scarlet in variety, 2 to 3 feet and upwards.

AZALEAS, hardy in great variety, well set with bloom buds, 2 feet high and upwards.

A good Stock of Rhododendron Ponticum, white, 2 feet and upwards; Andromeda, Vaccinium, Ledum, American Cranberry, Gaultheria Menziesia, Hardy Heath, &c.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

SPLENDID NEW BEDDING CALCEOLARIA
CATTELL'S BEAUTY OF WESTERHAM.

JOHN CATTELL has much pleasure in informing the public that he has now strong healthy plants ready to send out of this very fine CALCEOLARIA. The foliage and habit is like Sultan, but the flower-stems not so tall, and the flowers are produced in the greatest profusion; the colour is a bright deep rich crimson, with a velvety centre, almost black; from its fine free habit, and striking colours, J. C. has no hesitation in saying it will become the most popular of the dark bedding varieties. Good plants in 4-inch pots, 5*s.* each, postage or hamper included.

J. C. has also the following fine Bedding Plants:—

	s.	*d.*
GERANIUM Beauty of Chipstead.—Most brilliant scarlet, of the cerise habit, extra fine bloomer, each ...	2	6
" Trentham Scarlet Gem.—Intense bright deep scarlet, the best of the large growing scarlets, each ...	1	6
" Virginium.—Pure white, with a very small spot of pale light purple in the upper petals, immense trusser, and extra free bloomer, each	2	6
VARIEGATED VARIETIES.		
" Attraction (Gaines')	1	0
" Attraction (Kingborn's).—Habit and foliage like Flower of the Day, with deep pink horseshoe mark, 21*s.* per dozen, each	2	0
" Silver King, each	1	6
" Silver Queen, each ... ... 2*s.* 6*d.* to	5	0
" Brilliant, 6*s.* per dozen, each	0	9
" Golden Chain, 6*s.* per dozen, each	0	9
GENTIANA acaulis, very strong, 8*s.* per dozen, each ...	0	9
DELPHINIUM Hendersoni, strong ground roots, 5*l.* per 100, 15*s.* per dozen, each	1	6
" magnificum, each	2	6
" Barlowi, 35*s.* per 100, per dozen	6	0
" grandiflorum maximum, 40*s.* per 100, 6*s.* per doz., each	0	9
CALCEOLARIA, strong plants of unbloomed seedlings from J. Cattell's established collection, in single pots, per dozen	4	0
" seedlings from store pans, per dozen	3	0
" from J. C.'s collection of new colours, very superior, in single pots, per dozen	6	0

A remittance or reference must accompany all orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW AND SELECT PLANTS.

BASS AND BROWN have a fine and strong stock of the following:—

	s.	*d.*
GERANIUMS.		
12 superb new show vars. of last season	36	0
50 superb vars, including some of the above	75	0
25 ditto ditto	40	0
Fine selections, per dozen ... ... 9*s.*, 12*s.*, and	18	0
6 superb new fancy vars. of last season		
25 superb vars., including the above	36	0
Fine selections of fancy vars. ... ... 9*s.*, 12*s.*, and	18	0
ACHIMENES.		
5 superb new continental vars., strong tubers	20	0
12 superb vars, including Sir Traherne Thomas, Gigantea, Cherita, Louis Van Houtte, &c.	10	0
12 fine and beautiful vars.	6	0
GLOXINIAS.		
10 splendid new continental vars.	30	0
10 splendid new ditto, erect flowering vars.	35	0
The 20 vars. together for	60	0
12 finest vars. of previous introduction	20	0
GREENHOUSE PLANTS.		
50 fine and select hard-wooded species and vars. ...	65	0
Fine selections, per dozen... ... ... 18*s.* and	25	0
50 fine and select species and vars, 45*s.*; or 25 vars. ...	24	0
STOVE PLANTS.		
25 superb and select species and vars.	45	0
Fine selections, per dozen ... ...24*s.* to	42	0
HERBACEOUS PLANTS.		
100 distinct and showy vars, 30*s.*; or 50 for	17	6
100 superior, including many newer vars., 50*s.*; or 50 for	30	0
ROSES, 12 dwarfs, in pots, splendid new continental vars.	40	0
HARDY CLIMBING PLANTS, in pots, 20 fine sorts ...	20	0
PHLOX, 25 vars., 10*s.* 6*d.*; 25 superior vars.	15	0
POTENTILLAS, 12 fine vars, 6*s.* and 9*s.*; 12 extra fine...	15	0
" King of Crimsons, the finest large crimson, and dwarf habit of growth, each... ...	5	0
" 8 superb new vars., including King of Crimsons	21	0
ROSE—MADAME DESIRE GIRAUD, new Carnation-striped Hybrid Perpetual.—The flowers of this novel and beautiful variety are double, of the size and form of Baron Prevost, colour white, striped with rose and crimson, dwarf plants in pots, worked on the Manetti stock, each	5	0

CATALOGUE No. V. is now ready, and may be had on application, containing their superb Achimenes, Gloxinias, Bedding and Soft-wooded plants, &c.; also a List of New and Rare Plants of every class.

GOODS CARRIAGE FREE (not under 20*s.*) to all stations in London, and all stations on the Colchester line between London and Norwich. Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

FIRST-CLASS CINERARIAS, PANSIES, FUCHSIAS, VERBENAS, GERANIUMS, PETUNIAS, DAHLIAS, HOLLYHOCKS, ETC.

WM. RUMLEY AND SONS are now sending out the undernamed in fine strong Plants, hamper included, or free by post, viz.:—

CINERARIAS.—The following 10 new varieties of 1855 for 12*s.*, or 6 for 8*s.*:—Turner's Lady Mary Labouchere, Lady Paxton, Mrs. Foster; Hopwood's Loveliness, Optima, Orion; Frost's Mrs. Ricketts, Miss Bannerman, Matilda; Bousie's Optima. The following choice varieties 7*s.* 6*d.* per dozen, or 6 for 4*s.*:—Advancer, Duke of Wellington, Estelle, Empress Eugenie, John Bull, Lord Stamford, Lablache, Lady Camoys, Lord Palmerston, Mrs. Beecher Stowe, National, Novelty, Octavia, Polyanthiflora, Prince Arthur, Scottish Chieftain.

PANSIES.—The following extra fine varieties, 6*s.* per dozen, or from 6*d.* to 9*d.* each. Aurora, Amelia, Blue Eyed Maid, Commander-in-Chief, Conqueror, Duke of Perth, Duke of Sutherland, (Ellen, Douglas's), Earl of Mansfield, (Excelsior, Stewart's), France Cycole, Governor, Mr. Beck, Marchioness of Bath, Nobilis, Post Captain, Queen of England, Sir J. Paxton, Supreme, &c.

FUCHSIAS.—First-rate new varieties of 1855, 9*s.* and 10*s.* 6*d.* per dozen.

VERBENAS.—All the best new varieties of 1855, 6*s.* per dozen.

GERANIUMS.—Extra fine show varieties, 6*s.* to 42*s.* per doz.

PETUNIAS.—Choice varieties, 4*s.* to 9*s.* per dozen.

DAHLIAS.—Extra fine show and fancy varieties, 3*s.* to 18*s.* per dozen.

HOLLYHOCKS.—Extra fine, 10*s.* 6*d.* to 18*s.* per dozen.

The above will be forwarded immediately on receipt of a Post Office Order payable at Richmond, Yorkshire. Our New Descriptive Catalogue of the above is now ready, and may be had on application.—Gilling, near Richmond, Yorkshire.

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than any other sort, and far more free from disease, planted in the same soil and in every way alike."—Mrs. CANNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2*s.* 6*d.*; per bushel, 9*s.*

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2*s.* per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2*s.* 6*d.* per peck, or 9*s.* per bushel, delivered carriage free.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

NEW TURNIP.

WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SKIRVING'S IMPROVED SWEDE TURNIP.

MR. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, March 29.

SWEDISH TURNIP SEEDS.

JOHN B. WRIGHT, Hedderwick Hill, Dunbar, begs to offer to Agriculturists "Improved East Lothian Purple-top Swedes," grown by himself from carefully selected pure bulbs of crop 1855. The above is warranted quite free from all adulteration, and will be sent free to the chief railway stations, in quantities of not less than 50 lbs. Price 1*s.* 3*d.* per lb., including package.—March 1856.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.

N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from his establishment.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at 6d. per lb., or 14 lbs. for 6s.;* WHITE BELGIAN CARROT SEED, 9*d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom,

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PERMANENT PASTURE GRASS, *of the finest quality, can be obtained from the Subscribers. For a full description of all the best and most useful kinds, see* "RENDLE'S *Price Current and Farm Directory for* 1856." Apply to

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, MARCH 29, 1856.

IT seems that a new agent is provided for gardening. The vitality of seeds we are assured is preserved, or when languid is roused into activity by GLYCERINE. At a late meeting of the Society of Arts, Mr. G. F. Wilson reported that he had received from a very zealous and successful cultivator of tropical plants, a statement that glycerine has a remarkable action upon seeds. His friend wrote: "Some Castor-oil seeds were immersed in glycerine for 10 days; when planted, they germinated very quickly. I then put some of the Benee (?) seeds given me last year (some of which my gardener then sowed, but they never came up), into glycerine for 20 days, and I find they are sprouting beautifully; some that were put in water have never appeared. The glycerine must have something to do with even restoring vitality, for I have tried one or two dried up Indian seeds, and they have succeeded also." Mr. Wilson added, that he should hardly have expected such favourable results; but when he remembered the extraordinary power of glycerine as a preservative of both animal and vegetable bodies, he thought it would be well worth while to try some experiments on the transport of seeds in glycerine.

It would be not a little curious to find that a substance the very existence of which is as yet hardly known to the world possesses the power of preserving seeds during long voyages, and that it

moreover should be obtained by the modern processes employed in candle making. Yet such would seem to be the case, for what is called glycerine is a colourless and sweet syrup produced in the manufacture of stearic acid, or as they are commonly called Price's patent, candles.

Should experiments prove that glycerine really possesses the property now ascribed to it, some attempt should be made to ascertain what there is in its composition that gives it the power. One might suppose that it owes its protecting action to the exclusion of air, or to the perfect dryness that it ensures, refusing as it does to allow moisture to pass, and moreover unable to give up its own water of combination at any ordinary temperature. We quite agree with Mr. Wilson in thinking that seeds bottled in glycerine should be at once sent to the colonies for the sake of testing the value of the supposed discovery.

But what can give it the property of *stimulating* as well as preserving vitality?

The Estimates for Civil Services for the present year now before us present some features of garden interest. In the Green Park 1454*l.* is required for filling up what is called the basin opposite Devonshire House, and improving the adjacent ground. We had hoped that the Chelsea Water Company could have been compelled to pay this expense in consideration of the advantages they have so long been permitted to enjoy from a public nuisance. If the alteration is skilfully carried out this park will be so much improved in appearance as to console us for the loss of the beautiful bridge over the water in St. James's Park, which the *Times* would not permit Parliament to sanction. 500*l.* are devoted to enlarging the plantations in Victoria Park; it is to be hoped that some one will keep a vigilant eye upon the manner in which this money is expended. The New Museum at Kew is to cost, with fittings, &c., 5424*l.*, a sum well laid out. A nursery for park plants is to be formed at Kew at a cost of 800*l.*, an excellent measure much too long delayed. A couple of thousand pounds are devoted to the drainage of Richmond Park. May we ask how often this park has been drained (!) already? There is to be an iron fence round Kew and Richmond Greens, at a cost of 120*l.*; Holyrood Palace is to have 3426*l.*, more than two-thirds of which is required for forming a new road to Duddingstone.

The total cost of the Royal Botanic Garden, Kew, exclusive of the new museum, is 10,734*l.* This part of the estimates is accompanied by an important report from Sir William Hooker, from which we extract the following statements. The total number of visitors in 1855 was 318,818; their conduct is described as being the subject of great satisfaction. Indeed such acts of impropriety as are occasionally committed are plainly described as belonging more frequently to the well-dressed than the lower classes.

"The erection, during the year, of a new house for succulent plants, 200 feet long, 30 feet wide, and 15 feet high, has enabled us to display (and to advantage, for the first time) our noble collection of medicinal Aloes and Euphorbias, grotesque Cacti, and fibre-bearing Agaves; this is perfectly unique of its kind. Our new pits and frames will allow us to satisfy the general taste for flowers, by rendering the lawns and open borders more gay than they have hitherto been. The recently formed arboretum, or collection of hardy trees and shrubs, in the pleasure-grounds, has received considerable accessions from temperate climes, which require nothing but time for their more full development to become ornamental as well as highly instructive to persons who are interested in forests and in ornamental planting."

"The establishment of our present Museum of Economic Botany only dates from 1848. The building affords 6000 square feet of glazed cabinets for the deposit of those vegetable products that are either eminently curious or in anywise serviceable to mankind; it is consequently of the highest importance, if simply for instructional purposes, and essential to a great commercial country, as must be evident to any person who reflects on the innumerable ways in which the vegetable kingdom ministers to the wants of the human race. The ship-builder, the carpenter, the cabinet-maker, the general merchant, the manufacturer, the weaver, the physician, the druggist, the dyer, the oil and colourman, &c.. &c., will here find systematically arranged the several objects in which they are interested, accompanied by their correct appellation, the countries whence they come, and the names of the plants from which they are procured. Till this collection and the correspondence which it entailed determined these points, many had been entirely or chiefly unknown as regarded their origin or native country; and it is indubitable that every year more and more information will be elicited on points of no slight importance to a great mercantile country. So valuable and extensive a collection required a cheap and popular guide book, similar in size and plan to that for the gardens, and one, with many illustrations, has consequently been published during the year just expired. The museum had already become even before the close of 1854 inconveniently crowded by the accession of new contributions, and a considerable amount of them had to be temporarily accommodated in the temples and in sheds. A vote for an additional museum was therefore submitted to, and sanctioned by Parliament, and it has been happily so far carried out that at the moment of preparing this report the walls are erected, and the roof will in a few weeks be covered in. This convenient structure is destined to give further accommodation to the extent of 13,000 square feet of mural glazed cabinets. And it is in every respect fortunate that the structure is so far advanced, for an additional opportunity of acquiring valuable collections was afforded during last summer, when I was summoned by the French Imperial Commissioner to take an active part in the jury of the second class at the Great Paris Exhibition. That class, mainly relating to vegetable products, offered the very objects most requisite to enrich our collection. A grant of 200*l.* was accordingly obtained from the treasury, to be expended in procuring such articles as were most important for the Kew museum, while the President of the Board of Trade liberally offered to expend an equal amount. Thus provided, and further assisted by the several officers of the Science and Art Department of the Board of Trade then in Paris, and enriched by numerous donations from many exhibitors, 48 large cases were transmitted to Kew. They contain vegetable products, many of them very rare and valuable, from Algeria, Australia, Austria, the East Indies, France, the Grand Duchy of Hesse, Jamaica, Mauritius, Norway, Prussia, Sardinia, Sweden, Tuscany, the United States, Tasmania, Victoria, Wurtemburg, &c. &c. All have arrived in safety, and their contents will go far towards filling up the surplus space in the new museum.

"To say that this collection of vegetable products is unrivalled is saying little, and no more than might have been asserted while the museum was quite in its infancy, since nothing of the same instructive kind had ever been attempted. Ours is the gratification of having set the example, which is now being followed in several of our colonies (Jamaica, Demerara, Melbourne, &c.). The East India Company is forming a similar museum in London, at Calcutta, and at Madras; another has been attached to the Botanic Garden of Edinburgh; and at the moment of drawing up this report I observe the following paragraph in the *Liverpool Daily Post*:—'A museum of applied science is recently founded in connection with the Royal Institution of this town. It contains already above 600 specimens, many of great value, and as it has commenced with the vegetable substances, we purpose to follow out the plan which has afforded so much satisfaction and instruction at the museum of the Royal Gardens of Kew.' A small but well arranged series of similar objects was formed towards the close of the Paris Exhibition by order of his Imperial Highness the Prince Napoleon; and we are likely to have a powerful but honourable rival in the Museum of the Jardin des Plantes at Paris. There, indeed, an unexampled collection of woods and other products connected with physiology and pure botany has long been deposited, but with no approach to an economic museum till now, when donations and purchases at the close of the Great Paris Exhibition will lay the foundation of one on a most extensive scale."

With every word in these extracts we cordially concur.

Death has this week claimed another victim from among the Nestors of Horticulture. Mr. John Reeves, a name dear to all who are familiar with England and her gardens, has left us for a better world, after a long, useful, and honourable life of 82 years. Holding a high office in China under the E. I. Company at a time when that great association monopolised the Chinese trade, and when little was known of Chinese gardens beyond some grotesque caricatures upon paper and porcelain, Mr. Reeves employed himself with indefatigable zeal in sending home all that he found most rare and beautiful among living plants. Thus employing his leisure through many years, he was either the immediate or indirect source from which were derived the Chinese Azaleas, Camellias, Moutans, Chrysanthemums, Roses, and numberless other treasures which have been for so many years the glory of our collections. Not a Company's ship at that time sailed for Europe without her decks being decorated with the little portable greenhouses which preceded the present Wardian cases; and what was more, Mr. Reeves succeeded in communicating to the captains the enthusiasm which animated himself. Nor, indeed, could his exertions for sending home new plants have been crowned with much success had not the goodwill of the officers been secured; for a voyage from Macao to London was not what it has now become. Doubling the Cape was so difficult an operation that the freight of living plants was continually damaged or thrown overboard in order to clear the decks. And in this way hundreds of plant cases were lost, always however to be replaced by a zeal and perseverance which no disaster could diminish.

Among the methods by which Mr. Reeves ascertained what would be acceptable in England was the transmission of drawings, executed in his own house, under his own superintendence, in order to secure himself against the deceptions practised by the native draughtsmen. Such drawings first brought us acquainted with the Chinese Primrose, many of the finest Camellias, and, above all, with the Glycine (Wistaria) sinensis, a plant second only to the China Rose in importance as an object of decoration. In this way was formed that collection of authentic drawings of Chinese plants, by far the most extensive in Europe, which now forms part of the library of the Horticultural Society.

Nor were the exertions of our much lamented friend confined to the collection of living plants. If we look into private Herbaria, there we find marks of his industry and liberality; at the British Museum, and in the Museum at Kew the name of Reeves occurs wherever Chinese productions are met with. At last the kind good old gentleman has left us. One short week ago he was still to be seen examining the plants in the meeting room of the Horticultural Society. Although now taken from us, he will long be present in the affectionate memories of those to whom he was more dear than words can describe. The name of Reevesia thyrsoidea given by a friend to a beautiful plant discovered by himself is the simple epitaph inscribed to his memory in the annals of science.

VEGETABLE PATHOLOGY.—No. CXIV.

458. *b.* External or Accidental, 2 (*Organic.*)—We have hitherto under this section (*b*) confined our attention as much as possible to those diseases which, though arising from external causes, are as far as we can judge purely functional. We now come to a second series of maladies arising from palpable causes, which are indicated not merely by a derangement of those functions on which health depends, but by outward lesions, about which no doubt can be entertained. These may be of various kinds, and may arise from various causes; they may be direct injuries, as from the force of wind, lightning, or other atmospheric phenomena; from the depredations of insects and other animals, or from what may be regarded as pure accident or wilful mischief; again, they may be due to the more insidious attacks of external or internal parasitic plants living at their expense, and in consequence impeding their growth; or, thirdly, they may be due to parasitic insects, arising from eggs deposited within their substance, or making their way into it as soon as they are hatched. Formidable diseases may originate from any of these causes, and sometimes two or more may be combined. It is not, however, merely by exhaustion that injury is produced. This may exist in various degrees, and sometimes may inflict no permanent injury; but it is different when, as is frequently the case, the most important organs, as those of fructification, are affected, and the fruit in consequence is entirely destroyed. It is not our intention to enter at any great length into the ravages of insects. We shall content ourselves with a few general remarks, first on the curious effects produced by insects on vegetable tissues, and then with a notice of some of the more important pests by which plants are affected as the Wheat Midge, the Pyralis of the Vine, the Vibrio, and plant louse, without however attempting a description or enumeration of the hosts of enemies by which they are surrounded, scarcely one being exempt from its peculiar plague, and some nourishing a legion. Information respecting these will be found in works on Entomology, and our own Journal will afford in its notices of insects a vast fund of such information. It will, on the contrary, be needful to enter at some length into the question of parasitic fungi, both on account of the very important part they bear in producing disease, the ruinous effects of such diseases, and the necessity there is for due appreciation of the subject by all cultivators, if they hope to contend successfully against them. The gardener must first be able to speak positively as to the nature of the attack. It will not do in such matters to act simply on conjecture; to fancy, for instance, that a little natural pubescence on young leaves, or much less some specks of carbonate of lime, or other chemical deposit, are parasitic moulds, mistakes which are constantly made, and respecting which we are as often consulted by our correspondents; they must not again fancy that a few hypertrophied hairs or cellular warts are fungi; nor

must they think that every black speck upon their plants conceals an enemy in its bosom. If such is the case they will be diverted frequently from the true cause, and apply remedies wholly unsuitable to the case before them. A separate notice, therefore, will be given of the more important of these maladies, and in such a way, if possible, as to prevent the possibility of mistake where cultivators will take the proper pains to come to a correct conclusion. If they will still be satisfied with guessing only, there is far greater chance of their coming to a wrong conclusion than of stumbling upon truth. It is now acknowledged by almost every competent authority that some of the greatest scourges of the cultivator arise from parasites, though the notion has been resisted by every sort of argument; but this is not true of all, we shall still have some left for our remaining section, which is to treat of those diseases which arise from unknown or merely conjectural causes, and the treatment of such must of necessity be empirical. We may not indeed be able to combat with disease where its history is known, but we shall at least have some prospect of succeeding if we can apply rational remedies. In following up the consideration of organic disease arising from external causes, we shall first take those cases which come under the head of atmospheric or other material agency; secondly, those arising from direct injury, as fractures, wounds, and other serious ruptures; thirdly, the effects of parasites, whether higher or lower in the scale of vegetation; and, lastly, the ravages of insects. *M. J. B.*

SUN STROKES.

I HAVE attentively read the articles by Dr. Caspary on Frost Splitting. My attention has long been directed to the longitudinal splitting which more especially takes place in spring, in the lower part of the stems of fruit trees. There is a vulgar prejudice which attributes this splitting to spring frosts that occur after vegetation has commenced. The sudden changes in the temperature of the air which cause a reflux of the ascending sap appear to be partly the cause of the evil; but it is the sun's rays which cause the bursting of the bark and occasion the splitting. The proof of this is that the rents are always on the side next the sun, that which receives his rays between 11 A.M. and 2 P.M., and never on the east, north, or north-west sides.

Here is another still more positive proof: several sorts of Pear trees grafted on the Pear stock, trained as dwarf pyramids, and exposed to the action of the sun, were covered, in 1854 and 1855, to the height of 2 feet from the ground with a layer of straw, but only on the side exposed to the sun's rays from 11 A.M. to 2 P.M. Splitting did not take place on the other sides of the trees, whilst about the middle of March, and somewhat later, the pyramids that were not thus protected exhibited fresh rents, and always on the side next the sun at noon. From these facts I draw the conclusion that the splitting was the result of a sun-stroke. The facts having been confirmed by a great many persons, and in the grounds of several amateurs, I was induced to write the enclosed article which appeared in the "Echo de Bruxelles," and which may interest the readers of the *Gardeners' Chronicle.* [We shall give this in a future Number.]

The soil of my fruit tree nursery is, for the most part, rather light and deep. A considerable number of low pyramids suffered in former years from sun-stroke, and especially those which were furnished with branches near the ground. Those that were trained as standards and half-standards escaped. The observation of this induced me to cut off the lower branches from all my vigorous specimen trees, and to train them as half-standards. This was done after the fruit was gathered in autumn, and up to the present time I have not observed any rent in the bark of these trees. I must say, however, that the temperature since January has not been like that of former years. I have not observed splitting in the seedlings of the Apple, Pear, Apricot, and Peach trained as standards or as half-standards.

What are the causes of these accidents? How can they be prevented? and what are the remedies that should be applied to mitigate the consequences? For the solution of these questions it is requisite to enter into some details which are the result of some observations made in different localities. What are the presumed causes to which certain varieties of the Pear tree, worked on the Pear stock, and trained as dwarf pyramids or Quenouilles, are more especially exposed in spring? This question is restricted to these sorts of trees because injuries from sun-strokes rarely occur on seedling Pear trees, and never upon trees grafted standard high, nor upon the stems of those grafted on the Quince stock.

In general, sun-strokes are more common on trees growing in a strong moist soil, than in one that is light and dry. It is observed in varieties that ripen their fruit early, in the middle season, and late; in varieties belonging to the different classes of form, as the Bezi, Bon Chrétien, Bergamot, Doyenné, Colmar, and Rousselet; in delicate and tender varieties, and in the most vigorous and hardy; in young trees four or five years planted, and in those planted more recently.

These facts established and admitted, the cause of the evil is then partly in the soil, in the condition of the stocks on which the Pear is worked, and in the vicissitudes of climate in the early part of spring; perhaps also in the condition of the young bark, which, having been sheltered all the summer by the leafy boughs of the lower part of the tree, has not sufficient hardness to resist the direct action of the solar rays in the month of March, when, owing to the absence of leaves it is then without sufficient shelter.

In a strong moist soil, as may be conceived, the roots, when vegetation commences, draw sap more abundantly than in one that is light and dry. If the stock commence to vegetate before the graft can absorb and circulate the sap throughout the stem and branches, it must accumulate in the part immediately above the junction of the stock and graft.

I have seen in previous years many Peach and Apricot trees trained as dwarfs against south walls, and also Vines, with their barks split on that much more than on any other aspect. The causes, then, are in the soil, in the quality of the stock, in sudden frosts which cause the reflux of the ascending sap; but it is the direct rays of the sun in the months of February and March which determine the splitting of the bark; and it is from the observation of these facts that I have thought proper to call this malady a sun-stroke.

Before the term frost-splitting could be properly admitted, it is necessary to prove that the splitting takes place in every part of the tree, as well as that exposed to the sun between the hours of 11 A.M. and 2 P.M., when his rays are most powerful. I have even observed the progress of the splitting at these hours. The rents in the bark were scarcely perceptible in the first day of their commencement, but in the next they were as wide as the thickness of a penny. The bark when covered with a cloth reattaches itself to the alburnum; but if this be neglected for several days the bark withers, and in that case it must be removed as far as it is detached from the alburnum, and it then requires several years and much trouble to heal the wound.

I am surprised that no English horticulturist has given the results of his personal observations on this subject. Perhaps this article will induce Mr. Rivers to do so. *De Jonghe, Brussels, March.*

NEW GARDEN FERNS.—No. IX.

20. HYMENOLEPIS REVOLUTA, Blume, Enum. Pl. Javæ, 201. Kunze, Schkhr. Supp. i. 101, t. 47, fig. 2. GYMNOPTERIS REVOLUTA, Moore and Houlston, Gen. and Sp. Cult. Ferns ined. HYALOLEPIS REVOLUTA, Kunze, Ind. Fil. Cult. 50.

β planiuscula, Kunze, Ind. Fil. Cult. 50.

Fronds lanceolate, scarcely recurved at the margin, the fertile appendage elongate, and attenuated at the apex.

Hymenolepis has been often referred to the Acrostiche, but it seems to us to be much more nearly allied to the Pleurogrammæ, the sori at first forming a line on each side of and close to the costa, though eventually confluent over it. H. revoluta is a neat evergreen stove

Fern of remarkable appearance, its simple fronds being terminated by a long narrow spike, which bears the fructification. The fronds are coriaceous, altogether about a foot high, narrow lanceolate, smooth, the upper half or nearly so being occupied by a linear appendage, on the lower surface of which are borne the two lines of densely compacted spore-cases, which soon coalesce over the costa, and form a mass covering the whole appendage; this part of the frond is gradually attenuated towards the apex. During the early stages of growth the entire edges of the appendage are revolute and partly conceal the spore-cases. In the type of the species the entire margin of the frond is strongly revolute; but in this form, which only is known in gardens, the fronds are nearly flat, and the margin shows but a slight tendency to become recurved. The venation is obscure, but at intervals the veins as they emerge from the costa are seen to be more prominent than the rest, having a tendency to become costæform, or what is called pinnate. There is a nearly allied plant, in which the fertile appendage is shorter and obtuse with parallel sides, and the veins are entirely hidden. In both the fronds are crowded lateral and articulated with the small short creeping rhizome. The present, which appears to have been introduced from the continental gardens, is said to be a native of Java. We have followed Kunze in regarding it as a variety of Hym. revoluta, but it has broader as well as plane fronds. It seems not improbable that there may be three allied species as indicated by Presl (Epim. Bot. 159-60), and if so the plant now under notice may be the Hym. spicata, the Acrostichum spicatum of Linnæus, the others, according to Presl, being the Hym. ophioglossoides of Blume not of Kaulfuss, and the true Hym. revoluta of Blume.

Home Correspondence.

The Plane Tree.—In the Royal Herbarium, Berlin, I find the following specimens of this genus, viz.:—1. Platanus mexicana *Moricand*, from Mexico, collected by Schiede; 2. P. occidentalis *L*, from St. Louis, collected by Engelmann; 3. P. orientalis *L.* var. hispanica, of the gardens, from Spain, collected by Ruiz; 4. P. orientalis *L.* var. liquidambarifolia *Spach*, from Karabagh, collected by Szovitz; 5. P. orientalis *L.* var. acerifolia *Aiton* (P. acerifolia *W.*), from Spain, by Ruiz; 6. P. orientalis var. cuneifolia *Spach* (P. cuneata *W.*), cultivated; and 7. P. orientalis *L.*, from Italy and Greece (Patras by Link); from Jerusalem from Delessert; and from Grusia under the incorrect name of P. acerifolia, given by Karl Koch. *Fr. Klotzsch, Berlin.*

Rhododendrons Falconeri and Wighti.—It will doubtless interest your readers to know that a specimen of each of these very fine plants is now in bloom in our nursery. The flowers of Wighti are not equal to those represented in "The Rhododendrons of Sikkim Himalaya;" while those of Falconeri are very much superior. When first opened the blooms of Wighti were of a very pale primrose, changing, however, in a day or two to pure white. They are of good shape, 3 inches across the mouth; and the petals have a very singular and beautiful appearance from being nearly transparent. Altogether the plant is a handsome one, and forms a decided acquisition. Falconeri is yet more than that; its flowers are the most beautifully shaped of any known Rhododendron. Each is a perfect cup 2½ inches across by about 2 inches deep, of a rich primrose colour, strongly dashed with crimson at the base. The shape of the individual blossoms, as well as that of the truss, will leave nothing to be desired in those respects. The flowers both of Falconeri and Wighti are sweet-scented, the latter, however, much more so than the former. Judging from the several species of the Sikkim Rhododendrons which have now blossomed, and comparing them with the published representations, we think that many varieties of each will be found, some much superior, others far below what is expected. *Standish and Noble, Bagshot.*

Transplanting Evergreens.—In reply to the inquiry of your correspondent "C. B.," which appears to be addressed to me, I beg to inform him that I should not recommend him to remove Yews in April, the period which I have recommended for Hollies, for the following reason. The young growth of the Yew commences much earlier than that of the Holly, and advances more slowly, and at the season stated he would find his Yews covered with young wood, which would suffer by removal, and would injure the tree. Evergreens vary very much in this respect, and almost every species has some constitutional peculiarity. It is very remarkable in the Deodar, which I have never moved more successfully than in the spring, whilst the Cedar of Lebanon (so nearly related to it that many persons assert them to be the same species) suffers exceedingly if moved at that season. I have moved from the same spot, and the same soil, a dozen Deodars without one of them suffering in the least, whilst of 12 Cedars, five out of six died. *John Rogers.*

Ants.—I clear my hothouses of these by means of arsenic mixed with lump sugar, at the rate of about 1 grain to 20, laid on Orange peel, of which they will eat greedily. Wasps I have destroyed in the same way, but it is dangerous to have this remedy lying about out of doors. *Robert Cassillis, Gardener to the Rev. J. P. Jones, Elm Green, near Cirencester.*

Oak Timber.—With regard to the large Oaks of the Forest of Dean, I know that the shipbuilders of Chepstow, in Monmouthshire, and of Brokebear, in Gloucestershire, both on the river Wye and on the borders of the forest, always considered the smaller Oaks of Herefordshire superior in quality to the giants of the forest; and I believe there can be little doubt that an Oak grown alone and in an exposed situation will be harder and more durable than one grown in a sheltered group, witness the white Oaks of the forests of Canada, which split so freely that they are used for cask staves, and are not more durable than our Ash. *B. Minshull Thomas, Foxdown, Bideford.* [But the white Oak of Canada, although an Oak, is not one of our British species.]

Soil for Rhododendrons.—"A Farmer in a Fix" (see page 174) need not put himself to any expense for peat. one of my nurseries, which is a light soil rather in-

clined to sand, I have grown hundreds of Rhododendrons, Azaleas, and Kalmias. When I first named to my foreman my intention to try to grow this class of plant there, he ridiculed the idea, and laughed at my ignorance in thus attempting to grow Rhododendrons without peat. Notwithstanding that, however, I made the attempt by planting out about 8000 kinds, nearly 10 years ago, and they far exceeded my most sanguine expectations; since that time I have grown the quantity above stated, including upwards of 100 of the best varieties I could procure. They in some cases grow freely, indeed too much so, and require extra removal, to check them. Their foliage is fine and bright in colour. I have them from 6 inches to 6 feet high, and when in bloom they are a sight worth going miles to see. *William Barratt, St. John's Nursery, Wakefield.*

Plane Tree Timber.—As much discussion has of late taken place respecting the Plane, I should like to know the experience of those who have tested its qualities as a timber tree; for it is but little known in the trade, and consequently dealers are unwilling to buy it. As a timber it seems to resemble the yellow-coloured Beech more than the Sycamore, both in hardness, density, and general appearance; but I doubt much whether it will ever become such a long-lived tree, for amongst some half dozen that I have cut of fair timber size, I find only one sound, and the situation they were growing on was a dry open one. I fear, therefore, that its merits must be confined to its appearance. *H. T. H.*

Societies.

Linnean, *March* 18.—W. Yarrell, Esq., V.P., in the chair. H. Adams, Esq., was elected a Fellow. The following papers were read:—1. "Remarks on the influence of the sexual organ in modifying the external character in animals," by W. Yarrell, Esq. 2. The commencement of a memoir entitled "Remarks on the nature of the outer fleshy covering of the seed in Clusiaceæ, Magnoliaceæ, &c, and on the development of the raphe in general under its various circumstances," by J. Miers, Esq. Mr. Miers, in a paper already published in the Society's Transactions, propounds an opinion different to that of some other botanists on the nature of these seed coverings. The external fleshy envelope of the seed of Clusieæ he regards as a product of extraneous placentary growth, subsequently to the development of the primine, and therefore a kind of arillus. In the tribe Tovomiteæ of the same family, the outer coating, similar in substance and colour, is unquestionably an aril, while in the tribe Garcinieæ also this covering assumes the character of an enveloping pulp. If therefore in the two latter tribes, Mr. Miers continues, the outer coating be unquestionably an aril, it was fair to conclude that the analogous envelope in the Clusieæ was of a similar nature. This inference had been confirmed by the detection of a distinct simple raphe beneath the inner pellicle of the aril, wholly free from the testa, which it perforated at the apex, and became lost in the chalaza of the inner integument. With such demonstrative proof as regards the Clusieæ, a comparison with similar facts observable in the Magnoliaceæ had been drawn, because, Mr. Miers added, if that coating be considered an aril in the one family, it must be of the same nature in the other. Dr. Asa Gray, on the other hand and on various occasions, has regarded the external fleshy coat of the seeds of Magnolia as the testa, and the same view has been adopted by Drs. Hooker and Thomson in the recently published "Flora Indica." In the present memoir Mr. Miers adduces at great length, and in much detail, what he regards as conclusive evidence in support of his own published view of the subject, replying to the objections of Dr. Gray, and adopting in support of his own argument Dr. Gray's figures of the structure of the ovules of Magnolia. The evidence employed, consisting chiefly of detailed explanations of the structures in dispute, does not admit of compression within our limited space, and is altogether of a technical nature.

Entomological, *March* 3.—W. W. Saunders, Esq, F.R.S., President, in the chair. Mr. Samuel Stevens exhibited a specimen of the beautiful Epischnia diversalis taken by Mr. Mytton at Hurstperpoint, near Brighton, proving that the species, which had been rejected from the British lists, is really indigenous to this country; also a selection of British moths from Mr. Wallace's collections recently received from Borneo. Mr. Adam White made some observations on these species, pointing out their peculiarities, and recommending the more general study of exotic insects. Amongst the species was a new species of the strange Hemipterous genus Holoptilus. Mr. Saunders exhibited a small shrimp-like Amphipod Crustacean taken out of a well at Wandsworth, which Mr. Westwood identified as the Gammarus subterraneus of Leach, and as belonging to Schiodte's blind genus Niphargus. Another instance of the capture of this curious species near Bromley, Kent, was mentioned by Mr. Lubbock. Mr. Saunders also exhibited a remarkable Longicorn beetle, of an elongated form, with incrassated hind thighs, from Northern India. Mr. Stainton exhibited a larva of a small Lepidopterous insect which had been vomited by a person who had previously undergone considerable suffering; likewise leaves of Scotch Fir mined by the larvæ of Ocnerostoma pinariella. Mr. Hudson exhibited the larvæ and perfect beetles of the small stag beetle Dorcus parallelipipedus, taken in Ash stumps. Mr. Tapping gave an account of the discovery of the remains of a very minute species of Acarus (which Mr. A. White identified as Cheyletus eruditus), which had become attached to the surface of a photographic portrait, and had caused it to fog off. The Rev. Mr. Hawkes exhibited a remarkable pale variety of the garden tiger moth, and Mr. Walker specimens of Melolontha Fullo and Necrophorus vespillo recently found alive. Mr. Wollaston exhibited portions of his remarkable collection of Madeira insects formed during the past year, comprising a great number of novelties. Mr. Lubbock made some observations on the legs of the genus Mysis. Mr. Westwood gave an account of the great injury to which the young Wheat crop is at the present time subjected in different parts of the country, owing to the attacks of different species of insects: from Norfolk he had received specimens which had been destroyed by the larvæ of a small dipterous insect, apparently Oscinis vastator, whilst the Society had received a communication from Mr. Dunning, Hurstperpoint, in which the ground was swarming with the young larvæ of one of the Tipulidæ. Descriptions of new Longicorn beetles from Borneo were read by Mr. Pascoe. Mr. White also read descriptions of some new species of the same tribe of beetles. Mr. Westwood described a very fine new Morphideous butterfly from Borneo. Mr. Curtis communicated a note from Mr. Maclean containing a detailed account of the transformations of the Brimstone butterfly, proving that the early spring specimens have hybernated. A note by Mr. Newman on the parturition of Dorthesia Characias was read, as well as a description by Mr. Baly of a new genus of Chrysomelidæ from tropical Africa.

Jersey Horticultural: *March* 1.—The President in the chair. On this occasion Col. Le Couteur read the following Memorandum on a Recently Observed Disease on Pear-Trees. "I was packing (he said) some Pears for England, when I noticed a Beurré d'Aremberg, or Glou Morceau Pear, with an infinite number of brownish-looking excrescences all over it. On a closer examination, I saw that it was not exactly shrivelled, but starved in its growth, and had not attained half the usual size, or average, of fine healthy fruit; also, that the parasites extended all along the stem, being very much crowded near the eye. They were sprinkled over the Pear in all directions; some heads pointed one way, some another. At first I considered them to be fungi. I took the Pear to a scientific member of our Board, who placed one of the supposed fungi under a powerful microscope; but we could not then determine what it might be: there did not appear to be life in it. I afterwards carefully lifted one of these excrescences from the Pear with a sharp penknife, when I accidentally broke the under-skin of it—on which I placed the creature under a powerful microscopic power, when I discovered ten transparent eggs within it, quite invisible to the naked eye. One of these eggs, on being exposed to the rays of the sun, in a short time burst, with signs of life, but I could not discover the contents, or see the embryo. It was evidently a parasitic insect: its form is somewhat like that of a lady-bird, elongated and flattened. As a limpet adheres to a rock, it attaches itself to the bark of the tree, or to its fruit; and, how slow soever, evidently with power of locomotion and reproduction to a prodigious extent—in numbers sufficient to overspread and to damage the young shoots, eventually so as to destroy branch and fruit, and probably the root. The head is something like the snout of a pig, of a transparent dirty yellow colour, which is attached to the body by a short neck of nearly the same colour, with two or three rings to it; the back is rounded, elongated, and brown, with a delicate fur or down over it, over its lower edges especially, on either side. When the creature is lifted with caution, the lower part, which is formed to suit the base on which it reposes, is seen to be a thin yellow skin, which protects the inside of the creature. On removing this fine skin, I could discover no entrails with the glasses in my possession, but a number of transparent eggs were found in several specimens; these were probably females—the others, no doubt, being males. I communicated my discovery to Dr. Lindley, the Vice Secretary to the Horticultural Society of London, with a request to be informed what he considered it to be. I received the following reply:—'Your Pear is attacked by the Mussel scale insect, with which you will find that your branches are swarming. What you found under the skin are the young ones, each of which will soon have a litter of its own. All you can do is, to cut the trees as hard in as you can—when the leaves are off—to burn what you remove, and then paint the branches all over with a mixture of lime, soot, sulphur, and water—the old stem included. Should you care enough for your tree to think it worth the trouble, it would be better, before painting it, to have the branches scrubbed with water, heated to 160° to 180° Fahrenheit. It is a horrid pest.' I immediately examined all my Pear trees, and only discovered this pest on two of them: one, a Marie Louise, which was overrun with it: the vegetation of the tree seemed strangled and checked; the crop had been all but worthless, ill-grown and ill-flavoured. The evil was so extensive that I had the tree cut down to the graft. A Beurré d'Aremberg, that was next to it, has been attacked, commencing from the point of contact with the Marie Louise. All the branches on which I could discover the insect in numbers have been cut off, and burned; where it is in few spots, the branches have been painted, either with the mixture recommended, or with paint oil, which I have found to fill up the pores of most insects, and so destroy them. I recommend all Pear growers to examine their trees, to prevent this pest, if possible, from devastating our well famed Island Pears."

The Rev. S. King then read the following communication on the same subject, by which it will be seen that that gentleman differs from the views of Col. Le Couteur and Dr. Lindley, and considers the pest to be a fungus, not an insect:—"In the autumn of last year, Colonel Le Couteur brought me a Pear for examination, covered with numerous small patches of parasitic matter, of a kind which had never fallen under his observation before. One of these patches, about the twelfth of an inch in length, was placed upon a slip of glass, and subjected to a low power of the microscope. Its shape was very much like that of a mussel shell, rounded at one extremity, and taperering away to a truncated point at the other, which point appeared formed of several folds, and looking much like the end of a cigar. It was of a light brown colour, beset with a hoary down, with ciliated edges, resembling a good deal the scale of a Beech leaf bud. The parasite adhered to the fruit like a limpet to the rock, the margin of its shell conforming itself to the shape of the rind. I regarded it as a fungus; but Colonel Le Couteur thought it more likely to be an insect. There was, however, no vestige of legs or wings or antennæ, or of any organ of either locomotion or sensation. The glass, with the specimen on it, was put into a drawer, and two months or more elapsed before I examined it again. I then found, to my surprise, that the thing had burst, appearing like an empty capsule, having scattered a great number of white ova over the surface of the glass, to which they adhered, in the shape of a fan, and to a distance of from a quarter to half an inch, none being near the parasite itself, but evidently shot from it with considerable force. They were Potato shaped, with surface-depressions, and not at all pointed like the parent. This led me to look at a piece of the Pear-rind, having several parasites on it, which I had put away amongst other microscopical objects. I found every one of them burst in a similar manner, and the ova scattered like caseshot in all directions. A short time ago I again examined the glass slip, and perceived that nearly every one of the ova was surrounded with, or had proceeding from it, a cloudy stain, extending to a considerable distance. On submitting this to a high magnifying power, the stain was resolved into millions of minute longitudinal cells or particles of tawny dust, the ovum itself being reduced to an almost infinitely thin curled-up membrane. In these particulars, we observe a strict analogy with the growth and propagation of fungoid plants; but none whatever with animal growth and propagation."

Specimens of the devastated branches of Pear-trees, and of the insects (or fungi) under a microscope, were laid before the Board by Col. Le Couteur, and were the subjects of much observation and discussion. *Jersey Times.* [If Mr. King will consult our volume for 1843, page 736, he will discover that he has something yet to learn concerning common things.]

Hitcham Labourers' Horticultural Show for 1856.—Among the memoranda annexed to the schedule of prizes we find the following, which may serve as hints in other cases. Rev. J. S. H. offers three prizes of 2*s.* 6*d.*, 2*s.*, and 1*s.* 6*d.*, and Miss A. H. a prize of 1*s.* to four of the children of the parish school who shall best answer questions about the wild flowers of Hitcham. For Wild Flower Nosegays, the following prizes are offered from a contribution of the late Mrs H.: one of 1*s.*, and five of 6*d.* each, to children between eight and 14 years; and one of 6*d.*, and three of 4*d.* each, to children under eight years. N. B. The children who compete must bring a ticket for regularity of attendance and good conduct either at the day or Sunday school. Mr. H. will distribute a few groats as extra prizes, and give a pinch of *White Snuff* to all who compete. Rev. J. S. H. offers a spade, draining spade, fork, scythe, rake, and three hoes, respectively to the tenants of the eight best cultivated of his allotments; and G. Knights, Esq. adds 3*s.* to the first, 2*s.* to the second, and 1*s.* to each of the four next, and 6*d.* to the remaining two; both neatness in cultivation, variety in cropping, and general attention to the regulations of the judges will be taken into account. The owner of the best cultivated allotment will receive a framed ticket. Ten of the wives of those agricultural labourers who stand first among the allotters classed, will receive 1*s.* 6*d.* each from Miss H., sen. Mr. B offers three prizes of 2*s.*, 1*s.* 6*d.*, and 1*s.*, for the three best cultivated of 20 plants of Fuchsias distributed by himself among those who obtained flower prizes in 1855. Rev. J. S. H. proposes the following prizes for agricultural labourers, at the first show in 1857:—One of 3*s.*, one of 2*s.*, and one of 1*s.* 6*d.*, for the head or entire figure of man, woman, ox, horse, sheep, pig, dog, or cat, carved in wood. The block may be of any size down to the handle of a walking stick. The artist may state what sum he may be willing to take for his performance. If it should appear that sufficient pains is taken about this subject, it is probable the value of the prizes will be gradually increased. Long winter evenings afford good opportunity for such work. Any objects, the result of mechanical ingenuity, may be exhibited; and may probably suggest prizes for future occasions.

Notices of Books.

The Food of London: a Sketch of the Chief Varieties, Sources of Supply, Probable Quantities, Modes of Arrival, Processes of Manufacture, Suspected Adulteration, and Machinery of Distribution, of the Food for a Community of Two Millions and a Half. By George Dodd, Author of "British Manufactures," &c. 8vo. Longmans; pp. 524.

The food of London! what a subject! Two millions and a half of people to receive their daily bread by a quiet system of self organisation; nine hundred millions of rations to be furnished annually, and nobody knows how or by whom; that is indeed a theme to exercise

the powers of the shrewdest observer and the profoundest statistician. Nor is it a subject to be easily handled by even the most able; for although "there are rations for all and endless variety in those rations, yet is there no commissary-general to take care of such matters." There is no centre of information concerning such a prodigious operation; but he who would master the subject must pick up evidence from among the countless fragments in which it lies concealed. Mr. Dodd appears to be just the person to handle such details; he has inquired diligently, reported faithfully, and considered skilfully. Such published information as existed he has used freely; and if he still leaves the subject in some respects unexhausted the reader will wonder nevertheless where he can have gleaned so much.

One chapter treats of the supply of food to London in past ages; in others are discussed the warehouse room, corn and bread, cattle and cattle markets, country meats and cured provisions, dairy produce and poultry, Billingsgate and fish supplies, fruits and vegetables, grocery and colonial produce, beverages, and finally the retail trade. Upon all these subjects the information carefully collected by the author is ample and extremely curious. The antiquarian chapter more especially will reward the most cursory reader; for he will be surprised to learn how badly our great ancestors sometimes fared, how barbarous the food, when aldermen fed on porpoises, blackbirds, whelk pottage, and roasted milk, while poor men stayed their appetites with bean-bread. Yet the prices of food in early times would seem to indicate a better state of things, when in Norfolk, about the year 1480, malt sold for 13*d.* a coomb (a measure of four bushels, not two as Mr. Dodd supposes), Wheat 2*s.* or 2*s.* 2*d.*, and Oats 1*s.*

But fruit and vegetables and Covent Garden are our more especial concern. "Few of our market places," says Mr. Dodd, "link the present with the memory of the past so fully as the Convent Garden market—for Convent Garden it was, before men clipped it and shortened it to Covent. The open area was once a garden belonging to the monks of Westminster Abbey; the ground is known to have been thus appropriated as far back as the year 1222; and there has probably never been a week, during a period of six centuries and a half, in which this plot of ground did not contain fruit, flowers, and vegetables—first as a garden, and then as a market. In the time of Queen Elizabeth, the (former) Convent Garden was a walled space, very much larger than the present market; extending from Drury Lane on the east to St. Martin's Lane on the west, and from open meadows on the north to Bedford House on the south. This house, the town-residence of the lordly family of Russell, occupied a part of the ground now constituting Southampton Street. The open space thus marked out comprised fields and gardens, with rows of trees, and a few buildings. The change of destination in this open space occurred at the time of the Reformation. At the period when the marginal portions of the old garden were thus covered with straight streets of new houses, the central area or square was enclosed by rails, and had a sun-dial in the middle. The south side of the area alone, between the enclosure and the garden of Bedford House, was used as a market for fruit and vegetables. When Tavistock and York and Southampton Streets were built, at a somewhat later date, the market people were driven nearer to the centre of the enclosure; this offended the aristocratic dwellers on the north side, who one by one left; their deserted mansions became occupied mostly as hotels; and to this day the Covent Garden hotels constitute a distinguishing feature in the locality. The market grew and grew in area and importance; but it did not grow in cleanliness or comfort. Until within the last quarter of a century it was very unsightly and incommodious; the sheds and wooden structures were in ruinous condition; the filth and disorder were terrible; and the reckless character of the market people was rendered still more reckless by the total neglect of all means of conducing to their comfort and orderly management." We need not say how much things are altered now.

As to the consumption of fruit and vegetables in this and other London markets, there seems to be no possibility of arriving at anything like a probable estimate. Rejecting Mr. Mayhew's calculations in the *Morning Chronicle* as excessive, our author gives a more reliable computation, apparently derived from a more authentic source:—

"Mr. Braithwaite Poole, from the usages of his office as goods' manager on a great railway, is accustomed to estimate quantities by the ton weight, which sometimes renders it difficult to compare his estimates with those of other authorities. The following remarkable return is given by him as representing the weight of the principal kinds of vegetables sold at the London markets in 1850:—Potatoes, 138,000 tons; Cabbages, 80,000; Turnips, 43,600; Onions, 36,850; Broccoli, 31,950; Carrots, 8050; Turnip-tops, 4150; Peas, 3900; Cucumbers, 2200; Rhubarb, 2100; Lettuces, 2050; Beans, 2630; Celery, 800; Radishes, 750; Spanish Onions, 650; Vegetable Marrow, 300; Asparagus, 260; Herbs, 250.

"The same authority, adopting the same grouping into tons weight instead of measures of capacity, gives another return relating to fruit:—Apples, 17,150 tons; Pears, 9325; Gooseberries, 6900; Plums, 4550; Currants, 3900; Damsons, 1052; Cherries, 927; Strawberries, 700; Filberts, 230; Hazel Nuts, 226; Mulberries, 54; Raspberries, 16."

All these calculations are however, as Mr. Dodd admits, extremely uncertain. They however assist in showing what a prodigious maw this London of our's possesses.

With one extract more we must close our notice of this most interesting work:—

"The foreign fresh-fruit trade has a clearly-marked character in London. It has its own locality, its own salesmen, its own buyers, its own porters. Around the lanes just named the warehouses are placed and the salesmen transact their business. In more than one of them we may see the names of Keeling and Hunt written up on the fronts of warehouses which appear more like vast granaries than mere fruit store-houses; this firm has the reputation of being at the head of the trade. The wilderness of sweets about this neighbourhood is graphically sketched by the writer just quoted: 'The huge warehouses in Botolph and Pudding Lanes are the great fruit-emporiums of our metropolis. There floor upon floor, story upon story, may be seen piled, and heaped, and blocked up with chests, boxes, sacks, baskets, barrels, all bursting with their rich fruitiness. In cold, dark, stone cellars, in lofty ground floors, in topmost cockloft, not a foot of space is wasted; every square yard is economised, and made to perform its utmost function. Grapes, Chesnuts, Pine-apples, Citrons, Hazel-nuts, Oranges, Lemons, all are there in overwhelming abundance, in waggon-loads, in heaped-up piles, in towering pyramids. A busier and a noisier scene is going on in another part of the great 'Orange territory.' In Monument Yard is one of the largest fruit firms in this metropolis—in the world. They are the brokers who, almost daily during the season, hold auctions of the fruits they have on hand. In a long, not over cleanly room, looking out upon the great stone Monument, are some desks, a solid table, and rows of benches, on which, in all sorts of attitudes, are to be seen all sorts of fruit buyers. When Pine Apples, Grapes, and French and Dutch soft fruit are on sale, the assembly will be rather more select; but for the Orange and Lemon business the company comprises several west-end buyers, with a motley crew of noisy greasy folk from the purlieus of Duke's Place, Covent Garden, and Spitalfields. Those men it is who, buying the fruit in lots of eight cases, retail them out at a good profit to costermongers and small shopkeepers.' An electro-telegraphic message announces that a clipper-load of fine early Oranges has just arrived at Southampton; when immediately 'all is bustle at Monument Yard; and in a few minutes circulars are conveyed by messengers to the buyers, north, south, east, and west of the metropolis, informing them that by ten o'clock on the following morning their first parcel of the new St. Michael crop will be on view in their warerooms,' trusting securely in the fact that the railway company will transmit the fruit in due time.

"This foreign fruit trade has become, indeed, a large one. No less than a million and a half of bushels of foreign Nuts, of various kinds, were brought to London in 1853, and a million and a half pounds of Grapes, besides the immense stores of Oranges and Lemons, and a goodly quantity of Pine Apples, Cherries, Apples, Pears, and other fruits.

"Fruit and vegetables, the costly and the humble, the British and the foreign—all are now experiencing the benefit of rapid conveyance, so far as the supply of London is concerned. The Great Northern brings up enormous quantities of Potatoes—64,000 tons in 1854; and all the railways together now convey hundreds of thousands of tons of fruit and vegetables to London in a year. One of the curious results of our modern improvements is, that if Covent Garden has a plethora of good things on any one morning, she sends off a telegraphic message to Birmingham, or other large towns, to ascertain the state of the supplies there; if there be room for more, waggon loads of fruit are sent off by rail; and thus prices become equalised and supplies diffused. On one night several *tons* of Gherkins arrived at the King's Cross terminus. The South-Eastern Railway brought up to the Bricklayers' Arms depôt, in the first half of 1855, no less than 48,000 baskets and other packages of fruit and vegetables, weighing 1150 tons. But this is far below the amount in the second half of the year, when more vegetable products are in their prime; on three days in the months of July and August the arrivals amounted to more than 10,000 packages each day. On one very busy night, the goods' trains brought up 120 tons of Peas, and 40 tons of Filberts, grown in Kent, together with 40 tons of rich Plums from abroad, superadded to a fair average of other vegetables and fruits. The Kent Road was in a turmoil all night,—nothing but laden waggons following in a stream almost continuous. Of the wonders of the Hop-trade at the Bricklayers' Arms depôt, a future chapter will tell. It is obvious that, when Covent Garden market receives such special inundations of good things, it would be advantageous to avoid an excessive laxity of price by sending portions into the country for sale; and the electric telegraph offers a peculiar aid here, by diffusing a knowledge of the state of the markets in any part of England."

Garden Memoranda.

MESSRS. CHANDLER'S, VAUXHALL.—The fine collection of Camellias for which this nursery has long been celebrated is now in full bloom, and we need not add that it is well worth inspection. When we state that they form a bank 160 feet in length and 8 or 10 feet in depth, some idea may be formed of the kind of entertainment which so large a display may be expected to afford. At certain distances apart all along the centre of the house there are planted out in the border specimen Camellias which reach nearly to the roof. These are noble trees loaded with blossoms, which are also produced in great profusion by plants trained all over the back wall. Among red varieties we remarked magnificent examples of Chandleri, Eximia and Elegans; on the last were flowers of immense size and on most of them, as is frequently the case, the petals were beautifully mottled with white. Among smaller plants in pots were Rosea perfecta nova, a rather pretty kind with a bright rosy pink colour; Reine des Fleurs, a very free flowering sort even in a small state; Mathottiana, a Continental variety with bright red blossoms of very large size, some of them measuring quite six inches in diameter. Among other sorts were Teutonia, a pink kind, on which however the flowers sometimes come entirely white. Of Carnation-flowered varieties Alexina was remarkable for good shape and generally attractive character. Among whites the old double sort still holds the first place. Its only fault is its liability to drop its buds. In the plants here, however, this has not happened to any great extent this year; at least enough have remained on to produce a fair crop of flowers.

Camellias have been growing out of doors here against a wall with a north-west aspect for these last 20 years; they stand our most severe winters without a leaf being injured and flower well, forming a good succession to those under glass, from which they only differ in the size of their blossoms. The latter are much smaller on trees in the open air, and if the weather at flowering time happens to be unfavourable their beauty soon gets tarnished. A little protection to the flowers only would however remedy this; the plants themselves, after what has been stated, we need not say are perfectly hardy.

Stocks on which to inarch Camellias are planted out here in beds under glass, a method by which better plants are produced than by growing them wholly in pots. The varieties to be inarched are also planted out in pits under glass, and the stocks which are potted are brought and placed round them. Strong branches of the former are bent down and inarched on the latter, and in this way flowering plants are often obtained the first year.

In the show house were various Rhododendrons, among which one called fragrans was very sweet-scented. Its flowers are white tinged with lilac. Azaleas were also very gay, and a delicious perfume was maintained by red Indian and other Daphnes. The front shelves were interspersed with Ferns intermixed with plants of Lachenalia bicolor; these formed as it were a sort of undergrowth for standard Azaleas, which rising up from among them and overtopping them looked like a forest in minature, and had a pretty effect. Cupressus funebris and Cryptomeria japonica potted and placed in vases, we were informed, form excellent plants for town conservatories, a fact worth remembering by those who have such places to decorate. They are reported to stand confinement well.

Miscellaneous.

Yerva de Paraguay, or Paraguay Tea.—This is the name known over all South America for the leaves and twigs of a tree in Paraguay, yielding a pleasant and exhilarating infusion. The usual mode of preparing the infusion is in a small calabash, or *maté*, with a neck to it, which, cut off, leaves a small hole, the total contents being about the eighth part of a pint. To prepare a *maté* is to make an infusion, but it does not necessarily follow that it will be an infusion of *yerva*, which, as an article "dear bought and far fetched," is prized by ladies and well-to-do people. In the pampas of Buenos Ayres, the poor Gauchos invite the traveller to take a *maté cimarron, i. e.*, an infusion of wild herbs, analogous to our nettle tea, or balm, or other herb tea. The word *cimarron* is applied to wild men also, and in Drake's voyage he speaks of the Symerons, or fugitive negroes. In the West Indies they call them Maroons. It is probably a corruption from ancient Moorish times, originally Cis-Marrucco, or next to Morocco, as the French now call Spain "Africa beyond the Pyrenees." In some cases where *yerva* exists not, you are asked to take an *agua caliente*, literally, a warm water, in which a bit of orange or lemon peel is steeped. But these are beggarly appliances, and the true thing is a *maté de yerva*—"the herb," which is held to be a universal luxury, whether prepared in the simple calabash, or the silver cup, made in imitation thereof, for the wealthy. *Tomar un maté* is to have a good strong cup of the *yerva* infusion. Whether made in the mansion, the cottage, or the wilderness, the process is as follows:—The water is boiled in a copper pot, big-bellied below, and with a long neck and a small opening above; a pot such as I verily believe Ishmael first taught the Arabs to make, from traditions of Tubal Cain. The *maté* is then half filled with *yerva*, after the *bombilla* has been placed in position. The *bombilla* is literally a "little pump," that is, a sucking tube, ending in a perforated bulb, which performs the office of the perforated diaphragm in our teapot spouts. Some use sugar with the infusion, epicures burnt sugar, and others add a piece of lemon peel, just as we folk at home put a black currant leaf amongst the tea. The boiling water being poured on, the preparation is complete, and the imbiber, holding the *maté* in both hands in cold weather, sucks it dry, with care not to burn his tongue. A second water is poured on, and a second person sucks it, and so on till all the strength is gone, when it is emptied and filled again, till all the company is sup-

piled. It is customary for a *maté* to be sent to the bedside in early morning; and in travelling the first thing the guide does after lighting his morning fire is to prepare a *maté* for his patron. The *yerva* is usually carried in a kidskin bag, the sugar in a second bag, and all goes with the *maté* and the coffee-pot into the *alforjas*, or saddle-bags. Poor people use a reed instead of a silver *bombilla*. The infusion is highly refreshing taken in the ordinary way, but it is occasionally taken with milk, *maté con leché*. For my own part, whenever milk was to be had, and time served, I invariably used the *yerba* as we do our tea, with the difference of a bullock's horn, or some such contrivance, supplying the place of a tea-pot. It had all the effect of tea, and I believe it contains the principle of *theine*, as well as does the cocoa-leaf of Upper Peru. The notion of intoxicating qualities in *yerva* is fanciful. It will affect people of weak nerves as strong tea does, but not otherwise. Nor is there any reason why it should deteriorate by keeping. Chinese tea is carefully packed in leaf-tin; that of Paraguay is packed in bags of dry hide, in large quantities, and when the bags are open a large quantity is left exposed to the air for a long time. It is brought to Buenos Ayres, by land or river, 1200 miles, and sells there at about 4 dollars the arroba of 25 lbs. *Matés de yerba* are one among the four cardinal vices of certain parts of South America. On a villainous spur of the Andes, called, if I recollect, the Cuesta de Acay, it was hard sleeping, while running water was freezing, in the open air, night after night, and harder waking, in the dark, with the Three Mariés (Orion's belt) just rising on the horizon. On such occasions, my guide was wont to lace the *maté* with a little aniseed brandy. One morning, feeling very sleepy, stumbling along in the dark over the refuse of an extinct volcano, it occurred to me to ask old Sancho, "How much water did you put in the *maté?*" "*Ninguna!*" (none) was the reply. So it appeared that in the dark, frosty morning, between sleeping and waking, I had sucked through the *bombilla*—ere sherry cobblers were known—about half-a-pint of boiled brandy, flavoured with *yerva*—green tea punch with a vengeance. There was no question of the intoxicating quality of the *yerva* under these conditions. To conclude. Some years back, M. Hervé, an artist, returning from Buenos Ayres, brought with him some cuts of *yerva*, which was sold retail on Ludgate Hill for about 4*s.* per lb., and it was much liked by many people. It is probable that, with favourable circumstances, it could be imported here at about 6*d.* to 9*d.* per lb., and it would be a very useful addition to our stock of infusion-making materials. *W. Bridges Adams. Abridged from the Journal of the Society of Arts.*

Paper Made from Broom.—The *Perthshire Courier* says:—"Among the many experiments made by Mr. Niven, gardener to W. Stirling, Esq., of Keir, M.P., is that of making paper from common Broom. Mr. Niven has already patented a process for the manufacture of paper from other materials than rags, and it is said that experiments are now being made at the Messrs. Cowan's paper-mill, Penicuik upon the subject.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—The occasional bright sunshine and cold drying winds which have recently prevailed will soon, unless means are used to counteract their effects, destroy the beauty of the finest specimens of plants in this house, particularly if their blooming has been forwarded in a close moist atmosphere, and although it is yet too early to bring shading into general use it will be impossible without its assistance to preserve the blossom of plants during such weather as we may now very soon expect. Blinds can hardly be looked upon as anything better than necessary evils, for besides their being troublesome and expensive, it is very difficult to arrange them so as to prevent their being continual eye-sores through their disfiguring the house. It is therefore worth while to have them so arranged as to be easily drawn up or let down, and to be as little conspicuous as possible when not in use, for if they are troublesome to move there is a great tendency to employ them more than is absolutely necessary, and nothing can look more dismal than a house wrapped in canvas when there is no sunshine; and besides the disagreeable appearance it is most injurious to any growing plants in the house, and also prevents those in bloom from attaining their proper colour. Whatever material is used for blinds it should be light and strong, for what is wanted is merely to break the force of the sun's rays without darkening the house. A nice light open-made canvas forms the best kind of shading material. A close net is superior in some respects, but it is so objectionable in the case of lofty houses from its liability to get torn through moving it up and down that it is altogether unsuitable. It may soon be necessary to admit air freely to keep down the temperature, but in doing this avoid as far as possible allowing cold currents to blow over the plants.

FORCING DEPARTMENT.

Pineries.—Look over young growing stock, occasionally examining and repotting such as is found to be in want of more pot room. The temperature may be slightly advanced as the amount of light increases, but this is a matter in which the state of the plants will be the best guide. Aim at securing strong dwarf plants, with a free habit of growth; and if this is obtained, it is immaterial whether the night temperature is 60° or 70°, and very much will depend upon circumstances as to which will be proper. Plants that may be unhealthy and in an unkind state, if kept near the glass, will be benefitted by a considerably higher temperature than would be suitable for others in a free state of growth. These are circumstances, however, which can be properly judged of only by those in care of the plants, but they are easily understood by a little careful observation. Use every means to induce a vigorous root action, and if this is obtained free strong growth will result with otherwise ordinary care only. Vineries.—See that Vines starting into growth are tied up in their places before the shoots get so long as to be liable to be broken off in the operation. Syringe frequently until the leaves begin to unfold; but use the syringe sparingly after that is the case, and only on the afternoons of bright days. Where the buds do not promise to break regularly bend the Vines so as to place those that are backward in the most likely position to catch the sap, and this should be done directly any indications of their breaking irregularly are observed. If any of the bunches in houses where the berries are stoned look as if they would be improved by a few more berries being cut out, let this be done at once, so as to allow those left plenty of room, and also to avoid having to handle the fruit after it begins to colour. Give air as freely as the state of the weather will admit, using a little extra fire heat, and leaving a little air on at night so as to prevent the bloom being injured by damp settling on the berries, as is apt to be the case where the house is shut up. Figs.—Where the early crop is approaching maturity the borders should be well watered, so as to avoid the necessity of having to water the soil after the fruit begins to ripen, which is injurious to the flavour, and is also apt to cause the fruit to burst prematurely, particularly if the trees have been rather dry at the root previously. So far as the present crop is concerned the trees can, perhaps, hardly be too dry at the root while the fruit is ripening, but where a second crop is expected care must be exercised to keep the trees in health, and to prevent the foliage becoming a prey to red spider, otherwise the second crop can hardly be expected to be good for much. Use the syringe vigorously and maintain a moist atmosphere as long as this can be done without risk of injuring the fruit. Also keep the young wood thin and regularly tied in, stopping before the fourth or fifth leaf, according to the strength of the shoots, &c. Melons.—Encourage those newly planted-out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood. Keep the shoots thin and regular, pinching out any not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the glass rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom-heat of about 80° or 85°, and keep the soil in a healthy state as to moisture. See to providing plenty of young plants for succession crops.

FLOWER GARDEN AND SHRUBBERY.

With bright sunshine and drying winds it may soon require the utmost care to save recently transplanted evergreens of large size; and no mere surface watering will be of any service. The ground about the roots as well as the ball should be thoroughly soaked. After applying water and allowing the surface to become moderately firm stir it slightly with a blunt fork, which will prevent its cracking, and will also allow the free action of the sun and air to warm the soil and encourage the production of active roots. Surface dress with fine soil, and water newly laid turf whenever it is observed to be suffering from the effects of the dry cold weather. Take advantage of the present dry weather to stir the surface soil of shrubbery and herb borders, to prevent the growth of weeds and give the whole a fresh clean appearance. Do not neglect to put in plenty of Mignonette, and if not already done, hardy annuals should be sown without further loss of time, except in cases where they are not wanted to bloom before autumn.

HARDY FRUIT AND KITCHEN GARDEN.

See that recently transplanted trees are not suffering for want of water; this, however, will hardly be the case, except on dry porous soils, and in such cases the ground should be mulched with decayed leaves to preserve it in a uniformly moist state. Attend carefully to the protection of the blossoms of all fruit trees; where nothing better or more convenient can be obtained, Yew or Spruce branches will be of service, provided they are so fixed as not to be liable to be blown against the blossoms. Remove the covering as frequently as may be convenient on fine days, so as to fully expose the trees to sun and air. Get a supply of tobacco water in readiness to attack aphides immediately they make their appearance on Peach trees. Sow Broccoli on beds of light rich soil in an open situation for the main crop, and Cabbages, Cauliflowers, Lettuces, &c., in succession. Also attend to sowing small breadths of Turnips about once a fortnight, so as to secure having a regular supply in a fit state for use. Put in a small breadth of some early variety of French Bean on a warm dry sheltered border, and plant a quantity in small pots to be raised in a cold frame and planted out as soon as all danger of frost is over. Use the hoe liberally among growing crops to destroy weeds, and keep the surface soil loose and friable.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending March 27, 1856, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 21	○	29.985	29.896	54	30	42.0	44	43	N.	.00
Satur. 22	16	30.063	30.051	51	25	38.0	47	44	N.	.00
Sunday 23	17	30.148	30.074	50	35	42.5	44	44	N.E.	.03
Mon. 24	18	30.144	30.007	45	36	4[illegible].5	43	44	E.	.00
Tues. 25	19	29.919	29.828	43	35	39.0	42	44	N.E.	.00
Wed. 26	20	29.879	29.862	42	29	35.5	43	43½	E	.00
Thurs 27	21	29.884	29.873	51	21	36.0	43	43	N.E.	.00
Average		30.001	29.940	48.0	30.1	39.1	43.7	43.6		.00

March 21—Hazy; overcast; cloudy.
— 22—Overcast; fine; cloudy and cold.
— 23—Hazy; fine; clear at night.
— 24—Hazy and cold; clear.
— 25—Hazy; overcast; cold N.E. wind; clear.
— 26—Hazy; cloudy; piercing cold wind; frosty at night.
— 27—Clear; fine but cold, very dry air; sharp frost at night.

Mean temperature of the week 3 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK
During the last 30 years, for the ensuing week, ending April 5, 1856.

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	53.7	34.5	44.1	11	0.50 in.	3	5	3	1	4	4	4	6
Mon. 31	54.7	35.3	45.0	12	0.30	2	8	2	3	5	2	5	3
Tues. 1	54.8	34.6	44.7	15	0.76	3	6	3	3	3	7	1	4
Wed. 2	55.2	36.0	45.6	13	1.19	4	3	4	3	3	7	3	3
Thurs. 3	56.2	34.6	45.4	8	0.30	5	3	3	1	3	6	3	4
Friday 4	56.0	36.2	46.1	13	0.46	4	6	2	2	6	4	3	3
Satur. 5	56.7	35.7	46.2	14	0.65	—	5	3	1	2	6	11	2

The highest temperature during the above period occurred on the 3d, 1848—therm. 78 deg.; and the lowest on the 1st, 1838—therm. 16 deg.

Notices to Correspondents.

Abuse: *Winchester.* Do you remember the old proverb that curses are like chickens; they always come home to roost. Watch, and observe.

Arum maculatum: *S.* The corms (roots) are acrid and poisonous. Nevertheless if ground or rasped in water, when the leaves are down, a fecula resembling Arrowroot may be obtained from them. But the operation blisters the fingers and inflames the eyes of the workpeople. And now that real Arrowroot is so cheap, the extraction of this sort does not pay. If you wish to try the experiment you must be careful to wash the fecula in two or three waters.

Correa: *J G.* There is nothing the matter with the specimen you have sent us. What you suppose to be disease is only the natural covering of the plant.‡

Dealers: *Yarebury.* We cannot express an opinion. Every one must judge for himself. It is certain, however, that no one can honestly sell the articles at such a price.

Fernery: *A Lady.* Soil damp, usually peat loam and sand; but varying according to the species. Aspect shady, and well sheltered from the wind. You should consult for details Moore's Handbook of British Ferns.

Guatemala: *G U S.* Packet just arrived.

Insects: *R F W.* Thanks for the young Wheat plants, but we fear there are no insects in them.—*H L K.* The minute insects found in such immense numbers on your garden walks are Dezoria viatica (see *Gard. Chron.*, 1847). The cause of their appearance in such masses, as well as their origin, is unknown. The little flies reared from a kind of Thistle are one of the Gall Midges (Cecidomyca Sonchi?). *W.*

Names of Fruits: *J P.* 1, Blenheim Pippin; 2, Fearn's Pippin ‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Rusticus.* It is Alchemilla (or Aphanes) arvensis. It possesses no noxious properties; but is a slight astringent. Your shepherd is dreaming.—*Parvo.* Pittosporum undulatum.—*C B A.* 1. Pinus insignis. 2. Juniperus Virginiana (female). 3. Ditto (male). 4. Ditto (common form).¶

Peach trees in Pots: *A W.* We do not believe that your Geraniums have spoiled the setting of your Peaches. More causes than one may explain the accident. You may not give air and warmth enough when in flower; or your roots may have been out of order; or possibly the stock and scion may disagree. The last is however unlikely considering the great respectability of the person from whom they were bought. Another reason may be that the wood of last year was not well ripened. The trees should have been put out of doors last autumn as long as possible, and in the full sunshine to ripen and harden their wood.

Rhododendron: *G C, Goodwood.* There can be but one opinion as to your scarlet seedling being a fine production, although in some respects it resembles R. alta-clerense and the many other hybrids that have originated from crosses with R. arboreum. The specimen sent is very handsome, the flowers (34) being large and of a brilliant colour, forming altogether a compact conical truss, 5 inches in height and as much through at the base. *B.*

Strawberries: *Sub.* They have been kept too damp when they were in blossom. They should receive manure water until after the fruit is set, and then the syringe should be applied only once or twice; the less the better.‡

The Ambrosia Pear: *Pyrus* on behalf of himself and his friends who have been much disappointed in the flavour and scent of the vaunted Ambrosia Pear of the last two seasons, asks for information as to its habits, treatment, &c., to insure a good crop in Devonshire. We believe the variety retains its good qualities for only a day or so, and therefore will not prove more useful than other early ephemeral varieties.

Vines: *Vitis.* It is a common practice to syringe Vines in the afternoons of sunny days with tepid water until the fruit begins to change colour. Some cultivators, however, do not syringe at all after the Vines have fairly broken, but permit them to derive what moisture they require from damp walls, floor, and other surfaces, which are watered at least twice a day.‡—*Alpha.* You do not state whether you want early or late Grapes; nor whether they are to have a high or ordinary temperature. Until we know that we cannot answer your question satisfactorily.‡

White Spruce Beer: *A Sub.* will feel obliged by some of our correspondents furnishing him with a receipt for making this.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

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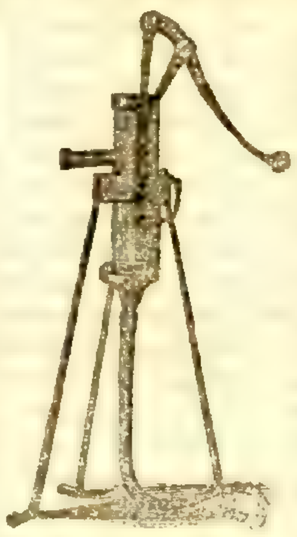

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Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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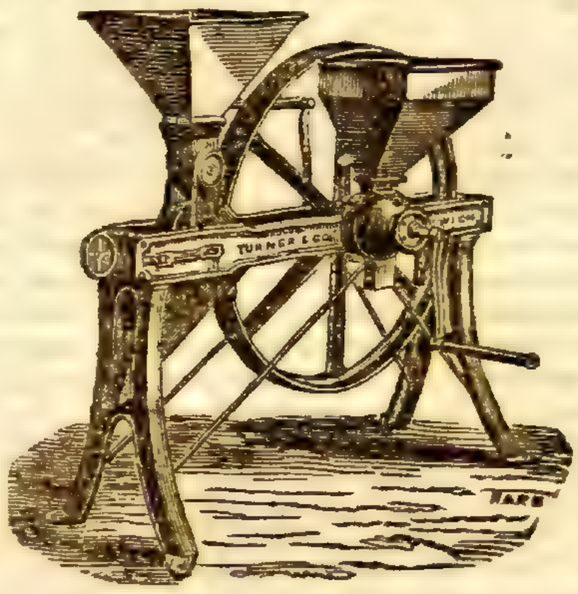

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PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working. Price 25*l.*

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FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

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HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

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"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—PRIZE SHEETS for the Rotherham Meeting may be had of the Secretary, Mr. JOHN HANNAM, Kirk Deighton, Westerby.—March 29.

The Agricultural Gazette.

SATURDAY, MARCH 29, 1856.

IT may be well for the sake of any who intend to exhibit breeding stock, poultry, or implements, at the great National Agricultural meeting at Paris next May, to remind them that the 9th April is the last day on which declarations of such intention can be received. The French Government has appointed a committee in England for the purpose of making such arrangements as will induce English breeders to become exhibitors. Its office is 9, Pall Mall East, and the names upon it, Messrs. AMOS, DENISON, BRANDRETH GIBBS, FISHER HOBBS, W. MILES, R. MILWARD, Professor WILSON, &c., are evidence of its

capability and energy. The French Government, in their anxiety to make this meeting a thoroughly international gathering, have resolved to open separate classes for all other breeds of animals not enumerated in the original prospectus, and to give equally liberal premiums as to those classes already described—provided, however, that such breeds be represented by animals not less than four or five in number. We add that the various forms of declaration referred to in the prospectus of this gathering may be obtained at 9, Pall Mall East, or of Mr. Brandreth Gibbs, Half Moon Street, Piccadilly.

The letter at page 138, on Agricultural Statistics, has undoubtedly been read with interest by many, both of those who anxiously look for the results of a general statistical inquiry and of those who deprecate any such "interference" in private and personal affairs. We confess we differ from our correspondent whether he argues for the English Agricultural Society or against the Highland Society. We differ from him in believing that the English experiment and the Scottish success *have* presented all the contrast on which Mr. Hoskyns dwells. Along with the large percentage of returns asked for in the former case, but not obtained, there has been a large proportion of estimates at second-hand; while in the latter case, from all that we can hear, there has been a singular unanimity exhibited in the all but universal receipt of answers directly from the tenant farmers. Surely the word "cooking," in reference to these returns, which "S." had "almost written" should have never been referred to. If honest estimates, failing evidence at first hand, cannot fairly be obnoxious to such a charge as that—what shall be thought of its fairness in a case where simple addition seems to have been the only operation needed or performed in order to the attainment of the result?

The great objection which "S." has dwelt upon in connection with the Highland Society's returns is, however, founded on the absence of inquiry or of information as to the extent of moorland and of waste retained as such for sporting purposes by its owners. The reason given for this by Mr. Maxwell in his evidence before the Lords' Committee on this subject was simply the impossibility of obtaining accurate information on the subject. Tenant farmers are not required to give the extent of their sheep walks which they do not know, and in like manner landlords are not asked for the extent of land kept waste for deer. It might be interesting to know how much land is thus unoccupied, but the interest attaching to such information would depend upon its social rather than on its agricultural bearings, which alone are the proper object of the inquiry.

But it is on our correspondent's defence of the English Agricultural Society that we wish principally to comment. Its rules bind it to abstain from all questions having reference to measures pending or to be brought forward in either House of Parliament, and so "S." thinks that it is right in refusing to interfere with agricultural statistics. But it is plain that so strict an interpretation of these words will shut it out from spheres of great usefulness, and is utterly inconsistent with the position such a society should occupy. The rule of the Highland Society is nominally the same, but practically very different in its effect. For instance, the Drainage Outfall Act brought in by Lord Lincoln some years ago was in its original form objectionable as regards Scotland: Mr. Hall Maxwell was sent to London, succeeded in disconnecting Scotland from the operations of that measure—drew a bill for Scotland—got it brought in and passed: and the influence of the Society has been felt most usefully through that—its interference, in spite of the letter of its charter, with a measure affecting the drainage of the country. The progress of the Ordnance Survey of Scotland is another Government measure in which the Society has most properly taken great interest. And this energetic interference, advocacy or otherwise, in reference to measures and proceedings in which the influence of the Society may be usefully exerted, begets a habit of progress and activity which is of itself a guarantee of usefulness and evidence of life. Take the meeting the other day in Edinburgh as an illustration. The prospectus of the premiums offered by France at the forthcoming Paris Exhibition came before the Highland Society—Scotland and its breeds had no distinct place in it—immediately Mr. Hall Maxwell was directed to prepare a memorial on the subject, and the president of the Society himself places it in the hands of the Emperor—a supplementary programme of premiums is issued, special to the breeds of Scotland, and of the most liberal character—a public meeting is immediately called at which the Secretary of the Society explains the whole affair to the farmers present, and he is able to say that there is every prospect of such a representation of the different breeds of the country as will be highly creditable. He says:—

"The polled cattle of Angus and Aberdeen would be shown in great strength, and though there might be greater difficulty with Galloways, specimens of that race would not be wanting. The Duke of Sutherland, and various other Highland proprietors and farmers, had promised their quota of Highland cattle. Cheviots would be sent from Sutherland and from the south of Scotland; black-faced sheep from Argyleshire, Perthshire, and he hoped also from the upper ward of the county of Lanark. The only other breed was Ayrshires, in regard to which he looked principally for assistance to those who were now present. He saw gentlemen belonging to Lanarkshire, Renfrewshire, and Dumbartonshire districts—all famed for the purity and excellence of that valuable breed, and he did trust, after the explanation which had been offered, that they would not be backward in taking such steps as would ensure a full exhibition of it, the more especially as he was informed, on high authority, that it was precisely that class most likely to command high prices in the French market."

Now all this looks like activity, energy, and life—the habit of considering usefulness first and strict attention to order, rule, and etiquette as of subsidiary importance begets its proper and most useful fruit. On the other hand we have in England a society pursuing undoubtedly an important and a fruitful course of action, paying much stricter attention, however, than its northern sister to the letter of the rules by which its charter binds it, declining to step beyond the limits of the path which they prescribe, and stationary therefore in the interest it excites, the influence it exerts, and the character of the work it does. Why have the large meetings for agricultural discussion held latterly in London been at the bidding and arrangement of the Society of Arts, instead of under the auspices of the Royal Agricultural Society of England? Why is the committee in charge of English relations to the Paris Agricultural Show an independant body nominated by the French Government instead of the deputation, which it ought to be, from the national Agricultural Society, wielding all *its* influence and stimulating, as the Scottish Association does, the energies and activity of its members all over the country. The Society of Arts includes agriculture among the subjects of its June examination, and has in other ways exerted itself in behalf of agricultural education. The Highland Society resolved at the meeting last Wednesday to apply for a supplementary charter, enabling it to act in behalf of agricultural education. Why do we never hear this subject of agricultural education mooted as the proper aim and object—direct as well as indirect—of the Agricultural Society of England? Let *our* Society do as the Highland Society does; let it throw itself with as much energy into every useful forward movement; be foremost in every place that agriculturists may occupy; care less about a literal adherence to precedent and rule; depend less upon its charter and its funded property; estimate as highly its opportunities as its income, and use both actively and fully. There is no reason in the world, unless it be within itself, why its membership should not number 20,000, and its income be four-fold what it is at present.

Our readers have seen the protest which Mr. Hewitt Davis has recorded (p. 179) on the waste of labour and of money about to be allowed at Aldershot in the attempted drainage of the camp. The principle involved in the official specification of the work to be done does, if it be correct, entirely upset the theory and practice of land drainage as now understood, and may therefore well engage our attention. It seems that the drains are to be 12 feet apart and 18 inches deep, while the pipes employed are to be 3 inches in diameter. We need not say that such means of exit for the water are sufficient for carrying away the rain-fall of a year in less than a day—the pipes to be employed being absurdly large and the interval between the rows unnecessarily small.

Nor need we say that drains half a yard deep are not calculated to drain the land either as the site of houses or of roads, or with the object of obtaining a firm and dry surface. They will not drain a foot deep of the land so well as if they were twice or thrice the depth proposed—while the imperfectly drained 12 inches which may possibly be obtained may rest in spite of them upon a quagmire. Of course all drainage engineers agree with Mr. Davis in his protest. He superintended the drainage of Regents' Park—the object being to lay land dry for public enjoyment—and this was done by 4 foot drains a perch and a half apart in stiff clay soil, with pipes of 1½ and 2 inches bore. The object at Aldershot is much the same, the difficulties incomparably less, and yet we have twice the number of the drains and four times their individual capacity, placed however where they cannot act with one-half their efficiency!

The object, no doubt, is to lay the surface dry; but that can only be attained by draining the substance of the soil below the depth from which the surface can be influenced, and any one who has seen on land or roads the effect of springs, or even of mere stagnant collections of rain-water in the soil, knows that there must be at least 3 feet deep of dryness to ensure it on the surface.

In reference to roads, the best authority* declares that "it is the native soil which really supports the weight of traffic; that while it is preserved in a dry state it will carry any weight without sinking, and that it does in fact carry the road and the carriages also; that this native soil must first be made quite dry and a covering impenetrable to rain must be placed over it to preserve it in that dry state." Drains 18 inches deep might serve as conduits for the water running off this "impervious surface," but they are unable to lay dry "the native soil;" and unless that be done none of the results, whether for road-making, building, or mere surface dryness are attainable. We should like, moreover, to know how long they will resist the weight of field-pieces passing over them. It is plain that those who drew up the specifications referred to are ignorant of the art of draining land; there will be shameful waste of public money if the plan is persevered in; and the only persons whose interests can be served by the proceeding will be those who after doing the work badly may have to pull it up and do it over again at the public expense.

Is there no one in the House of Commons to draw the attention of Government to this matter?

We have to announce the sale, on Thursday next, of the Fawsley herd of pure-bred short-horn cattle, the property of Sir Charles Knightley, baronet. Mr. Strafford has then to dispose of 48 cows, heifers, and calves, and 27 bulls and bull calves. They will undoubtedly attract a large gathering of agriculturists, and command high prices.

THE PRICE OF MANURES.

In your impression of Saturday last I observe two letters on the subject of the value of manures, one signed "Geo. Summers," the other "S." In both of these exception is taken to the data which in my papers in the last Journal of the Royal Agricultural Society I have furnished for the valuation of artificial manures, but curiously enough, in an opposite sense—the one asserting that manures may be bought at less than the prices I have ventured to fix for their respective ingredients; the other, that in quoting the wholesale cash prices and omitting the fair profits of the trade, I have sacrificed the dealer to my zeal for the consumer.

If the two classes here represented would agree to pair off respectively with their present advocates, I could wish no better proof of the correctness of my conclusions, for the divergence between them might fairly be attributed to the different lights in which such matters are naturally viewed through the medium of opposing interests, and my own figures being the mean, might in that case be safely adopted as the truth. My answer to Mr. Summers is very simple. Mr. Summers quotes to you the price of superphosphate of lime as sold by a highly respectable firm, and taking the per-centage of soluble and insoluble phosphate of lime as guaranteed, he arrives at the conclusion that the ingredients therein are purchased at much lower rates than those which I have fixed for them. Now leaving out of the question the fact that Mr. Summers has filled in the sketch with details from his own fancy, for which (especially the proportion of ammonia), although they may be substantially correct, he finds, so far as I can see, no warrant in the letter he refers to; and further, as you yourself have pointed out, that the two estimates were framed at different times, and very possibly under different conditions of the manure market; setting aside, I say, these circumstances, Mr. Summers will not, I think, find in the paper referred to that I ever gave the price at which superphosphate of given quality *could* be supplied to the public; but that at which, taking the average of makers of repute, it actually *is* so supplied. Whether this is a good basis or not I must leave to others to judge, but to me it seemed the only one open to adoption. We may safely leave the ordinary influences affecting trade to settle the question as to the legitimate profits of the manure maker, and I confess that I should have been exceedingly unwilling to tamper with so very delicate a subject.

And this brings me to notice your other correspondent's strictures, which for the reason just given I consider peculiarly unjust. "S." is evidently a manufacturer of manures, and as such he upbraids me with giving the wholesale prices of different manures and making no allowance for the profits of the manufacturer. The fallacy of this position is, I should think, too obvious to mislead any of your readers. With one single exception, which I will immediately refer to, the cost of each ingredient of manures is calculated from the prices at

* Mr. Mac Adam's evidence—Parliamentary Committee.

which the substances containing it are sold to the consumer by the manure dealer. These prices in fact form the basis of all my calculations, as your readers will see by referring to the first of the tables which you did me the honour to quote in your Journal of the 23d of Feb., and especially as regards superphosphate, the value of whose ingredients is in fact calculated from its average composition and price as ascertained by the best means at my disposal.

Does "S." mean to say that in taking the actual selling price of a manure, and calculating from that and the composition the different values to be apportioned to each ingredient, I have taken no account of the manufacturer's profit? As well might he say that in buying a pound of sugar from the growers I have not paid for the expenses of its extraction from the Sugar-cane and its freight from the colonies.

The single exception to which I have referred is that of "insoluble phosphate of lime," and I somewhat regret that in my paper I did not more fully explain my reasons for the price affixed to that substance. "S." would in that case have found that I have done perhaps somewhat more than justice to it as an element of artificial manure.

In my estimates I have adopted $\frac{3}{4}d.$ per lb. as an average value for phosphate of lime in a manure. As "S." justly says, its price in calcined bones is more nearly 1*d.* per lb.; on the other hand, in coprolite and bone (even taking the price named by "S." for the latter), phosphate of lime is bought at less than $\frac{3}{4}d.$ per lb. But will any one assert that the phosphate of bone, ash, or animal charcoal are worth 1*d.* per lb. as a direct application to the soil? Assuredly not. Still less can be said in favour of phosphate of lime derived from mineral substances, such as coprolite and apatite. Without decomposition by acids they are positively useless. If in anything I have erred it has been in allowing too high a value for insoluble phosphate contained in manures, a conviction which I entertained even when writing my paper, as a careful reader will not fail to observe. With the sole exception of phosphate of lime from unburnt bones we have no alternative but to class all insoluble phosphate in the same category. There are no doubt degrees in its solubility and consequent efficacy, as derived from this or that source, but these are refinements into which in regard to price no one is at present prepared to enter.

In a superphosphate made entirely from unburnt bones the insoluble phosphate of lime may be valued to the consumer at the price it costs the dealer, with a fair addition for his profit in reselling it, but nothing more. My own experience would lead me to believe that not one superphosphate in a hundred is so manufactured; but even if it were so, the value of insoluble phosphate of lime, as given by me, would be fully sufficient. The price quoted for half-inch bones was furnished to me in London at the commencement of November, when (as it will be seen by a foot note) the paper was written, although not published till late in January. "S." will observe that in regard to these prices I gave what in his case would seem to have been an ineffectual caution that due allowance should be made for fluctuations incidental to the markets.

My time is so much occupied that your correspondents, and you yourself, sir, must acquit me of any want of respect if I decline to discuss this question further. Let us imitate the practice of our courts of law, where the plaintiff having been answered by counsel for the defence is entitled to a reply, and there the matter rests. If I have failed to satisfy or convince your correspondents in the matter you will no doubt give them the opportunity of saying so.

But before I close this, I fear somewhat overlengthy communication, I would wish in all earnestness to say that in drawing up the tables referred to, I have felt a deep sense of the responsibility of the task—a task to which the wish of the agricultural community, rather than my own inclination impelled me. I knew full well how considerable are the interests involved, and how difficult it would prove to hold the balance impartially between the parties concerned. You may, therefore, rest assured that I did not undertake this work in an indifferent or frivolous spirit. That I may have committed errors of greater or less magnitude is more than probable, but if so, I believe I shall be one of the first to discover, and I hope to acknowledge them. I have a fair right to ask in return that those who sit in judgment upon my conclusions should take them as a whole, and not attack me with isolated extracts. *J. Thomas Way.*

A STEAM-CULTURE REVERIE.—No. VI.

So many steam-cultivators having been designed to operate with revolving diggers or toothed barrels, I was gratified when my friend Digland pointed out a specimen of the earliest proposed form.

In Pratt's invention of 1810, we have the first introduction of *ploughs or cutters attached about a rotating axle;* the axle being *vertical.* In 1845, J. Seller patented a machine for drain-cutting and subsoiling, in which also a *vertical* spindle armed with cutters was employed to excavate a trench, while an endless elevating belt or a screw cleared out the loose earth behind it; and I may just say in passing that an endless belt or continuous railway with tooth-like projections was employed to propel the machine and keep it fed up to its work, and that the carriage-wheels were driven with a very slow motion by a tooth-wheel and screw. But the first *horizontal* cylinder armed with tines, blade, or tillers, and *driven by gearing from a motive-power,* appears to be that patented by Bonser and Pettitt, July 1846, under the name of a "screw plough." It was affixed transversely behind a frame mounted upon carriage-wheels or rollers; the gearing consisted of a spur-wheel upon the hind carriage-wheel, an intermediate spur-wheel, and a pinion on one end of the cylinder axle; and a rapid motion—in the same direction as the revolution of the carriage-wheels, and therefore assisting rather than retarding the onward progress of the machine—was communicated to the tilling-cylinder, either by the carriage being drawn forward by horses, or from a steam-engine placed upon it. Digland, having specially constructed a light locomotive (pneumatic) engine for actuating quickly or slowly any rotatory digger hung to its tail, tested this invention in an effectual manner. The tool as I saw it may be said to consist of a cylindrical shaft or barrel, upon which are set a number of screw-blades projecting radially: something, in fact, half-way between the cutter of Budding's lawn-mower and a roller from the platform of Burgess & Key's reaper. It seems really wonderful that it should have escaped the classic epithet of "Archimedean!" These screw-blades might be either in sections, or wrapped round the cylinder from end to end. Teeth, prongs, or cutters might also be fixed in the same helical or screw form. As might be anticipated, the blades, presenting a flat side instead of sharp edge to the ground, would not enter it at all, although the inventors had supposed they would turn over short furrow slices; but various forms of radial cutters, prongs or tines being tried, a scratching slovenly operation was accomplished, though with incessant stoppages in consequence of the teeth fouling themselves with weed.

The next invention in my historic series is a method of steam-ploughing, patented July 23d, 1846, by John Tulloch Osborne, Esq., of Demerara, and which my experimenting friend has carried out with engines and ploughs of his own contrivance—to be noticed in a future paper. As I found from the drawings submitted to me this invention was defective in detail, though its principal arrangements have been little improved upon by succeeding mechanists. Osborne's plan differs from both Heathcoat's and MacRae's in having *two engines and two plough carriages* instead of a single set of ploughs worked between an engine and pulley. The engines are placed upon *temporary tramways* from 100 to 200 yards apart; and are made to travel (when required) at right angles to the direction of the ploughing by means of chains anchored a-head, and wound up by barrels on the engines. There are two drag ropes, and each engine carries two drums, which alternately coil and pay out their respective ropes; so that as each rope travels first toward one engine and then to the other; the ploughs attached are worked to and fro, in opposite directions. Each plough-carriage, that is, a single plough mounted upon four wheels, lays down the slack rope in its rear one furrow's breadth further from the ploughed ground, in line ready for the return bout. The ropes are about 5 feet apart, so that when each plough has made six furrows, it is necessary to move the engines, which have been shifted forward 10 inches at a time, 5 feet onward along the tramways, in order to take fresh ground. This removal is cleverly managed: when each plough comes to the end of its last furrow it is directed by the superintending workman on to *an inclined plane, attached by hinges to the near side of the engine,* which gradually raises it free off the ground, and it is thus carried by the engine to the next breadth of land. Each plough, also, in the last furrow of each remove, lays down the slack rope by means of an outrigger, ready for the next furrow, which will be 5 feet off. Two lengths of rail are employed for each engine, one being taken up behind and laid down in front, whilst the other is sustaining its weight. With a view of adapting the apparatus to the Demerara lowlands, where the engines can be placed in boats or punts, the drums are made to slide on their axes (which are vertical), in order to be raised or lowered to suit the relative levels of the ground and water.

With the improved portable steam-engines now in use, a better construction of drums and gearing, the strong and light iron wire-rope now manufactured, and a light and easy arrangement of ploughs accommodated to the new mode of draught, there would seem to be little difficulty in following out a modification of Osborne's system of steam tillage; and I may explain in another paper how this promises to be accomplished.

And truly steam-husbandry is a matter of the first importance. In 1840, the propounder of one scheme urged the advantage of dispensing with a million horses, and thus saving 30,000,000*l.* annually. Mr. Osborne, again, introduced his invention to the notice of the Highland Society "at a moment when a scarcity of food was spreading dismay, and actual famine was abroad in many places;" and argued that steam-power must be greatly needed when horses consumed so much food, and yet laboured only 2400 hours out of the 4419 hours of *daylight* in a year. And in a powerfully written pamphlet on "the Food Question," in 1847, steam-ploughing forms one of the principal texts. "In ploughing 100 acres," says the author, "men and horses walk a linear distance of 1000 miles, wasting vital force and food which might have been so much better bestowed." And in dealing with the objection that animal power cannot be spared, as we have crops to carry, manure to lead out, &c., he says, "You need not totally disuse animal power; oxen, *which eventually become butcher's meat,* will be at hand; but I would ask this class of objectors—If power-looms are useless because hand-weaving still obtains? If railroads have been of no utility because they did not entirely supersede common roads, horses, and carriages? If steam-vessels are of no use because sailing-vessels still wing their way? If the electric telegraph is of no use because the post-office is still in action? If the telescope is of no use because it does not supersede our eye-sight?"

Many years have passed since energetic discussions of the subject appealed to public attention; yet we are again involved in times of scarcity without having an economical steam-cultivator employed in the field; and in spite of Talpa's burrowings under the foundations of olden prejudice, in spite of the trials of Lord Willoughby D'Eresby, the Marquis of Tweeddale, and several others, the Royal Agricultural Society has been obliged to raise its steam-plough prize to 500*l.*—half what it would give for a substitute for guano. *I. A. C.*

Home Correspondence.

Agricultural Statistics.—May I through your Journal draw attention to the bill brought into the House of Lords by the President of the Board of Trade for "The Collection of Agricultural Statistics." It is proposed that the Poor-law Board shall employ such persons as they think fit to distribute, collect, and receive the returns; and to estimate the average rate of produce per statute acre. Thus, the working of the measure will be entirely under the control of the Poor-law Board, and I venture to express a hope that they will not, as in the case of the experimental returns obtained by them in 1854, in any way confound it with the Board of Guardians and the Poor-law machinery. One trustworthy and energetic local agent is required for every district, and no more; through whom honest supervision and credible estimates of the average rate of produce may be secured, with all the secrecy that can be claimed by the most suspicious contributor. Lord Stanley of Alderley, on introducing the subject into the House of Lords, made a quotation from Mr. Hoskyns' very clever article in the Journal of the Royal Agricultural Society, in support of his argument in favour of the measure; I take the liberty of quoting from the same paper a paragraph which equally deserves the most extended publicity. After in a masterly manner disposing of the unfounded suspicions that were excited by the experimental returns in many minds, and of the false comparison between the producer and the retailer, represented by the farmer and the shopkeeper, as regards returns of the tea and sugar sold by one, and of the corn grown by the other, Mr. Hoskyns adds, page 585:—

"But one is almost thankful in such a case for the candour that will put objection into a shape susceptible of reply; for it is mere vexation to follow out the history of this experimental trial of one of the most useful measures that ever emanated from Government in the behoof of agriculture, as the tale is drearily told in the remaining reports of the Poor-law inspectors employed for agricultural statistics. But why *Poor-law inspectors?* is the question that keeps pressing on the mind as one reads, and recurring fresh and fresh at every page. There are few gentlemen of higher standing or more valuable capabilities engaged in the public service than those who hold that title, and devote their legal and scientific prowess to the carrying out like faithful knight-errants the decrees, partaking scantly in the pleasures, of that sempiternal Round-table which imagination delights to picture, at Somerset House. But what possible connection of thought was it that suggested the idea of turning their lances into reaping-hooks? By what 'discourse of reason' could the conclusion have been evolved that the fit and proper medium through which to invoke the agrestial mind of England and Wales to the nature and benefits of agricultural statistics was a body of gentlemen, who either by education, habits, or official experience, were not in conscience bound to know a Wheat from a Barley-rick?

"And still more does the question obtrude itself, why at the turn of every leaf of the Report one is compelled to knock one's head against the 'Board of Guardians?' What *has* this respectable but proverbially indurated body got to do with the matter? Did the originator of the adoption of this part of the proposed machinery ever hear the motto, "*Divide et impera*"? If not, we venture to submit a short psychological reflection upon this text in the words used by no less an authority than Sir John Walsham in his late evidence before the Lords' Committee:—

"'Certain persons will always object to making returns. It is impossible to analyse all the motives influencing a man's mind in these matters. I have known myself—it has been within my own knowledge—that perhaps three fourths of a certain number of farmers would make the returns *if left to themselves;* but *when they get together, say at market,* with the other fourth, who will not hear of making any returns, the passive majority are sure to be led by the active minority to withhold the returns they might otherwise have given.'—p. 38.

"Our mildest experience," Mr. Hoskyns adds, "joins in attestation of every word of this philosophy; but why stop at the market place? for if such may be said of the green what shall be said of the dry? If this be true of the semi-rural corn-market under the free canopy of heaven, how much more in the loaded atmosphere of that many-titled inner-chamber where, from time to time, vestry-meeting, parish-club, or other provincial noun-collective, rivals the close packing of the jury-box without its unanimity, the wrangling of the old Bailey without its ancestral wit!"

Now, with regard to those experimental returns, the public mind seems to have been divided between admiration of what was accomplished, and pity for the benighted individuals who, by the refusal of their co-operation, obstructed the success of the experiment. But I am not aware that any one has ever ventured to hint at the possible inaccuracy of those returns that were duly delivered, and that now wear such an orderly and unimpeachable aspect in the stately pages in which they are arrayed. Far be it from me therefore to question their veracity; only, as many persons avowedly object to this inquiry, as being inquisitorial and unfair; as people do sometimes, in matters of equal moment make erroneous returns, as is evidenced by the Chancellor of the Exchequer's daily acknowledgments in the *Times* of sums sent to him by conscience-stricken taxpayers; so I think it will be desired by those who expect for the outlay proposed to

be made unimpeachable information, that the returns should be made under the control of persons, in all respects qualified to improve and amend misstatement, and to estimate the average rate of produce per acre. As Lord Stanley of Alderley has entered upon the encounter which his predecessors have shunned, we may fairly hope that to complete so useful a work he will secure to us reliable and unquestionable returns. But the moment has arrived when all persons alive to the importance of the measure should calmly reflect upon the mode in which it is proposed to carry it out. *Chas. F. Humbert, Watford, Herts.*

The vitality of Seeds.—I had three small parcels of Wheat, two of them directly from Egypt, and I was assured they were taken out of mummies; the other was very old, but whence from I know not. I planted the whole very carefully, but not a grain grew. I had then a packet given me of Wheat which I was assured by the gentleman who gave it to me, and who is a man of real integrity and veracity, was grown from Wheat taken out of a mummy. The history of it was this—as it was given to me. A nobleman was present at Cambridge at the unwinding of a mummy wherein some Wheat was found. The nobleman—whose name I give you, with the gentleman's I obtained the Wheat from also, but not for publication,—took the Wheat home and himself saw his gardener plant it, when it grew and brought forth seed to perfection. It was that seed which was given to me by the nobleman's relative; and to protect it from sparrows I planted it in a row by itself in a field of other Wheat. It all came up and ripened, and the produce was three kinds of Wheat different from any I had ever before seen; two of the kinds were bearded, and one not. The whole three kinds ripened rather earlier than the Wheat among which it grew, and one of the kinds was very much praised by farmers who saw it. I was however very unfortunate with it through over-care. I had it reaped and tied up carefully, and hung up by a rope in a loft where birds got to it through a hole and eat the whole. I lamented this much, because, I think, the whole three samples were of superior kinds of Wheat. Now, I am perfectly satisfied, that the nobleman and his relative believed this Wheat to have come out of a mummy; but, could there be any deception? I could discover none, though I tried all I could to do so, having always been sceptical on the growing of Wheat of many years old, however it might have been kept. But this thought has struck my mind, namely, if the Egyptians did put Wheat within their mummy bandages, had they not a method of preserving the vitality of it unknown to men of the present day? My opinion is, that they did possess such a method, or, wise as they certainly were in so many things, they would not have put the Wheat into the bandages of their mummies at all. Either, therefore, there has been no Wheat found in mummies at all under this supposition, and the nobleman, and his relative, and others have been deceived, or the ancient Egyptians had some method of preserving the vitality of Wheat altogether unknown to men of modern times. Perhaps some of your scientific correspondents may be able to throw some further light on a subject which is certainly worthy of being inquired into, and as far as possible the truth ascertained. I add the name of the nobleman and that of his relative, but I have, I observe, not their permission to make the names public. *Geo. Wilkins, Wix Parsonage, March 24th.*

Extraordinary Egg.—Having often heard of ducks saying large eggs, I was induced to measure and weigh one laid by a bird of the true Aylesbury breed a few days ago, and find the circumference the long way to be 8½ inches, and the other way 6⅞ inches, and weight 4¾ oz. avoirdupois. Perhaps some of your readers will inform me if eggs of this size are common; to me it seems extraordinary. *H. T. H., Maidstone.*

Aldershot Camp.—Mr. Hewitt Davis and Mr. Bailey Denton have both recorded their protest against the system about to be pursued for the drainage of Aldershot Camp, but they have left one point untouched, viz., the description of drain pipe to be used. It is an impervious socket pipe suited admirably to the conveyance of water and very expensive, but most unsuited for drainage of land. I have drained more than 60 acres of land within the last two years, and have used the common pipes made in most brick-yards, which are porous and not socketted. These pipes have proved very effectual. *A Farmer.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *March* 26.—Mr. RAYMOND BARKER, V.P., in the Chair. The names of 19 additional candidates for election at the next Monthly Council were read.

SARDINIAN AGRICULTURE.—His Majesty the King of Sardinia having resolved to develope the agricultural resources of his dominions by the application of the best agricultural machinery of England, Sign. Anbron, of Florence, and Sign. Pinto, of Rome, presented themselves before the Council on this occasion for the purpose of announcing this intention on the part of the King of Sardinia, and of submitting to the members the royal charter, bearing his Majesty's sign manual, granting them full power and authority to effect the important object of their mission to this country.

COTTON-SEED CAKE.—Prof. Way laid before the Council the following letter from Mr. Barber, of Poulton Hall, Cheshire:—

"March 4, 1856.

"I observe in the report of the proceedings of the Royal Agricultural Society's meeting of the 25th ult., that you expressed some doubt whether the husks and short fibres of Cotton which adhered to the seeds from which the Cotton-seed oil-cake was produced might not prove indigestible and cause obstructions in the animals which might be fed upon it. This statement has already been commented upon by consumers, and as it may in some degree deter agriculturists from using the cake, I think you will excuse me in bringing to your notice a fact of which I believe you cannot have been aware, and which has material reference to the question of the fibrous portions of Cotton adhering to the seed, viz., that cattle are extremely fond of Cotton itself, and eat it in preference almost to any fodder, and that no evil consequences arise from it, but quite the reverse. In fact, Cotton planters, when their Cotton fields no longer yield a sufficiency to remunerate them for picking, invariably turn in their cattle to eat up what is left. With regard to the husks, I am not yet prepared to give a very positive opinion; but I have many years ago observed the avidity with which cows eat the seed, and in which they were never restricted, so that I inferred no evil consequences arose from it. I have now some seed here and am trying two beasts upon it exclusively. I have also had about 2 tons of it crushed, and have made cake of it without any effort at decorticating. The cattle eat it quite as well as that I have imported the seed for, which has been decorticated, as well as the simple machinery will admit, and is the same you analysed for Sir Thomas Parkyns. The analysis of this is quite satisfactory, and is as follows:—100 grs. at 212° lost 12.1 grs. water, thus dried and powdered; 100 grs. gave on combustion, 83.33 organic matter, 6.67 ash; 100 grs. yielded 6.60 nitrogen, equivalent to 7.99 ammonia; 100 grs. exhausted by ether gave 12.5 of oily matter. The ash on analysis gave—Carbonic acid, 3.5; sulphuric do., 3.6; phosphoric do., 4.8 per cent. You are quite welcome to a sample of it if it will be of any service to you, and I hope on the next opportunity you will correct any misapprehension you may have been under as to the effect of Cotton-seed oil-cake as a food for cattle. In reference to the statement of another speaker at your meeting respecting the disagreeable flavour imparted to the meat of animals fed upon it, I have only to say that I have now in the house as sweet a piece of cold beef as ever was eaten, entirely fed upon the Cotton cake, and have eaten others before of equally sweet flavour. The butter is also equally sweet.

(Signed) "WM. BARBER."

The flavour of the meat referred to by Mr. Holland M.P., at a former meeting of the Council, resulted not from the animals having been fed upon Cotton-seed cake from which the greater part of the oil had been expressed, but from the Cotton-seeds themselves containing their full proportion of oil.—Mr. Gadesden remarked, that in his experiments on feeding sheep with Cotton-seed cake, he had found the mutton after cooking to be particularly hard, a result not to have been expected under ordinary circumstances, as the animals were at their full maturity.—Mr. Fisher Hobbs stated that he had remarked the same effect produced by feeding on Lentils.

ARACHIDE-NUT CAKE.—Mr. Spooner, of Eling, near Southampton, transmitted a sample of Arachide-nut cake, along with the following communication:—

"Observing that the attention of the Society at its weekly meetings has been directed to the subject of Feeding Stuffs, and particularly to Cotton-cake, I beg leave to forward a sample of Arachide Nut-cake, with an analysis of the same by Professor Way. The cake appears to be palatable to both sheep and cattle, and as its albuminous constituents are considerable the subject may possibly be interesting to some of the members of the Society, to whom I shall be happy to communicate any additional particulars that may be required.

Analysis.—Moisture ...	9.81
Oil ...	12.34
Albuminous matter ...	35.30
Woody fibre, starch, gum, &c. ...	38.26
Mineral matter ...	4.29
	100.00
Containing nitrogen ...	5.56

(Signed) J. THOMAS WAY.
(Signed) W. C. SPOONER."

The Secretary was directed to apply to Mr. Spooner for the favour of a communication of the particulars to which he referred. In the meantime, the following information respecting the Arachide, translated from the French of MM. Girardin and Breuil, may perhaps be acceptable:—

The Arachide, or Pistachio Earth-nut, is the *arachis hypogæa* of Linnæus, and belongs to the leguminous family of plants. Imported into Europe by the Spaniards from South America, it has been especially cultivated in Spain. It is also to be met with in some localities in the South of France, particularly in the department of Landes. The seeds yield about 34 per cent. of a mild salad-oil, which is, however, much inferior in flavour to Olive-oil. It is particularly employed for the purposes of soap making and the supply of lamps. The oil-cake is very rich in fertilising properties. These seeds, besides producing oil, are used for feeding purposes. In Spain they are eaten either in their raw state, or slightly roasted, or mixed with cocoa into a sort of chocolate. MM. Payen and Henri have analysed Arachide-nuts grown in the south of France. 1950 parts by weight gave 1495 of kernel and 455 of woody integument. In the kernel was found oil and casein (constituting the greater proportion), gum, crystallisable sugar, colouring matter, starch, essential oil, woody matter, malate of lime and free nitric acid, and mineral substances (such as phosphate of lime, muriate of potash, and sulphur). They obtained 47 per cent. of oil. M. Bridli, of Novaro, states that in Italy 50 per cent. is obtained; while in Spain it is asserted that the percentage amounts to 60. Nuts from the coast of Africa were found by M. Moride, of Nantes, to give 31½ per cent. of woody integument and 68½ per cent. of kernel. In the kernel he found 2¾ per cent. of water, 35½ per cent. of oil, 59¾ per cent. of organic matter, and 2 per cent. of mineral substances. From the Arachide-nut-cake supplied to the market from the oil-works at Rouen, MM. Soubeiran and Girardin obtained the following results:—

Water ...	12
Oil ...	12
Organic matter ...	71
Mineral substances ...	5
	100

In the organic matter there were about 6 per cent. of nitrogen, and in the mineral substances, about ¼ per cent. of soluble salts, and 1¼ per cent. of phosphates. If, therefore, the Arachide is tolerably rich in nitrogen, it is, on the contrary, one of the poorest substances in the phosphates; accordingly its cake, when employed as a manure, ought always to be associated with substances rich in phosphates, such as bones and ivory black. The Arachide plant can only be cultivated with success in the South of France, Algeria, or other similarly situated countries."

Dr. Doebereiner, in his "Cameral-Chemie," gives the following notice of the oil:—

"Earth-nut oil, from the root-tubercles of the arachis hypogœa, which yield about 50 per cent. of an oil almost free from colour or odour. This oil becomes solid at a temperature between 37° and 39° F., and is used for the purposes of cooking, as well as for the manufacture of a white dry soap."

CULTIVATION OF GRASSES.—Dr. Calvert, of 3, Park Place, Regents' Park, read to the council a report on his 20 years' experience in the cultivation of Grasses on his estate in Yorkshire. The length of this report, which occupied nearly three hours in its delivery, will allow us on the present occasion to give only the series of heads under which Dr. Calvert treated the subject.

I.—An examination into the difficulties experienced by agriculturists of being able to lay down their tillage land to the greatest advantage into permanent pastures and meadows, arising from the want of a sufficient botanical knowledge.

II. The difficulties to be overcome in consequence of the foulness of the ground from slovenly habits, in allowing weeds to grow up and shed their seed from year to year, apparently sanctioned by all classes of British agriculturists, whereby the greater halt of the land is occupied by them, the produce of the desired crops reduced below one half, and the quality greatly deteriorated.

III.—The further impediment arising from the ravages made upon the seed crop by a species of grub or caterpillar called by Curtis the Noctua cubicularis.

IV.—The difficulties arising from apathy and indifference in those who have the means, and ought, by example and precept, to encourage the superior culture of our meadows and pasture lands, so as to produce at least double the amount of nutriment for their stock, which the land is capable of doing if kept free from weeds and laid down with properly selected clean Grass seed only.

V.—The difficulties attendant on ascertaining which are the kinds of Grasses best adapted for permanent pastures and meadows in ordinary situations and soils, and which ought to be rejected as unprofitable or detrimental, either from their tendency to impoverish and exhaust the land, inducing foulness by their creeping roots, or by occupying the spaces where better Grasses might have grown.

VI.—The difficulty of obtaining seed of the last species and varieties of Grasses for permanent pastures and meadows, without admixture of weed and inferior Grass seeds.

VII.—A summary of the preceding articles, with comments and suggestions, particularly in regard to the state of land laid down and the treatment of the growing seeds, so as to secure complete success.

Dr. Calvert stated that he had adopted the plan of sowing his selected Grass seeds (of which he had still by him more than he required for his own use, a sufficient quantity to sow from 10 to 20 acres), at the rate of 24 lbs. to the acre, on well-prepared ground; and that he preferred thin sowing, independently of economical considerations in reference to the seed. He exhibited to the members a great variety of specimens of the best, as well as of inferior Grasses, for the purposes of comparison.—Mr. Scott stated that he had himself been engaged for four years in researches of this kind. He called attention to the experiments of Lawson and Drummond on the effect of depth on the growth of Grasses; to the "Botany of Grasses" by Dr. Parnell; and to the confidence which, from his own experience, cultivators might repose in all seedsmen of established reputation. They were responsible men whose characters would be involved by the supply of inferior seeds.

PORTUGUESE AGRICULTURE.—M. Felix Nogueira transmitted from Lisbon, through the Portuguese Embassy, a copy of his "Almanack do Cultivador" for 1856, with a letter stating that he offered it "as a token of his high consideration of the Royal Agricultural Society of England, and as furnishing in its pages obvious proofs of the estimation in which he held the agricultural literature of England." The council ordered their thanks for the favour of this present and communication.

FIELD DYNAMOMETER.—Mr. Amos, one of the Consulting Engineers of the society, announced to the Council the success of his efforts to produce a Dynamometer adapted for the purpose of testing the draught of implements in the field. This communication was referred to the Implement Committee.

Communications from the Rev. S. N. Kingdon and Mr. Gubbin, on Sea-sand as Manure, were referred to Professor Way; and further papers on Agricultural Meteorology, from Mr. Fulbrook, to the Council Committee. The Council adjourned to their monthly meeting on the 2nd April.

Calendar of Operations.

MARCH.

BORDER OF THE FENS, *March* 24.—The weather has been this month extremely favourable to agricultural business; we had in the early part of it bushels of dust, so that every horse on almost every farm was laid under "embargo" to work six days a week, and the land that was ready, being in fine condition, was quickly supplied with seed, and finished off without interruption in the best possible order. The Wheat plant is generally healthy, but reports vary very much, some of the Wheat after Clover having suffered from the larvæ of insects, and in other cases it has been injured from frosts. We have used a Cambridge's roller over all our Wheat, and given a dressing of 1 cwt. salt per acre, excepting one piece of 9 acres, on which was put before sowing 1 cwt. each of salt and guano; and though this was sown with Wheat the last, it looks the best of any. The season has arrived for planting Potatoes, but some restraint will be observed this year over the quantity of land allotted to this useful root, as the prices have been for some time uninterruptedly declining, so that holders now find a difficulty in effecting a sale at any rate unless the quality of the Potatoes should be very choice. Seeds will next engage our attention, and the sowing of Clover and Rye-grass promises to be unusually expensive, Red Clover selling from 70*s.* to 80*s.* per cwt., and Italian Rye-grass from 7*s.* 6*d.* to 9*s.* per bushel. 14 lbs. of Clover is commonly allowed per acre to be cut for fodder, though some farmers use 21 lbs., and others not more than 8 or 10 lbs. When any of the Ryegrasses are used, and if intended for pasture, one-half stone each of Red and White Clover, with a pound or two of Trefoil, and half a bushel of Grass seeds, will probably be found sufficient for a crop. The lambing season has been in many cases a very unfortunate time, for not only have an immense quantity of dead lambs been dropped, but many ewes have died also after lambing, and the surviving lambs have too often exhibited weakness that occasions much fear for their ultimate soundness and vigour. This fatality is by some attributed to the defective Turnips, to which almost all farmers have been more or less liable. Some cases of flocks escaping the evil may be traced to a liberal use of corn or

cake given to the ewes. In such practice some care is necessary, as we have known instances where considerable mortality occurred from high condition of the ewes. Other kinds of stock are doing well. Store beasts are in demand in anticipation of a forward spring, and lambs are selling freely at from 30*s.* to 40*s.* each. This animation is partly owing to the stir in the wool trade, wool having experienced a considerable rise within the last few weeks. Meat is making full prices. Beef, 7*s.* 3*d.* to 7*s.* 6*d.* per stone; mutton, 6½*d.* to 7*d.* per lb.; pork, 7*s.* 6*d.* per stone. Corn sustains its value with some fluctuation in the face of peace in prospect; Wheat of 18 stone the coomb has been worth 70*s.* per quarter; malting Barley, 40*s.* to 43*s.*; and Oats from 20*s.* to 30*s.*, so various is the quality, and in many instances so light the weight. Labourers are plentiful, and the price of labour not higher than last year. *J. W., Peterborough.*

WESTER ROSS: *March* 24.—The fine weather with which we have been favoured this season is quite a contrast to that of last year. Twelve months ago the weather was uncommonly cold and damp, the soil was in a very unfit state for the reception of seed, and all betokened a late and unfavourable harvest. This year, however, the season has been mild and open, the seed that has been already sown has harrowed in in the best possible condition, and the weather still continues as favourable as we could desire. A large quantity of Spring Wheat has been sown; indeed so favourable has the season been, that, for once, the farmers have had an opportunity of sowing Wheat to their hearts' content. A good deal of April Wheat, which is now much used as a substitute for Barley, will yet be sown, and I venture to say that, when this is accomplished, a larger breadth of Wheat was never sown, in one season, in this country. In the month of February, and in the first of March, the autumn-sown Wheat was making rapid progress; but since then we have had easterly winds and frosty nights, which have meanwhile checked its progress, and have prevented premature advancement. The sowing of Oats has been generally proceeded with, and on many farms is concluded. Sandy Oats, which have been largely sown for many years in this neighbourhood, have within the last few years greatly deteriorated, and once again late Angus, which were supplanted by Sandy, are sought after for seed; and I doubt not, with the stimulating manures now at command, these late Oats will now be found to suit better than in years gone by. Potato planting has been commenced, and wisely; for as they seem much inclined to grow in the pits, it is better to transfer them to the fields, where their early growth will do little harm. Our first Muir of Ord market for the season was held last week, and a large number of sheep was exhibited. Prices were about the same as last year, and many left unsold. A very few fat cattle were disposed of to the butchers in the neighbourhood; only a few grazing beasts were exhibited, and for these there was no demand. Both Turnips and straw have run more quickly to their finish than usual; hoggs are returning in fair condition to their hill pasture, and unless Grass come more speedily than we might reasonably expect, cattle may look out for short rations.

Notices to Correspondents.

AGRICULTURAL STATISTICS: *F R S.* The bill now before Parliament provides as follows:—In February each year the overseer of the poor is to send in to the Poor Law Board a return of every occupier of land in the parish or district, with the nature of the occupations, &c. In May the schedules will be issued to such owners and occupiers, who will fill them up and return them on the 1st of June. The schedule contains columns headed "Extent of acreage," and the names of the various descriptions of crop, as well as those of live stock. These schedules will be returned to the Poor Law Board, and thence to the Board of Trade, in order to their being arranged according to the respective counties. For the purpose of securing those returns, it is proposed *to confer a compulsory power upon the parties engaged in this operation*, by which any person declining to fill up the schedule may be summoned before a justice of the peace; and the magistrate, on being satisfied that there is a refusal to give this information, will have power to inflict a penalty not to exceed 40*s.* It is left to the discretion of the officers of the Poor Law Board to form an estimate of the amount of the produce of each farm in such a way as they may deem most expedient. The government by this bill propose that every farmer should send only a return of the quantity of land he occupied, and of the descriptions of crop which he cultivated. With regard to the estimate after harvest, that information may be obtained either by testing the value of the crops, or by some other means.

DEVONSHIRE FARM: *W T B.* We have no doubt whatever about the fertility of a farm being maintained by the application of 5 cwt. of bought manure per acre to one quarter of it, and of 40 loads of home manure per acre to another quarter of it every year. We hope shortly to examine the case more fully.

GREAT BUDWORTH: *J E, Cheshire.* The description seems to us personally severe, and calculated to offend. We shall be happy to publish the speech referred to, and to comment upon it, if you will favour us with a copy.

LAYING DOWN TO GRASS: *X Y Z.* The following are reports of actual practice in Cheshire, taken from the Journal of the Manchester Agricultural Society. The first is on a clay soil, the second on a sandy one.—(1). In 1851 the land was in roots, manured with horse and cow dung; in 1852 was in Wheat, and in 1853 Oats, and sown down to Grass. In 1854 it was manured with 3½ cwt. of guano per acre, and mown twice. This spring the same quantity of guano applied, and mown once. The land had been well drained at 15 feet apart, and the following quantities and varieties of seeds were sown per acre: 3 lbs. of Red Clover, 3 lbs. of White Clover, 3 lbs. of Cowgrass, 2½ lbs. of Ribgrass, 2 lbs. of Trefoil, 3 pecks of Perennial Ryegrass, 1 peck of Italian Ryegrass, ½ bushel of Meadow Fescue, ½ ditto Hard Fescue, ½ ditto Cocksfoot, 2½ lbs. of Dogstail, and 4 lbs. of Meadow Grass; all sown in April. The land is a strong clay loam on a stiff clay subsoil, under first-rate management in every respect, and perfectly clean and free from any bad Grasses. A capital bottom of White Clover and other herby Grass, and the entire crop uniformly thick and heavy. (2). The soil is a good sandy loam of fair depth, resting on a clay, sand, and gravelly subsoil. The land had been previously well drained with tiles and stones. The field had been 1st Potatoes (manured with 20 tons of cow and horse dung per acre), 2d Wheat, 3d Barley, and sown with the following quantity and variety of seeds per acre, viz.: on the Barley crop in April, 1 bushel Perennial Ryegrass, 6 lbs. hard Fescue, 6 lbs. rough and smooth-stalked Meadow-grass, 8 lbs. Ribgrass, and 12 lbs. Trefoil, and Red and White Clover. The field top dressed with 2½ cwt. of guano per acre in the spring of both 1854 and 1855. Mown twice last year, and once this. The land is perfectly clean and free from bad herbage; the crop above an average for the season, and a good mixture of Grasses, the bottom close and well up. The claimant is a good farmer in every department to which his practice extends. The farm is in a good climate. Inspected June 19th, 1855.

LUCERNE AND CLOVER: *E.* They both like calcareous loamy soils; the former especially likes a calcareous soil. Guano is a universal manure, and both will prosper on it. We have grown Lucerne only in small patches—not more than half an acre. It was sown in rows 16 inches apart, and a good dressing of stable manure spread broadcast and dug in between the rows once every summer.

SEED CORN: *Charles D.* It will not be easy to obtain Brown's Barley, but Sandy Oats are in common cultivation in Scotland, and you might apply either to Lawsons, seedsmen, of Edinburgh, or perhaps a corn factor might obtain them for you; and Mr. Charles Shirreff, corn factor, Edinburgh, is, we believe, a good address.——The Redstraw White Wheat is not more liable to sprout than other sorts—but it is somewhat liable to shed when ripe.

NEW PLANTS
OF
MESSRS. E. G. HENDERSON & SON.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. I. LINDEN, of the Royal Zoological Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following; and they take this opportunity of expressing their pleasure in being enabled to offer such superior and beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

ACHIMENES (LOCHERIA) MAGNIFICA.
" (TYDEA) AMABILIS.
CUPHEA EMINENS.
GONOCALYX PULCHER.

Coloured Plates of the above, and one of FUCHSIA EMPEROR NAPOLEON and VENUS DE MEDICI may be had on application at 6*d.* each, or if by post at 8*d.* each, except when three or more are taken, when the postage will not be charged.

BANKS' NEW FUCHSIAS will be sent out next May, and the following Nurserymen will be able to supply Plants:—

Messrs. Allan, Stirling
" Barkaway, J., Dereham
" Barnes, W., Camberwell
" Barnes, T., Stowmarket
" Bates, W. & J., Oxford
" Cant, B. R., Colchester
" Cheynes, J., Warwick
" Courcha, J., Bethnal Green
" Dobson, J., & Son, Isleworth
" Douglas, T. H., Edinburgh
" Downie & Laird, Edinburgh
" Ewing, J. W., Norwich
Messrs Frewer, J.E., Stowmrkt.
" Fisher, Holmes, & Co., Sheffield
" Godwin, F., Sheffield
" Griffin, J., Bath
" A. Henderson & Co., Pine Apple Place
" Hopwood, W., Cheltenham
" Ivery, W., Peckham
" Johnson, S., Dover
" Laird, W. P., Dundee
" Lowdon, J., Bradford
" Miller, R., Newcastle
Messrs. Moore, W., Dereham
" Noyes, C., Manchester
" Oldroyd, Shrewsbury
" Osborn & Sons, Fulham
" Parker, R., Hornsey Road
" Parsons, G., Brighton
" Perkins, E., Leamington
" Pratt, J., jun., Stoke-on-Trent
" Rea, R., Ipswich
" Ridgway, C., Stockport
" Rumley, W., & Sons, Richmond
Messrs. Small, G., & Son, Ilkeston
" Smith, G., Hornsey Road
" Spriggins, D., & Co., St. Alban's
" Stafford, S., Hyde
" Steel, W. & J., Castlenellen
" Taylor, S., Nottingham
" Turner, C., Slough
" Turner, Helensburgh
" Veitch, Jas., jun., Chelsea
" Walton, H., Burnley
" Wilson, R., Warwick

The leading Continental Nurserymen have also ordered plants.

HENDERSON'S favourite VERBENA for 1856 is without exception one of the finest, and will doubtless become one of the most noted bedding Verbenas in every garden throughout England. We do not profess to say it will surpass all others in form; but for its other good qualities it is unapproached by any. The trusses of flowers are exceedingly large and of a rich dark scarlet. The habit is robust and free, and does not require to be pegged down to fill up empty spaces, as is too often the case; but if left to itself it is unequalled for its uniformity of growth. The whole plant is alike covered with flowers on stout short footstalks, so that it resists the rain perfectly, the side shoots below each flower are always well set with buds ready to fill up the places as the first flowers pass away; the foliage is handsome and plentiful, a feature that is often over-looked in this plant, as a Verbena with small diminutive leaves never looks well, nor on the other hand is it pleasing to see large thin foliage, as is the case of Verbena Mrs. Woodruffe, especially when the habit, like that variety, is loose and straggling. To be sent out after the 1st of May at 2*s.* 6*d.* each, 24*s.* per dozen, and 120*s.* per 100.

HENDERSON'S favourite PETUNIA for 1856 will be ready for delivery after the first week in May. This excellent variety, we are confident, will supersede every Petunia hitherto grown, either for bedding purposes or pot culture. Its superior qualities cannot be better described than in the words of the able and intelligent Gardener, Mr. John Smith, of Peel Hall, Lancashire, from whom they received it:—"I now send you the stock of Petunia No. 1. The flowers are moderate-sized, with a fine bold outline, colour a rich bright scarlet, with clear white eye. It is a profuse bloomer, and makes a most effective bed; indeed, it was the most conspicuous bedding plant in the whole of our Flower Garden, which was filled with the showiest and most dazzling kinds of flowering plants." In consequence of the plant being a second year's seedling, the opportunity of proving its value as a bedding plant has been tried, and far exceeded our expectations.

In the course of May next, Plants will be ready at 3s. 6d. each.

BANKS' NEW VERBENAS FOR THE 1st of MAY.

LADY CAMOYS (BANKS).—Orange scarlet, with crimson centre and yellow eye; a brilliant flower and fine habit.
MRS. ARCHER CLIVE (BANKS)—Rich ruby crimson—novel colour; a distinct and fine variety.
LADY KERRISON (BANKS).—Blush white, large yellow eye, with crimson and rose spot on the upper petals.
IMPERIALIS (BANKS).—Mulberry crimson with light centre; an excellent bedder and improvement on Ariosto.
LA STELLA (BANKS).—Rich orange scarlet with light eye; fine form, and large truss extra.
LADY HARCOURT (BANKS).—Bright rose, good truss, and habit distinct and fine.
COUNTESS OF DUNMORE (BANKS).—Bright rose, large conspicuous white eye; dwarf compact habit.
MRS. HOSIER WILLIAMS (BANKS).—Pure white, and is not injured with bad weather; a first-rate habit, and may be depended on for making a fine bed.
VISCOUNTESS EMLYN (BANKS).—White, with bright rosy crimson eye, fine formed truss, and good habit.
COUNTESS OF OXFORD (BANKS).—Lavender, with large white eye; a conspicuous and pleasing variety, in the way of "Annie Laurie."
NOSEGAY (BANKS).—Fine deep salmon, with dark centre; close dwarf habit, distinct and fine.
MOONLIGHT (BANKS).—White, with splendid large trusses; and, for the purpose of exhibition, the finest white in cultivation.

On the 1st of May the set for 2*l.* 2*s.*, including the two following Gratis:—

PICTURATA (BANKS).—White, with dense violet eye.
PURPUREA MAGNIFICA (BANKS).—Mulberry crimson; fine habit; good bedder.

FLOWER AND GARDEN SEEDS.

A Catalogue of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had GRATIS on application.—Wellington Nursery, St. John's Wood.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

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Messrs. Henderson & Co., Pine-apple Place, London.
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Pamphlets, with instructions for use, free by post on application to

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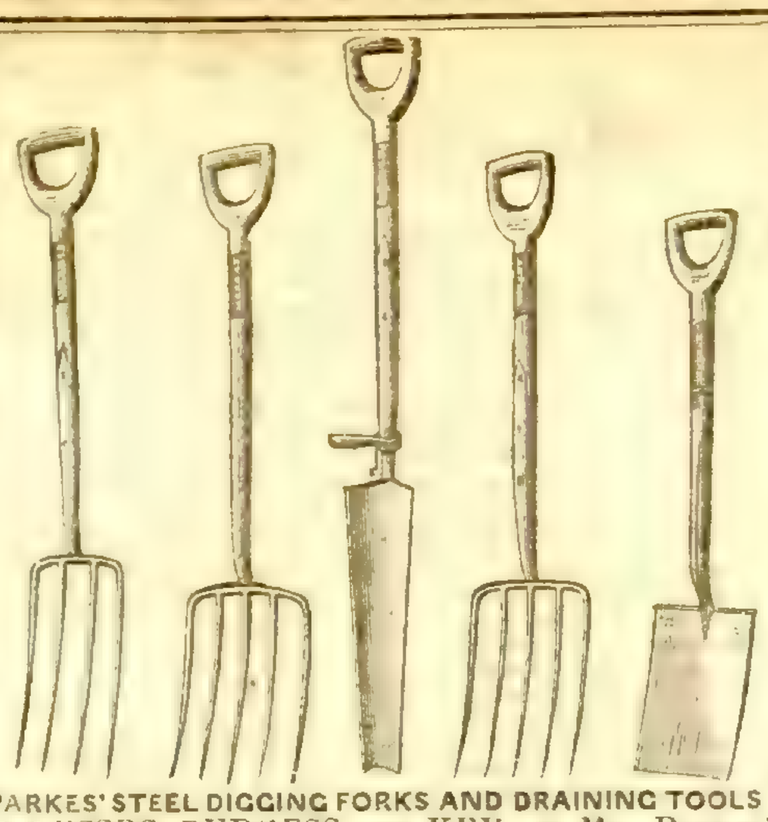
MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
Warranted Good by the Makers.

JOSEPH MAPPIN and BROTHERS, Queen's Cutlery Works, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
Fountains suitable for Conservatories, Lawns, &c.



PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS

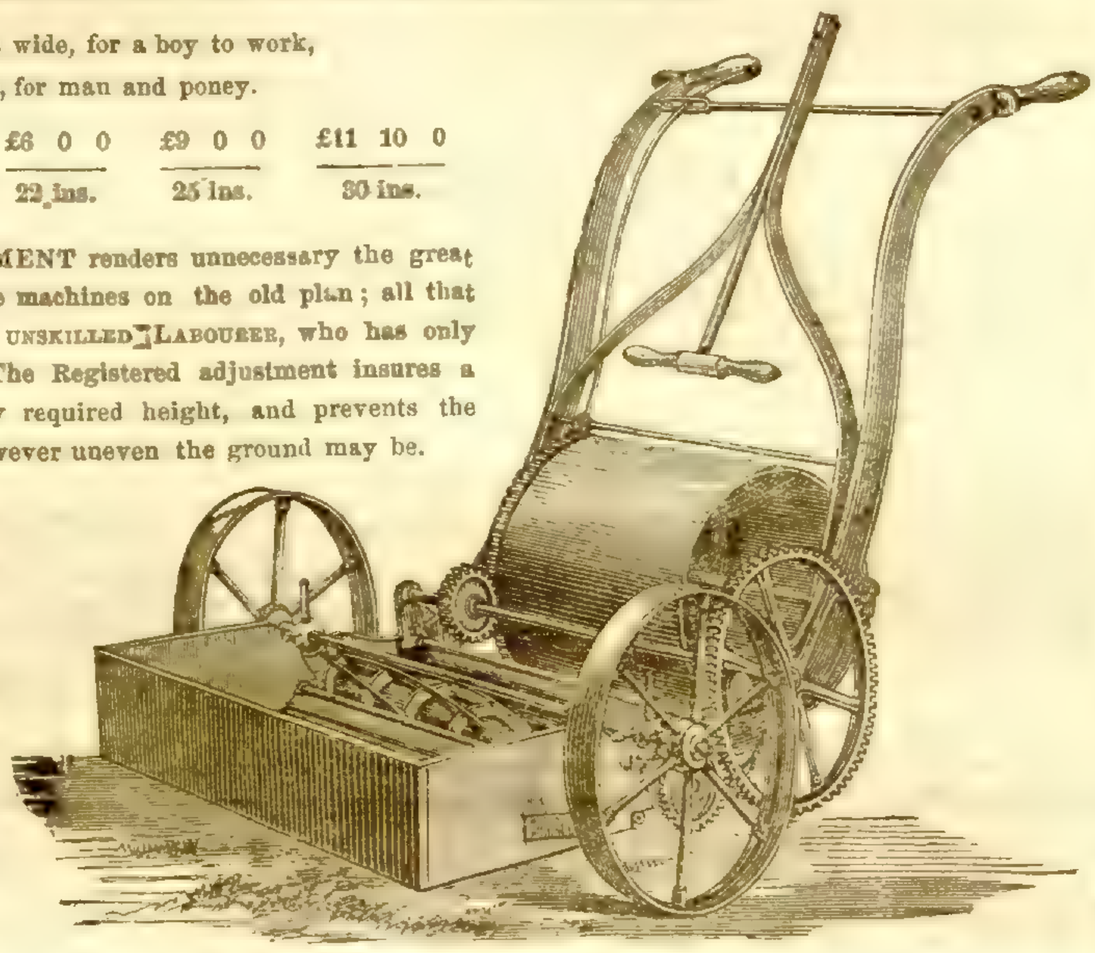
Messrs. Burgess and Key, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, London.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and poney.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled Labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



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The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries Chelsea; and of all respectable Ironmongers & Seedsmen in the country.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.
AGRICULTURAL LIST UPON APPLICATION.
EVERY DESCRIPTION OF PLAIN, ORNAME NTAL, CAST AND WROUGHT IRON, AND WIRE WORK,
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

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Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

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J. WEEKS and CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.
HEATING EXTENSIVELY BY ONE BOILER.

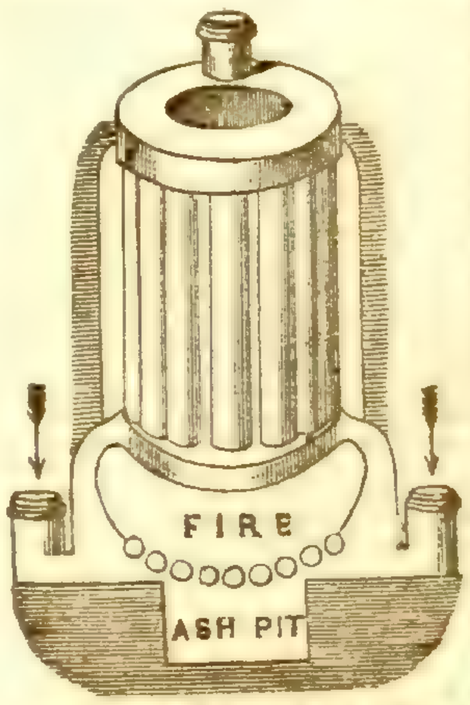
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. John Weeks & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "One Boiler System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to one boiler. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. Weeks & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. John Weeks & Co. *have done for me in heating a great number of our hot-houses from* one boiler. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. John Weeks & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their one boiler system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by one boiler, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

John Weeks & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

John Weeks & Co., King's Road, Chelsea.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At Fyfe and Co.'s Sanatorium, 46, Leicester Square.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.* | 8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 13*s.* | 9 by 7, and 10 by 8 ... 13*s.* 6*d.*

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¾*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10*s.* 6*d.* | 8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 12 0 | 9 by 7, and 10 by 8 ... 15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25*s.* each.

AQUARIUMS, with French polished stands, from 10*s.* each. Vase-shaped ditto, on glass stand, 20*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS, of British Manufacture, at prices varying from 2*d.* to 3*d* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in.	by 4 in.	and 6 in.	by 4½ in.	...	...	12*s.*	0*d.*
6¼	„ 4½	„ 7	„ 5	...	...	12	6
7½	„ 5½	„ 8	„ 6	...	...	13	0
8½	„ 6½	„ 9	„ 7	...	...	13	6
9½	„ 7½	„ 10	„ 8	...	...	13	6
10½	„ 8½	„ 11	„ 9	...	...	14	0
12	„ 9	„ 13	„ 9	...	...	14	0
10	„ 10	„ 10½	„ 10½	...	...	14	0
11	„ 10	„ 11½	„ 10½	...	...	14	0
11	„ 11	„ 11½	„ 11½	...	...	14	0
12	„ 11	„ 12½	„ 11½	...	...	14	0
13	„ 11	„ 13½	„ 11½	...	...	14	0
13	„ 12	„ 13½	„ 12½	...	...	16	0
13½	„ 13½	„ 14½	„ 13½	...	...	16	0
15½	„ 13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2¼ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

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PATRONISED BY HER MOST GRACIOUS MAJESTY.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25*s.*; Galvanised do., 30*s.*; Cast Iron, 35*s.* each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

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ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of One Thousand Bedsteads in stock, One Hundred and Fifty of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures, complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest Japanned Deal for Servants' Rooms, to the newest and most tasteful designs in Mahogany and other Woods. The whole warranted of the soundest and best manufacture. HEAL and SON'S Illustrated Catalogue of Bedsteads, and priced List of Bedding, sent free by Post.

HEAL & SON, 196, Tottenham Court Road.

NEAT AND DURABLE LABEL.—Send three Postage Stamps for a specimen label, painted and lettered in oil, to F. H., Post Office, Lydbury, North Salop.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

WATER your GARDENS and MANURE your LANDS with GUTTA PERCHA TUBING. Half-inch for gardening, 4*d.* per foot, medium; 4½*d.* stout; brass branch, stop-cock, and rose, 5*s.* 6*d.* Apply for illustrated price lists, to JAMES SHRATH & Co., the Patent Gutta Percha Factory, 35, Old Street Road.

THE Manufacture of GARDEN NETTING by ANDREW HALL is now carried on just the same by THOMAS BRITTAIN & CO. in the same qualities, and orders executed with dispatch and care. ANDREW HALL, Manchester.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required. 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

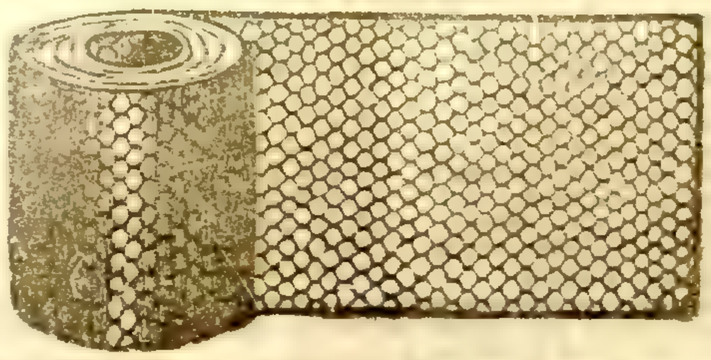
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any with, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each. Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5¼ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

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212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

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CAUTION.—To prevent fraud, each table bears the registered mark and the names and address of the inventors, as above.

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ART UNION OF LONDON. (By Royal Charter.)—Prizeholders select for themselves from the Public Exhibitions. Every Subscriber of One Guinea will have, beside the chance of a prize, an impression of a Plate of "HARVEST IN THE HIGHLANDS," engraved by J. T. Willmore, A.R.A., from the important and well-known Picture by Sir E. Landseer, R.A., and Sir Augustus Callcott, R.A. Subscription closes Monday next, 31st instant.

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Just out, price 2*s.* 6*d* free per post,

GORSE, FURZE, OR WHIN: ITS USE, ABUSE, AND CULTIVATION, or How to Keep Cattle at 3*d.* per day. By L. FENWICK DE PORQUET, Esq., author of "Le Trésor," "French Dictionary," "How to Keep Horses," "How to Make Bread at half the usual price," &c.

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TABLES ON CATTLE, HAY, AND DRAINING.

Ninth Edition, price 2*s.* 6*d.* cloth, of

A NEW SET of TABLES for computing the Weight of Cattle by Measurement, the Quantity of Hay in Ricks of different Forms, the Value of Land, &c. &c. To which is now added, a Concise System of FARM BOOK-KEEPING. By JAMES STRACHAN, Fochabers.

The BOOK-KEEPING is also sold separately, price 6*d.*

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PROTECTION AGAINST ADULTERATION OF FOOD, DRINK, AND DRUGS, AND OTHER COMMERCIAL FRAUDS:—The Chief Office and Central Depôt of the UNIVERSAL PURVEYOR, has been opened at 83, Cannon Street West, Corner of College Hill, City. The West End Depôt continues as before at 23, King William Street, Charing Cross. Lists of Prices, with Testimonials and names of Friends and Patrons, sent free on application to the UNIVERSAL PURVEYOR, at 83, Cannon Street West, Corner of College Hill, City, and 23, King William Street, Charing Cross.

HAMPSHIRE.

TO BE LET, in the neighbourhood of the Winchester, Ramsey, and Dunbridge Railway Stations and Markets, in one or two FARMS, about 626 acres (of which 235 acres are now in the occupation of the proprietors), consisting of 532 acres arable, 70 acres downs, 20 acres pasture, and two Farm-houses, one of them of a superior description, with a variety of Farm-buildings, Manure-tanks, and Shed, suited to modern farming, in good repair. Entry at Michaelmas. If the land is let as one farm the best of the two houses will be let with it. Offers may be sent in on or before April 26. The outgoing tenant not a bidder. The highest offer will not be accepted, irrespective of other considerations. The Farms may be seen on application to the bailiff.—A. B., Post Office, Stockbridge, Hants.

TO MARKET GARDENERS.

TO BE LET, 12 Acres of Land, well stocked with the best sorts of FRUIT TREES, &c., situated in the Parish of Fulham.—Apply to Mr. JAMES POUPART, Land Agent, Walham Green, Fulham.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15*s.* per dozen, including case.—Address, Holme, Stilton, Hunts.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12*s.* per doz; box, 1*s.* extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

SILVER PENCILLED HAMBURGH EGGS.

MR. EDWARD ARCHER, Malvern, will supply EGGS from the birds stated below at 15*s.* a set of 13, packing box included:—The run contains a Cock and seven choice Pullets. The Cock is two years old, and has taken 1st prize at Birmingham, 1854; the Liverpool Cup, 1855; several first and second prizes since, and 1st at Liverpool, 1856. Four of the Pullets have been exhibited alternately, and have taken the following prizes:—2d at Anerley; 1st at Bridgnorth; 1st at Bedford; 1st at Taunton; 3d at Birmingham; and the Silver Cup at Liverpool, 1856. The three sister Pullets have not been exhibited. Post Office Order must accompany the order for Eggs. The birds may be viewed at any time.—Malvern, March 29.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 1, at 12 o'Clock precisely, a Selection of very Choice Poultry, including First Class Spanish, from a well known Amateur, Prize Polands and Hamburghs from C. E. Coleridge, Esq.; White and Coloured Dorkings, Cochins, Game, Aylesbury and Rouen Ducks; Also an Hydro-Incubator, and some Books on Poultry.—Catalogues, by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

SPECIMEN HEATHS AND GREENHOUSE PLANTS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, April 11, at 1 o'Clock precisely, the Collection of Specimen HEATHS and GREENHOUSE PLANTS, belonging to E. L. BETTS, Esq., removed from Preston Hall, Maidstone. These plants have been most successfully exhibited at the Royal Botanic and other Shows for the last two seasons, and are in excellent health.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 8, at 1 o'Clock precisely, a Collection of ORCHIDS in fine health, including many choice specimens, such as Angræcum eburneum, Aerides Fox-brush, A. affine, Saccolabium guttatum, S. præmorsum, S. ampullaceum, S. retusum, Cattleya labiata, C. maxima, Lælia elegans, Phalænopsis amabilis, P. grandiflora, Vanda suavis, V. tricolor, &c.—May be viewed on the morning of sale, and Catalogues had of Mr. J. C. STEVENS, King Street, 38, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, City, on THURSDAY, April 3d, at 12 o'clock, a first-rate Collection of Carnations, Picotees, and Pinks; also Choice Standard and Dwarf Roses, consisting of Hybrids, Bourbons, Perpetuals, &c.; an assortment of American Plants, Camellias, Azalea indica, Fuchsias, Verbenas, Dahlias in dry roots, &c., &c.—May be viewed the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. J. WILLMER will Sell by Auction at the Mart, Bartholomew Lane, on WEDNESDAY, April 2, at 12 o'Clock, a choice collection of Picotees, Carnations, Yellow Picotees, Pinks, Roses, Dahlias, Lancashire Gooseberries, American Plants, &c.—On view the morning of Sale. Catalogues at the Mart; and of the Auctioneer, Sunbury, Middlesex.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, have *now published* their TWENTY-FIRST ANNUAL CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best Annual Catalogue of Seeds extant. It gives a complete description of 1979 species and varieties of FLOWER SEEDS, and a most comprehensive list of VEGETABLE AND AGRICULTURAL SEEDS, *all of which* can be supplied and are, *as usual*, of *first-rate quality*. It also contains lists of TEXAN, INDIAN, AND CALIFORNIAN FLOWER SEEDS, *forming, in fact, the finest Collection of Seeds ever submitted at any one time to public notice*. Catalogues forwarded *free of charge* and *post paid* upon application to all parts of the world.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2*s*. 6*d*. each, containing about 300 seeds, can now be had of MESSRS. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (comes true from seed); decidedly one of the most lovely things in cultivation, deserving a place on every Lawn in England.

East Dereham Nursery, Norfolk, March 29.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received fresh Seeds from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s*. 6*d*. each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

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CHOICE HOLLYHOCK SEED.—An Amateur growing a Collection of the above splendid flowers (which are the choicest varieties in cultivation raised by Chater, Paul, Bircham, Roake, and other eminent raisers), is willing to dispose of some of the above valuable Seed, in packets at 2*s*. 6*d*. each, or 12 varieties, separate, 5*s*., post free; stamps taken in payment.—Communications to be addressed to C. D. W., care of Mr. Lister, Postmaster, Barnsley, Yorkshire.

C. E. ALLEN having a large Stock of the following splendid DAHLIAS, will be able to supply fine strong Plants the last week in April at moderate prices:—Annie, Empress, Admiral Dundas, Pre-eminent Goldsmith, Lady Folkestone, Lord Bath, Ruby Queen, Espartero, Cossack, Ne-Plus-Ultra, and Mrs. Stowe. Fancies: Amphion, Baron Alderson, Miss Frampton, Comet, Surpriser, La Tropique, Miss Herbert. The above are selected as the best of last year's varieties. A descriptive priced Catalogue forwarded on application, and a liberal allowance made to compensate for long carriage.

Shacklewell, near London, March 29.

UNDERHILL'S "SIR HARRY" STRAWBERRY.—Fine Plants of this greatly celebrated and hardy Strawberry (warranted genuine), may now be had from the propagator, in numbers not less than a score. 100 plants 4*l*.; 80, 3*l*. 13*s*. 6*d*; 60, 2*l*. 16*s*.; 40, 1*l*. 18*s*.; 20, 1*l*.; in pots for forcing, not less than 10, 2*s*. each.—Apply to Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham. Orders to receive attention must be accompanied with a Post-office Order on Birmingham.

Also, a useful practical Treatise on the Cultivation, &c., of Strawberries, 1*s*.

POTATOES AND STRAWBERRIES.

GEORGE LEE, MARKET GARDENER, &c., Clevedon, near Bristol, offers the remaining surplus stock of POTATOES and STRAWBERRIES at reduced prices. They are of varieties he can confidently recommend. For names and prices see Advertisement March 15, 1856.—Post-office Orders payable at Clevedon, to GEORGE LEE.

N.B. The Strawberries which attracted so much attention at the Clevedon Horticultural Show last season were from Spring planted plants. It is now a good time for planting.

HOLLYHOCK, RED BEET, AND CELERY SEED

JOHN HOADE AND SON, NURSERYMEN, of Addlestone, near Chertsey, Surrey, beg to offer to the public the following really choice Seeds:—

HOLLYHOCK.—Saved from 50 first-rate named varieties, no others being kept, at 2*s*. 6*d*. per packet.

RED BEET.—Of a peculiar high coloured and dwarf kind, for which they have been long famous, at 1*s*. per packet.

CELERY.—Solid, white, compact in its growth, and stands far longer than the ordinary kinds, at 1*s*. per packet.

Payment taken in postage stamps.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s*. each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10*s*. 6*d*. The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

SAMUEL FINNEY AND Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery: and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

SAMUEL FINNEY & Co., Gateshead, Newcastle-upon-Tyne.

WANTED IMMEDIATELY IN LIVERPOOL MARKET.

PINES, not under 2 lbs.	CUCUMBERS
SMALL MUSHROOMS	FRENCH BEANS
NEW POTATOES	LARGE ASPARAGUS

Forward to GEORGE TAYLOR, Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

Terms—Cash.

CHOICE FLOWER SEEDS AT REASONABLE PRICES:—

100 packets	Choicest	Annuals and Perennials	...	17*s*. 6*d*.
75	ditto	ditto ditto	...	13 6
50	ditto	ditto ditto	...	10 0
25	ditto	Hardy Annuals ...	...	5 0

The above Seeds are all of last year's saving, and warranted to be free from any mixture of dead seeds, in full sized packets, with printed directions as to best mode of cultivation, describing height, colour, &c. The first three collections delivered free to any part of town. Imported German Collections in original sealed packets. Every description of Vegetable Seeds of the finest quality at moderate prices.

CHARLES SOUTHBY (late FAIRBAIRN), Clapham.

JOHN BELL, POTATO SALESMAN, Covent Garden, offers the following SEED POTATOES, warranted true stock.

	Per bushel—*s*. *d*.		Per bushel—*s*. *d*.
Ashleaf Kidneys	6 0	Regents	3 6
Fluke ditto	5 0	Cockney	7 0
White Blossom ditto	5 0	Early Frame	10 0
Lapstone ditto	5 0	Snowballs	4 0
Early Shaws	3 6	Fortyfolds	5 0

Post Office Orders made payable at Charing Cross, and with all country orders cash required, or a reference in London; usual allowance to the trade.

POTATOES.

W. AND S. GAINES respectfully invite attention to the following List of POTATOES:—

	Per bushel—*s*. *d*.		Per bushel—*s*. *d*.
Early Bath	5 0	Bread-fruit	4 0
„ Flourball	5 0	Walnut-leaf Kidney	4 0
Hicks's Early	5 0	White Blossom do.	4 0
Ash-leaf Kidney	6 0	Cambridge do.	4 0
Nevill's Defiance	6 0	Fluke do.	4 0
Thruston's Conqueror	6 0	Jackson's Improved do.	6 0
Shilling's Early	6 0	Red Ash-leaf Kidney	6 0
Oxford „	6 0	Lapstone do.	4 0
Cockney „	6 0	Americans	6 0
Frame „	6 0	Fortyfold	4 0
Tiley's Conqueror	6 0		

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2*s*. 6*d*., 15 varieties; packet at 5*s*., 30 varieties; Scarlet Runners, packet, 10*s*.; Dwarf French Beans, 12*s*. of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. GAINES, Seedsmen and Herbalists, Covent Garden Market.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to is customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars.			...	£1 0 0
25 ditto PICOTEES	„	„	...	1 0 0
25 ditto PINKS	„	„	...	0 10 0
25 plants PANSIES	„	„	...	0 12 0
12 ditto PHLOXES	„	„	...	0 8 0
12 ditto BELGIAN DAISIES		...	...	0 4 0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties for 15*s*., hamper, package, &c., included. To purchasers having duplicates, other kinds of equal merit will be supplied.

Argo, Paton & Small's	Marchioness of Bath, Wheeler's
Boadicea, Fellowes's	Miss Talbot, Dickson & Co.'s
Charles Turner, Hale's	Constance, Turner's
Chillington, Sadler's	National, Turner's
Emperor, Hale's	Pandora, Hunts
Father Gavazzi, Holland's	Round Table, Downie & Laird's
Fearless, Schofield's	Satisfaction, Turner's
Lady Carrington, Hunt's	Sir J. Paxton, Betteredge's
Lord Jeffrey, Lightbody's	Sir J. Cathcart, Turner's
Memnon, Turner's	Yellow Climax, Paton & Small's

Fine Show varieties, 4*s*. and 6*s*. per dozen. Very select Pansy Seed, 1*s*. and 2*s*. per packet. Catalogues now ready. Post-office orders payable at Middleton, Lancashire.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

NEW DAHLIAS TO BE SENT OUT IN MAY BY

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts.

ECLIPSE (WHEELER'S).—Fine dark purple, first-rate form, full high centre, and very constant; obtained certificates at Bath, Clifton, and Salisbury Exhibitions; 3 to 4 feet. 10*s*. 6*d*. each.

LADY RAGLAN (WHEELER'S).—Buff; a fine back row flower of good form and high centre; obtained certificates at Trowbridge, Salisbury, and Clifton Exhibitions; 4 to 5 feet. 7*s*. 6*d*.

The usual discount to the Trade.

HERBACEOUS PLANTS.—A large collection of the following can be supplied by the 100:—Double white Primrose, Campanula carpatica, blue; ditto, pure white variety; Czackia, or St. Bruno's Lily; Hepatica, pure white; Delphinium, Chinese; ditto Barlowi, ditto Wheeleri; Gaillardia splendidissima, ditto bicolor; Helleborus purpurascens; Pæonies, Chinese in variety, viz., rose-scented, Hume's, Reeves's, Potts's, double white, odorata grandiflora, &c.

Fine Bulbs of Anomatheca cruenta, Tigridias conchiflora and Wheeleri, free by post, 4*s*. per dozen.

Tritonia aurea, good blooming bulbs, free by post, 18*s*. per doz.

Phlox, a fine collection.

THOMAS VEITCH AND CO., WHOLESALE AND RETAIL AGRICULTURAL SEED MERCHANTS, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s*.; 12 do. do., 2*s*.; 12 do., do., 3*s*.; and upwards according to quality and quantity.

Agricultural, Vegetable, and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s*. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s*. per acre.

Mixtures for improving and renovating old Grass Land, 1*s*. per lb.

Mixtures (finest sorts) for forming Lawns... ... 1*s*. 3*d*. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,

26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.

„ „ Upland Sheep Walks.
„ „ Parks and Field Lawns.
„ „ Cemeteries and Church Yards.
„ „ Garden Lawns and Grass Plots.
„ „ Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s*. 8*l*.; fine Households, recommended for Bread-making, 12*s*.; Seconds, 11*s*. 4*d*.; Wheat-meal, for Brown Bread, 11*s*. 4*d*.; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

RICE FOR GRINDING, FEEDING, AND ALL OTHER PURPOSES.—Large consumers of RICE may obtain any quantity at the lowest market price, viz, from 11*s*. to 16*s*. per cwt.; fine, 19*s*. and upwards. Damaged, Sweepings, and Meal, the cheapest and best Food for Horses, Cattle, Pigs, Poultry, Dogs, and various other purposes, 5*s*. to 10*s*. per cwt., at J. UMPHELBY'S, 2, Love Lane, Eastcheap, where samples, Lists, and Directions for using Damaged Rice may be obtained.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16*s*. per Ton, less quantities 1*s*. 6*d*. per bushel, delivered five miles, or to any London Wharf or Railway.

PEAT and LOAM of various kinds. Sacks cost price (or hire 6*d*. each). Terms cash. J. KENNARD, Swan Place, Old Kent Road.

FOUNTAINS.

J. SEELEY begs leave to remind gentlemen intending to put up such Ornaments in their grounds next spring, that the work ought to be ordered without delay, with a view to its being properly seasoned. During the past year he has added many new designs to his stock.

Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

GLENFIELD PATENT STARCH USED IN THE ROYAL LAUNDRY, AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS TO BE THE FINEST STARCH SHE EVER USED.

Sold by all Chandlers, Grocers, &c. &c.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

BUY OF THE MAKERS.

BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade, at the Manufacturers, J. & J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street). Warranted Tooth Brushes, 3*d*.; superior ditto, 4*d*.; the best that can be made, 6*d*. each.—N.B. The lowest price asked, and no abatement.

A CALAMITOUS FIRE which occurred on the night of the 19th inst. at St. Andrew's Hill, Doctors' Commons, having completely destroyed the FURNITURE, STOCK, &c, of Mr. JAMES MANLEY, formerly Nurseryman at Hackney, a few Friends are desirous to raise a small sum to assist his Family under their present straitened circumstances.

Subscriptions will be thankfully received by HURST & MCMULLEN, 6, Leadenhall Street; and by HUGH LOW & Co., Clapton.

	l. *s*. *d*.
Messrs Hurst & McMullen, 6, Leadenhall Street	... 2 2 0
Messrs. Hugh Low & Co, Clapton	... 0 10 0
Mr. W. Ivery, Peckham	... 0 10 0
Mr. R. Glendinning, Chiswick	... 1 1 0
Messrs O. & S.	... 1 0 0
Mr. W. Addiscott, 6, Leadenhall Street	... 0 10 0
Mr. W. Clark, 25, Bishopsgate Street	... 0 10 0
Mr. W. Denyer, 82, Gracechurch Street	... 0 10 0

Further subscriptions will be acknowledged in the *Gardeners' Chronicle.*

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, March 29, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 14.—1856.] SATURDAY, APRIL 5. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT in the Gardens of the Society this season will take place on WEDNESDAY, May 28th, June 18th, and July 9th, and of AMERICAN PLANTS, on SATURDAY, June 14th.

Tickets of admission are now being issued, and can be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, before May 17th, 4s.; after that day, 5s. each.

STOKE NEWINGTON FLORICULTURAL SOCIETY.—The above Society will hold a Miscellaneous Exhibition on WEDNESDAY, August 27th, when Prizes will be awarded for DAHLIAS, HOLLYHOCKS, ASTERS, VERBENAS, &c. Arthur Wortley, Hon. Sec.

THE ANNUAL NATIONAL CARNATION AND PICOTEE EXHIBITION will be held on TUESDAY, August 5th, in conjunction with the Handsworth Society's Grand Floral Fete on that day. All communications and subscriptions to be sent to George F. Tye, 107, Great Charles Street, Birmingham.

PRACTICAL GEOLOGY.—King's College, London.—Professor Tennant, F.G.S., will commence a course of TWELVE LECTURES on GEOLOGY, having especial reference to the application of the Science to Engineering, Mining, Architecture, and Agriculture. The Lectures will commence on WEDNESDAY Morning, April 9th, at 9 o'clock. Fee 1l. 11s. 6d.—R. W. Jelf, D.D, Principal.

G. GLENNY, Landscape Gardener, Improver of Estates, and Horticultural Agent, will attend at any part of the Kingdom at Shows, or for consultation, on due notice. Fulham, April 5.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs Evergreens, Forest Trees, Roses, and Thorns.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible description from* Messrs. William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

NEW CLOVER SEED, COW GRASS, AND ALSIKE CLOVER, *new and genuine, without any admixture of old or inferior seed, can be obtained from* William E. Rendle & Co., Seed Merchants, Plymouth.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.* John Sutton & Sons, Seed Growers, Reading, Berks.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, AND DICKENSON'S ITALIAN RYE-GRASS, are both very superior to the Italian Rye-grass commonly cultivated.

At present Messrs. Sutton *have a supply of true Seed, of each sort. Early application is requested.*

John Sutton & Sons, Seed Growers, Reading, Berks.

DICKINSON'S ITALIAN RYE-GRASS SEED is sold by himself (he has no deputed Agent) to Agriculturists only, 60s. per quarter for present payment.—New Park, Lymington, Hants.

The Pamphlet, 1s., by Messrs. Ridgway, Piccadilly, London.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

IMPROVED SKIRVING'S SWEDE TURNIP SEED, grown by Mr. Robert Baker, Writtle, Essex, warranted a true stock and of the growth of 1855, will be forwarded at 2l. per bushel, and 1s. extra for the bag, upon receiving a remittance as above by Post Office Order on Chelmsford Office.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, April, and other kinds of Seed Wheat will be sent free on application to Mr. H. Raynbird, Basingstoke.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

ORCHIDÆA.

ORCHIDÆA PLANTS.—Choice Species, including Dendrobium, Oncidium, Stanhopea, Epidendrum, &c. &c. Twelve Plants, one of a sort, for 40s. to 60s. and 80s. per dozen. List by post.—Messrs. J. & H. Brown, Albion Nursery, Stoke Newington, London, April 5.

NEW FARM SEEDS.

SUTTON'S CATALOGUE *will be sent gratis and post free on application.* Sutton & Sons, Seed Growers, Reading.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. Morton, Esq., *is now ready, and can be obtained from the Proprietors,* William E. Rendle & Co., Seed Merchants, Plymouth.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.* J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post. Conservatories and Gardens furnished by Contract. Albion Nursery, Stoke Newington, London.—April 5.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1l. to 5l. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11. Seed Warehouse, 28, Market Place, Manchester.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.

☞ The Catalogue describes the colours of the Rhododendrons. The American Nursery, Bagshot, Surrey.—April 5.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station. Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

THE BEST THREE DAHLIAS of the season—Cook's EUGENIA, Cook's NAPOLEON, and Hedge's PRINCESS, for which G. Glenny is agent, will be sent free to any part of the Kingdom, if prepaid, Dungannon House, Fulham.

GOLDEN CHAIN GERANIUMS.—100 dozen fine healthy autumn struck plants at a moderate price. Thomas Wild, Ipswich.

THOMAS WILD, Ipswich, has a few packets of Orion Melon, 1s. 6d.; Standard Cucumber, 2s. 6d.; Latter's Primula, 2s. 6d. Now is the proper season for sowing; order without delay.

N.B. Hollyhock, Pansy, and Suffolk Hero Potatoes are sold out.

TO THE LOVERS OF A GOOD RED BEET.

CHARLES DOLTON, Seed Grower, Speenhamland, Newbury, will forward ½ oz. packets of the above by post on receipt of six postage stamps.—Established 1800.

CARNATIONS AND PICOTEES.

WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1s. to 1s. 6d. per pair.—Nurseries, Huntingdon, April 5.

INDIAN AZALEAS.

H. LANE AND SONS beg to offer large quantities of fine healthy Plants of the above. Also small specimens for Growing or for Exhibition. Prices and Catalogues can be had on application.—The Nurseries, Great Berkhamstead, Herts.

FRUIT TREES IN POTS.

H. LANE AND SONS have fine healthy Plants of the above, with Bloom Buds for bearing this year. Prices will be sent on application. The Nurseries, Great Berkhamstead, Herts.

HARDY AZALEAS AND RHODODENDRONS.

H. LANE AND SON have to offer most of the leading sorts of the above well set with blooms. The Nurseries, Great Berkhamstead, Herts.

DWARF ROSES.

H. LANE AND SON have a fine large Stock of DWARF ROSES, such sorts as Alexandrine Bachmeteff, Auguste Mie, Baronne Hallez, Madame Cavaignac, Mrs. Stowe, Triomphe de Paris, William Griffiths, &c., still to offer, both worked and on own roots. Prices and Catalogues may be had on application at the Nurseries, Great Berkhamstead Herts.

NEW BRITISH FERN.

Asplenium Refractum (Moore). For Description and Plate see March Part of "Nature Printing."

R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10s. 6d. each. Paradise Nursery, Hornsey Road, Holloway.

DELPHINIUM FORMOSUM.

WILLIAM MOORE begs to inform the Public that packets, 2s. 6d. each, containing about 300 seeds, can now be had of Messrs. NUTTING & SONS, Cheapside, London. The Plant is perfectly hardy, of very dwarf habit (comes true from seed); decidedly one of the most lovely things in cultivation deserving a place on every Lawn in England. East Dereham Nursery, Norfolk, April 5.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received fresh Seeds from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10s. 6d. each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

HOLLYHOCKS.

Hedenham Rosary, Bungay, Suffolk.

BIRCHAM AND WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms. Hedenham Rosary, April 5.

SUPERB HOLLYHOCKS.

JOSEPH BUTLER, Gardener to R. Hills, Esq., Colne Park, Halstead, Essex, begs to inform the Nobility and Gentry that he has now ready for sending out most of the leading varieties of this beautiful flower from 4s. to 1l. 10s. per dozen. Catalogues will be forwarded on application, by enclosing one postage stamp.

SELECT HOLLYHOCKS.

WILLIAM PERRY, Foreman to Mr. Rivers, of the Nurseries, Sawbridgeworth, begs to inform the public that he has published a Descriptive List of Selected HOLLYHOCKS, which will be sent postage free on application.

DAHLIAS, ETC., FOR 1856.

E. C. ALLEN having a large stock of the best novelties sent out last season, can supply strong Plants at the end of April at moderate prices. A Descriptive Priced Catalogue forwarded on application. A liberal allowance made for long carriage.—Shacklewell, near London.

NEW DOUBLE WHITE PETUNIA—"IMPERIAL" (true).

CHARLES TURNER is now able to supply Plants of this beautiful new variety, which is as double as an Oleander, and fragrant. Plants 3s. 6d. each, with a considerable reduction to the trade if a dozen are taken. C. T. begs particularly to recommend it, as it is not only a novelty but also a valuable bedding plant.—Royal Nursery, Slough.

ASPARAGUS.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100 ... ... 2s. 6d.
Ditto 3 years old, per 100 ... ... 3s. 6d.

Royal Nursery, Great Yarmouth.

WANTED IMMEDIATELY IN LIVERPOOL MARKET.

PINES, not under 2 lbs.	CUCUMBERS
SMALL MUSHROOMS	FRENCH BEANS
NEW POTATOES	LARGE ASPARAGUS

Forward to George Taylor, Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool. Terms—Cash.

T. F. WINSTANLEY, Seed Merchant, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2s. 6d. to 40s.

"THE ONLY BALSAMS WORTH GROWING," (*see many letters*).—Glenny's Improved Six Classes, 37 stamps; Mixed, 13; Pink and Geranium, 37 each; Dahlia, Aster, Hollyhock, Double Imperial India Pink, 13 each; Annuals, 12 for 3s.; and Imported German of all kinds, at the Catalogue price.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

T. AND G. SWAILES offer a few 1000 of PINUS MARITIMA, two years' seedlings, very fine stiff Plants, and well rooted. Also EVERGREEN OAKS, twice transplanted, 1½ to 2 feet in height.—Beverley Nurseries, April 5.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application—Thomas Jackson & Son, Nurseries, Kingston, near London.

TO BE SOLD, FLOUR BALL POTATOES; as the stock is limited, orders attended to in rotation. Price 2s. per peck, in quantities of not less than 10 pecks; prepayment by Post-office Order to William Beckett, Welham, Retford, Notts.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

FLUKE KIDNEY POTATOES, 3l. 10s. per ton; sacks, 1s. per cwt. Grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.—Humphrey Chamberlain, Kempsey, Worcester.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3 0
Collection No. 2. in reduced proportions	2 0
Collection No. 3. do.	1 5
Collections for small Gardens ... ... 10s. 6d. and	0 15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2s. 6d.
" " in larger packets, mixed 2s.

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	d.
100 vars. select showy Annuals, including newest ...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7s. 6d.; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,
IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stock, 5s.; 15 vars. ...	3s.	0d.
Choice mixed do. packets, 6d. and 1s.; new pale sulphur	1	0
Fine dwarf carmine, 6d.; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6d.; new white dwf. Wall-leaved, 6d. &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6d. and 1s.; mixed fine, 6d. and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5s.; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony-flowered French do. (Truffaut's)...	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p. 46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20s.) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.—Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

J. C. WHEELER AND SON, Gloucester, beg to offer the following FLOWER SEEDS, imported from one of the best Growers in Germany, which they can recommend as being of the very best quality, and which will be forwarded free by post at the following prices:—

	s.	d.
QUILLED DOUBLE GERMAN ASTER—Assortment of 24 splendid varieties, containing of each colour 100 seeds	5	0
Ditto ditto 12 varieties	2	6
Packets of the above vars. mixed, 1s.; small packets, each	0	6
GERMAN TEN-WEEK STOCKS—Assortment of 24 most splendid varieties, each colour separate	5	0
Ditto, assortment of 12 most splendid varieties	2	6
The above varieties mixed, 1s.; small packets	0	6
NEW LARGEST FLOWERING DWARF TEN-WEEK STOCK.—This new acquisition has been greatly admired. The flowers are exceedingly large, the colours rose, purple, blue, light blue, and white. Assortment of nine beautiful varieties	2	6
The above varieties mixed, 1s.; small packets	0	6
DWARF GERMAN WALLFLOWER-LEAVED TEN-WEEK STOCK—Assortment of 12 splendid varieties, containing of each variety 100 seeds	3	0
NEW ROSE PURPLE EMPEROR STOCK, per packet	1	0
WALLFLOWERS—Collection of eight splendid varieties	3	0
DWARF DOUBLE LARKSPUR—Collection of 10 most splendid varieties, containing of each colour one-eighth of an ounce	5	0
TALL DOUBLE LARKSPUR—Collection of eight splendid varieties, containing of each colour one-eighth of an ounce	3	6
ZINNIA ELEGANS—Collection of six beautiful varieties	2	6

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Fox, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgbaston, Birmingham.*

"The German Stocks came up to your recommendation: they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

WHEELER'S GARDEN SEEDS.

In order to save trouble in ordering seeds we have made up three collections of "Garden Seeds." The first a large Collection comprising all the sorts requisite and necessary for the year's consumption of a large garden, all arranged in proper quantities and correctly named, price 3*l*, carriage free. Second Collection, equally choice sorts, suitable for a middle-sized garden, for 30s., carriage free; the third Collection for a small garden, price 15s.

"Your seeds were very good last year, and I hope they are equally so this season."—*R. B. Williams, Esq., Stackpole Court, Pembroke.*

"The Peas were excellent."—*The Hon. F. Scott, M.P., Sandhurst Grange.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester, Seedsmen to the Gloucestershire Agricultural Society. Established more than a hundred years.

ESTABLISHED ABOUT HALF A CENTURY.

AGRICULTURAL SEEDS.

BASS AND BROWN can supply the following of pure and genuine selected stocks, and of extra quality.

Reduced prices for large quantities.	Per lb.—s.	d.
Mangel Wurzel, Yellow Globe	0	8
" " Red Globe	0	8
" " Long Red	0	8
" " Long Yellow	1	0
White Silesian Sugar Beet	1	0
Carrot, White Belgian	0	9
" Yellow Belgian	1	0
" Long Red Altringham	1	0
Large Cattle Parsnips	1	0
Drumhead Cattle Cabbage (scarce)	4	0
Swede Turnip, purple-top, extra, 40s. per bushel...	0	10
" " Skirving's, 40s. per bushel ...	0	10

Turnip, Orange Jelly, Lincolnshire Red Globe, Round, Tankard, Scotch, and other Turnips at moderate prices.

BASS & BROWN'S SELECTED NATURAL GRASSES FOR PERMANENT PASTURES are highly approved, and have given the fullest satisfaction, and can be supplied to suit the soils required.

	Per acre—s.	d.
For Soils generally, including Clovers ...24s. to	30	0
Renovating Mixture for Old Pastures, per lb. ...	0	10
Finest Lawn Mixture, 4s. 6d. per peck, per lb. ...	1	3

All orders and inquiries will receive prompt attention. Carriage free to all stations in London and all Stations on the Colchester Line between London and Norwich.

BASS & BROWN, Seed Establishment, Sudbury, Suffolk.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "RENDLE'S Agricultural Price Current and Farm Directory."

Swede Turnip of sorts, 10d. per lb., 1s. 4d. per qt., 5s. per gall.	
Scotch Turnips ditto, 10d. per lb., 1s. 4d. per qt., 5s.	"
Common Turnips ... 8d. per lb., 1s. per qt., 4s.	"
Tankard Turnips ... ... 8d. per lb., 1s. per qt., 4s.	"
White Belgian Carrot .. 9d. per lb.	
Long Red Mangel Wurzel, 6d. per lb.	
Yellow Globe do. 6d. per lb.	
Italian Rye-Grass, 9s. per bushel.	
Scotch Perennial do. 7s., 8s., to 9s. per bushel.	
Devon Evergreen do. 6s. to 7s. per bushel.	

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following SUPERB FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet.—s.	d.
Antirrhinum, from 100 striped and spotted varieties ...	0	6
Balsam, from 25 best double varieties	0	6
Calceolaria, from 50 best spotted varieties...	1	0
Cineraria, from 50 choice new kinds	1	0
Double Daisy, from 60 fine named varieties	0	6
Hollyhock, from 50 superb varieties	0	6
Mimulus, from 20 choice kinds	0	6
German Aster, from 24 fine large quilled varieties ...	0	6
Pansy, from 100 best show flowers	1	0
Sweet William, from 50 large double varieties	1	0
Verbena, from 100 of the newest varieties	1	0
Phlox, from 50 best perennial varieties	0	6
" Drummondi, 30 finest varieties	0	6
Dianthus atropurpurea plena, large double purple ...	0	3
" atrosanguinea plena, large double red	0	3
" sinensis plena, from 20 varieties	0	3
Alstrœmeria, from Van Houtte's Chilian varieties ...	0	6
German Aster ... ... 12 fine vars. in separate colours	1	6
German Stocks ... ... 12 do. do. ...	1	6
Double Wallflower ... 12 do. do. ...	1	6
Double Poppies ... ... 12 do. do. ..	1	0
Marigold, African & French. 12 do. do. ...	1	6
Larkspur, double dwarf 12 do. do. ...	1	6
Brompton Stocks .. 12 do. do. ...	1	6
Salpiglossis ... ... 12 do. do. ...	1	6
Zinnea elegans ... ... 8 do. do. ...	1	0
Ipomœa lindata, a splendid climber	0	6
Primula sinensis, fine large varieties	0	6
Potentilla, from the best new varieties	0	6

CUCUMBER, KNIGHT'S IMPROVED HARDY RIDGE.—This is the best variety ever offered for ridge culture, 1s. p. pckt.

CHOICE HARDY ANNUALS.—100 most approved vars., 5s.; 50 do., 3s.; 36 do., 2s. 6d.; 12 do., 1s. 2d.

HARDY PERENNIALS. 50 choice vars., 4s.; 25 do., 2s. 6d.

Catalogues may be obtained on application inclosing a postage stamp.—67, High Street, Battle, Sussex.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

	s.	d.
25 Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25 Azaleas, American varieties, do. do.	16	0
Hardy Heaths, Ledums, and Kalmias, per dozen ...	6	0
25 Hardy American Plants, one of a sort, by name ...	10	6
12 Rhododendrons, including scarlet, white, and rose ...	12	0
Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
New yellow Rhododendrons, in pots, each . 3s. 6d. to	5	6
Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12s. to	18	0
Cedrus Deodara, and other choice Coniferæ (see List).		
6 Fine hardy Magnolias, one of a sort	10	6
50 Dwarf Roses, two of a sort, on own roots	15	0
Wistaria sinensis, strong plants, each	3	6
White and yellow Jasmine and Honeysuckle for edging, per dozen	6	0
Clematis azurea, per dozen	12	0
Fine Climbing Roses, per dozen	6	0
Greenhouse Azaleas, best new vars., per dozen . 12s. to	18	0
Camellias, fine sorts, well set with buds, per dozen ...	30	0
50 Choice Greenhouse Plants, one of a sort	45	0
12 Orchidea Plants, one of a sort, fine species	40	0
24 Choice Ericas, one of a sort	16	0
Fine Pampas Grass, each	3	6
6 new sorts Mimulus, very fine early flowering	6	0
Calceolarias and Cinerarias, blooming plants, per dozen	12	0
Fine New Double White, Pink and Bush Pæonies, p. doz.	5	0
12 Phlox, new French and Belgian Perennial varieties ...	12	0
25 Hardy Herbaceous Plants, by name	10	6
Carnations, Yellow Picotees, and Pinks, per dozen ...	10	0

FRUIT TREES.

Apricots, Peaches, Nectarines, Pears, Plums, and Cherries.		
Fine Apples, Figs, Medlars, Quinces, and Walnuts each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes and layers in pots, per dozen .	18	0
Peaches, Nectarines, Apricots, Plums, and Cherries, grown for pot culture, per dozen	18	0

Choice Flower Seeds, 18 papers, 5s.; 40 do., 10s., free by post.
New General Catalogue of Plants for 1856 free by post.
Albion Nursery, Stoke Newington, London, April 5.

SCILLA SIBERICA.

JOHN CATTELL has now flowering several thousands of the above, which is the hardiest and most beautiful of all the early spring flowering plants. As a proof of its hardiness, on the morning of the 31st of March, we had 17° of frost killing the flowers of Andromeda floribunda, Crocus, &c., and on the warm day of April 1st the Scilla Siberica was as beautiful as though no frost had occurred. Parties wishing to see its beauty may have a bunch of Flowers transmitted by post by enclosing 12 penny stamps. Bulbs will be supplied in the autumn.

Nurseries, Westerham, Kent.

ERICAS.

MESSRS. YOUELL AND CO. beg to submit the following list of choice ERICAS, which can be supplied in good bushy and healthy plants, in large and small 48s, at 12s. per dozen:—

ERICAS.—Aggregata, ampullacea, ampullacea carnumbrata, ampullacea rubra, aristata major, Archeriana, Bandoniana, bicolor, Cavendishi, cerinthoides, cer. coronata, Cliffordi, Coventryana, Devoniana, depressa, denticulata mutabilis, echiflora, Ewerianа, eximia, exurgens coccinea, Hartnelli, hybrida, hyacinthiflora, Lisanæoides nova, L. superba, metulæflora bicolor, ovata, perspicua nana, pinifolia discolor, princeps, propendens, pyriformis, primuloides, rubens, retorta major, Shannoniana (Turnbull), Sindryana, tricolor, tri. rubra, umbellata, ventricosa alba, v. alba tincta, v. breviflora, v. carnea, v. coruscans, v. curta ruba, v. densa carnea, v. dependens coccinea, v. fasciculata longiflora, v. f. rosea, v. f. superba, v. globosa, v. hirsuta, v. magniflora, v. perspicuoides, v. superba, v. tumida, v. tenuiflora, Vernoni, Ver. superba, verticillata, vestita tenuiflora, v. coccinea, v. c. tenuiflora, v. rosea, viridiflora, Westcotti, Westphalingi, Wilmorea superba, Walkeri.

The above are well grown, and of a suitable size for making specimens. The usual discount to the trade when taken per 100.

All orders of 2*l*. and upwards are delivered carriage free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early.

The drought of last summer having caused partial failures in the ordinary Grass and Clover Leas, SUTTON'S Renovating Grass Seeds may be sown with great advantage *in all such cases.* PRICE REDUCED TO **9d.** PER POUND.

SUTTON & SONS *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.*

Goods delivered Carriage Free by Rail.

Address JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

BALSAMS.

F. AND A. SMITH, FLORISTS, Dulwich, Surrey, beg to offer Seeds of their superb BALSAMS, in sealed packets of six separate colours, 2s. 6d each; also mixed, at 2s. per packet. The colours are scarlet, crimson, white, blush, scarlet flaked, crimson flaked, scarlet spotted white; also a small quantity of purple and purple flake.

Copy of Minute. National Floricultural Society, July 26, 1855.

"Balsams:—20 plants from F. and A. SMITH, Dulwich. The censors not having the power to award Certificates to this class of plants (true Annuals, and therefore not considered Florists' flowers), wish to express their unanimous opinion of the great merit of the collection produced, which for variety, habit, colour, size, doubleness, and general excellence, are the best that had hitherto come under their notice."

Dr. LINDLEY, on inspection, said:—

"They are fully equal, and in several particulars vastly superior to the best I have seen in Continental establishments."

Extract from the Report of the Meeting of the National Floricultural Society, in the Gardeners' Chronicle, *August 4th, 1855, page 520.*

"Several extremely well-grown plants of what are called Camellia Balsams were furnished by Mr. Smith, of Dulwich, and very handsome things they must be admitted to be: among them were blush, purple, and scarlet kinds, and scarlet mottled with white; and when we state that many of the flowers measured quite 2¼ inches across, and 1 inch deep, some idea of the kind of display they made may be conceived; their only fault was that they were scarcely sufficiently in bloom."

F. & A. SMITH have appointed as Agents:—

Messrs. E. G. Henderson & Son, Wellington Road.
Messrs. Hooper & Co., Seedsmen, Covent Garden.
Messrs. Sutton & Sons, Reading, Berks.
Mr. J. Turner, Royal Nursery, Slough.
Messrs. A. Henderson & Co., Pine-apple Place, Edgeware Road.
Messrs. Veitch & Son, Chelsea and Exeter.
Messrs. Rollisson & Sons, Tooting, Surrey.
Messrs. Bass & Brown, Sudbury, Suffolk.
Messrs. W. E. Rendle & Co., Seedsmen, Plymouth.
Messrs. Dawes, Cottrell, & Co., Seedsmen, Moorgate Street, City.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester.
Messrs. F. & A. Dickson & Co., 14, Corporation Street [Manchester.
Messrs. Brown & Austin, Glasgow.

NEW DAHLIAS TO BE SENT OUT IN MAY BY GEORGE WHEELER, NURSERYMAN, Warminster, Wilts.

ECLIPSE (WHEELER'S).—Fine dark purple, first-rate form, full high centre, and very constant; obtained certificates at Bath, Clifton, and Salisbury Exhibitions; 3 to 4 feet. 10s. 6d. each.

LADY RAGLAN (WHEELER'S).—Buff; a fine back row flower of good form and high centre: obtained certificates at Trowbridge, Salisbury, and Clifton Exhibitions; 4 to 5 feet. 7s. 6d.

The usual discount to the Trade.

HERBACEOUS PLANTS.—A large collection of the following can be supplied by the 100:—Double white Primrose, Campanula carpatica, blue; ditto, pure white variety; Czackia, or St. Bruno's Lily; Hepatica, pure white; Delphinium, Chinese; ditto Barlowi, ditto Wheeleri; Gaillardia splendidissima, ditto bicolor; Helleborus purpurascens; Pæonies, Chinese in variety, viz., rose-scented, Hume's, Reeves's, Potts's, double white, odorata grandiflora, &c.

Fine Bulbs of Anomatheca cruenta, Tigridias conchiflora and Wheeleri, free by post, 4s. per dozen.

Tritonia aurea, good blooming bulbs, free by post, 18s. per doz.

Phlox, a fine collection.

SPLENDID NEW SCARLET DELPHINIUM, DELPHINIUM CARDINALE.

MESSRS. VEITCH AND SON, of the EXOTIC NURSERIES, Chelsea and Exeter, have much pleasure in announcing that they are now prepared to execute orders for DELPHINIUM CARDINALE, a new and rare introduction of remarkable beauty, possessing a colour hitherto unknown in the genus to which it belongs. It was figured in the "Botanical Magazine" for December, 1855, and described by Sir William J. Hooker in the following terms.

"We have now the pleasure of making known a species of Delphinium equalling if not surpassing any other in size and symmetry of the plant, and excelling in the brilliancy of colour of the flower, and that as rich a scarlet as can well be looked upon. It is one of the many novelties selected by Mr. William Lobb in California, and introduced to our gardens by Messrs. VEITCH & SON, of the Exeter and Chelsea Exotic Nurseries. Treated as a HARDY PERENNIAL it cannot fail to be a great favourite with all lovers of handsome flowers."

Strong plants in 48-sized pots 10s. 6d. each, with one over on three to the trade. Special terms to the trade per dozen, or in larger numbers, may be had upon application.—April 5.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

500 BUSHELS OF POTATOES TO THE ACRE.

THIS ENORMOUS CROP was grown last year by a gentleman in Surrey, and out of which there were only five bushels diseased; nearly all the quantity were large-sized, some weighing 2 lbs. and 1 oz., and not above three bushels of Chats out of the whole. This Potato was ORIGINALLY reared in Scotland, and is called by the grower the Scottish Champion, and has AGAIN proved to have surpassed ALL other sorts, both in quantity, quality, and freedom from disease, as will be seen by the testimonials.

The price is 2l. 2s., inclusive of the sack of three bushels, delivered free at the South Western Railway Station in London.—Apply by letter, post-paid, to Mr. WILLIAM GOWLAND, 4, Crooked Lane, London Bridge, London; or to THOS. B. ATKINSON, Seedsman, 64, High Street, Worcester, where further testimonials can be obtained. All orders must be accompanied by a remittance.

"Sir,—In answer to yours respecting the Scottish Champion Potato, I beg to say it is quite equal in flavour to the York Regent, is very productive, boils very white and mealy. In fact, of the sixty-seven varieties of Potatoes grown by me in the way of experiment this season I consider it the best, and shall plant it for my next general crop.—Your obedient servant,

"EDWARD BENNETT, Gr. to Sir Offley Wakeman, Bart.

"Perdiswell Hall, Worcester."

SEED POTATOES.

J. C. WHEELER AND SON offer the following SEED POTATOES:—

PRINCE OF WALES.—This is the earliest round white Potato, excellent for forcing, and for a general crop can be most highly recommended. Per peck, 2s. 6d.; per bushel, 9s.

"I was highly delighted with the Prince of Wales Potatoes I had from you last year; I consider them more mealy and better flavoured than any other sort, and far more free from disease, planted in the same soil and in every way alike."—Mrs. CARNING, Portfields, Hereford.

"Your Prince of Wales Potato I obtained when first sent out, and I beg to bear testimony to its good qualities. It is early, excellent, and very prolific. On a plot of ground last year I am sure that I raised at the rate of nearly 400 bushels per imperial acre."—Rev R. O. BROMFIELD, Sprouston Manse, N. B.

J. C. WHEELER and SON beg to add that they have much satisfaction in introducing this Potato into general notice—they have sent it into nearly all parts of the Kingdom, and everywhere it is highly spoken of. It is so early that it escapes the disease more than almost any other variety. It is a large cropper, and the flavour is excellent; they can recommend it in the strongest terms.

ALSTONE KIDNEY.—This is perfectly distinct from any other Potato. It is an astonishing cropper, and the tubers are of large size. It keeps well, and is good flavoured, and is altogether an excellent and profitable variety. Per peck, 2s. 6d.; per bushel, 9s.

The Rev. R. O. BROMFIELD, of Sprouston Manse, N. B., gives the following report of the Alstone Kidneys which he had from us.—"I had the Alstone Kidney planted in four rows of 10½ yards in length, the running length of all being 42 yards, and the produce was three large heaped imperial bushels of Potatoes besides a few small refuse. Not knowing the Potato previously I had it planted in rows 2 feet apart, which was too close and made the crop less than it would have been, for the outside row of 10½ yards yielded nearly a heaped bushel. It is at the rate of close upon 520 bushels per acre. The produce is unusually large

FLUKE.—This sort is now becoming well known. It is somewhat of a Kidney, but perfectly distinct from any other. As a second early Potato it is without doubt the best, and will in a short time find its way into every garden. 2s. per peck.

ASHLEAF KIDNEY (true) an excellent sample. 2s. 6d. per peck, or 9s. per bushel, delivered carriage free.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. Per Post prepaid.

		Per packet.—s.	d.
PANSY, saved from	100 of the best varieties, by name ..	2	6
POLYANTHUS "	50 " " ...	2	6
VERBENA "	50 " " ...	2	6
HOLLYHOCK "	60 of the most superb kinds " ...	2	6
CALCEOLARIA "	24 " spotted varieties ...	2	6
GLOXINIA "	30 of the best varieties	2	6
FUCHSIA "	all the new varieties of last year	2	6
DAISY "	50 of the new Belgian vars, by name	1	0
ANTIRRHINUM "	20 best named varieties	1	6
ANEMONE, from the most showy and brilliant kinds ...		1	0
30 packets of New Choice Flower Seeds, per post, free for		5	0

YOUELL & Co., Royal Nursery, Great Yarmouth.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18s. per dozen.

PINKS.—The finest first-class show Pinks, by name, 9s. to 12s. per dozen pairs.

" Fine mixed border ditto, 6s. per dozen pairs.

All Orders of 2l. and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

MR. T. LINDEN, of Brussels, respectfully informs the lovers of new Exotic Plants and the Trade that he has made an arrangement with Messrs. E. J. HENDERSON & SON, Nurserymen, Wellington Road, St. John's Wood, London, abandoning to them his right of selling in England his LOCHERIA MAGNIFICA, TYDÆA AMABILIS, CUPHEA EMINENS, and GONOCALYX PULCHER, and that in consequence he could not accept any orders on these four Plants for Great Britain; but at the same time he begs to offer his other new introductions, and among them the most remarkable

CALYPTRARIA HÆMANTHA	24s. to 40s.
MARANTA PARDINA	40s.
" METALLICA	24s.
CHÆTOGASTRA LINDENIANA	12s.

&c. &c. &c.,

all of which are now ready to be sent out.

His new Catalogue for 1856 may be had on application to Messrs. BETHAM & BLACKITH, Cox and Hammond's Quays, Lower Thames Street, London.

The usual allowance to the Trade when three Plants are ordered.

FIRST-CLASS SHOW PANSIES.

HART AND NICKLIN, FLORISTS, Guildford, Surrey, offer the following PANSIES.—

Monarch (Hale)	Criterion (Hooper)
Pompey (do.)	Great-Western (do.)
Duke of Perth	Sylvia (Thomson)
Ophir (M'Dowall)	Elegantissima (do.)
Ringlet (Turner)	Sylvia (do.)
Satisfaction (do.)	Sovereign (Dickson)
Adela (do.)	Miss Talbot (do.)
Marchioness of Bath (do.)	Pandora (Hunt)
Alfred the Great (do.)	British Queen (Turner)

The above Set 12s., hamper, &c., included.

Euphemia, Mr. Beck, Pompey, Polyphemus, Caroline, Conductor, Queen of England, Gem, Duchess of Norfolk, Lady Montague, Commander-in-Chief, Eva, &c., 5s. per dozen.

Numerous testimonials could be furnished of satisfaction given by plants sent out.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties for 15s., hamper, package, &c., included. To purchasers having duplicates, other kinds of equal merit will be supplied.

Argo, Paton & Small's	Marchioness of Bath, Wheeler's
Boadicea, Fellowes's	Miss Talbot, Dickson & Co.'s
Charles Turner, Hale's	Constance, Turner's
Chillington, Sadler's	National, Turner's
Emperor, Hale's	Pandora, Hunts
Father Gavazzi, Holland's	Round Table, Downie & Laird's
Fearless, Schofield's	Satisfaction, Turner's
Lady Carrington, Hunt's	Sir J. Paxton, Betteredge's
Lord Jeffrey, Lightbody's	Sir J. Cathcart, Turner's
Memnon, Turner's	Yellow Climax, Paton & Small's

Fine Show varieties, 4s. and 6s. per dozen. Very select Pansy Seed, 1s. and 2s. per packet. Catalogues now ready. Post-office orders payable at Middleton, Lancashire.

POTATOES.

W. AND S. GAINES respectfully invite attention to the following List of POTATOES:—

	Per bushel—s.	d.		Per bushel—s.	d.
Early Bath	5	0	Bread-fruit	4	0
" Flourball ...	5	0	Walnut-leaf Kidney ...	4	0
Hicks's Early	5	0	White Blossom do. ...	4	0
Ash-leaf Kidney ...	6	0	Cambridge do. ...	4	0
Nevill's Defiance ...	6	0	Fluke do.	4	0
Thruston's Conqueror ...	6	0	Jackson's Improved do.	6	0
Shilling's Early ...	6	0	Red Ash-leaf Kidney ...	6	0
Oxford "	6	0	Lapstone do.	4	0
Cockney "	6	0	Americans	6	0
Frame "	6	0	Fortyfold	4	0
Tiley's Conqueror ...	6	0			

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2s. 6d., 15 varieties; packet at 5s., 30 varieties; Scarlet Runners, 10s. per bushel; Dwarf French Beans, 12s. per bushel, of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. GAINES, Seedsmen and Herbalists, Covent Garden Market.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet; sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10s. 6d. The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

RHODODENDRONS, AZALEAS, ETC.

GEORGE WHEELER, NURSERYMAN, Warminster, Wilts, begs to offer, at very moderate prices:—

RHODODENDRONS from good hardy kinds, transplanted suitable for beds, cover, or plantations, 9 inches to 2 feet and upwards.

RHODODENDRONS, good named sorts of fine hardy varieties, including fragrans and Govenianum, both of which are sweet; Nobleanum and scarlet in variety, 2 to 3 feet and upwards.

AZALEAS, hardy in great variety, well set with bloom buds, 2 feet high and upwards.

A good Stock of Rhododendron Ponticum, white, 2 feet and upwards; Andromeda, Vaccinium, Ledum, American Cranberry Gaultheria Menziesia, Hardy Heath, &c.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above to be sent out on and after the 20th of April. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

FIRST-RATE DAHLIAS FOR 1856.

J. KEYNES' ANNUAL CATALOGUE (Illustrated, see TURNER'S *Florist*) contains the best selected List of the above, and will be sent on desire. Plants will be ready as usual the first week in May.

P.S. The party who printed the above Catalogues never having printed any before, wishes to explain the nature of the Illustrations. He states, the man looking over the gate is seeking after all the first-rate flowers that were offered in 1855, wondering they are not in J. KEYNES's Catalogue. The Nondescript at the end is a new Dahlia Poker (about to be patented), by which a skilful dresser is enabled to make a second class flower look equal to a first. The windmill is a puff, and so are many advertisements, and he wishes the public not to believe even all there may be stated in the Catalogue. The Typographical error (the omission of a comma), he trusts will not put a full stop to the sale of the flowers. Castle Street, Salisbury, April 5.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

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PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

Established 1786.

SUTTON'S SELECTED MANGEL WURZEL.—*The* MANGEL WURZEL ROOTS *grown from* Messrs. SUTTON'S *Seed gained the First Prizes at the Birmingham and many other Root Shows last season*—(*see* Times *Newspaper, December* 12, 1855.)

They were also much admired on Messrs. SUTTON'S stand at the Smithfield Club, shown in Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express*, and other papers of December last. At present, Messrs. SUTTON can supply any quantity of Seed. Price of their selected Yellow Globe 9d. per lb. The prices of other kinds and of large quantities may be had on application.

Royal Berkshire Seed Establishment, Reading, April 5.

The Gardeners' Chronicle.

SATURDAY, APRIL 5, 1856.

LAST Monday the HORTICULTURAL SOCIETY arrived at a decision the importance of which can scarcely be over-estimated. The reports which we have published of the proceedings in Regent Street during the present spring have shown that the financial position of the Corporation has been engaging its serious attention; and that two diametrically opposite views have been held of what should be its future action. On the one side it has been contended that the Garden at Chiswick can no longer be maintained, now that the funds provided during the last 25 years by the Garden Exhibitions have totally failed, and that the Society must be organised upon an entirely new basis. On the other, it has been urged that the exhibitions at Chiswick may be revived, the consequence of which will be a replenished exchequer.

Last Monday's meeting settled the question by resolving unanimously that the Garden must be

relinquished unless, before May 1, such a sum of money shall have been subscribed as the Council may think adequate to secure its maintenance. By this vote the accuracy of the views of the two parties in the Society will be fairly and speedily tested, by the only means that can be regarded as satisfactory: an appeal to the Fellows at large.

It is not necessary to show how great a loss horticulture will sustain should the relinquishment of Chiswick become inevitable, for it is not merely the place wherein the great modern revival of gardening has been effected, where rival methods of cultivation have been tested, and where the greatest gardeners in the world, by publicly exhibiting the result of their skill, have formed a correct standard by which all other cultivators have been measured throughout the country; but it is also the only public horticultural establishment in the United Kingdoms. For the great gardens of Kew, Edinburgh, Dublin, and the smaller ones in our provincial towns are all Botanical, while the so-called Botanic Garden in the Regent's Park is a pleasant public promenade, and nothing more. It is at Chiswick that *gardening* has been the one great object of attention; it is there that fruit trees have been tested; that modes of cultivation have been the subject of inquiry, that the value of kitchen garden produce has been investigated, and that cultivation beyond this has been limited to what is beautiful and ornamental. Should Chiswick disappear there will be no such establishment to take its place, unless the Horticultural Society locates itself elsewhere. This is undoubtedly a subject of very great national concern.

There is but one way of preventing what may really be called a calamity, and that is by furnishing the Council with funds wherewith the utility, as well as the existence of the Garden, may be preserved. Merely to do what would enable it to exist in a state of dilapidation, is to do nothing. It must be flourishing to be valuable. One may already see in the general aspect of the Garden the effects of that constrained economy which failing funds have rendered indispensable. Another six months of such reduced expenditure would render it a thicket. Gardens are costly if they are maintained in a thoroughly effective state. Those who imagine that parsimony can be advantageously applied to such places, and that a niggard spirit will do what can only be done by numerous and expensive "munitions" of horticulture, only betray their ignorance of such subjects. One estimate which we have seen of the cost at which Chiswick Garden might be supported, under an "improved management," would excite our laughter if we did not know it to have proceeded from good though much mistaken feeling. In that estimate it is calculated that 33 acres of ground, much of which is mown, with hothouses, greenhouses, conservatories, and endless lines of pits—in a public garden, where labour is of necessity less continuous than in private establishments—that for all this a dozen labourers are enough, including a gatekeeper; that such a place can dispense with manure, loam, peat, sand, tools, and barrows; that no flues need be swept, no garden pots are necessary; that there shall not be one shilling spent in pens, ink, stationery, and petty expenses; and that the materials used in the repair of such a multitude of buildings may be taken at just six-and-twenty pounds a year. We readily admit that if all this could be done, the management which should bring it about would indeed be "improved." Such, however incredible it may seem, is one of the methods by means of which it is asserted that a great public Garden may be supported in efficiency.

The Fellows of the Society have taken the right view of this matter. Country gentlemen have gardens of their own, and they are pretty good judges of the cost of such places. They therefore put aside all fallacious estimates; they decided that if the Garden is to be maintained it must be in a manner worthy of the great body to which it belongs; that for this purpose money is indispensable; and that if the Fellows do not subscribe the requisite amount the Garden must be relinquished; for they will be no parties to risks and speculations which may render the Corporation unable to meet its engagements.

The question has now become a public one, and by the public will it be decided. Should it unfortunately happen that Chiswick is to disappear, we venture to prophesy that its want will be quickly felt, unless some unforeseen opportunity should arise of establishing it elsewhere.

We are among those who venture to regard the experiments in cultivation carried on at Lois-Weedon, as forming an epoch in the history of tillage, from which great improvements and important results must necessarily arise. The old mantle of Tull has fallen on no unworthy successor, but is now worn by one who has known not only how to restore it to freshness, but to fashion it into a form such as modern improvements render necessary. Had those experiments conveyed the same conviction to the Agricultural mind as they have to our own, and had they been generally carried out to their legitimate conclusion, they would have had no claim to a place in the Horticultural department of the *Gardeners' Chronicle*. But they are still regarded with doubt, and have scarcely extended their influence beyond the Garden. We therefore, for the present, claim them as our own.

We do not believe that an experienced and intelligent practical gardener can be found who will dissent from the conclusions at which the author of the celebrated *Word in season* has arrived. For gardeners well know the value of deep draining, and deep forking, and early planting, and giving their crops plenty of room in which to grow. When a gardener is told that a larger crop can be had by working half the land within the compass of an acre than by filling it full of plants, he will only reply by assent, when he is told how the result is accomplished. This is more clearly than ever explained in a little book,* which has just appeared, and the curious reader will not fail to examine in their detail those Lois-Weedon operations to which we are here referring. What they are we do not attempt to describe, for if curtailed of their minute description they lose their value; if reprinted at length the author would be treated with injustice, even if our crowded columns could bear such an inroad. Suffice it to say that they result in the production per acre of 24 tons of Mangel, and more than 16 tons of Carrots. In like manner 33 tons of Drumhead Cabbages, weighing from 30 to 48 lbs. each, and 6 quarters of Red Lammas Wheat are borne per acre on the land in question.

And be it remembered that this land is about the stiffest, stickiest clay we ever had the misfortune to walk over in wet weather. It shows, however, that the heavy lands of England are among the richest in the world in the hands of those who are in a condition to work them well.

The results in question are obtained mainly by the use of a fork, not of a spade, nor of a plough. The method of using it is this:

"For clean and accurate tillage, for bringing up definite quantities of a few inches of subsoil, in even layers, and placing them on the surface to be acted on by the atmosphere before mixing with the staple, the fork is the only implement at present on which I can depend; for the exposure of the subsoil is a matter of bit by bit. At an early stage of my farming, about 12 years ago, a chain or two of my land was ill dug with the spade by a heavy hand, a spit of 8 or 10 inches of clay was brought up and then mixed with the staple; and the error has taught me a lesson. The clods, covered with mould, and thus kept from the influence of the atmosphere, have never been effectually weathered; with all my stirring I have been defied, and that stubborn piece has defeated me to this day. But the fork, judiciously handled, is able to effect what has hitherto been beyond the power of any other implement, and to bring by degrees the heavy clay subsoil mixed inch by inch with the shallow staple, to the required depth of mellow, friable mould. To the fork, then, I must still look for perfect tillage in this instance, as well as some others. But there are occasions when the plough can be used with equal advantage and greater economy; and whenever they do arise I plough."

The true obstacle to the general introduction of the Lois-Weedon method of cultivation, an obstacle be it observed not felt in a garden, is getting the land forked over quickly enough at the time when working the soil is required. Men cannot be always had, and machinery gives little aid; but wait awhile, and relief upon this point is sure to come. It has never yet happened that when a want is felt, and an advantage pointed out, the ingenuity of man has failed to meet the want. To use the words of our experienced correspondent "B.," "It would seem that in all processes where machinery has to be invented, the first consideration should be that of the object to be attained; then, but not till then, the machine which will best produce the desired effect. The object of all digging machines is to diminish the tenacity of the soil, to expose new surfaces of it to the air, to bury weeds, to mix and apply fertilising agents in the most efficacious manner, and that machine which best effects all or most of these purposes may, therefore, be considered as the most useful. The plough turns over the soil but does not break it up; the *bigot*, as it is called in France, turns over the ground, and when applied a second time breaks it up; both of these instruments bury weeds, but are alike objectionable as hardening the subsoil; the spade removes the ground, but requires a separate operation to break it up; the fork is free from most of these objections; but like all the other tools used for digging, requires a separate operation to disintegrate heavy soils. For this purpose, however, clod-crushers, &c., are in frequent use, as in France the employment of women armed with beaters to break the clods. If the above requisites of a tiller of the land be just, invention should be directed—not to the improvement of the plough or spade—but to the contrivance of a machine which, whilst it turns over the soil, breaks it up without hardening the soil beneath the instrument. Doubtless our mechanists of the present day are fully competent to the devising what might be termed a *perfect* tilling machine, capable of being worked by steam power. It seems only from limited knowledge of the requisites that it has not hitherto been accomplished."

In this opinion we think that everybody must concur.

* *Lois-Weedon Husbandry.* Ridgway.

A correspondent or two beg for information as to the best way of cultivating and curing Tobacco. The same question has been so often put to us on former occasions, that we gladly avail ourselves of a paper in a recent volume of the United States' Patent Office Reports to lay before our readers the method practised in Florida. It is needless to add that those who may wish to try the experiment of Tobacco making in this country, within the limits permitted by law, must make due allowance for the differences between the climate of Florida and Great Britain. Those who have friends in our colonies, India for instance, Borneo, the Cape, Australia, New Zealand, the West Indies, or even Canada, will we doubt not find the information given by Mr. Hernandez acceptable to their correspondents.

The growth of Tobacco of excellent quality is certainly not limited to the Havannah, where indeed a great deal is of an inferior description, the fine cigars of that island being yielded, according to Dr la Sagra, by a very inconsiderable area. Tobacco in no material degree less enjoyable than first-class Havannah was produced at the Great Exhibition in 1851 from Trinidad, Java, and some places in Bengal. That of Guatemala, as manufactured by young Spanish women (not blacks) in the employment of Don José Maria Samayoa,† although only beginning to be known in this country, is equal to genuine Havannah of the first class, and will perhaps supersede it in public favour. Nor is there any reason why our own colonies should not also produce Tobacco of excellent marketable quality, if not first-class. Where Cotton can be grown profitably there also is a field for Tobacco. Rich soil, high summer temperature, and thoroughly good manipulation are the essentials, and what the latter are the reader has now a better opportunity of knowing than he had while consulting the gardening books in which he usually seeks for information.

Even in this country, where a rod or two of ground are occupied by the plant, it will be found that attention is demanded to many details little thought of by gardeners, most especially in the drying and curing processes, concerning which Mr. Hernandez gives such useful information.

VEGETABLE PATHOLOGY.—No. CXV.

459. Brontesis‡ (*Electric Stroke*).—The two popular causes assigned for the greater part of the diseases to which plants are subject are blight and lightning, the former of which is supposed to be conveyed by the wind, especially when easterly, in the shape of a thin haze, while the latter is often as completely fabulous. In the one case as in the other, there is frequently a great mistake, and a neglect of true causes, which are plain enough, where the eyes are not completely blinded. It is very rare for vegetation to be arrested completely on the instant by a flash of lightning, though it is possible that such should be the case in trees as well as in animals without any sign of external injury. Trees, however, which are struck by lightning will often vegetate for years though the force has been sufficient not only to split the trunks but to dive to the base of the strongest roots. Where the bark is at once completely stripped with attendant splitting of the trunk and drying up of its juices, the process of vegetation may be as effectually arrested as it would be if it were at once wilfully separated for many feet in a tree in active vegetation. The more active the vegetation the more speedy in all probability would be the change. Cases however occur in which the bark has been thus separated by lightning, and yet vegetation goes on without interruption. Such a case is reported in *Gardeners' Chronicle*, 1846, p. 597, and is reproduced in the new edition of the "Theory of Horticulture," p. 47. Out of multitudes of cases of death which have been represented as due to electric action, I have scarcely found one in which there did not seem to be the evident working of

† Cigars may, under the existing law, be imported in small quantities; and we understand that this great house supplies them for private consumption in boxes of 500 weighing 7 lbs. at 18s. per box delivered in England, *exclusive of duty*.

‡ From βροντη lightning.

some other cause. The vegetation of a shrub or a part of it, for instance, which appeared healthy a day or two ago is arrested suddenly, the foliage withers, and the whole is as dead as if it had been taken from the ground or broken off and exposed to a burning sun. But a little examination shows that it was no sudden visitation; destruction had been travelling onwards with sure but certain steps; some grub had eaten through the tender succulent pith on which the vigour of the plant depended; the root had been gradually impaired by the mycelium of some fungus; the narrow strip of bark by which the foliage was supplied with nutriment was at length eaten through by canker, and so the mainspring of life was broken and the plant or a portion of it at once perished.

460. The effects of lightning when it is really the cause of injury are in general too palpable to admit of any doubt though it does not always act in the same way, nor with the same degree of actual lesion, supposing the force of the stroke to be equal. A multitude of circumstances may be conceived as modifying its action, as the comparative condition of the atmosphere, or the angle of incidence, or the part of the tree on which the stroke impinges. The albumen of the wood is more strongly charged with moisture than the rest of the tree, and therefore is a far better conductor. The force of the stroke when it enters the tree follows naturally the course of the young wood, and in consequence shivers that more especially, at the same time throwing off the bark, by the sudden generation of steam, sometimes to a great distance from the trunk. The course of the lightning is not, however, indicated by the line of fissure, which merely coincides with the line of least resistance. The more central parts meanwhile are fissured in consequence of the contraction of the concentric strata increasing in intensity towards the circumference exactly as in frost splits, the outer layers being progressively more filled with moisture and better conductors. The same force which causes the contraction of the annual rings themselves thus splitting at various points, causes also the separation of these rings from one another, and thus the tree is shivered into thin laths. Sometimes, however, there is less difference between the state of moisture of the rings, and the effect is the more general, so that only one or two principal fissures are formed without much detachment on the surface. Where the course of the longitudinal fibres of which the stem is composed is oblique, which is frequently the case as the stem splits more easily in that direction, the fissures in the trunk sometimes take a spiral course. When the trunk is hollow or filled with touchwood, the lightning may in addition to other mischief set the tree on fire, but this seems never to be the case where vegetation is unimpaired, at least in our own climate.

461. It is not, however, probable that in every case the fissure is caused by contraction due to the liberation of moisture. A heat so intense as to generate steam to such an extent as to cause instantaneously the fissure of a trunk some two or three feet in thickness without much external injury, as is sometimes the case, must destroy the vitality of every part through which it passes, and yet fissured trunks may live for many years and the fissure be concealed by fresh layers of wood, insomuch that it may never be discovered till they are cut down. It is probable, therefore, that the effect may sometimes be produced by mere mechanical force alone, exactly in the same way as rocks and the firmest buildings are split, where there is no question about the sudden generation of steam, and this is possibly in general the case where the fissures are unaccompanied by much external injury. Where no fissure takes place vitality may be arrested generally by the intense electric action.

462. Some kinds of trees are certainly more subject to be struck by lightning than others, but the effect of lightning upon all seems to be in proportion to the intensity of the flash, and the ease with which the wood is split. Where it is desirable to protect particular individuals from lightning the only remedy is to attach a lightning conductor.* *M. J. B.*

CULTIVATION OF CUBA TOBACCO.

BY JOSEPH M. HERNANDEZ, OF ST. AUGUSTINE, FLORIDA.

The first thing to be considered in this, as in every other culture, is the SOIL, which, for the Cuba variety of Tobacco, ought to be of a rich sandy loam, neither too high nor too low; that is, ground capable of retaining moisture. The more level the better, and, if possible, well protected by margins. The next should be the selection of a spot of ground to make the necessary beds. It would be preferable to make these on land newly cleared, or at all events where it has not been seeded with Grass; for Grass seeds springing up together with Tobacco would injure it materially, as the Grass cannot be removed without disturbing the plants. In preparing the ground for the nurseries, break it up properly, grub up all the small stumps, dig out the roots, and carefully remove them with the hands. This being done, make the beds from three to four inches high, of a reasonable length, and from three to three and a half feet broad, so as to enable the hand, at arm's length, to weed out the tender young plants with the fingers from both sides of the bed, and keep them perfectly clean.

The months of December and January are the most proper for SOWING THE SEED in Florida. Some persons speak of planting it as early as the month of November. I am, however, of opinion that about the last of December is the best time to sow. Any sooner would expose the plants to suffer from the inclemency of the most severe part of our winter. Before the seed is sown, take some dry trash and burn it off upon the nursery beds, to destroy insects and Grass seeds; then take an ounce of Tobacco seed and mix it with about a quart of dry ashes, so as to separate the seed as much as possible, and sow it broadcast. After the seed has been thus sown, the surface of the bed ought to be raked over slightly, and trodden upon by the foot, carrying the whole weight of the body with it, in order that the ground may at once adhere close to the seed, and then water it. Should the nursery beds apparently become dry from blighting winds or other causes, watering will be absolutely necessary; for the ground ought to be kept in a moist state from the time the seed is sown until the young plants are large enough to remove.

The nurseries being made, proceed to PREPARE THE LAND where the Tobacco is to be set out. If the land is newly cleared, (and new land is probably more favourable to the production of this plant than it is to that of any other, both as respects quality and quantity,) remove as many of the stumps and roots as possible, and dig up the ground in such a manner as to render the surface perfectly loose; then level the surface, and in this state leave it until the nursery plants have acquired about one-half the growth necessary to admit of their being set out. Next, break up the ground a second time in the same manner as the first, as in this way all the small fibres of roots and their rootlets will be more or less separated, and thus obviate much of that degree of sponginess so common to new land, and which is, in a great measure, the cause of its seldom producing well the first year, as the soil does not lay close enough to the roots of the plants growing in it, so that a shower of rain produces no other effect than that of removing the earth still more from them. Should the land be such as to admit of being worked with the plough, it ought certainly to be preferred to the common hoe. The plough, however, should be excluded after the plants are set out.

The ground having been prepared and properly levelled off, and the plants sufficiently grown to be taken up, say of the size of good Cabbage plants, take advantage of the first wet or cloudy weather to commence TRANSPLANTING. This should be done with great care, and the plants put single at equal distances; that is, about three feet north and south, and two and a half or two and three-fourths feet east and west. They are placed thus close to each other to prevent the leaves from growing too large. The directions of the rows, however, should alter according to the situation of the land. Where it has any inclination, the widest space should run across it, as the beds will have to be made so as to prevent the soil from being washed from the roots by rain when bedded; but where the land is rather level, the three-foot rows should be north and south, so as to give to the plants more effect of the sun by passing directly across the beds rather than obliquely over them. To set the plants out regularly, take a task line 105 feet in length, with a pointed stick, three feet long, attached to each end of it; then insert small pieces of rags or something else through the line, at the distance of two feet and three-fourths from each other; place it north and south, (or as the land may require,) at full length, and then set a plant at every division, carefully keeping the bud of the plant above the surface of the ground. Then remove the line three feet from the first row, and so on until the planting is completed. Care ought to be taken to prevent the stretching of the line from misplacing the plants. In this way, the plants can be easily set out, and a proper direction given to them both ways. In taking the plants up from the nursery, the ground should first be loosened with a flat piece of wood or iron, about an inch broad, then carefully holding the leaves closed towards each other, between the fingers, draw them up and place them in a basket, or some other convenient thing, to receive them for planting. After taking up those which can be planted during the day, water the nursery, that the earth may again adhere to those remaining. The evening is the best time for setting out the plants, but where a large field has to be cultivated it will be well to plant both morning and evening. The plants set out in the morning, unless in rainy or cloudy weather, should be covered immediately, and the same should be done with those planted the evening previous, should the day open with a clear sunshine; the Palmetto leaf answers the purpose very well. There should be water convenient to the plants, so as to have them irrigated morning and evening, but more particularly in the evening, until they have taken root. It is hence generally necessary that wells should be sunk at convenient distances throughout the fields. The plants should also be closely examined when watered, so as to replace such as happen to die, that the ground may be properly occupied and all may ripen as nearly together as possible.

From the time the plants are set out, the earth around them should occasionally be stirred both with a hoe and the hand. At first, hoe flat, but as soon as the leaves assume a growing disposition, begin gradually to draw a slight bed towards the plants, which must be closely examined, even while in the nursery, to destroy the numerous worms that feed upon them, which cut the stalks and gnaw the leaves when first set out. They resemble the grub worm, and are to be found near the injured plant under ground. Others, which come from the eggs deposited on the plant by a butterfly, and feed on the leaf, grow to a very large size, and look very ugly, and are commonly called the "tobacco worm." There is also a small worm which attacks the bud of the plant, and which is sure destruction to its future growth; and some again, though less destructive, are to be seen within the two coats of the leaf, feeding as it were on its juices alone. The worming should be strictly attended to every morning and evening, until the plants are pretty well grown, after which every other day will be sufficient. The most proper persons for worming are either boys or girls from 10 to 14 years of age. They should be made to come to the Tobacco ground early in the morning, and be led by inducements (such as giving a trifling reward to those who will bring the most worms) to worm it properly. Grown persons would find it rather too tedious to stoop to examine the under part of every leaf and seek the worm under ground; nor would they be so much alive to the value of a spoonful of sugar, or other light reward. Besides where the former would make this search a matter of profit and pleasure, it would prove to the latter only a tedious and irksome occupation. Here I will observe, that it is for similar reasons that the culture of the Cuba Tobacco plant more properly belongs to a white population; for there are few plants requiring more attention and tender treatment than it does. Indeed, it will present a sorry appearance, unless the eye of its legitimate proprietor is constantly watching over it.

When the plants have acquired from 12 to 14 good leaves, and are about knee high, it may be well to begin TO TOP THEM by nipping off the bud with the aid of the finger and thumb nail,† taking care not to destroy the small leaves immediately near the bud; for if the land is good, and the season favourable, those very small top leaves will, in a short time, be nearly as large, and ripen quite as soon as the lower ones, whereby two or four more leaves may be saved; thus obtaining from 16 to 18 leaves in the place of 12 or 14, which is the general average. As the topping of the Tobacco plant is all essential in order to promote the growth, and to equalize the ripening of the leaves, I would observe that this operation should, at all events, commence the instant that the bud of the plant shows a disposition to go to seed, and be immediately followed by removing the suckers, which it will now put out at every leaf; indeed, the suckers should be removed from the plant as often as they appear. The Tobacco plant ought never to be cut before it comes to full maturity, which is known by the leaves becoming mottled, coarse, and of a thick texture, and gummy to the touch, at which time the end of the leaf, by being doubled, will break short, which it will not do to the same extent when green. It ought not to be cut in wet weather, when the leaves lose their natural gummy substance, so necessary to be preserved.

About this period, the cultivator is apt to be rendered anxious by the fear of allowing the plants to remain in the field longer than necessary, until experience removes these apprehensions. He should be on his guard, however, not to destroy the quality of his Tobacco by cutting it too soon. When the CUTTING is to commence, there should be procured a quantity of forked stakes, set upright, with a pole, or rider, sitting on each fork, ready to support the Tobacco and keep it from the ground. The plant is then cut obliquely even with the surface of the ground, and the person thus employed should strike the lower end of the stalk two or three times with the blunt side of his knife, so as to cause as much of the sand or soil to fall from it as possible; then tying two stalks together, they are gently placed across the riders, or poles, prepared to receive them. In this state, they are allowed to remain in the sun or open air, until the leaves have somewhat wilted, whereby they will not be liable to the injury which they would otherwise receive if they came suddenly in contact with other bodies when fresh cut. Then, place as many plants on each pole, or rider, as may be conveniently carried, and take them into the drying house, where the Tobacco is strung off upon the frames prepared for it, leaving a small space between the two plants, that air may circulate freely among them, and promote their drying. As the drying advances, the stalks are brought closer to each other, so as to make room for those which yet remain to be housed.

IN DRYING THE TOBACCO, all damp air should be excluded; nor should the drying of it be precipitated by the admission of high drying winds. This process is to be promoted in the most moderate manner, except in the rainy season, when the sooner the drying is effected the better; for it is a plant easily affected by the changes of the weather after the drying commences. It is liable to mildew in damp weather; that is, when the leaf changes from its original colour to a pale yellow cast, and from this, by parts, to an even brown. When the middle stem is perfectly dry, it can be taken down, and the leaves stripped from the stalk and put in bulk to sweat; that is, to make Tobacco of them; for before this process, when a concentration of its better qalities takes place, the leaves are always liable to be affected by the weather, and cannot well be considered as being anything else than common dry leaves, partaking of the nature of Tobacco, but not actually Tobacco. The leaves are to be stripped from the stalks in damp or cloudy weather, when they are more easily handled, and the separation of the different qualities rendered also more easy. The good leaves are at this time kept by

* Much use has been made in this article of an abstract of Cohn's paper in "Botanische Zeitung," Feb. 3, 1854.

† Washing the hands after this in water is necessary, as the acrid juices of the plants, otherwise, would soon produce a soreness of the fingers.

themselves for "wrappers," or "caps," and the most defective ones for "fillings."

When the Tobacco is put in bulk, the stems of the leaves should all be kept in one direction, to facilitate the tying of them in hanks; afterwards making the bulk two or three feet high and of proportionate circumference. To guard against the leaves becoming overheated, and to equalize the fermentation or sweating, after the first 24 hours, place the outside leaves in the centre, and those in the centre to the outside of the bulk. By doing this once or twice, and taking care to cover the bulk either with sheets or blankets, so as to exclude all air from it, and leaving it in this state for about 40 days, it acquires an odour strong enough to produce sneezing and the other qualities of cured Tobacco. The process of curing may then be considered as completed. Then take some of the most injured leaves, but of the best quality, and in proportion to the quantity of Tobacco made, and place them in clear water; there let them remain until they rot, which they will do in about eight days; next break open your bulks, spread the Tobacco with the stems in one direction, and dampen them with this water in a gentle manner, in order that it may not soak through the leaf; for in this case the leaf would rot.* Then tie them in hanks of from 25 to 30 leaves. This being done, spread the hanks in the Tobacco-house for about twelve hours to air, in order that the dampness may be removed, and afterwards pack them in casks or barrels, and head them tight, until you wish to manufacture them. The object of dampening the Tobacco with this water is to give it elasticity, to promote its burning free, to increase its fragrance, to give it an aromatic smell, and to keep it always soft. This is the great secret of curing Tobacco for cigars properly, and for which I am indebted to the people of Cuba, who certainly understand the mode of curing this kind of Tobacco better than any other. It is to them a source of great wealth, and may be made equally so to us. We can have here three cuttings from the original plant; the last cutting will be of rather weak quality, but which, nevertheless, will be agreeable to those who confine their smoking to weak Tobacco.

In "ratooning" the plant, only one sprout ought to be allowed to grow, and this from those most deeply rooted; all other sprouts should be destroyed.

The houses necessary for the curing of Tobacco ought to be roomy, with a passage-way running through the centre, from one extremity of the building to the other, and pierced on both sides with a sufficient number of doors and windows to make them perfectly airy.

In addition to what I have said respecting the mode of cultivating and treating the Tobacco-plant, I have further to state that the plant, once allowed to be checked in its growth, never again recovers it; and that in promoting the drying of the leaf, fire should not be resorted to, because the smoke would impart a flavour which would injure that of the Tobacco itself.

In order to obtain vigorous plants, the SEED ought to be procured from the original stalk, and not from the "ratoons," by allowing some of them to go to seed for that express purpose. In Cuba, the seed is most generally saved from the ratoon plants, but we should consider that its climate and soil are probably more favourable to the production of this plant than ours, and, consequently, we ought to confide in the best seed, which can be had from the original stalks. *American Patent Office Report.*

THE SUN-STROKE IN PEAR TREES.

[This is the article referred to by M. de Jonghe at p. 213.]

Of all the diseases to which the Pear tree is liable, the most dangerous is that which arises from sun-stroke. This is produced on the lower part of a pyramid, or immediately above the graft of a Quenouille tree. It is by the direct rays of the sun in the month of March that this affection is occasioned. The tender, smooth bark of a young tree, being not yet hardened, when struck directly by the solar rays, separates longitudinally from the alburnum to the extent of from two to five inches. The bark cracks in the middle, and its edges curling up, it affords a refuge for insects, which take up their quarters there and contribute by their biting to increase the size of the wound, and to produce a canker which most frequently causes the destruction of the tree.

The sun's rays striking this part of the tree causes an expansion. It is also at that part where the sun-stroke is almost invariably observed, and seldom higher up among the branches. This observation involves the question of the influence of the stock upon the graft, which will be the subject of consideration on another occasion. Every amateur cultivating a certain number of Pear trees under the above circumstances might make out a somewhat long list of deaths which have taken place among his pyramids in consequence of sun-stroke, without perhaps having perceived the cause to which the loss ought to be attributed.

The more the bark of a tree is exposed to the sun's rays the more it hardens, and the less it is liable to sun-stroke. The more its lower part is sheltered the more tender it is, and consequently liable to suffer in spring from the effects of the direct rays of the sun.

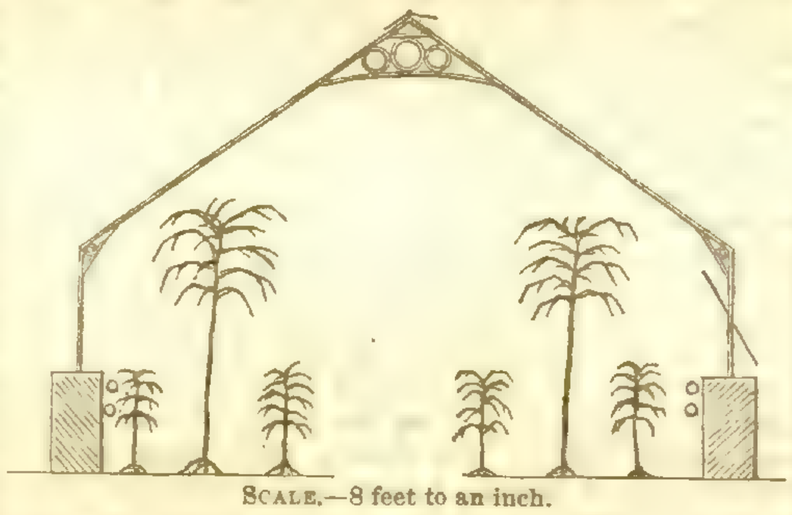
In order to prevent these bad consequences, it is important that the part of the stem immediately above the graft should be protected to the height of 2½ feet with some slight covering, such as a coarse cloth, straw rope, or a covering of plaster, or clay. This protection should be given about the end of January or in February, and may be removed as soon as the tree is in full vegetation. If this precaution be not taken, wounds in the bark from sun-stroke must be healed by means of a plaster, consisting of a mixture of clay and cow-dung, similar to grafting clay. The whole is wrapped round with a piece of cloth, which should remain on till the end of the season. This is the only remedy which can be employed for the prevention of the fatal consequences resulting from sun-stroke. In the autumn, when the cloth and grafting clay are taken off, it will be observed that a layer of bark, sufficient to preserve the tree from destruction, has been formed over the alburnum. If, on the contrary, this remedy is neglected the rent of the bark rarely heals of itself. The most vigorous trees do not resist sun-strokes, and it is to this cause that the loss of a great many fine young dwarf pyramid and Quenouille trees is to be attributed. (*Echo de Bruxelles.*)

* A sponge is used in Cuba for this delicate operation.

Home Correspondence.

The St. James's and Green Parks.—Allow me to claim your attention to the question, by no means yet properly answered, how best may the new roads across the Green Park and St. James's Park, so much required, be laid out? A word in time from you may prevent much waste of time and labour, and the loss of an opportunity which may probably never again offer itself for the improvement of London. If you would confer a great benefit on the country you would publish the names of some first-rate men of genius—I had better perhaps say, of common sense—who may be willing to assist in determining this matter. Before all things might it not be advisable to deprecate the waste of labour in filling up the Green Park Reservoir, when by artistically and tastefully distributing over the park below the soil of the mound which has hitherto contained it, the most beautiful landscape gardening arrangements might be made? By applying the soil removed from excavations for sunken roads through the parks another means would be afforded for improving the appearance of that particularly bald space presented by the Green Park. Ought not a sunken road to pass from opposite (or nearly) Down Street in Piccadilly into the Birdcage Walk and Pimlico (left and right) passing in front of the Palace? and Pall Mall be continued into that road—the line of street without houses? *Henry Clinton, Colonel, Royston, Herts.* [We are afraid that the prejudices about the Parks are inveterate, and that so long as they are entertained by the Londoners, Government is perfectly incapable of carrying out what our correspondent desires. The senseless rejection of the beautiful bridged road over the water in St. James's Park, one of the most convenient lines and most ornamental decorations that could have been proposed, is too plain a proof of the justice of this opinion.]

Construction of Hothouse Roofs.—The following is an end section of a new span-roofed metallic Peach-house erected here two years ago by Mr. Shakespeare of Birmingham (late Clarke & Jones). In its way I think it a model. The trees are now in full bloom, and the measurements as under will speak for themselves. The standards are quite able to bear three and four dozen fruits each, this being the second year of their



Scale.—8 feet to an inch.

growth. I think there is little danger of the wood being too strong if properly ripened, and the roots in a proper medium. I shall have something to say soon on other forms of structure and graceful modes of training, but I must defer it at present. Circumference of last season's growth:—Royal George, 1⅞ inch; Barrington, 1⅝; Shanghae, 2⅛; Bellegarde, 1½; Elruge Nectarine, 1¼. *Geo. M'Ewen, Arundel.*

A Lesson on Forest Management and its Results.—"There may be," observes Dr. Lindley in the preface to one of the editions of his "School Botany," "a difference of opinion as to the advantage of spending much time upon the study of botany; but there is one opinion only as to the importance of knowing the names of the plants of which man has to make use, or which he is continually meeting with. There is not at the present day a person of any intelligence ignorant of such things, who does not regret that some portion of his youth should not have been devoted to this kind of inquiry. The Dorsetshire gentleman who put himself to considerable trouble and no small expense to carry a sack of Hornbeam seed from Florence to London, would have been saved the exertion had he known that the Hornbeam grew in abundance on his own estate; and it may be safely asserted that every one of that celebrated Court party which discovered a prodigy in the beautiful tree in Windsor Park, would have been glad if their early education had spared them the mortification of learning from Lord M. that the tree in question was only a Spanish Chesnut." Now, if such a lamentable ignorance of the names and distinctive characters of our ordinary plants still obtains among those whose position and education would seem to warrant better things, we can hardly wonder that those far below them should be equally deficient in a knowledge of "common things." Yet so it is, and if such ignorance resulted in nothing more than occasionally placing those who are unfortunate enough to exhibit it in a humiliating position it were hardly worth while to give the matter serious thought as a public question. But, on the contrary, the consequences—as every observer, every reader of the passing events of the day knows too well—are such as to render all of us interested in the dissemination of such knowledge as shall prevent their occurrence. But it is not a deficiency in a knowledge of the external characters of plants that alone so generally obtains; the simplest elements of vegetable physiology—the essentials of life and health—the primary causes of disease and death in plants are equally sealed books to the great majority of persons, and more especially to those in whom such knowledge would be of the highest importance to themselves, and indirectly to the community at large. I have ventured to make these observations by way of introducing an example of forest pruning, or rather I should say forest mutilation, which has lately come under my observation. A gentleman whose antecedents I know nothing of (but most certainly the management of plantations never formed part of his studies) became the possessor of an estate in a western county that shall be nameless. Like most persons with a recently acquired property, he set about improving, or at least what he was willing to believe to be improving, and of course the plantations came in for a share of his attention. To do however the former possessor justice, the woods were in a by no means indifferent condition. Thinning was perhaps a little in arrear; to remedy that was in reality all that was required. But our incipient landowner thought otherwise. It so happened that at the Mechanics' Institution of the neighbouring town (of which by the bye the Squire, in virtue of his position, was a vice-president), there was a lecture on vegetable physiology. The lecturer having an eye to the direct application of his discourse—plantations abounding in the neighbourhood—dwelt at some length upon the importance of light to vegetation in general, and to trees in particular. He endeavoured to impress upon his auditory that without an ample supply of that important element to plants they could never form the tissues and secretions necessary to robust health, that deprived of its influence they become puny and deformed; that trees in overcrowded plantations could not develop themselves, but became "drawn" and starved for lack of it; besides many other facts bearing upon the subject which need not be alluded to here. Well this lecture, it seems, opened a new field to our hero, and one in which he was determined to distinguish himself, and that he did most truthfully. The morning following the evening of the lecture saw him directing half a dozen men with saws, axes, and bills, who were making sad havoc in the plantation. Trees were cut down and the branches trimmed off others unmercifully, that one stood aghast at the destruction. Day after day the work went on, bare trunks scarred and hacked by "pruning" met the eye on every side. A beautiful wood that bordered the public road, and by its charming outline, and the drooping branches of the Birches, was the admiration of every one who saw it, did not, alas! escape the general "improvements" suggested by the unlucky lecturer. The beauty of that wood is destroyed for ever; naked trunks and unsightly snags and scars remain—the waving branches, the flowing outline will never be found there again. Why this mutilation? Why this destruction? Let the author of it answer. "Did not the lecturer tell us that good timber could never be grown without plenty of light, and have I not cut off the branches to admit as much as possible to the trunks." Truly is a little knowledge sometimes a dangerous thing. *G. W. L.*

Growth of Conifers at Boconnoc in Cornwall:—

Names.	When introduced.	Heights Dec. 1853		Heights Dec. 1854		Heights Dec. 1855	
		ft.	in.	ft.	in.	ft.	in.
Pinus austriaca	1842	19	4	20	11	22	8
" Cembra	1842	10	1	10	9	11	10
" excelsa	1842	17	0	19	9	22	7
" Hartwegi	1842	10	10	12	11	15	1
" insignis	1847	24	4	29	6	33	1
" inops	1842	15	5	18	1	18	7
" Laricio	1842	17	6	20	2	22	0
" Nordmanniana ...	1851	—		1	7	2	1
" pungens	1842	13	4	15	5	17	0
" pithyusa	1842	15	4	17	2	18	4
" Pyrenaica	1842	9	8	11	1	12	9
" rigida	1842	15	2	18	9	21	8
" resinosa	1841	7	6	8	7	9	9
" serotina	1842	14	2	15	0	15	10
" Teocoté	1842	21	1	23	6	21	7
Abies amabilis	1842	17	8	19	5	20	0
A. Brunonis	1852	5	10	8	1	8	11
A. Douglasi	1841	26	3	27	2	30	8
A. Ellecombiensis	1842	11	1	12	3	13	2
A. Morinda	1842	—		—		—	
A. do.	1842	—		11	9	12	11
A. Menziesi	1842	28	0	30	10	33	6
A. Smithiana	1842	5	3	5	10	7	9
Picea Cephalonica ...	1842	10	3	12	4	14	6
P. Pinsapo	1842	10	9	11	3	12	0
P. spectabilis	1842	3	2	4	7	5	8
P. Webbiana	1842	15	6	18	2	20	2
Araucaria imbricata ...	1841	8	1	8	10	9	6
Cedrus Deodara	1841	17	2	19	2	22	0
Cupressus torulosa ...	1846	10	8	12	10	13	10
Cryptomeria japonica ...	1850	8	7	11	1	14	0
Taxodium sempervirens...	1851	11	4	13	4	16	0

The leader of P. Teocoté and many shoots were killed in

the winter of 1854-5, and the shoots of A. Brunonis were also injured in the same winter. *G. N. Fortescue.*

New Kinds of Food.—By a paper read on some of the Animal and Vegetable Products constituting the Foreign Commerce of Liverpool, and by the discussion which ensued at the Society of Arts on the 29th of February, it appeared that many articles of food, though much esteemed in foreign countries, could not find purchasers in England, excepting for inferior purposes, such as provender for horses. Many of these vegetable substances could be imported and sold with a moderate profit at a cheap rate; it seems desirable to inquire how British prejudice against them could best be overcome. Some Leguminosæ, French Bean seed, for example, should, when cooked, have the first water in which they are parboiled thrown away, as they emit to it a nauseous flavour, which renders them unpalatable if this precaution be not taken; but the greatest bar to the introduction of new kinds of diet is the high price at which retailers sell them. This, it would seem, might be remedied were some benevolent persons to supply new articles to some particular shop in London, for instance at Covent Garden Market, but on condition that the seller should not add to their prime wholesale cost any more than a reasonable profit. Some unprejudiced individuals there are, doubtless, amongst even the very poor; such persons might be expected to purchase cheap kinds of food though new to them, and their example would go far towards the conviction of their neighbours that what is good, cheap, and nourishing abroad, should not be despised at home. Numerous instances might be adduced to show that new articles of diet are retailed at exorbitantly high prices, dried and pressed vegetables amongst others, which, though obtained wholesale at a moderate rate, are retailed at prices which render them more costly than fresh ones. The same observation is applicable to dried fruits. Normandy Pippins, it is true, are retailed at a price which at most seasons causes them to be cheaper than fresh Apples. These Pippins are examples that dried fruits are as good as fresh ones for puddings and for stewing, though in London much less costly than fresh Apples. These Normandy Pippins are a proof that shopkeepers are apt to raise their prices, not according to cost of the article, but for some adventitious reason, for when the Grape malady necessarily raised the price of Raisins, Normandy Pippins were thenceforth sold at 1*d.* a pound dearer than before. This is not the only dried fruit susceptible of being sold at low prices, for dried Plums and Pears are equally abundant in France. The French plan is to spread the fruit on wicker trays, expose them to the sun, and when the oven is heated these trays are put into it after the bread is taken out. Miss Acton, in the new edition of her cookery book, gives ample instructions for the drying fruits on a small scale for domestic use. Some Cherries dried in her way are good for eating raw, and also soaked in tepid water, just enough to cover them, are excellent for winter pies and puddings. In the south of France the sun has power sufficient to dry Figs, &c.; but in this climate artificial means of desiccation must be had recourse to. Probably in a large manufactory of dried fruits the passing a current of warm air over them would be found the most efficacious and the cheapest means, but time must be allowed for the interior moisture to be dried before the outer surface is hardened. *B.*

Pears in South Devon.—I have heard it stated that, favourable and mild as the south coast of Devonshire a mile or two inland is, the finer kinds of Pears will not fruit there at all well, but Apples bear most abundantly. Would any of your correspondents living in that neighbourhood—Torquay, Teignmouth, or Plymouth—have the kindness to inform me if this is the case, and if so, whether it is attributable to the Apple blooming later, or to the greater prevalence of spring frosts in that locality having more effect on the Pear bloom than the Apple?—*Captain A. Wade.* [The statement that the finer kinds of Pears will not fruit well a mile or two inland on the south coast of Devon, while Apples bear most abundantly, appears to us to be rather paradoxical and not supported by any facts that have come to our knowledge. Perhaps some of our friends in that part of the county will enlighten us on this matter, if we are mistaken. We believe more attention is paid there to the culture of the Apple than to the Pear—but where the latter is grown, we think it will be found that it bears well, and that the fruit attains a degree of excellence unsurpassed by any produced in other parts of the kingdom. *B.*]

Societies.

Horticultural, *March* 31.—Sir Philip de Malpas Grey Egerton, Bart., M.P., Vice-President, in the chair. This was a Special General Meeting for the purpose of receiving the reply of the Council to the report printed in extenso at p. 174, and for electing three new members of Council. The purport of the reply, which is far too long for entire insertion, will be collected from the following abridgment:—

After recalling to the recollection of the meeting their previous reports, the Council proceeded as follows:—When the meeting of the 11th of March broke up, the Council immediately invited to a conference the Chairman and the two other members of the late Committee who addressed the meeting. Without adverting to all the topics introduced into the report of the Committee, the Council limited themselves to—1, the preservation of the Garden; 2, the future management of the Garden; 3, exhibitions at the Garden; 4, the reorganisation of the Council: 5, the financial question. The Council repeated what they always said, viz., that nothing less than imperious necessity compelled them to entertain the question of relinquishing the Garden. As to its future management, the Council left that question for the consideration of their successors. The Council assented to the proposal that only two Exhibitions shall in future be held annually in the Garden: one in June, the other in July, provided the financial means should be supplied. Then as to the constitution of the Council itself, viz., the constant presence of three practical horticulturists, it was remarked that this is a subject to be dealt with by the Fellows at large, who are the electors, rather than by the Council who only nominate. The Council have however no objection to make to the plan. The all-important branch of the inquiry was after all the financial question. The Committee expressed an opinion that "so long as the Society is solvent some risk should surely be incurred." The Council were of the same opinion in 1854, when the losses of that year were ascertained: and it was that feeling which induced them to run the risk of 1855, which has had the effect of deteriorating the property of the Corporation to the extent of 1550*l.* Risks of this kind, it was observed, are dangerous; and if too often repeated soon convert solvency into insolvency. The Council made no serious objection to the plan of reducing the annual subscriptions to 2*l.* 2*s.*, nor to other measures which had been suggested, provided they were practicable, and would enable the Society to try the experiment of reviving the Exhibitions, and continuing to maintain the Garden. But the Council desired the Fellows to bear it in mind that if the Garden is continued, and the business of London reorganised, no relief is to be obtained from reduced expenditure; on the contrary, a largely increased annual disbursement would be inevitable. The Garden, if maintained with its present reduced means, would soon become a wilderness. A considerable addition to labour and materials of all kinds is immediately needed, even the tools are worn out, many repairs must be executed; while the experiments of which it is proposed that the Garden should be the scene, are in themselves attended by expense. With reference to a possible saving of 500*l.* a-year, the Council saw that there was some misapprehension. In July, 1854, Dr. Lindley, foreseeing the increase of the difficulties of the Society, placed his salary of 500*l.* a-year at the disposal of the Council, and at the same time offered to continue to give the Society gratuitously such advice and assistance as new engagements might permit. It was however to be remembered that the advantages to the Society would by no means be commensurate with the sacrifice made by Dr. Lindley; for even were his offer accepted, the Society would not save more than 200*l.* a-year, while he would lose 500*l.*; inasmuch as it can hardly be supposed that an efficient successor could be found for less than 300*l.* a-year. Therefore the Council did not think it for the advantage of the Society that this offer should be accepted in 1854; nor do they feel that the true interests of the Society would be consulted by accepting it now. In order that the Fellows may know what amount it is which is immediately required to place the Society in a position to try further experiments, they presented a very detailed report from the Accountant, from which it appeared that at least between 4000*l.* and 5000*l.* must be immediately raised. Finally, they announced that the proposal made by His Grace the Duke of Northumberland, at the meeting on Feb. 5th, to find room immediately in the Council for new Fellows, could immediately take effect, in consequence of the retirement of three gentlemen, who from ill-health have unfortunately found themselves unable to be useful to the Society as they once were. In their room the Council put in nomination the Rev. L. Vernon Harcourt, whose standing in society and acquaintance with rural affairs would render him a valuable councillor, even in the absence of another claim, that of having been an active member of the late Committee. With him the Council associated two eminently practical men, of whom one, Mr. James Veitch, jun., was also upon the late Committee, and the other, Mr. John Spencer, Gardener to the Marquis of Lansdowne at Bowood, is a most able and experienced gardener.

These gentlemen were afterwards elected. The Earl of Orkney having moved the reception of the report, the Right Hon. Earl Grey, seconded by J. E. Denison, Esq., M.P., moved as an amendment:—"That the Council be authorised to terminate the tenancy of the Garden at Chiswick as soon as the lease will permit, and that the property therein be sold." A long discussion ensued, which ended by Lord Grey's proposing to add to his resolution the following words:—"Unless such a sum as the Council may require for maintaining the Garden shall have been subscribed before May 1." This having been carried unanimously, the proceedings terminated. We understand that the Council has since met for the purpose of giving effect to this resolution, and determined upon a circular letter to be sent forthwith to the Fellows of the Society.

Notices of Books.

Audubon, the Naturalist in the New World (12mo, Longmans), is a little volume describing the adventures and discoveries of the great American naturalist. It is in fact a brief sketch of his life, as illustrated by the anecdotes contained in his own works, or published by others. It is to be regretted that a more skilful hand has not been employed in putting together such fragments; for although nothing can materially diminish the interest belonging to many of the stories, yet it might have been greatly enhanced by a person conversant with naturalists and their language. That such is not the case in the present instance we collect from such inadvertencies as calling a bat a bird (p. 35), and from the undoubting manner in which "Galt" and "de Thouville" are spoken of as well-known botanists. We would also suggest that a Tulip tree is not a Tulip (p. 41), and that such words as verdurous, the cord of a bow, &c., are scarcely English. Notwithstanding such blemishes as these and a constrained style, the little volume will, we doubt not, find many readers, for all admire adventures, and those of Audubon were sometimes striking enough, as the following example shows. On one occasion when benighted he entered a small log cabin occupied by an old woman and a wounded Indian. The appearance of the former "might have dismayed any but the stoutest heart. About her tall, gaunt figure, her miserable attire was heedlessly gathered. The roughness of her manner and the audacity of expression were also well suited to the large proportions and muscular limbs of this Meg Merrilies of the woods.

"As he received no voluntary courtesy from his hostess, he was anxious to let her know of the hunger of which he was so painfully sensible himself, and, to propitiate her, drew forth a rich watch from his vest. This told, apparently, with electric force upon her feelings; for he was instantly informed of the existence of cakes, venison, and other dainties, from which to make an excellent repast. But, first, he was compelled again to gratify her curiosity by another sight of the watch, which she beheld in wonder. She received with ecstacy the gold chain, which Audubon presented to her; and hanging it with barbaric pride around her brawny neck, she expressed, at the same time, how happy the possession of the watch also would make her. Meanwhile, Audubon, more intent on satisfying his appetite than securing his ornaments, paid little attention to her antics."

Signs however made by the Indian soon informed him that danger was near, and all the watchfulness of the traveller was aroused:—

"After priming his gun, he returned to the hut, where, making a pallet of bear skins, and calling his dog to his side, in a few minutes he feigned a deep slumber, while awaiting the issue of the adventure. In a short time, two youths entered, bearing a stag on a pole. Having laid down their burthen, they asked for whisky, of which they drank freely, all the while increasing the ferocity of their gestures.

"The mother then spoke in a low tone concerning the watch, and a conversation ensued which it was easy to interpret. Audubon then gently tapped his dog, and beheld with indescribable relief the splendid eyes of the faithful animal sagaciously raised, as though aware of the impending danger, alternating towards his master and the trio in conversation. The looks of the young Indian, too, reassured him.

"Yet it needed all his fortitude quietly to observe the menacing proceedings, for with surprise and horror he beheld the wretch, whose cupidity had been excited by his possessions, take up a large carving knife, and proceed to the grindstone to whet its edge. A sickness of soul crept over him as he observed her sharpening still more and more the deadly instrument with which she was about to take advantage of his defenceless condition.

"Approaching him cautiously, she appeared contemplating the readiest method of dispatch.

"The moment which might, spite his endeavours at self-defence, be his last, was at hand, when suddenly the door opened, and two stout travellers armed with rifles entered. Offering them a hearty welcome, Audubon instantly made his situation understood. The Indian danced for joy, and the culprits were now the captives. The return of a bright and rosy dawn brought their merited punishment, that which Regulators usually employ for such delinquents. Their cabin was then fired, and its contents became the possessions of the young Indian."

This story would have charmed Mrs. Radcliffe.

Garden Memoranda.

Messrs. Jackson's, Kingston.—The frontage of this nursery has of late been considerably extended and improved. A good show house at the entrance is now full of blooming plants, among which were some pretty specimens of the Sikkim Rhododendron ciliatum, which flowers annually as freely as an Azalea. These had been lifted out of the open border in autumn, potted and wintered under glass. The Chinese Dielytra spectabilis, "potted up" from the open ground when well grown, also makes an extremely showy plant at this season. On the back wall were Camellias, which this year have bloomed abundantly, and in the centre of the house were numbers of well-flowered specimens of the better sorts of Rhododendrons, which, together with Azaleas and other spring flowering plants, made a fine display.

Of Conifers, both in-doors and out, there is here an excellent collection. Among others under glass we remarked good sized plants of Wellingtonia gigantea, and of Jeffrey's Abies taxifolia or Pattoni from the Rocky Mountains; this last in its present state bears some resemblance to a Hemlock Spruce. In the same pit were likewise Libocedrus chilensis and Doniana, both handsome specimens, Cephalotaxus Fortuni, and what was called Thuja elegans. These are stated to withstand ordinary winters in sheltered places without injury.

In the principal Orchid house a specimen of Dendrobium aggregatum was well furnished with charming bunches of bright yellow flowers, and along with it was a fine plant of Rucker's variety of Dendrobium nobile, which is considered to be handsomer than the species. There was also here a pretty variety of Lycaste Skinneri with a pure white lip, the pink colour in this instance being wholly confined to the sepals and petals. In addition to Orchids this house contained a charming collection of Ferns, among which we remarked Gymnogramma chrysophylla aurea, a variety the under sides of whose fronds were of a brighter yellow than those of the species; also G. pulchella and sulphurea, Cheilanthes farinosa, Pteris aspericaulis, a kind with very handsome leaves; Dictyoglossum crinitum, the fronds of which are covered with long black hairs; Asplenium diversifolium, with scarcely two leaves alike; Davallia falcinella, and the singular-looking Aspidium Filix-mas monstrosum. At the entrance of this stove were two remarkable plants, one Xylophylla latifolia, with a handsome top of leaf-like appendages, on the edges of which the flowers are produced—the other Cordyline heliconiæfolia, with a noble head of Musa-like leaves from among which issues a panicle of cream-coloured flowers. Both these plants were standards, some 6 feet or so high, and were

ot unimposing in appearance. On a side shelf was a collection of the different sorts of variegated Orchids, and near them an example of the Madagascar Ouvirandra fenestralis. This was growing in a small quantity of mould in the bottom of a glass pan with some white pebbles placed over the soil to show off the skeleton leaves of this singular aquatic to more advantage. Thus situated, it seemed to be thriving, and although but a young plant was extremely interesting.

Of Heaths and Epacrises there are here immense numbers, among the latter E. nivalis compacta appeared especially deserving of notice, inasmuch as it expands its flowers freely to the very points of the shoots, which few other varieties do. Its snow-white blossoms are also unusually abundant and showy. Among newer sorts of Heaths may be mentioned Erica glauca, which resembles elegans, but it is more upright in habit. Of E. ventricosa coccinea minor there were large quantities, that remarkably free-flowering variety always meeting with a ready sale.

In a cold frame were numbers of plants of the Pampas Grass, all seedlings, and many of them with leaves 2 feet in length. In the propagating house Eugenia Ugni, in the shape of young seedlings, was plentiful. A plant of it last year ripened fruit here, which was found to be delicious. The seeds were saved and sown in light peaty soil, and nearly every one of them vegetated. The old plant itself, we were informed, had been sold for a gentleman's orchard-house, for which, if it should not turn out to be altogether hardy, it is well adapted. In this house were some beautifully-grown plants of the Double White and Red Chinese Primulas, and associated with them was a new scarlet Geranium with a white eye called Sir Colin Campbell, a striking kind which will doubtless prove an acquisition.

Among Azaleas we noticed a deep brilliant rosy salmon-coloured seedling, with flowers of great substance and good shape. It had also a handsome foliage, which set off the blossoms to good advantage. This will doubtless turn out to be a really good kind, and it is apparently new in colour. Among Sikkim Rhododendrons we observed a promising plant of Dalhousiæ standard high on its own roots. Grafted plants of this, it is said, often do not live long, and the same thing is reported of R. javanicum. The Blue Tropæolum, we may add, is grown here abundantly. It is, we need scarcely say, a truly beautiful species, and deserving of more attention than it has hitherto received.

FLORICULTURE.

National Floricultural Society, *March 27.*—Mr. Perry, of Birmingham, in the chair. The censors on this occasion for miscellaneous subjects were the chairman, Mr. Turner, of Slough, and Mr. Smith, Florist, Hornsey; and for Cinerarias, Mr. Lidgard, of Hammersmith, and Mr. Atkinson, late a nurseryman at Gloucester. The greatest novelties exhibited were two of Nuttall's Bhotan Rhododendrons, now flowering for the first time in this country. One called nervosum had a large, somewhat coarse foliage of a grey aspect, and cream-coloured blossoms about as large as those of R. Edgworthi, and marked inside the base of each flower with a small violet blotch. The other, which was named Hookeri, was considerably the handsomer of the two. It has a good bright green foliage, and its flowers, though individually not much larger than a lady's thimble, were of so brilliant a crimson as to be striking even at a distance. Of this a cut specimen only was produced. These were furnished by — Fairie, Esq., of Liverpool. Of Hyacinths there was a good display. By far the best came from Mr. Cutbush, of Highgate, whose sorts were —Mammoth, white; Grand, lilac; Cavaignac, flesh-coloured; Mont Blanc; Duke of Wellington, crimson; and Robert Steiger. Other collections came from the Messrs. Hendersons', of Pine-apple Place and Wellington Road. From the last-named nurserymen also came a new Cyclamen, purple in colour, and very promising. Camellias were present in the shape of blooms and plants. The kind to which most attention was directed was C. alba compacta, from Mr. Gaines, the shape of which was perfect. La Reine, a striped sort, was also worthy of notice, as was likewise a cut bloom of a red kind from Messrs. Henderson. This was full sized and excellent in form. Of Cinerarias there were several collections, chiefly seedlings. Among the latter the best came from Mr. Turner; they were Prince of Wales, white edged with pale blue, and Lady Jane Peel. Mr. Smith, of Holloway, sent Princess Royal, white tipped with blue, closely resembling Bousie's Optima. From Messrs. Wood and Ingram came Geranium Crimson King, a free flowerer, but rosy salmon rather than crimson. It looked as if it would be a valuable variety for forcing.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—All kinds of climbers should after this time be frequently examined, to prevent a confused growth. Kennedyas, &c., if crowded should have their shoots thinned. The different Ipomœas and Thunbergias being subject to red spider should be well syringed to prevent that pest gaining ground. Where a large quantity of hardy shrubs is annually forced either to decorate the drawing-room or the conservatory, it is not desirable to pot a fresh stock each season, as a number of the deciduous things such as Roses, Lilacs, Thorns, Honeysuckles, &c., may by proper treatment be made to bloom for several successive seasons. Select, therefore, the most suitable plants when removed from the houses, and give them some kind of temporary shelter to gradually harden their foliage; those cramped for pot room shift into a size larger pot in rich turfy loam; towards the end of the month plunge them in an open situation, in order that the wood may get ripe early. These plants, from having been previously forced, will bloom earlier than the new stock, of which a portion should each year be potted to replace such as become useless for further work. Cut down and place in a cold frame the most choice kinds of Cinerarias for suckers after they have done flowering, and put in a stock of Chrysanthemum cuttings for autumn display. As spring flowering plants for the stove and for cutting, we know of none more useful than Begonias. Now will be a good time to commence with a stock for next season's display; as they go out of bloom allow them a short rest in a rather dry house, when they may be partially disrooted and repotted, pruning in any straggling shoots. Keep them close and syringe frequently, when they will soon commence growing. Abundance of light and a tolerable share of pot room are necessary to insure fine plants. Above all keep them a good distance apart, that the fine foliage of some of the species may have full room to expand. As the plants advance liquid manure may now and then be given. Their period of blooming is from January to May.

FLOWER GARDEN AND SHRUBBERY.

If not done previously the herbaceous ground should now be well cleaned and neatly raked over. Fill up vacancies either from the reserve garden or by sowing annuals in the intermediate spaces. Large plants of some genera, as Phloxes, Asters, &c., generally throw up too many flowering shoots; where such is the case thin them out at once, so as to obtain not only fine heads of bloom but increased strength to the remaining shoots to enable them to need less assistance from stakes. Hollyhocks for late blooming may still be planted, as it is better where they are grown extensively to plant at two or three times to insure a succession of bloom. These showy plants are admirably adapted for planting in long lines and parallel to straight walks, walls, &c., where they produce a grand effect. One of the principal points in pleasure-ground scenery is the beauty of the turf, which should be kept at all times closely cut if perfection is aimed at, but more particularly at this season, when by frequent mowings, cutting the Grass as low as possible, the foundation of a close bottomed turf will be laid for the season; on poor sandy or rocky soils, the verdure must be maintained by occasional waterings with weak liquid manure.

FORCING DEPARTMENT.

Pineries.—In the present state of the weather it will be nearly impossible to maintain a properly moist state of the atmosphere without the aid of shading; for, if sufficient air is admitted on bright days to keep down the temperature, the atmosphere is speedily robbed of its moisture, and the foliage at once feels the change, and is easily injured by bright sunshine acting upon it in its exhausted state. We are no advocates for shading Pines when it can be dispensed with, consistent with the well-being of the plants; but except in the case of tank or dung pits, where a constant stream of moisture can be commanded, it is nearly impossible, in the present state of the weather, without the aid of shading, to maintain a sufficiently moist atmosphere, either for young growing stock or for plants swelling their fruit. A very thin material should be used, however, and this only for a few hours on the forenoons of bright days. Growing stock and fruiters should be lightly syringed every fine afternoon, shutting up the house early, but do not use the syringe too freely, as this is apt to render the soil about the collars of the plants too wet, and water, when allowed to lodge in the axils of the leaves, tends to disfigure and render the foliage weakly. See that the whole of the stock, whether in pots or planted out in the open bed, is kept in a healthy state as to moisture at the root, for any neglect in this respect at the present season will be most injurious, and may cause a large portion of the young stock to show fruit prematurely. In watering Pines, the same attention and care should be exercised as in the case of more tender things, looking over the plants often, watering only such as are dry, and giving these a liberal soaking. Vineries.—Where the Vines are strong and vigorous, and a healthy root action can be secured there will not be so much to fear from the attacks of red spider, but in the case of old sickly Vines and badly conditioned borders, and these two generally go together, the most assiduous attention will be necessary to keep this pest from making its appearance. The atmosphere should be kept moist, using fire-heat as sparingly as possible, and if spider makes its appearance it must be eradicated at once either by washing every affected leaf with a sponge, or by a liberal use of the syringe as long as this can safely be used, so as to avoid having to contend with this enemy when the Grapes are colouring. The pipes should also be coated with a mixture of sulphur and lime, renewing this occasionally as it gets worn off. Stop laterals as they make their appearance, and keep the shoots thin and regular in order to expose the foliage as much as possible to the light. Ventilate very cautiously, opening the top sashes only on cold drying days, and shut up early in the afternoon. Peaches.—Where the stoning process is over there will be little or no danger of the fruit falling, therefore if the crops have not already been sufficiently thinned this should be done at once, and if fine fruit is an object thin liberally. Keep the trees moist at the root after stoning while the fruit is swelling rapidly, and weak manure-water may be given with advantage to such as show any indications of weakness. Also secure a moist atmosphere by frequently sprinkling the floors, &c., and use the syringe freely on the forenoons of bright days to prevent the appearance of red spider.

HARDY FRUIT AND KITCHEN GARDEN.

Seedling plants of Cauliflowers, Cabbage, &c., raised this present spring should be pricked off when large enough, to get stocky for final transplanting. As the future growth of the Brassica tribe depends much on not being drawn when young, some attention should be paid to this point when they are in the seedling state, for the best after culture barely compensates for the first neglect. As the time for sowing the principal crops of winter and Spring Broccolis and Greens is now at hand, select if possible an open piece of ground, rather poor than rich; let the seed be sown thinly, and when large enough to handle prick them out on a similar soil. To carry out the above directions among the numerous varieties inserted in the seedsmen's lists not more than three or four are necessary. A crop of the Globe Artichoke should now be planted for producing a late supply of heads. We have in former Calendars given directions for preparing ground for these and other permanent plants; on this the young side shoots taken from the old stools may be planted in lines 4 feet apart and 18 inches between the plants, or trenches may be dug 18 inches wide and the same in depth, in which some well-rotted manure should be dug and the plants put out as above.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending April 3, 1856, as observed at the Horticultural Gardens.

March and April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain.
Friday 28	22	29.979	29.913	47	29	38.0	41	43	N.E.	.00
Satur. 29	(	30.232	30.144	44	17	3 .5	42	43	E.	.00
Sunday 30	24	30 243	30.212	52	15	33.5	41	42	E.	.00
Mon. 31	25	30.152	30.018	60	20	40.0	45	42	S.	.00
Tues. 1	26	29.910	29.830	68	33	50.5	45	42	S.	.00
Wed. 2	27	29.793	29 632	66	42	54 0	47	43	S.	.01
Thurs. 3	28	29.823	29.665	54	44	49.0	47½	44	S.W.	.19
Average .		30.019	29 925	55.8	28.5	42.2	44.0	42.7		.20

March 28—Cloudy and cold; frosty at night.
— 29—Cold and dry; dry haze; sharp frost at night.
— 30—Slight haze; fine; dry air; very severe frost for the period of the season.
— 31—Slight haze; excessively dry air; frosty at night.
April 1—Fine; exceedingly fine; slightly clouded; fine.
— 2—Fine; very fine; slight rain.
— 3—Overcast; rain at night.
Mean temperature of the week 2½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending April 12, 1856.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	56.8	36.5	46.6	11	0.30 in.	3	8	2	1	4	9	2	1
Mon. 7	57.1	36.7	46.9	13	0.40	2	7	2	2	1	9	6	1
Tues. 8	56.1	35.4	45.8	14	0.40	2	6	5	—	5	5	5	2
Wed. 9	54.9	35.2	45.0	14	0.30	4	5	5	1	3	5	6	1
Thurs 10	55.0	33.7	44.4	12	0.27	2	6	6	2	4	4	5	1
Friday 11	55.4	36.0	45.7	15	0.51	2	7	3	1	5	7	3	2
Satur 12	55.8	37.8	46.8	20	0.36	1	6	5	—	2	10	1	5

The highest temperature during the above period occurred on the 9th 1844—therm. 73 deg.; and the lowest on the 6th, 1851—therm. 21 deg.

Notices to Correspondents.

Amaryllis humilis: *Diss.* Two plants have borne this name, viz. Cyrtanthus uniflorus and Nerine humilis. Both come from the Cape of Good Hope, and neither is hardy.

Diseased Peach-trees: *G S.* We should say that the roots of your Peach tree had found their way into water or into some deleterious fluid.

Figs: *A Sub.* There is no other difficulty in growing Figs against the back wall of a vinery where the heat is kept up all the year round than finding a season of rest. That however may be secured by temporary dryness.

Fungi in Wine Cellars: *W B.* There is nothing extraordinary in it. What you have sent is merely the spawn of some great fungus, perhaps a Clavaria.

Insects: *L V H.* The myriads of little insects which are stated to have come out of a churchyard at West Dean, Sussex, are Pteromalus viridis, one of the many minute species of parasites which live in the lower slate on the bodies of other insects. We should be glad of any additional particulars respecting them. *W.*

Moss on Fruit Trees: *Keswick.* Scrape the Moss off by all means and burn it. You need not meddle with the twigs, but confine the operation to the trunk and main branches, which you cannot easily hurt. A trowel is a good instrument, as it is handy to use, and takes off all loose bark as well. Having thus cleared the trees from Moss apply the following composition, viz., a peck of fresh cow-dung half a peck of quicklime, half a pound of flower of sulphur, some wood-ashes and a quarter of a pound of lamp-black. Mix the whole together with as much urine and soap-suds in a boiling state as will form the ingredients into a thick paint, and lay it on with a brush.

Names of Fruits: *J Rodolph.* 1, Uvedale's St. Germain; 3, Jean de Witte; 4, Bergamotte de Hollande.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*H H.* Ixora coccinea.

Swans: *Vincent* desires to know how swans may be preserved from foxes. [The former should be "at home" on an island]. *M.*

To our Questioners. Will you be so good as use a little ingenuity in varying your signatures? We, as well as you, have experienced much inconvenience in consequence of the answer intended for one A. B. being supposed to apply to the questions of some other A. B. And the evil is growing. We have this week three signatures of "Subscriber" to three questions exactly of the same nature, though not exactly requiring the same reply. What but confusion can grow out of that?

Transplanting Seedling Hollies: *Diss.* It is perfectly true that a correspondent signing himself ‡ has stated that "the best time for transplanting seedling Hollies is the spring, when there is no danger of their suffering from severe frost." But that is not our opinion. Hollies may be transplanted either in spring, midsummer, or September. But risk attends the two first and therefore we prefer the last.

Vinery: *Alpha.* For your Vinery to be kept at the temperature you describe, plant Muscat of Alexandria, Cannon Hall Muscat, Black Frontignan, and Black Damascus.

Misc: *Sub.* Tropæolum speciosum is, we believe, hardy, if kept on a *well drained* north border. Epacris heteronema is not hardy. Cucurbita perennis is described at p. 836 of our volume for 1855.——Full price will be given for the following Numbers: No. 7, 1847; 27, 1851; 8, 1854.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES.

THE following Manures, of warranted quality, are now ready for delivery, viz.:—

SUPERPHOSPHATE OF LIME, made from Bone, see Royal Agricultural Society's Journal, Vol. 6, Part 2.

THE PATENT SANITARY COMPANY'S NITRO-BIPHOSPHATE, or BLOOD MANURES, for Corn, Grass, Roots and Hops.

Also GUANO, NITRATE OF SODA, BONEDUST, and ½-INCH; SULPHURIC ACID, SALT, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204, Upper Thames Street, sole Agents for the Peat Charcoal Company.

TO AGRICULTURISTS, MARKET GARDENERS, AND AMATEURS.

TOTTENHAM SEWAGE MANURE (HIGGS' PATENT).—This highly fertilising Manure, consisting of the Nightsoil, Blood, Urine, and other Nitrogenised Matters yielded by the Town Drainage is now ready for delivery from the Works, or from the Railway Station at 4*l.* 4*s.* per ton, or may be had for use in the Garden, of most of the principal Seedsmen in London, in packets 9*d.* each.—Sewage Works, Page Green, Tottenham.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

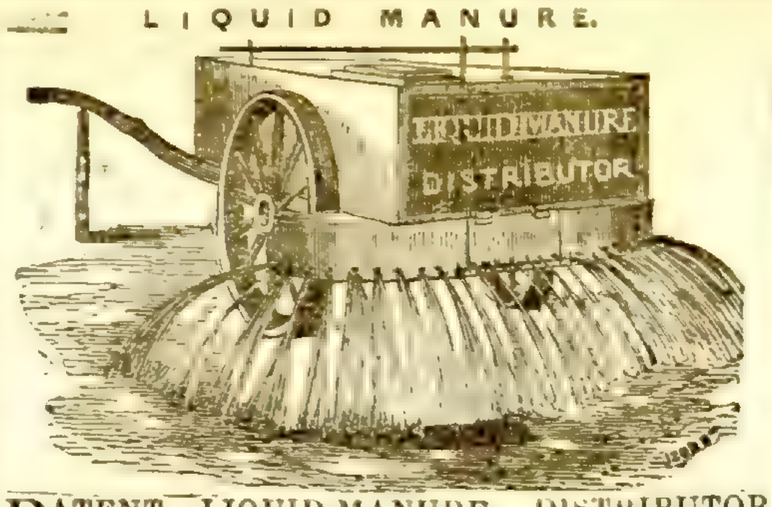
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

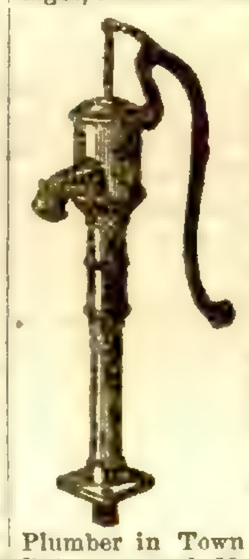
Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.



Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1 10 0
2½ „ long	3 „ 3 „	gutta percha,	1 14 0
3 „ ditto	3 „ 6 „	or cast iron	2 8 0
3½ „ ditto	3 „ 6 „	flanged pipe,	2 12 0
4 „ ditto	3 „ 6 „	as required.	3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

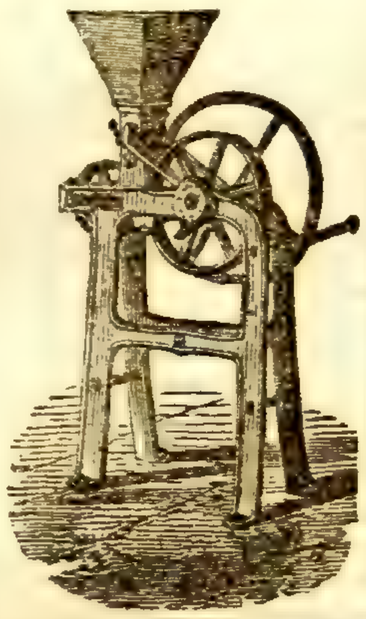
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

OAT-CRUSHING AND BEAN-SPLITTING MILL
(TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



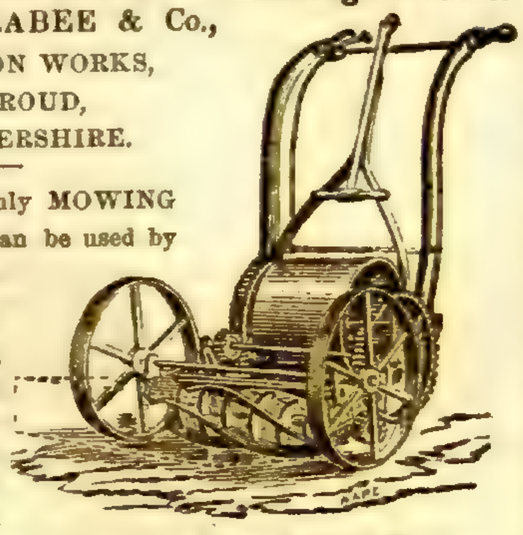
Price £5 15*s.* 6*d.*

Made and Sold by
E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

IMPROVED LAWN MOWING MACHINES.
MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.



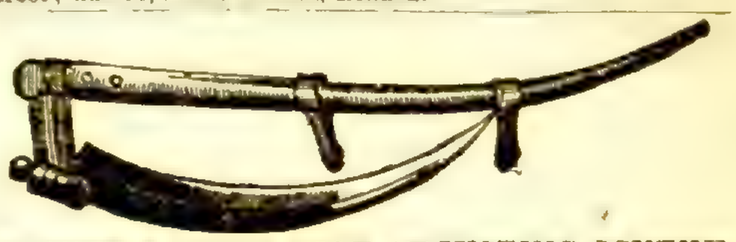
Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural epartment, Baker Street Bazaar.

FIRST PRIZE REAPING MACHINE.
NOTICE.

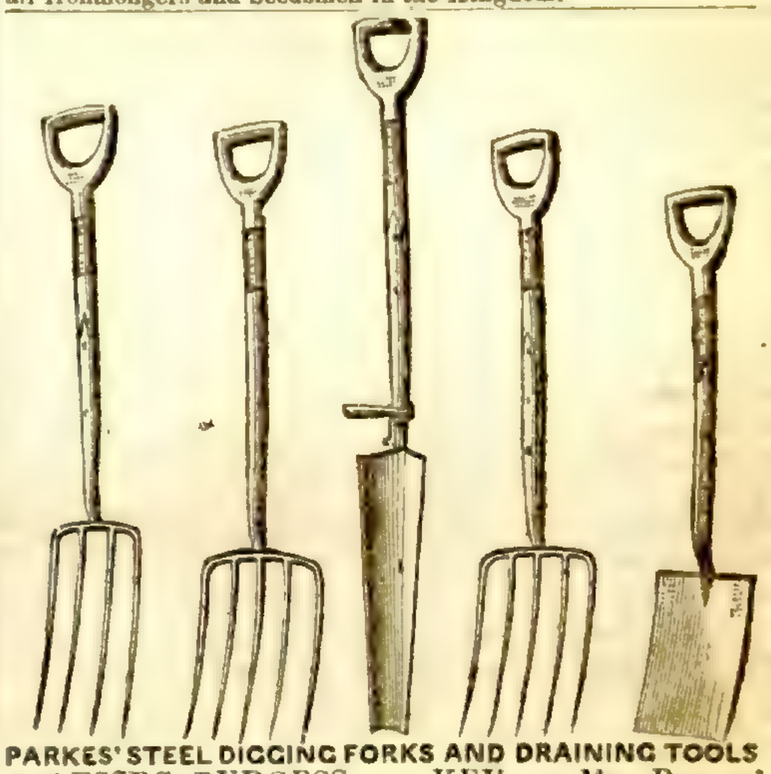
MESSRS BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.



BOYD'S PATENT SELF-ADJUSTING SCYTHE.—Sole Makers, WILLIAM DRAY & Co., Swan Lane, London. May be had of all respectable Ironmongers and Seedsmen.

SCYTHES.—Order BOYD'S Patent Vulcan Scythe; it is the cheapest and best. It is sold ready for immediate use, avoiding loss of time and Blacksmith's fees. Price only 4*s.* 6*d.*, or with handle complete, 6*s.* 6*d.* Prospectus on application.

W. DRAY & Co., Manufacturers, Swan Lane, London; and of all Ironmongers and Seedsmen in the Kingdom.



PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, APRIL 5, 1856.

THE sale at Fawsley, on Thursday, of Sir CHARLES KNIGHTLEY's long established herd of Short-horns was, in spite of the wet weather, attended by three or four thousand people from all parts of the country. Mr. STRAFFORD kept them standing patiently in the rain for five hours, during which he disposed of four dozen cows, heifers, and heifer calves, and 30 bulls and bull calves, at prices sufficiently significant of the esteem in which the breed is held, and of the genuine character of the herd which has been thus dispersed.

The animals were all in admirable condition, and the prices reached—generally uniform enough to show that unity of quality which by its long standing the herd had acquired—were in some few cases of the higher class by which the breed has been distinguished. The highest prices were generally given for those animals in which the Duchess blood existed. Thus the Duke of Cambridge by Grand Duke (10,284) sold for 330 guineas; his sire was sold last year by Mr. BOLDEN for 1000 guineas. The next highest price was given for a young bull, Bosquet, which was bought by Mr. SHEPHERD for 200 guineas. Several of the heifers exceeded 150 guineas apiece, and the average—for cows and heifers nearly 81 guineas, for bulls and bull calves nearly 71 guineas, for the whole sale nearly 76 guineas—is much higher than considering the comparative smallness of the highest prices is generally the case. This largeness of the aver-

age, notwithstanding the few instances in which the highest prices were attained, is a satisfactory proof of the general good quality of the animals. The following list is to some extent defective, but will be completed next week :—

SALE OF THE FAWSLEY HERD, April 3, 1856.
COWS AND HEIFERS.

No.	Name.	Age.	Purchaser.	Price in Guineas.
		Yrs.		
1	Flourish	14½	Mr. Smith	32
2	Butterwort	9¼	„ Timms	41
3	Anemone	8½	„ Boult	74
4	Meadowsweet ...	8	„ Lawson	71
5	London Pride ...	7½	„ J. B. Stanhope, M.P.	54
6	Amaranth	7	„ Thorne	120
7	Garland	6¾	„ Sanday	91
8	Kissinda	6½	„ Wyatt	46
9	Sweetwater	6¼	„ Timms	50
10	Fleda	6¼	„ Saunders	155
11	Maiden's Blush*			
12	Cyrilla	5¾	„ Lawson	125
13	Mimosa	5½	„ Whitehead ...	50
14	Kishmee	5	Sir J. Crew	95
15	Cold Cream	4½	H.R.H. Prince Albert	100
16	Aloyse	4½	Mr. Drewry	96
17	Drapery	4	„ Stirling	100
18	Henna	4	„ Stone	35
19	Eugenie	3½	„ Stanhope, M.P.	82
20	Blouzelind	3½	„ Thorne	80
21	Catchit	3½	„ Lawson	105
22	Wheedle	3½	„ Saunders	61
23	Chrysalis	3	„ Thorne	155
24	Chemisette	3	„ Drewry	155
25	Albreda	2¾	Col. Pennant	93
26	Alix	2¼	H.R.H. Prince Albert	100
27	Cambine	2¼	Lord Exeter	80
28	Claridell	2½	Mr. Grenfield	110
29	Erminstade	2½	„ Jonas Webb ...	54
30	Blanchefleur... ...	2¼	„ Lawson	77
31	Elgitha	2	„ Thorne	100
32	Frontlet...	2	„ Saunders	40
33	Gundreda	2	„ Eaton	53
34	Hamadryad	2	Earl Spencer	100
35	Lady's Slipper ...	1¾	Mr. Saunders	155
36	Mrs. Flather... ...	1¾	„ Thorne	150
37	Olga	1¾	„ Lacy	42
38	Flutter	1¾	„ Trebonnais ..	36
39	Turfrida	1½	„ Leslie	76
40	Blondelle	1	„ Monro	105
41	Wrinkle	1	„ Holmes	67
42	Fretwork	1	„ Simpkin	50
43	Isolda	10 m.	„ Stirling	62
44	Florimell	10	„ Lacy...	61
45	Tawdry	9	„ Holmes	50
46	Coquelicot	9	„ Trebonnais ...	90
47	Cithara	9	„ Peck...	38
48	Erigone	7	Earl Spencer	37
	BULLS AND BULL CALVES.			
1	Earl of Dublin ...	7¾	Sir J. Crew	75
2	Duke of Cambridge	3½	Rev. T. Cator... ...	330
3	Wolsbane	2	Mr. Beasley	125
4	Craigsman	1¾	" Powell	60
5	Blandamour	1¾	" Marshall	95
6	Purple Top	1¾	" Holmes	80
7	Bosquet...	1¾	" Shepherd... ...	200
8	Alba	1¾	" Atkin	27
9	Effinell	1¾	" Dixon	43
10	Humphrey	1½	" Thompson ...	90
11	Blattergowl	1¼	„ Dodwell	43
12	Dagobert	1	„ Jackson	30
13	Florentin	1	„ Abbott	82
14	Belbec	11m		36
15	Gardante	11		85
16	Oldbuck	11	„ Tanqueray ...	115
17	Pope's Eye	10	„ Dickenson ...	45
18	Triamour	10	„ Holmes	85
19	Pricket	10	„ Beckett	30
20	Tristrem	10		30
21	Shabbakuk	10	„ Drewry	76
22	Mosquito	10		50
23	White Frost	8		20
24	Amiens	8		32
25	Vandumper	7	„ Davis	55
26	Malbecco	4	„ Tweedale... ...	41
27	Leonine...	2	„ Davis	35
28	Calf	2		37
29	„	1		44
30	„	½		36

The sum obtained for 78 animals was 5962 guineas, averaging nearly 76 guineas each.

We add that several additional sales of shorthorns are shortly to come off, and among them one advertised in our columns by Mr. Wetherell. We allude to that of Mr. Smythe Owen, at Condover Hall, in Shropshire. This herd contains first-rate blood, as will be seen by referring to the catalogue. It comes off on Tuesday, the 15th inst.

It is a singular illustration of the inexactness of agricultural knowledge that the question how many seeds there are in the pound of our commonly cultivated field plants should still remain to be answered. It is plain that the answer will not necessarily affect farm practice—for the quantity of seed which it is proper to sow per acre is a matter to be determined by experience, not by argument apart from trial; and yet surely it is most desirable to compare the number of the seeds we ordinarily sow with that of the plants we raise. If in ordinary practice 1,200,000 seeds of Wheat are sown on every 40,000 superficial feet, or what is more extraordinary 15 to 18 million seeds of Flax are scattered on the same extent, about three to every inch of land, it is surely well to let the farmer know it. He knows very well he does not raise so many plants as this—and struck, as he must be, by the enormous disproportion between the means he uses and the result he gets, he will inquire into its causes.

The Turnipseed employed per acre numbers from 600,000 to a million according to the kind and quantity adopted; this, if the rows are 2 feet apart, is two or three dozen seeds per foot of row, where a single plant alone is to be grown. No doubt nothing like so many generally come up, but then there is a great destruction by the hoe, which will explain much of the discrepancy in this case. What however becomes of the 18,000,000 seeds of Flax which are commonly—of the 6,000,000 seeds of Oats which are sometimes—sown per acre? There is no destruction by the hoe in either instance here. A single ear of Oats may contain 100 grains—a single plant will generally include half a dozen ears, but if 6,000,000 plants should yield as much as this implies, they would produce 100 loads of grain. Instead of 600 seeds apiece they need yield but half a dozen each to produce an ordinary crop of Oats. It is plain that five-sixths of the seed or of the plants that they produce are killed in the cultivation of the crop. And the proportion is vastly greater than this in the case of other plants. What is the ordinary seeding of the Clover crop? Eight lbs. of red Clover, four of white Clover, and four of Trefoil may be sown—that is at least 6,000,000 seeds per acre—a seed on every inch of land—but instead of 144 are there generally half a dozen plants on every square foot of the Clover field?

There are about 25,000 seeds of Sainfoin in a pound of "rough" seed, as it is called, and it weighs some 20 lbs. per bushel: 4 bushels is an ordinary seeding, and they contain 2,000,000 seeds, or 50 per square foot of land. This is the number too of seeds in an ordinary seeding of Vetches. It is manifest that in both these cases there is an enormous destruction either of young plants or seed; and these are the two great divisions under which the causes of this anomaly must be classed:—Faults of seed and sowing, and faults of cultivation. To these two first-class agricultural subjects we shall in future articles direct the attention of our readers. Meanwhile we are enabled, by the assistance of Messrs. Rendle, of Plymouth, to lay before them the following answers to the question—how many seeds to the pound?

Name.	No. of seeds per lb.	No. of lbs. per bushel.	Common seeding per acre.
Wheat	10 500	58 to 64	1 to 2 bush
Barley	15,400	48 to 56	3 to 4 „
Oats	20,000	38 to 42	4 to 6 „
Rye	23,000	56 to 60	3 to 4 „
Canary Grass	54,000	...	...
Buckwheat	25 000	48 to 50	3 to 4 „
Vetches	8,300	60 to 63	...
Lentil	8,200	58 to 60	...
Beans	600 to 1,300	60 to 65	2 to 3 „
Peas	180 to 2000	60 to 65	3 „
Flax	108,000	50 to 60	2½ to 3 „
Turnip (Rendle's Swede) ...	155,000	50 to 56	3 to 5 lbs.
„ (Cornish Holdfast) .	239,000	„	„
„ (Orange Jelly) ...	233,000	„	„
Rape (Dwarf Essex)	118,000	50 to 56	8 to 14 lbs.
Mustard (White)	75,000	57+	14 lbs.
Cabbage (Scotch Drumhead)	128 000	52+	...
„ (Drumhead Savoy)	117,000	„	...
Kohl Rabi	131,000	54 to 56	...
Mang. Wurzel (Fisher Hobbs')	24,600	20 to 24	7 lbs.
„ (Morton's) ...	22,400	..	„
Parsnip (Common Cattle) ..	97,000	14+	„
„ (Large Guernsey) ..	117,000	„	„
Carrot (Belgian)	257,000	9+	„
Sainfoin (Rough)	23,300	20 to 24	4 bushels.
Lucerne	205,000	58 to 60	16 lbs.
Chicory	445,000	27 to 30	...
Gorse	77,000	55 to 60	...
Clover (Red)	249,600	60 to 63	8 to 10 lbs.
„ (White)	686,400	59 to 62	4 to 5 lbs.
Trefoil (Common)	318,400	...	4 to 5 lbs.
Trifolium incarnatum ...	118 400	60	20 lbs.
Trefoil (Crimson Birdfoot) ...	307,200	...	...
Ryegrass (Perennial) ...	344,000	20 to 28	1 to 3 bush.
„ (Italian)	272,000	13 to 18	Do.
Sweet Vernal Grass	923,200	8	...
Sheep Fescue	548,800	12	...
Timothy Grass	1,178,400	40	...
Plantain, or Rib Grass ...	290,000	...	...
Common Miltoil	3,080,000	...	...

The further consideration of this very important table we must postpone for a week.

We have to announce in reference to the examination in agriculture before the Society of Arts in June next, that it will presume an acquaintance with Low's Agriculture, Johnston's Agricultural Chemistry, and Mr. Pusey's Paper on the Progress of Agricultural Knowledge, in No. 26 of the Royal Agricultural Society's Journal, together with such a general knowledge of farm practice and of the management of live stock as must to some extent at any rate have been acquired in the field. The examination will be conducted by written papers, and orally. It is desirable that the most be made of this opportunity in the interests of agriculture, and what publicity our columns can give it is therefore gladly afforded. Mr. Mechi offers a prize of Ten Guineas to the candidate who shall pass the best examination in the principles of agriculture, and obtain a first class certificate therein. The examinations instituted are for candidates from institutions associated with the Society of Arts, and any one willing to submit to them must therefore be introduced through one or other of these institutions. We hope that there may be many to compete for the certificates of proficiency that will be awarded.

In reference to the agricultural department it may be as well to remark that while Low, Johnston, and Pusey are the authors named, the object of the examiners will be to ascertain the acquaintance of the candidates not so much with the writings specified as with the truths which they convey, which may be found elsewhere, and are in fact related in all systematic works on agriculture and agricultural chemistry.

We learn from a correspondent at Plymouth, that the demand for Italian Rye-grass has this season been enormous, and the wholesale price has been nearly double of what it has been for many years past. Notwithstanding this high price the sale has been immense, and a London agent writes, "I very much question if any foreign Italian Rye-grass is to be had in London." Of course he means in the hands of importers. The seedsmen probably have some still, though many of them, large as was the stock laid in, are already nearly cleared out, and will find great difficulty in executing orders.

DIARY OF A DAIRY FARM.

April.

The process of cheesemaking commences very generally in the beginning of April, although that which is made whilst the cows are eating hay is never of the finest quality. This is very manifest even in the outward appearance, there being a deficiency of the blue coat, a sign of richness which is observable when the cows are eating Grass, and the cheese is more inclined to heave during this month than later in the season. There is a plan adopted by very many persons to prevent this heaving, which if regularly practised through the summer would seem very likely to render the cheese unwholesome, and if not used with great discretion it might be very dangerous. This is the use of blue vitriol, dissolved in water, a certain portion (of course a small one, not exceeding a piece the size of a nut for 50 gallons of milk) being put into the milk at the same time with the rennet; this has the effect of preventing fermentation, but the use of it is frequently prejudicial, for if left to the judgment of the dairymaid, proper care is not always exercised, and when there has been too much used it has been known to show itself by turning the cheese blue when exposed to the air. In one instance it was known that a considerable quantity was entirely spoiled, and the factor unable to do anything with it. However it has been a general custom to use it in dairies, and where it has been done with caution, it has proved a remedy for the heaving of the cheese, which upon some land it is oftentimes very difficult to prevent.

The use of a small quantity of the sour whey and also a little saltpetre has sometimes proved very effectual without the risk of using vitriol. A tablespoonful of saltpetre to about 40 gallons of milk is placed on the cloth which covers the cheese-tub underneath the sieve, and the milk passed through in straining, dissolves it, and mixes it effectually with the milk. The practice of using annatto or cheese-colouring is not so generally adopted now as formerly, though in some districts it is still used, and the cheese preferred with it; in others it is completely discarded; it does not appear to affect the quality of the cheese excepting when used very largely, and then it has been found to have the effect of drying it to a certain degree and thereby depriving the cheese of richness, therefore under any circumstances a small quantity should be used, sufficient to make the milk one shade deeper in colour. In cheesemaking, as in most other things, people fancy their own way the right one, but it is very desirable to test the best method by trying several experiments in the same dairy, by which a correct conclusion may be obtained; there is certainly nothing like experimental knowledge, which if desirable in most things, is especially so in the management of a dairy, where the variety of the seasons and constant changes in the weather have such a decided effect that it is difficult to lay down regular rules for everything; many circumstances, therefore, must be influenced by the experienced judgment of the dairymaid. However the plans here recommended have been practised many years with considerable success. The use of annatto

* Unwell—her calf, a fortnight old, sold for 41 guineas to Mr. Marjoribanks.

was in this dairy altogether abolished, and the cheese was thought to be improved in quality thereby.

After the rennet is put into the milk it should always stand at least an hour without being disturbed, when it should be cut slowly with a knife having three blades, but only sufficiently small to allow of some of the whey being dipped from it; after it has stood a quarter of an hour it may be broken up very small, without the risk of getting the fat from the curd into the whey, which is of importance; the quantity of whey butter should not exceed 1 lb. to each cow, and if less the cheese is the better; the curd being broken very small the second time causes it to sink into a solid mass, and the whey can then be more easily taken from it. It is of much importance to the quality of the cheese that the curd should be made as dry as possible, therefore it is generally put into vats and placed in the press for half an hour to effect this, and when taken out and placed in the tub in large dairies a mill for grinding the curd placed on the top of the tub has been found very efficacious, as a saving of much labour to the dairymaid, the crumbling of the curb sufficiently small being a very hard process for the hands, and not so regularly done as when prepared by the mill. It only then requires to be pressed firmly into the vats. It has been proved that after the use of the mill the cheese retains the fat better than when all the process is performed with the hands. Cheese has been found richer by the curd not being scalded at all, but merely a little scalding water thrown over it after the vat is sufficiently full, first laying a cloth over it, and the cheese to be turned over to allow of both sides receiving the hot water; this makes it firm on the outside, and prevents its cracking.

It is well to commence cheesemaking by using the thinnest vats; the cheeses in these are more likely to keep their proper shape thus early in the season; they should not be made thicker than eight or nine to the cwt. It is custon ary to set up a small portion of milk for butter to be skimmed once, and afterwards to be put into the cheese; the addition of a little cold milk is an advantage to it, and it has been proved that when the milk requires to be warmed to make it of the proper heat before adding the rennet, it is a much better plan to warm some of the milk when brought from the cow to a greater degree of heat than to warm that which has been standing 12 hours and the cream taken from it; it has been observed that the cheese is much firmer by this plan, therefore it is well to adopt it. After the cheese has been in the press two hours it should have the wet cloth removed, and replaced by a dry one, and if it be found that the curd is not properly closed, a second may be used before it is salted. The salt should be rubbed in at night to the cheese made in the morning, and that made at night as soon as possibly convenient in the morning; three times is sufficient for thin cheese, and four times for thick, the cloth to be left off the last time of salting; afterwards a small quantity of salt may be used to prevent the cheese sticking to the vat during the time it is in the press, taking care that it is turned every day; and though not necessary for thin cheese to remain in the vat more than four days, it is thought an advantage if there is press room to allow of being longer before turned out on the shelves; when there it must be turned every day. Avoid putting it in a draught of air when tender, as this will invariably cause it to crack.

The dairy should now be getting most of the new milk, the calves weaned last month from the oldest cows being the best for this purpose. The milk they get, mixed with the oatmeal or Linseed before recommended, may be taken from the quantity set up for butter and once skimmed after standing 12 hours. Calves at five or six weeks old will grow fast and be in sufficiently good healthy condition, with half a pint of Linseed or oatmeal prepared in the manner before described, and one quart or three pints of skimmed milk in addition at every meal. The milk should be placed in a tin vessel in boiling water to render it of sufficient warmth, and the quantity reduced according to the age of the calves, and regulated somewhat by the number kept, as their growth may be forced to some extent by higher feeding. Some good hay should be put to them twice a day, and some Swedes cut very thin, which they will soon take to eat readily if a bit is put into their mouths as soon as they have taken their milk, when they are disposed to suck anything that comes in their way. The food as above described has proved by long experience to be quite sufficient for the rearing of good useful dairy stock, calves so treated becoming fine heifers from this commencement at the end of three years, and in many cases even at two years old. A sufficient number of these young cows to supply the place of old cows turned from the dairy stock last autumn should now calve, and their young should run with them for as much as a fortnight and then be sold, except in cases of particular favourites which may be desired for weaning on the farm. The heifers require some little time to become quiet and accustomed to be milked, which they will more readily allow with their calves by their sides, and the frequent sucking of the calves during the whole 24 hours makes the milking an easier operation afterwards. A run for a few hours in the day in a sunny field or orchard, with access to shelter, will do the weaning calves much good. On no account allow them access to water. The cows should now have the best food provided, the dairy cows on every farm being the stock at this time paying most for good feeding, and on ordinary farms by the end of the month some early Rye-grass could be provided and be given to them in the yards in addition to their winter food, as a good preparation to their being turned in the Grass fields next month, which often proves too great a change if suddenly done, producing too great looseness in the bowels with falling away of flesh, and consequent loss of milk in the individuals so affected.

[We have received the following question in reference to our correspondent's diary for February:—

"I see in the *Gardeners' Chronicle* of the 2d February an excellent recipe for making rennet by one of your correspondents, but no name signed. Allow me to suggest to him that I think he would confer a great boon on dairymaids, particularly young ones, if he would mention what quantity of that rennet should be used for a new milk cheese of 14 or 16 lbs. weight, and how much for a skim-milk one of the same size? Any one can make the rennet; but none but an experienced dairymaid would know how to use it *T. T. B.*, 23, *Park Street, Bath.*

In reply to this our correspondent says:—About half a pint of the rennet prepared according to my recipe is enough for 50 gallons of new milk, or 75 gallons of skim milk. These quantities in the case of new milk may yield somewhere about 40 lbs. of cheese.]

Home Correspondence.

Seeds.—I have hitherto referred to Messrs. Lawson & Son's treatise when I wanted to learn the number of seeds contained in 1 lb. avoirdupois. Let us compare "J. C. X.'s" table with that of Messrs. Lawson & Son:—

	Seeds in One Pound, Avoirdupois.	
	J. C. X.	Lawson and Son.
Agrostis alba stolonifera	4,838,400	6,000,000
Alopecurus pratensis	529,920	912,000
Cynosurus cristatus	952,320	336,000
Dactylis glomerata	395,520	480,000
Festuca duriuscula	445,440	468,000
„ elatior	230,400	246,000
„ ovina	1,113,600	768,000
„ pratensis	207,360	312,000
Lolium perenne	199,680	192,000
Phalaris arundinacea	506,880	504,000
Phleum pratense	948,480	888,000
Poa trivialis	2,380,800	2,604,000
„ pratensis	1,405,440	2,916,000
Trifolium pratense	322,560	192,000
„ repens	821,760	384,000

"J. C. X." finds nearly treble the number of seeds in Cynosurus cristatus that Messrs. L. & Son found, and more than double in Trifolium repens. The numbers vary greatly in other cases. Who then are we to believe, "J. C. X." or Messrs L. & Son? *Geo. Summers, Houghton Farm, Blandford.*

An error that may mislead.—In the "Scottish Agricultural Almanac" for 1855, page 11, is given report of experiments in fattening cattle, said to have been superintended by Mr. M Culloch of Auchness and to have been awarded the Highland Society's prize of 20*l.*, 1852-3. In the results as there given, there seems a miscalculation, which if left uncorrected is fitted to mislead as to the feeding value of an acre of Turnips. The error seems to run through the whole 21 lots experimented upon, but lot 5 may be tested being one of the simplest. The experiments extend over 100 days, each animal used daily 150 lbs. of Turnips and left as profit 2*l.* 11*s.* 11½*d.*, being, says the report, at the rate of 20*l.* 14*s.* 0¾*d.* for the Turnips per acre of 30 tons. 150 lbs. of Turnips for 100 days = 15,000 lbs, the value of which is 2*l.* 11*s.* 11½*d.* Now 15,000 lbs: 2*l.* 11*s.* 11½*d.* : : 30 tons : not 20*l.* 14*s.* 0¾*d.* but 11*l.* 12*s.* 9¼*d.* *S., Forfarshire.* [The Almanac here referred to is the one published by Mr. J. Lockhart Morton, of Edinburgh.]

The Weather.—Although I have no faith in prognostications about weather, and consider meteorology a barren science in its present state, still I register facts and deal in suggestions, which help to keep alive the interest in the study; some law which may be applied may be discovered at last, but never will if we neglect to observe what takes place. With this general remark I request of such of your readers who study meteorology to let us know when the rain began in their locality on Sunday the 16th March, and how they can account for the fact that the wind that day being due E. the rain commenced in the W., and progressively extended to the E. The facts are these:—My brother was at Bath, W. of my residence 30 miles, and the rain began at 1 P.M.; here it commenced at 3 P.M.; and at Hernitage, Berkshire, 30 miles E. of this place, it began at 5 P.M.; making a nearly equable progress from W. to E. of about 15 miles per hour. I hope some of your readers may have happened to note exactly the time when it began to rain, that we may have the additional facts to aid us in our inquiry for the cause. The only conclusion I can at present come to is, that the conditions producing rain operated in an exactly opposite direction to the wind, and progressed eastward quite independently of the wind. *Thos. C. Brown, Cirencester.* [At West Moulsey, in Surrey, it began about 7 in the evening.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *April* 2: Colonel CHALLONER, Trustee, in the chair.—Thirty-four new members were elected.

FINANCES.—Mr. Raymond Barker, chairman of the Finance Committee, presented the report on the accounts of the Society; from which it appeared that the current cash-balance in the hands of the bankers was 3,399*l.*, (including 1,200*l.* as the Chelmsford subscription).

PRIZE-ESSAYS AND LIBRARY.—Mr. Dyke Acland, vice-Chairman of the Journal Committee, reported the arrangements made for adjudicating on the Essays sent in by the 1st of March last to compete for the prizes offered by the Society; and the further recommendation of the Journal Committee in reference to the preparation of a complete catalogue of the Society's Library.

CHEMICAL ANALYSIS.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported that a revision of the charges to be made by Prof. Way, Consulting Chemist to the Society, for analyses placed in his hands by members, was at that time under the consideration of the Committee, who intended to report their recommendation of a new schedule of such charges to the Council at their next monthly meeting.—Mr. Fisher Hobbs expressed his intention of representing to the Committee on that occasion the great additional advantages the farmers of the country would derive from Prof. Way's scientific acquirements, if, consistently with other arrangements, a condition could be introduced in the Society's re-engagement with him that he should in the course of each year make certain tours through the farming districts, and acquire personally from the different members throughout the country a more practical knowledge of the means by which he might be able, not only to improve his own acquaintance with the application of science to agriculture, but to advance their own interests, and that of practical agriculture generally, by such more extended survey of the ordinary operations of farming.

CHELMSFORD MEETING.—Mr. Barnett, Vice-Chairman of the Country Meeting Committee, reported their recommendations that a show-yard should at once be constructed of the same size as the one at Carlisle last year; and that Mr. Manning, the Society's contractor of works, should prepare and submit to the Committee the plan and estimate of a Pavilion capable of accommodating 1000 guests at dinner on the Thursday of the Chelmsford meeting show-week in the middle of July next.

CERTIFICATE ENTRIES.—Members were reminded that all entries of implements at the Chelmsford Meeting (as far as regarded the *space* required and the *number* of implements to be sent), were to be made to the secretary by the 1st May; and all entries of live-stock by the 1st June.

MERITORIOUS LABOURERS.—Mr. Fisher Hobbs hoped that some opportunity would be afforded at the Chelmsford Meeting to recognise, in accordance with one of the chartered objects of the Society, such services of meritorious agricultural labourers as might be brought under its notice by the several local associations of the county of Essex.

FIELD-DYNAMOMETER.—Colonel Challoner having reported, as Chairman of the Implement Committee, the communication made by Mr. Amos, one of the Consulting Engineers of the Society, of his successful efforts in devising a Dynamometer for ascertaining the tractive force required to work field implements, the Council authorised the Committee to direct the construction of such an instrument for employment at the Chelmsford Meeting; also to give final instructions for the completion of the conditions of the Implement Prize-sheet for that occasion.

COUNTRY MEETING OF 1857.—Notice was given that at the next Monthly Council on the 7th May at noon, memorials and deputations would be received in reference to the Society's Country Meeting to be held in 1857 at some city or town in the district comprised of the counties of Dorset, Hants, Somerset, or Wilts.

PARIS SHOW.—Mr. Brandreth Gibbs, as a member of the Committee appointed by the French Government for carrying out the arrangements in London for the Paris Show next month, expressed his willingness to receive and forward any entries the members of the Society might wish to make for that occasion.

ENGLISH JURORS.—On the motion of Mr. Brandreth Gibbs, a special committee was appointed to carry out any application the French Government might make to the Council for the recommendation of English Jurors for the ensuing Paris Show.

Mr. Nesbit, Principal of the Agricultural and Chemical College at Kennington, presented a copy of the new edition of his work on Agricultural Chemistry, and the Nature and Properties of Guano.—Signor F. Lotterie, of Bergamo, presented a copy of his work on the Cultivation of the Mulberry Tree, and the Manufacture of Silk and Paper from its Bark.—The Central Society of Agriculture at Brussels, the Royal Agricultural Society of Bavaria, the Horticultural Society of Berlin, and the editor of the *Moniteur des Comices et des Cultivateurs* at Paris presented copies of their respective Transactions.—Mr. Eddison, of Leeds, presented a copy of the Leeds and Yorkshire Flax Society, with suggestions for prizes to be offered by the Royal Agricultural Society of England in that department.—These several communications were received with the thanks of the Council.

The Council adjourned to Wednesday next, at twelve o'clock, when Professor Simonds would deliver before the members of the Society his lecture on the Skin-Diseases of Domesticated Animals.

HIGHLAND SOCIETY: *March 26th.*—A special general meeting of this Society was held to make arrangements for the Paris Show, and to consider a petition for a sup-

plementary charter in connection with Agricultural Education. The first proceedings included the election of the French Emperor an Honorary Associate of the Society, and the nomination of a deputation to the Paris Show. Mr. Maxwell then made the following statement with regard to the arrangements for the Show :—The directors have much pleasure in reporting that the invitation of the French Government will be worthily responded to by the farmers of Scotland, and that all the native breeds of this country will be well represented in the Show-yard at Paris. Indeed, the desire to support the meeting is such, that applications, in more than one instance, have been made by the Society to the French Minister, to obtain even a wider field for exhibitors than is afforded by the programme. As it originally stood, ewes must have been lambed before 1st November 1854. This necessarily excluded gimmers, but on a representation the Minister has altered the period to 1st May, 1855. There is a strong desire in Aberdeenshire to complete the polled breed by the exhibition of oxen; but as the Show is limited to breeding stock, an application has been forwarded on this point also. The decision, however, has not yet been intimated. The implements are to be classed on Saturday the 24th and Monday the 26th. When on the subject of implememts, he might mention that he had this day received a letter from M. Tisseraud, the French Commissioner in Britain, announcing an additional prize of 20*l.* and a gold medal for the best fixed steam engine for farm purposes. The period for entering stock, &c., had been prolonged till Friday the 18th April, in consequence of a request he (the secretary) had made to that effect, with the view of having the] day postponed to some important shows and sales at Castle-Douglas and Lockerby. It is understood that stock will be carried free to the different ports and back on the same terms when there has been no change of ownership. Implements to be carried at half price each way. Arrangements will not be neglected for so cleaning trucks, &c., as to obviate all danger of infection—a precaution which owners of valuable animals are entitled to look to. The period for starting must be regulated by that when the stock should be in Paris. Wednesday, the 28th May, is the day fixed for receiving them in the yard, and the judges commence operations on the 29th; but animals brought from such a distance must have some little time to recruit, and it is therefore proposed that they should all be delivered in Paris not later than Saturday the 24th, which would necessitate their leaving London on the 22nd. Exhibitors will of course pay the travelling and other personal expenses incurred by themselves or their servants, both in England or in France; and, with a view of saving expense, neighbours are advised to club together and employ among them one respectable man, particularly as assistance will be found both in London and Paris. Stock, as has been already said, is carried free to London, where Mr. Robert Morgan, 72, Camden Road Villas, London, the Society's agent, receives, houses, and ships it, exhibitors paying him only his outlay for food. The cost of the passage, it is hoped, will be met by the Society's vote of 100*l.* for stock belonging to tenant-farmers, together with a fair rate to be levied on what belongs to proprietors. In France, the carriage and keep of stock are defrayed by Government. No arrangement has yet been matured in regard to the passage, but inquiry is now being made in London regarding the best port for landing at in France, the capabilities of the ordinary steamers, and the probable cost of a special steamer from the Thames to Boulogne or Dover, and ample instructions on this point will be forwarded by the secretary to each exhibitor. Arrangements have been made, not only to have accredited agents, who can speak English, at the place of debarkation, but to lodge the Scotch servants together in the building of the Show, under the charge of similar persons responsible to Government for their conduct. Similar persons would be in attendance at the port selected for the debarkation of the Scotch stock. It must be distinctly understood that, while the Society employs an agent in London, makes arrangements for the voyage, and otherwise endeavours to relieve exhibitors from expense and difficulty, neither it nor the secretary incurs any responsibility, and that exhibitors will themselves bear any loss or damage that may possibly occur. Mr. Maxwell concluded by reading the following extract from a letter just received from M. Tisseraud :—"We have got at Paris, from the best sources of information, advice that important purchases of breeding-stock, machines, &c., will be effected at the Show of Paris for France and numerous continental States, also for America, and even, it appears, for Australia. Paris will thus be a very important European market, and the prices will be very high."

Agricultural Education.—The Secretary read the following petition, which had been prepared in reference to agricultural education :—

Unto the Queen's most Excellent Majesty, the petition of the Highland and Agricultural Society of Scotland, *Humbly Sheweth:*—That your petitioners were incorporated by your Majesty's royal predecessors, for the purpose at first of promoting the general improvement of the Highlands of Scotland, and thereafter of encouraging the art of agriculture in particular, throughout the entire extent of your ancient kingdom; and your petitioners hope that they have not been unsuccessful in the accomplishment of these objects. The means hitherto adopted by your petitioners for carrying out the views of the founders of this Society have been the granting of premiums for agricultural improvements and the holding of shows of cattle, implements, and produce, and the general promotion of the science and practice of agriculture. But your petitioners are satisfied that they cannot properly realise the objects of the institution without further powers to enable them to encourage and direct the proper course of agricultural education. There does not at present exist any prescribed or authoritative curriculum for education in agriculture, nor any guide to indicate to the student the course he should pursue; neither is there any tribunal to which he can submit his attainments, and by which these can be certified. Your petitioners, therefore, seek to direct agricultural education into a systematic channel by means of a well-considered curriculum, and to stimulate its prosecution by providing for agriculturists the means of having their acquirements officially investigated and certified. That your petitioners do not, for these purposes, seek any grant of public money, nor propose to interfere with any existing seminaries, but to give effect to them through the instrumentality of a council or committee of their own members, properly constituted, and with the co-operation of certain of the Professors in the University of Edinburgh and elsewhere. That to clothe such council or committee with the requisite powers, your Majesty's authority is required in the form of a supplementary charter to your petitioners, who venture to subjoin hereto the terms in which they humbly conceive the empowering clauses thereof may be expressed. May it therefore please your Majesty to grant a supplementary charter to the petitioners, in the terms subjoined or otherwise, to do in the premises as to your Majesty may seem meet. And your petitioners will ever pray.

The terms of a supplementary charter in conformity with this petition were also submitted to the meeting. The proposed council consists of the President of the Highland Society and certain other officials, of seven members elected by the Society, and of the Professors of Agriculture, Anatomy, Botany, Chemistry, Natural History, and Technology in the University of Edinburgh.

Professor Balfour stated that the subject of agricultural education had been brought before the Society on several occasions previously, but circumstances had occurred which prevented it from being fully carried out. In these days, when so much science was brought to bear upon agriculture, they must all have felt the importance of introducing a different system of education for agriculturists. It was very important that some curriculum should be laid down, in order that young men might know how to proceed with their studies. The Society did not intend to establish a college, or any institution of that kind, but simply to take advantage of the means which they had at their command, to fix the curriculum which would be best suited for persons intending to be agriculturists, and having passed through this course, young men would be examined before a competent board appointed by the Society, and receive a certificate to the effect that they had gone through the course of study and passed the examination satisfactorily. He had taken a great interest in this matter from the beginning, and he was most willing to give any assistance that he could in the matter. He had also spoken to the Professors of subjects connected with agriculture, in the University, and they had all expressed their readiness to assist the Society by acting as examiners; so that there would be no difficulty in reference to that point. Professor Balfour concluded by moving "that the meeting, being of opinion that it is the duty of the Society to support any measure calculated to direct and stimulate agricultural education, cordially approves of the proposed petition and draft supplementary charter, and authorises the directors to take all necessary steps for giving effect to the object in view."

Mr. Wilson, Edington Mains, seconded the motion. It had, he said, for a very long time appeared to him a singular fact, that nothing of the sort now proposed had been done in this country. In many quarters they heard surprise, and perhaps regret expressed, that the important matter of agricultural statistics should not have received the sanction of that Society and of the country at an earlier period. It appeared to him quite as remarkable that the very important subject of the education of the rising generation of the farmers of Scotland should not have been deemed worthy of more notice than it had hitherto received. He very cordially approved of the proposal which was now made, and he would even be disposed to see the movement go a little farther than was at present contemplated. This, however, he looked on as an exceedingly judicions and appropriate beginning, and he trusted that it would work as well as it was expected to do. He had occasion to know that very many young men—farmers' sons—were sent to this city and elsewhere to prosecute their education, who had suffered grievously from want of some judicious guidance as to the branches to which they should more immediately turn their attention. The present proposal would be of great advantage in supplying that want.

The Chairman believed that what Mr. Wilson said was quite true—that among farmers the want of a proper agricultural education was very greatly felt; and the circumstance that Mr. Wilson had seconded the proposal now made reminded him that both he and Mr. Wilson belonged to a farmers' club in Berwickshire which some years ago felt so much the desirableness of encouraging agricultural instruction, that they gave out of their funds, small as they were, a certain sum yearly for the purpose of encouraging parish schoolmasters and others to open classes for giving instruction in agriculture. He recollected also that some years ago a memorial on this subject had been presented to the Society from the farmers of Aberdeenshire. In other parts of the kingdom, as in Ireland and in England, there were great seminaries for the purpose of giving a special agricultural education; and he would be well pleased to see similar institutions in Scotland. Though all that was at present proposed was that a diploma should be given to individuals who passed an examination in certain branches satisfactorily, he had no doubt that ultimately this would lead to the establishment of seminaries in which the necessary instruction could be obtained. The Society and its directors had done themselves great credit in taking the initiatory step in this movement.

The motion was unanimously agreed to.

The Society then resolved itself into a monthly meeting, when Mr. Wilson, of Edington Mains, read a paper on the cultivation of Mangel Wurzel.

Reviews.

Lois-Weedon Husbandry. J. Ridgway, Piccadilly.

Our advertising columns have for some time announced a new work on Lois-Weedon Husbandry*. This little volume, by the author of "A Word in Season to the Farmer," gives in succession the year's journal of the Mangel Wurzel and the Bean crop, of the Carrot crop, the Swedish Turnip, the Drumhead Cabbage, the Italian Rye-grass, the Lucerne, the Grass land, and, lastly, the Wheat crop. The preculiarities of Lois Weedon husbandry are shown to be compatible with the easy management of all these crops; for on each is brought to bear the principle of stirring the subsoil and the soil, thus rendering both absorbents of atmospheric stores of fertilising matter as auxiliary to an artificial application of the same.

It may be well to ask the author of this volume—who is undoubtedly the most intelligent as well as the most confident and energetic of the exponents of Tull's husbandry—What it is that he claims as original in his system of tillage? To this question as already put Mr. Smith answers as follows :—

"I claim the originality, such as it is, of going below the staple and bringing up to the surface the clay subsoil, while the Wheat is growing at its side. The accident of living in a happier age than Tull has enabled me to claim the originality of thus finding a supply of mineral food which is practically inexhaustible, to feed the plant. In every succeeding account of the practice of Tull's scheme in its integrity, I find continual complaints of the loss of crops by the frost, from the exposure of the plant from the furrow slice taken from the sides of the rows before winter. I claim the originality of bringing up the subsoil without injuring the plant, but on the contrary of giving shelter to it by the ridges of each interval. I claim the originality, as compared with Tull, of narrowing the intervals while I increase my staple, and thus, assisted by my supply of mineral food, doubling my produce.

"But, God help me! I am boasting a great deal. I do hope and trust, however, that I have never published my opinious presumptuously; and I am quite sure I should never have spoken thus, had the question not been put to me so directly by a writer eminent and influential in agricultural literature.

"In a leading journal devoted to the interest of the farmer, a series of papers has lately been introduced by that writer on the subject of Tull's husbandry. They show great research, and are written in a style of singular excellence, and have helped to call attention very forcibly to the work of one who was the greatest genius in his way, and the most far-seeing cultivator of the soil, the country has ever produced. I fully agree with him that Tull anticipated draining and subsoiling; and I believe that, had he lived till even the dawn of agricultural chemistry, uniting as he did great mechanical talent with accurate practice and ingenious theory, he would have left little to be done by us, his feeble descendant. As it is, I fear he had no prophetic view whatever of those mineral elements of fertility—those indispensable phosphates and alkalies—those silicates and sulphates, of which we are enabled to talk so glibly now. And I think it will be clearly seen, from the passages I have quoted above, that Tull taught his followers, and made it a rule to himself, never to go below the staple, in the sense I have always endeavoured to explain it. So that if he had practised on my clay soil, which for the most part has a staple of only five inches, he would never have moved the subsoil; instead of doing as I have done, bringing it by degrees to a friable depth of nearly 20 inches; for at the end of 12 years I have only gained that point; my practice being to bring up only two or three inches of this tenacious substance at a time, and for the last two or three years not even that."

The thing which will most strike ordinary readers of Tull, or rather readers of his ordinary reviewers, is the position Mr. Smith has claimed for him as the teacher not of the mineral but of the organic nutriment of plants.

"For it was on this very point of organic food for vegetation that the theory and practice of this great man wholly and solely turned. He believed that, by pulverising the staple of his broad intervals, either mechanically or by exposing the clods to the action of the atmosphere, the divided particles of the soil would become, in the annual fallow, so invested with vegetable matter, which he called "earth,"—that matter having first been exhaled into the air, and then brought down by the rain and the dew, that it and it alone would feed his crops year after year, *ad infinitum.*"

Again, "that Tull depended wholly on vegetable matter to feed his crops, without any reference at all to mineral matter, is equally plain to my mind. For, not to enter too much into detail, which would be merely to repeat what I have said elsewhere, the following passages by themselves prove it by the clearest logical deduction. 'If it should be demanded from whence the soil can be supplied with vegetable matter to answer

* James Ridgway, Piccadilly.

what is carried off by these constant crops of Wheat, that the land be not consumed by them?'—after answering, Mr. Bradley, he replies, 'The soil in this our case cannot be supplied in substance, but from the atmosphere. The earth which the rain brings down can do it alone if it fall in great quantity.' But, 'Dews must add very much to the land thus continually tilled and hoed.' C. 11.

"And, to sum up, he adds,—'Could we as easily compute the quantity of earth in rain water as the quantity of water is computed, we might perhaps find it to answer the quantity of earth taken off from our hoed soil annually by the Wheat.' C. 11.

"If, therefore, Tull thought that the rain provided an exact equivalent for the substances carried off by the Wheat, it is clear that, as he gave no account, so he took no account of any mineral substances at all."

It was left for Mr. Smith to supplement the deficiencies of his predecessor, and by that diligent cultivation of the subsoil which Tull had previously applied only to the staple, to secure for his growing plants a permanent store of inorganic food from the storehouse of the former, at the same time that he secured organic matter in abundance from the atmosphere by his cultivation of the latter.

The little volume now published will do a great deal to disabuse those who have only heard, or but hastily read of Lois-Weedon, of the idea that it is merely an exceptional case, devoted to the growth of but a single crop. The principles there illustrated are here shown capable of application to every crop the farmer grows—they are shown to be everywhere in operation—and the methods of working in accordance with them, rather than in opposition to them, are pointed out in the case of all the crops we have named above.

Calendar of Operations.

MARCH.

BERWICKSHIRE MERSE FARM, *March* 31.—Seed time is now all but over, the rare exceptions being where a few Turnips yet remain on the ground unconsumed. On reviewing the season we observe that it has been characterised by cold dry east winds, relieved by one solitary shower on the 6th, and some symptoms of a snow storm immediately after. Ploughing being well forward, and the land mellowed by the intense black frosts of January, the lea afforded a plentiful cover of March dust for the Oat seed, and was immediately rolled down in good order. Turnip land, where the crop was eaten on in wet weather, got very hard, and required twice ploughing to secure the necessary tilth for Barley. Much April Wheat, however, has been sown in preference, which will cause a large deficiency of the former cereal in our coming crop. Spring corn, though thus satisfactorily committed to the ground, has made no growth yet, and must await the advent of rain and warmer weather. Wheat after Turnips has stood the winter well; but in the few instances where it was tried on lea ("seeds"), the most of the plants have been thrown out, and some have actually ploughed it up for a crop of Oats. It seems that our climate is unsuitable to the latter system of cropping. A few mild days about the beginning of the month set the Grass a springing, and promised well for the lambing season, which commenced on the 7th, but the cold winds soon nipped it up, though the absence of rain with the cold has favoured the lambs, in spite of a deficiency of milk. The crop of lambs is good, but some places have had a considerable mortality among the ewes, from inflammation consequent on difficult parturition. Ever since the New Year Turnips have commanded exorbitant rates. Large quantities rotted after the black frosts, and many were forced to sell their stock much sooner than they expected. What roots do remain are dry and sapless, and require the assistance of artificial food. Hoggs will do better now on the young Grass, bare as it is, with a daily feed of cake and Beans. The high and rising price of wool makes every one anxious to clip before selling if the weather permit. Water-power threshing machines have been inoperative for some time, but where it could be threshed corn has not been withheld from the markets, and most stackyards are well thinned out. *J. Y.*

WEST SUSSEX: *March* 26.—The weather is all that we can desire, and the seasonable rains that we had on the 17th did us a deal of good, as before that we were obliged to spend more labour to get the land to a proper tilth, but now it works very free, and is again dry enough. The Wheat looks very forward and promising, and as we have now cold north winds they will keep it back a little. There is a good deal of Barley sown, as the Swedes are being cleared off faster than is agreeable. Many have their sheep on short allowance, and that at a very expensive rate; but fortunately the Clover plant looks well, and so does Rye and Vetches, and with milder weather all will soon get into more comfortable circumstances. The health of the flocks has been but indifferent lately, we believe on account of the cold north-east winds; many of the lambs have got stiff and cramped in their legs; and as there has been little sunshine their lying on the damp ground has increased the evil; but with brighter weather we have signs of returning vigour. Wheat rolling is now nearly over, and preparing for root crops will now be our work. *G. S.*

Notices to Correspondents.

FAWSLEY SALE: *C. Wilson.* You will find a list of the prices and purchasers in another column.

MANGEL WURZEL: *Messrs. Sutton & Son, of Reading,* give us the following result of their experience as to the cause of Mangel Wurzel running to seed; the principal cause is the plant being in too forward a state during the hot weather of July and August; and this premature condition is generally the result of too early sowing, though sometimes of too stimulating manures or of weather highly favourable to the progress of the young plant. The last week in April is generally the best time for sowing in the southern and midland counties. If the land is light and the weather dry at time of sowing it is necessary that it should be rolled after the seed is deposited. [In this we perfectly agree. If the land is well and deeply tilled it will allow of being planted earlier than if it be hard and imperfectly cultivated.]

NAKED SKIN: *P G.* If the hair has been only recently lost it will probably grow again without assistance, but if it has been lost for some months, the cutis or true skin has been injured, and with it the roots of the hair. In such case external applications will be useless. *W O S.*

SALT: *Tenterden.* If you are near the shore no purpose will be served by adding salt to the land. There is plenty in it already—as much we should suppose as plants will take up. An open friable soil in a wet season or wet climate may have as much as 6 or 7 cwts. per acre applied.

WOOLLEN RAGS: *F C L.* We presume they would most easily decompose in some strong alkaline liquor, of which you may possibly obtain a supply at soap works; but water and patience will reduce them. If piled in a heap and watered with stale tank liquor, they will rot away in the course of a month or two.

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THE DIRECTORS of the above COMPANY (many of whom are extensive Agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but sterling and genuine quality cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact. Ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied. Its claims rest not in the assertion of a few experiments, it has been tried for the last four seasons by hundreds with great success, and in the next it will be tried by thousands. It affords, in fact, a conclusive answer to the question, "What has science done for Agriculture?"

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure Blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

BLOOD MANURE FOR TURNIPS.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

THE BLOOD MANURE FOR WHEAT, BARLEY, OATS, ETC.

Being rich in nitrogen and other necessary ingredients, it is especially adapted for the Wheat and other Corn crops, and has been used with the greatest success in all parts of England. It is a very remarkable fact that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists,—it contains all the elements which plants require, and when properly prepared, will become the essence of vegetable as well as of animal life. The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat and other cereals, has been fully proved upon all soils by the practical experience of numerous Agriculturists. Should Wheat manured with dung in the ordinary way look unhealthy in the spring, it will be greatly benefited by top-dressing it with Blood Manure, at the rate of 2 to 3 cwt. per acre,—thus strengthening the straw, making it less liable to lodge, and very much increasing the produce. For Barley and Oats, 3 to 4 cwt. per acre of the Blood Manure may either be sown broadcast or drilled with the seed,—if the former, to be well harrowed in.

BEANS AND PEAS.

For Beans or Peas, 3 to 4 cwt. per acre may be used either broadcast and harrowed in, or a portion afterwards, between the drills at the time of horse-hoeing.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre with an equal weight of common salt should be sown broadcast over the field, and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

POTATOES.

The Blood Manure is specially prepared for this crop, and it will be found to give most satisfactory results—it will be most successful if used to the extent of 4 cwt. per acre, with half the usual quantity of farm-yard dung, and the whole earthed up in the usual way. Should the farm-yard manure not be used, then 6 cwt. of Blood Manure may be used alone, put into the bottom of the drill, and the sets on the top and earthed up.

FLAX.

This crop in olden time had the renown of being one of the most exhausting crops which could be put into the land, and this by chemical analysis has been found to arise from the large quantity of nitrogen, phosphoric acid, magnesia, and the alkalies taken up by the Flax plant, which renders it a highly exhausting crop. The Blood Manure is carefully prepared, so as to meet the wants of this crop, and with its aid Flax can no longer be considered an exhauster of the soil. In using Blood Manure for this crop, from 4 to 6 cwt. may be sown broadcast, and harrowed in before the seed is drilled.

HOPS.

It is well known to all Hop growers that Hops require more manure for their proper development than any other plant which they cultivate; the constant withdrawing of the Hops, year by year, from the land necessitates the supply to the soil of a considerable amount of both mineral and organic ingredients, and the Blood Manure has been particularly prepared, with the object of supplying the requirements of this important crop. It contains all the constituents which the plant requires, both mineral and organic, and will be found as cheap and efficacious as any other manure now in use; from 10 to 12 cwt. per acre applied at two different times well worked in between the alleys, will be found a most useful application, or the manure may be put round each hill and covered up with the soil.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents. The following may be taken as a sample:—

Norfolk Farms, Windsor, February 20th, 1855.

Gentlemen,—In answer to your inquiry respecting the results of Nitro-phosphate used on the Royal Farms, Windsor Great Park, I have great pleasure in stating, that after applying it to a field of Swedes, which gained the cup at the Royal East Berks Agricultural Show, I have no hesitation in pronouncing it an excellent manure, and intend using it to a greater extent during the present season.

I am, gentlemen, your obedient servant,
JAMES BREBNER.

Mr. BENJAMIN GOULTON, Gedney Marsh, Long Sutton, Lincolnshire.—"I drilled your manure at the rate of 2½ cwt. per acre along with the Wheat over 30 acres, and although the field is the poorest land I have on my farm, the crop ranked amongst the best I have. I do not know how I can recommend it better than by saying I shall use it much more extensively this season."

Park Farm, Woburn, Bedfordshire, Jan. 18th, 1854.

Gentlemen,—In reply to your inquiry respecting the Nitro-phosphate supplied to his Grace the Duke of Bedford in 1853, I beg to inform you I applied it all for Swedes, and in every instance was very successful, particularly so on a field of 30 acres, where I put on 2 cwt. of it per acre, with a light dressing of farm-yard manure, which has produced the finest crop of Swedes I ever grew. I with great confidence recommend this valuable manure to the notice of the agricultural community.—I am, gentlemen, yours very truly, G. W. BAKER.

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The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," *and sold only by the authorised Agents of the Company.*

NEW PLANTS.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. T. LINDEN, of the Royal Zoological Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following, and they take this opportunity of expressing their pleasure in being enabled to offer such superior and beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

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Coloured Plates of the above, and one of BANKS'S FUCHSIA EMPEROR NAPOLEON and VENUS DE MEDICI may be had on application at 6*d.* each, or if by post at 8*d.* each, except when three or more are taken, when the postage will not be charged.

HENDERSON'S favourite VERBENA for 1856 is without exception one of the finest, and will doubtless become one of the most noted bedding Verbenas in every garden throughout England. They do not profess to say it will surpass all others in form; but for its other good qualities it is unapproached by any. The trusses of flowers are exceedingly large and of a rich dark scarlet. The habit is robust and free, and does not require to be pegged down to fill up empty spaces, as is too often the case; but if left to itself it is unequalled for its uniformity of growth. The whole plant is alike covered with flowers on stout short footstalks, so that it resists the rain perfectly, the side shoots below each flower are always well set with buds ready to fill up the places as the first flowers pass away; the foliage is handsome and plentiful, a feature that is often over-looked in this plant, as a Verbena with small diminutive leaves never looks well, nor on the other hand is it pleasing to see large thin foliage, as is the case of Verbena Mrs. Woodruffe, especially when the habit, like that variety, is loose and straggling. To be sent out after the 1st of May at 2*s.* 6*d.* each, 24*s.* per dozen, and 120*s.* per 100.

HENDERSON'S favourite PETUNIA for 1856 will be ready for distribution in May. This excellent variety, they are confident, will supersede every Petunia hitherto grown, either for bedding purposes or pot culture. Its superior qualities cannot be better described than in the words of the able and intelligent Gardener, Mr. John Smith, of Peel Hall, Lancashire, from whom they received it:—"I now send you the stock of Petunia No. 1. The flowers are moderate sized, with a fine bold outline; colour a rich bright scarlet, with clear white eye. It is a profuse bloomer, and makes a most effective bed; indeed, it was the most conspicuous bedding plant in the whole of our Flower Garden, which was filled with the showiest and most dazzling kinds of flowering plants." In consequence of the plant being a second year's seedling, the opportunity of proving its value as a bedding plant has been tried, and far exceeded our expectations.

In the course of May next, Plants will be ready at 3s. 6d. each.

THE NEW SPRING CATALOGUE

Will be ready for distribution the latter end of this month, and those parties not customers of Messrs. E. G. HENDERSON & SON, but desirous of obtaining this Catalogue, either for reference or otherwise, can have a copy forwarded free on application. It will contain description and colours of 500 Stove Plants, 700 Greenhouse, and 1000 other Plants of miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c. In addition to this information it will contain short and select lists of the best Plants adapted for the various purposes connected with the Stove, Greenhouse, and Garden.

With this Catalogue will be published a Coloured Plate representing a group of Eight New Plants.

Collections of the following New Plants will be sent out in May. For description, price, &c., see NEW SPRING CATALOGUE.

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The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

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GARDEN ENGINES, SYRINGES, &c.—The well-known reputation of READ'S Engines, Machines, and Syringes, has led to the nefarious practice of placing Cards in Shop Windows with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION.

R. READ begs to caution the Public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal arms, and address, "35, REGENT CIRCUS, LONDON."

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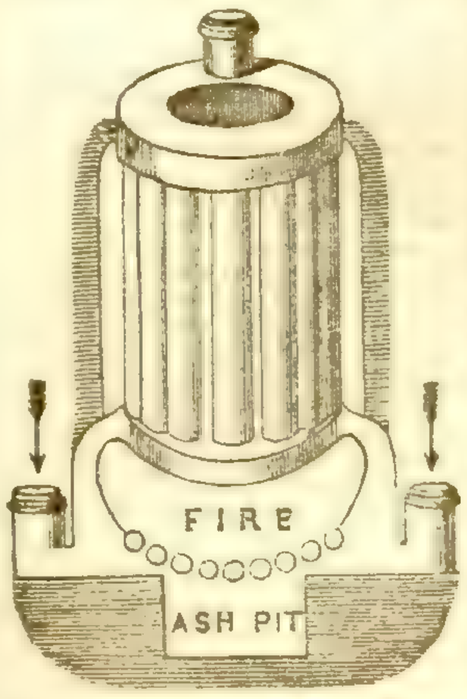
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

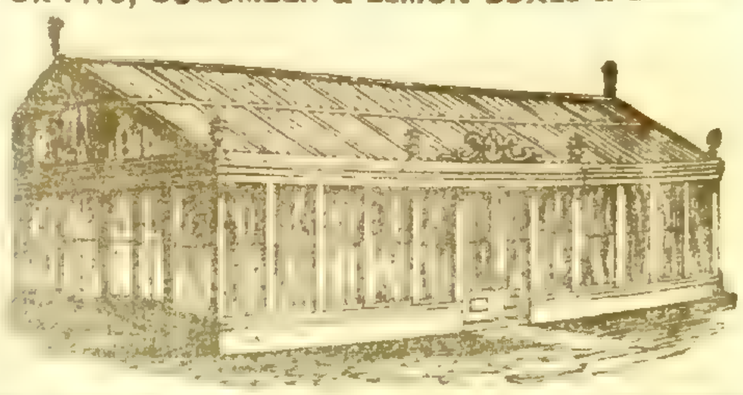
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description, by Hot Water.—Prices and Estimates furnished upon application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

SLATE WORKS, ISLEWORTH, MIDDLESEX

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted

Priced Lists of Plant Tubs and Boxes forwarded on application.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

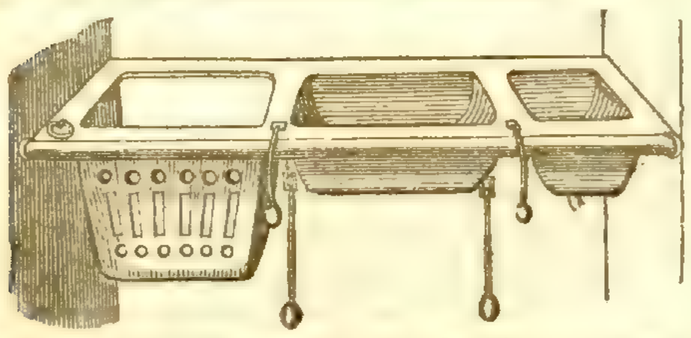
Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps. JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any with, and with openings of any size.

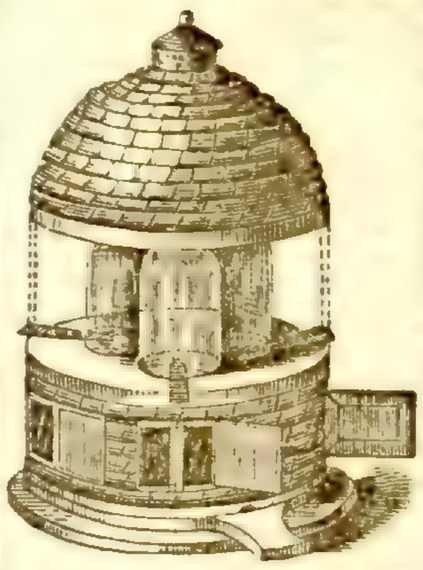
GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.



This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid: its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, HALL & WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; Dublin, J. EDMONDSON & Co., 61, Dame Street.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.

GALVANISED IRON TUB GARDEN ENGINE, WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

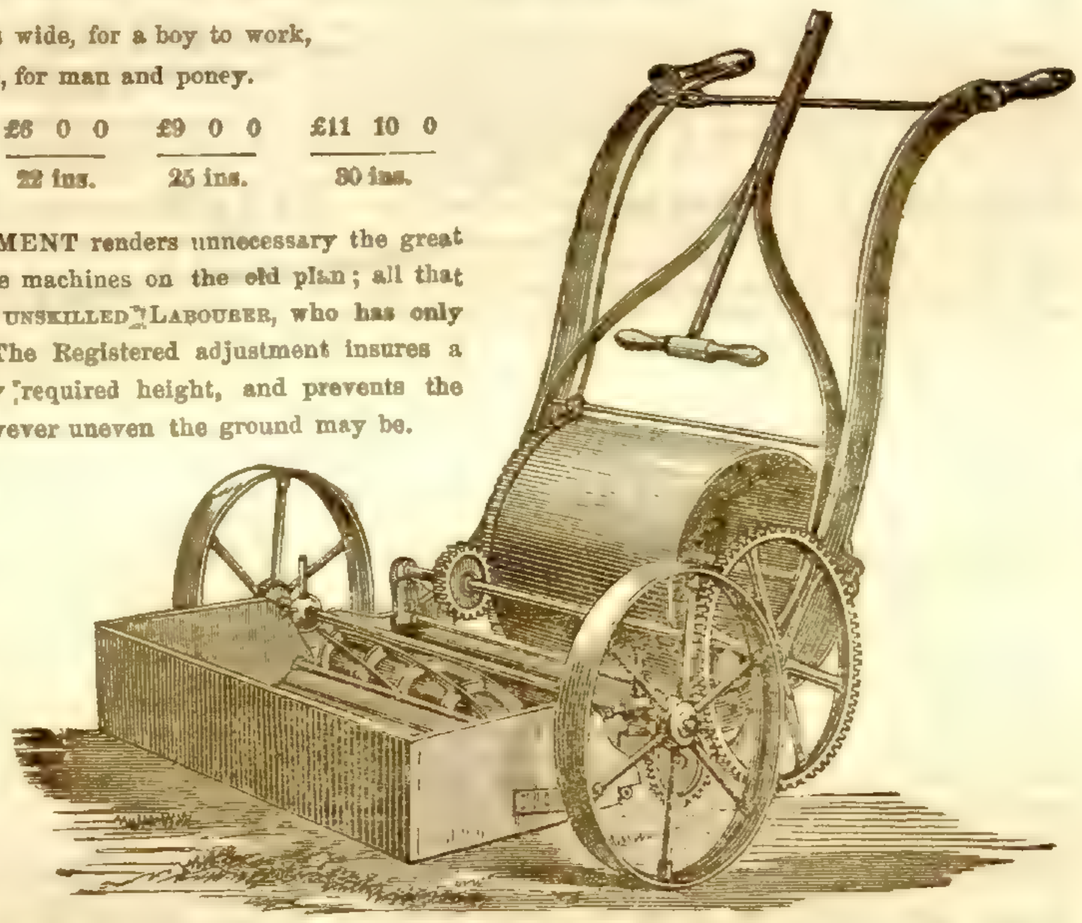
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,

Up to 30 inches wide, for man and poney.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



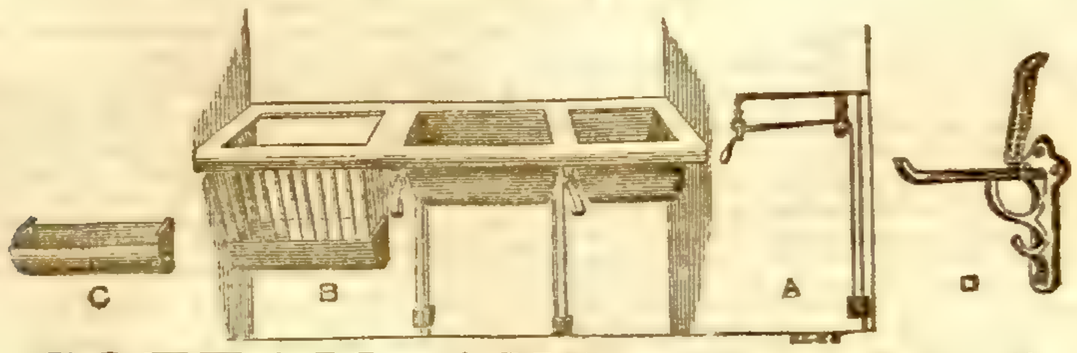
Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

TO BE SOLD, the BUSINESS of a GENERAL SEEDSMAN and CORN-CHANDLER in a large Market Town in Kent, where an excellent trade has been carried on for the past four years. The premises are spacious, and capable of doing an extensive business. The advertiser, having hired a small farm is the only reason for disposing of the same. Goodwill, Stock, and Fixtures under 200*l.*—For full particulars address A. B. C., Thomas Goodwin, Esq., Maidstone, Kent.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12*s.* per doz; box, 1*s.* extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15*s.* per dozen, including case.—Address, Holme, Stilton, Hunts.

Sales by Auction.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 8, at 1 o'Clock precisely, a Collection of ORCHIDS in fine health, including many choice specimens, such as Angræcum eburneum, Aerides Fox-brush, A. affine, Saccolabium guttatum, S. præmorsum, S. ampullaceum, S. retusum, Cattleya labiata, C. maxima, Lælia elegans, Phalænopsis amabilis, P. grandiflora, Vanda suavis, V. tricolor, &c.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, King Street, 38, Covent Garden.

SPECIMEN HEATHS AND GREENHOUSE PLANTS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, April 11, at 1 o'Clock precisely, the Collection of Specimen HEATHS and GREENHOUSE PLANTS, belonging to E. L. BETTS, Esq., removed from Preston Hall, Maidstone These plants have been most successfully exhibited at the Royal Botanic and other Shows for the last two seasons, and are in excellent health. Also an Importation of Orchids from India.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, April 10, at 12 o'Clock, a first-rate Collection of Carnations, Picotees, and Pinks; also fine Standard and Dwarf Roses; a superb collection of Double Hollyhocks from a celebrated grower; an assortment of American plants, Azalea Indica, Fuchsias, Verbenas, Dahlias in dry roots, &c. May be viewed the morning of sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. J. WILLMER will Sell by Auction at the Mart, Bartholomew Lane, on WEDNESDAY, April 9, at 12 o'clock, a choice collection of Picotees, Carnations, Yellow Picotees, Pinks, Roses, Dahlias, Auriculas, American Plants, &c.—On view the morning of Sale. Catalogues at the Mart; and of the Auctioneer Sunbury, Middlesex.

CONDOVER HALL, NEAR SHREWSBURY SALOP.

VERY IMPORTANT SALE OF FIRST-CLASS PURE-BRED SHORTHORNS.

MR. WETHERELL will Sell by Auction, without reserve, at Condover Hall, on TUESDAY, April 15, the entire and exceedingly pure-bred HERD OF SHORTHORNS, consisting of from 50 to 60 Bulls, Cows and Heifers, of different ages, the property of Edward William Smyth Owen, Esq., which have been bred with great care and attention for many years, from the best herds in the kingdom. Victory (9,783), Sir Isaac (9645), Frederick (11,489), Gavazzi (11,508), and Columbus (12,646), have lately been used in the herd. The yearlings and the two-year-olds are by Mr. Townley's Frederick (11,489), the calves by his Gavazzi and Columbus.—Catalogues, with pedigrees and other particulars, may be had of WM EYTON, Esq., Gonsal, Shrewsbury; and of Mr. WETHERELL, Kirkbridge, Darlington.

COLE'S DEFIANCE RED CELERY.—*The best Celery of the season, of most excellent quality,* 1*s. per packet.*

BOSTON NEW VEGETABLE MARROW.—*A new and valuable introduction from America,* 2*s.* 6*d. per packet, can be obtained genuine from*

William E. Rendle & Co., Seed Merchants, Plymouth.

SEAKALE SEED.—*Several Bushels of home-grown Seed can be procured from* William E. Rendle & Co., Seed Merchants, Plymouth.

SEAKALE and ASPARAGUS.—*Several hundreds of thousands still remain, and can be had at the lowest wholesale prices, on application to*

William E. Rendle & Co., Seed Merchants, Plymouth.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at* 6*d. per lb., or* 14 *lbs. for* 6*s.;* WHITE BELGIAN CARROT SEED, 9*d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom,

William E. Rendle & Co., Seed Merchants, Plymouth.

PERMANENT PASTURE GRASS, *of the finest quality, can be obtained from the Subscribers. For a full description of all the best and most useful kinds, see* "Rendle's *Price Current and Farm Directory for* 1856." Apply to

William E. Rendle & Co., Seed Merchants, Plymouth.

PERMANENT PASTURE GRASSES.—*Gentlemen intending to lay down Land to Permanent Pasture, or for two or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 30s. per Acre.

Further particulars will be sent post free on application, addressed John Sutton & Sons, Seed Growers, Reading, Berks.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.—The above kinds of Clovers will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. Sutton's Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s.* per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s.* per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

DIRECT COMMUNICATION BETWEEN GLOUCESTER AND DUBLIN.—*By means of sailing vessels which regularly leave this port for Dublin, we are enabled to deliver our Seeds Carriage Free to that City, whence they can be at once forwarded to all parts of Ireland.*

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

SKIRVING'S IMPROVED SWEDE TURNIP.

MR. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, April 5.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS and Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS and CO., the Seedsmen to the Royal Agricultural Society of England, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to Thomas Gibbs & Co., the Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London.

THOMAS VEITCH and CO., Wholesale and Retail Agricultural Seed Merchants, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do., 3*s.*; and upwards according to quality and quantity.

Agricultural, Vegetable, and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, Seedsmen to Eleven of the principal Agri-Horticultural Societies of the British and Continental Empires, invite the attention of the Floricultural Word to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, the *Twenty-first Annual Issue,* acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application to James Carter & Co., Seedsmen, 238, High Holborn, London.

WHEELER'S GARDEN SEEDS have been known and appreciated in the West of England for more than a hundred years, and now that the railways afford such cheap communication with distant parts of the kingdom, their celebrity has become extended. We now deliver our seeds carriage free by railway to the most distant and remote places. A Descriptive Priced List may be had on application.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester; Seedsmen to the Gloucestershire Agricultural Society.

Established in the early part of the Eighteenth Century.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety To be had in sealed packets at 1*s.* The Trade supplied.

T. F. Winstanley, Seed Merchant, Manchester.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

POTATOES AND STRAWBERRIES.

GEORGE LEE, Market Gardener, &c., Clevedon, near Bristol, offers the remaining surplus stock of POTATOES and STRAWBERRIES at reduced prices. They are of varieties he can confidently recommend. For names and prices see Advertisement March 15, 1856.—Post-office Orders payable at Clevedon, to George Lee.

N.B. The Strawberries which attracted so much attention at the Clevedon Horticultural Show last season were from Spring planted plants. It is now a good time for planting.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

WILLIAM IVERY, Hanover Nursery, Peckham, near London, begs to inform his friends and the public that his New and Select Spring CATALOGUE is now ready, and will be sent, post free, on application. It contains all the best Geraniums, Fuchsias, Verbenas, Cinerarias, Azalea indica, Miscellaneous Plants, Phloxes, large Flowering and Lilliputian Chrysanthemums, Hardy Herbaceous Plants, Dwarf Pot Roses of the choicest kinds, Bedding Plants in great quantity, at reasonable prices.

CHOICE FLOWER SEEDS AT REASONABLE PRICES:—

100 packets Choicest Annuals and Perennials			...	17*s.* 6*d.*
75	ditto	ditto	ditto	... 13 6
50	ditto	ditto	ditto	... 10 0
25	ditto	Hardy Annuals	...	... 5 0

The above Seeds are all of last year's saving, and warranted to be free from any mixture of dead seeds, in full sized packets, with printed directions as to best mode of cultivation, describing height, colour, &c. The first three collections delivered free to any part of town. Imported German Collections in original sealed packets. Every description of Vegetable Seeds of the finest quality at moderate prices.

Charles Southby (late Fairbairn), Clapham.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars.			...	£1	0	0
25 ditto PICOTEES	"	"	...	1	0	0
25 ditto PINKS	"	"	...	0	10	0
25 plants PANSIES	"	"	...	0	12	0
12 ditto PHLOXES	"	"	...	0	8	0
12 ditto BELGIAN DAISIES	...	...	...	0	4	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

15,000 DWARF ROSES IN POTS NOW READY FOR SENDING OUT.

WM. WOOD and SON beg to solicit the early attention of Planters to their enormous and splendid Stock of ROSES IN POTS; the Plants are strong and healthy, are well adapted either for planting out in masses or for growing, or in pots for exhibition or greenhouse decoration. The above consist principally of the leading Hybrid Perpetual Roses, with some Bourbons, Noisettes, and Chinas, and will be supplied from 12*s.* to 18*s.* per dozen.

The selection of sorts being left to W. W. & S., Plants presented for distant carriage. Reference required from unknown correspondents. Catalogues forwarded free on application.—N.B. The months of April and May are very eligible for planting out Roses from pots.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO ALL WHO ENJOY DELICIOUS GREEN PEAS, BOTH EARLY AND LATE.

WM. GRIMSTONE, of the Herbary, Highgate, was the fortunate resuscitator of the only EGYPTIAN PEA, reared from those found in a vase presented by Sir Gardener Wilkinson, the Egyptian traveller, to the British Museum. Three were presented to Mr. Wm. Grimstone by Mr. T. J. Pettigrew, who opened this relic of the Pharaohs, 2844 years old. The growth, bloom, and bearing is different to those of this country: they are very prolific. The taste is unequalled; they boil much greener, and the skins are so tender you do not taste them in your mouth. A 2*s.* 6*d.* bag will produce enough for a small family; they are planted thus—. . . . . 8 inches apart; they require no sticks. Remember, every bag contains the history of this wonder, with the original letters from Sir Gardener Wilkinson, and directions to cultivate them.—Sold in bags, 2*s.* 6*d.*; three times the quantity, 5*s.*; and seven times the quantity, 10*s.* Each bag is signed and sealed by Wm. Grimstone, London Depôt, 52, High Street, Bloomsbury. Agents: John Kernan, Seedsman, Russell Street, Covent Garden; Butler & M'Culloch, Covent Garden.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

MAJOR'S NEW CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his beautiful new shrubby CALCEOLARIAS are now ready to send out in nice healthy plants. Price of the set of 18, 3*l.* Parties not wishing to purchase the full set, may have the 10 marked * in his List for 2*l.* For particulars see Descriptive Catalogue, which may be had on application.

H. M. offers a second set of 12, to include his best sorts of last year, as well as several of last year's seedlings not yet let out. Price 25*s.*

Very select Calceolaria Seed, 2*s.* 6*d.* per packet.

Pampas Grass, 2*s.* 6*d.* each, post free.

It is respectfully requested that orders from unknown correspondents be accompanied by a Post-office Order.—April 5.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

CHOICE BEDDING PLANTS.

WILLIAM F. SMITH has to offer fine healthy Plants of the following choice GERANIUMS and VERBENAS:—

GERANIUM BEAUTY OF CHIPSTEAD.—Brilliant scarlet, of the habit of Cerise Unique; very beautiful. Strong Plants in large 60-size pots, 18*s.* per dozen.
GERANIUM LADY HOLMESDALE, improved (Smith's).—Splendid deep pink with white centre, truss well formed, and as large as an Hydrangea; warranted one of the best for pot culture, 9*s.* per dozen.
GERANIUM FLOWER OF THE DAY, in small 60-size pots, 4*s.* per dozen.
Ditto, in large 60-size pots, 6*s.* per dozen.
Ditto, large in 48-size pots, 12*s.* per dozen.
GERANIUM, Scarlet varieties, 4*s* per dozen.
VERBENA MRS. WOODROFFE, 4*s.* per dozen.
" MRS. HOLFORD, 4*s.* per dozen.

A remittance or reference must accompany all orders from unknown correspondents. Carriage free to London.

Riverhead Nurseries, Sevenoaks, Kent.

"WHEELER'S little Book will do something to satisfy their Expectations."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

SAMUEL FINNEY and Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery; and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

Samuel Finney & Co., Gateshead, Newcastle-upon-Tyne.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 8*d.*; fine Households, recommended for Bread-making, 12*s.*; Seconds, 11*s.* 4*d.*; Wheat-meal, for Brown Bread, 11*s.* 4*d.*; best coarse and fine Scotch Oatmeal.—Address Hornsaill & Catchpool, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

RICE FOR GRINDING, FEEDING, and all other Purposes.—Large consumers of RICE may obtain any quantity at the lowest market price, viz., from 11*s.* to 16*s.* per cwt.; fine, 19*s.* and upwards. Damaged, Sweepings, and Meal, the cheapest and best Food for Horses, Cattle, Pigs, Poultry, Dogs, and various other purposes, 5*s.* to 10*s.* per cwt., at J. Umphelby's, 2, Love Lane, Eastcheap, where samples, Lists, and Directions for using Damaged Rice may be obtained.

THE WALTONIAN PROPAGATING CASE.—The above is intended for Rearing Seeds, Cuttings, &c., well adapted for Greenhouses, Conservatory, or Drawing-room. Heated by hot water and a small oil lamp, or gas jet. Highly recommended in the "Cottage Gardener," No. 389, March 11, 1856. Made and Sold by G. West, Victoria Road, Surbiton, Kingston.

Price, plain, 38*s.*, or with Glass front and sides, 45*s.* Lamps, if required to burn 12 hours, 3*s.* extra. The above may be seen at the Maker's shop, and at Mr. Kernan's, 4, Great Russell Street, Covent Garden, London.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety: Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, April 5, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley

No. 15.—1856.] SATURDAY, APRIL 12. {Price Fivepence. Stamped Edition, 6d.

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NATIONAL FLORICULTURAL SOCIETY, 21, Regent-Street.—The Second Exhibition will be held on THURSDAY, 24th inst., when Prizes will be awarded to AURICULAS, POLYANTHUSES, and CINERARIAS, each four distinct varieties. Everything intended for exhibition must be at 21, Regent Street, before 12 o'clock. Seedlings as usual.
John Edwards.

METROPOLITAN EXHIBITION OF HOLLYHOCKS, &c., 1856.—Mr. John Edwards has the pleasure to announce that he has been requested to intimate to growers of the HOLLYHOCK that the usual GRAND METROPOLITAN EXHIBITION will be held about the end of August, or early in September, and that SILVER CUPS and other IMPORTANT PRIZES will be liberally offered for Competition. Full particulars will be announced.—21, Regent Street.

THE SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The First Exhibition of the above Society for the present year will be held at the Horns Tavern, Kennington, on MONDAY, April 28th, when Prizes will be awarded for the following productions, viz.:—Auriculas, Heartsease, Cinerarias, Seedlings, &c. Admission from 2 till 7 o'clock by a Member's Ticket. The following Exhibitions will also take place in May, June, July, September, and November, for Florists' Flowers. List of Prizes and the Rules of the Society may be obtained from John Bushell, Secretary *pro tem.*
Lower Kennington Lane.

LEEDS FLORAL AND HORTICULTURAL EXHIBITION, May 28th.—Printed Schedules may be had (by enclosing stamp) on application to William Waggett, Jun., Secretary, Benson's Buildings, Park Row, Leeds.

ALTERATION OF DAYS OF SUMMER SHOW.
BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.
By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

SEEDS FOR THE FARM *can be procured in any quantity and of the best possible description from* Messrs. William E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, and DICKENSON'S IMPROVED ITALIAN RYE-GRASS, may still be obtained of Sutton & Sons, Reading.—Prices according to quantity required.

FRESH IMPORTED ITALIAN RYE-GRASS may be obtained genuine of Sutton & Sons, Reading.—Price (according to quantity required) will be given on application.

SUTTON'S RENOVATING GRASS SEEDS *for improving Parks, Meadows, and Upland Pastures.* Quantity required per acre 6 to 12 lbs, price 9d. per lb.
Sutton & Sons, Royal Yorkshire Seed Establishment, Reading.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.
THE ABOVE KINDS OF CLOVERS will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. Sutton's Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

TO THE LOVERS OF A GOOD RED BEET.
CHARLES DOLTON, Seed Grower, Speenhamland, Newbury, will forward ½ oz. packets of the above by post on receipt of six postage stamps.—Established 1800.

SEED BARLEY FROM THE CHALK.
MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

RENDLE'S FARM DIRECTORY, *Edited by* J. C. Morton, Esq., *is now ready, and can be obtained from the Proprietors,*
William E. Rendle & Co., Seed Merchants, Plymouth.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—April 12.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

CATALOGUE OF CHOICE PLANTS.
A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform amateurs and the trade that a Supplement to his Catalogue of Plants is just published, which may be had on application, of his Agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London.
N.B. His New Indian Azalea Eulalie Van Geert will be sent out on the 1st May, at 7s. 6d. and 21s. each; one over for every three plants taken.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1l. to 5l. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE OF RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—April 12.

AMERICAN PLANTS.
WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

WANTED IMMEDIATELY IN LIVERPOOL MARKET.

PINES, not under 2 lbs.	CUCUMBERS
SMALL MUSHROOMS	FRENCH BEANS
NEW POTATOES	LARGE ASPARAGUS

Forward to George Taylor, Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.
Terms—Cash.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.
Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.
Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

KALMIAS, ANDROMEDAS, AND AZALEAS.
WILLIAM F. SMITH has for sale several hundreds of fine healthy plants of Kalmia [illegible]folia, 1 to 3 feet; Andromeda floribunda, 1 to 3 feet; Azaleas, in 30 varieties, 2 to 4 feet. All fine blooming plants, we[illegible]nted to remove well. Price may be had on application.
Riverhead Nursery, Seve[illegible]s, Kent.

HOLLYHO[illegible]S.
Hedenham Rosar[illegible] Suffolk.
BIRCHAM AND WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.
Hedenham Rosary, April 12.

N. GAINES has now in flower several large plants of Hybrid Rhododendrons and Azaleas for sale, also an immense stock of Geraniums, both Show, Fancy, and French varieties; Fuchsias, Dahlias, Cinerarias, Ericas, Epacris, Camellias, and all kinds of bedding plants.
N. G. begs to invite purchasers to visit the Nursery, Surrey Lane, Battersea.

ASPARAGUS.
YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—
Asparagus, Giant, 2 years old, per 100 ... ... 2s. 6d.
Ditto 3 years old, per 100 ... ... 3s. 6d.
Royal Nursery, Great Yarmouth.

CRYPTOMERIA JAPONICA.
R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10s. 6d. each. If three packets are ordered by the trade, one will be added.
Chiswick Nursery, London.

VERBENA TRANBY.
MARTIN AND SON can yet furnish a few plants of the above magnificent VERBENA at 5s. each, as advertised Feb. 23d.—Cottingham and Hull.
P.S.—Not to be repeated.

TURNIP SEEDS.
MARTIN AND SON can furnish, at 2l. per bushel or 10d. per lb., SKIRVING'S & MOSS FANG SWEDE TURNIP, new Seed, own growth, warranted.—Nursery and Seed Establishment, Cottingham, Hull Branch Junction Street.

CARNATIONS AND PICOTEES.
WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1s. to 1s. 6d per pair.—Nurseries, Huntingdon, April 12.

DAHLIAS, ETC., CARRIAGE FREE.
C. E. ALLEN having a large stock of the best novelties sent out last season, can supply strong plants by the end of April at moderate prices. A Descriptive Priced Catalogue forwarded on application.—Shacklewell, near London.

NEW BRITISH FERN.
Asplenium Refractum (Moore). For Description and Plate see March Part of "Nature Printing."
R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10s. 6d. each.
Paradise Nursery, Hornsey Road, Holloway.

T. F. WINSTANLEY, Seed Merchant, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2s. 6d. to 40s.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety To be had in sealed packets at 1s. The Trade supplied.
T. F. Winstanley, Seed Merchant, Manchester.

"THE ONLY BALSAMS WORTH GROWING," (*see many letters*).—Glenny's Improved Six Classes, 37 stamps; Mixed, 13; *sealed packets only.* Pink 37; Dahlia, Aster, Hollyhock, Double Imperial India Pink, 13 each; Annuals, 12 for 3s.

THE BEST THREE DAHLIAS of the season—Cook's EUGENIA, Cook's NAPOLEON, and Hedge's PRINCESS, for which G. Glenny is agent, will be sent free to any part of the Kingdom, if prepaid, and any others procured to come with them at Catalogue prices, strong unmutilated plants.—Fulham, April 12.

OSMUNDA REGALIS.—Good plants of the above fine hardy FERN, 2s. 6d.; magnificent specimens, 21s. each.

WANTED, STRONG IRISH IVY, in pots 5 to 8 feet; bushy. State price per 100.
Wm. Cutbush & Son, Highgate Nurseries, London.

GOLDEN CHAIN GERANIUMS.—100 dozen fine healthy autumn struck plants at a moderate price.
Thomas Wild, Ipswich.

THOMAS WILD, Ipswich, has a few packets of Orion Melon, 1s. 6d.; Standard Cucumber, 2s. 6d.; Latter's Primula, 2s. 6d. Now is the proper season for sowing; order without delay.
N.B. Hollyhock, Pansy, and Suffolk Hero Potatoes are sold out.

HARDY HEATHS.
WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

H. AND R. STIRZAKER offer SCOTCH DRUMHEAD CABBAGE PLANTS, fine, 10l. per 100,000, or 2s. 6d. per 1000, for cash.—Lancaster.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

FLUKE KIDNEY POTATOES, 3l. 10s. per ton; sacks, 1s. per cwt. Grown expressly for Seed on newly broken up old turf land. All orders to be accompanied by a remittance.—Humphrey Chamberlain, Kempsey, Worcester.

ASHLEAF KIDNEY POTATOES, 5s. per bushel; MUTCH'S EARLY ROUND (this is one of the best), very prolific, and fine flavour, 5s. per bushel; HORSTON'S EARLY ROUND, 4s. per bushel.
Martin & Son, Cottingham and Hull.

SPLENDID NEW SCARLET DELPHINIUM DELPHINIUM CARDINALE.

MESSRS. VEITCH AND SON, of the Exotic Nurseries, Chelsea and Exeter, have much pleasure in announcing that they are now prepared to execute orders for DELPHINIUM CARDINALE, a new and rare introduction of remarkable beauty, possessing a colour hitherto unknown in the genus to which it belongs. It was figured in the "Botanical Magazine" for December, 1855, and described by Sir William J. Hooker in the following terms.

"We have now the pleasure of making known a species of Delphinium equalling if not surpassing any other in size and symmetry of the plant, and excelling in the brilliancy of colour of the flower, and that as rich a scarlet as can well be looked upon. It is one of the many novelties selected by Mr. William Lobb in California, and introduced to our gardens by Messrs. Veitch & Son, of the Exeter and Chelsea Exotic Nurseries. Treated as a hardy perennial it cannot fail to be a great favourite with all lovers of handsome flowers."

Strong plants in 48-sized pots 10*s.* 6*d.* each, with one over on three to the trade. Special terms to the trade per dozen, or in larger numbers, may be had upon application.—April 12.

JOHN AND CHARLES LEE beg to offer fine healthy well grown plants of the following, which they can recommend as desirable additions to every collection:—

STOVE PLANTS.

	s. d.
SONERILA MARGARITACEA, a lovely neat dwarf plant, with pure white spots on the leaves	7 6
BEGONIA SEMPERFLORENS SANDERSI, very showy	3 6
" ZANTHINA MARMOREA } finely marked	
" " GANDAVENSIS } foliage, each	5 0
RONDELETIA ANOMALA, quite new and very beautiful, like a Bouvardia; flowers richest vermillion with yellow eye	10 6
RHEXIA GLANDULOSA, new; fine large blue flowers, like Pleroma elegans	10 6
CENTRADENIA SKINNERI, a new and beautiful white variety, with good foliage	10 6
THYRSACANTHUS RUTILANS, very elegant, producing numerous pendant spikes of bright red flowers ...	3 6
MEDINELLA MAGNIFICA, strong seedlings, in large 60 pots	7 6
NERIANDRA SUBERECTA, fine yellow, flowers in a small state	7 6
IPOMŒA HORSFALLI, the most splendid of its class ...	5 0
APHELANDRA LEOPOLDI, regular white stripes on the leaves; flowers bright yellow, beautiful	5 0
" PORTEANA, leaves irregularly blotched white, flowers deep orange, splendid	5 0
CROTON VARIEGATUM (*true*), the best broad-leaved variety	5 0
HIBISCUS ALBA PLENA, new	3 6
HABROTHAMNUS HUGELII, new	3 6
CANNA WARSCEWICZI, very showy	5 0
GESNERIA DONKELAARI, a noble hybrid	10 6
SCUTELLARIA VILLOSA, a fine scarlet	3 6
CROTON DISCOLOR, under side of leaves deep crimson	10 6
IXORA ALBA (*true*), fine large trusses and very free ...	7 6

GREENHOUSE PLANTS.

ACROPHYLLUM VENOSUM, beautiful long spikes of cream-coloured flowers, strong plants	10 6
BORONIA DRUMMONDI, elegant foliage and bright pink flowers; keeps well through winter ... 3*s.* 6*d.* to	5 0
" SERRULATA, neat specimens ... 2*s.* 6*d.* to	5 0
BEJARIA ŒSTUANS	7 6
FABIANA VIOLACEA...	2 6
CHAMÆROPS PALMETTO, a fine hardy Palm from North America	10 6
PIMELEA LORAINEANA, new and fine	5 0
" GNIDIA, good	3 6
STATICE HALFORDI, the finest of its class	3 6
HYDRANGEA JAPONICA VARIEGATA, highly ornamental ... ... 1*s.* 6*d.* to	2 6
" FLORE PLENO, new and distinct	3 6
GREVILLEA ROSEA, very free, produces a perfect mass of deep rose-coloured flowers ... ... 3*s.* 6*d.* to	5 0
VACCINIUM CARACASSINUM, new	5 0
NERIUM SPLENDENS GIGANTEUM, a large and splendid variety	5 0
CAMPANULA PRIMULÆFOLIA, very neat foliage ...	3 6
AZALEA INDICA LEEANA, pure white, of good substance and perfect form. First-class Certificate at Gore House ... ... 10*s.* 6*d.* to	42 0
" ADMIRATION, white ground with crimson flakes, fine form and very free; superb	10 6
" CRITERION, variegated salmon white and crimson, fine form and very free; superb...	10 6
BERBERIS NEUBERTI, a fine new hybrid; hardy ...	5 0
" JAMESONI, very scarce; hardy	3 6

PAMPAS GRASS.

One of the most ornamental plants recently introduced, producing large tussacks or tufts of elegant drooping leaves, 6 or 8 feet long, and numerous flower stalks 8 or 9 feet high, surmounted by large silvery plumes ... 2 6

VARIEGATED LEAF GERANIUMS.

THE FLOWER OF THE DAY, a universal favourite, and too well known to require description, per dozen ...	9 0
THE MOUNTAIN OF LIGHT, ditto, per dozen	18 0
ATTRACTION, like the Flower of the Day; but with the additional attraction of a scarlet horse-shoe, per dozen	42 0
SILVER KING, silver-edged leaves and deep scarlet flowers, per dozen	18 0
MRS. LENNOX, a giant variety of the Mountain of Light, per dozen	42 0
SILVER QUEEN, good variegated foliage, each	3 6
BRILLIANT, irregular variegation, deep scarlet flowers, dwarf, very free and good, per dozen	24 0
GOLDEN CHAIN, fine foliage, slow growth, narrow crimson flowers; good for edging, per dozen ... ... 18*s.* to	24 0
ODORATA VARIEGATA, variegated Prince of Orange, very good; strong plants, per dozen	21 0
LADY PLYMOUTH, good variegation, useful for edgings, per dozen	12 0

CONIFEROUS PLANTS.

THUJA GIGANTEA, a noble hardy tree of great beauty; introduced 1855. Strong plants ... 10*s.* 6*d.* to	21 0
THUJA DONIANA, the most elegant of the tribe ... 5*s.* to	10 6
THUJOPSIS BOREALIS, very graceful and quite hardy ... ... 7*s.* 6*d.* to	10 6
BIOTA GLAUCA, a very neat glaucous Arborvitæ ...	7 6
PINUS JEFFREYI, new and very distinct, one year seedlings	7 6
" BEARDSLEYI, new, one year seedlings	7 6
" TUBERCULATA, very ornamental, 1 year seedlings	3 6
" SABINIANA, strong plants " "	7 6
" BENTHAMIANA, a distinct and fine species, three years seedlings...	21 0
" PONDEROSA, scarce, two years seedlings	10 6
" ABCHASICA, new and scarce, two years seedlings ...	7 6
PODOCARPUS CHILINA, distinct ... 10*s.* 6*d.* } said to be	
" NUBIGENA " ... 10*s.* 6*d.* } hardy.	
LIBOCEDRUS CHILIENSIS, from seed ... 3*s.* 6*d.* to	10 6
JUNIPERUS SINENSIS LEEANUS, a great acquisition for terraces, and forming a noble upright column about 1 foot in diameter	7 6

NURSERY AND SEED ESTABLISHMENT,
Hammersmith.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	*s.*	*d.*
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.

" Fine mixed border ditto, 6*s.* per dozen pairs.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

POTATOES.

W. AND S. GAINES respectfully invite attention to the following List of POTATOES:—

Per bushel—	*s.*	*d.*	Per bushel—	*s.*	*d.*
Early Bath	5	0	Bread-fruit	4	0
" Flourball ...	5	0	Walnut-leaf Kidney ...	4	0
Hicks's Early	5	0	White Blossom do. ...	4	0
Ash-leaf Kidney ...	6	0	Cambridge do. ...	4	0
Nevill's Defiance ...	6	0	Fluke do.	4	0
Thruston's Conqueror ...	6	0	Jackson's Improved do.	6	0
Shilling's Early ...	6	0	Red Ash-leaf Kidney ...	6	0
Oxford "	6	0	Lapstone do.	4	0
Cockney "	6	0	Americans	6	0
Frame "	6	0	Fortyfold	4	0
Tiley's Conqueror ...	6	0			

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2*s.* 6*d.*, 15 varieties; packet at 5*s.*, 30 varieties; Scarlet Runners, 10*s.* per bushel; Dwarf French Beans, 12*s.* per bushel, of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. Gaines, Seedsmen and Herbalists, Covent Garden Market.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Alphonse Karr ...	5*s.* 0*d.*	Ornement des Jardins	10*s.* 6*d.*
Arthur de Sansal ...	7 6	Pauline Lansezeur ...	5 0
Docteur Hénon	7 6	Prince Noir	5 0
Duc d'Elchingen ...	5 0	Souvenir de la Reine d'Angleterre ...	10 6
General Pelissier ...	5 0	Triomphe de l'Exposition	10 6
General Simpson ...	5 0	Triomphe d'Avranches	7 6
Joseph Ledechaux ...	5 0	Bourbon, Empress Eugénie	7 6
Louise Magnan ...	7 6		
Madame Knorr ...	5 0		
Marquise de Murat ...	5 0		
Mathurin Regnier ...	5 0		

PERPETUAL MOSS.

Alfred de Dalmas ...	5*s.* 0*d.*	Madame de Villars ...	5*s.* 0*d.*
Gloire d'Orient ...	5 0		

12 of my own selection from above for 60*s.*, or 21 sorts for 5*l.*

The following at the prices attached, or purchaser's selection 40*s.* per dozen; my own choice 30*s.* per dozen.

MOSS.

Baron de Wassenaer	3*s.* 6*d.*	Comtesse Doriat ...	3*s.* 6*d.*
Capitaine Ingraam ...	3 0	Frédéric Soulié ...	3 6

PERPETUAL MOSS.

Madame Edouard Ory	5*s.* 0*d.*	Salet	3*s.* 6*d.*

HYBRID PERPETUAL.

Baron Larray	3*s.* 0*d.*	Madame Lacour Jurie	3*s.* 6*d.*
Belle Lyonnaise	3 6	Madame Masson ...	5 0
Comtesse de Turenne	3 6	Madame Place ...	3 6
Comtesse Valliant ...	3 6	Madame Theodore Martel	3 6
Deuil de F. Willermoz	3 6	Madame Vidot ...	3 6
Emperor Napoleon ...	5 0	Marguérite Lecureux	3 6
Evêque de Meaux ...	3 6	Maxime	3 6
Gloire de Vitry	3 6	Monsieur Pigeron ...	3 0
Julie Guinoisseau ...	3 6	Mrs. Standish... ...	3 0
Lafontaine	3 6	President Menoux ...	3 6
Madame de Cambacéres...	3 6	Raphaël	3 0
Madame de Trotter ...	3 0		

BOURBON.

Frilet	3*s.* 6*d.*	Marguérite Dubourg...	3*s.* 6*d.*
Isabelle II.	3 6	Omer Pacha	3 6

NOISETTE.

Augusta	5*s.* 0*d.*	Lucullus	3*s.* 0*d.*
Polonie Bourdin ...	3 6		

CHINA.

TEA.

Auguste Vacher ...	3*s.* 0*d.*	Louise de Savoie ...	3*s.* 6*d.*
Blanche de Solleville...	3 0	Madame Maurin ...	3 0

The following at 20*s.* per dozen:—

MOSS.

D'Arcet...	2*s.* 0*d.*	Marie de Blois ...	2*s.* 0*d.*
Gloire des Mousseuses	2 6	Madame Alboni ...	2 0
L'Eblouissante ...	2 0	Princess Alice... ...	2 0
Jeanne de Montfort	2 0	Vandael	2 0

HYBRID PERPETUAL.

Alfred Colomb ...	2*s.* 0*d.*	Jules Margottin ...	1*s.* 6*d.*
Alphonse de Lamartine	2 0	Madame F. Rigaux ...	2 0
Auguste Guinoisseau	2 0	Madame Lacroix ...	2 0
Baron Heecheren ...	2 0	Madame Recamier ...	2 0
Baronne de Kermont	2 0	Marie de Bourges ...	2 6
Caroline Milsom ...	2 0	Panachée d'Orleans ...	2 6
Cérès	2 0	Paul Dupuy	2 0
Cicero	2 0	Prince de la Moskwa	2 6
Colonel de Rougemont	2 0	Prince Léon	2 6
Conseiller Jordeuil ...	2 0	Sir John Franklin ...	2 0
Dr. Jamain	2 0	Souvenir des Braves ...	2 6
Duchess of Norfolk ...	2 6	Souvenir de Leveson Gower	2 0
General Jacqueminot	2 6	Triomphe de Paris ...	2 0
Gloire de France ...	2 0		
Gloire de Parthenay...	2 0		

BOURBON.

François Herincq ...	2*s.* 6*d.*	Prince Albert	2*s.* 0*d.*
Madame Fontaine ...	2 0	Reine Hortense ...	2 0

NOISETTE.

Isis	2*s.* 0*d.*	Marie Chargé ...	2*s.* 6*d.*

TEA.

Ajax	2*s.* 0*d.*	Gloire de Dijon ...	2*s.* 6*d.*
Cerise pourpre ...	2 0	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12*s.* to 15*s.* per dozen.

Carriage paid to any station on the Eastern Counties Railway.
St. John's Street Nursery, Colchester.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

NEW AND SELECT PLANTS.

BASS AND BROWN have a fine and strong stock of the following:—

GERANIUMS.

	s.	*d.*
12 superb new show vars. of last season	36	0
50 superb vars, including some of the above	75	0
25 ditto ditto	40	0
Fine selections, per dozen ... ... 9*s.*, 12*s.*, and	18	0
6 superb new fancy vars. of last season		
25 superb vars., including the above	36	0
Fine selections of fancy vars. ... ... 9*s.*, 12*s.*, and	18	0

ACHIMENES.

5 superb new continental vars., strong tubers	20	0
12 superb vars, including Sir Traherne Thomas, Gigantea, Cherita, Louis Van Houtte, &c.	10	0
12 fine and beautiful vars.	6	0

GLOXINIAS.

10 splendid new continental vars.	30	0
10 splendid new ditto, erect flowering vars.	36	0
The 20 vars. together for	60	0
12 finest vars. of previous introduction	20	0

GREENHOUSE PLANTS.

50 fine and select hard-wooded species and vars. ...	65	0
Fine selections, per dozen... ... ... 18*s.* and	25	0
50 fine and select species and vars, 45*s.*; or 25 vars. ...	24	0

STOVE PLANTS.

25 superb and select species and vars.	45	0
Fine selections, per dozen ... ...24*s.* to	42	0

HERBACEOUS PLANTS.

100 distinct and showy vars, 30*s.*; or 50 for	17	6
100 superior, including many newer vars., 50*s.*; or 50 for	30	0
ROSES, 12 dwarfs, in pots, splendid new continental vars.	40	0
HARDY CLIMBING PLANTS, in pots, 20 fine sorts ...	20	0
PHLOX, 25 vars., 10*s.* 6*d.*; 25 superior vars.	15	0
POTENTILLAS, 12 fine vars, 6*s.* and 9*s.*; 12 extra fine...	15	0
" King of Crimsons, the finest large crimson, and dwarf habit of growth, each... ...	5	0
" 8 superb new vars., including King of Crimsons	21	0
ROSE—MADAME DESIRE GIRAUD, new Carnation-striped Hybrid Perpetual.—The flowers of this novel and beautiful variety are double, of the size and form of Baron Prevost, colour white, striped with rose and crimson, dwarf plants in pots, worked on the Manetti stock, each	5	0

CATALOGUE No. V. is now ready, and may be had on application, containing their superb Achimenes, Gloxinias, Bedding and Soft-wooded plants, &c.; also a List of New and Rare Plants of every class.

GOODS CARRIAGE FREE (not under 20*s.*) to all stations in London, and all stations on the Colchester line between London and Norwich. Post-office orders payable to Bass & Brown, or to Stephen Brown.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

CHOICE PLANTS, ETC.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the newest and choicest kinds, good bushy plants, in 48-sized pots, 15*s.* p. doz.

CAMELLIAS, in choice new kinds, well adapted for making fine flowering specimens next season, 21*s.* per dozen.

CHOROZEMA, in 6 beautiful varieties, for 9*s.*

EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per dozen; smaller ditto, 9*s.*

ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen. (A List of these will be found in a separate Advertisement.)

GREENHOUSE PLANTS, in 50 best kinds, for 50*s.*

SOLLYA LINEARIS, good plants, 1*s.* 6*d.* each.

" HETEROPHYLLA, 9*s.* per dozen.

STATICE SINUATA, 9*s.* per dozen.

EUGENIA UGNI, a new Myrtaceous of easy cultivation, producing delicious fruit now being used for dessert, good plants, 2*s.* 6*d.* each.

LILIUM SPECIOSUM, good flowering bulbs, 2*s.* 6*d.* each.

" LANCIFOLIUM ALBUM, 9*s.* per dozen.

" EXIMIUM, 9*s.* per dozen.

CLEMATIS SIEBOLDI, strong plants, 1*s.* 6*d.* each.

" AZUREA GRANDIFLORA, 1*s.* 6*d.* each.

" HENDERSONI, 1*s.* 6*d.* each.

" MONTANA, 1*s.* each.

" FLAMULA, 9*d.* each.

BERBERIS DARWINI.—Nice plants of this beautiful dwarf species, bearing a profusion of rich gold-coloured blossoms, 9*s.* per dozen.

PHILADELPHUS MEXICANUS, 9*s.* per dozen.

" GORDONIANUS, 9*s.* per dozen.

DEUTZIA GRACILIS, fine strong plants, 9*s.* per dozen.

GYNERIUM ARGENTEUM, the New PAMPAS GRASS, 2*s.* 6*d.* each, or 24*s.* per dozen; extra strong, 3*s.* 6*d.* each.

CINERARIAS, a choice collection of all the best kinds, 9*s.* per doz.

PHLOXES, a selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen.

PHLOX, Countess of Home (Downie & Laird), fine strong plants of this, the finest Phlox yet offered, 3*s.* 6*d.* each.

PANSIES, a fine collection of all the new and first-rate flowers 9*s.* per dozen.

PRIMROSES, per doz.:—Double Yellow, 4*s.*; Double Crimson or maroon, a fine and scarce old plant, 12*s.*

DELPHINIUM HENDERSONI, 18*s.* per dozen; Mooreanum, 6*s.* per dozen; Barlowi, 6*s.* per dozen.

DIELYTRA SPECTABILIS, fine strong flowering plants of this lovely and hardy species well adapted for bedding, 9*s.* per doz.

LILY OF THE VALLEY, strong, 5*s.* per 100.

PÆONIES, a choice collection of 12 new varieties for 12*s.*

ROCKETS, double crimson, 9*s.* per dozen; double yellow, 4*s.* per dozen.

STATICE MARITIMA ROSEA, and PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s* per dozen.

HERBACEOUS PLANTS, a very extensive and select collection of the handsomest kinds, including those adapted for rock-work, 6*s.* per dozen.

DAISIES, 30 of the best new German varieties, by name, 4*s.* per dozen.

CHRYSANTHEMUMS, of the handsomest of the large flowering varieties, 9*s.* per dozen.

Do. do., of Pompons, 9*s.* per dozen.

GLADIOLUS INSIGNIS, fine flowering bulbs, 6*s.* per dozen.

" CARDINALIS " 3*s.* "

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

MANGEL WURZEL SEED.—PURCHASERS OF LARGE QUANTITIES will be supplied liberally.—Prices on application, stating quantity required.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

YELLOW GLOBE MANGEL WURZEL, *of the best description, at 6d. per lb., or 14 lbs. for 6s.;* WHITE BELGIAN CARROT SEED, *9d. per lb., and all other kinds of Agricultural Seeds of the best descriptions and at the lowest remunerative prices.*

Carriage free to all Railway Stations and Steam Ports in the United Kingdom,

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PLYMOUTH *is one of the principal Seaports in the United Kingdom, and possesses one of the finest harbours in the world.*

Steamers and Clippers continually sail from thence to Australia, New Zealand, India, America, and all parts of the world, so that foreign orders can be shipped with promptness and dispatch.

There are regular lines of Steamers running to London, Edinburgh, Hull, Liverpool, Cork, Dublin, Belfast, Glasgow, and all the principal Shipping Ports in the United Kingdom every day in the week.

Plymouth is also connected by the South Devon Railway with all the vast chains and links of the British Railways, and goods can be sent as expeditiously and as cheaply from Plymouth as any town in England.

All Orders for Seeds either for the Farm, the Kitchen Garden, or Flower Garden, can be had from

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

NEW DAHLIAS TO BE SENT OUT IN MAY BY GEORGE WHEELER, NURSERYMAN, Warminster, Wilts.

ECLIPSE (WHEELER'S).—Fine dark purple, first-rate form, full high centre, and very constant: obtained certificates at Bath, Clifton, and Salisbury Exhibitions; 3 to 4 feet. 10*s.* 6*d.* each.

LADY RAGLAN (WHEELER'S).—Buff; a fine back row flower of good form and high centre; obtained certificates at Trowbridge, Salisbury, and Clifton Exhibitions; 4 to 5 feet. 7*s.* 6*d.*

The usual discount to the Trade.

HERBACEOUS PLANTS.—A large collection of the following can be supplied by the 100:—Double white Primrose, Campanula carpatica, blue; ditto, pure white variety; Czackia, or St. Bruno's Lily; Hepatica, pure white; Delphinium, Chinese; ditto Barlowi, ditto Wheeleri; Gaillardia splendidissima, ditto bicolor; Helleborus purpurascens; Pæonies, Chinese in variety, viz., rose-scented, Hume's, Reeves's, Potts's, double white, odorata grandiflora, &c.

Fine Bulbs of Anomatheca cruenta, Tigridias conchiflora and Wheeleri, free by post, 4*s.* per dozen.

Tritonia aurea, good blooming bulbs, free by post, 18*s.* per doz.

Phlox, a fine collection.

THOMAS VEITCH AND CO., WHOLESALE AND RETAIL AGRICULTURAL SEED MERCHANTS, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do., 3*s.*; and upwards according to quality and quantity.

Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

FLOWER SEEDS.—*We have selected out of our large Collection of Flower Seeds twenty of the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in groups or beds in the Flower Garden. The German Stocks, Asters, Larkspurs, and Wallflowers especially are most superb. The Collection will be sent free by post to any address, price 5s.*

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Fu e, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

J. C. WHEELER & SON, Seed Growers, Gloucester.

CHOICE PLANTS.

MITCHELL AND Co., having a large stock of the following plants, most respectfully inform their numerous patrons that they will be prepared to send them good strong plants on and after the 20th inst.

NEW FUCHSIAS, consisting of Story's New White Corollas; all other first-rate varieties, 10*s.* 6*d.* per dozen, basket included.

VERBENAS.—A first-rate collection, none but the best of 1855, 6*s.* per dozen, or four dozen for 20*s.*, basket included.

CALCEOLARIAS, Henderson's and Turner's new varieties of 1855, 12*s.* per dozen, hamper free; older varieties, 4*s.* per dozen, or 6 for 21*s.*, basket free.

DAHLIAS of 1855 & 54.—Our own selection of the following first-rate varieties:—Lord Bath, Pre-Eminent, Ruby Queen, Baron Alderson, The Nigger, Emperor, Napoleon, Omer Pacha, John Keyne's Rachel Rawlings, Primrose Perfection, Topsy, Uncle Tom, Miss Pope, &c., 12*s.* per doz., package free; older well-known varieties, 6*s.* per doz., or 4 dozen for 20*s.*, basket included.

LOBELIA SPECIOSA, the best blue dwarf bedding variety, 6*s.* per dozen.

PETUNIA IMPERIALIS, Double White, first-rate for bedding, 6*s.* per dozen.

PETUNIAS.—A Choice Collection, 4*s.* per dozen.

Pinks, our collection consists of all the best show varieties, 4*s.* and 6*s.* per dozen.—Carnations, first-rate varieties by name, 12*s.* per dozen pairs.—Picotees, 12*s.* ditto.—Tree Carnations, our collection stands unrivalled; our own selection, good strong plants, 12*s.* per doz., trade price per 100 upon application.—Phloxes, first-rate sorts, 6*s.* per dozen.—Phlox Drummondi Radetzky.

Post Office Orders are respectfully requested from unknown correspondents payable to JOHN FAIRBROTHER. All orders over 20*s.* are delivered free in London, or to any station on the London and South-Coast Railway.

Bristol Nurseries, Kemp Town, Brighton.

ESTABLISHED ABOUT HALF A CENTURY.
AGRICULTURAL SEEDS.

BASS AND BROWN can supply the following of pure and genuine selected stocks, and of extra quality.

Reduced prices for large quantities.	Per lb.—*s.*	*d.*
Mangel Wurzel, Yellow Globe	0	8
" " Red Globe	0	8
" " Long Red	0	8
" " Long Yellow	1	0
White Silesian Sugar Beet	1	0
Carrot, White Belgian	0	9
" Yellow Belgian	1	0
" Long Red Altringham	1	0
Large Cattle Parsnips	1	0
Drumhead Cattle Cabbage (scarce)	4	0
Swede Turnip, purple-top, extra, 40*s.* per bushel...	0	10
" " Skirving's, 40*s.* per bushel ...	0	10

Turnip, Orange Jelly, Lincolnshire Red Globe, Round, Tankard, Scotch, and other Turnips at moderate prices.

BASS & BROWN'S SELECTED NATURAL GRASSES FOR PERMANENT PASTURES are highly approved, and have given the fullest satisfaction, and can be supplied to suit the soils required.

	Per acre—*s.*	*d.*
For Soils generally, including Clovers ...24*s.* to	30	0
Renovating Mixture for Old Pastures, per lb. ...	0	10
Finest Lawn Mixture, 4*s.* 6*d.* per peck, per lb. ...	1	3

All orders and inquiries will receive prompt attention. Carriage free to all stations in London and all Stations on the Colchester Line between London and Norwich.

BASS & BROWN, Seed Establishment, Sudbury, Suffolk.

FIRST-CLASS SHOW PANSIES.

HART AND NICKLIN, FLORISTS, Guildford, Surrey, offer the following PANSIES—

Monarch (Hale)	Criterion (Hooper)
Pompey (do.)	Great-Western (do.)
Duke of Perth	Sylvia (Thomson)
Ophir (M'Dowall)	Elegantissima (do.)
Ringlet (Turner)	C. Turner (Hale)
Satisfaction (do.)	Sovereign (Dickson)
Adela (do.)	Miss Talbot (do.)
Marchioness of Bath (do.)	Pandora (Hunt)
Alfred the Great (do.)	British Queen (Turner)

The above Set 12*s.*, hamper, &c., included.

Euphemia, Mr. Beck, Pompey, Polyphemus, Caroline, Conductor, Queen of England, Gem, Duchess of Norfolk, Lady Montague, Commander-in-Chief, Eva, &c., 5*s.* per dozen.

Numerous testimonials could be furnished of satisfaction given by plants sent out.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars.			... £1	0	0
25 ditto PICOTEES	"	"	 1	0	0
25 ditto PINKS	"	"	 0	10	0
25 plants PANSIES	"	"	 0	12	0
12 ditto PHLOXES	"	"	 0	8	0
12 ditto BELGIAN DAISIES		...	 0	4	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

KINGHORN'S UNEQUALLED NEW SCARLET GERANIUMS.

COUNTESS OF WARWICK.—Beautiful large variegated foliage, white margin, dark horse shoe, banded with pink, strongly marked, large truss of deep scarlet, the individual flowers of fine form, is of vigorous growth, proved to grow and flower well planted out. Received a certificate at the Royal Botanic Exhibition. Plants 10*s.* 6*d.* each.

ANNIE.—This is a decided improvement on "The Flower of the Day," and "Silver King," possessing fine large trusses of bright scarlet, the foliage large and flat, margined with pure white, does well planted out, has produced leaves 4½ inches over, very free grower. Plants 10*s.* 6*d.* each.

GENERAL PELISSIER.—This noble Geranium has been the admiration of all who have seen it, either in pots or bedded out, throwing its numerous globular trusses of orange scarlet flowers, well above the foliage, on strong white flower stalks, flowers of fine form with white eye, is of compact vigorous growth, leaves medium size with dark green margin, distinct horse shoe, paler green in centre. The best scarlet Geranium ever offered. Flowers very free and perfect in the smallest pot. Was awarded a first class certificate at the National Floricultural Society. Plants 10*s.* 6*d.* each.

In compliance with many pressing solicitations, FRANCIS R. KINGHORN has determined on sending out the above in the 3d week of April. The usual discount to the trade. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth, Middlesex.—April 12.

SAMUEL FINNEY AND Co.'s CATALOGUE OF AGRICULTURAL SEEDS.—We beg to inform our Agricultural friends and the public, that our FARM SEEDS are now ready for delivery; and as we have proved the growth of each kind, we can give them our strong recommendation. We would direct particular attention to our extensive stocks of imported and home-grown Italian, Pacey's, and other perennial Rye Grasses; Red, White, Perennial red, and Alsike Clovers, Trefoil, &c.; also to our select stocks of the most approved kinds of natural Grasses for Permanent Pasture and Meadow.

We beg particularly to recommend our mixtures for various soils and situations, which we have prepared to a great extent during the last 30 years with unvaried success; and also our mixtures for Lawns, Bowling Greens, &c.

We grow annually large stocks of Turnips, Mangels, Carrots, and other Root Seeds from full grown selected Roots, and we can recommend them as being pure and of the finest quality.

Catalogues with prices of the whole may be had, postage free, and arrangements as to carriage made, on application to

SAMUEL FINNEY & Co., Gateshead, Newcastle-upon-Tyne.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distanc in this country, or to any part abroad.

Priced Lists will be sent on application.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

MAJOR'S NEW CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his beautiful new shrubby CALCEOLARIAS are now ready to send out in nice healthy plants. Price of the set of 18, 3*l.* Parties not wishing to purchase the full set, may have the 10 marked * in his List for 2*l.* For particulars see Descriptive Catalogue, which may be had on application.

H. M. offers a second set of 12, to include his best sorts of last year, as well as several of last year's seedlings not yet let out. Price 25*s.*

Very select Calceolaria Seed, 2*s.* 6*d.* per packet.

Pampas Grass, 2*s.* 6*d.* each, post free.

It is respectfully requested that orders from unknown correspondents be accompanied by a Post-office Order.—April 12.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

TO THE TRADE.
SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, the 2d week in May, at the following prices:—

16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—April 12.

FIRST-RATE DAHLIAS FOR 1856.

J. KEYNES' ANNUAL CATALOGUE (Illustrated, see TURNER'S *Florist*) contains the best selected List of the above, and will be sent on desire. Plants will be ready as usual the first week in May.

P.S. The party who printed the above Catalogues never having printed any before, wishes to explain the nature of the Illustrations. He states, the man looking over the gate is seeking after all the first-rate flowers that were offered in 1855, wondering they are not in J. KEYNES'S Catalogue. The Nondescript at the end is a new Dahlia Poker (about to be patented), by which a skilful dresser is enabled to make a second class flower look equal to a first. The windmill is a puff, and so are many advertisements, and he wishes the public not to believe even all there may be stated in the Catalogue. The Typographical error (the omission of a comma), he trusts will not put a full stop to the sale of the flowers. Castle Street, Salisbury, April 12.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.

N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from his establishment.

SKIRVING'S IMPROVED SWEDE TURNIP.

MR. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, April 12.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON AND SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON AND SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

The Gardeners' Chronicle.
SATURDAY, APRIL 12, 1856.

THE readers of the *Gardeners' Chronicle* will not have yet forgotten the interest which attached to the specimens of timber from Tasmania exhibited in Hyde Park in 1851. (See pp. 276 and 291 of our volume for that year.) It was difficult to over-estimate the colonial value of that description of produce, whether for the purposes of naval construction, ordinary building uses, or cabinet work. Most especially was the magnitude of the BLUE GUM TREE (*Eucalyptus globulus*) a subject of universal wonder. We are, therefore, glad to have the opportunity of drawing attention once more to this marvellous example of vegetable growth, as described in the very ably written account of the Tasmanian contributions to the late Paris Exhibition, of which a copy has just reached us from its

author, Mr. Milligan. It is true that Eucalypti are not trees for an English forest; but we see no reason why they should not flourish in such climates as that of Killarney, as it is already known that they do on the once desolate island of Ascension. We copy Mr. Milligan's descriptions verbatim.

With a plant exhibited by Captain Goldsmith, of Hobart Town, 70 feet long, 11 feet wide, and 3 inches thick, we have the following account:—

"This is perhaps the most valuable and important of the timber trees of Tasmania. Its principal habitat is in the south side of the island; but it is also met with in the valley of the Apsley and at the Douglas River, on the East Coast, and it reappears upon Flinder's Island, in Bass's Straits: its stronghold, however, is D'Entrecasteaux's Channel, and along the south side of the island, whence it has been exported in various shapes within the last three years to the value of about 800,000*l.* The Blue Gum attains, when at maturity, an average elevation and size greater probably than any other tree in the world; a plank forwarded to the London Exhibition of 1851, which, from the difficulty experienced in procuring a ship to carry it, arrived in England too late for exposition, measured 145 feet in length, and was 20 inches broad by 6 inches in thickness. A plank of the same width and thickness was cut 160 feet in length by Mr. James Boyd, Civil Commandant at Port Arthur, Van Diemen's Land, in order to be forwarded to the Paris Exhibition of 1855, but it has been found impracticable to get it shipped by any vessel at this port (Hobart Town), and it does not therefore appear in this catalogue. This tree attains at its full growth a height of 250 to 350 feet, and a circumference varying from 30 to upwards of 100 feet, at 4 feet from the ground. In regular forest ground it rarely gives off its principal limb under 100 feet, and there is not unfrequently a stem clear of any branch for 200 feet and upwards. The most important purpose for which this timber is adapted, and to which it is extensively applied, is that of ship-building. The Messrs. Degraves and Messrs. Watson of this place have built and fitted out vessels with it, of which several are now trading regularly to and from England. Its specific gravity is greater than that of Teak, British Oak, or even Saul; and experiments instituted to ascertain its breaking weight, &c., have established the fact, that in strength and elasticity it is superior to all other timbers. For planking and stringers, and for keels of ships, the Blue Gum possesses a suitability beyond all other timbers, since it affords length and dimensions which it would be impossible to obtain from any other tree. The purposes to which the wood of the Blue Gum is applied are as numerous as the varieties of work which devolve on the shipwright, millwright, house carpenter, implement-maker, and engineer, for in all these departments of mechanical labour and skill it is found to be a material all but indispensable, notwithstanding the great diversity of woods available in the colony. For instance, it is in constant use for treenails in shipbuilding, as gunwales for boats, for house building, for fitting up steam-engines and the heaviest machinery, in the construction of wheels, wheel-barrows, carts, &c., &c., and for piles on which to raise wharves; bridges of great span are built of it. That at Bridgewater, about 11 miles from Hobart Town, of which a model was sent to the London Exhibition, and which is raised upon piles measuring 65 to 90 feet each in length, stands 9 feet above the highest high-water mark, measures 96 feet from end to end, by a breadth affording a roadway of 24 feet, and is constructed entirely of this timber. This tree, like most of the Eucalypti, yields a red, highly astringent gum, which has been extensively used, and found to answer, as a 'kino,' and the leaves by distillation yield an essential oil having the properties of 'Cajeput oil.'"

Another specimen, contributed by Mr. John Abbott, is described as follows:—

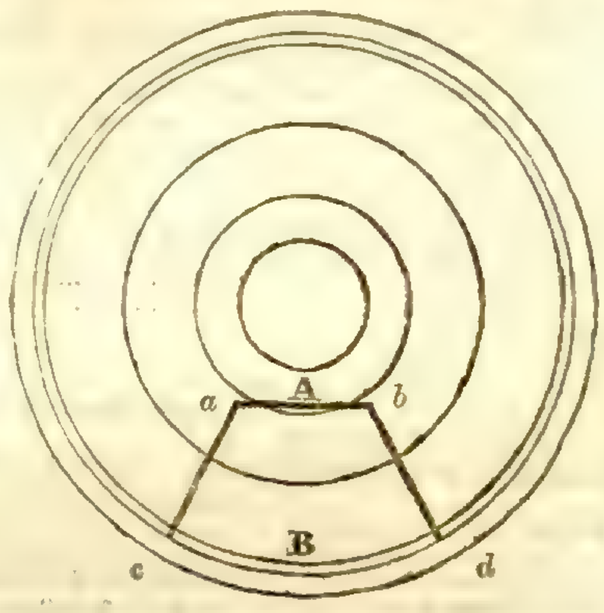
"This section, 3 feet in diameter, was cut out of the trunk 194 feet from the root; the first branch being given off 208 feet from the root, and the total length of the tree being 318 feet. The following descriptions and quantities of timber are said to have been sold at the stump of this tree:—

6 feet palings,	5000, at 22*s.* per 100	... ...	£55 0	0
5 ditto	4500, at 20*s.* ditto	... ...	43 0	0
3½ ditto	10,000, at 10*s.* ditto	... ...	50 0	0
Laths,	32,000, at 16*s.* ditto	... ...	25 12	0
Shingles,	30,000, at 18*s.* ditto	... ...	22 0	0
And it is estimated that the remainder of the tree will produce 60,000 or 70,000 laths, at 16*s.*, say		... ...	50 0	0
			£245 12	0

Twelve months before this timber would have sold for double the amount, the price of all sorts of timber having run up prodigiously, in consequence of the abundance of gold and the great demand for hard wood for house building, &c. The net amount yielded by this particular tree, at a time of very high prices, is, however, no criterion as to its value in ordinary times, when its price would be regulated by the price of labour almost entirely."

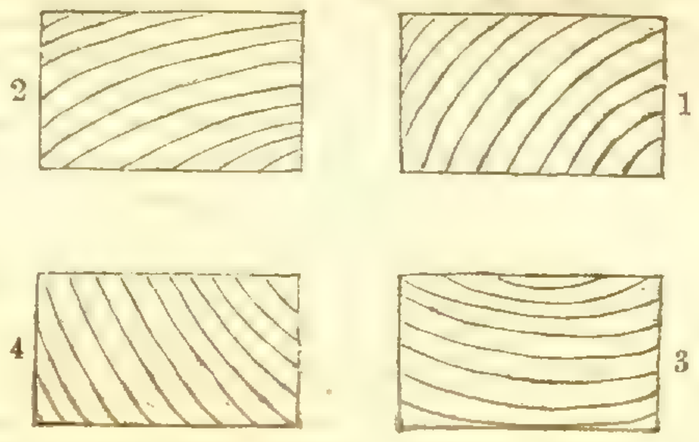
One of the gentlemen who are preparing to occupy themselves with experiments on the comparative strength of different samples of Oak and other Timber has suggested that it would be advantageous if we were to point out in what manner the timber should be cut for the purpose, in order to secure not only a correct but a comparable set of results. We quite agree with him. There is no doubt that the same timber cut and bent in one direction will possess a degree of strength beyond what it will have if cut and bent in another; so that the weakest timber may appear the strongest if care is not taken to guard against this unsuspected source of error. The longbow exemplifies this. If two staves of Yew, taken from the same stick, and only divided by a sawcut, are curved in opposite directions, the one will snap with a 6-inch pull, the other will bend for 2 or 3 feet. To this circumstance all experimenters on the strength of timber should most carefully advert. In whatever direction of the grain one piece of timber is cut, the other should be also cut in like manner.

Let the annexed figure represent a "round," or transverse section of a piece of Oak. The proper mode of cutting it, in order to secure the greatest resistance which it can offer to a strain, would be to follow the course of the medullary rays from *a* to *c* and *b* to *d*. *c d*, which would be wider than *a b*, should be placed lowermost when the breaking weight is attached to its middle, and the lath *a b c d* placed between two uprights would be in exactly the same



position for resisting a strain as an ordinary longbow, when held in the hand: B representing the back and A the "belly" of the bow. But it is evident that if *c d* is uppermost instead of lowermost the lath would be in the same position as a bow when drawn backwards; and it is also evident that if in any experiment respecting strength some laths have *a b* uppermost and others have *c d* uppermost the results will be uncomparable and untrustworthy.

This explanation will doubtless be perfectly intelligible, and every one will at once see the truth of it. But timber may be cut in other ways not so obviously different, with the same fallacious result. Thus let us suppose that a log is cut up into experimental quartering, the concentric circles in some spars being placed in one direction, in others in another, we have the very same sources of error. For example, let four pieces of timber of equal magnitude be cut and placed as is represented in the four following diagrams; there is little doubt that



No. 3 will be able to bear a greater weight than the others without breaking; for it will be nearly in the position of A B in the first diagram; on the other hand No. 2 will be the weakest, No. 1 next in weakness, and No. 4 nearest in strength to No. 3. These differences are to be more especially expected in such timber as Oak, Ash, Elm, Deal, &c., in which the structure is not at all homogeneous. In what are called Hardwoods, the structure of which is far more homogeneous, we conceive such differences would be found also to occur, although in a less degree.

Another possible source of error may consist in one piece of timber being cut parallel with the fibre, and another obliquely across the fibre. Should this happen their relative strength, although taken from the same log, must be different, the obliquely cut being the weakest.

We are the more tempted to offer these remarks because we do not find it stated in Captain Fowke's elaborate account* of his experiments on the woods examined last year in the Great Paris Exhibition, that this subject engaged his attention. If it did not the value of the results the gallant officer obtained is hardly equal to the labour and care bestowed on the experiments. We are the more apprehensive that the point was overlooked when we see that the breaking weights vary greatly in specimens of the very same tree. Thus in a Casuarina one piece broke with 3195 lbs., while another, under apparently equal circumstances, resisted the strain up to 4629 lbs., and the same occurred in other cases. A difference equal to 1434 lbs. in the weight required to break two specimens of the very same timber one 1⅞ inch, and the other 1⅝ square, seems too remarkable to be explained except upon the hypothesis that the specimens were cut uncomparably.

In a Leader of last week we alluded to the resolution passed on the 31st ult. at the General Meeting of the Horticultural Society, the words of which we think it well to repeat—"That the Council be authorised to terminate the tenancy of the Garden at Chiswick as soon as the lease will permit, and that the property therein be sold; unless such a sum as the Council may require for maintaining the Garden shall have been subscribed before May 1st." In consequence of this resolution the Council have met and have decided that a sum of 5000*l.* is requisite to pay off the floating debt of the Society, and re-establish the Garden on a more secure foundation, and they accordingly yesterday issued a circular to the Fellows to that effect. The Council have themselves set the example of subscribing liberally, and if the other Fellows—and the public, for they are deeply interested in the result—only do their duty equally as well, there will be no necessity for the Gardens at Chiswick being closed, a proceeding which would deeply affect the interests of Horticulture in all parts of the kingdom.

	£	s.	d.
The President, the Duke of Devonshire, has put his name down for	100	0	0
The Duke of Northumberland, Vice President	100	0	0
Mr. Gadesden, Member of Council ...	50	0	0
Rev. W. L. Harcourt " ...	20	0	0
Colonel Challoner " ...	26	5	0
Sir Joseph Paxton, M.P. " ...	25	0	0
Mr. Blandy " ...	10	10	0
Rev. W. B. L. Hawkins " ...	10	10	0
Mr. James Veitch, Jun. " ...	10	10	0
Mr. J. Spencer " ...	5	5	0
Dr. Royle, Secretary	10	10	0
Professor Lindley, Vice-Secretary ...	21	0	0
Mr. Wilson Saunders, Treasurer ...	21	0	0
Right Hon. Lawrence Sulivan, old Member of Council	20	0	0
Mr. Strachan " ...	20	0	0
Mr. R. Hutton " ...	20	0	0
Mr. H. G. Bohn, Auditor	10	10	0
The Earl of Ilchester, F.H.S. ...	25	0	0
The Hon. W. F. Strangways, F.H.S....	15	0	0
Mr. Simpson, F.H.S.	5	5	0
Honourable Mrs. Vernon Harcourt ...	10	0	0
Mrs. Chatfield	1	1	0
Mr. Nathaniel Lindley	5	5	0
Mr. Good, F.H.S.	10	10	0
Mr. Glendinning, F.H.S.	10	10	0
Mr. Cock, F.H.S.	10	10	0
Mr. Wentworth Dilke, F.H.S. ...	21	0	0
Mr. Warner, F.H.S.	5	5	0
Mr. Pontey, F.H.S.	10	0	0
Mr. James Veitch	10	10	0
Messrs. James Veitch & Co.	10	10	0
Mr. Jos. Martineau, F.H.S.	20	0	0
Mr. Chas. Druce, F.H.S.	10	10	0
Mr. R. A. Hornby	5	0	0

New Plants.

165. Double Rose-coloured Chinese Peach.

When Mr. Fortune was in China for the Horticultural Society he obtained that beautiful spring shrub the double crimson Peach, of which a glorious specimen was exhibited by Mr. Veitch at the late meeting in Regent Street. But the Chinese have several varieties of equal or greater beauty, one of which with bright rose-coloured flowers has just flowered with Mr. Glendinning. It has firm petals, rather deeper towards the edge than near the centre, and has moreover a perfectly double calyx; that is to say, one cup stands within

* *Report of the Paris Universal Exhibition*, Part I., p. 402, 8vo. A Parliamentary paper just issued.

another as in a "hose in hose" Polyanthus. Although only two flowers have opened upon a weak plant, they prove to be larger than in the double crimson, and leave no doubt that this is a great horticultural acquisition.

166. New Double Crimson Chinese Camellia.

Along with the preceding we saw a singularly handsome dark crimson Camellia, also sent home by Mr. Fortune. It is remarkable for the regularity, roundness, and firmness of its outer petals, while the centre is a little open. It is in the way of the Myrtle-leaved, or perhaps of Beali, and when strong must become a very striking variety. At present the imported plant is weak, and the flower by no means what will be produced upon a vigorous young stock. Mr. Glendinning calls it *C. Lindleyana.*

A NEW EUROPEAN OAK.

Dr. Andræ describes in the Botanische Zeitung under the name of *Quercus polycarpa*, a Transylvanian Oak, which he supposes to be an undescribed species. This is his account of it.

This species was found at Hermannstadt by Dr. Schur and ourselves, and the description has been made from the specimen in our possession. The leaves are broadish obovate, somewhat coriaceous, smooth on their upper surface, and are provided with slightly hairy stalks, about one-third or one-fourth the length of the leaves. The expression "long-stalked" used by Schur seems scarcely applicable. The acorns, which we found tolerably ripe as early as the month of August, occur in clusters of from five to 10 on numerous short leafy shoots. The name given above is therefore very appropriate, unless indeed it should be found that the abundance of fruit was owing to an extraordinarily wet season. How far this Oak can be regarded as a new species must be determined by future observation. In the shape of the leaves and their short rounded lobes the plant approaches, according to descriptions, Q. iberica, M. B. (Flor. taur.-cauc. ii. p. 402 and Ledebour, Flor. Ross, iii. p. 590), which however has the scales to the cup longer and extended into a stiffish point. The leaves are also like those of Q. apennina, Lam., according to the descriptions of De Candolle (Flor. Franc., vi., p. 352), and Reichenbach (Flor. Germ. excurs., p. 177), but the numerous acorns are here collected into an interrupted spike on a long stalk. All the other kinds which come near it, *e. g.* Q. conglomerata Pers. (Rchb. Icon. germ., fig. 1310), Q. pubescens, Willd., Q. robur or lanuginosa, Rochl. (Plant. ban. rarior, fig. 19), are distinguished by the form of the leaf, its much more sharp-cornered sinuses, and its longer and somewhat irregularly developed lobes. Q. pubescens. W., if of a similar age, has the under side of the leaves and the leaf-stalks much more densely covered with hairs, which are themselves of a more yellowish grey colour. The hairiness of the other kinds is not described with sufficient exactness for the purpose of comparison. Notwithstanding the differences just alluded to our plant viewed as a whole is undoubtedly most like Q. pubescens.

[We draw attention to the existence of this supposed new species in the hope that it may induce some one acquainted with the Oaks of Eastern Europe to investigate their differences and the quality of their respective timber. The late Mr. Tierney Clarke assured us that he never saw Oak timber of such excellence and dimensions as that which was brought from the Hungarian forests to be employed in the famous suspension bridge which he constructed across the Danube at Pesth.]

DISEASE IN APPLES.

My attention was attracted some three months ago by an enormous Apple resembling closely the Blenheim Pippin but inferior in quality, which was placed for ornament on the mantlepiece of a cottage. On examination there appeared to be something curious about the texture of the flesh as it loomed through the semi-transparent skin, and on request, the fruit was readily accorded to me, with a view to a more accurate inspection. After being placed a few days in a dark cupboard till a fit moment offered itself for further investigation, it presented a spotted appearance externally as well as internally, which indicated approaching decay. The spots were perfectly circular and well defined, and exhibited traces of vegetation. On cutting through the Apple, the flesh was found to be discoloured in various places from the effects of incipient decomposition, which was not confined to the surface, but penetrated into the centre of the fruit, by no means however extending to the tissue intermediate between the patches. The appearance was in fact not altogether unlike that which occurs so frequently in Apples, when the flesh is speckled with russet spots, without being at all putrescent. In this case however the spots were larger and better defined. The divided portions were again placed aside to give more time for the development of the incipient vegetation which appeared on the spots, and in a few days some of them were studded with pearl-like specks bursting through the cuticle, and swelling above it in the form of little flat cushions. Sometimes there was but a single speck in the very centre, but more frequently there was a more or less perfect ring of satellites.

On examination, each plant was found to consist of a branched inosculating mycelium giving rise to simple or forked subfastigiate irregular threads, each tip of which was surmounted by an oblong curved or irregular spore about $\frac{1}{1000}$th of an inch in length. There was not the slightest trace of any investing membrane or perithecium. The arrangement was so similar to that of the well-known Oidium fructigenum,* which is so common on Pears, Plums, Grapes, and other fruit, that I was half inclined to think that I had before me some form or condition of that species. The specimen was therefore again put by; but no further development took place. A very curious circumstance, however, was observed. The little cushions remained in precisely the same condition, and no more were developed, though there was a promise of a further crop; but instead, the cuticle was raised into little shining transparent pustules, and a tendril of minute spores precisely like those first observed was protruded through it. The vegetative part had been greatly diminished, while the fruit was more than proportionally increased.

There was yet another matter of surprise. It was impossible not to call to mind the little fungus figured upon Grapes in the *Gardeners' Chronicle*, 1854, p. 676, and the subjoined figure compared with the one there given would at first seem to indicate an identity. But the spores were more inclined to be curved, rather longer, and not so variable in size, and the want of a perithecium separated the two widely from each other. The Grape fungus, according to received principles, was a Septoria, while this is a Glæosporium. At the same time these organisms are so different in different conditions, that I would not affirm that the two productions are essentially different, and the more especially because in external appearance and habit they are so perfectly identical. The matter at any rate is well worth recording, and as it should seem entirely new. Whether the fungus has anything to do with causing the disease I am uncertain, but I am inclined to think that it is not a mere aftergrowth from the evidence which is afforded by other species of Glæosporium which are developed in leaves while still in full vitality.

The figure represents a portion of the skin of the Apple with decayed patches infested with the fungus of the natural size. The figure beneath presents the appearance of one of the little cushions penetrating the cuticle. The threads are represented on the left hand with the spores *in situ*, and beneath some of the spores highly magnified. The species may be characterised as follows:—*Glœosporium fructigenum*, n. s. pustulis concentricis biformibus; his stellatim apertis, sporis apicalibus; illis poro apertis, sporis cirrhum gelatinosum efformantibus. *M. J. B.*

* This fungus is very different from the common Grape mildew.

† From ανεμος, wind.

VEGETABLE PATHOLOGY.—No. CXVI.

463. Anemosis† (*Wind shake*).—That organic mischief is frequently caused by wind, is a fact familiar to every one. Our woods and avenues, gardens and orchards suffer more or less during every heavy gale, and every gardener knows that a main part of his duty is to secure his trees and plants by proper stays from its destructive force, and more especially, as in grafts, where the union between the stock and graft is easily destroyed, or where a valuable bud may be prematurely separated. It is, moreover, a common report amongst woodmen that trees suffer from wind in the contraction of various fissures, and that in consequence the timber proves what they call shaky. I believe, however, that this is a mistake, and that such fissures are due either to frost or lightning.

464. Besides, however, the actual fractures or complete severance from the earth which is due to wind, organic mischief arises in a very different way. Within proper bounds, and when accompanied by a due proportion of moisture, wind is beneficial to plants in promoting circulation and causing consequently the deposition of wood, as has been proved by the experiments of Mr. Knight. A too stringent confinement then of plants is not desirable, at least not greater than is sufficient to defend them from the violence of sudden gusts. But the effect of wind in general is to diminish the quantity of moisture, in proportion to its velocity, and east and south winds are peculiarly deficient in moisture, and the former often extremely cold. The consequence is, that in east winds the fibres of the wood which conduct the moisture are contracted, the flow of sap is diminished, and vegetation checked. When the buds are just moving and the alburnum separating from the young bark, the woodman has no difficulty in stripping off the bark, which is scarcely possible when there is no flow of sap. But though the process may be easy to-day, 12 hours of north-east wind will check the flow to such an extent, that the labourer is compelled to wait for a change. Besides this, as the air is charged with a less quantity of moisture, evaporation is increased while the supply of sap is diminished, and therefore a double mischief takes place, the evil at the same time being aggravated by depressed temperature. The consequence of which is that the peduncles of the blossoms fall off from their point of attachment, while the process of impregnation in those blossoms which still remain on the tree is slow and uncertain. It is on this account that the aspect of gardens and other cultivated grounds is so important, and why the defence of walls or clumps of trees is often indispensable. It is extremely difficult even with considerable skill in a garden fully exposed to the drill of a north-east wind to have any early vegetation, and it is because of its exposure to this wind that an eastern aspect is so unfavourable to wall fruit, quite as much as from its receiving a smaller quantity of sun.

465. It is necessary then to guard against wind quite as carefully as against frost, and screens are no less requisite for the one purpose than the other, but wherever they are used, it is essential that they should be so firmly fixed as not to injure the young shoots by any agitation, and that they should not screen off the light to such an extent as to be injurious to proper strength. Neither should the wind be so completely kept out as to prevent all motion, for wind is a most important agent in the dispersion of pollen. To what an extent pollen is conveyed by wind may be conjectured from the frequent instances on record of yellow rain, the colour arising from the mixture of pollen. This phenomenon is often due to the pollen of Firs, but a case was submitted to me which occurred some years since in Wales in which the pollen of some Cupuliferous tree was concerned, I believe that of some Oak. Plants on the ground may be protected by little hedges of evergreens. In spots peculiarly exposed to sea breezes *Bupleurum fruticosum* is used effectually for this purpose, and I have seen delicate flowers brought to great perfection under such protection, which could not have survived without some such contrivance. In Bedfordshire where Cucumbers are largely grown in the fields it is often the practice to grow a narrow row of Rye between each compartment for the same purpose, and in Hop-grounds the coarser growing Hops are often placed as a screen on the outside of the grounds while the hedges are encouraged to grow as high as possible. In this latter case, however, the object is not so much to screen from cold as from violence, as the Hop does not flower at a very early period. On the coast another object is effected by the screen, namely, to keep off in some measure the saline particles with which strong winds blowing from the sea are always charged, and for this purpose the screen of course must be formed of something which is indifferent to their action, or to which salt is actually advantageous.

466. Another object is answered by such screens in some cases, namely, the arresting of the spores of parasites which might be injurious to vegetation. Experience has shown both in the Potato and Vine disease, but especially in the latter, that plants are far less subject to attack where they are screened from prevalent winds. Potatoes are not likely to be so much protected because they are generally exposed to several quarters, but vineyards on a slope are exposed often to a single wind only. Dwarf Vines are far less subject to mildew than those on trellises. Even where winds are charged with noxious gases, screens are capable of affording some protection. *M. J. B.*

Home Correspondence.

Cracking of Pears.—The following extract from the "Horticulturist" (American) is interesting, showing as it does the tendency of Pears to crack even in the sunny climate of America, and the mystery which seems to envelope the question. In some seasons, as is well known, Pears commence to crack when not larger than a Hazel nut, and continue to increase slowly in size, still retaining their cracked and deformed appearance, and never ripening or becoming fit for use. This species of cracking is very different from the bursting of Pears in autumn after a dry summer when the heavy autumnal rains fall. "A remark, if you please," says a writer in the "Horticulturist," "on the singular freak of my White Doyenné trees, producing fine splendid fruit for years after planting, then for the space of nine or ten years uniformly cracking and producing only unsightly and worthless fruit; then suddenly to resume their former habit in the production of as fair and handsome fruit as you could wish to look upon or to eat, and this without any apparent cause, or the least change in the soil or anything being done to the tops. This to me is altogether an unaccountable mystery. I had attributed the return to their former habit of the production of fair and good fruit to the last two or three unusually dry summers, but this being an unexampled wet one, and my fruit being now fully formed and grown without the blemish of a crack, I am just where I started—a 'Know-nothing' on that subject. And I think the facts developed in my trees upset all the theories that have been started as to the cause. At all events they prove conclusively that it is not to the variety having run out by old age, or that the trees had absorbed from the soil all the particles necessary to their healthy action and the perfection of their fruit. As I have observed in a former communication, my trees are scattered over my ground, some in cultivated land and others in Grass; the latter have never been disturbed about the root, the others have shared alike in the benefits of the other crops in the cultivation, and yet all have acted precisely alike." *T. R., Herts.*

Dorsetshire Climate.—For the last few years I have found the Lacebark tree stand out very well, and grow prodigiously. Triteleia uniflora proves quite hardy and flowers well. Tasmannia is flowering for the first time out of doors, as are also Rhod. Zeylanicum, strictum, arboreum scarlet, Gibsoni, Aponogeton, and

Gladiolus tristis, which cannot be too much praised; Acacia Hugeli, which seems very hardy for an Acacia, and all this in spite of sharp frosts almost every night for a month past, which pass over and do no harm, which I cannot account for. *S.*

Trade Catalogues.—I wish you would denounce, *ex cathedrâ*, the practice of many nurserymen printing in their catalogues plants that they have not got, and I believe often never have had. Some names seem to figure as matter of course, never to be called for or sent wrong; some are gone clean out of mind, and to get a true plant you must ask for it *true*, and lucky if you get it, some congener or counterfeit having usurped its name and place. *S. F. W.*

Sun Dials.—Will any of your correspondents be kind enough to inform me whether those old-fashioned but most useful articles called sun-dials are still manufactured? I wrote lately to a most respectable house in London on the subject, but my inquiry seems to have been regarded as a voice from the tomb—no reply whatever having been vouchsafed. *O. P.*

Lois-Weedon Cultivation.—Your article on this subject has set my thoughts rambling back to the period when the *Times* commissioner in Ireland related such wonders about the immediate fertility of certain worthless land there, after it had been dug two spits deep, or as deep as practicable; the trench while open being broad enough to admit of the workman levelling the bottom of the land, and thus facilitating the running off of the water. I think, too, it was recommended to put upon this level bottom such hollow litter as might be at hand. Land worth 2*s.* 6*d.* per acre was in the next year worth some 20*s.*, but I confess I am writing vaguely, and wish I could refer to the account. Now, however, for my application. I adopted the notion, and turned up in my kitchen garden a yellow clay (marly, kind, and easily disintegrated by frost) in every vacant bed, till in about two years I had the whole of it dug two spits deep and the bottom levelled as directed, and certainly in some parts I put hollow litter or sticks. I beg you to understand that I buried the long cherished "staple" completely, and it has not yet again seen daylight (though I hope to live to bring it up some day well saturated with good things), and well do I remember my labourer saying, "Now, sir, you've spoilt your garden!" but I also well recollect the fine Ash-leaf Potatoes I found (embedded, I admit, like fossils) in this clay the first year, and I have never repented it, though in the wettest part of the ground the bed "dug badly" for two or three years. I am induced to trouble you with this letter on account of the extreme caution which Mr. Smith says is necessary in bringing up the clay, and in order to suggest that where it is less retentive than at Lois-Weedon, and where the staple is very shallow, it may be good policy to deepen it at once much more boldly. It is evident that Mr. S.'s land is of unusual tenacity. None but the very closest clay could be brought up with accuracy an inch at a time on the points of the tines of a fork. I have since worked my ground with Parkes' forks three and four pronged, and I dare say they counteracted my rash digging. I may add that I have been a gratified reader of Mr. Smith's earliest pamphlet. *G. W., April* 9.

Red and White Larch Cones.—In your Journal for 1844, p. 261, is the following direction from the pen, if I mistake not, of Mr. Billington:—"As soon as they" (the Larches) "are in bloom where the best Larch timber is desired, it would be advisable to mark with a dot or with a strip of paint all those with white-blossomed Cones that they may be taken down at future thinnings, as the red-blossomed trees produce the best timber." I have searched diligently through all the subsequent volumes for any information from another correspondent to corroborate or to contradict the above, but I can find none. I find, however, in "Brown's Forester," 2d edit., p. 216, "the white is the variety which attains the greatest dimensions of timber, and is the sort most generally cultivated." "It is said that upon the Athol estates the red Larch does not attain to more than one-third the cubic contents which the white Larch does; and this is observable in every plantation where the two varieties are found growing together." Now, if Mr. Brown's "white Larch" is the same variety as the "Larch with white-blossomed Cones" of "W. B.," the result of the experience of the one is exactly contrary to that of the other. Possibly the locality may have something to do with the matter. As I have some Larch plantations now coming up for thinning, and their extent is greater than I should care not to thin well, I consider I am performing a private as well as a public duty in calling the attention of your readers to the question at issue; for if "W. B." be the man I suspect him to be, his authority on any question of forestry is not to be lightly esteemed. *Omnia explorate meliora retinete.*

Pears in South Devon.—With regard to the statement of your correspondent that on the south coast of Devonshire the finer kinds of Pears will not fruit at all, whilst Apples bear abundantly, I have observed that the cause he has attributed is probably the correct one. The mild winters forcing the blossom to expand before the cold nights have ceased and the leaf is sufficiently advanced to protect the same, together with the well-known moisture of the atmosphere in these parts fixing the frost on the blossom, from want of some protection the fertilising parts of the flower are destroyed, and consequent failure, which might be prevented by a covering of netting or other available substitute, is the result. The earlier and more tender sorts of Apples also often fail from the same reason; I have many seasons seen a particular orchard in full bloom and yet almost invariably fail in producing fruit. It has also been a subject of notice by me that orchards and vegetables, as Broccoli, Cauliflower, &c., are more liable to injury in an aspect of direct sunshine than in exposed situations or rather in situations less influenced by the power of the sun. *Devoniensis.*

Pea-leaf Soup.—I advised our cook to give this a trial, and after showing her your correspondent's mode of making it, and giving her materials for the purpose, I am glad to say that she was successful the first time; all who partook of the soup pronounced it equal to that made with green Peas in summer. Its colour was, however, found to be improved by the addition of a few Lettuces. The proportions of the different articles used were—Half a pint of Peas, one quart of Pea leaves, two small Lettuces, and one Onion, middle-sized. These afforded soup for a company of six. The sort of Peas employed were Stubb's Dwarf Marrow, and for the leaves Taylor's Early Prolific, sown in December last out of doors. *James Steuart, Gardener to H. K. Tompson, Witchingham Hall, Norfolk.*

Schizanthus pinnatus.—I have a noble plant of this, the dimensions of which are as follows:—Height, 4 feet 6 inches; diameter at top of pot, 5 feet 2 inches. It is at present completely covered with flowers. As a proof of prolonged vitality in seeds, I may mention that the seed from which this plant and others were raised was gathered July 9th, 1849, and sown July 15, 1855. Cineraria seed gathered and sown as the above has also produced beautiful plants, which are now in flower. *A. Barclay, Middleton Hall, Carmarthen, April* 8.

Foreign Correspondence.

Guatemala, *February* 2*d*, 1856.—I arrived at the mouth of the river Dulce, in the Bay of Honduras, in the evening of the 17th of December, after a fine run from Belize of 26 hours in the schooner Fidelia. We got ashore on the bar of the river, and remained fast till 9 o'clock next morning off the beautiful Carib village of Livingstone, so named in 1835 after the Minister for Foreign Affairs of the United States. There is now a population of Carib Indians here of some 600 or 700, whose occupations, except as fishermen, it is difficult to discover, unless the few who are occupied cutting Mahogany in the various neighbouring works may be reckoned among the inhabitants: having their homes here, though absent nine months of the year.

About 11 o'clock, Dec. 18th, the sea breeze came quietly in, and carried us with the assistance of four heavy sweeps up that most beautiful of all tropical rivers, whose steep and perpendicular banks are covered with such a vegetation as only a visit to Kew or the Crystal Palace can impart any idea of. Lofty Palms, rising in majesty with their plume-crowned tops out of an infinity of lovely evergreens, many covered with Ipomœas and other Convolvulaceæ, brilliant in their diversity of colourings, but crowded into an interminable mass, and only showing here and there a bare stem where the extraordinary growth had forced a clean and distinct trunk through the cover. What a field is here for one to botanize, but it has its difficulties. In the first place you must have a vessel at your entire disposal, and a subordinate crew who will bear with your folly, as they would term cutting bushes. What a sight even do the distant banks (some 30 or 50 yards asunder across), present to the eye!—a wilderness of loveliness, rank yet perfect, never yet intruded on by human foot, and wherever a turn in the river has created a bank or flat, a little Grass may have gained a footing. Here you find the Buccatory hiccatee, a species of tortoise, and the ugly alligator snugly ensconced, and calling attention from the dreamy to the real. Should you, however, which is not unfrequent, by the force of the current in one of these creeks get run into the bush, a topsail yard fouling one of the overhanging branches, a shower of ants will be sent down on the deck, and woe betide all unfortunate beings on whom these gentry fall, particularly one not used to cope with them. A skin like that of a patient in small-pox will in 10 minutes be the result; for travellers in this climate are not overladen with clothing, the thermometer never getting below 90° of Fahr. We got to the entrance of the Lagunita or Golfete about half-past 10 o'clock at night, and lay all night with just sufficient wind to keep the vessel in her position. Next morning, the 19th, the sun nearly roasted us alive on this broad sheet of crystal water, perfectly becalmed. Towards 12 o'clock the breeze came down and away we went, the vessel cutting her way through shoals of Pistia stratiotes, which is borne by the breeze through these inland gulfs. One very odd thing I observed here; though a considerable quantity of these Pistias are carried by the current into the river, I never saw one carried out to sea. I have often searched in this charming Golfete for Nymphæas or Victorias!! but never met with any.

As we leave the Golfete, we enter another river with flat banks, the scrubby trees along its edge covered with Orchids, the principal and almost sole occupants. The lovely Schomburgkia tibicinis purpurea, a few Brassavola venustas, and Epidendrums of the Amphiglottian Polycladian family, with immense masses of the Bromeliaceous order, some with brilliant crimson tops 2 or 3 feet long. As we emerge from the river, and immediately opposite the Castle of San Felipe, there are masses of Schomburgkia tibicinis, 14 feet or perhaps more deep, and covering some 10 or 12 feet square, whose flower stems dip in the water. An odd thing—all these plants are inhabited by the red-fire ant; not a single pseudo-bulb can be found without its base being open and as full as it can hold of these insects, and yet no injury whatever seems to accrue to the plants, for they luxuriate in exuberant vigour, every apex throwing out its 3 or 4 feet flower stem, covered at the point with blossoms. The Epid. bicornutum is a species I have observed attacked in like manner.

From San Felipe to Ysabal occupied us about 4½ hours—24 miles distance. The breeze having moderated much at sunset, we came to an anchor off Ysabal about 9 o'clock at night, and being expected, the commandant politely sent a boat on board for me, the regulation being that no person can land before the vessel has entered at the custom house. I slept on shore therefore by courtesy.

20*th.* Occupied all day arranging my luggage and laying in provision for my journey; had very little time to saunter, though always much tempted, on the borders of this immense and very beautiful lake, or gulf, as it is more properly termed. On its banks grow in great luxuriance an infinity of fine Ferns and Lichens—of the former trees of 20 feet high, with 5 or 6 inches diameter of stem and tops like Cocoanut trees. A few fine young specimens I carried home with me last year, and have selected again some of the finest and largest to take home (if I am spared so to do) another voyage. On the trees overhanging the lake are multitudes of Orchids, such as Oncidium luridum and roseum, Epidendrum alatum, Stamfordianum, and cochleatum, great quantities of Trigonidium Egertonianum, which grows in tufts of some 3 feet square, and is really in such masses a rather imposing plant, for it has long slender leaves which after a certain height droop round a famous group of flowers, whose stems continually maintain an erect position, and thus afford a fine show, and really the colouring is not so bad. I found a quantity of Coryanthes Gemini, of which you received specimens last year; but though we have had men out for months hunting, no more of the Paphinias than the solitary specimens at Mr. Veitch's could I get. 'Tis no joke plant hunting here; once the sun gets above 12° altitude, the reflection on the water aiding, it is next to impossible to remain out of doors; and no plants of any worth can be found in the bush, while much danger from vermin and snakes attends the huntsman. I must confess to a spirit and love of the sport which surmounts any difficulty, but at the same time I am also obliged to confess that here I am beaten, for I fancy this place the hottest on earth. I left here a plant of Cissus discolor which I brought out with me, and I feel sure in a few years some traveller may be surprised to find this scrambling over every bush and tree within a mile of the eastern side of the town.

21*st.* About 9 o'clock a.m. started, and after 200 yards from the town, plunged into a primæval forest where vegetation has run wild from time immemorial. Who is it that can enter such a wilderness and be passionless? I have crossed this mountain forest I think some 40 times now, and yet I never do so without a sense of intense veneration; for I read in every leaf and every wonderful form—and here they are endless—some tale of Divine truth. Who, indeed, can look upon Nature, such as a tropical forest presents here, and not be impressed at least with awe? But what has tended to render me the happy being I am in the midst of such solitude, I owe to my friend Bateman, who first called my attention to what I might do for science, by telling me to open my eyes only as I travelled, and to the correspondence and friendship of yourself and other able guides; so that what I undertook at first as affording pleasure and amusement to others, has at last become the second nature of myself. I could no more now travel over any country without picking up every seed and flower I saw, and gloat over what appears new, than I could forget my food and rest; and what pleasure, moreover, does it afford in dispelling the *ennui* of the tropics, which most of my countrymen complain of; that at least never disturbs me. I never allow idleness to gain a footing, for have I not always at hand a pastime fertile with pleasure in such a country as this; for though engaged in business as I am, we are isolated from the excitement of daily news—that treat only reaching us here monthly. The interval is one of weariness. But I am moralising instead of getting over this, in days of yore almost impassable, mountain of the Mico. The road (!) is at least now open to heaven, and the light and sun are visible. Great improvement has taken place, it is now some 14 or 15 feet wide, and perhaps 5 yards of forest on each side are cut down; but the ups and downs are the same as ever, and it is wonderful to observe what a change in the vegetation is produced on each side by the admittance of air and ventilation. Lovely specimens of Begonias, with their hairy elephant-eared variegated leaves, some of enormous size trailed over by Ferns without number, a Campanulate flower now and then rising out from among them, while the edges of the forest are rank and dark with its giant trunks covered with twisting Arads, great withes connecting all in one web-like labyrinth; large Marants with their fanciful leaves luxuriating in the shade, and pour forth a shower of water as the breeze shakes their slender pendulous cradles.

For some 10 miles we have this description of scene, when, rising out of a valley called the Garrito, which seems to part the ridge of coast and interior, we ascend a dry stony hill covered with a perfectly distinct vegetation—not a single plant of what was innumerable on one side will you find on the other. The soil a dry sand mixed with talc and gravel. Here I found in as

luxuriant flower as it was when I passed in July last the Bignoniad of which you have specimens at Chiswick; quantities of Rondeletia anomala also in flower; Oaks and Laurels in very stunted forms, with here and there a stray Pinus, also very stunted. A few miles of this and we cross another river or ravine (as it is sometimes dry), and get into a forest of Pines—splendid trees. Here all other vegetation except Graminaceæ ceases; but just before I entered this forest my attention was arrested by a Lime or Lemon tree, every branch of which was literally covered by the pretty little Oncidium glossomystax in full bloom. On my return I will bring some branches. Emerging from this forest and on its western edge stands the village of Quirogua. Here I put up for the night, arriving just at sundown, swinging my hammock in a rancho, or, as one of my Cornish companions, a miner from Truro, called it, a birdcage.

By the break of day of the 22d I was again on my mule. The first half hour of our journey was in obscurity; but how charming it is to see the first burst of light in the tropics, so rapidly does the sun show itself after once passing the edge of the horizon! Shortly after leaving Quirogua we enter a considerable strip of Palms. These trees grow at stated distances, and their leaves or great fronds form arches that give the effect of aisles and naves of some glorious old gothic cathedral. The soil is very damp here, and though perfectly natural this wonderfully beautiful grove has quite the appearance of having been planted. The nut or fruit of this Palm is called Corroso, and is a favourite dessert with the muleteers, whom you will always see breaking them up with hammers in their bivouacs or resting places when they can find them. Near the edge of this grove I found in a swamp Schultesia brachyptera, very brilliant, and also Sauvagesia erecta, rather showy, as it forms masses. We crossed the river Motagua at the Barbasco in a canoe, the river being too deep to ford with safety, but not reaching beyond the mule's belly. Just beyond the Barbasco is a Diothonea growing on all the trees, which trees however are only Crescentias; it is a pretty crimson species and alive in Europe. Near the hacienda of Iguana I observed in a ravine near a small rivulet a very fine Pandanus-looking plant. Beyond Iguana I remarked in great luxuriance fine masses of Schomburgkia tibicinis with lots of Epidendrum radiatum, and among them though very rarely, Lycaste cruenta. On the banks of a small rivulet about a league or a league and a half from Gualan my attention was arrested by Lycoseris squarrosa. The foliage of this bush was of the loveliest green with a bright orange flower, presenting one of the prettiest effects imaginable. It struck me that no plant could be introduced with a more perfect contrast than the orange stars blazing in a shining green canopy. You will find seeds of the female with rather larger flowers, but not such a fine foliage. I was particularly struck with the gracefulness of a little Lespedeza (!) covering in a carpet-like manner the sandy banks. This may prove a very ornamental plant, hanging like tracery over a suspended pot. I got into the town of Gualan about half-past 3 o'clock and put up for the night, making up my mind to rest a day there. Remained quiet all Sunday, and on Monday, 24th December, started for Jacapa.

On leaving Gualan we cross a small but very rapid river, one of the tributaries of the Motagua, and about a league on I went to the tree from which I gathered the fine specimen of the large orange-yellow Cassia (perhaps C. grandis). This I consider a real prize, and a reference to the dried specimens will bear me out. It is very rare. I did not meet with a dozen trees, or rather shrubs for it is not large, in all my journey. Before reaching the village of San Carlo, in a valley near the river, I was particularly struck with the brillancy and depth of colours of the common Poinciana, which seems to grow everywhere; yet I never saw anything so graceful and beautiful as the specimens before me. Such a flower is worth cultivating, so I send seeds (No. 8). Along the side of the river growing in loose sand were specimens of a Tribulus; I could find no ripe seeds. This plant seems to be fond of a very dry soil, yet is, no doubt, at certain seasons completely under water. I entered Jacapa about 1 o'clock, and passed the night. *G. U. S.*

Societies.

Linnean, *April* 1.—The President in the chair. J. A. Brewer, Esq., and Dr. T. H. Tanner, were elected Fellows. Mr. James Backhouse, jun., presented a series of dried specimens of British Hieracia, in illustration of his forthcoming work on these critical plants. The following papers were read:—1. "Note on the recent discoveries in relation to the microgonia of fresh-water Algæ," by the Rev. M. J. Berkeley. Prof. Braun has, it appears, discovered in different groups of the fresh-water Algæ, certain organs scarcely exceeding $\frac{1}{500}$th of an inch in length, and often not half that size, to which he has given the name of microgonidia; they are clavate bodies, unicellular or divided by one or two septa, and occurs in little groups, or separately on or in the neighbourhood of the large spores. Pringsheim, who has thrown so much light on the physiology of the Algæ, has observed in Œdogonium and Bulbochæte, that when the contents of the swollen joints in which the spores originate have been concentrated, a round lateral aperture in the former and one or more circular fissures in the latter are formed, by means of which they are exposed to the entrance of minute bodies from without. As the microgonidia burst at the same time with the formation of these apertures, Pringsheim conjectures, with great probability, that they perform the same functions as the horn-like processes in Vaucheria, but he has not witnessed the production of spermatozoids from them. Mr. Thwaites had noticed these bodies so long ago as 1846, and had correctly sketched as well as mounted them in some species of Œdogonium and Bulbochæte communicated at that time to Mr. Berkeley, with a suggestion of their affinity with the above-named processes of Vaucheria. Doubtless Pringsheim will follow up the question he has so successfully begun, but as the season is just at hand for observing these bodies in perfection, Mr. Berkeley thought that especial notice might be drawn to the fact of their having been some years since observed in England, in order to direct the attention of other observers to the subject. 2. "On some collections of Arctic Plants," by Dr. Hooker. The object of this paper was to place on record an account of the collections made by Dr. Lyall in Sir E. Belcher's expedition; by Dr. Anderson and Herr Miertsching in Sir R. M'Clure's; and by Mr. Rae after his detachment from Sir J. Richardson's party on an exploring expedition from Great Bear Lake to the mouth of the Coppermine River, and to the south shores of Victoria Land. These collections contained no novelty, but were considered of sufficient value for this special notice, as furnishing important materials towards a knowledge of the geographical distribution of plants within the Polar circle. 3. "On the botany of Raoul or Sunday Island, one of the Kermadec group in the South Pacific Ocean," by Dr. Hooker. The materials from which this sketch was drawn up consist of a small collection of plants made upon the island by Mr. M'Gillivray, late naturalist to H.M.S. Herald. The Kermadec Islands form a small group situated about 450 miles N.E. of New Zealand, and between that group and the Feejees. Raoul Island is the largest of this group. The most interesting circumstance connected with that vegetation is the identity of most of the flowering plants, and of all but one of the Ferns, that have been collected upon it, with those of New Zealand. The collection consists of 42 species, contained 17 species of dicotyledons, of which four were new; three monocotyledons; and 22 species of Ferns and Lycopods.

Garden Memoranda.

Hillingdon Court, near Uxbridge, the seat of C. Mills, Esq.—A new mansion has lately been built here, and gardens formed in connection with it worthy of its style and beauty. At one end of it is a "box garden," designed, we believe, by Mr. Nesfield. This when filled in different parts with flowering plants in summer, has doubtless a grand effect; but even in winter a degree of variety has been given to it by surfacing the walks with materials of different colours. These consist of white, red, and yellow gravel, and black coal ashes, which, when looked down upon from the windows of the mansion or viewed from the top of the green sloping banks which surround this garden—for it is formed in what is called a sunken pannel—have a varied and interesting appearance. A handsome dwarf wall, surmounted at certain distances apart by vases, separates this garden from the park, and at the end farthest from the house it is ornamented by a fountain and basin, the latter 30 feet in diameter. On the south front of the mansion is the lawn, through which, parallel with the house, runs a noble terrace walk, margined with standard Roses, and right and left of this is dressed ground, enriched with clumps of choice shrubs, specimen Deodars, and other Conifers. Remarkable among the latter was a plant of Picea nobilis, beautifully furnished with branches down to the very surface of the closely shaven lawn, and having a main stem nearly 8 feet in height. Associated with these, but standing out by itself, was a noble tuft of Pampas Grass, which grows and flowers here admirably every year. The points of its leaves get bleached and white, but beyond that it sustains no further injury from the winter. An inverted funnel-shaped wicker protection, open at top, has however been put over it when the weather has been at all severe. Opposite the garden entrance to this magnificent residence is a fountain and basin surrounded by flower beds, and in their immediate neighbourhood are vases, clumps of the best kinds of Rhododendrons, Heaths, Andromedas, and other flowering shrubs. We now come to the west end of the house, where in connection with it has been erected a pretty conservatory or glass-covered promenade, more than 100 feet in length. This has an upright glass frontage and a flat roof on the ridge and furrow system. Immediately inside the glass front is a slate shelf literally covered with flowering plants, then a walk paved with Minton's tiles of various colours, and beyond this a bed in which fine specimens of Indian Daphnes and other conservatory shrubs are planted out, the whole being backed by a wall which will soon be hid by Camellias and other plants trained against it on wires put there for that purpose. Occupying the bottom of a hollow some 12 feet below this conservatory is a herbaceous garden of elegant design, with a fountain and basin in its centre. This when viewed either out of the conservatory or from the steep terraced banks which surround it has a pleasing and excellent effect. By the side of this delightful dell is a stove constructed on the same principle as the conservatory just alluded to. Its paths, however, are of Portland stone, which is not liked so well as Minton's tiles, inasmuch as it is apt to get green and discoloured, which the tiles do not.

No proper kitchen garden has as yet been formed; but for forcing purposes there are plenty of glass houses, which all together cover a large extent of surface, walled off or otherwise separated from the ornamental ground. Here Pine Apples, Vines, Peaches, Figs, Cherries, Strawberries, Melons, and Cucumbers, &c., are grown extensively, in addition to which many span-roofed pits and small houses are devoted to plant growing. The pits are all or very nearly so span-roofed, heated with 2-inch hot-water pipes, and fitted up inside with moveable wooden stages which can be lowered or raised according to the height and nature of the plants to be grown on them. The lights, which are hinged at top, lift up and down on both sides, and thus a plentiful ventilation is secured. Some of these pits were filled with bedding plants in boxes, which accommodate more plants in smaller room than could be done in pots; in this way they also require less attention, and they transplant with equally good balls. It may be mentioned that bedding plants are all propagated here in spring from a few store pots. As regards pits for Potatoes, that for the first crop is heated by hot water, those for later supplies by means of leaves only. From the earliest pit, which was started in December, the first dish of Potatoes was dug on the 1st of this month. Of Figs we observed a pitful loaded with fruit. The kind which has been found to do best for a first crop is the White Nerii, which is not apt to shed its fruit; but Lees' Perpetual and the Brunswick are the sorts most approved for general purposes. In the earliest Vinery there is at present a good crop just beginning to colour. All the Vineries here are span-roofed, and in most of them the Vines are planted one on each side of the house alternately; but in the earliest house, which is smaller than the others and sunk, they are all on one side, the rods being led under the roof down to the bottom on the opposite side, and then turned back again. The later houses have a path up the middle of them and beds on either side, in which French Beans and other produce of that kind are grown. For the French Beans, however, pits are preferred. In the Peach-houses the trees are loaded with fruit, and in the earliest of them they have done stoning. In one or two of the houses we noticed examples in pots of the Stanwick Nectarine, whose fruit when ripe is delicious; but it is at least 5 weeks later than the ordinary kinds, and therefore to render it eatable it has to be removed to a warmer situation after the fruit of other kinds is fit for use. It should, in fact, be grown in a house by itself, which it well deserves. In a late Peach house, 75 feet in length, the trees are now in full bloom, as is also a Green Gage Plum. In this house a free circulation of air is constantly kept up, and the fruit does not ripen so early as they do on open walls. A good succession is however thus afforded, and it forms an excellent house for wintering Strawberries in, and other things which are all the better for a slight protection in severe weather. At the end of it is a lean-to Strawberry house full of finely grown plants now ripening a magnificent crop. The sorts consist of Keens' Seedling, Patrick's Seedling—a showy kind especially when in flower and much esteemed here, and Ingram's Prince of Wales. Melons and Cucumbers are also largely cultivated, the latter being "in cut" all the year round. The sort is Constantine's Incomparable, said to be a capital variety, which was found to resist the disease, while a pit full of the Himalaya, although in all respects similarly treated, was entirely destroyed.

Espaliers formed of iron uprights, through which are strained galvanised wire trainers, line the sides of the walks in a small fruit garden here. Concerning the galvanised wire, Mr. Constantine, the gardener, reported that it did no harm out of doors; but that indoors Peaches cankered wherever the wood came in contact with it, while on Vines it had no ill effects.

It may be worthy of mentioning that the lawn is mown by one of Shanks' small machines, which is liked better than Budding's, inasmuch as it is more easily worked. The place we need scarcely say is in excellent order, and in justice to Mr. Constantine it should be stated that it has been wholly formed under his direction, and that it does credit both to his taste and skill. Of his success in fruit culture the prizes he has won at the different metropolitan exhibitions are perhaps the best criterion.

FLORICULTURE.

Geranium Crimson King.—We think that the party who reports the Floricultural part of your Paper ought to mention to whom certificates are awarded, as from that not being said about our Geranium, which is advertised in another column, we have letters saying that the writers observe that it did not get a certificate, imagining that if it had it would have been so stated in the *Chronicle*. Now as this Geranium did obtain a certificate at the last Floricultural Society's meeting, we consider that the omission of stating so in the report is calculated to do us serious harm, and think you ought to mention in your next number that there was such an omission. If you can manage this for us you will oblige *Wood & Ingram, Huntingdon.* [We think it is only reasonable that the awards made at London meetings should be advertised by the society at whose meetings the awards take place, so as to give them an official character. Reporters are not always able to avoid errors in such matters; and if an error is made it is very difficult to correct it.]

Miscellaneous.

The Lawton Blackberry.—At a recent meeting of the New York Farmers' Club, Mr. Field said he had been experimenting with the common Bramble to see whether the improvements effected in the Blackberry by Secore,

and carried into extensive operation by Lawton, were the result of change in the soil and cultivation, or whether it could be traced to a peculiar variety of the Bramble. He took a plant from the woods, where it had grown in fine soil, and planted it in poor soil, and yet it produced berries as large as Lawton's, although only a small crop. Several berries measured 4 inches each in circumference. From his experiments he was convinced that there were distinct varieties of the Bramble, some of which were more favourable than others to produce the fine fruit now grown by Lawton, and that it is to the variety, rather than to either the soil or the cultivation, that the superiority is to be attributed. *The Year-Book of Agriculture.*

Fabrication of Pasteboard.—A new species of manufacture has just been created in France—the fabrication of pasteboard from the pulp of Beetroot. This fabrication is carried on to some extent in the commune of Foulain (Haute-Marne), and can be employed, it is said, with advantage in ornaments, tea-trays, and other such articles. *Daily Paper.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Proceed with the staking and tying out of plants which require such assistance, but if our former directions have been carried out relative to growing plants with short-jointed wood a good deal in the way of stakes may be dispensed with, although some will be necessary to give the plant its desired shape; on no account, however, use more than will effect that purpose. Turn each plant frequently round in order that it may not become one-sided. The greatest care will be requisite to prevent soft-wooded stove plants from drawing; as these will now be making rapid progress, they should have a large share of light, shading only during the middle of the day. Some of those potted early may now require a second shift; in this, however, the cultivation must be guided by the purpose for which the plant is grown. Take every opportunity of keeping down insects by fumigation and the active use of the syringe, but in this take care to avoid injuring the young foliage of large-leaved plants. The drainage of hard-wooded plants should be frequently examined. At this season several of them are either in bloom (as many of the New Holland plants) or approaching that condition, and they will, as a matter of course, require to be well supplied with water, more especially large specimens not shifted since last season; if the drainage is imperfect therefore ill-health will inevitably be the consequence, and the most delicate plants will be the first to suffer. Cuttings struck for a stock of winter flowering plants will now require potting off. As it is not desirable that these should be grown to a large size keep them rather short of pot-room; a hot-water pit will answer best for growing these and similar things. The plants can then be brought close up to the glass, and by a little attention will become stout and bushy with well ripened wood by the autumn, and may then be brought into bloom at pleasure.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit should be carefully attended to with water at the root; for, if allowed to get too dry, there is great danger of checking the fruit and preventing its attaining the size which it would under proper treatment. It is, however, easy to err in the opposite extreme, and considerable care and practice are necessary to enable one to properly water plants having their pots plunged; therefore this should not be intrusted to inexperienced hands, who would probably water every plant if the surface soil indicated dryness. Use weak tepid manure water for plants that are well rooted, whether fruiters or growing stock, and keep the atmosphere thoroughly moist, giving air very sparingly on cold, drying, gleamy days. Black Jamaicas and Montserats expected to supply ripe fruit at Christmas should soon be ready for shifting into their fruiting pots, and care should be exercised to avoid checking their growth by any means, as this might lead to their fruiting prematurely. See to having the balls in a rather moist state at the time of repotting, and keep the bottom-heat regular and the atmosphere moist and rather close until the plants appear to have taken to the fresh soil. The same attention will be necessary in regard to watering and bottom-heat, &c., in the case of those growing in the open bed, for plants that are any size are apt to show fruit at this season if at all checked in their growth.

Vineries.—Directly the fruit in succession houses is sufficiently advanced for thinning get this done, the laterals stopped, and the shoots regulated without loss of time, for allowing the berries to get so thick that the scissors can hardly be got amongst them renders thinning tedious, and also robs the Vines. Give inside borders a liberal supply of manure water, using that from the stable-yard tank where it can be obtained, and mixing with it a sufficient quantity of warm water to render it about milk warm. In all cases, give every possible attention to the state of the roots, securing a little artificial warmth where circumstances allow of doing so, for the ground is cold and very unfavourable for the roots of Vines. Where fermenting materials have been used on the border of the early house, the heat should not be allowed to decline until the fruit is fairly ripe, for it is easier to secure a heavy crop of well swelled fruit than to perfectly colour and ripen even a moderate crop, and a healthy root action is perhaps more important while the fruit is colouring than at any other period. Therefore let the fermenting materials be turned occasionally, adding fresh as may be requisite to keep the temperature of the border at about 70°. In cases where red spider threatens to be troublesome, in succession-houses, rendering syringing necessary, rainwater should be provided for syringing with, as if water containing lime is used, the berries are sure to be disfigured by an incrustation of lime. Figs.—To have this fruit in perfection, the trees should be rather dry at the root and the atmosphere rather dry and warm during the ripening period; but respect to the second crop often prevents proper attention being given to the ripening of the first. If care, however, is used to have the borders in a healthy state as to moisture, and rather inclining to dryness at the time the fruit begins to ripen, and save in the case of plants growing in pots or tubs, giving no more water at the root until the first crop is gathered, fruit of good quality will be obtained without risking the loss of the second crop. Plants in pots or tubs swelling a heavy crop will be benefited by an occasional watering with weak manure water.

FLOWER GARDEN AND SHRUBBERIES.

Look well to recently transplanted trees and shrubs; do not allow anything to suffer for want of water at the root, but one good soaking after planting to settle the soil will be sufficient in most cases until we have more sunshine to warm and dry the ground. The soil should be kept moist but not saturated and run together by over-watering, as is sometimes done; a sprinkling overhead with the engine on the evening of drying days will be of more service to large evergreens than over-watering them at the root. See that all recently planted things, whether large or small, are well secured against wind. The best way of effecting this in the case of large plants is to use three strong tarred cords for each specimen, fixing them to the plant by means of a collar made of strong metallic wire, and thickly wrapped round with canvas to prevent its injuring the bark, and then tying them to strong pieces of Oak driven into the ground at proper distances from the stem of the tree. This may be somewhat more expensive than staking, especially where stakes can be obtained without any outlay; but a plant once properly secured in this manner may be considered safe against wind, as the ropes will last for years, and until the roots get sufficient hold of the ground. For specimens in prominent situations metallic wires should be employed instead of cords, being neater in appearance; and although somewhat expensive in the first instance they will last a lifetime. Take advantage of the present state of the ground to stir and rake the surface soil of shrubbery and herbaceous borders to prevent the growth of weeds and give a fresh neat appearance. Also plant out Wallflowers, double Rockets, and young stock of herbaceous plants generally. Delphinium Hendersoni is one of the finest plants we possess in this way, and should have a place in every garden.

HARDY FRUIT AND KITCHEN GARDEN.

The weather having become more genial to the opening bloom a portion of the protecting material might soon be removed from Peach, Nectarine, and Apricot trees, but this should be done gradually, in order that the bloom may not suffer from a too sudden exposure. Where canvas screens on rollers are employed of course they are rolled up by day and let down at night; if the nights however are warm they need not be lowered quite down, as a little extra air will be more beneficial to the bloom than otherwise. We name this as we have more than once observed the blossoms of Peach and Apricot trees injured by too much covering where spray or netting is used, and which could not be conveniently removed daily. Figs should now have their winter protection taken away, and have the necessary thinning out and tying in. The bloom of the choicest kinds of Pears should have some protection should frost occur; where the trees are against walls this is easily done, but with espaliers and low standards the difficulty is greater; for the latter a slight frame shaped like an umbrella and covered with canvas might be fixed over each tree; of course the frame should exceed in diameter that of the tree. For espaliers a width or two of canvas should be fixed on a frame over the line of trees. If the above are placed 2 feet above the trees they will protect them from a tolerably severe frost, provided it is not accompanied by wind. As soon as the principal kitchen crops are in the ground and the main quarters have got their supply of dung wheeled on to serve for the season as we formerly directed, proceed to make good any part of the edgings not in order, either (supposing they are Box) by taking the whole up and replanting or filling up blanks.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending April 10, 1856, as observed at the Horticultural Gardens.

April.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday	4	29	29.773	29.654	59	30	44.5	46	44	S.W.	.00
Satur.	5	●	29.398	29.318	57	40	48.5	48	45	S.	.00
Sunday	6	1	29.330	29.248	57	27	42.0	49	45	S.E.	.00
Mon.	7	2	29.493	29.446	59	39	49.0	49	45	S.W.	.04
Tues.	8	3	29.260	29.183	53	35	44.0	49	45	S.E.	.06
Wed.	9	4	29.305	29.273	56	42	49.0	48	45½	S.W.	.30
Thurs.	10	5	29.461	29.143	60	41	50.5	48	46	S.W.	.01
Average			29.460	29.322	57.3	36.3	46.8	48.1	45.1		.44

April 4—Densely clouded; low white clouds; fine.
— 5—Fine throughout; cloudy at night.
— 6—Fine; white clouds; frosty at night.
— 7—Fine; cloudy; rain.
— 8—Slight rain; showery; cloudy.
— 9—Cloudy; rain; cloudy.
— 10—Rain; cloudy; fine; cloudy at night.
Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending April 19, 1856

April.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	13	56.0	34.6	45.3	13	0.45 in.	2	5	1	4	3	7	7	—
Mon.	14	57.8	37.2	47.5	11	0.31	2	5	6	1	4	6	2	4
Tues.	15	57.9	39.2	48.5	17	0.47	6	7	5	1	2	4	3	2
Wed.	16	56.9	37.0	46.9	12	0.63	6	6	5	1	3	3	3	3
Thurs	17	57.4	35.9	46.6	14	0.32	4	5	4	1	3	4	6	3
Friday	18	57.9	36.7	47.3	13	0.49	4	5	5	1	3	3	6	3
Satur	19	58.7	35.8	47.2	7	0.45	6	8	2	2	1	4	7	—

The highest temperature during the above period occurred on the 19th, 1854—therm. 77 deg.; and the lowest on the 16th, 1817, and 19th, 1852—therm. 20 deg.

Notices to Correspondents.

Annuals: *Tyro.* Bartonia aurea, bright yellow; Eutoca viscida, deep blue; Zinnia coccinea, red; and Mignonette may possibly suit your purpose. We never recommend dealers ‡

Azaleas: *H A P.* There is little doubt that your plants have been fed with something that has disagreed with them. They look as if the soil had been poisoned. Who could have advised you to employ alum as a manure?

Crickets: *R H.* Several methods by which it is stated they may be got rid of have been given by our correspondents at p. 154. Our own attempts to destroy them have hitherto proved unsuccessful. We are afraid of arsenic.‡

Colouring: *A Novice* asks what dye is used for colouring Grasses, Mosses, &c. We do not know, and should be very sorry to see our own Grasses or Mosses spoiled by any colouring process.

Conifers: *Conifer.* We know of no such plant as Picea Tsugatskoi. There is an Abies, not Picea, Tsuga, not yet introduced from Japan. The name sounds as if it were Russian, and if so it will have nothing to do with Pinus Skinneri, a form of P. oocarpa, native of Guatemala and tender.

Concrete: *C L.* We conceive that well rammed chalk will answer every purpose. Put a two feet border on it. If you value the Pear tree you would perhaps find its renovation worth attempting. We should gradually open a trench some 10 feet from the trunk, lift the fibrous roots up carefully, and bring them up to within 6 inches of the surface, immediately refilling the trench with good loam, having a little well rotted stable litter, such as an old Cucumber bed, well mixed with it. The best way would be to do half the work in September, and half in March or September following. It is now too late in the season for such a job.

Glycerine: *Geo. D. Vallance.* If you will refer to what was said respecting this substance, you will see that we had no personal experience in the use of it. We merely reported what had been observed by Mr. Wilson. We presume the right way to use it is to steep the seeds in glycerine for several days *as has been already stated,* and then to sow them in the usual manner. All the seeds mentioned in your letter are of Greenhouse plants. There is no resemblance whatever between syrup and glycerine, except that both are sweet.

Grafting Berberries: *R Galliere.* We are unable to make out the meaning of your question, as far as we can decipher it.

Greenhouse Climbers: *An Amateur.* Hardenbergia macrophylla, Mandevilla suaveolens, Bignonia grandiflora, Passiflora coerulea-racemosa, Kennedya Marryattæ, Tecoma jasminoides, Dolichos lignosus, and Tacsonia mollissima may possibly answer your purpose.

Guano-water: *Const. Reader.* It makes a very good manure for Strawberries. Put a handful of guano into a gallon of water; stir it up well two or three times at intervals of two or three hours; when clear decant, and it is then fit for use. The residue may be added to the compost heap.‡

Guatemala Tobacco. We have a crowd of inquiries upon this subject, to all which we can only reply that such inquiries should be addressed to Don José Maria de Samayoa, Guatemala, with a reference for payment. That is our own plan, and it can be equally adopted by every one else.

Insects: *A Subscriber.* Your Cucumber leaves are infested with small flat insects which appear as well as we can judge from their crushed state to be the mealy bug. Powder the plant with sulphur, and also fumigate your frame with tobacco smoke.—*Bees.* You have chosen a wrong name, your bees being in fact saw flies (Trichiosoma lucorum); the figure and history of which, with its transformations, you will find in *Gard. Chron.* (31 Jan., 1852.)—*Subs. A B.* The little black insects which accumulate in such vast numbers on your walks are Desoria viatica. (See *Gard. Chron.*, 1847, p. 221, for figure and description.) They feed on decaying vegetable matter; but the cause of their congregating in such quantities is a mystery.—*J L.* The beetles which have destroyed the seeds of the Tara Mimosa are a species of Bruchus. *W.—L V H.* In our reply to you last week the words *in the larva state* were misprinted *in the lower state.*

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Col. Charlton.* Your epiphyte from Manilla is Dendrobium anosmum; a scentless variety of D. macrophyllum.

Omar Pacha Apple: *S Shilling.* Your Apple is a good-looking fruit, resembling Adam's Pearmain in form, but somewhat rounder, and more strongly marked towards the eye, approaching in this respect the angular shape peculiar to the Margil. Whether it possesses any of the good qualities of either of the sorts mentioned remains to be proved, as the specimens sent were found to be perfectly dry and insipid, probably owing to their having been kept so long beyond their proper season. *B.*

Pampas Grass: *H O N.* It does very well in any situation where the soil is damp without being either dry or wet. It is reported to grow on the banks of the river Uruguay, but it will not bear our hard winters if the roots are covered with water. We should try it on any tolerably high river bank.

Pig Manure: *C W.* This is very strong, rank stuff, and is not fit for garden purposes until it has been well rotted down and mixed with earth, or leaves, or some kind of dead absorbent material.

Pines: *T S P.* Pinus taurica is the same as P. Pallasiana, and P. nigricans as Austriaca. Both belong to the Pinaster race. The first is the great Pine of the south coast of the Crimea.

Sweet-scented Camellias: *M S R.* At pp. 54, 70, and 86 of our volume for last year, mention is made of a variety which is said to be sweet-scented, but none possessing any fragrance has ever come under our own notice ‡

The Horticultural Society: *A C.* You are not aware that this is a Corporation and incapable of taking any step at variance with its charter. The plans you propose are entirely at variance with the charter.

Yews: *H S.* We never before saw Irish Yews in such a state, and have no idea what ails them.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—
Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).
NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.
Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.
Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—
SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.
SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.
N.B. Manures specially prepared for Grass and Flax.
The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

TO AGRICULTURISTS, MARKET GARDENERS, AND AMATEURS.

TOTTENHAM SEWAGE MANURE (HIGGS' PATENT).—This highly fertilising Manure, consisting of the Nightsoil, Blood, Urine, and other Nitrogenised Matters yielded by the Town Drainage is now ready for delivery from the Works, or from the Railway Station at 4*l.* 4*s.* per ton, or may be had for use in the Garden, of most of the principal Seedsmen in London, in packets 9*d.* each.—Sewage Works, Page Green, Tottenham.

PHŒNIX CHEMICAL WORKS, PLYMOUTH.

BURNARD LACK AND CO. are ready to deliver in London or at any convenient Railway Station or Seaport, BIPHOSPHATE OF LIME considered as neutral soluble phosphate, at PROFESSOR WAY'S standard price, viz., 6*s.* 6*d.* per cent. per ton.
B. L. & Co.'s No. 1 Concentrated Superphosphate contains 40 per cent. of neutral soluble phosphate delivered as above (bags included) at 13*l.* per ton, four months acceptance, or less 2½ per cent. discount for cash. A considerable reduction made for quantities.
Guaranteed analyses and opinions by PROFESSORS WAY and VOELCKER sent on application.—Apply as above.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

WATER your GARDENS and MANURE your LANDS with GUTTA PERCHA TUBING. Half-inch for gardening, 4*d.* per foot, medium; 4½*d.* stout; brass branch, stop-cock, and rose, 5*s.* 6*d.* Apply for illustrated price lists to J. SHEATH & Co., Patent Gutta Percha Factory, 35, Old Street Road.

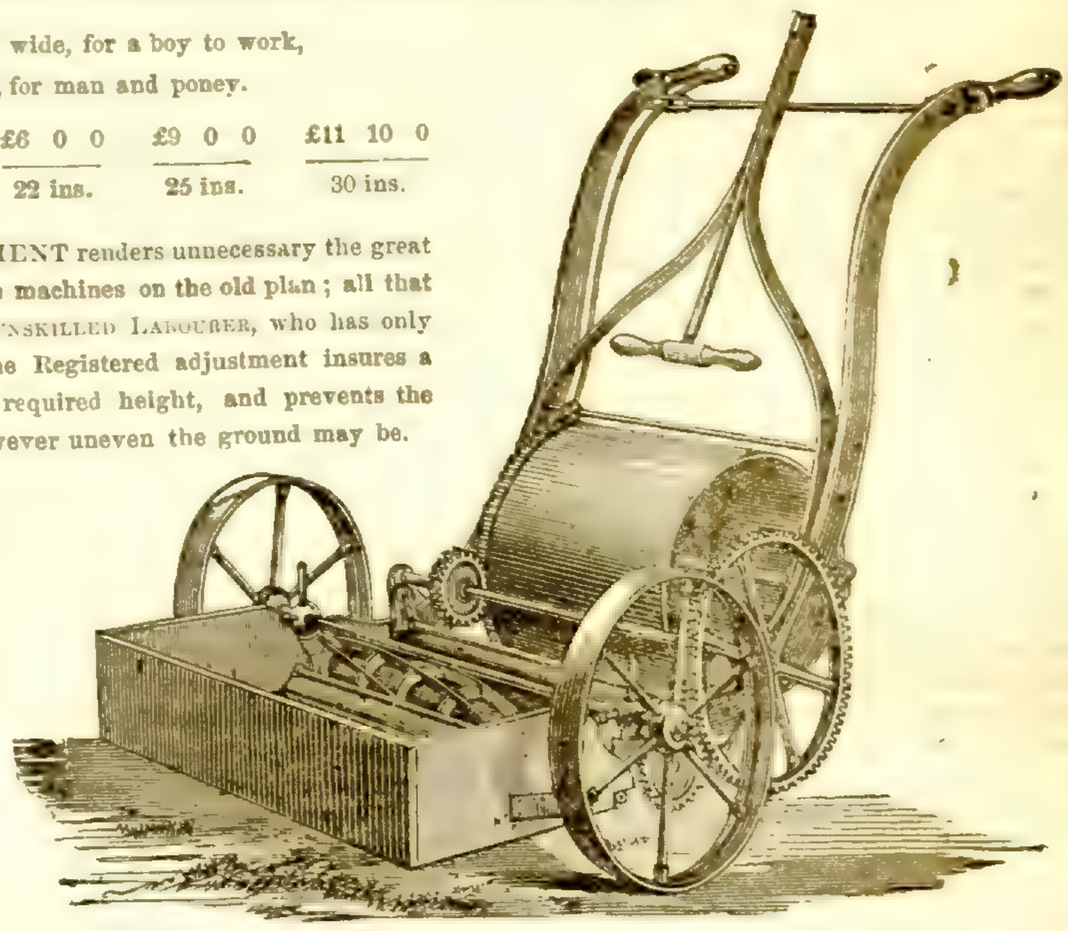
THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power. &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and poney.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—
Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.
G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.
GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

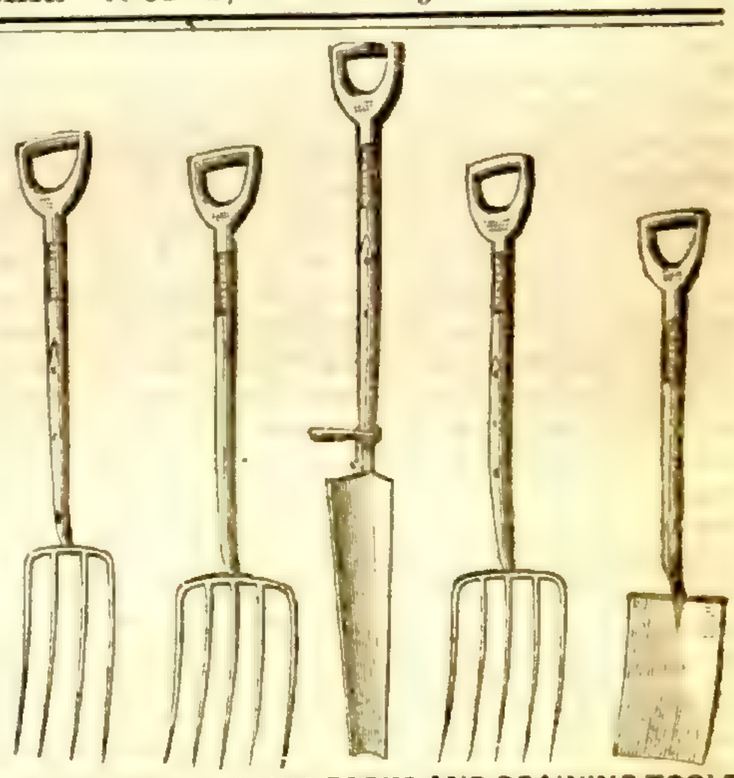
THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.
Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.
Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.
Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.
Kitchen Garden Seeds and Flower Seeds.
Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & CO., the Seedsmen to the Royal Agricultural Society of England, corner of **Half-Moon Street,** Piccadilly, London.

SUTTON'S SELECTED MANGEL WURZEL.

THE MANGEL WURZEL ROOTS *grown from* Messrs. SUTTON'S *Seed gained the First Prizes at the Birmingham and many other Root Shows last season*—(*see* Times *Newspaper, December* 12, 1855.)
They were also much admired on Messrs. SUTTON'S stand at the Smithfield Club, shown in Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express,* and other papers of December last. At present, Messrs. SUTTON can supply any quantity of Seed. Price of their selected Yellow Globe 9*d.* per lb. The prices of other kinds and of large quantities may be had on application.
Royal Berkshire Seed Establishment, Reading, April 12.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—
ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*
PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.
GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.
TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*
VETCHES (or TARES)—Large broad-leaved Scotch.
PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.
N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*
*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.
W DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.



PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, London.

DISCOVERY IMPORTANT TO AGRICULTURISTS.

A. F. SCHLOTTHAUBER, NATURALIST, at Göttingen, has discovered two plants indigenous to England and Germany yielding substitutes for Coffee, not to be distinguished from the best Mocha. They may be cultivated in sandy or clayey soil, and yield from 30*l.* to 40*l.* an acre. He offers to communicate his discovery either for the sum of 4000*l.*, or an annual payment of 400*l.* for 20 years.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, APRIL 12, 1856.

WE learn from Mr. BRANDRETH GIBBS that the French Government has extended the time for receiving declarations from those who intend to be exhibitors at Paris till the 23d of April, for the convenience of English exhibitors. They also offer additional prizes of 20*l.* for the best fixed steam engine for farming purposes, 10*l.* for the best portable threshing machine, and 10*l.* for the best fixed threshing machine to be driven by steam. A new sub-category of prizes has been opened for shearling ewes lambed before the 1st of May, 1855. Intending exhibitors must send in their declarations

before April 23d: the forms are to be had at 9, Pall Mall East.

A member of the Corps Législatif of France has asked:—"What is the average quantity of iron consumed annually per acre on a farm?" This is to include horse-shoes, tires, chains, and all farm implements. As the inquiry has reference to an alteration of the French tariff in the interests of agriculture it is very desirable that some approximate datum should be furnished in reply. Obviously the experience of farmers will vary exceedingly in respect to this subject. Some soils are proverbially sharp, while others, adhesive and clayey, do but little to waste the ploughshare or the harrow tine. There are, however, probably very few cases of either sort of land where any kind of record has been kept of such waste; and it will be a singular illustration of attention to detail if an answer to so curious a question shall in any instance be obtained.

We put the question nevertheless, knowing that on some farms a contract with the blacksmith is entered into in which he agrees to keep implements in order and horses shod at so much per pair per annum, payment for all new metal being in addition to the price thus due. If any reader of this paragraph shall have a blacksmith's bill of this description by him, and will tell us its amount per annum, together with the extent and kind of soil he cultivates, we shall be very much obliged.

An interesting lecture on artificial manures was given last Monday by Mr. Nesbit, of Kennington, before the London Farmers' Club. The rival theories of plant nutrition were described, and the "true" theory given in their place. This seemed to be, that all that plants contain *they need*, and that the relative importance of their different ingredients depends pretty much upon the proportion which obtains between the quantity of each they need and the quantity of each supplied by nature. Ammonia and phosphoric acid are "now" the special elements of manures, as gypsum was once supposed to be; but gypsum, so the lecturer stated, is not so considered now because enormous quantities are supplied in other ways, as superphosphate, &c., and the supply exceeding the demand no such extraordinary results are met with now as were formerly experienced from its application as manure. Whether ammonia or phosphoric acid ever shall become in like manner comparatively ineffective cannot be foreseen; but the inference from Mr. Nesbit's statement was that all these things rank in importance simply according to the natural deficiency of each, and that the plant's demand for each is of the same kind, quality, or force, its exigency being in proportion merely to the deficiency of the supply.

This probably is in the main a true statement of the case, but it is very much calculated to mislead if there be not added to it (1) that the natural supply of many things is abundant, and of others altogether insufficient for a crop large enough to pay a rent; (2) that the natural liability to waste and loss of some things is insignificant, while of others it is of the most serious importance; and (3) that the appetite of the plant for some things may be satisfied by a substituted substance, while for the want of others there is no remedy whatever.

All these three considerations go to magnify the importance of ammonia in manures, and to render it impossible that it should ever be fairly placed with gypsum in the class of manures liable to lose their rank. Phosphoric acid, too, is so largely needed and so imperfectly supplied that its rank as a manure is with reference to the majority of soils a permanent one.

The natural and artificial sources of supply of both these substances were enumerated by Mr. Nesbit. Guano, nitrates, blood, as affording nitrogen; bones, phosphatic marls, coprolites, apatite, &c., as affording phosphorus were referred to. On the subject of superphosphate some useful and some, as we think, questionable suggestions were made. Mr. Nesbit would not aim at the production of an entirely soluble superphosphate. After the seed has brairded and the young plant is established it needs abundant food for months before it is matured. During this period the comparatively less soluble portion of a well-made superphosphate comes into use; if it had been wholly soluble it would before that time have disappeared, and the plant, puffed out rapidly and unripened to an excessive size, would rot. Mr. Nesbit rode over some Turnips in Hampshire not long ago, and on crossing the line which separated dung and bones as the manure from superphosphate he found he had left sound roots for rotten ones, and this was the proof on which his argument was based. Now if his doctrine be that superphosphate by itself is an insufficient manure for Turnips we quite agree with it; but if he desire to teach that the less soluble superphosphates in the market are equally valuable with others, we wholly disagree. Let farmers buy the manure containing the greatest quantity of soluble matter, they can dilute it with bones or dung or any thing else at home, and if they apply it to the soil direct it will be well diluted there. Mr. Cuthbert Johnson very properly referred to this in the course of the evening as a complete answer to Mr. Nesbit's theory. His suggestion as to making coprolites and other mineral phosphates the source of the soluble part of the manure, while bones should furnish the comparatively insoluble portion, is one that deserves the attention of all manure makers.

In addition to phosphoric acid and ammonia alkaline salts were specified; common salt was alluded to as a "corrective of excessive fertility," and its use along with guano for cereal crops was recommended, as tending to strengthen straw and hinder the falling of the crop.

Mr. Nesbit was followed by Mr. Baker, of Writtle, who referred to the methods of applying artificial manures as being of the greatest importance. He had no doubt, and neither have we, that much of the guano and other ammoniacal manures applied on grain crops during the past dry month of March has been lost. The best plan he believed to be that of applying these artificial manures before the seed, at any time during the preparation of the land, and ploughing it in. He had all his land for Mangel Wurzel ready for the seed. During the early frosts he had ploughed in 10 to 15 loads of dung—and he has since applied 4 cwt. of salt, 3 cwt. of guano, and 3 cwt. of blood manure per acre, and he will drill 1 or 2 cwt. of superphosphate with the seed. "It is as easy to grow 35 or 40 tons of Mangels as 25 or 30." That is a crop you can "make;" not so grain: Wheat you may manure excessively and lose your crop; there was, therefore, no egotistic vanity in saying that he grew the heaviest crops of Mangel Wurzel in his neighbourhood.

Mr. Mechi followed Mr. Baker, referring to deep cultivation as ensuring the economical storage of the manures applied and to the fact that in spite of it a waste of fertilising matter took place through the drains even on his stiff clays. To this subject Mr. Mechi has again referred in our columns of to-day. Professor Wilson, of Edinburgh, had long since pointed out the fact, proving it by the analysis of drainage water, and to this Mr. Cuthbert Johnson referred in the remarks which he, following Mr. Mechi, addressed to the meeting.

The discussion generally embraced very fully both the theory and the practice of manuring, and the full report of it in the Club Journal will form one of the most useful of that series which has yet appeared.

Before proceeding further with our remarks on the number of seeds sown per acre under ordinary farm practice in the case of the several crops, we may just mention how the numbers have been ascertained. Mr. Summers points out the discrepancy between Lawson and our correspondent "J. C. X." in the case of several Grass and Clover seeds, which he specifies. In answer to him we have received the following letter:—

"Owing to the remarks of Mr. Geo. Summers in the *Gazette* of the 5th inst., I confidently state that the table of the number of seeds in a pound, furnished by me and published on March 22d, was when recorded in 1838 to 1843 *correct*. I myself collected all the specimens carefully examined, and believe that each species or variety was botanically true, and not intermixed. The seeds were weighed when dry, after having been stripped from the rachis, or threshed and well cleaned from chaff and light rubbish, and from corolla when separable. It is not easy to clean perfectly the seeds of Holcus lanatus, Alopecurus pratensis, or any of the Poas. Five ounces of Holcus lanatus seed as stripped from the rachis will produce only 2 ounces of seed as cleaned by me; 8 ounces of Festuca pratensis produced but 3 ounces of seed.

"I wish that Mr. Summers had procured a thimbleful of the seed of Trifolium repens (white Clover), had weighed a portion with a 10-grain or half-scruple weight, counted the weighed portion and multiplied it by 700, which would give the number of seeds in a pound; for if he had done so he would have been enabled to judge which of the tables, viz., that of 'J. C. X.' or that of Messrs. Lawson & Son, was most to be depended upon."

To this we add, that in the cases published by us last week one ounce, 100 grains, and in some few instances 10 grains, carefully weighed and counted, were made the basis of the calculation. The seeds were as supplied in the market, and the numbers given as the result must in every case be taken as the maximum, it being often impossible in the case of Grasses to avoid counting as seeds what may be merely husks or even dust. The seed as supplied in the market is of course often adulterated, and the number of seeds actually sown per pound must not be taken from our correspondent's table, as it might if the samples sown were botanically accurate, or from our own, as it might if the samples sown were commercially honest. How largely this adulteration is carried on appears from a sample that has been sent to us by Messrs. Drummond, of Stirling. They say:—

"In Italian Rye-grass as well as other seeds there has been a good deal of 'manufacturing' going on. See for instance the enclosed sample sent us the other day as 'our own direct importation.' Sprinkle a little of the seed upon a sheet of paper and see what a quantity of 'Hair-grass' is in it. The Hair-grass is the small seed with a 'long tail,' and is a vile weed which is often to be found largely in common Rye-grass seed, and requires much labour to take it out. Seed cleaners generally burn it, but this year a demand sprung up for it, for what purpose you can guess. We may note that in *genuine* Lombardy Italian Rye-grass we never have a seed of Hair-grass."

THE PRICE OF ARTIFICIAL MANURES.

If any excuse were required for addressing my previous communication and the present on the important subject referred to, it is to be found in the last paragraph of Professor Way's paper, in which he says: "I know full well how considerable are the interests involved." In the same paper he adds, "that I may have committed errors of greater or less magnitude is more than probable, but if so I believe I shall be one of the first to discover, and I hope to acknowledge them." If he does this, I for one shall be perfectly satisfied, and it was for the purpose of pointing out what I conceived to be erroneous, so that Professor Way might have an opportunity of correcting them that I was induced to pen the few observations which I made. I certainly did not upbraid him, and I have no idea of calling in question his motives, his mode of reasoning, his general accuracy, or his scientific attainments; on all these points I entertain for him the highest respect. Mr. Way says I am evidently a manufacturer. Well, grant that I belong to this suspected class, this ought to add force rather than otherwise to the ground of my complaint, for no one can better judge the wholesale and retail value of manures than a manufacturer, and no one is so likely to suffer from an incorrect statement. Let us suppose a case: A consumer in the month of February asks the price of crushed bones, and he is informed 8*l.* per ton, or a relative price per quarter, this price including the use of sacks and the carriage to his nearest railway station. Indignant at what he conceives to be an imposition the consumer refers to Professor Way's Table of Prices in the *Agricultural Gazette*, and adopting the advice of the editor in the same article removes his custom from the unfortunate manufacturer, who naturally feels somewhat sore at being made the victim of a mistake or mis-statement. Now, as this is a matter of fact which can readily be ascertained, will the editor be kind enough to refer to the "Hull Price Current" for the four weeks of February last, which he will find in the *Eastern Counties Herald*, and probably also in the *Mark Lane Express*, bearing in mind at the same time that it is the wholesale price per cargo for uncrushed bones that is here quoted, and not the retail price? Having done this will he have the goodness to state how much less than 7*l.* per ton is the price quoted? Will he also refer to the public sales of bones in London during the same month, and if he is not satisfied the writer will show him offers of cargoes during the same month at not less than 7*l.* per ton. Having done this he will have a right to ask whether, when 6*l.* 10*s.* per ton was stated to be the price of crushed bones, he was far wrong in saying that this must have been the wholesale and not the retail price, or whether he imposed on his customer in charging 8*l.* per ton, including crushing, &c., use of sacks, and railway carriage.

Again, with regard to bone-ash, Professor Way acknowledges that 6*l.* per ton is about the wholesale price of this article containing 70 per cent. of phosphate of lime, which will bring the phosphate of lime to very nearly 1*d.* per lb.; but he says that it is only of this value to dissolve, and not to apply to the land in its ordinary state. Now, surely if the phosphate of lime in ordinary half-inch bones will produce a great effect on the Turnip crop—and that it does produce a great effect we have had abundant proofs—surely this same phosphate, when reduced to a fine powder by burning and crushing, will have at least an equal effect, for ammonia can, of course, be added in another form. Again, although a mineral phosphate even in a fine state of division would no doubt have a much less effect, yet when we are told and when we know that on certain soils containing 1 or 2 per cent. of phosphate of lime in a mineral state neither bones nor superphosphate have any effect, this certainly militates strongly against the assertion that a powdered mineral phosphate is perfectly useless when added to the soil unless it is dissolved in acid.

Professor Way in his table gives ammonia in Peruvian guano as costing 44*l.* 2*s.*, whilst in bones it costs

45*l.* 9*s.* Now, surely one or the other must be wrong, for no reflecting person can say that the ready formed, finely divided, and available ammonia in Peruvian guano is not much more valuable than in the crude state of half-inch bone, which requires fermentation and a considerable time before its ammonia is given up. This is no doubt owing to putting the phosphate of lime too low. If he had valued the phosphate of lime in bones at something like 1*d.* per lb., it would have brought down the value of bones in ammonia to its proper level. To show that the phosphate of lime in bones is valued too low, we may again refer to the table in which Professor Way calculates the phosphate of lime in coprolite as 10*s.* 8*d.* per ton more than that in bones. Now, surely this cannot be correct. I am afraid I have occupied too much space, but the importance of the subject must be my excuse. *S. S.*

[We find that the Hull "General Price Current," dated Feb. 1, quotes bones at 7*l.* to 7*l.* 7*s.* per ton; and the price current of a commission agent for wholesale buyers in bones, guano, &c., of the same date, in London, is 6*l.* 2*s.* 6*d.* free on board for consumers; 6*l.* 7*s.* 6*d.* weighed on delivery, buyers paying freight; 6*l.* 7*s.* 6*d.* foreign do., the expenses on which are 5*s.* a ton at the docks. These prices are the lowest; the highest quotations are 2*s.* 6*d.* more.]

Home Correspondence.

The Royal Agricultural Society and its Implement Prize Sheet.—The effect of the establishment of the Royal Agricultural Society on the manufacture of agricultural implements was admirably illustrated by Mr. Hoskyns at the Society of Arts, by comparing it with the wonders of Aladdin's lamp. Mr. Ransome whose imagination ordinarily requires but a spark to kindle it, appears to have been somewhat chilled by the solemnity of the occasion, or he would not have questioned the propriety of a comparison so apposite; he would have remembered that it was not the light but the friction of the lamp which evoked the genii, just as it is not the brillancy of the Society's judicial decisions, but the perseverance with which they have "rubbed on" from year to year, matching Bale against Busby and Corms against Chandler, that has called out the "geniuses" who annually assemble under its tents. At least, if this view of the case be abandoned, and a claim set up for the Society as having advanced the science of agricultural mechanics rather than as having diffused the knowledge of its achievements, I fear we must side with Mr. Ransome, for scarcely an instance can be named where the Royal Society so much as proposed a mechanical problem for the solution of the engineer, whilst at least one will be familiar to most of your readers, for which the cold shade of the Society's neglect did its worst, happily to no purpose, to destroy the ardour of the most talented agricultural engineer of the age. How vicious is even its boasted system of trials by the dynamometer, regardless of other important elements, is well known to exhibitors and to the initiated amongst the buyers of agricultural implements, though the public will scarcely believe, what is however perfectly true, that the beautiful locomotive steam-engines which annually contest the prizes of the Society are unfit for use on the farm, and that, of the thousands of admirable engines annually manufactured for the use of the farm by the leading houses who compete, not one would have a chance of winning the Society's prize. That the same absurdity prevails amongst minor implements will appear from one instance amongst many. For years the prize for one of those useful machines which assist the farmer in economising his fodder, was contested by a machinist in the north of England whose productions vie in cheapness, accuracy, and durability with those of the first mechanics of the district, and they are the first mechanics of England. His implements commanded a sale of thousands annually not only in England, but in every part of the globe. Still he could not win the Society's prize, which was carried off year by year by an industrious mechanic, without science, without capital and the appliances which it commands, but who still produced before the judges a machine absorbing rather less power—though the power in either case was so trifling as to be of no practical importance—than that of his competitor; but which, had it been put to a month's work in the state in which it was placed before the judges, would have dropped to pieces at the end of that time. At length the north country machinist brought to trial a handsome well-made machine, which performed its work with half the power of that of its rival, and took the prize. Orders for the prize machine poured in from all quarters; but they remain unfulfilled to this day, for the machine was constructed not to be sold, but to win. Should we travel out of the beaten track of implements known to and adopted by every farmer of capital and skill, and observe the Society's award on new implements, the reaping machine for instance, we shall find them less reliable than the unaided judgment of the practical man. Again and again have those who pinned their faith to the Society's contradictory awards and comments, as regards this implement, been misled, the makers not less than the users; the firm which has in the last instance obtained the Society's prize being perhaps furthest removed from the great requisites of simplicity and durability. Again, turning to the lowest class of the Society's distinctions, what can be more absurd, for example, than to stamp with its verdict as the best churn for the farmer an implement tried with—four gallons? No!—four quarts of cream. Surely it is time, then, that the prize system were abandoned. If it have any influence at all, it can but divert the ambition of agricultural engineers from the true objects of their profession—the simplification and cheapening of existing, and the invention of new machines, to the aims of the jockey and of the juggler; whilst it lowers the character of the Society, and serves no better purpose than to flatter the self-importance of a few of its members on the annual field days. Such were not the means that brought to their present perfection the railway locomotive and the marine propeller, the power loom and the spinning frame, the chronometer and the telescope, the galvanic battery and the electric cable. The master minds who have laboured in the advancement of mechanical science in all these branches would scorn to submit their inventions to the judgment of a few amateurs, or to dance attendance for days on the estate of a country esquire. It is time that the agricultural engineer should cease to accept as distinctions such rewards as the Royal Agricultural Society can bestow. *A Prizeman.*

The Weather.—On Sunday the 16th of March the rain, concerning which Mr. Brown made you a communication, began to fall here a few minutes before 12 at noon. It was prefaced with what in summer we would have called heat drops. A heavy murky sky cast its gloom over us early in the day, a much darker shade being perceptible low down in the S.S.W. This gradually rose, bringing with its approach all the darkness of an impending thunderstorm, with for a short time somewhat of its sultriness. The wind was E.N.E., but there was evidently an upper current, bringing the rain upon us, and by one o'clock there was a somewhat gusty west wind blowing; towards dark it had drawn a point or two to the north, the rain still falling heavily; sometime during the night, I cannot say what, the stars were brightly shining, and on Monday morning the wind was in its old quarter again, and as cold as ever. *R., Uske, April* 7.——In answer to Mr. Brown, of Cirencester, (p. 235), I beg to say that the rain on the 16th March commenced here at from a quarter to half-past 5 o'clock, P. M. *Iris, Henley-on-Thames.*

Filtration of Manures through Soils.—The last three days we have been irrigating a strong yellow plastic clay field, which was some years since drained at intervals of 50 feet, with 1-inch pipes placed 5 feet deep. The soil is a strong tile earth, far too tenacious for making bricks. Our irrigation with pipe hose and jet was composed of the solid and liquid droppings of bullocks and other stock, together with the usual decomposition of the great tank and a proper addition of water. The quantity applied about 100 gallons per minute, falling like a shower of rain; total application per acre about 20,000 gallons, or 1 inch rainfall. Every drain in the field has been running abundantly and discharging liquid manure, strong and highly coloured, as is almost invariably the case when we irrigate abundantly. The same thing took place in another but lighter land field, drained 6 feet deep; of course the cottagers who use the water from my spring find it tainted whenever we irrigate, although nearly one mile from the fields irrigated. Three questions arise out of these facts: 1st, will heavy land farmers still continue to doubt whether water can filtrate through their soils? 2dly. Does not heavy rain wash through drained soils the essence or solutions of ordinary farmyard manures that have been applied in the solid form? 3. When our town sewage is applied to agricultural purposes will not a large quantity of it find its way by percolation to our brooks and rivers? Practically I can answer the two latter questions in the affirmative. It is an evil that cannot be avoided, because it is quite clear that the people of this country must be fed, which can only take place by abundant applications of manure. It is equally certain that strong solutions of the 200,000 tons of bird's dung or guano which we annually import from Peru pass through our soils and mix with the water which is the beverage of millions of our people. Limpid and transparent it may be, and yet it will contain much of the elements of all those apparent abominations which constitute the very essence of our corporeal substance. I think I mentioned before that I have seen the solutions from an ordinary dung-heap on the surface of a strong clay field flowing abundantly through drains some hundreds of yards distant from it. I feel, with many market gardeners, that we must continue to see with regret the essences of our manures leave our ditches to fertilise our rivers and seas. It may be interesting to consider whether since our extensive drainage and improved manuring the weeds in our rivers have not grown with greater vigour. That we must continue to manure in spite of such losses is too obvious a proposition to be denied. *J. J. Mechi, Tiptree, April* 1. N.B. My men and myself are of opinion that our clay soils retain much less moisture than the more dry and open soils, their capillary powers being inferior.

Produce of Four Alderney Cows.—Last year my dairy consisted of four Alderney cows. They were not all in profit until the beginning of July. The produce during the year was 712 lbs. of 18 oz. of butter, and six small cheeses, weighing from 10 to 12 lbs. each. The pasture land is extremely poor, but there is abundance of good water. It is the custom in this locality to churn the milk with the cream, by which means the butter keeps longer fresh than if cream alone is used. Considering the delicacy of constitution of the true Alderney breed, and taking into account that a large quantity of cream and milk was daily consumed by the family, I consider this production to be considerable. *E. C., Pan-y-Ochin, Gresford, Denbighshire.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *April* 3.—Colonel CHALLONER, Trustee, in the chair.

SKIN DISEASES OF DOMESTICATED ANIMALS.—Professor Simonds, the Veterinary Inspector of the Society, delivered before the Members the first part of his lecture on the injuries arising to domesticated animals from parasitic insects infesting their skin. The Professor commenced his lecture by remarking, that however little apparent interest this subject presented to the scientific physiologist, it was a most important one to the practical farmer and flock-master. All domesticated animals were, to a greater or less extent, affected by peculiar parasitical insects. These might be divided into three great classes:—1. Insects attacking the external parts of the body, on which they pass through the whole period of their existence, as in the cases of acari producing scab, mange, &c. 2. Insects which pass their larval condition only on the skin, as a temporary nidus, from which they escape as flies on assuming their winged condition. 3. Insects, most destructive to animal life, lodged in the internal organs and cavities of the body. Professor Simonds added, that veterinary science was still very inferior to medical science in its nomenclature, having in many instances very imperfect terms to express the peculiar forms of disease; and it was still the habit to retain different names in the case of lower animals to diseases identical in their character; the mange and scab in the horse and sheep being analogous to the itch or scabies in the human subject. It would lead to greater simplicity and precision if the mange, scab, and similar diseases were classed under the general term of "scabies." The scab among sheep led to great losses among flock-masters, in consequence of the deterioration of the wool and general condition of the animal. Its cause for many years was not known; and the merit of our present satisfactory information on the subject is due to a German physiologist, who clearly proved the wide distribution of acari or mites, in dirt or filth, sugar, cheese, flour, and almost every other form of vegetable matter; but that there was scarcely a substance not affected with them. He found that the male and female acarus of the horse and of the sheep possessed well-defined characters in the case of each of those animals, the former being the cause of the mange, and the latter of the scab. The study of their natural history would, in Prof. Simonds's opinion, be the best clue to the means of their destruction. These mites were endowed with the capability of travelling from one animal to another; and the scab-disease of sheep was known to extend to a whole flock, leading to fatal chronic disease. Since 1848 Prof. Simonds had instituted numerous experiments for the purpose of ascertaining whether the mites belonging to one class of animals had the power of engendering the same disease on animals of another; in other words, whether the mite which produced scab on sheep was capable of producing mange on the horse or the dog, and the contrary. He tried these experiments again and again, made every variation of circumstance, but entirely failed to produce such results. It had however been alleged that in Germany success had attended similar efforts. The acari, or mites, vary much in shape. Pediculi, or lice, existed in the greatest variety. They could only live however in that particular part of the animal's body to which they were adapted. He then referred to the period which elapsed between the deposition of the acari on the skin of sheep and the development of the scab-disease, as a question affecting the purchasing of sheep and the liability attached to that transaction. First a slight redness came on the skin, albuminous fluid was exuded which matted the adjoining wool. In a few days, definite pain was felt by the animal, which violently attempted to scratch itself by rubbing the part against any resisting object. The irritation extended to 10 or 12 inches. The disease advanced with rapid progress. Acari had travelled over other parts of the body. In 16 days, 50 or 60 eggs of the acarus were found at the base of the wool. Large thickened crusts of a white appearance were formed. The health of the animal and its skin became generally affected. Large scales or scabs ensued, which, on being raised, a great number of acari could be detected. Inflammation had ensued on the skin. The itch in the human subject arose from the same cause; the acarus burrowed beneath the scale of the epidermis, or outer skin. This affection was known to be more communicable when the person was warm in bed than under other circumstances, the acari then coming out and extending their operations. The itch-mite insinuated itself within the skin, while the mites of the horse and the sheep made their attacks upon the skin. He described in detail the peculiarities in the adaptations of these creatures for the accomplishment of their particular purposes; their suctorial discs for extracting the juices of the skin, their hooklets for holding themselves by the wool or hair so as not to be shaken off while continuing their operations, and the trumpet-shapen appendages which enabled them to hold themselves securely by valves to flat surfaces; the relative size of the male and female mites, the female being the larger insect and adapted for propagation, while the male was smaller and adapted for sucking the

skin, the disease however not being extended by males only; their changing their place in quest of new sources of nourishment, and the consequent extension of inflammation in the skin of the animals they infested. He referred to the question of these scab-mites being capable of living a certain period when removed from their natural sphere on the skin of the sheep. He had instituted experiments to ascertain this point; and the result was that he had found the mites alive and vigorous 14 days after they had been removed from the backs of sheep. He exhibited specimens placed for microscopical investigation in castor-oil between a pair of glasses. He remarked that oil of every kind was exceedingly destructive to insect life. This effect was owing to the spiracles on the general surface of the body of insects becoming blocked up by such glutinous fluid. The acari, or mites, formed no exception to this peculiarity of structure; they lived, however, as he had found, no less than 10 days in castor-oil, between glasses hermetically sealed up by varnish, and during that period they were seen freely moving their limbs in the oil. He therefore thought it only fair to infer that they would have lived longer under other less fatal circumstances in the wool of the sheep; and that for at least a fortnight there would be great risk to any fresh healthy flock occupying the ground from which infected sheep had been removed. The disease of scab occasioned great loss in the condition of the sheep, and in the quality and amount of the wool. The hairy parts of the animal, however, appeared to suffer less than the decidedly woolly portions—as about the head, and below the knee, and on the hock. The remark of the late Mr. Youatt may be here added:—"The old and unhealthy sheep are first attacked, and the long-woolled sheep in preference to the short: a healthy short-woolled sheep will long bid defiance to the contagion, or possibly escape it altogether. The scab may be called into existence by the derangements which our neglect, or unavoidable accident, or disease, may have made in the skin of the sheep."—Prof. Simonds then proceeded to the consideration of the cure of scab. This he remarked was to be effected by the removal of the cause, namely, by the destruction, not only of the acari or living mites, but also by the destruction of their eggs, which were ready a few days after being deposited to turn out a fresh swarm of insects to extend the disease. Many of the remedies proposed would destroy the insects themselves, but not their eggs. In the process of sheep-dipping, agents most destructive to insect life were often used; but these frequently failed to eradicate the source of disease in consequence of the eggs being left uninjured and ready to hatch. The rubbing-in of unguents had often succeeded; the deleterious matter was absorbed and diffused, and was present to destroy the young mites as soon as they came out of their eggs. The ordinary mercurial ointment had often been recommended. By itself, however, it was too strong for the purpose. The late Mr. Youatt had recommended it to be mixed with three or four times its weight of lard. The following are his directions:—

"A safer and more effectual method than washes—destroying the insect and benefiting the wool—is the application of a mercurial ointment. It had long been in frequent use among the sheep-masters, as a cure for the scab, but had got into some disrepute from its having been made too strong, and applied in too large quantities, thus salivating some of the lambs and the pregnant ewes. The ointment should be made of two strengths. That for bad cases should consist of common mercurial, or trooper's ointment, rubbed down with three times its weight of lard. The other, for ordinary purposes, should contain five parts of lard to one of the mercurial ointment. The operator should begin with the head of the sheep, and rub a little of the ointment well into it. A shred or furrow should then be made from the head to the tail, and in such a manner that the skin is exposed. A little of the ointment should then be applied with the finger to the skin along the whole of the exposed surface. Another furrow should then be drawn on either side; and in this way over the whole sheep, the furrows not being more than four inches apart. When any of the scabs are easily moved they should be taken away; and, last of all, the whole of the ointment that has been thus applied to the furrows must be well and thoroughly rubbed in. The quantity of ointment applied to each sheep may vary from a few drachms to two ounces, one-third of the quantity being used for a lamb. The sheep that has been thus dressed may be considered at least as incapable of infecting any of the others; the itching will soon subside; the acari will either be destroyed by the mercury as soon as they appear on the skin, or it will penetrate to their deepest recesses and poison them there; or if, at the expiration of 10 days, there should continue to be much uneasiness or itching, another but a lighter dressing may take place. This ointment will have a kindly effect on the roots of the wool, encouraging their growth and that of the natural yolk, and forming a comfortable and most useful defence against the cold of the ensuing winter."

Professor Simonds remarked that arsenical applications were more potent, but they required great care. The best mode was that of sprinkling a solution of arsenic, again and again, over the diseased parts. The preferable form of such solution was that of arseniate of potash, blended with vegetable infusions, such as those of Foxglove, Stavesacre, Henbane, Dock-roots, &c. He recommended two ounces of common arsenic, and two ounces of carbonate of potash to be boiled together in a quart of water until they were dissolved, when a further quantity of water was to be added to make up a gallon of solution. To this gallon of solution, a gallon of vegetable infusion was to be added, made by pouring a gallon of boiling water over four ounces of Foxglove leaves, and allowing the infusion to remain till cold, when it was poured off. These two gallons of liquid constituted a safe agent and one of the most potent remedies for scab. Half a pint of it, at intervals of a few days, was to be sprinkled (from a bottle, through a quill in the cork) on the skin at the back and sides of the sheep. Two or three dressings would be found sufficient to cure the most inveterate cases of scab in sheep. Many of the advertised remedies consisted of preparations of mercury or arsenic with similar vegetable infusions.—Professor Simonds then proceeded to state that parasitical insects travelled to other animals; and although they did not produce the identical disease on them they peculiarly produced on the particular animal to which they naturally belonged, they had nevertheless the power of creating a great amount of local irritation of an annoying character on the skin. He cited as an instance of this kind the effects of insects infesting common domestic poultry on the horse. Poultry, it was known, swarmed with insects of various kinds, especially with lice and mites, and those creatures had a great tendency to travel from the poultry to other animals. Horses often appeared to have the mange, while their disease was no mange at all, but simply the inflammation occasioned by poultry ticks reaching them from the contiguity of the hen-roost to the stable; often from the roost being over the stable, in which case the dirt and insects from the birds fell through the flooring upon the horses. Inflammations of this kind were easily cured by means of oil impregnated with sulphur.—Prof. Simonds concluded his lecture by referring to the third class of parasitical insects, which passed only one period of their existence in the skin of animals, namely, the period of their larva or grub state, before they assumed their winged form as flies. He alluded to the "warbles" as a familiar instances of a result in such cases. These were small tumours, about the size of a Hazel-nut, on the skin of the farmer's best-doing stock, and contained each a large maggot, grub, or bot, the larvæ state of the gad or breese-fly. Particular species of this fly for each animal deposited their eggs not only on the backs of cattle, but in the nostrils of sheep, and on the hair and skin of horses, where they were hatched; being licked up by the horse and passing into the stomach and afterwards through the intestines as bots. The cattle gad-fly deposited on the skin of the animal its exceedingly minute egg, which being hatched by the heat passed beneath the scarf-skin and lay secure, feeding on the unctuous secretions of that integument. It afterwards burrowed into the skin, and insinuated itself below it. A small puncture, like that made by the prick of a pin, might be detected; the fly itself having no power to puncture the skin. In this situation the grub passed through the winter. In March diffused swellings were formed on the backs of the cattle, which gave pain on pressure, the burrowing of the insect having induced inflammation. The grub lay in its nidus, or nest, within the true skin till the approach of summer, when its white colour became dark, and it made its way out of its retreat. On the ground it soon assumed the chrysalis state, escaped from its shell as a gad-fly, laid its eggs, and died: the eggs again produced grubs, and the same transformations succeeded. It was the same with the bots of the horse. When they lost at maturity their power of attaching themselves to the stomach, they slipped their holdings, and passed out of the stomach through the intestines to the ground, where they assumed their chrysalis state and became flies.—The egg of the sheep gad-fly was deposited about the middle or latter part of summer. The sheep were seen herded together with their heads down, and violently stamping with their feet. The fly at length deposited its egg in their nostrils, and the hatched grub penetrated through the immediate cavities to the frontal sinuses, where a plate of bone prevented its getting to the brain. In the case of horned sheep it would get to the extremity of the horny cavity. In these situations the grubs found a natural secretion from the lining membranes, on which they subsisted. He remarked that various affections of the brain in sheep, such as vertigo, gig, giddy, turnsick, goggles, &c., commonly ascribed to the presence of these gad-fly grubs reaching that organ, had a totally different origin, namely, arising from the formation of little sacs or bladders containing hydatids. He exhibited to the members a skull of the sheep, and explained the mechanical impossibility of such penetration of gad-fly maggots through the nostrils into the cranium.—Prof. Simonds alluded to the dog-flea as being the particular cause of the mange in dogs. This insect, he remarked, was the fruitful source of diseased action and mange on the skin of the dog, where it generated and passed through all its gradations of existence. The Professor, in conclusion of this first portion of his lecture, explained by coloured drawings highly magnified the peculiar structure of the parasitical insects whose annoyances to the domestic stock of farmers he had described; and submitted to the inspection of the members, by means of his powerful microscope, the actual specimens from which those magnified drawings had been executed.

Sir John Johnstone, Bart., M.P., moved a vote of thanks to Prof. Simonds. The facts and reasonings he brought before the meeting were novel to the generality of farmers and highly interesting. They could not fail to be productive of much utility; and he hoped that some opportunity would be given during the present season for the concluding part of the lecture.—Mr. Mainwaring Paine, in seconding the motion, remarked that the information they had received was very useful.—Colonel Challoner, as chairman, put the motion to the meeting, which was carried unanimously. He had heard many scientific lectures, but never one before in which science was rendered so perfectly intelligible to farmers. He felt how much more he now knew of the cause of the parasitical complaints among animals. As a lover himself of dogs, and having taken great pains with a particular variety of breed of pointers, he had experienced the great advantages to be derived from careful cleanliness of their skin, and the application of a valuable old remedy he had constantly and successfully employed to keep up its healthy action. They were dressed with it regularly every spring, and having occasionally left a single dog out by way of testing the value of the remedy, he had found in that dog the greatest possible difference from the others. He had fully proved the effect, he now knew the reason. These fleas it appear never leave the dog, and can only be kept away in the first instance by a constantly recurring detergence. Such information as the Professor had given would be highly useful to masters of hounds. He himself offered Prof. Simonds his own personal thanks for his lecture.—On the motion of Mr. Fisher Hobbs the thanks of the meeting were voted to Colonel Challoner for his kindness in presiding on that occasion.

On the motion of Mr. Lawrence it was decided that it be recommended to the next Monthly Council that the concluding part of Prof. Simonds's lecture, "On Parasites Affecting Domesticated Animals," should be delivered before the members at 12 o'clock on Wednesday, the 25th of June next.

The Council then adjourned to their Weekly Meeting on Wednesday the 16th of April.

Calendar of Operations.

APRIL.

Forfarshire Glens, *March* 31.—With us the past has been a model winter, a general temperature low enough to enable vegetable life to enjoy its usual period of repose, but at no time has there been so much severity as to prove dangerous, or even disagreeable to the animal creation. An incipient vegetation which appeared about the end of February has been completely kept in check by the dry cold weather prevailing throughout March. The soil was never in better working state, clean, and rendered friable by the bare frosts of winter. Oat seeding commenced early in March, and is now generally concluded. The early varieties now under cultivation, combined with the hope of high prices continuing, have induced a number of Glen farmers to try their luck in both autumn and spring Wheat this season, some on farms where Wheat has not been grown for the last 40 years, and some under circumstances and at an altitude where Wheat was never in this district grown before. Under the double stimulus of high prices for produce and the high pressure of modern rents, arable land is extending in every direction, along the river's banks and up the mountain's side, changing the aspect of many a moss and many a moor; and with the aid of artificial manures applied with real knowledge, land so reclaimed affords a reasonable prospect of remuneration. Inquiries regarding the state of the Potato pits receive but one general answer, viz., "more than half rotten;" notwithstanding the Potatoes continue abundant and almost unsaleable, and a great part are likely ultimately to be disposed of as food for cattle; the crop of last season seems everywhere to have been both extensive and abundant. Turnips, between rotting from the effects of frost and injury from the raids of wild animals, now afford a greatly reduced amount of sound feeding per acre, and cattle are likely to be put on a still more stinted allowance ere their place is supplied by Grass. The rigid economy that has been exercised in the straw barn during the winter is still found necessary, and generally nothing that is available as fodder will be left over. As a consequence of the scarcity of rations cattle markets have been glutted with immature animals all winter, and a general complaint prevails of not paying, and so far that is true. The farmer who rears and feeds his own stock is paid and well paid, but the dealer who pays him rent for his Turnips and straw-yard and speculates on cattle feeding, will not be paid, but the blame is all his own in paying too much for his Turnips. A feeding ox consuming 1½ cwt. of Turnips per day will make about 1 lb. of beef during that period, giving the value of 1½ cwt. of Turnips to the feeder, as, at the utmost, 7*d.*; 1 ton of Turnips is therefore worth 7*s.* 9*d.*, and an acre producing 20 tons worth 7*l.* 15*s.*, which, taking beef at the extreme price, leaves him nothing at all to cover expenses and pay for trouble. The average price of Turnips let to dealers during the past season has been from 9*s.* to 12*s.* per ton, a price which does not afford the least probability of remuneration. Feeders of sheep are in the same fix, and from the same cause, viz., too expensive food. The high price realised by growers of Turnips, the loss incurred by the dealers, and the disappointment experienced in the Potato crop, are likely, combined, to remedy the evil of high-priced Turnips by next season should the crop prove an abundant one. The store flocks have got over the winter without any great hardships, and are now returning to the glens in good condition; when left at liberty they are soon found to have arranged themselves in the glens in order of seniority, the oldest wethers taking the highest ground, and the next oldest the next highest. In an extensive grazing where a complete stock is kept up, by midsummer they will be found in four divisions: highest up, the three-year-old wethers, which are sold off in the autumn; next in order the two-year-olds, below these the one-year-olds, and lowest of all the lambs, kept by themselves. Where the different ages meet they mix to some extent, but the distinction is very clearly kept up. In the extreme higher range three-year-olds alone will be found, and in the extreme of the lowest of the three voluntary divisions, one-year-olds alone will be found, and the centre of the middle zone will be occupied chiefly, if not exclusively, by two-year-olds. Besides this general arrangement, each of the larger divisions are found separated into smaller groups, each of which frequent the same locality, and unless disturbed seldom leave it during the season, and when driven off take the first opportunity of returning. Private friendships seem also to exist, two or three will often keep each other company for a whole season, and sometimes for a whole lifetime, and when accidentally separated show evident signs of distress until they are again united. Distinctions of rank are evidently kept up in the woolly community, and in some cases are very obvious; except during the tupping season, rams will keep company only with rams, and when any of the rams have been reduced to the condition of wethers, from inferiority as breeders, they still keep up a degree of dignity, and although expelled the society of rams, they scorn to mix among the common herd, and form a distinct class by themselves and uniformly keep company. During nursing time the ewes are kept upon a separate pasture, and when taken from the lambs and sent to the glen among the other sheep, they disperse themselves in parties throughout the whole. When new stock is purchased, as hoggs in spring, they require very careful herding for some months until they know their boundaries and have their habits formed. If that is carefully attended to they seldom in after life seek to leave the ground. Sheep purchased after their first year never settle upon a new uninclosed pasture; they always endeavour to get home again, are always inclining homewards, and will, if allowed, return from any possible distance. *S.*

Notices to Correspondents.

Agricultural Examination before the Society of Arts: *H G.* We do not know what the arrangements may be by which the examiners will be guided, but we presume that you will

need to join some provincial society in union with the Society of Arts, and to present yourself before the secretary of the Society of Arts previous to the day of examination, accredited as a member of the local society, when you will be informed of the nature of the proceedings. The days of examination will be announced as soon as known. How long you will need to remain in town we do not know. An examination by written paper will probably result in the selection of the few who will be examined orally, and a couple of days will probably be all that will be needed.

AMMONIACAL MANURE: *G S* says—"When we apply any manure containing much ammonia to our 'sour' land, it causes the sheep or cows fed on it to scour; can you inform me what element or salt produces this effect? It is only on 'sour' land that this effect is produced."—We have never heard this complaint before: if any one else has observed it perhaps he will be good enough to state his experience.

CHICKWEED: *Inquirer*. You may get a good deal of it up by harrowing.

INSECTS: *W S*. The insects you have sent from your Wheat field are the larvæ of a two-wing fly (Syrphus sp.) which feed upon Aphides, and which ought to be protected and not destroyed.

PIGS: *R V K*. In the absence of any information as to the state of the stomach and intestines, whether full or empty, or in a state of inflammation or otherwise, we are disposed to consider that the symptoms were due to some deleterious substance taken in or with the food. Inflammation of the stomach would produce most, if not all the symptoms. *W. C. S.*

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER: *G S*. They grant diplomas. The names of those obtaining them have been annually published in the *Agricultural Gazette*, and will appear yearly in the new "Farm Almanack."

SUPERPHOSPHATE: *Beta*. It is a good manure for Carrots, but they need some ammoniacal manure as well. We would apply 3 cwt. of guano and 3 cwt. of common salt broadcast over the land at once, and harrow it well down, and then drill 2 cwt. of superphosphate and 3 or 4 bushels of ashes with the seed per acre.

THE FAWSLEY SALE: *Correspondent*. We add a corrected reprint of our report last week, some of the purchasers in which we had been unable to name.

No.	Name.	Age.	Purchaser.	Price in Guineas
		Years		
1	Flourish	14½	Mr. Jonas Webb ...	32
2	Butterwort	9¼	„ Timm	41
3	Anemone	8½	„ Bult...	74
4	Meadowsweet ...	8	„ Blathwayte ...	71
5	London Pride... ...	7½	„ Stanhope, M.P. ...	54
6	Amaranth	7	„ Thorne, U.S. ...	120
7	Garland	6¾	„ Sanday	91
8	Kissinda	6½	„ Wythe	46
9	Sweetwater	6¼	„ Timm	50
10	Fleda	6¼	„ Sanders	155
11	Maiden's Blush* ...			
12	Cyrilla	5¾	Sir W. Lawson... ...	125
13	Mimosa	5½	Mr. Whitehead ...	50
14	Kishmee	5	Sir J. Crewe	95
15	Cold Cream	4½	H. R. H. Prince Albert	100
16	Aloyse	4½	Mr. Drewry, for Lord Burlington	96
17	Drapery	4	Mr. Stirling	100
18	Henna	4	„ Stone	35
19	Eugenie	3¼	„ Stanhope, M.P. ...	82
20	Blouzelind	3¼	„ Thorne, U. S. ...	80
21	Catchit...	3½	Sir W. Lawson ...	105
22	Wheedle	3¼	Mr. Sanders	61
23	Chrysalis	3	„ Torr	155
24	Chemisette	3	„ Stirling	105
25	Albreda	2¾	Col. Pennant	93
26	Alix	2¾	H. R. H. Prince Albert	100
27	Cambine	2¾	Lord Exeter	80
28	Claribell	2½	Mr. Grenfell	110
29	Erminstade	2½	„ Jonas Webb ...	54
30	Blanchefleur	2¼	Sir W. Lawson ...	77
31	Elgitha	2	Mr. Thorne, U. S. ...	100
32	Frontlet	2	„ Sanders	40
33	Gundreda	2	„ Eaton	53
34	Hamadryad	2	Earl Spencer	100
35	Lady's Slipper ...	1¾	Mr. Sanders	155
36	Mrs. Flather	1¾	„ Thorne, U.S. ...	150
37	Olga	1¾	„ Stacy	42
38	Flutter...	1¾	„ Trehonnais ...	36
39	Turfrida	1½	„ Leslie	76
40	Blondelle	1	Sir T. Monro	105
41	Wrinkle	1	Mr. Holmes	67
42	Fretwork	1	„ Simkins	50
43	Isolda	10 m.	„ Stirling	62
44	Florimell	10	„ Stacy	61
45	Tawdry	9	„ Holmes	50
46	Coquelicot	9	„ Langton, U. S. ...	90
47	Cithara	9	„ Packe	38
48	Erigone	7	Earl Spencer	37
	BULLS AND BULL CALVES.			
1	Earl of Dublin ...	7¾ yrs.	Sir J. Crewe	75
2	Duke of Cambridge .	3½	Rev. T. Cator	330
3	Wolfsbane	2	Mr. Beasley	125
4	Craigsman	1¾	Lord W. Pawlett ...	60
5	Blandamour	1¾	Mr. Marshall, U.S. ...	95
6	Purple Top	1¾	„ Holmes	80
7	Bosquet	1¾	„ Shepherd	200
8	Alba	1¾	„ Adkins	27
9	Effinell	1¾	„ Dixon	43
10	Humphrey	1½	„ Thompson	90
11	Blattergowl	1¼	„ Dodwell	43
12	Dagobert	1	„ Jackson	30
13	Florentin	1	„ Abbott	82
14	Belbec	11 m.	„ Selby	36
15	Gardante	11	„ Kirkham	85
16	Oldbuck	11	„ Tanqueray ...	115
17	Pope's Eye	10	„ Bult	45
18	Triamour	10	„ Holmes	85
19	Pricket	10	„ Gomme	30
20	Tristrem	10	„ Beasley	30
21	Shabbakuk	10	„ Brewin	76
22	Mosquito	10	„ Blathwayte ...	50
23	White Frost	8	„ Simkins	20
24	Amiens	8	„ Mann	32
25	Vandumper	7	„ Davis	55
26	Malbecco	4	Marquis of Tweedale...	41
27	Leonine	2	Mr. Dennis	35
28	Belesis...	1	„ Thomson	37
29	Feramorz	1	„ Page	36

THE SCOTTISH CHAMPION POTATO.—We have had a letter from Mr. Bennett, Perdiswell Hall, Worcestershire, in which he says in reference to many inquiries which have been addressed to him, and to which he is unable to give individual replies:—"I have nothing whatever to do with the sale of it, neither do I know the gentleman that is now sending it out. Last autumn his agent, Mr. Atkinson, informed me that Mr. Chillingworth would like to know my opinion of his Potato, he being aware that I had planted some 67 varieties side by side, and all on the same day, in order to ascertain if possible the earliest, and also the most productive. I forwarded him my opinion in writing, but I was not aware of his intention to publicly advertise it."

* Unwell—her calf, a fortnight old, sold for 41 guineas to Mr. Marjoribanks.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

AGENTS:—

Messrs. Henderson & Co., Pine-apple Place, London.
Messrs. Bass & Brown, Sudbury.
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester.
Messrs. Sutton & Sons, Reading.
Messrs. Rendle & Co., Plymouth.
Mr. J. Veitch, Exotic Nursery, Chelsea.
Messrs. Wheeler & Son, Gloucester.
Mr. E. Paul, Derby.
Mr. G. Wheeler, Nurseryman, Warminster.
Messrs. Masters & Son, Canterbury.
Messrs. Downie & Laird, South Frederick Street, Edinburgh.
Mr. W. Barratt, St. John's, Wakefield.
Messrs. Thomas Davies & Co., Wavertree, Liverpool.
Mr. E. Taylor, Malton, Yorkshire.
Messrs. Chandler & Son, Wandsworth Road, London.
Mr. Freeman, Woburn.
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield.
Mr. J. Perkins, Northampton.
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks.
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford.
Mr. C. Turner, Royal Nursery, Slough.
Mr. J. Whomes, Pelargonium Nursery, Windsor.
Messrs. Mitchinson & Co., Seed Merchants, Truro.
Mr. F. Brewer, Nurseryman, Birmingham.
Messrs. Wood & Ingram, Nurseries, Huntingdon.
Mr. Baskerville, Bristol.
Mr. Burham, Hastings.
Messrs. Leake & Smith, Bridgenorth.
Mr. G. Davison, St. Peter's Street, Hereford.
Mr. W. Garraway, Welwyn, Herts.
Mr. Thomas Cridland, Willington, near Taunton.
Mr. Henry Horne, Market Place, Henley-on-Thames.
Mr. R. M. Mills, Market Place, Bourn.
Mr. Husbands, Talbot Street, Nottingham.
Mr. Caparn, Seedsman, Newark.
Mr. John Cattell, Seedsman, Westerham.
Mr. Morgan, Nursery, Kidderminster.
Messrs. Ivery & Son, Nurseryman, Dorking and Reigate.
Messrs. Veitch & Son, Exeter.
Messrs. Hooper & Co., Covent Garden.
Mr. W. Bower, Moorgate House, East Retford.
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin.
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Mr. J. Scott, Merriott Nursery, Crewkerne.
Mr. H. Steel, Shefford, Beds.
Mr. A. Christie, Maidenhead.
Mr. A. Wood, Barbourne, Worcester.
Mr. J. F. Fraser, Nurseryman, Aylesbury.
Mr. E. R. Greenus, Nurseryman, Watford.
Mr. J. B. Austin, Chemist, Parson's Street, Banbury.

Pamphlets, with instructions for use, free by post on application to

PAGE & CO., Seed Merchants, Southampton.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,
ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Poney MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace, and Osborne. A. SHANKS & SON have much pleasure in submitting the following from the numerous unsolicited testimonials received by them in favour of their New Hand Machine:—

From Mary Wedlake & Co., London.
"Gentlemen,—We must inform you that your Hand Machines give extreme satisfaction; indeed, they are preferred to all others."

From R. K. Goode, Esq., of Heather Hall, Ashby-de-la-Zouch.
"Gentlemen,—The Machine does its work far better than can be done with the scythe, and at half the expense."

From James James, Esq., of Samiston, near Jedburgh.
"Gentlemen,—I am happy to say that I am much pleased and satisfied with the manner in which the Machine does its work. It is, I find, a very great saving of labour, and far surpasses the scythe in the manner that it leaves the Grass after mowing."

From Thos. Mitchell James, Esq., of Phantassie, Haddingtonshire.
"Mr. Thomas Mitchell James has received the Grass Cutting Machine from Messrs. Shanks & Son. It has given great satisfaction."

From D. Forbes Mitchell, Esq., of Thamiston, Aberdeenshire.
"Mr. Forbes Mitchell's compliments, &c. As far as he has been able to judge of the Mowing Machine, it answers perfectly, better than expected, and is likely to become a necessary implement wherever known."

From the National Garden Almanack for 1856.
"Twelve months' experience enables us to indorse all the Patentees set forth as to the capabilities of their improved Machine. Our Gardener delights in its use."

Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name nad address marked on the Machines.*

A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

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Mary Wedlake & Co., 118, Fenchurch Street, City.
Messrs. William Dray & Co., Swan Lane, London.
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„ F. & A. Dickson & Sons, 106, Eastgate Street, Chester; and 14, Corporation Street, Manchester.
Mr. G. Folkard, Hertford.
„ T. Johnson, Leicester.
Messrs. Danks & Nixon, Nottingham.
„ Mapplebeck & Lowe, Birmingham.
„ Wm. Drummond & Sons, Stirling; and 58, Dawson Street, Dublin.
„ Brown & Austin, Argyll Arcade, Glasgow.
„ James Dickson & Sons, 32, South Hanover Street, Edinburgh.
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NEAT AND DURABLE LABEL.—Send three Postage Stamps for a specimen label, painted and lettered in oil, to F. H., Post Office, Lydbury, North Salop.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND, 16*s.* per Ton, less quantities 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway.

PEAT and LOAM of various kinds. Sacks cost price (or hire 6*d.* each). Terms cash. J. KENNARD, Swan Place, Old Kent Road

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

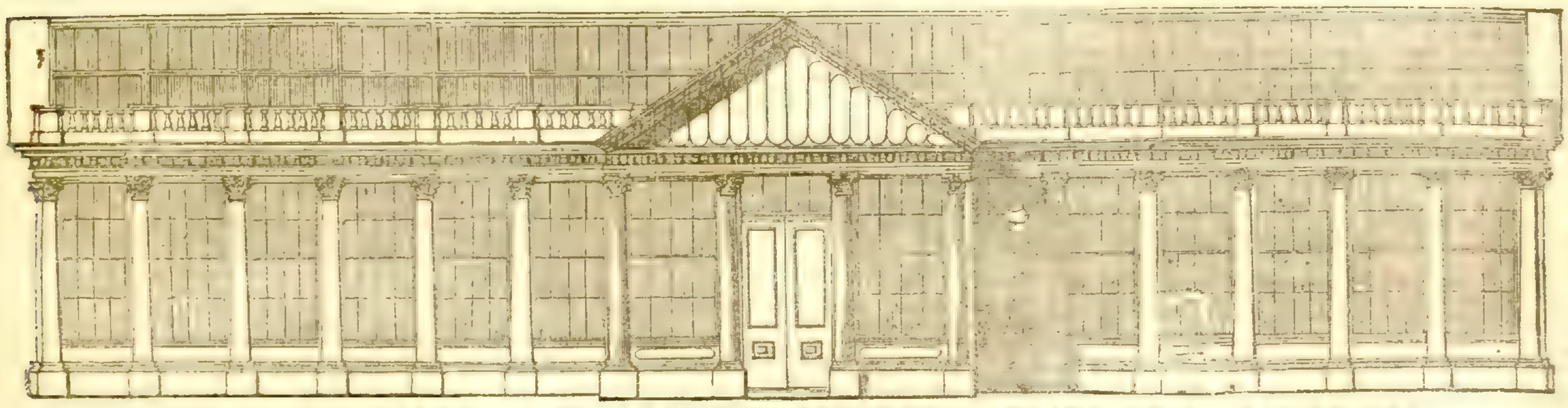
T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures.
Catalogues, containing prices and every particular, free by post.
Warehouse, 42, Ludgate Hill, London.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

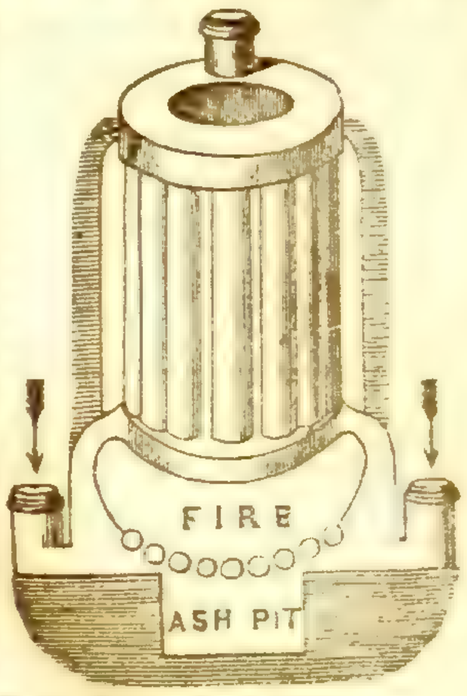
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

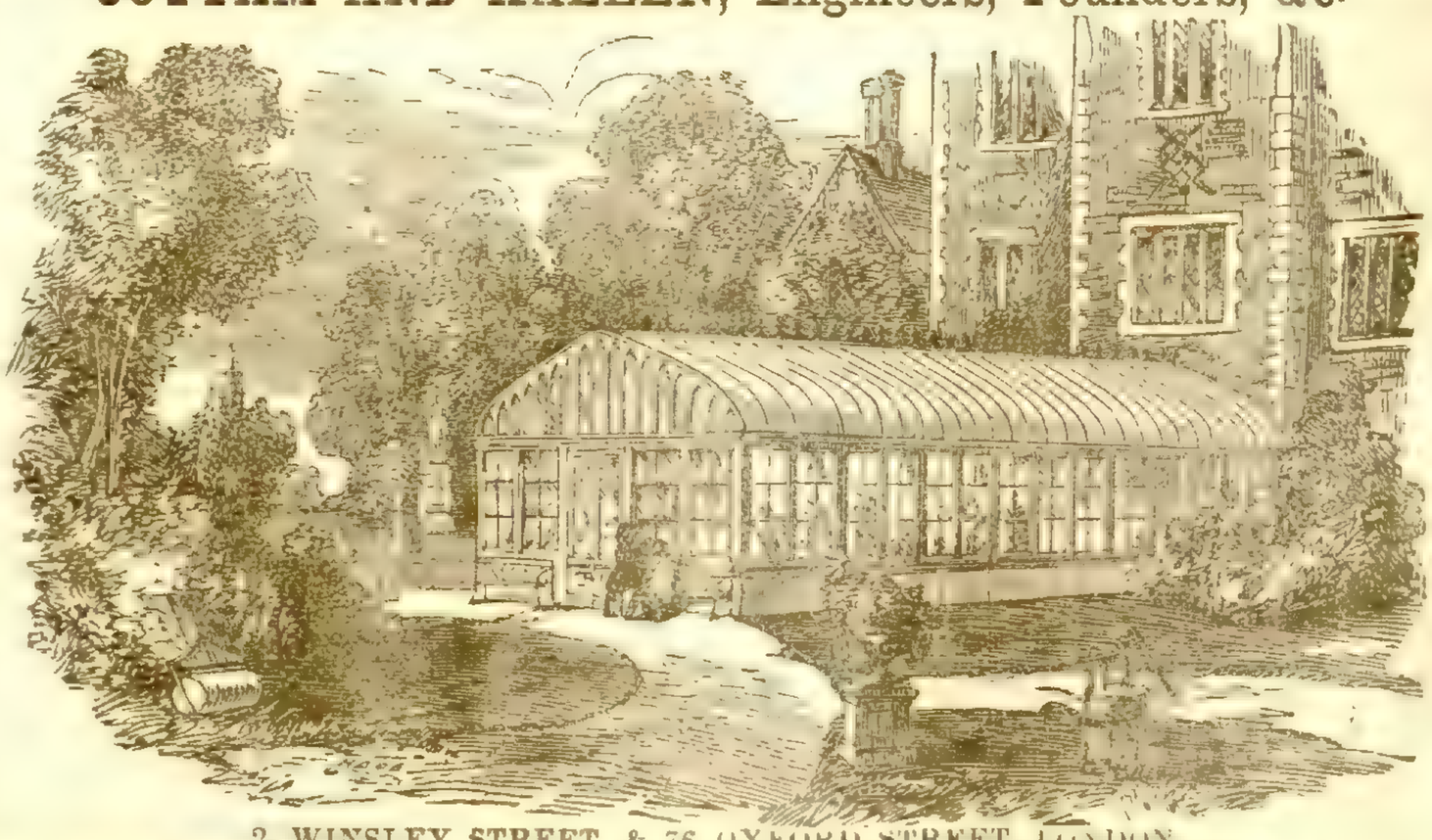
READ'S GARDEN ENGINES, SYRINGES, &c.

CAUTION.—The well-known reputation of READ'S ENGINES, MACHINES, and SYRINGES, has led to the nefarious practice of placing cards in shop windows, with the words "READ'S PATENT" upon Syringes of the VERY COMMONEST DESCRIPTION. R. READ begs to caution the public against being deceived by such false representations, as many of these Instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal Arms, and Address, 35, REGENT CIRCUS, LONDON.

☞ *Descriptions sent post free.*

COTTAM AND HALLEN, Engineers, Founders, &c.



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A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.

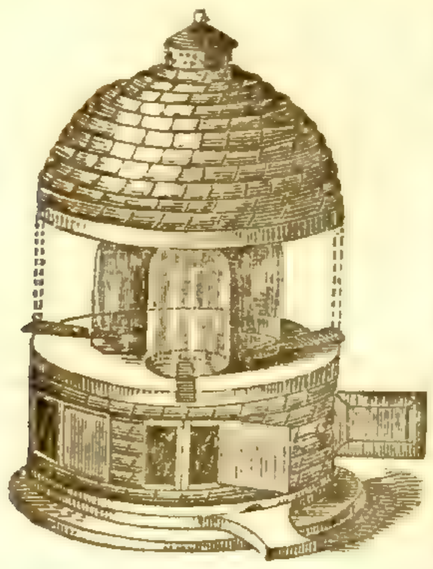
Circulars free by post.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanatorium, 46, Leicester Square.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.



This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit, by the most timid: its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, HALL & WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; Dublin, J. EDMONDSON & Co., 61, Dame Street.

WARNERS' SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

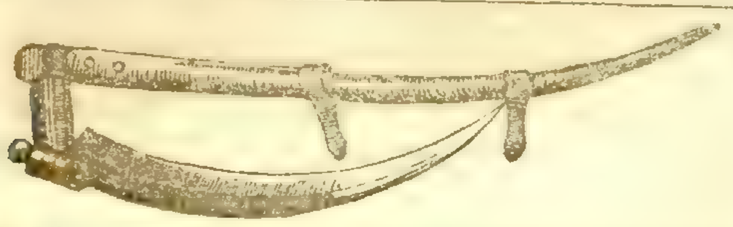
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c

TO BE SOLD FOR 7*l.*, HUSSEY'S REAPING MACHINE, by R. GARRETT & SON.—Apply to THOS. MOORE, Nursery and Seedsman, Kingsbridge, Devon.



BOYD'S PATENT SELF-ADJUSTING SCYTHE.—Sole Makers, WILLIAM DRAY & Co., Swan Lane, London. May be had of all respectable Ironmongers and Seedsmen.

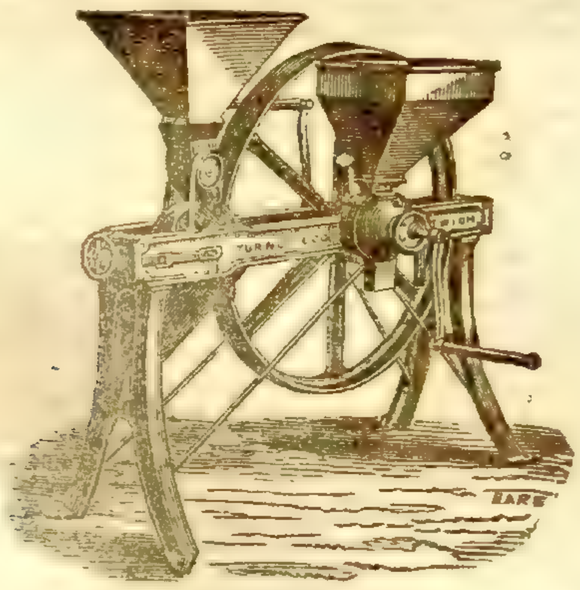
SCYTHES.—Order BOYD'S Patent Vulcan Scythe; it is the cheapest and best. It is sold ready for immediate use, avoiding loss of time and Blacksmith's fees. Price only 4*s.* 6*d.*, or with handle complete, 6*s.* 6*d.* Prospectus on application.

W. DRAY & Co., Manufacturers, Swan Lane, London; and of all Ironmongers and Seedsmen in the Kingdom.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

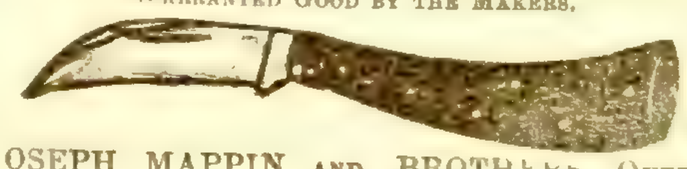
IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

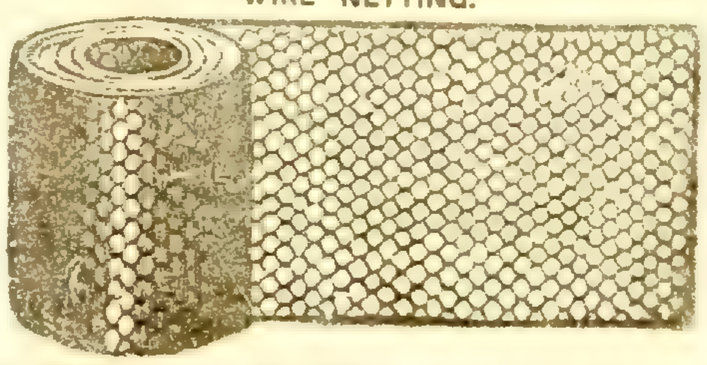
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground 5 bars ... ... 5*s.* 3*d.* each.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

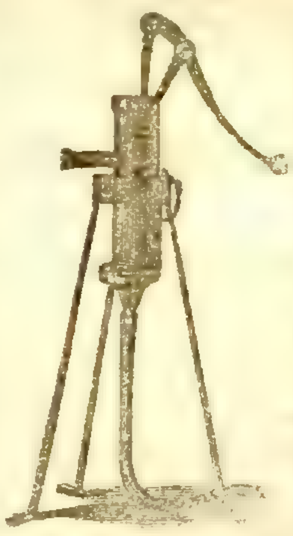
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ " long	3 " 3 "		1	14	0
3 " ditto	3 " 6 "		2	8	0
3½ " ditto	3 " 6 "		2	12	0
4 " ditto	3 " 6 "		3	3	0
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

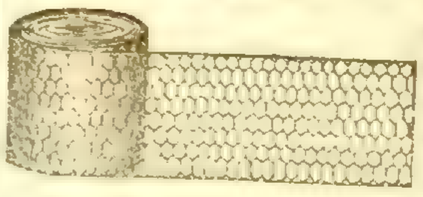
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any with, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

WANTED TO RENT, at Michaelmas next, a good FARM, from 200 to 300 Acres, with suitable Homestead.—Address ALPHA, Post Office, Augmering, Arundel, Sussex.

TO GARDENERS AND MARKET GROWERS.

TO BE LET, a small NURSERY OR FLORIST BUSINESS of four Greenhouses, Pits, &c., with a good stock of plants fit for Covent Garden. Coming in about 225*l.*—Apply by letter at the *Gardeners' Chronicle* Office.

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on (entry at Martinmas, 1856). The FARM OF MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr, and one from Maybole, where there is a railway station. It extends to 298 acres, one rood, eight poles, imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oilcake Crushers, Millstones for grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, manager at Myremill, will show the Farm; and offers will be received by MR. BROWN, Royal Bank Office, Maybole.

GOLDEN SPANGLED HAMBURGHS.

EGGS at 10*s.* per set (of 13), all from Prize Birds, in parts, from Mrs. Coleridge's celebrated stock, Eton College, Windsor.—Address, Mr. JNO. COMPTON, Portchester, Fareham, Hants.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12*s.* per doz; box, 1*s.* extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15*s.* per dozen, including case.—Address, Holme, Stilton, Hunts.

SILVER PENCILLED HAMBURGH EGGS.

MR. EDWARD ARCHER, Malvern, will supply EGGS from the birds stated below at 15*s.* a set of 13, packing box included:—The run contains a Cock and seven choice Pullets. The Cock is two years old, and has taken 1st prize at Birmingham, 1854; the Liverpool Cup, 1855; several first and second prizes since, and 1st at Liverpool, 1856. Four of the Pullets have been exhibited alternately, and have taken the following prizes:—2d at Anerley; 1st at Bridgnorth; 1st at Bedford; 1st at Taunton; 3d at Birmingham; and the Silver Cup at Liverpool, 1856. The three sister Pullets have not been exhibited. Post Office Order must accompany the order for Eggs. The birds may be viewed at any time.—Malvern, April 12.

TO BE SOLD, by Private Treaty, by order of the Executors of the late John Bewley, Esq, an extensive Collection of STOVE AND GREENHOUSE PLANTS. The Stove Plants consist of about 200 to 250 pots, amongst which are fine Plants of Strelitzias, Bletias, Musa Cavendishi, Zamia horrida, Chivia nobilis, Francesceas, Gardinias, &c. And about 180 pots of Ferns, amongst which are fine well-grown specimens of Adiantum reniforme, varium, and macrophyllum; Asplenium nidus, Cassibera palmata, Gymnogramma Mertensii, chrysophylla; Hemionitis cordata, Polystichum capense, &c.—Apply to Messrs. JOHN BEWLEY & SON, 16, Brunswick Buildings, Liverpool.

ORCHIDS.

TO BE SOLD, by Private Contract, a small Collection of the above beautiful Plants, the property of a gentleman declining their cultivation on account of ill health. Many of the specimens are very fine, and among them will be found:—Vandas suavis (Veitch's true), tricolor, cærulea; Phalænopsis amabilis (very fine), grandiflora: Saccolabium guttatum, Blumei majus, &c.: Ærides quinquevulnera, vivens, roseum, &c.; Calanthe vestita (Veitch's fine dark-eyed), Burlingtonia fragrans, Cattleyas Aclandiæ, crispa, purpurascens (true), superba, labiata, Ianthina, &c.: Cœlogyne cristata, &c.; Dendrobium clavatum, Falconeri, Farmeri, Dalhousianum, formosum, &c; Lælia purpurata (true), Barkeriana, &c.; Odontoglossum auro-purpureum, Phalænopsis, &c.: Miltonia moreelli, spectabilis, virginalis, &c.; Scuticaria, Hadweni, Sophronitis grandiflora, Oncidium, &c.—For further particulars, terms, &c., apply to Mr. FRANCIS FORD, Nurseryman, Southampton, Hants; or to Mr. HENRY CLARKE, Seedsman, 39, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, April 17, at 12 o'Clock, a first-rate Collection of Carnations, Picotees, and Pinks; also Standard and Dwarf Roses; an assortment of American Plants, Azalea indica, and other Plants in bloom: Fuchsias, Verbenas, Dahlias in dry roots, &c.—May be viewed the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. J. WILLMER will Sell by Auction at the Mart, Bartholomew Lane, City, on WEDNESDAY, April 16, at 12 o'Clock, a choice Collection of Picotees, Carnations, Yellow Picotees, Pinks, Roses, Dahlias, Auriculas, Heartsease, Hollyhocks, Pæonies, &c. On view the morning of Sale.—Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, Seedsmen to Eleven of the principal Agri-Horticultural Societies of the British and Continental Empires, invite the attention of the Floricultural Word to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, the *Twenty-first Annual Issue*, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application to James Carter & Co., Seedsmen, 238, High Holborn, London.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s*. per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s*. 6*d*. per packet assorted colours.

Dulwich, Surrey.

RHODODENDRONS, AZALEAS, ETC.

GEORGE WHEELER, Nurseryman, Warminster, Wilts, begs to offer, at very moderate prices:—

RHODODENDRONS from good hardy kinds, transplanted suitable for beds, cover, or plantations, 9 inches to 2 feet and upwards.

RHODODENDRONS, good named sorts of fine hardy varieties, including fragrans and Govenianum, both of which are sweet; Nobleanum and scarlet in variety, 2 to 3 feet and upwards.

AZALEAS, hardy in great variety, well set with bloom buds, 2 feet high and upwards.

A good Stock of Rhododendron Ponticum, white, 2 feet and upwards; Andromeda, Vaccinium, Ledum, American Cranberry Gaultheria Menziesia, Hardy Heath, &c.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above to be sent out on and after the 20th of April. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

MR. T. LINDEN, of Brussels, respectfully informs the lovers of new Exotic Plants and the Trade that he has made an arrangement with Messrs. E. J. Henderson & Son, Nurserymen, Wellington Road, St. John's Wood, London, abandoning to them his right of selling in England his LOCHERIA MAGNIFICA, TYDÆA AMABILIS, CUPHEA EMINENS, and GONOCALYX PULCHER, and that in consequence he could not accept any orders on these four Plants for Great Britain; but at the same time he begs to offer his other new introductions, and among them the most remarkable

CALYPTRARIA HÆMANTHA	24*s*. to 40*s*.
MARANTA PARDINA	40*s*.
" METALLICA	24*s*.
CHÆTOGASTRA LINDENIANA	12*s*.

&c. &c. &c.,

all of which are now ready to be sent out.

His new Catalogue for 1856 may be had on application to Messrs. Betham & Blackith, Cox and Hammond's Quays, Lower Thames Street, London.

The usual allowance to the Trade when three Plants are ordered.

WHEAT FOR LATE AND SPRING SOWING.

—Samples with prices of Talavera, April, and other kinds of Seed Wheat will be sent free on application to

Mr. H. Raynbird, Basingstoke.

FLOWER SEEDS RARE AND BEAUTIFUL.

WILLIAM DENYER, Seedsman and Florist, offers the whole of the following, including postage, for 26*s*., or each kind at the prices quoted.

TRUFFAUT'S NEW FRENCH DOUBLE ASTERS, OR REINE MARGUERITE.

	s.	*d*.
This collection of Double Asters is the most perfect at present in cultivation. They are really splendid. An assortment of 12 of the finest varieties	3	0
Aquilegia, 6 distinct and beautiful colours	2	0
These are quite hardy, and when planted out will last and flower for several years.		
Convolvulus major, 6 splendid bright colours	1	6

NEW LARGE FLOWERING DWARF TEN WEEKS STOCK.

The flowers of this variety are very large and double, brilliant colours, quite distinct, 8 vars.	2	0
Stock, Emperor or Perpetual, 6 vars., splendid	2	0
These are quite new, and different to any other stock, being very double and of large growth, lasting and flowering for several years.		
Wallflowers, splendid Double Gigantic, 6 varieties, bright and singular colours	2	0
These are from a Continental grower, who has gained many first-class prizes.		
Alonsoa Warscewiczi	1	0
New and splendid annual of graceful habit, producing long spikes of bright scarlet flowers, suitable for pots or the ground.		
Calceolaria, Tigred and spotted	2	6
Saved by an amateur from the finest collection in this country. Only a limited number of packets.		
Cosmidium Buridgeanum	1	0
A beautiful new annual; the colour of the flower-heads are deep rich purple, with a narrow border of bright orange, and very handsome foliage. One of the most elegant annuals ever introduced.		
Escholtzia tenuifolia	1	0
Lovely dwarf annual, well adapted for edging, clear straw colour, compact habit, dwarf and neater than the old varieties; very showy and attractive.		
Gutierezia gymnospermoides	1	0
A new free flowering annual, blooms all through the summer and autumn.		
Gypsophila Muralis	1	0
New dwarf and very pretty annual, with small shining foliage covered with bright pink flowers, suitable for edging of beds, rockwork, or growing in masses, keeps in bloom from June to November.		
Ipomœa limbata, quite new	1	0
Bright purple with white margin, large flower, a lovely Climber, blooms freely in the open ground. This is strongly recommended.		
Linum grandiflorum rubrum verum, Perennial Flax ...	1	0
Large, bright scarlet, one of the most beautiful Perennials grown.		
Morna elegans	1	0
New and beautiful Everlasting.		
Sabbatia campestris	1	0
A splendid annual, of graceful habit and glossy foliage, bright rosy pink with yellow centre, blooms profusely.		
Salvia Rœmeriana	1	0
A new and splendid variety, bright scarlet, 6 inches high, suitable for clumps.		
Tropæolum minus coccineum	1	0
A dwarf and beautiful bright scarlet variety, suitable for either pots or the open ground, blooms profusely through the whole season.		
Viola striata, quite new	1	6
Or Striped Pansey, saved from the most beautiful striped varieties.		
Whitlavia grandiflora, new	1	0
A beautiful new annual, produces in abundance large dark violet bell-shaped flowers, suitable for pots or growing in masses.		

82, Gracechurch Street, near the Spread Eagle, London.

NEW PLANTS.

MESSRS E. G. HENDERSON AND SON beg to give notice that they have just completed arrangements with the noted traveller and botanist, M. T. Linden, of the Royal Zoological Gardens, Brussels, for the distribution throughout Great Britain and Ireland of the following; and they take this opportunity of expressing their pleasure in being enabled to offer such superior and beautiful Plants, which they are sure will give satisfaction to every one, they being so totally distinct from all other varieties at present known in their different classes.

ACHIMENES (Locheria) MAGNIFICA.
" (Tydea) AMABILIS.
CUPHEA EMINENS.
GONOCALYX PULCHER.

Coloured Plates of the above, and one of Banks's FUCHSIA EMPEROR NAPOLEON and VENUS DE MEDICI may be had on application at 6*d*. each, or if by post at 8*d*. each, except when three or more are taken, when the postage will not be charged.

Henderson's favourite VERBENA for 1856 is without exception one of the finest, and will doubtless become one of the most noted bedding Verbenas in every garden throughout England. They do not profess to say it will surpass all others in form; but for its other good qualities it is unapproached by any. The trusses of flowers are exceedingly large and of a rich dark scarlet. The habit is robust and free, and does not require to be pegged down to fill up empty spaces, as is too often the case: but if left to itself it is unequalled for its uniformity of growth. The whole plant is alike covered with flowers on stout short footstalks, so that it resists the rain perfectly, the side shoots below each flower are always well set with buds ready to fill up the places as the first flowers pass away: the foliage is handsome and plentiful, a feature that is often over-looked in this plant, as a Verbena with small diminutive leaves never looks well, nor on the other hand is it pleasing to see large thin foliage, as is the case of Verbena Mrs. Woodruffe, especially when the habit, like that variety, is loose and straggling. To be sent out after the 1st of May at 2*s*. 6*d*. each, 24*s*. per dozen, and 120*s*. per 100.

Henderson's favourite PETUNIA for 1856 will be ready for distribution in May. This excellent variety, they are confident, will supersede every Petunia hitherto grown, either for bedding purposes or pot culture. Its superior qualities cannot be better described than in the words of the able and intelligent Gardener, Mr. John Smith, of Peel Hall, Lancashire, from whom they received it:—"I now send you the stock of Petunia No. 1. The flowers are moderate sized, with a fine bold outline; colour a rich bright scarlet, with clear white eye. It is a profuse bloomer, and makes a most effective bed: indeed, it was the most conspicuous bedding plant in the whole of our Flower Garden, which was filled with the showiest and most dazzling kinds of flowering plants." In consequence of the plant being a second year's seedling, the opportunity of proving its value as a bedding plant has been tried, and far exceeded our expectations.

In the course of May next, Plants will be ready at 3s. 6d. each.

THE NEW SPRING CATALOGUE

Will be ready for distribution the latter end of this month, and those parties not customers of Messrs. E. G. Henderson & Son, but desirous of obtaining this Catalogue, either for reference or otherwise, can have a copy forwarded free on application. It will contain description and colours of 500 Stove Plants, 700 Greenhouse, and 1000 other Plants of miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c. In addition to this information it will contain short and select lists of the best Plants adapted for the various purposes connected with the Stove, Greenhouse, and Garden.

With this Catalogue will be published a Coloured Plate representing a group of Eight New Plants.

Collections of the following New Plants will be sent out in May. For description, price, &c., see New Spring Catalogue.

BANKS'S NEW FUCHSIAS.
" VERBENAS.
LENNOX'S VARIEGATED GERANIUMS.
HENDERSON'S BEDDING CALCEOLARIAS.
SMITH'S NEW GLOXINIA.
ELPHINSTONE'S AND HENDERSON'S NEW BEDDING GERANIUMS.
HENDERSON'S NEW POTENTILLA AND DELPHINIUM.
DR. VAN SIEBOLD'S NEW PLANTS.

FLOWER AND GARDEN SEEDS.

A Catalogue of the above, containing all the novelties of the season (with a full-sized Engraving of the new Chinese Potato DIOSCOREA BATATAS), is now ready, and can be had gratis on application.—Wellington Nursery, St. John's Wood.

SEEDS FOR THE FARM.

WILLIAM E. RENDLE AND CO., Seed Merchants, Plymouth, Devonshire, can supply the following Agricultural Seeds, all neat and genuine, and of the best possible description.

For full descriptions, see "Rendle's *Agricultural Price Current and Farm Directory.*"

Swede Turnip of sorts,	10*d*. per lb.,	1*s*. 4*d*. per qt., 5*s*. per gall.
Scotch Turnips ditto,	10*d*. per lb.,	1*s*. 4*d*. per qt., 5*s*. "
Common Turnips ...	8*d*. per lb.,	1*s*. per qt., 4*s*. "
Tankard Turnips	8*d*. per lb.,	1*s*. per qt., 4*s*. "
White Belgian Carrot ...	9*d*. per lb.	
Long Red Mangel Wurzel,	6*d*. per lb.	
Yellow Globe do.	6*d*. per lb.	
Italian Rye-Grass, 9*s*. per bushel.		
Scotch Perennial do.	7*s*., 8*s*., to 9*s*. per bushel.	
Devon Evergreen do.	6*s*. to 7*s*. per bushel.	

Free Delivery.—All kinds of Seed are delivered carriage free to all Steam Ports and Railway stations in the United Kingdom.—See the "Price Current."

William E. Rendle & Co., Seed Merchants, Plymouth.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10*s*. 6*d*. each, with the usual allowance to the trade, and one over when three are ordered.—Huntingdon Nurseries, April 12.

TO THE TRADE.

GEORGE ROBERTS begs to make known that he can supply the following SEEDS at favourable prices. Pharbitis limbata, Ipomea Horsfalli, I. rubro-cærulea, I. bona nox, I. quamoclit, I. purpurea, I. variegata, Convolvulus polyanthus, Aristolochia odoratissima, Brunsfelsia americana, Cæsalpinia sepiaria, Canna Warczewiczi, C. indica, C. lutea, Canavalia altissima, Centauridium Drummondi, Clitoria Plumieri, C. ternatea, Combretum comosum, Duranta Ellisia, Mimosa asperata, M. pudica, Passiflora quadrangularis, Quisqualis indica, Tecoma stans, Thunbergia alata, T. alba, T. aurantiaca, T. Fryeri. Also a large number of fine large Bulbs lately received of Hippeastrum equestris, and Zephyranthes carinata.—32, Moorgate Street, London.

15,000 DWARF ROSES IN POTS NOW READY FOR SENDING OUT.

WM. WOOD AND SON beg to solicit the early attention of Planters to their enormous and splendid Stock of ROSES IN POTS; the Plants are strong and healthy, are well adapted either for planting out in masses or for growing, or in pots for exhibition or greenhouse decoration. The above consist principally of the leading Hybrid Perpetual Roses, with some Bourbons, Noisettes, and Chinas, and will be supplied from 12*s*. to 18*s*. per dozen.

The selection of sorts being left to W. W. & S., Plants presented for distant carriage. Reference required from unknown correspondents. Catalogues forwarded free on application.—N.B. The months of April and May are very eligible for planting out Roses from pots.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE BEDDING PLANTS.

WILLIAM F. SMITH has to offer fine healthy Plants of the following choice GERANIUMS and VERBENAS:—Geranium Beauty of Chipstead, brilliant scarlet, of the habit of Cerise Unique; very beautiful. Strong Plants in large 60-size pots, 18*s*. per dozen.—Geranium Lady Holmesdale, improved (Smith's), splendid deep pink with white centre, truss well formed, and as large as an Hydrangea; warranted one of the best for pot culture, 9*s*. per dozen.—Geranium Flower of the Day, in small 60-size pots, 4*s*. per dozen. Ditto, in large 60-size pots, 6*s*. per dozen. Ditto, large in 48-size pots, 12*s*. per dozen. Geranium, Scarlet varieties, 4*s* per dozen.

VERBENA—Mrs. Woodroffe, 4*s*. per dozen. Ditto Mrs. Holford, 5*s*. per dozen.

A remittance or reference must accompany all orders from unknown correspondents. Carriage free to London.

Riverhead Nurseries, Sevenoaks, Kent.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply the following set of 20 extra fine varieties for 15*s*., hamper, package, &c., included. To purchasers having duplicates, other kinds of equal merit will be supplied.

Argo, Paton & Small's	Marchioness of Bath, Wheeler's
Boadicea, Fellowes's	Miss Talbot, Dickson & Co.'s
Charles Turner, Hale's	Constance, Turner's
Chillington, Sadler's	National, Turner's
Emperor, Hale's	Pandora, Hunts
Father Gavazzi, Holland's	Round Table, Downie & Laird's
Fearless, Schofield's	Satisfaction, Turner's
Lady Carrington, Hunt's	Sir J. Paxton, Betteredge's
Lord Jeffrey, Lightbody's	Sir J. Cathcart, Turner's
Memnon, Turner's	Yellow Climax, Paton & Small's

Fine Show varieties, 4*s*. and 6*s*. per dozen. Very select Pansy Seed, 1*s*. and 2*s*. per packet. Catalogues now ready. Post-office orders payable at Middleton, Lancashire.

EPPS' SEEDLING FUCHSIA "WONDERFUL."

MR. EPPS begs to assure the Public that the above is without exception the most extraordinary and attractive Fuchsia yet offered. Tube and sepals bright waxy scarlet: sepals very broad and of great substance, which beautifully reflex, displaying an immense dark violet velvet corolla, measuring in many flowers 1½ inch in diameter. This Fuchsia will prove to be the greatest *wonder* yet produced in this class of flowers. Drawings were made late in the autumn by that celebrated floral artist, Mr. Andrews, which may be seen at most of the principal Nurseries and Florists in the United Kingdom. Early orders solicited, as there are already a great number bespoke. Strong Plants early in Spring, 10*s*. 6*d*. The usual discount to the trade where three are taken.

Bower Nurseries, Maidstone.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, April 12, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1856.] SATURDAY, APRIL 19. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will be held on TUESDAY, April 22. The Chair will be taken at 3 P.M.

ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT in the Gardens of the Society this season will take place on WEDNESDAY, May 28th, June 18th, and July 9th, and of AMERICAN PLANTS, on SATURDAY, June 14th.

Tickets of admission are now being issued, and can be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, before May 17th, 4*s*.; after that day, 5*s*. each.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—The Second Exhibition will be held on THURSDAY, 24th inst., when Prizes will be awarded to AURICULAS, POLYANTHUSES, and CINERARIAS, each four distinct varieties. Everything intended for exhibition must be at 21, Regent Street, before 12 o'clock. Seedlings as usual.

John Edwards.

METROPOLITAN EXHIBITION OF HOLLYHOCKS. &c, 1856.—Mr. John Edwards has the pleasure to announce that he has been requested to intimate to growers of the HOLLYHOCK that the usual GRAND METROPOLITAN EXHIBITION will be held about the end of August or early in September, and that SILVER CUPS and other IMPORTANT PRIZES will be liberally offered for Competition. Full particulars will be announced.—21, Regent Street.

ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

KENILWORTH CASTLE.—The Third Annual Exhibition of FLOWERS, FRUITS, and VEGETABLES will be held among the Ruins of Kenilworth Castle on WEDNESDAY, July 2. Prizes to the amount of One Hundred Pounds are offered for general competition. Schedules and every particulars may be had on application to J. Cheyne, Sec.
Priory Gardens, Warwick, April 19.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

MR. DAVIDSON, who is extensively engaged in LANDSCAPE GARDENING and GARDEN ARCHITECTURE, respectfully offers his services to Noblemen, Gentlemen, and the Public, in Designing and Directing New Works and Improvements in Parks, Gardens, Cemeteries, &c.
Offices, 36, Great Russell Street, Bedford Square, London.

SUTTON'S RENOVATING GRASS SEEDS *for improving Parks, Meadows, and Upland Pastures.* Quantity required per acre 6 to 12 lbs, price 9*d*. per lb.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

SUTTON'S IMPROVED ITALIAN RYE-GRASS, and DICKENSON'S IMPROVED ITALIAN RYE-GRASS, may still be obtained of Sutton & Sons, Reading.—Prices according to quantity required.

FRESH IMPORTED ITALIAN RYE-GRASS may be obtained genuine of Sutton & Sons, Reading.—Price (according to quantity required) will be given on application.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s*. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s*. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. and H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—April 19.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—April 19.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BA[illegible] [illegible]nce his DESCRIPTIVE CA[illegible] [illegible]AN PLANTS, ORNAMENTAL SHR[illegible] [illegible]OREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

FIRST-CLASS SHOW PANSIES, in strong well-rooted autumn struck Plants, at 6*s*. per dozen.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

FIRST-CLASS DAHLIAS for 1856, strong plants, 6*s*. per dozen.
Spring Catalognes now ready; may be had upon application.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

FLUKE KIDNEY POTATO (True).—To clear out for the season, in large or small quantities, 2*s*. per bushel of 56 lbs. Sacks 9*d*. per cwt.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

WANTED IMMEDIATELY IN LIVERPOOL MARKET.

PINES, not under 2 lbs.	CUCUMBERS
SMALL MUSHROOMS	FRENCH BEANS
NEW POTATOES	LARGE ASPARAGUS

Forward to George Taylor, Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.
Terms—Cash.

IMPORTANT TO NURSERYMEN.

WANTED IMMEDIATELY, the under-mentioned PLANTS:—Irish Ivy, strong young plants; Variegated Ivy, strong plants; Honeysuckle, strong growing sorts; Clematis Virginiana; Wistaria sinensis. The above all in pots.—Address, stating price per 100, to John Wightman, Gardener to Sir R. Peel, Bart., Drayton Manor, Tamworth.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

HOLLYHOCKS.
Hedenham Rosary, Bungay, Suffolk.

BIRCHAM and WARD beg to state that they have a very large stock of healthy plants of all the leading kinds of Hollyhocks. Catalogues will be forwarded on application. Wholesale orders executed on liberal terms.
Hedenham Rosary, April 19.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety To be had in sealed packets at 1*s*. The Trade supplied.
T. F. Winstanley, Seed Merchant, Manchester.

T. F. WINSTANLEY, Seed Merchant, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2*s*. 6*d*. to 40*s*.

NEW AND BEAUTIFUL PHLOXES.

YOUELL and CO. are sending out a very choice Collection of the above in 60 of the most beautiful and distinct varieties, selected with great care from upwards of 200 kinds in their possession.—Price 9*s*. per dozen, including that fine New Phlox COUNTESS OF HOME.
Royal Nursery, Great Yarmouth, Norfolk.

NEW BRITISH FERN.

Asplenium Refractum (Moore). For Description and Plate see March Part of "Nature Printing."

R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10*s*. 6*d*. each.
Paradise Nursery, Hornsey Road, Holloway.

GERMAN AND OTHER FLOWER SEEDS.

R. PARKER begs to invite attention to his choice collections of GERMAN and other FLOWER SEEDS, which are recommended with the greatest confidence. To ensure their giving satisfaction, they are supplied in sealed packets, as imported. A descriptive and priced Catalogue of Flower and Vegetable Seeds is published, and will be forwarded post free on application.
Paradise Nursery, Hornsey Road, Holloway.

EARLY CORNISH BROCCOLI.

MITCHINSON'S PENZANCE, or EARLY WHITE CORNISH BROCCOLI, celebrated and invaluable for its earliness. (See Testimonials).

Gardeners, Seedsmen, and others who applied too late for Seeds of this superior and rare Broccoli, are informed that they may be supplied with Plants from the Seed beds in May next, at 2*s*. 6*d*. per 100 (Carriage or Postage included), by sending their orders during the present month to Hurst & M'Mullen, Leadenhall Street, London; or to Mitchinson & Co., Truro, Cornwall.

GOLDEN CHAIN GERANIUMS, 100 dozen fine healthy autumn-struck plants, at a moderate price. Orion Melon, 1*s*. 6*d*.; Ipswich Standard Cucumber, 2*s*. 6*d*.; Gloxinia, 1*s*.; Dahlia, 1*s*.; Cineraria, 1*s*.; Calceolaria, 1*s*.; Polyanthus, 1*s*.
N.B. A very small quantity of the above remain unsold.
Latter's Primula, Hollyhock, and Pansy, and Suffolk Hero Potatoes are sold out.—Order without delay of
Thomas Wild, Ipswich.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, Seedsmen to Eleven of the principal Agri-Horticultural Societies of the British and Continental Empires, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, the *Twenty-first Annual Issue*, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application to James Carter & Co., Seedsmen, 238, High Holborn, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

KALMIAS, ANDROMEDAS, AND AZALEAS.

WILLIAM F. SMITH has for sale several hundreds of fine healthy plants of Kalmia latifolia, 1 to 3 feet; Andromeda floribunda, 1 to 3 feet; Azaleas, in 30 varieties, 2 to 4 feet. All fine blooming plants, warranted to remove well. Price may be had on application.
Riverhead Nursery, Sevenoaks, Kent.

ORANGE TREES.

J. and C. LEE have just received a consignment of young ORANGE TREES in the finest possible condition, in bloom and in fruit.—Nursery, Hammmersmith.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

THOMAS WELLAND offers for Sale TRUE DRUMHEAD for Cattle. Packed and delivered at Godalming Station, 3*s* 9*d*. per 1000.—Surrey Gardens, Godalming, Surrey.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, April, and other kinds of Seed Wheat will be sent free on application to
Mr. H. Raynbird, Basingstoke.

ORANGE GLOBE MANGEL.—A Grower has for disposal a few cwts. of the above, all raised with great care from first-rate stocks, the bulbs being of great size, and possessing the true orange colour. Price 32*s*. per cwt., or 6*d*. per lb. Carriage paid to London. Stock warranted genuine and select.
Apply to Mr. W. Taylor, Nashenden Farm, Rochester.

CRUSHED OATS.—The best weighed, 40 lbs. to the bushel, delivered to any part of London, or to any railway station.—Apply to Horsnaill & Catchpool, Caledonian Road, Islington. Cash or good reference required.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck) carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s*. 4*d*.; fine Households, recommended for Bread-making, 11*s*. 8*d*.; Seconds, 11*s*.; Wheat-meal, for Brown Bread, 11*s*. 0*d*.; best coarse and fine Scotch Oatmeal.—Address Horsnaill & Catchpool, Halford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

CHOICE PLANTS.

MITCHELL AND Co., having a large stock of the following plants, most respectfully inform their numerous patrons that they will be prepared to send them good strong plants on and after the 20th inst.

NEW FUCHSIAS, consisting of Story's New White Corollas; all other first-rate varieties, 10*s.* 6*d.* per dozen, basket included.

VERBENAS.—A first-rate collection, none but the best of 1855, 6*s.* per dozen, or four dozen for 20*s.* basket included.

CALCEOLARIAS, Henderson's and Turner's new varieties of 1855, 12*s.* per dozen, hamper free; older varieties, 4*s.* per dozen, or 6 for 21*s.*, basket free.

DAHLIAS of 1855 & 54.—Our own selection of the following first-rate varieties:—Lord Bath, Pre-Eminent, Ruby Queen, Baron Alderson, The Nigger, Emperor, Napoleon, Omer Pacha, John Keyne's Rachel Rawlings, Primrose Perfection, Topsy, Uncle Tom, Miss Pope, &c., 12*s.* per doz., package free; older well-known varieties, 6*s.* per doz., or 4 dozen for 20*s.*, basket included.

LOBELIA SPECIOSA, the best blue dwarf bedding variety, 6*s.* per dozen.

PETUNIA IMPERIALIS, Double White, first-rate for bedding, 6*s.* per dozen.

PETUNIAS.—A Choice Collection, 4*s.* per dozen.

Pinks, our collection consists of all the best show varieties, 4*s.* and 6*s.* per dozen.—Carnations, first-rate varieties by name, 12*s.* per dozen pairs.—Picotees, 12*s.* ditto.—Tree Carnations, our collection stands unrivalled; our own selection, good strong plants, 12*s.* per doz., trade price per 100 upon application.—Phloxes, first-rate sorts, 6*s.* per dozen.—Phlox Drummondi Radetzky.

Post Office Orders are respectfully requested from unknown correspondents payable to JOHN FAIRBROTHER. All orders over 20*s.* are delivered free in London, or to any station on the London and South-Coast Railway.

Bristol Nurseries, Kemp Town, Brighton.

CHARLES TURNER is now ready to send out the following NEW PLANTS:—

NEW VERBENAS.

	s.	*d.*
Loveliness (Edmonds), bright rosy pink, large truss, dwarf close habit, and an abundant bloomer. This is by far the best of the rose-coloured varieties, *and most valuable for bedding*	5	0
Blue Bonnet (Edmonds), light blue, large truss and good habit; colour bright and lasting, *and first-rate for bedding purposes*	5	0
Pre-Eminent (Edmonds), bright ruby red, large white eye, fine truss, and good form; extra fine	5	0
Crimson Perfection (Edmonds), ruby crimson, white centre, good truss, *and a fine variety for bedding*	5	0
King of Sardinia (Edmonds), a greatly improved "Rouge et Noir," deep crimson with dark centre, *and an excellent variety for bedding*	5	0
Standard Bearer (Edmonds), better than "Violacea," deep blue, with large white centre, good form, extra fine	5	0
Victory (Edmonds), rosy purple, large white eye, very large smooth pip of excellent form, large truss, extra fine	5	0
Duke of Cambridge (Edmonds), an improved Tyrian Prince, larger, with clear white eye, fine habit and a free grower	5	0
Dr. Maclean (Edmonds) rosy purple, with large white centre, large and fine.	5	0

The Set for 2*l* 2*s*.

NEW SHRUBBY CALCEOLARIAS.

Pallida (Cole), pale canary yellow ... Each	7	6
Lemonade (Cole), lemon	7	6
Goldfinder (Cole), deep yellow	7	6
Orange Perfection (Cole), bright pale orange	7	6
Orange Boven (Cole), bright orange brown, dwarf habit	7	6
Pilot (Cole), crimson brown, dense bloomer	7	6
King of Sardinia (Cole), deep crimson, of Sultan habit, but dwarfer, good shape	7	6
Albina (Cole), orange with brown spots	7	6
Hawk (Cole), deep orange with dark brown spots	7	6
Harlequin (Cole), dull or., densely spotted with dark brown	7	6

The Set, 3*l*.

N.B.—The above were selected from the batch of very fine seedling shrubby Calceolarias exhibited by Mr. Cole, of St. Alban's, at the Royal Botanic Society's Exhibition in June last, as well as at the National Floricultural Society's meetings, and which were so much admired. They are all of first-rate habit, and are alike valuable for bedding, or for pot culture. They are particularly recommended for culture in pots, as they are admirably adapted for Conservatory decoration.

NEW VARIEGATED GERANIUM.

Alma (Turner), a very great improvement on Flower of the Day, better foliage, with whiter margin, and producing freely good trusses of brilliant scarlet flowers. The best of this class, and is strongly recommended ... 10 6

SCARLET AND HORSE-SHOE GERANIUMS.

General Simpson (Speed), brilliant orange scarlet, with large white eye, fine shape, large truss, and a dense bloomer; an excellent bedding variety	5	0
Lady Downes (Turner), rosy carmine, good shape, and large truss, an abundant bloomer, of dwarf habit, and a capital variety for bedding, quite distinct	5	0
Rosy Morn (Turner), deep cerise, with horse-shoe foliage, good form and truss, fine	5	0
Spitfire (Turner), brilliant scarlet, fine form, and deeply marked horse-shoe foliage, very dwarf and distinct	5	0
Symmetry (Turner), salmon rose, fine form, and large truss	5	0
Princess Royal (Ingram), a great improvement on, and much brighter in colour than Ingram's Princess Alice, being of a bright rose colour, with clear white centre, very dwarf habit, and a most abundant bloomer. The best of the rose or pink coloured varieties. First rate for bedding	5	0

NEW ANTIRRHINUM.

Conqueror, rich yellow, with crimson flakes like a Carnation, large flower, good shape, and producing a very large well filled spike. A very attractive and fine variety ... 5 0

NEW PETUNIAS.

Majestic (Turner), violet crimson, edged with deep rosy blush and veined with purple; large and smooth, excellent form and substance, very fine	5	0
Major Domo (Turner), rosy blush, with rosy crimson centre, dark throat, large, of good substance, and very fine	5	0
Picturata (Turner), rich purple edged with white, good form, medium size	3	6
Purpurea Alba (Turner), purple veined with crimson and edged with white, distinct and fine	3	6

*** These four varieties are highly recommended, and are all free bloomers, of good habit.

Imperial (New white double) True.—This very beautiful variety is as double as an Oleander, and fragrant; it is a free grower, and will no doubt be useful as a bedding plant. A considerable reduction if a dozen are taken. Each 2 6

NEW CONTINENTAL PETUNIAS.

Leon Lequay	5*s.* 6*d.*	Marquise de St. Innocent	5*s.* 0*d.*
Madame Eugenie Lemichez	5 0	Monsieur Loyre	5 0
Docteur Andry	5 0	Prothe	5 0
		Wilhelm Pfitzer	5 0

These are all beautifully striped vars., and are great novelties.

CHARLES TURNER can also supply plants of—

Scarlet Geranium General Pelissier (Kinghorn's)	10*s.* 6*d.*
Variegated Geranium Annie (Kinghorn's)	10 6
" " Countess of Warwick (Kinghorn's)	10 6
Geranium Crimson King (Wood & Ingram's)	10 6
Delphinium Cardinale (Veitch's new scarlet variety)	10 6

A New Descriptive Catalogue of Plants is now ready and can be had post free on application.

Royal Nursery, Slough.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.

	Per Post prepaid.	Per packet.—*s.*	*d.*
PANSY, saved from	100 of the best varieties, by name	2	6
POLYANTHUS "	50 " "	2	6
VERBENA "	50 " "	2	6
HOLLYHOCK "	60 of the most superb kinds "	2	6
CALCEOLARIA "	24 " spotted varieties	2	6
GLOXINIA "	30 of the best varieties	2	6
FUCHSIA "	all the new varieties of last year	2	6
DAISY "	50 of the new Belgian vars., by name	1	0
ANTIRRHINUM "	20 best named varieties	1	6
ANEMONE, from the most showy and brilliant kinds		1	0
30 packets of New Choice Flower Seeds, per post, free for		5	0

YOUELL & Co., Royal Nursery, Great Yarmouth.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have much pleasure in offering fine healthy plants of the following new ROSES in pots.

HYBRID PERPETUAL.

	Each—*s.*	*d.*		Each—*s.*	*d.*
Arthur de Sansalles	5	0	Marquis de Murat	5	0
Docteur Dénon	5	0	Mathurin Regnier	5	0
Duc D'Elchingen	5	0	Pauline Lansezeur	5	0
General Pelissier	5	0	Pœonia	5	0
General Simpson	5	0	Souvenir de la Reine d'Angleterre	7	6
Josephine Ledechaux	5	0	Triomphe d'Avranches	5	0
Madame Désiré Giraud	3	6	Triomphe de l'Exposition	7	6
Madame Knorr	3	6			

BOURBON.

Impératrice Eugénie	7	6	Marquis de Balbiano	7	6

One plant each of the above for 4*l.* 5*s.*

HYBRID PERPETUAL—OLDER VARIETIES.

Amandine	1	6	Lord Raglan	5	0
Auguste Mie	1	6	Louise Odier	2	0
Baronne Hallez	1	6	Louise Peronny	2	0
Caroline de Sansalles	1	6	Madame de Cambacères	3	6
Comte de Nanteuil	2	0	" Lacour Jurie	3	6
Duchess of Norfolk	2	6	" Phelip	2	6
Duchess d'Orleans	2	0	" Theodore Martell	3	6
Emperor Napoleon	5	0	Mrs. Rivers	2	0
General Bréa	2	0	Monsieur Pigeron	3	0
" Castellane	2	6	President Menoux	3	6
" Jacqueminot	2	6	Prince Chipetouzikoff	2	0
Gervais Rouillard	1	6	Prince Léon	2	6
Gloire de France	2	0	Salvator Rosa	1	6
Jules Margottin	1	6	Souvenir de Leveson Gower	2	0
Julie Guinoisseau	3	6	Triomphe de Paris	2	0
Lafontaine	3	6	William Griffiths	2	0
Le Lion des Combats	1	6			

N.B.—Plants presented for distant carriage. The usual discount allowed to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Alphonse Karr	5*s.* 0*d.*	Ornement des Jardins	10*s.* 6*d.*
Arthur de Sansal	7 6	Pauline Lansezeur	5 0
Docteur Hénon	7 6	Prince Noir	5 0
Duc d'Elchingen	5 0	Souvenir de la Reine d'Angleterre	10 6
General Pelissier	5 0	Triomphe de l'Exposition	10 6
General Simpson	5 0	Triomphe d'Avranches	7 6
Joseph Ledechaux	5 0	Bourbon, Empress Eugénie	7 6
Louise Magnan	7 6		
Madame Knorr	5 0		
Marquise de Murat	5 0		
Mathurin Regnier	5 0		

PERPETUAL MOSS.

Alfred de Dalmas	5*s.* 0*d.*	Madame de Villars	5*s.* 0*d.*
Gloire d'Orient	5 0		

12 of my own selection from above for 60*s.*, or 21 sorts for 5*l.*

The following at the prices attached, or purchaser's selection 40*s.* per dozen; my own choice 30*s.* per dozen.

MOSS.

Baron de Wassenaer	3*s.* 6*d.*	Comtesse Doriat	3*s.* 6*d.*
Capitaine Ingraam	3 0	Frédéric Soulié	3 6

PERPETUAL MOSS.

Madame Edouard Ory	5*s.* 0*d.*	Salet	3*s.* 6*d*

HYBRID PERPETUAL.

Baron Larray	3*s.* 0*d.*	Madame Lacour Jurie	3*s.* 6*d.*
Belle Lyonnaise	3 6	Madame Masson	5 0
Comtesse de Turenne	3 6	Madame Place	3 6
Comtesse Valliant	3 6	Madame Theodore Martel	3 6
Deuil de F. Willermos	3 6	Madame Vidot	3 6
Emperor Napoleon	5 0	Marguérite Lecureux	3 6
Evêque de Meaux	3 6	Maxime	3 6
Gloire de Vitry	3 6	Monsieur Pigeron	3 0
Julie Guinoisseau	3 6	Mrs. Standish	3 0
Lafontaine	3 6	President Menoux	3 6
Madame de Cambacéres	3 6	Raphaël	3 0
Madame de Trotter	3 0		

BOURBON.

Frilet	3*s.* 6*d.*	Marguérite Dubourg	3*s.* 6*d.*
Isabelle II.	3 6	Omer Pacha	3 6

NOISETTE.

Augusta	5*s.* 0*d.*	Lucullus	3*s.* 0*d.*
Polonie Bourdin	3 6		

CHINA.

TEA.

Auguste Vacher	3*s.* 0*d.*	Louise de Savoie	3*s.* 6*d.*
Blanche de Solleville	3 0	Madame Maurin	3 0

The following at 20*s.* per dozen:—

MOSS.

D'Arcet	2*s.* 0*d.*	Marie de Blois	2*s.* 0*d.*
Gloire des Mousseuses	2 6	Madame Alboni	2 0
L'Eblouissante	2 0	Princess Alice	2 0
Jeanne de Montfort	2 0	Vaudael	2 0

HYBRID PERPETUAL.

Alfred Colomb	2*s.* 0*d.*	Jules Margottin	1*s.* 6*d.*
Alphonse de Lamartine	2 0	Madame F. Rigaux	2 0
Auguste Guinoisseau	2 0	Madame Lacroix	2 0
Baron Heecheren	2 0	Madame Recamier	2 0
Baronne de Kerment	2 0	Marie de Bourges	2 6
Caroline Milsom	2 0	Panachée d'Orleans	2 6
Cérès	2 0	Paul Dupuy	2 0
Cicero	2 0	Prince de la Moskwa	2 6
Colonel de Rougemont	2 0	Prince Léon	2 6
Conseiller Jordeuil	2 0	Sir John Franklin	2 0
Dr. Jamain	2 0	Souvenir des Braves	2 6
Duchess of Norfolk	2 6	Souvenir de Leveson Gower	2 0
General Jacqueminot	2 6	Triomphe de Paris	2 0
Gloire de France	2 0		
Gloire de Parthenay	2 0		

BOURBON.

François Herincq	2*s.* 6*d.*	Prince Albert	2*s.* 0*d.*
Madame Fontaine	2 0	Reine Hortense	2 0

NOISETTE.

Isis	2*s.* 0*d.*	Marie Chargé	2*s.* 6*d.*

TEA.

Ajax	2*s.* 0*d.*	Gloire de Dijon	2*s.* 6*d.*
Cerise pourpre	2 0	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12*s.* to 15*s.* per dozen.

Carriage paid to any station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.

	s.	*d.*
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.

" Fine mixed border ditto, 6*s.* per dozen pairs.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

JOHN AND CHARLES LEE beg to offer fine healthy well grown plants of the following, which they can recommend as desirable additions to every collection:—

STOVE PLANTS.

	s.	*d.*
SONERILA MARGARITACEA, a lovely neat dwarf plant, with pure white spots on the leaves	7	6
BEGONIA SEMPERFLORENS SANDERSI, very showy	3	6
" ZANTHINA MARMOREA } finely marked		
" " GANDAVENSIS } foliage, each	5	0
RONDELETIA ANOMALA, quite new and very beautiful, like a Bouvardia; flowers richest vermillion with yellow eye	10	6
RHEXIA GLANDULOSA, new; fine large blue flowers, like Pleroma elegans	10	6
CENTRADENIA SKINNERI, a new and beautiful white variety, with good foliage	10	6
THYRSACANTHUS RUTILANS, very elegant, producing numerous pendant spikes of bright red flowers	3	6
MEDINELLA MAGNIFICA, strong seedlings, in large 60 pots	7	6
NERIANDRA SUBERECTA, fine yellow, flowers in a small state	7	6
IPOMŒA HORSFALLI, the most splendid of its class	5	0
APHELANDRA LEOPOLDI, regular white stripes on the leaves; flowers bright yellow, beautiful	5	0
" PORTEANA, leaves irregularly blotched white, flowers deep orange, splendid		0
CROTON VARIEGATUM (*true*), the best broad-leaved variety	5	0
HIBISCUS ALBA PLENA, new	3	6
HABROTHAMNUS HUGELII, new	3	6
CANNA WARSCEWICZI, very showy	5	0
GESNERIA DONKELAARI, a noble hybrid	10	6
SCUTELLARIA VILLOSA, a fine scarlet	3	6
CROTON DISCOLOR, under side of leaves deep crimson	10	6
IXORA ALBA (*true*), fine large trusses and very free	7	6

GREENHOUSE PLANTS.

ACROPHYLLUM VENOSUM, beautiful long spikes of cream-coloured flowers, strong plants		10	6
BORONIA DRUMMONDI, elegant foliage and bright pink flowers; keeps well through winter	3*s.* 6*d.* to	5	0
" SERRULATA, neat specimens	2*s.* 6*d.* to	5	0
BEJARIA ŒSTUANS		7	6
FABIANA VIOLACEA		2	6
CHAMÆROPS PALMETTO, a fine hardy Palm from North America		10	6
PIMELEA LORAINEANA, new and fine		5	0
" GNIDIA, good		3	6
STATICE HALFORDI, the finest of its class		3	6
HYDRANGEA JAPONICA VARIEGATA, highly ornamental	1*s.* 6*d.* to	2	6
" FLORE PLENO, new and distinct		3	6
GREVILLEA ROSEA, very free, produces a perfect mass of deep rose-coloured flowers	3*s.* 6*d.* to	5	0
VACCINIUM CARACASSINUM, new		5	0
NERIUM SPLENDENS GIGANTEUM, a large and splendid variety		5	0
CAMPANULA PRIMULÆFOLIA, very neat foliage		3	6
AZALEA INDICA LEEANA, pure white, of good substance and perfect form. First-class Certificate at Gore House	10*s.* 6*d.* to	42	0
" ADMIRATION, white ground with crimson flakes, fine form and very free; superb		10	6
" CRITERION, variegated salmon white and crimson, fine form and very free; superb		10	6
BERBERIS NEUBERTI, a fine new hybrid; hardy		5	0
" JAMESONI, very scarce; hardy		3	6

PAMPAS GRASS.

* One of the most ornamental plants recently introduced, producing large tussacks or tufts of elegant drooping leaves, 6 or 8 feet long, and numerous flower stalks 8 or 9 feet high, surmounted by large silvery plumes ... 2 6

VARIEGATED LEAF GERANIUMS.

THE FLOWER OF THE DAY, a universal favourite, and too well known to require description, per dozen		9	0
THE MOUNTAIN OF LIGHT, ditto, per dozen		18	0
ATTRACTION, like the Flower of the Day; but with the additional attraction of a scarlet horse-shoe, per dozen		42	0
SILVER KING, silver-edged leaves and deep scarlet flowers, per dozen		18	0
MRS. LENNOX, a giant variety of the Mountain of Light, per dozen		42	0
SILVER QUEEN, good variegated foliage, each		3	6
BRILLIANT, irregular variegation, deep scarlet flowers, dwarf, very free and good, per dozen		24	0
GOLDEN CHAIN, fine foliage, slow growth, narrow crimson flowers; good for edging, per dozen	18*s.* to	24	0
ODORATA VARIEGATA, variegated Prince of Orange, very good; strong plants, per dozen		21	0
LADY PLYMOUTH, good variegation, useful for edgings, per dozen		12	0

CONIFEROUS PLANTS.

THUJA GIGANTEA, a noble hardy tree of great beauty; introduced 1855. Strong plants	10*s.* 6*d.* to	21	0
THUJA DONIANA, the most elegant of the tribe	5*s.* to	10	6
THUJOPSIS BOREALIS, very graceful and quite hardy	7*s.* 6*d.* to	10	6
BIOTA GLAUCA, a very neat glaucous Arborvitæ		7	6
PINUS JEFFREYI, new and very distinct, one year seedlings		7	6
" BEARDSLEYI, new, one year seedlings		7	6
" TUBERCULATA, very ornamental, 1 year seedlings		3	6
" SABINIANA, strong plants " "		7	6
" BENTHAMIANA, a distinct and fine species, three years seedlings		21	0
" PONDEROSA, scarce, two years seedlings		10	6
" ABCHASICA, new and scarce, two years seedlings		7	6
PODOCARPUS CHILINA, distinct ... 10*s.* 6*d.* } said to be			
" NUBIGENA " ... 10*s.* 6*d.* } hardy.			
LIBOCEDRUS CHILIENSIS, from seed	3*s.* 6*d.* to	10	6
JUNIPERUS SINENSIS LEEANUS, a great acquisition for terraces, and forming a noble upright column about 1 foot in diameter		7	6

NURSERY AND SEED ESTABLISHMENT,

Hammersmith.

FIRST-RATE DAHLIAS FOR 1856.

J. KEYNES' ANNUAL CATALOGUE (Illustrated, see TURNER'S *Florist*) contains the best selected List of the above, and will be sent on desire. Plants will be ready as usual the first week in May.

P.S. The party who printed the above Catalogues never having printed any before, wishes to explain the nature of the Illustrations. He states, the man looking over the gate is seeking after all the first-rate flowers that were offered in 1855, wondering they are not in J. KEYNES's Catalogue. The Nondescript at the end is a new Dablia Poker (about to be patented), by which a skilful dresser is enabled to make a second class flower look equal to a first. The windmill is a puff, and so are many advertisements, and he wishes the public not to believe even all there may be stated in the Catalogue. The Typographical error (the omission of a comma), he trusts will not put a full stop to the sale of the flowers. Castle Street, Salisbury, April 19.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his extensive Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from 1 to 6 ft.

W. S. invites any one wanting considerable quantities of Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

Priced Lists will be sent on application.

MESSRS. J. AND H. BROWN offer the following CHOICE PLANTS, which they will forward to any part.

		s.	d.
25	Azaleas, new hardy Belgian varieties, one of a sort, by name, on their own roots	20	0
25	Azaleas, American varieties, do. do.	16	0
	Hardy Heaths, Ledums, and Kalmias, per dozen	6	0
25	Hardy American Plants, one of a sort, by name	10	6
12	Rhododendrons, including scarlet, white, and rose	12	0
	Fine hardy scarlet Rhododendrons, 1 to 2 feet, per dozen	15	0
	New yellow Rhododendrons, in pots, each ... 3s. 6d. to	5	6
	Cedar of Lebanon, 2 to 3 feet, well grown, per doz., 12s. to	18	0
	Cedrus Deodara, and other choice Coniferæ (see List).		
6	Fine hardy Magnolias, one of a sort	10	6
50	Dwarf Roses, two of a sort, on own roots	15	0
	Wistaria sinensis, strong plants, each	3	6
	White and yellow Jasmine and Honeysuckle for edging, per dozen	6	0
	Clematis azurea, per dozen	12	0
	Fine Climbing Roses, per dozen	6	0
	Greenhouse Azaleas, best new vars., per dozen .. 12s. to	18	0
	Camellias, fine sorts, well set with buds, per dozen	30	0
50	Choice Greenhouse Plants, one of a sort	45	0
12	Orchidea Plants, one of a sort, fine species	40	0
24	Choice Ericas, one of a sort	16	0
	Fine Pampas Grass, each	3	6
6	new sorts Mimulus, very fine early flowering	6	0
	Calceolarias and Cinerarias, blooming plants, per dozen	12	0
	Fine New Double White, Pink and Blush Pæonies, p. doz.	8	0
12	Phlox, new French and Belgian Perennial varieties	12	0
25	Hardy Herbaceous Plants, by name	10	6
	Carnations, Yellow Picotees, and Pinks, per dozen	10	0

FRUIT TREES.

Apricots, Peaches, Nectarines, Pears, Plums, and Cherries.		
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin shelled, and red skinned, per dozen	4	0
Strong Vines from eyes, and layers in pots, per dozen...	18	0
Peaches, Nectarines, Apricots, Plums, and Cherries, grown for pot culture, per dozen	18	0

Choice Flower Seeds, 18 papers, 5s.; 40 do., 10s., free by post.

New General Catalogue of Plants for 1856 free by post.

Albion Nursery, Stoke Newington, London, April 19.

MR. T. LINDEN, of Brussels, respectfully informs the lovers of new Exotic Plants and the Trade that he has made an arrangement with Messrs. E. G. HENDERSON & SON, Nurserymen, Wellington Road, St. John's Wood, London, abandoning to them his right of selling in England his LOCHERIA MAGNIFICA, TYDÆA AMABILIS, CUPHEA EMINENS, and GONOCALYX PULCHER, and that in consequence he could not accept any orders on these four Plants for Great Britain; but at the same time he begs to offer his other new introductions, and among them the most remarkable

CALYPTRARIA HÆMANTHA	24s. to 40s.
MARANTA PARDINA	40s.
" METALLICA	24s.
CHÆTOGASTRA LINDENIANA	12s.

&c. &c. &c.,

all of which are now ready to be sent out.

His new Catalogue for 1856 may be had on application to Messrs. BETHAM & BLACKITH, Cox and Hammond's Quays, Lower Thames Street, London.

The usual allowance to the Trade when three Plants are ordered.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA, and within the last week they have supplied some RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3 0
Collection No. 2. in reduced proportions	2 0
Collection No. 3. do.	1 5
Collections for small Gardens ... 10s. 6d. and	0 15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2s. 6d.
" " in larger packets, mixed 2s.

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s.	d.
100 vars. select showy Annuals, including newest	15	0
50 vars., 8s 6d.; 30 vars., 5s. 6d; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy biennials and perennials, including new, 7s. 6d.; 12 vars.	5	0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	3s.	0d.
30 superb vars. dwarf German Stock, 5s.; 15 vars.		
Choice mixed do. packets, 6d. and 1s.; new pale sulphur	1	0
Fine dwarf carmine, 6d.; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6d.; new white dwf. Wall-leaved, 6d. &	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton	3	6
Fine scarlet do., 6d. and 1s.; mixed fine, 6d. and	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5s.; 12 vars.	3	0
12 superb vars. Globe flowering do.	2	6
16 superb vars. Pyramidal, do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
8 superb vars. Pæony-flowered French do. (Truffaut's)	4	0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p. 46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli. Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20s.) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.—Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

SPLENDID NEW SCARLET DELPHINIUM DELPHINIUM CARDINALE.

MESSRS. VEITCH AND SON, of the EXOTIC NURSERIES, Chelsea and Exeter, have much pleasure in announcing that they are now prepared to execute orders for DELPHINIUM CARDINALE, a new and rare introduction of remarkable beauty, possessing a colour hitherto unknown in the genus to which it belongs. It was figured in the "Botanical Magazine" for December, 1855, and described by Sir William J. Hooker in the following terms.

"We have now the pleasure of making known a species of Delphinium equalling if not surpassing any other in size and symmetry of the plant, and excelling in the brilliancy of colour of the flower, and that as rich a scarlet as can well be looked upon. It is one of the many novelties selected by Mr. William Lobb in California, and introduced to our gardens by Messrs. VEITCH & SON, of the Exeter and Chelsea Exotic Nurseries. Treated as a HARDY PERENNIAL it cannot fail to be a great favourite with all lovers of handsome flowers."

Good established plants, 10s. 6d. each, with one over on three to the trade. Special terms to the trade per dozen, or in larger numbers, may be had upon application.—April 19.

HORTICULTURAL SOCIETY OF LONDON,

21, REGENT STREET, April, 1856.

It having been Resolved at a SPECIAL GENERAL MEETING of the FELLOWS that the GARDEN at CHISWICK should be relinquished, unless a sum sufficient to maintain it shall have been SUBSCRIBED before the FIRST of MAY; and the COUNCIL having fixed the sum to be so raised at £5000, a SUBSCRIPTION has been opened upon the understanding that no DONATIONS will be called for unless the whole sum of £5000 shall have been Subscribed, or thereabouts. Gentlemen intending to Subscribe are requested to communicate their intentions to the Secretary.

The following Subscriptions have been already announced:—

His Grace the Duke of Devonshire, President		£100	0	0
His Grace the Duke of Northumberland, V.P.		100	0	0
James Gadesden, Esq.	Members of Council.	50	0	0
Rev. W. L. Harcourt		20	0	0
Col. Challoner		26	5	0
Sir Jos. Paxton, M.P.		25	0	0
J. J. Blandy, Esq.		10	10	0
Rev. W. L. B. Hawkins		10	10	0
Mr. James Veitch, Jun.		10	10	0
Mr. J. Spencer		5	5	0
Dr. Royle, Secretary		10	10	0
W. Wilson Saunders, Esq., Treasurer		21	0	0
Sir S. M. Peto, Bart.		20	0	0
Sir Philip Egerton, Bart., M.P.		10	0	0
R. Hutton, Esq.		20	0	0
Right Hon. Lawrence Sulivan		20	0	0
J. M. Strachan, Esq.		20	0	0
H. G. Bohn, Esq.		10	10	0
The Honourable Mrs. Vernon Harcourt		10	0	0
Nathaniel Lindley, Esq.		5	5	0
J. A. Good, Esq.		10	10	0
Mr. Glendinning		10	10	0
Mr. Cock		10	10	0
C. Wentworth Dilke, Esq.		21	0	0
C. P. Warner, Esq.		5	5	0
Mr. Pontey		10	0	0
Mr. James Veitch		10	10	0
Messrs. James Veitch & Co.		10	10	0
Hon. W. F. Strangways		15	0	0
T. B. Simpson, Esq.		5	5	0
Earl of Ilchester		25	0	0
Mrs. Chetfield, 76, Sloane Street		1	1	0
Joseph Martineau, Esq.		20	0	0
Charles Druce, Esq.		10	10	0
Robert A. Hornby, Esq.		5	0	0
Charles Leach, Esq.		5	5	0
General Charles Fox		10	0	0
Alex. Oswald, Esq.		10	0	0
Sir Oswald Mosley, Bart.		10	0	0
Earl Spencer		50	0	0
H. Behrens, Esq., Travemünde *		100	0	0
Walter Ewer, Esq.		10	10	0
Alex. Druce, Esq.		5	5	0
George Wood, Esq.		2	2	0
Rev. Frederick Beadon		10	0	0
S. Rucker, Esq.		21	0	0
The Lord Bishop of Winchester		20	0	0
C. Loddiges, Esq.		10	10	0
Edmund Johnston, Esq.		10	0	0
Right Hon. W. F. Tighe		10	0	0
J. B. Glegg, Esq.		10	0	0
J. C. Stevens, Esq.		5	5	0
John Ames, Esq.		10	10	0
Sir T. T. Drake, Bart.		10	0	0
Col. Gold		5	0	0
A. R. Stewart, Esq.		5	5	0
E. A. Brande, Esq.		20	0	0
Sir Henry Lambert, Bart.		10	0	0
H. J. Grant, Esq.		15	0	0
Robert Hanbury, Esq.		10	10	0
John Luscombe, Esq.		5	0	0
George Thomas Davy, Esq.		50	0	0
John R. Reeves, Esq.		50	0	0
Wilkinson Dent, Esq.		50	0	0
Edward Rosher, Esq.		5	5	0
Beriah Botfield, Esq.		10	10	0
Her Grace the Duchess Dowager of Northumberland		50	0	0
R. H. Solly, Esq.		21	0	0
W. H. Solly, Esq.		5	5	0
The Viscount Downe		10	0	0
Countess de Salis		10	10	0
J. T. Brooks, Esq.		5	5	0
Joseph Rigby, Esq.		5	5	0
Rev. Dr. Pinckney		10	10	0
Baroness Windsor		5	5	0
The Right Hon. Sir Robert Peel, Bart.		50	0	0
J. R. Gowen, Esq.		20	0	0

21, Regent Street, April 17, 1856.

* See Mr. Behrens' letter in another column.

MESSRS. E. G. HENDERSON & SON

WILL shortly send out their NEW CATALOGUE for the present Season, and beg to inform parties who have not hitherto favoured them with orders, that the same can be had post free on application. This useful book should be in the possession of every practical Gardener and Amateur; the care bestowed in compiling and arranging descriptions of upwards of 500 Stove, 700 Greenhouse, and 1000 Miscellaneous Plants, will render it an interesting guide, equally suitable for reference or perusal. In addition to the above-mentioned descriptions, it contains short and select Lists of all novelties of note at present in cultivation, discarding those that have been found not to answer the expectations of their cultivators, and retaining only such varieties as they can confidently recommend.

A Coloured Plate representing a group of Nine new Plants will be published with above, and can be had post free for 12 stamps.

DAHLIA (Dwarf Bedding).

CRYSTAL PALACE SCARLET.—The qualities of this new bedding Dahlia are such that henceforth no garden with but half a dozen flower beds will be complete without it. It fills up that void so long felt by many, viz., the having a bed composed of large bold flowers, brilliant in colour, profuse bloomers, and of dwarf habit. This Dahlia possesses all the above requisites; it will, therefore, be easily imagined how smaller and more diminutive flowers are lost beside it, added to which, it is one of the easiest plants to preserve throughout the winter, and can be propagated in spring by dividing the roots in the same way as an ordinary herbaceous plant. Persons in the habit of visiting the Crystal Palace last season must have been struck with the noble effect the Dahlia there made when pegged down, but this variety from its dwarfness of growth will not require such care; and those who have had the pleasure of viewing the noted gardens of Tedworth House last summer, will be able to appreciate the following particulars given of it by the able superintendent there, Mr. Sanders.

"In colour this beautiful dwarf Dahlia is equal to the most glowing scarlet Geranium. The flowers are of a medium size, very double and full to the centre, of very compact habit, its growth averaging one and a half feet, and having fine dark leaves which contrast admirably with the brilliant colour of the flower. It commences flowering early in July throwing up large quantities of flowers together, and remains one perfect sheet of bloom until cut off by the autumn frosts. As a bedding plant it will stand pre-eminent, and will be found unequalled for the decoration of the flower garden during the autumnal months; another and not less excellent quality of this plant is, that neither rain or sunshine have any effect on its brilliancy."

Plants can be had in May, 5s. each.

Wellington Nursery, St. John's Wood, London.

The Gardeners' Chronicle.

SATURDAY, APRIL 19, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, April 22—Horticultural..... 3 P.M.

DOES any one remember a hardy herbaceous plant, of no mean beauty, once called *Chrysanthemum coccineum*, and afterwards *Pyrethrum carneum*? —a bright green tufted thing, with rose-coloured flower heads as large as a halfcrown, and leaves not unlike Chamomile, for which reason it is called on the continent *Camomille rouge*. Some will doubtless call it to mind; while others can find it figured in the 1080th plate of the Botanical Magazine, or in the 1024th of the Botanical Register. It is one

of those pretty ornaments of gardens which the rage for Verbenas and Pelargoniums and other "bedding stuff" has driven out of general cultivation. In the gardens of Belgium and Germany it is still preserved and thus may be readily recovered, as we doubt not it will be after we shall have said something of its curious history.

It appears that eastern like western nations are tormented by Fleas—the former rather more than the latter, if travellers are to be credited—saving always the Pyrenean shepherds who are so happy as to sleep in a sheepskin sack, and who appreciate better than any others the meaning of a bag of fleas. Now there are certain plants which possess, we dare hardly say deserve, the reputation of being what an ingenious French writer calls *pulicifuges*, by which he means repellent of fleas. One of our common road-side plants is called *Fleabane* (Inula Pulicaria), which same, says Dodoens, an old Flemish herbalist, "laid, strowed, or burned in any place driveth away all venomous beasts and killeth gnats and flees."

We are also assured by a certain Prof. Cantraine that the common Oxeye Daisy (*Chrysanthemum Leucanthemum*), which whitens the meadows of slovenly farmers in early autumn, is used in Bosnia and Dalmatia, mixed with the litter of their domestic animals, as a specific against such unpleasant visitors. In fact, the Professor was surprised to find so few fleas considering the dirty habits of the people. Prof. Morren confirmed the fact of the Oxeye Daisy being pulicifugous by his own personal experience at Liége.

Hence it may be inferred that fleas have a prejudice against Pulicaria and Leucanthemum, which they manifest by declining to associate with those plants.

But it seems that Caucasian, Persian, and Koordish fleas have a still worse enemy in the beautiful red Pyrethrum to which we referred in the beginning of the present article. M. Duchartre has brought this to our recollection by announcing in the last number of the *Flore des Serres* that Persian flea powder, prepared from its flower heads, "not only causes the death of all sorts of disagreeable or injurious insects, but when distilled yields a spirit, of which a small quantity mixed with water may be used with the greatest success in the open air or in greenhouses against greenfly, house flies, &c., without doing the least injury to plants." We know not whether this is the Poudre mismaque* advertised in the Paris newspapers as effectual for such purposes. What is certain is that a powder of Pyrethrum is very largely used as a flea-bane among the nations of Western Asia.

Concerning this powder some curious details are given by Mr. Henry Galeotti in the *Journal d'Horticulture de Belgique*. He assures us that since its energetic properties have been discovered it is largely cultivated in various circles and governments of Southern Russia. It begins to flower there in June and lasts for more than a month. In dry weather the flower heads are hand-plucked, and a good collector will obtain from 30 to 80 lbs. of the wild flowers daily. They should be dried in the shade, care being taken to stir them frequently; this operation takes three or four days. Mr. Galeotti adds that 1000 lbs. weight of fresh flowers are required to produce a single pound of dried ones; which is evidently some misprint; for he adds that in Transcaucasia above 40,000 kilos of the powder are manufactured annually for consumption in Russia, which, if the loss by drying were such as he represents, would require 80 millions of pounds weight of fresh flowers.

Five-and-thirty tons of this flea powder are manufactured annually for Russian use in Transcaucasia alone. Such we are assured by Baron Fölkersahm, a Russian noble,† from whom M. Galeotti seems to have obtained his information, is the fact; and we recommend it to the attention of statisticians, who may possibly be able to calculate the number of bushels of fleas which 35 tons of flea powder will kill. This gentleman adds that more than 20 villages in the district of Alexandropol are occupied with the cultivation of the Red Camomile, whose powder he assures his readers will preserve them from fleas, will kill flies, gnats, and lice, and destroy the maggots which breed in the wounds of domestic animals. When winged creatures are to be dealt with the powder is to be mixed with any substance which they like, such as sugar when house flies are to be killed. M. Fölkersahm is also of opinion that if further experience should demonstrate the efficacy of the Pyrethrum against other sorts of insects, it would be easy for everybody who has a garden to grow enough of it to kill all the insects which ravage his crops. We answer for it that if it would only repel the Gooseberry caterpillar gardeners would be satisfied.

The discovery of this drug is said to be quite modern. "An Armenian merchant called Sumbitoff, while travelling in southern Asia, remarked that the inhabitants employed some kind of powder to protect themselves from the stings of insects. Having discovered that the Red Pyrethrum yielded this powder he, on his return to his own country, communicated the secret to his son and taught him how to know the plant. The son, having fallen into bad circumstances, set to work to manufacture 'pulicifugal' powder, and made much money by it; his selling price in 1818 having been 25 roubles (about 4*l.* sterling) the pood, or 2*s.* a pound."

There is no doubt that the Russian flea powder is the same as that Piré-oti, of which samples have been sent from Erzroum to the museum at Kew, by our invaluable correspondent Henry H. Calvert, Esq., with the following memorandum:—

"Piré-oti (which means Flea-wort) is exported from Koordistan to various parts of Turkey, for the destruction of fleas, which it certainly accomplishes most effectually. It suffices to strew some of the powder inside a bed or over a sofa or carpet to kill or drive the intruders away. The English and French officers made an excellent use of this drug in the Turkish barracks! I have not yet been able to ascertain the plant from which it is obtained; I thought it was a *Pulicaria* from the similarity of smell of the dried pulverised leaf, but a native tells me that such is not the case, and he described to me a plant with a white flower, yellow disk, and divided leaf, which leads me to think the *Piré-oti* is a *Matricaria* or *Anthemis*. I believe the two samples of *Piré-oti* are more or less adulterated, for I have seen some much stronger in smell, but I could not find better qualities for you."

We think ourselves able to say with certainty that the Piré-oti is the ground half ripe flower heads of Pyrethrum carneum, for in one of Mr. Calvert's samples there still remained some unground fruit, which we are unable to distinguish from that plant. At all events it seems that the plant spoken of by Messrs. Fölkersahm and Galeotti is that species, if the figures in the *Flore des Serres* (ix. t. 917) represent it. As for *P. roseum*, we have never seen it in cultivation; for the plant so called in the Botanical Register, t. 1024, is certainly *P. carneum*, as De Candolle pointed out. It is to the latter that those who wish to try experiments with flea powder must have recourse: and we promise them that if it do not kill fleas it will at least prove a very gay ornament of their flower garden.

It is evident that the directors of the Crystal Palace intend to occupy themselves seriously with Horticultural exhibitions. The immense quantity of covered space at their disposal gives them facilities unknown elsewhere, and of those facilities they are determined to avail themselves.

We have now before us the plan of the ensuing Horticultural Campaign. There is to be a meeting, lasting for one day only, in May; another is to last for two successive days in June; and a third, extended over three successive days, is announced for September. At these three meetings prizes of the aggregate value of more than 2350*l.* are offered, and the amount may be increased. Of this large sum about 1650*l.* is applied to flowers, 600*l.* to fruit, and 105*l.* to what are called "Amateurs' and Cottagers' classes" in September.

In general the rules are framed upon those of the Horticultural Society, and being the result of long experience, may be expected to work well; but considering the means at the disposal of the Crystal Palace Company they might be, and probably will be, improved. Moreover to be effectual they must be strictly enforced.

One thing in particular strikes us as being unskilfully explained. Each exhibitor is furnished with a form in which he is to state in writing, five clear days before the exhibition, "the average diameter of the *objects* to be exhibited." Now among those objects are cut flowers, Potatoes, Onions, Pine Apples and other fruits, and collections of produce. Surely it is not intended to ask for the average diameter of Cherries, Plums, Carrots, Dahlias, and Asters. We cannot suppose that any such information is needed; and we are quite sure it will never be furnished. Something else is evidently intended, and that something should be clearly pointed out, or the managers of the exhibitions will find themselves involved in endless misunderstandings.

There is now on private view, at 14, Newman Street, the bark of a portion of the trunk of Wellingtonia, stripped off the wood at 20 feet from the surface. The specimen is 20 feet *in diameter* inside the bark, and gives an idea of this stupendous tree, such as no drawing or description can convey.

New Plants.

167. Begonia rotata, *Liebmann.* Gireoudia rotata, *Klotzsch Begon., p.* 91.

Picked by Mr. Gordon out of some Epidendrum roots received by the Horticultural Society from Mr. Botteri. It forms a stout short-stemmed plant with great triangular herbaceous stipules, deep green digitate leaves with oblique sinuously incised oval shining leaflets, pale beneath and thinly covered there with long rufous hairs which spread over the stalklets and collect in a dull purple collar at the apex of the petiole, thence straggling sparingly down the petiole itself. The flowers are bright rose colour, in a close dichotomous hairy panicle. The petals are two to each flower, male or female, firm and orbicular. The wings of the fruit are nearly semicircular, one being about twice as large as the other two. This is a pretty addition to the genus, its firm dark green shining leaves giving variety to the somewhat monotonous foliage of the race.

168. Thunbergia laurifolia.

T. omninò glabra, caule volubili, foliis oblongis acuminatis obsoletè dentatis basi trinerviis, floribus geminis pedunculo communi pedicellis æquali, bracteis valde convexis basi gibbis apice obliquis acutis fauce duplo brevioribus, calyce truncato integerrimo glanduloso, corollæ lobis subrotundis subæqualibus fauci infundibulari æqualibus, antheris villosis omnibus inæquali-bicalcaratis.

This is a noble twining stove plant, for our knowledge of which we are indebted to Messrs. James Veitch & Son. With larger and finer flowers than T. grandiflora it associates smooth, firm, rather shining leaves, from 4 to 6 inches long. The corolla, which is ultramarine blue with a whitish throat, measures nearly 2¼ inches in diameter, although the plant before us is far from being in vigorous health. It is perfectly distinct from T. grandiflora in the form and surface of the leaves, which are neither angular nor harsh with hairs, and its flowers are considerably finer. Its native country is uncertain.

ON THE INFLUENCE OF THE STOCK UPON THE GRAFT.

The raiser of a new and remarkable variety of the Pear increases it, in the first place, to a limited extent in order to study its nature and productions before he proceeds to propagate it on an extensive scale. But in doing this, as in the case of every other fruit tree, there are certain principles which must be followed to insure success and the future good condition of the variety propagated. One of these principles forms the subject of the present article. It is founded on facts, and supported by observations which every amateur might make for himself, either on his own trees or in the nurseries. In fact, from a series of observations made on a considerable number of trees, the conclusion that the stock has an influence both upon the growth and productions of the graft may be arrived at. To establish the truth of this beyond doubt, several specimens of the same variety grafted upon different kinds of stocks must be grown in different soils and aspects. Not only does this influence manifest itself in the vigour and hardiness of the tree, but also in the quality of the fruit and the time of its ripening.

On examining the lines of a nursery quarter where from 25 to 50 stocks of different kinds are budded with the same variety, it will be seen that after two years' growth in the same place some of the stocks will be more vigorous than others of a different origin planted in the same line. Afterwards, when these stocks are transplanted into other quarters for training, it will be seen that the stocks which grew best in the beginning continue to take the lead of those of a more delicate constitution, or one having no similarity to that of the graft.

Can we judge of the vigour and hardiness of a new variety propagated on the last-mentioned kind of stocks? When the trees reared on them are transplanted with the view of producing fruit, we find that the latter has neither the form nor the flavour of that borne by vigorous trees of the same variety. In judging from the growth and produce of a tree worked on a delicate or improper stock, one is apt to be deceived in regard to the real merits of a new variety. When we examine the same varieties, worked on the wild Pear stock, on the same species of Pear in a wild state, or on free stocks from seed of a good variety, planted in soils of very different quality—for instance, in a shallow humus soil, with a gravelly subsoil, or in a marly clay—we establish the same facts as in a light deep soil, or in an alluvial soil enriched with rotten dung, namely, that stocks of a delicate constitution and of a different nature or temperament from that of the graft never produce trees so healthy and well-grown as those reared on vigorous stocks, whatever the nature of the graft may be.

In contradiction to this opinion, it has been asserted that the stock is only a medium of communication between the earth and the scion, and that the latter, if vigorous, will always predominate over the stock, and impress its characters upon it. This opinion, expressed in too absolute a manner, can only be admitted on the condition that all stocks possess the same amount of vigour and the requisite degree of similarity, and that all the grafts or buds employed shall be exactly alike. That a vigorous variety accommodates itself better to any stock than one does that is delicate or that is introduced from countries warmer than our own, may be admitted without reserve.

In order to make this more intelligible we will give

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* Plus de doute! Les punaises, puces, fourmis, pucerons, cafards, chenilles et tous insectes sont détruits de suite, par la Poudre mismaque, b. s. g. d. g. Boites de 2 à 20 fr. On traite à forfait. On paie après succès. Rue Mazagran, 11, Paris, Exp. Aff.—Advertisement in *La Presse*.

† This gentleman is described as "Membre du Comité du Ministère des domains, des Sociétés imperiales et agricoles de St. Petersbourg, Moscou, Kasan, de Finlande, etc."

an example. In my nursery there are two Pear trees of the variety Alexandrine Hélie (named after Mdlle. Hélie, of Paris, a daughter of one of the correspondents of the late Van Mons). The variety came first into bearing in 1844, two years after the decease of Van Mons, and was named as above by his son. We may add, that by its wood and the flavour of the fruit it belongs to the race of the Passe Colmar. Both trees were planted under the most favourable conditions as regards soil. One of them is of a delicate constitution; the other is vigorous. The former yields a small, cracked, and gritty fruit; the latter fine fruit of the Passe Colmar form, but more round, of an exquisite flavour, ripening in the end of autumn or in winter. Thinking they were two different varieties, and being determined to settle that point, I cut off the stem of the delicate tree, and cleft-grafted it, at the height of 6 feet, on a stock raised from seed of the Poire d'Amande double. On this the graft soon became as vigorous as the other tree of the same variety. In the fourth year, the graft bore three fruits exactly like the best specimens of the variety. This result leads to another conclusion, that a vigorous seedling variety, after having grown for some years on a stock which exercises an unfavourable influence upon it, does not, in consequence, lose its essential properties; and that these will be reproduced as soon as the tree is placed under circumstances favourable to their development. The above results are also confirmatory of the influence of the stock upon the graft.

We will adduce another example. Two strong pyramids of the variety Nouveau Poiteau, which forms part of our collection. One of these pyramids has ascending and remarkably vigorous branches and shoots; and it has produced for four years fine fruit, especially on the upper part. These fruits are fit for use at the end of November, and are of excellent quality. The other pyramid has the branches less upright, and the wood instead of being of a deep green colour is yellowish brown, the fruits are not so well formed, their quality is far from being good, and they ripen about a month earlier, although the two trees grow in the same kind of soil, the fruit is gathered at the same period, and the trees are both under the same system of management. Does not this difference arise from the difference of the stocks on which the trees are worked? We are inclined to believe so; for the person from whom the trees were obtained employed the same kind of scions from shoots on the upper part of the tree, worked on the Pear stock.

A third proof is confirmatory of the influence of the stock upon the graft as regards the period of ripening. Williams's Bon Chrétien, a well-known Pear, bears fruit upon the free stock, and also on the Quince, which ripen generally in the end of September, or beginning of October. One of my standard trees, planted in the same soil as two pyramids, yielded fruit, of which the successive ripening did not take place till the end of November, and continuing till the end of December. The stock originated from a seed of the Catillac Pear, on which at half-standard height was budded a good winter Pear, and on the stem thus formed was grafted five years ago the Williams's Bon Chrétien. This difference in the time of the ripening of the fruit, kept in the same fruit room, is it not owing to the influence of the stock? We forgot to mention that the quality of the fruit left nothing to be desired, and that it was even superior in aromatic flavour to the best of the fruit grown on a tree worked on a strong Quince stock.

These facts clearly show that it would be difficult not to acknowledge the influence of the stock upon the graft, and that the latter can only produce fruits of an ameliorated character in proportion as it is favourably influenced by the stock. It is from the analogy of the stock and graft that healthy vigour results; and unless that analogy is sufficiently close, it is impossible, in our climate, to obtain from a tree, cultivated on the Pear stock, either as a dwarf, half, or tall standard, fruits in all their beauty, and possessing all the essential qualities of the variety. *De Jonghe, Brussels.*

VEGETABLE PATHOLOGY.—No. CXVII.

467. Heliosis* (*Sun-burn, sun-spot, &c.*).—Under the article Desiccatio, it was explained what a powerful action the sun has in promoting or destroying the functions of plants, but it is no less powerful in producing organic mischief. One instance was mentioned in an earlier part of this series under the article Gumming. The sun's rays are sometimes so powerful on the portion of the trunk submitted to their direct or reflected action that the bark bursts,† and the exposure of the wood soon induces further evil. M. De Jonghe has very lately drawn attention to this circumstance, and has shown moreover that fissures in the trunks are sometimes due to the same cause, which are often attributed to frost. The circumstance has perhaps not attracted the attention which is requisite in this country. In extremely hot weather, or when there is a very sudden change, it may be useful to shade the trunks of valuable trees which are peculiarly exposed to injury.

468. Organic mischief frequently takes place, however, in a very different way. In large conservatories, where it is almost impossible to shade effectually from a burning sun, except by painting or the use of rough or ground glass, the rays of light are often so concentrated by the unequal substance of the glass through which they pass, as to induce injury to tender tissues. It is when the leaves are young that they seem especially susceptible of injury. The destruction of the tissue is so complete that no chlorophyll is ever formed in it, and an unsightly blotch appears upon the plants, till the leaves ultimately fall. A close inspection of the course of these blemishes shows plainly that in most cases the injury took place in an early stage of growth. The affection does not seem to depend altogether upon the peculiar kind of glass which may be used, though from the mass of evidence which was adduced in this Journal in 1848,‡ in spite of some conflicting facts, it is pretty certain from its peculiar mode of manufacture that sheet glass is more apt to produce burning than crown glass. The more perfect the manufacture, and the more uniform the substance of the glass, the less probability there is of injury. In small establishments shading is the most evident remedy, but this cannot be carried to excess with safety. The surest remedy appears to be a thorough ventilation. Where this has been secured, from the testimony of Sir J. Paxton and Mr. Rivers, no evil has been experienced from the use of sheet glass.

469. Similar spots occur frequently upon the tender leaves of plants where water has rested, it is supposed from the convex drop of water acting as a lens. It is however very doubtful whether this is a true explanation of the case. It is much more probable that some chemical action takes place between the young tissues and the water, which is injurious.

470. The spots however in this latter case are not always entirely exempt from chlorophyll, but the chlorophyll is oxidized or partially decomposed, so that a pale spot appears surrounded by a variously-coloured ring. Sometimes the centre of the spot is occupied by a few perithecia, filled with spores. The fungus, however, seems rather to be the consequence than the cause. Such spots may possibly be due to the concentrated rays of the sun, but it is quite as likely that they may arise from chemical action, or cold. The resemblance of the effects of heat and cold did not escape the notice of Virgil, who consequently describes cold as burning;§ or, in other words, performing the effect of heat. The effect is to destroy vitality in one or two cells, in consequence of which the neighbouring tissues are more or less affected, as the surface of a smooth sheet of water into which a pebble has fallen. Certain it is that drops of water freezing on the surface of leaves give rise to such spots, sometimes probably by the action of cold, sometimes by their acting as lenses, at a time when vitality is comparatively low. In some cases, as that of a Cherry the leaves of which were figured in this Journal, 1849, p. 595, the whole subjacent spot is destroyed, and the injury does not extend further; but at length the dead portion separates as the leaves grow, and perforations are left, as if they had been gnawed by insects. *M. J. B.*

* From ἡλιόομαι I am exposed to the sun.

† The action of heat or cold in splitting such solid structures as wood may be illustrated by the following passage in Sir James Ross's "Antarctic Voyage," vol. i., p. 225:—"We have often in the Arctic regions witnessed the astonishing effects of a sudden change of temperature during the winter season, causing great rents and fissures of many miles extent; especially on the fresh-water lakes of those regions, where the ice being perfectly transparent affords better means of observing the effects produced: a fall of thirty or forty degrees of the thermometer immediately occasions large cracks, traversing the whole extent of the lake in every direction, and attended with frequent loud explosions; some of the cracks opening in places several inches by the contraction of the upper surface in contact with the extreme cold of the atmosphere."

‡ See especially pp. 539, 555, 604; and the communications of Messrs. Mitchell and Rivers in the same volume.

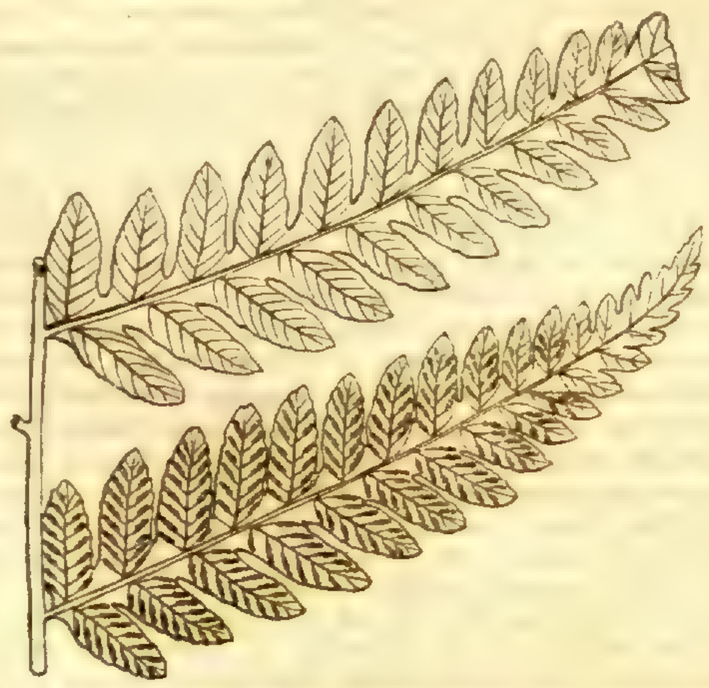
§ —— penetrabile frigus adurat.—Virg. Georg. 1, v. 93.

NEW GARDEN FERNS.—No. X.

21. Grammitis Hewardii, Moore, in Index Filicum, ined. Gymnogramma gracile, Heward, Mag. Nat. Hist. 1838, 457. Leptogramma gracile, J. Smith, Hook. Journ. Bot., iv., 52.

Fronds lanceolate pubescent, pinnato-pinnatifid; pinnæ oblong lanceolate attenuate, alternate, decrescent below, the lowest rudimentary; segments linear bluntish and sometimes crenate at the apex, dilated and confluent below, with an open sinus; sori oblong simple, obliquely parallel, uniserial on each side the costa; fronds terminal, adherent to an erect rhizome.

We have adopted the view of Presl, which appears to us the most correct, as to the generic position of those compound Ferns which bear sori such as those



of the present species, that is to say simple oblong naked sori. They are very commonly referred to Gymnogramma, or to its offshoot Leptogramma, the genus Grammitis being restricted to a set of small mostly simple fronded Ferns, having sori however resembling those of the present plant. This has no doubt arisen from too high a value having been attached to the aspect of the plants. Mere external resemblances, however, appear to us to be very fallacious tests of generic affinity; and as there is between the so-called Gymnogrammas now alluded to, an absolute identity in fructification with Grammitis even as limited; and as moreover the latter genus, as originally proposed by Swartz, had something of the comprehensive character here claimed for it, we have no hesitation in referring to it all that section of Gymnogramma to which the name of Leptogramma has been applied. Gymnogramma itself, separated by Desvaux from Grammitis, although perhaps sufficiently defined by the character of forked sori, is not, as was long ago remarked by Sir W. Hooker and Dr. Greville, too distinct from the latter genus, for in many species the simple sori are as numerous or more so than the forked ones. The present subject is a graceful evergreen stove Fern, with an erect caudex, bearing terminal adherent pale green fronds of about 2 feet in length, lance-shaped, tapering very much below, the lowest pinnæ being merely rudimentary; they are also considerably tapered and elongated at the apex. The pinnæ are sessile, oblong-lanceolate, attenuate or acuminate at the apex, pinnatifid almost to the rachis, the segments narrow-oblong or linear, sometimes slightly falcate, obtuse, and occasionally crenate at the end. The stipes is short, and the whole frond is pubescent. The fronds are fertile throughout, the sori forming simple oblong lines of spore cases on the simple veins, and ranged in an obliquely parallel series on each side the midvein. It is a native of Jamaica, and was introduced to our gardens about five years since. It was first noticed and described by Mr. R. Heward, whose name we have taken the opportunity to associate with it. *T. M.*

Home Correspondence.

The Horticultural Society.—I have anxiously attended to all that has been published in your Journal regarding the question of relinquishing the garden of the Horticultural Society. Being a foreigner and no Fellow of the Society, I am perfectly aware that I am as little entitled to meddle with English affairs as the poet in Shakespeare's Julius Cæsar with the grudge of the generals, and that I may perhaps risk a similar treatment. Nevertheless, the lively interest I take in everything concerning Horticulture and the thorough conviction, that there are no two institutions in Europe, the discontinuance of which would be in a higher degree deplorable for all friends of gardening than the London Horticultural Society in its full and unabated efficiency, and the *Gardeners' Chronicle*, a journal containing more real practical knowledge than all continental garden journals together, are too strong in me, not to give them way and make me bold to offer 100*l.* on the same terms as will be fixed for other subscribers of funds to be collected for the conservation of the Chiswick Horticultural Gardens. Sir, I know very well that 100*l.* is a trifling sum in England. But I am no man of large pecuniary means, and I think a good will does not fail to find a good place. Directions for payment will be given upon notice. *Hein. Behrens, Travemünde, near Lübeck, April* 9, 1856.

Thuja dolabrata and Cupressus japonica.—In looking over "Thunberg's Travels in Japan in 1775-6," which, by the way, is the most interesting account we have yet had of the interior of that country, he states that near Fakonie, after passing over the Fakonie mountains, on his road to Jedo, and at about two or three days' journey thence, "one of the handsomest and largest trees I saw here was the superb and incomparable Thuja dolabrata, which was planted everywhere by the roadside. I consider this tree as the handsomest of all the Fir-leaved trees, on account of its height, its straight trunk, and its leaves, which are constantly green on the upper and of a silver-white hue on the under part." I have seen the name of this Conifer in some foreign catalogue, but do not recollect ever having seen it in English collections. Has it been introduced?" [We believe Messrs. James Veitch & Co. possess it.] Again he says, page 164, vol. iii. of his "Travels," "Cedars (Cupressus japonica) grow in great plenty hereabouts (*i. e.*, near the village of Fakonie), as well as in most of the provinces; but nowhere perhaps can they be found finer or in greater numbers. These are, indeed, the straightest and tallest of all the Fir-leaved trees. Their trunks run up as straight as a candle, and the wood lasts long without being subject to decay. It is not only made use of for the construction of bridges, ships, boats, and other sorts of wood-work to be kept under water; but of it is made also joiners' work of all kinds and dimensions, which, when lacquered, show all its veins through the varnish." Has this fine tree been introduced into England? [Yes; it is Cryptomeria japonica.] In the next page, after describing the Thuja, he says:—"The northern and mountainous part of Japan being very cold, I found here several genera of trees and shrubs which are otherwise inhabitants in Europe, although for the most part they were a new species. Thus I found here two or three kinds of Oak, some Vaccinia, a few Viburna, and trees of the Maple kind, together with a wild sort of Japanese Pear (Pyrus japonica)." We may therefore, I think, hope that Thuja dolabrata and Cupressus japonica will flourish with us. *T. R., Herts.*

Thermometers.—Persons acquainted with Rutherford's

self-registering thermometers will easily perceive that Negretti and Zambra's self-registering Minimum Thermometer is constructed on the same principle, which is one that every gardener ought to understand. We may therefore give the explanation of it which we find in a statement accompanying a specimen of Negretti and Zambra's thermometer now before us. The bulb and part of the tube "is filled with perfectly pure spirits of wine, in which floats freely a black glass index. A slight elevation of the thermometer, bulb uppermost, will cause the glass index to pass to the surface of the liquid, where it will remain, unless violently shaken. On a decrease of temperature the alcohol recedes, taking with it the glass index; on an increase of temperature, the alcohol alone ascends in the tube, leaving the end of the index furthest from the bulb indicating the lowest temperature that has taken place during the absence of the observer." So far the Minimum Thermometer may be considered a Rutherford's, which we have frequently recommended as the most convenient registering thermometer for horticultural purposes. It may be of course attached to a scale of wood, metal, or other material. The peculiarity of the instrument before us is in the scale. This is made of strong zinc, apparently cast; and instead of the divisions and numbers indicating the degrees being marked by indented lines they are raised, the intervals being cut out of the solid metal. The divisions are not of course so fine as in delicate instruments where the utmost precision is required; but they are nevertheless exact enough for all ordinary purposes of Horticulture. They are easily seen, and not liable to be effaced. The instrument we have received agrees perfectly well with one of Newman's first-rate thermometers, and the price is only 3*s.* 6*d.* Considering the durable nature of the new instrument in question it must therefore be considered cheap, and well adapted for horticultural purposes. We may be permitted to point out that the recess for the bulb should not be too small in order that its sides may not be in too near contact with the bulb.||

Lace-bark Tree.—Your correspondent "S." (p. 245), tells us that for the last few years he has found the Lace-bark tree "stand out in the open border in Dorsetshire and grow prodigiously." The Lace-bark tree, *par excellence*, and the only one, as far as I know, generally called by that name, is Daphne Lagetta, Linn. (Lagetta lintearia, Lam.) of Jamaica, and there not a mountain plant. We can hardly conceive it to be that, and we shall be thankful if he will give the tree its scientific name, as he has done with the other tender trees which he has found to bear a Dorsetshire climate in the open air. *W. J. H.*

Musa Cavendishi.—We generally grow at this place about a dozen of Musas, some of which are now in fruit; others are doing well and are considered of fair size. But in the same batch, and of course in the same temperature (as they are all in two houses), I have one plant which is greatly superior to all the rest of Cavendishi, although it has received exactly the same treatment, both as regards pot-room, soil, and water, &c. And I may remark that some fruited last summer of the same age as the one to which I now allude, and also that none of my plants are grown in bottom-heat, *i.e.*, they are not plunged in any heating material. Notwithstanding its superiority and being an older plant than the others, I cannot however perceive any signs of its offering to show fruit, and therefore should it continue growing throughout this season, I am of opinion that it will make a magnificent specimen. All that I can say at present is that it is growing most luxuriantly, and surpasses its associates surprisingly, as well as others that I have seen elsewhere. The following are the exact dimensions of this plant, viz., circumference of stem, 6 inches from the ball, 2 ft. 4 in.; circumference at top of stem, 1 ft. 11 in.; height of stem, 5 ft.; length of leaves, 5 ft.; width of do., 2 ft. 4 in.; height of plant altogether, 10 ft. Are these dimensions unusually large? *John Roberts, Gardener to Sir J. Radcliffe, Bart., Rudding Park, Wetherby, Yorkshire, April* 16.

The Crystal Palace May Show.—I did think that when the Crystal Palace Company began to interest itself in the noble science of Horticulture, we should have had all the inmates of our gardens represented in a fair and impartial manner, but I am sorry to say that one class at least has been omitted, namely, that of vegetables. I am quite sure that giving liberal prizes for vegetables would not only bring a great many more exhibitors together at these meetings, but would in a great measure serve to counteract that sameness which is acknowledged to exist in the Horticultural and Botanic Societies' shows. Permit me also to add that if growing fruit trees in pots for purposes of exhibition is to be the order of the day, why exclude vegetables? What would form a greater acquisition than half-a-dozen pots of well-grown Mushrooms? The same may be said of Cucumbers, and a host of other things. This would be giving what I may term middle-class gardeners a chance to compete with their more fortunate brethren. *R. G.* [Prizes are offered for vegetables in September.]

Sun Dials (Dipleidoscope).—"O. P." (see p. 246) could probably obtain a sun-dial from Negretti and Zambra, Hatton Garden, unless he preferred trying the dipleidoscope made by Dent, of 61, Strand, which is said to be "as simple as a sun-dial, while it is infinitely more correct." A dipleidoscope costs, I believe, two guineas. *H. F.*

Protecting Fruit Trees.—If any of your readers have any bush, pyramidal, or espalier, fruit trees now coming into blossom, they will find dry hay the best of all protectors. On the morning of the 31st ult. my thermometer registered 13° or 14° of frost; but I saved my crop of Apricots by throwing a light covering of dry hay over them; in dry frosty weather it may be suffered to remain on the trees night and day without any injury. *T. R., Herts.*

Rabbits.—Being much troubled with these pests, which have burrows in a high bank full of tree roots and at a depth which precludes the possibility of digging, whilst from their extent and situation ferrets cannot be used, I have thought that in a case of this sort some preparation containing arsenic might be employed to kill them; and I am sure if such were to be sold, many would gladly buy it. I throw this out as a suggestion to some of your chemical readers. *J. R. Pearson.*

Larch Cones (*see p.* 246).—The question raised respecting the comparative growth of Larch bearing white and red cones, is answered in this district on the oolite in favour of the red, as seen in the measurements annexed. I apprehend it will be very difficult to determine the comparative value of the timber. Although the trees measured give the palm to the red cones, I do not trust much to this, knowing how limited my inquiry has been; but the fact of the great difference in growth in trees of exactly the same species favours the idea of strong individuality, and induces me to recommend any person thinning Larch to cut out the weaker trees and let the lords of the forest have dominion, without any reference to red or white cones. I am sure he will net more per acre by adopting this plan than by attempting any scheme that has not been worked out. We cannot grow superior timber of the Fir kind in England, they all grow too fast; even Larch timber—the best—does not equal the foreign Spruce, our worst—principally because the first will grow 1 inch in circumference annually, whilst the latter will not average ¼ of an inch, and other things the same; the strength of timber depends on the number of its annual rings:—

				Inches circumference.
White or green cones,		56	years growth,	40
Red	do.	56	do.	40
Red	do.	56	do.	48
White	do.	150	do.	67
White	do.	150	do.	68
Red	do.	150	do.	68
Red	do.	150	do.	73
Red	do.	150	do.	74½
Red	do.	150	do.	82

—*Thos. C. Brown, Cirencester.*

Foreign Correspondence.

Guatemala, *February* 2*d*, 1856.—I finished my former article (see p. 246) by stating what I found at Jacapa. On Dec. 25th, Christmas Day, I started about 8 o'clock. Fine cloudy morning, and I was glad of it, for the day's journey was over arid plains, through a forest of Mimosas, Pereskias, and the Organos Cactus. This latter is remarkable as the extraordinary habitat of Epidendrum asperum, which has evidently not spared a single plant, for hardly is there one without this Epiphyte in possession of one of its branches. No field whatever to-day to make any collection. The only flower I found was a Cochlospermum; seeds I sent last year under the name of large Orange Magnolia. It is a fine thing. The tree was about 12 feet high and spreading; the flowers solitary—not a leaf on the tree. We reached El Jicaro at 4 o'clock.

Dec. 26*th.*—Started at 4 o'clock in the morning, brilliant moonlight. I did this to accompany a party through the Callejon of Guaystatoya, a dangerous pass where we are obliged to have an escort of troops on account of its vicinity to impassable mountains infested by robbers, who occasionally sally out on stray travellers. I reached this pass about 7 o'clock and found my friends had preceded me, so alone I entered, and about 9 o'clock met a conducta with about 50 soldiers; the officer in command assured me all was quiet and no danger, so I loitered for hours as a fine harvest was to be got here. About 100 yards in the first ravine I found a Bejuco, some species of Paullinia, hanging in graceful clusters from the points of the branches; a little further I got a most lovely Bignonia called here by the natives Siñac. Presently occurred in great luxuriance and exquisite fragrance Cæsalpinia exostema. This is called Gallo, or Cock here, and much resembles a Poinciana. All along the pathways in brilliant crimson clusters was Dipteracanthus Hænkei, while the banks of the steep mountain sides shone with white clusters of the very beautiful Corollate Euphorbia of which I hope to send seeds next month when ripe, as I have found it near here; but Mr. Veitch has a living plant I gave him in August last. The Tara Mimosa, sweetly scented, is here also as well as a Tecoma, distinct from velutina; a curious Broom-like plant belonging to Asclepiads, very abundant; also a curious tree with bunches of pendulous seeds hanging in clusters like the common Ash; and moreover not an unimportant Iponœa, with a large, very large, white flower which accompanied me for many miles. The climate in this Callejon is more temperate and may be estimated at about 68° or 78°, while hitherto from Ysabal 80° or 90° Fahr. was more near the standard.

Breakfasted in Guastayton, and proceeded afterwards to the village of El Florida. I was much struck throughout this journey now in a colder climate to see patches on the mountain side here white as snow, there brilliant pink crimson produced by overpowering quantities in full blossom of No. 2 and No. 5. Descending the Cuesta I searched but searched in vain for seeds of the Allamanda-looking plant you got specimens of from me in August.

Next day I left Florida, Dec. 27, and though I passed through a fine country the only plant I found worthy of notice was a Hibiscus near phœniceus. I sent seeds of this by last post in a letter to Mr. Veitch and Lady D. N. I do not think I ever sent to Europe a finer thing than this of its kind. You may judge by the dried specimens, which yet retain some of their pristine colour. (It is certainly a very handsome thing.) My attention was called to it at a great distance by its brilliancy. I found it, however, very scarce with few ripe seeds, and I have never seen it out of the spot I found it in, viz. Sonorate. From this the whole vegetation is little different, only I found a quantity of Oncidium cebolleta with Hexopia crurigera, and here and there a stray Oncidium roseum; the class of trees Mimosas, or Brazil woods. I slept at the village of San José, swinging my hammock as I had done since leaving Ysabal, in the corridors of the rancho. Here, however, I felt the cold much, being now nearly on a level with Guatemala.

Leaving San José on the 28th early in the morning, I reached Guatemala to a 10 o'clock breakfast, and found all well. From San José to Guatemala there are to be found Lycaste cruenta, Odontoglossum maculatum, Oncidium leucochilum, Brassavola glauca, Epidendrum radiatum, aromaticum, selligerum, Skinneri; Dinema; Brassias Wrayæ and verrucosa, Sobralia macrantha, Notylia bicolor, Comparettia falcata—all these plants occur on the Oaks, the predominant tree, of which some five species can be counted. I found the Corollate Euphorbia up to within three leagues of this city, and I hope to get seeds for next packet. This last day's journey is through a highly exposed country, and from the circumstance of much ventilation, and, at the same time, sufficient shade, is most abundantly the habitat of Orchidaceæ, at all events as to quantity, though quality, I must confess, belongs to warmer climes. Five thousand to eight thousand feet above the level of the sea is sure, at least in this latitude, 14 N., to be the seat of many fine species and genera.

Nothing particular occurred here worth mentioning till the 9th of January, when we were all much struck by a singular cloud overhanging the city about half-past 10 o'clock, and which increased and increased in heaviness with an opaque and most unnatural colour. About half-past 2 o'clock, however, all conjectures were set at rest by a shower of fine dust, which was most painful to the eyes, causing a sneezing like the commencement of a cold. I went out to a neighbouring mount from which we could get a view to ascertain where this phenomenon arose; but all was perfect obscurity to the north-western side, proving that from the volcano De Fuego, near the Antigua, the cloud took its origin. We made collections of the dust, which lay on the morning of the 10th full one-eighth of an inch deep in the streets. I went on the 10th to the Antigua, nine leagues from this, the country all covered, and the dust getting deeper and deeper and more ponderous as I approached; in the Antigua I found it a quarter of an inch deep. Mounted a horse and rode out to Duenas, a village within four miles of the crater's mouth as the crow flies; here I found the scoriæ larger. I send samples of what fell in Guatemala 40 and 50 miles distant, and also of what fell about five miles distant, and I shall order some to be sent of what fell in Ysabal, at least 200 miles distant as the crow flies, if not 280. Those who witnessed the first eruption from the coast describe it as most magnificent; a pillar of ashes rose in a perpendicular form for some 500 feet above the peak, gradually assuming the form of a canopy, and extending till it seemed to have attained an insupportable density, when it was borne with a breeze to the north and spread out into a cloud, covering a distance the extent of which is not at present ascertained. The important thing for us to learn here now is what effect such material has on vegetation; I therefore send you such samples as will enable you to get it analysed, and we wait with much anxiety the result, as we observe the mountain is determined to persevere. Immense volumes, happily only of smoke, came from the pinnacle, and every moment we may have a repetition. Again, this will, we fear, have a very bad effect on our Cochineal plantations, all now covered with the young insect, the seeding having commenced generally about the 15th, and even yet the plants are covered with the dust. The insect however seems to have only attached itself to the side which was protected. A notice of the analysis of this volcanic matter in the *Gardeners' Chronicle* pray give, and your ideas of its effect on the soil. You may take into consideration that this fell on the 9th of January, and we shall not have any rain till the 22d or 23d of May, *i.e.* in the Antigua and immediate neighbourhood of the volcanoes. Here, fortunately, we had three days ago a shower for four hours, which has washed our house tops at least; but the ash is so heavy that it lies in solid masses where the conductas have left it. I brought with me last year a specimen of the rare Oreophosis Derbyanus, which is in the British Museum now; and Mr. Carpenter there has two drawings of this volcano—one from the north, the other from the western side. I gave them to the museum as an illustration of the habitat of the Oreophosis, the only spot this rare bird has ever yet been found upon. The peak from which this new eruption took place is the southern one, from which a gentle curl of smoke always arose. Now it comes forth in clouds. The drawings were made by Mr. Thos. Wyld, who resides within five miles of the volcano, a brother of Mr. W. Wyld's, the artist, Carlton Chambers, Regent Street. The mountain is now much changed in form. It is higher and has lost all

the beautiful colours, having become a dingy brown throughout. This country is about to undergo great changes. We are to have steamers on the South Sea once a month to Panama—and one in April from Ysabal and Belize on the north. Nicaragua is in the hands of the Filibusters from California. *G. U. S.*—[The volcanic ashes have been most obligingly examined by Professor E. Solly, who finds them to consist chiefly of silica, alumina, and oxide of iron. He therefore does not expect their presence will exert any important influence upon vegetation, and that what effect they do produce will be chiefly mechanical. Some volcanic ashes contain saline matter in abundance and that may produce mischief; but in these Guatemala ashes the quantity of saline matter is very small.]

Societies.

Linnean Society, *April* 15.—The President in the chair. F. Currey, Esq., M.A., was elected a Fellow. Mr. Westwood exhibited and made some remarks on a species of Coccus from Natal, producing wax, and on the wax obtained from it. The following papers were read:—1. "Extract of a letter from Mr. R. Spruce, addressed to G. Bentham, Esq.," giving some account of the neighbourhood of Tarapota, in Peru, and of its vegetation. 2. "Note on Obolaria virginica," by Dr. Asa Gray. Some years ago, in a memoir in which this plant was figured and described, Dr. Gray suggested that it should be referred to the Gentianaceæ, notwithstanding a peculiarity in its placentation. It now appears that it ought to be referred there on account of its placentation. Mr. H. J. Clark has noticed that in most of the Gentians of the United States, the ovules occupy the whole or nearly the whole parieties of the ovary, sometimes in nearly definite rows, but more commonly indefinitely crowded over every part except the very sutures. This was found also to occur in Bartonia (of Muhlenberg), in the ovary of B. tenella there occur four re-entering angles, which render the cell cruciform, and in this the resemblance to Obolaria is striking. The only anomaly of Obolaria as a true Gentianaceous plant is the imbrication instead of the convolute æstivation of the corolla, but this character is found to be not altogether constant even in orders where it is considered important, as is evidenced in some species of Mimulus, especially M. ringens and M. moschatus, which almost as frequently present the æstivation of the Rhinanthideæ as that of the Antirrhinideæ. 3. A memoir "On several instances of the anomalous development of the raphe in seeds, and the probable causes of such deviations from the usual course of structure, especially in reference to Stemonurus (Urandra of Thwaites), with some prefatory remarks on that genus," by J. Miers, Esq. The commencement only of this paper was read.

Notices of Books.

Commentaries on the Productive Resources of Russia. By M. L. de Tegoborski. In 3 vols. 8vo. Vol 2, pp. 483. Longmans.

Of this work the first volume, relating to the internal sources of wealth in Russia, appeared about a year ago, and was then noticed at some length in our columns. (See *Gardeners' Chronicle* for 1855, p. 243.) In the volume now before us the author gives an account of the manufactures and commerce of the Russian empire. It is from works of this description rather than from the loose notes of travellers that anything like a just notion of the internal state of a great country is to be acquired; and dull as statistical tables no doubt are, recourse must be had to them by all who require information of a more solid description than can be obtained from the sweeping conclusions and partial statements in which popular works on foreign countries so frequently abound. To all therefore who really care to learn the state of the vast empire with which we are now happily at peace, this further instalment of M. Tegoborski's work will be most welcome. The advocates of protection, if any such there be, will see the natural effects of that policy in a country where almost every interest is protected, and where as a consequence almost every class suffers in order that some other may carry on a lingering trade. Speaking of the cotton manufacture, which is protected against English rivalry, the author shows that for 12 or 15 years Russia cottons were selling for at least 60 per cent., and in many cases 100 per cent. and more, dearer than similar articles of English manufacture; for the whole series of 27 years, from 1824-50, the average difference in price was 50 per cent., and the sacrifice nearly 17 millions of roubles per annum. This is not all; the manufacturers who have been kept on their legs by the prohibitory system, and have been thus sheltered from the competition of foreign industry have of course had no sufficient reason to exert themselves, and they are wholly unable to produce many articles which the population would willingly enough consume if they had the chance. M. Tegoborski is by no means a great advocate for free trade; but even in his opinion the time has arrived when a little more competition from abroad has become requisite, were it only to stimulate the activity and intelligence of the home manufacturers, and to give them that confidence in their own strength which they will never acquire by continuing to lean upon the crutch of Custom-house prohibition.

Iron affords another striking example of the effect of the mistaken benevolence of protectionist governments In order to keep alive a few ironworks in the eastern and northern extremities of European Russia the importation of iron is prohibited. The consequent state of the country at a distance from the foundries cannot be better described than in the words of the author. "We find in the rural buildings of our western provinces wooden nails taking the place of iron nails; and even amongst easy, if not wealthy proprietors, we find locks and bolts at park gates and garden doors, and sometimes at barn doors too, replaced by wooden latches, and hinges by Osier-rings, by which the doors are hung upon the posts, whilst their richer brethren who use the metal article grumble sadly at its price. Throughout a great part of the empire farm horses are without shoes, and farm carts without tire; axles are of wood, spades of wood covered with a thin coating of iron, and in many districts the ploughshare itself is of wood with an iron point. Implements of that description were to be seen at the St. Petersburg show of agricultural products in 1850. The partisans of the prohibitory system allege that in many provinces the shoeing of the horses and the use of iron in the peasants' carts would, from the quality of the soil, be totally useless, in fact, rather hurtful than otherwise; but we think such assertions as these scarcely require a serious refutation."

Tea, which is largely consumed in Russia, is another carefully protected article. The Tea trade between Russia and China is carried on exclusively overland *viâ* Kiakhta, and is in the hands of a very limited number of merchants. The frontier town of Kiakhta is situate in the midst of a vast desert at the extremity of two immense empires, and the Tea has to traverse more than 7000 English miles before it reaches Moscow, which may be considered the centre of its distribution. Importation by sea is prohibited in order that the overland trade may be supported, and whilst Tea of a fair quality sells in London for 80 or 90 kopecks the lb., Tea of the same quality costs in Russia 2 or 2½ roubles, notwithstanding the fact that the duties levied in England and Russia are, or at least were till lately, pretty nearly the same. This enormous difference of price of course leads to smuggling on a most extensive sale, and in spite of the vigilance of the police little else than smuggled Canton Tea is drunk in Poland and the western provinces of Russia. It used to be thought that the Caravan Tea was of a different and very superior quality to the Canton, and that to this circumstance its higher price was referrible. It appears, however, that the two sorts come from the same plants and the same plantations, and the differences in quality are referrible to the periods at which the leaves are gathered. The author examines at considerable length the probable consequences of removing the prohibition on Canton Tea, but for further details we must refer the reader to the work itself. He will find in the Appendix a very full and interesting account of the trade between Russia and China.

England appears to be the great customer for Russian produce. From the author's estimates it would seem that nearly two-thirds of the whole exports find their way into this country. Our space, however, compels us to refrain from making any further extracts. This second volume appears to be in every way equal to the first. The third and concluding volume will be devoted to the means of internal communication and the financial resources of the empire.

Garden Memoranda.

Horticultural Society's Garden, Chiswick.—The young and tender foliage and newly developed blossoms now everywhere observable out of doors, more especially in the ornamental department of this garden, indicate plainly that spring has at last fairly set in, and at the same time warn us that notwithstanding the cold easterly winds that have prevailed for the last two or three weeks, vegetation generally may soon be expected to make rapid progress. This therefore is just the time when gardeners who wish to keep their places in good order must bestir themselves to have things neat and trim, and when a little extra labour in keeping Grass short, rolling walks, and otherwise beautifying dress-ground is best bestowed. Unfortunately the want of this assistance may be observed here and there in the gardens now under notice, but not to a greater extent than a month's work of sufficient hands might easily rectify. Indeed, considering the reduced state of the labour in all departments here for so many months in succession, it is somewhat surprising to find that so little has been neglected, and that everything looks so thriving and well as it does. The conservative wall has already received its annual pruning and nailing, and mowing of the Grass in the arboretum is now in progress.

In-doors the plants generally are in excellent condition, and many of them are in full flower. In the curvilinear stove was one of the best specimens of Rhynchospermum jasminoides we ever remember to have seen. It was literally covered from top to bottom with snow-white blossoms, whose fragrance scented the whole house. In another stove was the singular Columnea Schiedeana, with brown spotted flowers, together with Tecoma undulata, an East Indian species, with clusters of bright yellow blossoms not unlike those of an Allamanda, a hybrid Canna with brilliant crimson flowers that are produced for several weeks in succession, Thyrsacanthus Schomburgki, which is one of the most ornamental stove plants we have at this season, and many varieties of Begonia, among which one of the gayest was Ingrami, a cross-bred raised by Mr. Ingram, of Frogmore. In the greenhouses among Azaleas and gay flowering plants of that description we observed one or two striking examples of Lachenalia aurea, with spikes of deep yellow or rather orange coloured flowers, which, when produced in sufficient abundance on strong stems as these were, are extremely showy; associated with these were Deutzia gracilis, a mass of snow-white blossoms; Mr. Fortune's double red and white Chinese Peaches, the beauty of which is not yet sufficiently known; the new large variety of Mignonette, which is quite as sweet scented as the common kind; and Tropæolum Triomphe de Gand, which with a good succession of plants may be had in flower from October till May. In the large conservatory after the Camellias, which have been and are still in great beauty, perhaps the most striking plants were examples of Salvia gesneriflora, which is to the conservatory or greenhouse at this season what the scarlet Geranium is to the parterre in summer, viz. the gayest of the gay. In order to have fine specimens of this Sage at the proper time the cuttings should be put in now, and after they have grown into plants large enough to put out of doors they should be turned out of their pots and planted where they can stand all the summer, and when danger from frost is to be apprehended in autumn they should be taken up, potted, placed in a close frame for a few days, and when they come into flower introduced to the conservatory, where they will last in beauty for several weeks at a time. This plant, therefore, is a real acquisition wherever it is desirable to have a fine display of flowers at this time of year. The large Brugmansias and Tea Roses in the bed of this house will also soon be in full blossom. The beauty of the latter will doubtless be increased by giving them, as has lately been done, some fresh soil enriched with manure, by which they have apparently been improved in vigour, and they are covered with flower-buds. While speaking of Roses we must not omit to notice the Rose-house, in which the plants have thriven most satisfactorily; they bid fair to be even finer if possible this season than they were last. The young wood which they have pushed is strong and vigorous, and they exhibit no signs of mildew or other disease. The beds have been forked up and the house altogether made neat and orderly.

In the propagating house, among new plants yet to be proved, of which there is at present a good many here (chiefly supplied by Mr. Skinner), we remarked an example of the Madagascar Water Yam (Ouvirandra fenestralis). This was growing in loam in a pan of water, which is changed once or twice a day by pouring fresh water over it from a rosed watering-pot, thus causing the stale water to flow over the sides of the pan, and at the same time giving the skeleton lace-like leaves of this singular plant a good washing. Under this treatment it appears to be thriving and increasing in size.

The orchard-house is the next point to which attention may be deservedly directed. This is at present full of nicely grown trees in pots, most of them in flower; but some of them with fruit already set. Nothing could possibly be more interesting or afford greater pleasure to inspect than this house as it appears at present. Along the sides of the paths 40 sorts of Strawberries in pots have been placed for trial, and up the rafters Vines have been trained, mostly new kinds also placed there with the view of proving their value. The Peach trees in the glass walls, it may be mentioned, have blossomed freely, as have also those in Messrs. Rivers' and Ker's protected trellis, and in both places, if all goes on well, full crops may be expected. Peaches on the open wall in the orchard department may now be said to have fairly set a full crop. On some parts of this wall they have been, and are still, protected with Harrison's netting, of which a high character and a woodcut representation were given in our volume for last year, and for other portions straw protections have been employed, which are cheap, and also answer the purpose for which they are applied perfectly. Owing, however, to the buds not having been previously excited by mild weather, and the trees having received but little check while they were in blossom, fruit has set well this year, even with no other protection than 9-inch coping boards. On standard and espalier trees of all kinds there is also this season every appearance of good crops. The espalier trees, maiden plants put in 5 years ago on newly trenched ground, have since that time made ample growth. They are now (each tree) for the most part 5 feet in height and 12 feet in length, and promise to produce good crops. What fruit they bore last year was finer than that from walls. The stakes which support the espaliers are inch square yellow Deal, and it may be worth mentioning that the tops of these after they have rotted off at bottom remain sound and make good tallies. They are cut into the required lengths and split down diagonally, the name being written on the new face which is thus formed, while the angle at the back gives the label s rength. With labels of this kind most of the fruit trees in the belts and elsewhere have been named afresh during the past winter.

It may be useful to add that among Lettuces the hardy Hammersmith and Brown Cos have again proved themselves to be excellent winter sorts; but we also noticed an equally hardy French kind called "Laitue Morine." This is of a much paler green than the Hammersmith, and is reported to be a valuable variety

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Heat and moisture may now be more liberally supplied to tropical plants. As the season advances these should be gradually increased, but in all cases avoid a high night temperature; for those plants which are growing most actively 60° are sufficient at this season. The necessary night temperature must be principally obtained by closing early and so retaining the heat derived from the sun, and when fires are required they must not be so strong as to render it necessary to admit currents of cold air for the purpose of keeping the thermometer down. Cold air must, indeed, be used with greater caution now than when the plants were in a dormant state, for the admission of cold currents during the development of young growth frequently gives it a check, and so injures the tender foliage as to spoil the future appearance of the plant; a cold current of this description is very different from the moderate circulation of the air which is necessary in all plant structures. Give the proper attention to Achimenes, Gloxinias, and other summer and autumn flowering plants, according to the directions given in former Calendars. The latest succession of Achimenes to flower late in the autumn should now be placed in heat. Some of those in former successions may be potted for hanging vases, for which A. longiflora and cupreata are particularly well adapted. Prefer pans or broad shallow pots for their general cultivation, and as they require an abundant supply of moisture when they are in flower, let the drainage be as efficient as possible, in order that they may be freely watered without stagnating the soil. Let that useful summer and autumn-flowering plant the Fuchsia have its due share of attention by repotting them as they require it in rich compost, and occasionally watering them with liquid manure. Much, however, of their beauty depends on the shape of the plant. Nearly all the varieties of the Fuchsia have a natural tendency to form pyramidal bushes, and by a little attention they may be guided into this very appropriate form; only one shoot should be allowed to take the lead; this one should be trained perfectly upright and the side shoots regulated by stopping any exuberant ones which are outstripping their neighbours. Violets are everybody's flower, and are therefore well worth a little attention to produce them in first-rate excellence. A frame of light rich compost, consisting of loam and leaf-mould, should be prepared under the shade of a north wall for their summer quarters, as in such a situation they may be preserved from the ravages of the red spider, from the attacks of which they will certainly suffer if exposed to the scorching sun during the hot months. In this frame the offsets from the old beds should be planted about 4 inches asunder, and kept close till they have begun to form new roots. The best varieties are the Neapolitan and the Tree Violet.

FORCING DEPARTMENT.

Pineries.—Where the houses are glazed with large sized squares, and the plants are close up to the glass, a thin shade will be of great service on bright days; but only a thin material should be used, for the object in shading should be to break the force of the sun's rays, not to darken the house. Give air rather freely on fine days, but shut up early in the afternoon, sprinkling the growing stock lightly with the syringe and well loading the atmosphere with moisture by sprinkling every available surface. See that plants growing in the open bed are properly moist at the root, giving a thorough soaking when the soil is found to be dry, for mere surface watering is of no use here. Fruit beginning to change colour should be afforded as dry an atmosphere as circumstances will admit. Endeavour to keep newly-potted stock as much together as possible, in order to be able to afford it rather more shade and moisture and less air, until the roots strike into the fresh soil. Queens, intended to furnish the autumn supply of fruit, should by this time be well established in their fruiting pots; and where this is not the case, they should have every possible attention, for it is easier to retard these than to induce growing plants to show fruit. Vineries.—Where it is desirable to retard the breaking of the Vines in the late house as long as possible, and the glass cannot be removed nor the Vines exposed to the open air, they should be let down as far from the glass as can be done, shading the roof, and giving all the air possible. We are not quite certain, however, that there is any decided advantage in retarding Vines by artificial means after this season. We would almost invariably allow the buds to start at the bidding of the weather after this time, merely giving all the air possible, and take chance as to the fruit keeping until next March, preferring the certainty of a crop of prime fruit to being able to furnish a very late supply. Weakly or overcropped Vines ought to be very carefully examined for red spider, which may be expected to make its appearance on these, particularly if the weather continues bright, and means should be used to thoroughly eradicate it the moment it is perceived. Probably the best method is to well wash every affected leaf with a sponge, for it is useless trying to overcome it in such cases by syringing, which only serves to keep it in check, and when the fruit begins to colour, and syringing must be laid aside, it will increase with fearful rapidity. Keep the atmosphere moist, sprinkling the floors, &c., frequently on bright days, and take care that inside borders are well supplied with water.

FLOWER GARDEN AND SHRUBBERY.

Lose no time in potting off bedding plants, or pricking out into frames or boxes young cuttings as soon as they are sufficiently rooted, and seedlings as soon as they will bear handling. As the potted-off plants become established they should be hardened off by gradually inuring them to the open air. The hardier kinds may be set upon a bed of coal ashes or plunged in old tan in the open air, and protected at night by hoops and mats. If the plants in small pots are plunged in old tan, ashes, or some other light material, much of the labour of watering will be saved, many deaths avoided, and the plants will altogether be in a better state when planting-out season arrives. Patches of some of the more showy of the hardy annuals should now be sown in vacant places which usually exist in the herbaceous beds, and in the edges of clumps and borders in the shrubbery. Among the many kinds excellently adapted for this purpose we may mention the following:—Double Poppies of various colours, Lupins, Sunflowers, African and French Marigolds, Goodetias, Erysimum, Clarkia, Gilia, Collinsia, Silene, Escholtzia, Nemophila, Nolana, &c., not forgetting the old fashioned favourite Mignonette. A sufficient quantity of cuttings and seedlings of half hardy climbers should now be potted for planting out in May, with such plants as Cobæas, Maurandyas, Lophospermums, Calampelis, Loasia, Tropæolum canariense, &c.; many bare places on the walls and trellises may be covered and made ornamental which would otherwise be unsightly blemishes on the general appearance of the place.

HARDY FRUIT AND KITCHEN GARDEN.

Continue to thin very gradually coverings of Spruce and Yew branches on wall trees where the fruit is set. Commence the disbudding of Peaches and Nectarines by removing a portion of the superfluous shoots now, and in a week or 10 days go over them, and regulate them finally. After the blossoms are fairly set, advantage should be taken of a fine morning to wash the trees with the engine, for the purpose of removing decayed blossoms and destroying the greenfly. The superfluous shoots of Apricots should also be removed, and the remaining shoots carefully examined in search of the green caterpillar, which not only injures them, but also eats holes in the young fruit, and thereby causes them to gum and grow deformed, or fall off before they are stoned. Wherever these pests are observed, let them be destroyed by gently pressing the leaves in which they are lodged between the thumb and finger, after which the trees should be washed with clear water from the engine. After the fruit is set more is to be feared from the ravages of the caterpillar than from either frosts or storms. As regards vegetables continue to make periodical sowings of Spinach once a fortnight, and Peas, Beans, and Turnips once in three weeks. Successional sowings of all Salads should be made with strict regularity and proper attention paid to preserving them from the ravages of birds and insects, as a deficient supply of these little necessaries is inexcusable after this month. If the crops of Onions, Leeks, Parsnips, Beets, Salsafy, Scorzonera, and Skirret are not yet sown, no time should be lost, and the latest period for sowing the main crop of Carrots is near at hand. A sowing of tall Kidney Beans may now be made in early localities; the early sowing of this useful vegetable not unfrequently gets cut off by late spring frosts, but when this happens the ground should be left undisturbed, as shoots will be produced from beneath the surface which will furnish a crop nearly as soon as the leaders would if they had remained uninjured. The sooner stakes are put to rows of Peas after they are sown the better, as at this season of the year they afford a slight protection to the young plants as soon as they appear above ground. The remainder of autumn-sown Cabbages and Cauliflowers should now be transplanted on the first favourable opportunity.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending April 17, 1856, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Winds	Rain.
Friday 11	6	29.654	29.552	62	47	54.5	49	46	S.W.	.18
Satur. 12	7	29.591	29.454	63	33	48.0	50	46	S.W.	.01
Sunday 13	8	29.632	29.585	67	36	51.5	51	47	S.	.00
Mon. 14	9	29.801	29.757	58	42	50.0	51	47	N.E.	.16
Tues. 15	10	30.058	29.859	58	37	47.5	51	47	N.E.	.00
Wed. 16	11	30.119	30.1 0	54	31	42.5	49	47	N.E.	.00
Thurs. 17	12	30.129	30.113	55	39	47.0	50	47	N.E.	.00
Average		29.856	29.774	59.6	37.8	48.7	50.1	46.7		.35

April 11—Fine; showery; rain at night.
— 12—Rain; cloudy and mild; fine.
— 13—Fine; cloudy; warm; hazy; fine.
— 14—Fine, with sun; cloudy; windy with rain.
— 15—Overcast; cold east wind; fine but cold.
— 16—White clouds; strong north-east wind; clear.
— 17—Slight frost; dusky white clouds; fine; cloudy.

Mean temperature of the week 2 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending April 26, 1856.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	59.8	36.5	48.1	14	0.39 in.	3	6	4	1	—	8	5	3
Mon. 21	58.2	38.9	48.6	13	0.28	2	5	5	3	2	4	8	1
Tues. 22	58.3	38.7	48.5	16	0.32	4	7	5	2	1	4	5	2
Wed. 23	58.5	37.9	48.2	15	0.52	1	6	4	—	4	4	5	6
Thurs. 24	58.4	35.5	46.9	11	0.60	5	3	5	4	1	7	3	2
Friday 25	58.1	38.0	48.0	12	1.40	4	8	4	—	—	7	5	2
Satur. 26	59.1	36.0	47.6	13	0.12	3	7	4	1	1	3	9	2

The highest temperature during the above period occurred on the 25th, 1840—therm. 90 deg.; and the lowest on the 24th, 1864—therm. 18 deg.

Notices to Correspondents.

Apricots: *Cœlebs.* We fear your cuttings will soon die notwithstanding the promise they make to you. You had better defer planting your Box edging till September; then water it well, in good soil, and leave it till the succeeding Midsummer when you may clip it.

Assessed Taxes: *G K.* If your man does no garden work he cannot be either gardener or under-gardener. As to your liability in respect of other servants we are unable to advise you.

Balsam Seed: *R B C* complains that he and others have had sold to them as Smith's Balsams what are not so; that is to say, not what are furnished by Messrs. Smith & Co., the celebrated growers at Dulwich. He has also sent us a packet of what he regards as spurious, and it undoubtedly bears no resemblance to the genuine packets. We know nothing further of the matter; but we must say that, in the absence of some satisfactory explanation, it looks very like one of those frauds which are shaking all confidence between buyer and seller.

Bees: *A Bee-keeper* wishes to know if there is any objection to a Deal hive board? and whether, instead of the plan of feeding bees at the top of the hive mentioned in books, there would be any objection to a drawer introduced into the hive board: which would then in reality be a very shallow box, furnished with this drawer, and a slide to close or open the aperture on the surface through which the bees would have to descend into the drawer when feeding might be necessary? He has twice, he says, addressed letters to Marriott, the bee-hive manufacturer, without any reply, and would wish to know his present address.

Citronworts: *J D, Basing Park.* Your specimens of Oranges are curious, and several of them we think very pretty. They illustrate in a striking manner the remarkable forms which the fruit of some of the Citrus tribe not unfrequently assume. With such examples you may judge how difficult it is to determine what is a variety and what is a species in this genus. On comparing them with the kinds that are figured and described in Risso and Poiteau's Histoire Naturelle des Orangers, we are of opinion that your largest fruit is referable to the Citrus aurantium corniculatum, t. 12, although it happens to be more distinctly lobed or ribbed, and a much finer specimen than the one represented in that beautiful work. The small round fruit with very prominent ribs agrees with that of the Citrus aurantium fructu costato, t. 18. All the Citrus tribe are desirable evergreen shrubs, of easy culture, requiring little more heat to grow them to perfection than that of an ordinary greenhouse. Their flowers are universally esteemed for their fragrance, and their fruits, so varied and beautiful, render them most interesting objects at all seasons of the year. *B.*

Conifers: *An Amateur and Reader.*—We would refer you upon this subject to what is said at p. 135 of our volume for this year. You cannot graft Abies on Pinus, nor is it at all probable that your operation will under any circumstances be attended with success. What is called herbaceous grafting, that is to say employing this year's wood for both stock and scion, is indispensable.

Construction of Glasshouses.—We have received from Mr. Mitchell, of Clowance Gardens, near Camborne, Cornwall, some clever drawings relating to this subject. They exhibit the same principle of roof construction as has been brought into notice by Mr. Jones, of Birmingham, and fully described by us in a leading article at p. 152. The plan of supporting roofs by means of trusses is shown to be not only applicable to span-roofed, but also to lean-to houses. In one of the drawings under notice, that of a Vinery, the roof bars are trussed with No. 5 iron wire, to which the Vines are trained. A defect in Mr. Mitchell's plans is apparently a want of sufficient ventilation, which in Mr. Jones's case has been amply provided.‡

English Timber: *A Landed Proprietor.* The price offered for the Oak timber is certainly very low, but you are 15 miles from London, and the price given in the *Chronicle* is the London price. It would have been best to have had it valued by the professional person that measured it, as there can be no doubt that he is acquainted with its local value. As to sawing the timber, all depends on the price that can be obtained for it when converted into plank. The Maple and Willow are worthless, except for charcoal making. If you are near any gunpowder works you might get a bid for them. *J S.*

Figs: *R P L.* Some sorts cast their fruit more readily than others. The usual cause is the exposure of the small autumn-born figs to more cold and damp during winter than they can bear. If your trees are now forming small new fruit as large as Peas those fruit will ripen during the summer.

Heating: *A Sub.* Use a 4-inch iron pipe and hot water. It is much better than a flue for propagation, though not so unexpensive; and it is more easily managed than troughs. If, however, you like to try the experiment you may employ Rendle's tank by adapting a small boiler to a wooden trough furnished with a moveable lid.

Insects: *Mr P.* We found a smashed larva of a small fly (Anthomyia sp.?) and a small Iulus amongst the particles found at the crown of your Clover plants. Without better materials we cannot suggest any advice. *W.*

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*J C B.* Lathræa squamaria.—*Goodwood.* Vanda concolor—*X G.* Vanda Sulingi.—*R Drasse.* Juniperus oxycedrus.—*Wm Bass.* Asystasia or Henfreya scandens and some weedy Acanthad indeterminable.—*P Rooney.* Garrya elliptica and Andromeda calyculata.

Nectarines in Pots: *Y G B.* Place them in a close house or pit, and fumigate them with tobacco smoke; that, if done effectually, will soon clear them of greenfly.‡

Peach Trees: *Ireland.* Gumming is caused by excessive vigour, owing to the border being either too rich or too wet. You must prevent this exuberance by laying in more wood, or by better draining your border; and you must also get your wood riper than we take it to be.

Pine Pit: *A young Gardener.* Wood is very perishable in the presence of fermenting materials, and cannot be made otherwise without using substances which are likely to kill the plants. The smell will go off by degrees. You might stop it by mixing Peat Charcoal with the fermenting material.

Ventilation: *Granta.* Until we have heard the lecture we cannot tell whether it will be of any horticultural interest.

Vines: *R Gallier.* You can graft the Barbarossa Grape upon any sort as strong and as hardy as itself; whether the stock be black or white is immaterial.

Vine Borders: *Journeyman.* If the refuse of a size and glue manufactory is well rotted down it is good to mix with compost for a Vine border, but not otherwise.

White Walks: *M.* They may be made of pounded spar, pounded oyster shells, or silver sand. Of the first excellent walks are made in Derbyshire.‡

Misc: *Beta.* We can supply you with a volume for 1846.—Full price will be given for the following Numbers: No. 7, 1847; 27, 1851; 8, 1854.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ¾INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

PHŒNIX CHEMICAL WORKS, PLYMOUTH.

BURNARD LACK AND CO. are ready to deliver in London or at any convenient Railway Station or Seaport, BIPHOSPHATE OF LIME considered as neutral soluble phosphate, at PROFESSOR WAY'S standard price, viz., 6*s.* 6*d.* per cent. per ton.

B. L. & Co.'s No. 1 Concentrated Superphosphate contains 40 per cent. of neutral soluble phosphate delivered as above (bags included) at 13*l.* per ton, four months acceptance, or less 2½ per cent. discount for cash. A considerable reduction made for quantities.

Guaranteed analyses and opinions by PROFESSORS WAY and VOELCKER sent on application.—Apply as above.

TO AGRICULTURISTS, MARKET GARDENERS, AND AMATEURS.

TOTTENHAM SEWAGE MANURE (HIGGS' PATENT).—This highly fertilising Manure, consisting of the Nightsoil, Blood, Urine, and other Nitrogenised Matters yielded by the Town Drainage is now ready for delivery from the Works, or from the Railway Station at 4*l.* 4*s.* per ton, or may be had for use in the Garden, of most of the principal Seedsmen in London, in packets 9*d.* each.—Sewage Works, Page Green, Tottenham.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

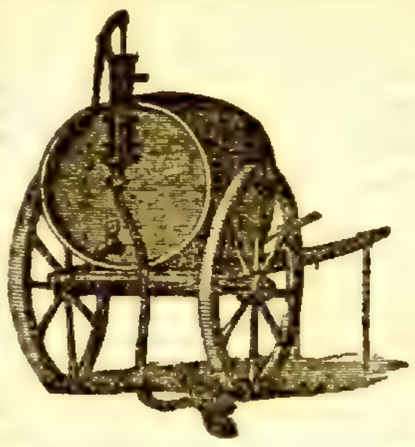
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

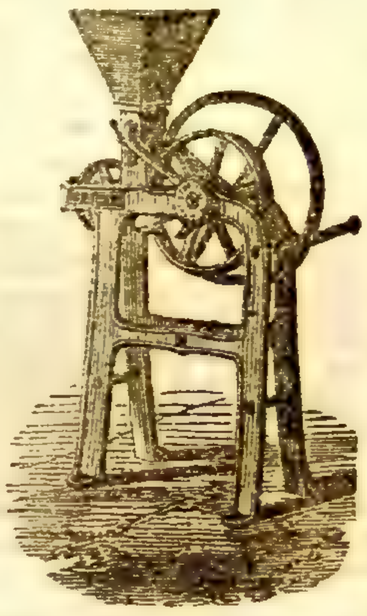
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BOYD'S PATENT SELF-ADJUSTING SCYTHE.—Sole Makers, WILLIAM DRAY & Co., Swan Lane, London. May be had of all respectable Ironmongers and Seedsmen.

SCYTHES.—Order BOYD'S Patent Vulcan Scythe; it is the cheapest and best. It is sold ready for immediate use, avoiding loss of time and Blacksmith's fees. Price only 4*s.* 6*d.*, or with handle complete, 6*s.* 6*d.* Prospectus on application.

W. DRAY & Co., Manufacturers, Swan Lane, London; and of all Ironmongers and Seedsmen in the Kingdom.

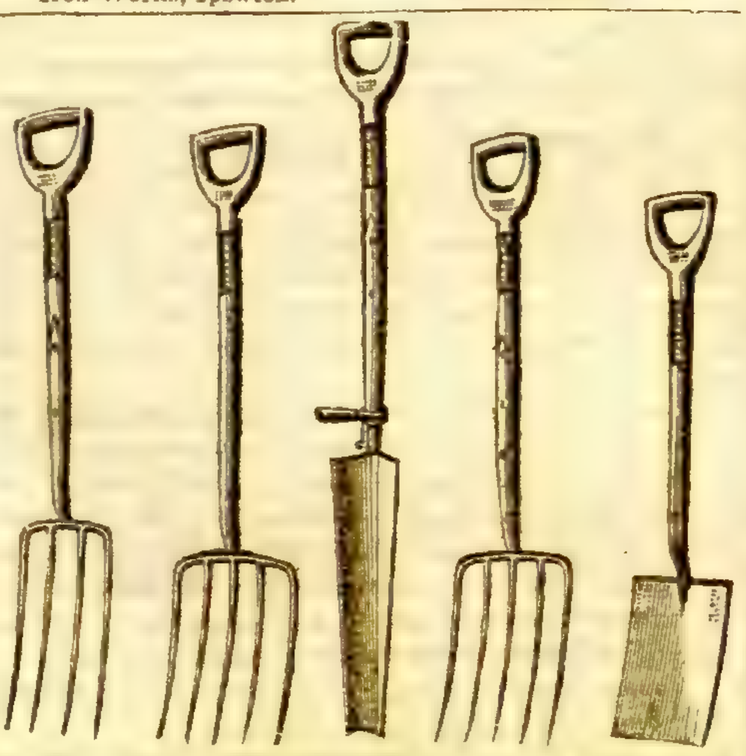
OAT-CRUSHING AND BEAN-SPLITTING MILL
(TURNER'S No. 5).



This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

Price £5 15*s.* 6*d.*

Made and Sold by
E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



PARKES' STEEL DIGGING FORKS AND DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as MR. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.

THE ABOVE KINDS OF CLOVERS will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
„ „ Upland Sheep Walks.
„ „ Parks and Field Lawns.
„ „ Cemeteries and Church Yards.
„ „ Garden Lawns and Grass Plots.
„ „ Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & CO., the Seedsmen to the Royal Agricultural Society of England, corner of **Half-Moon Street,** Piccadilly, London.

ESTABLISHED ABOUT HALF A CENTURY.
AGRICULTURAL SEEDS.

BASS AND BROWN can supply the following of pure and genuine selected stocks, and of extra quality.

Reduced prices for large quantities.	Per lb.—*s.*	*d.*
Mangel Wurzel, Yellow Globe	0	8
„ „ Red Globe	0	8
„ „ Long Red	0	8
„ „ Long Yellow	1	0
White Silesian Sugar Beet	1	0
Carrot, White Belgian	0	9
„ Yellow Belgian	1	0
„ Long Red Altringham	1	0
Large Cattle Parsnips	1	0
Drumhead Cattle Cabbage (scarce)	4	0
Swede Turnip, purple-top, extra, 40*s.* per bushel...	0	10
„ „ Skirving's, 40*s.* per bushel ...	0	10

Turnip, Orange Jelly, Lincolnshire Red Globe, Round, Tankard, Scotch, and other Turnips at moderate prices.

BASS & BROWN'S SELECTED NATURAL GRASSES FOR PERMANENT PASTURES are highly approved, and have given the fullest satisfaction, and can be supplied to suit the soils required.

	Per acre—*s.*	*d.*
For Soils generally, including Clovers ...24*s.* to	30	0
Renovating Mixture for Old Pastures, per lb. ...	0	10
Finest Lawn Mixture, 4*s.* 6*d.* per peck, per lb. ...	1	3

All orders and inquiries will receive prompt attention. Carriage free to all stations in London and all Stations on the Colchester Line between London and Norwich.

BASS & BROWN, Seed Establishment, Sudbury, Suffolk.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—FREE DELIVERY.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
SEED and IMPLEMENT WAREHOUSES, Stirling and Dublin.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

MR. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, APRIL 19, 1856.

THE Committee appointed in England by the French Government for carrying out the objects of the forthcoming Agricultural Exhibition in Paris, having applied to the various railway companies in England respecting the charges for transit of Live Stock and Implements to and from the Show, the following companies have most handsomely accorded facilities as follows:—

The Great Northern, London and North-Western, Great Western, Eastern Counties, and the companies in alliance with them, to carry live stock free to and from the Show. Implements to pay full fare to the Show, but free on return.

The return being subject to a proviso that the stock and implements continue the *bonâ fide* property

of the exhibitor. These are the same privileges that have annually been granted to our own Royal Agricultural Society of England at its country meetings.

The South Eastern Railway Company has also handsomely granted free transit for live stock both ways. Half-rate for implements. Under the same conditions as to ownership.

The committee have received information from the Mayor of Calais that this port possesses every convenience for the disembarkation of animals, &c. **The committee are now obtaining information as to the best mode of shipment, &c.**

The letter on Agricultural Statistics which we publish in another column requires that we should give our readers some additional information on the proceedings of the Highland Society, both in reference to their last year's report on the agricultural statistics of Scotland, and in relation to the subject of agricultural education. On their efforts towards the due representation of Scotland at the forthcoming Paris Exhibition there needs no word of praise from us. Whether "S." be right in speaking of that meeting as something "in the bazaar line" or not, it is in its most useful aspect a great international gathering of great significance at the present time—and of great influence, all who saw the Exhibition last year will say, not only upon future times, but especially on the experience of agriculturists during them on both sides of the British Channel. The Highland Society appeared to be exhibiting their energetic character in this as in other ways, and we believe that we were right in referring to this as illustrating by contrast the comparative want of energy of the national Society of England. "S." says that the contrast was the other way last year, and we are perfectly willing that whatever credit may be due for the appointment of a body to represent them at the Paris Show should be given to the English Agricultural Society; but in explanation of the absence of Scottish representatives on that occasion, it must be stated that no prizes were offered to Scottish breeds of stock. A place for Scottish breeds was this year claimed by the Highland Society, and on the concession of this claim, though at the eleventh hour, all that influence which the Society possesses was put forth—with what effect, though but two months' notice could be had, will no doubt be seen.

We must now refer to our correspondent's strictures on the proceedings of the Highland Society as regards the agricultural statistics of Scotland.

We cannot admit the correctness of the inference to which his statement leads. He would have us to suppose that the difficulties in Scotland were in reality much like those experienced in England; but had either been overcome by Mr. Hall Maxwell's management, or concealed by him in his report. This is giving him more credit for the success achieved than we believe he would claim, and less for candour than he merits. Our correspondent seems to have forgotten the following passage in the report by Mr. Maxwell:—"I do not mean to affirm that information was always voluntarily tendered, or that there have not been instances where it was refused; an entire absence of opposition was not to be looked for in connection with such a measure, but its extent has been singularly and satisfactorily minute. There were no exact means last year for determining this point, or for ascertaining how many returns had been made by enumerators in consequence of refusals. *I have now, however, obtained reports as to this from every district*, which enable me to state that in 13 counties, though there may have been instances of neglect and oversight, there was not one of absolute refusal or opposition, while in the other 19 counties there were about 60 cases of that character." Now, we are able to affirm that this number includes all the cases of tabulations by obliging neighbours alluded to by "S." He is therefore scarcely justified in stating that while "we know of every shortcoming in Hampshire, we had not even a guess of a marked refusal in Argyle," where 60 cases of refusal are actually reported. Mr. Hall Maxwell had the ordinary good taste not to drag forward the name of Mr. Campbell or any other defaulter; but at the same time he directly reported that the opposition did "comprise the names of landlords whose influence might have been looked for in an opposite direction, but whose example has been fortunately disregarded by their tenants."

One sentence more on the question of agricultural education. A supplementary charter to enable the Highland Society to act in this was applied for in 1849, and a report on their proceedings in that matter was read before the meeting of the Society in that year. The late Lord Advocate rejected the petition of the Society in that matter, as "S." says, "for reasons stated in a high-toned report, which may be kept out of sight but has never been answered." Now we have no wish whatever to keep this report out of sight, and we reproduce it here in order that its "reasons" may exert what influence properly belongs to them. The following is the

"Report by her Majesty's Advocate on Petition for the Highland and Agricultural Society of Scotland.

"After carefully considering the circumstances of this petition along with the existing charters of the Highland Society, and the draft warrant for the supplementary charter now proposed, and after repeatedly conferring with a committee of the petitioners, I have to report my humble opinion, that the prayer of the petition should *not* be complied with.

"The principal object of the petition is to establish a sort of College, with a power of issuing diplomas, of the nature of degrees, to the students, in respect of their proficiency in the knowledge of agriculture and the arts and sciences connected therewith, which should enable them to assume the style and title of 'Fellows of the Highland and Agricultural Society of Scotland,' with a power to exact fees for granting such diplomas. It humbly appears to me that no sufficient grounds have been shown for such an unusual procedure as the establishment of this sort of Agricultural College, with the power of granting degrees; and further, that if her Majesty lent her royal authority to such an institution, it would furnish a precedent liable to great abuse.

(Signed) "And. Rutherfurd."

"London, 24th May, 1849."

The fact is that although "S." hints that this report was kept out of sight and never answered, yet immediately on its appearance the Society plainly told the public that the Advocate never had considered the question with them; that there had been no such meetings as he alluded to; that on one occasion only had he seen a deputation, and then refused to consider or discuss the point; that neither then nor in his report had he assigned grounds, and that therefore they would not accept such a refusal as conclusive: and their resolution on that subject then, is being acted on now.

We contend that the three points which we discussed, and which "S." again refers to—their conduct in the collection of the agricultural statistics of Scotland—their energetic efforts towards an efficient representation of Scotland at the Paris show—and their contemplated movement in agricultural education—are all evidence of the life, wisdom, and power of the Highland and Agricultural Society of Scotland. They were referred to at first, only incidentally, in order that all the force of a contrast might be brought to bear upon the conduct of the English Agricultural Society in these several particulars. There are probably few English farmers who are not ready to admit with us the useful course of conduct by which our national Agricultural Society has been distinguished; all we contend for is, that those who guide its proceedings err if they think that by continuing year after year in the same unvarying course, however good originally, they will either fulfill the purposes of a national Agricultural Society or obtain for themselves that support and influence in England which their sister association is rapidly acquiring in the north.

We have seen a thermometer invented and manufactured by Messrs. Negretti and Zambra, which appears very successfully to unite the qualities of cheapness and efficiency. It is a self-registering minimum thermometer providing for the record of the lowest temperature in the usual way. The chief peculiarity consists in the use of a metallic frame on which the scale is cast in relief. A minimum thermometer is often useful to the farmer, and an instrument so efficient as the one named and costing so little as three shillings and sixpence, deserves to be thus brought under his notice.

Exception was taken lately by a correspondent to the paragraph upon the demand this spring for Italian Rye-grass seed, which was described at page 234 as unprecedented, and in fact exceeding the supply. We were told—"Whoever your informant is he is quite incorrect, although it may be his own supply of foreign seed is limited. No man has any right to pretend to have such information, which could only be obtained by correspondence with the chief holders, and this has not been the case in this instance."

The publication of an inaccurate statement in so prominent a place as this is of course exceedingly mischievous, and though placing confidence in our original correspondent on this subject, we immediately made inquiry into the accuracy of his information. He had himself failed in his attempts to purchase from importers, and the fact appeared to us of sufficient importance to justify our notice of it. We learn, however, that in Scotland the supply of foreign Italian Rye-grass has been fully equal to the demand, although that has exceeded all previous experience; the trade has been long an increasing one, and preparation was therefore made for the still larger demand of the present year. The largest importers of it tell us that though the supply is short in comparison with last year it is not true that none is to be had.

The war has had a *direct* influence in causing a scarcity—a fact which is not generally known. Early in last season the Crimean commissariat despatched their agents to Lombardy (whence the greater portion of our stocks are obtained) and purchased the growing crops. This was done to a very considerable extent. The crops were immediately cut, and sent to the Crimea as compressed hay for the use of the army. This soon became known to contractors, and the price of seed rose accordingly. The smaller dealers felt unwilling to purchase, being of opinion that the high price would limit the demand, and that they would run the risk of having their stocks unsold. They refrained from purchasing, and were content to be dependent on the large wholesale dealers for a supply when the season came round. This has now arrived, and the market is in a somewhat excited state from the eagerness to purchase by small dealers for the supply of their customers.

This appears to be the true state of the case—and our advice to purchasers now would be to delay their seed time till after harvest. The new crop will have ripened, and seed from Lombardy of the current year will have arrived before October, when Italian Rye-grass seed may be sown with perfect safety and success.

AGRICULTURAL STATISTICS.

A letter bearing the same signature as shall be appended to this, which appeared in your Number of March 1st, is made the subject of lengthened editorial comment at p. 218 of your Paper. I have no reason to be dissatisfied with your remarks on the ground of want of courtesy, though you have arrived at and expressed conclusions different from mine. Perhaps you will allow me to resume the subject, and to carry it on somewhat further than either of us, or even Mr. Hoskyns, has yet followed it.

My point of view will not be obscured by the fog of prejudice against agricultural statistics, for I have already stated myself to be an advocate for them; or by the mist of special predilection either for that national society (the Scottish), which has assumed the local management of their collection, or for that one (the English) which has considered such a task as beyond its sphere of authority and usefulness, for I am a member of both societies; neither will it be limited by professional (I always deem farming a profession) jealousy of outside interference, for while I am a tenant farmer dependent solely on the cultivation of land, I have been connected with trade and accustomed to foreign travel. I have entered upon this egotism merely to clear my way to the positions which I desire to establish. These are—

1st. That agricultural statistics are a national, not solely, or even chiefly, an agricultural necessity; hence

2d. That they should be collected through a national agency.

"The greatest of all manufactures is the manufacture of a nation's food." With this *dictum* of Montesquieu few of your readers will be disposed to quarrel. Why of this greatest industry have we no record—either of its present extent or past progress? (A continuous record of the one will be the best exposition of the other.) Foreign imports and exports, their amounts, the items of which they are composed, the countries to which they go, from which they are received—all these details are collected as a matter of daily business by Government officers, are tabulated and published monthly, summed up yearly. The shipping arriving at, departing from, and registered in our ports is similarly recorded and tabulated; and thus the progress or declension of any branch of our commerce can be traced out in documents which are periodically published under governmental authority. Do importers of sugar or cotton, exporters of iron or haberdashery, complain of "interference in their private affairs" because they cannot import or export without giving in a manifest which, after passing through the hands of the local customs' officials, will be incorporated with tables that circulate not only from Cornwall to Caithness, but literally "from China to Peru." Because one column of these tables tells us that 100 million yards of cotton have been exported, have we thence any knowledge how many yards the house of Messrs. Twist and Spun have manufactured?—when we learn from another that three millions' worth of "apparel" has been sent abroad, does this tell us how many slop articles are issued from Moses and Sons' emporium? In like manner did a table tell me that Norfolk produced one million quarters of Wheat, and had 300,000 sheep, would this be any guide to my knowing how many quarters were harvested by Farmer Smith?—how many sheep were fed by Farmer Jones? Not in the least. Why, then, should English farmers and some of their self-styled "friends" consider the demanding from them of a manifest (so to speak) of the lading of Wheat, Barley, Potatoes, sheep, cattle, &c., which their land is carrying to maturity and to a market, as unwarranted and inquisitorial? No one wishes to know, and no one should know save the officials in the metropolitan office, how much of either individual farmers produce; but the nation desires to know, and is entitled and determined to know, how much the aggregate of the farmers of the country produce each year.

But, to view the subject from another point of view, let me ask what kind of import, export, and shipping returns should we have were their collection considered

as a matter appertaining to each trade in its own particular branch? Were shipowners to tabulate shipping, West India merchants sugar and rum, cotton brokers cotton? Were there no compulsion upon them to return the desired particulars—were there no authorised officer to whom these particulars should be communicated? There are chambers of commerce—zealous, active, and able—in Liverpool, Glasgow, and other parts: to employ them to collect and tabulate the import, export, and shipping returns would be fully as feasible and as much in accordance with the purposes for which they were organised, as it would be to employ a society originated and chartered for the advancement of the "science and practice" of agriculture in the collection of its statistics. Yet this task has been, as I think unwisely, undertaken by the Scottish Society; and it appears to be matter of regret to Mr. Hoskyns and yourself that the English Society, sticking not merely to the letter but also to the spirit of its charter, considered that it neither could nor should concern itself with a similar task in England. The Irish Society is undisturbed, because the constabulary do (in a way) collect the statistics of the Green Isle.

In times past farmers have never been asked to furnish any statistical information; those holding "land and beeves" were as unnoticed in the tables of our statists as if their productions had no influence whatever on the national well-being. Commerce was wiser however in this respect than statecraft, for the report of a good or bad harvest in Britain had an influence direct or indirect over the money market of the whole world. Now, all of a sudden, an outcry is raised because farmers Smith and Brown do not reach *per saltum* to the conclusion which our public men have been centuries in arriving at; because they do not do at somebody's (they do not well know who's) asking, what their commercial brethren are bound to do through a specially commissioned Government officer of customs or excise, that is, disclose as much of their individual doings as will enable the State to make a summation of all the similar doings of the community, which is the alone purport of statistical inquiry. The nation has a right to this information, for it will be useful—it cannot well be called indispensable, seeing how long it has been done without—to the statesmen who direct the nation's affairs.

These are the grounds on which I rest my advocacy of agricultural statistics; and it is as a national inquiry, to be conducted by a regularly constituted department of State, that I shall consider it in a future communication. In my last letter I expressed a doubt whether the system, however promptly or correctly it were worked, could be of direction to agriculturists in their sales. I showed that Mr. Hoskyns' estimate of the loss sustained by "needy sellers" who came early into the market in 1846, might well be "written off" by the gain the same class have made from selling promptly in 1855; yet this supposed loss in 1846 is made, even in the speech of the President of the Board of Trade (I should have preferred writing of the Board of Agriculture, but of this hereafter), the groundwork of an argument to show that farmers would profit in a pecuniary sense by the proposed collection. If they profit, necessarily the remainder of the community would, to the same extent, lose! I have considered the measure as one of national—not class—interest and importance; and it is as such alone that it is deserving of support. How I would have it worked I shall hereafter discuss in your columns: in the meantime I shall succintly reply to your strictures on my previous letter.

I therein broached a supposition—wherewith you are not quite satisfied—that in the Scottish returns there had been something of the "making things pleasant" used. I believe you could not be long in those places wherein Scottish farmers do congregate, without hearing jokes as to how little difficulties and obstinacies and refusals had been got over by the indefatigable Mr. Hall Maxwell. Now by coaxing a recusant; again by tiring him out with duplicate, triplicate, or quadruplicate of the unfilled-up schedules; or if that failed getting an obliging neighbour to tabulate for him. All this was very good management—it has succeeded—and as Talleyrand said, "nothing succeeds like success:" I believe the totals tabulated are as close as practicable to the reality. But this judicious management has been veiled rather than thrust into notice. In the English partial inquiry the case has been very differently handled; *e. g.*—Mr. Hoskyns has named to the world a Shropshire yeoman who tore his schedule and sent it back endorsed—"Such questions!" There is nothing in the Scottish report to show how a west country magnate named Campbell of Monzie—a landowner and sheep farmer of no small repute—not only refused to fill up a schedule, but came to "the countercheck quarrelsome," and a little further, in a correspondence with the Highland Society's secretary, which I enclose. Englishmen, it is notorious, parade the short-comings of their own people; Scotsmen are more canny and quiet; hence we know of every short-coming in Hampshire, but had not even a guess of a marked refusal in Argyll.

When adverting to the educational project of the Highland Society, which finds much favour in your eyes, you were most likely unaware that it is but the reproduction of a scheme which had been brought forward several years ago, when an application for a supplementary charter, such as is now pending, was referred to the late Lord Rutherford, then Lord Advocate. [We were perfectly aware of this, and the whole history illustrates how an energetic body of men, determined upon a useful course of action, proceed when hindered by the letter of their charter of incorporation.] He, it is well known, was not a mere lawyer but a man of views in advance not only of his professional brethren but even of the reforming statesmen of the age. By him the application was rejected for reasons stated in a high-toned report, which may be kept out of sight, but has never been answered.

Again you point out in your editorial comment how the Scottish Society is to show, or cause to be shown, at the Paris gathering of this year, which I believe should be considered as somewhat in the bazaar line; while you overlook the fact that at the grand exposition of last year English agriculture was fully represented by men, animals, and implements; while the Scottish Society appeared by no representatives either at Paris or at Carlisle. I shall conclude for the present by saying that while there may be fussiness without progress, there may be quietude without lethargy. *S., April* 4.

BOYDELL'S TRACTION ENGINE.

ON Wednesday and Friday the 2d and 4th inst. the Messrs. Boydell & Glasier, of the Camden Works, exhibited their traction engine at various performances to a large assemblage of spectators, specially invited on the former day at the Camden Works, and by advertisement on the latter at Willesden, Middlesex. Both courses of experiments have given general satisfaction, the propositions of ploughing and carting on level land having been fairly solved. To the truth of this we hope Mr. Mechi, of Tiptree Hall, who was present on both occasions, will bear his invaluable testimony, and also many others who took a lively interest in the proceedings of the day. The engine experimented with is one of those ordered by Lord Panmure some time ago for the Crimea, where the endless railway is now in successful operation on the wheels of gun-carriages; General Codrington bearing favourable testimony in his despatches to the importance of the invention, as enabling him to transport heavy siege guns, which could not have been done by any other means. The engine is greatly superior to the experimental one exhibited at Carlisle, as will be seen from the following description.

The engine has two cylinders, each 6½ inches in diameter, and works with a stroke of 10 inches. The crank shaft has two cranks, with a fly wheel on one end, and a small ten-leaved pinion on the other, which slides out and in of gearing by means of clutchwork. On the carriage wheel, 6 feet in diameter, is a 96-toothed wheel, 5 feet in diameter, into which the above pinion works when on the quick speed. On another shaft working in two slide-boxes are an intermediate 20-toothed wheel, into which the pinion works when on the slow motion, and a small ten-leaved pinion, which then gears in the 96-toothed wheel. This shaft and wheels are lifted out of gearing by means of lever apparatus when the engine is required for threshing or other purposes, or changing from the one speed to the other. All admired the simplicity and importance of these improvements.

At the slow speed the engine travels at the rate of from 1½ to 2¼ miles per hour, and at the quick speed from 3½ to 4½ miles. It weighs 9 tons, including 2 tons of coal and water. With 60 lbs. of steam per square inch the pressure on the pistons is 2400 lbs. Of this 360 lbs. are lost by extra velocity of the pistons, reducing the force exerted on the crank shaft to 2040 lbs.

Calling this force the motor force, and the force applied to haul carts, ploughs, &c., the traction force, we have the former, 2040 lbs. as above, for the quick speed, and 4080 lbs. for the slow speed as applied to the top of the 96-toothed wheel on the carriage wheel. Of these forces 850 lbs. are consumed in friction and propelling the engine forward on level ground according to experiments made to ascertain this, so that the forces applied to produce movement are for the quick speed 1190 lbs., acting on a leverage of 5 feet 6 inches from the fulcrum or endless rail; and for the slow speed 3130 lbs., acting with a leverage of 5 feet 3 inches.

Doubtless theoretical conclusions could be drawn from the above data as to the traction force of the engine; but owing to the divided state of opinion on this topic, we shall allow the following experiments to speak for themselves, hoping by means of a diagram to return to this disputed branch of the subject at some future period.

The Wednesday experiments at the Camden Works were as follows:—

1. Two trenches were dug in the ground, one for each wheel about 18 inches in depth, and in length sufficient to allow the endless railway to rest in the bottom, for the purpose of doing away with any momentum acquired in descending into the trench. Into these the engine slowly worked itself, stood still in the bottom, and then propelled itself up an inclined plane of 4 feet, the ascent being thus about 1 foot in 3. This experiment was repeatedly performed, much to the satisfaction of spectators.

Its object is to show what inclination the engine will ascend without exerting any traction force, so as to be able to exert double the force down hill, or in hauling up hill guns or waggons on the principle of a stationary windlass, taking short distances at each time.

2. The engine next hauled over soft ground 7 tons of bricks in a waggon weighing 2 tons 5 cwt., making a total load of 9 tons, thus solving the proposition of carting manure, the produce of harvest, and that produce to market; in short, the carting on a comparatively level farm.

3. The third experiment was hauling the empty waggon (2 tons 5 cwt.) with the fore-wheels locked and four ploughs ploughing up the ground to the depth of a four-horse furrow. With this experiment visitors expressed themselves highly pleased every time it was made.

4. The last experiment was going in and out of a doorway only a few inches more than the width of the carriage wheels, turning within a narrow space the breadth of a common road, round narrow turns with the waggon, &c., proving the command the engineers had over the engine, and certainly the result in every case spoke greatly to their praise.

Such were the first day's experiments. Results in every case were so satisfactory as to leave little doubt that an important step has been made towards successful steam culture and cartage.

The field experiments at Willesden, Middlesex, on Friday, the 4th inst., were not so successfully performed as those at Camden Town, owing to the heavy rain which fell during the preceding night, and the want of the necessary precaution to meet such an exigency. The field, for example, set apart for experimenting in was so wet that it could not be entered, while Samuelson's digger and Ransome's double plough provided as implements could not advantageously be worked. But although these circumstances were against the experiments in one sense, they were in their favour in another, as they exemplified the action of the endless-railway on a very tenacious clay soil, too wet for horses entering, and the traction force of the engine in such a case.

1. The first experiment made was in hauling a Samuelson's digger one round of the field. The tenacious, or, as it was technically termed in the district, "very loving" clay soil adhered to the diggers until stripped off from them by the bars above, when it fell in shapeless sods, the green side generally uppermost. It also adhered to the endless railway, thus reducing the traction force of the engine while it increased the resistance of the implement; but independently of both these adverse circumstances the performance gave general satisfaction so far as the traction force of the engine and action of the endless railway on the ground are concerned, various high estimates having been made as to the number of horses the former was equivalent to; while all unanimously declared that the latter did infinitely less harm to the soil than horses' feet would have done.

2. The second experiment was made by hauling four common ploughs, each set to the depth of a four-horse furrow, one round of the field; but the chains with which they were attached to the engine being too short (to say nothing of their breaking at every few yards), the ploughs and ploughmen were so crowded together that the experiment, so far as ploughing is concerned, must be set down as a failure. At the same time it was generally admitted that four "four-horse furrows" were made in several places, thus proving the traction force of the engine equivalent to that of 16 horses of the district. But to arrive at a more satisfactory conclusion than this, we applied to one plough yoked behind the engine a dynamometer, which indicated 8 cwt.; then by measuring the depth and breadth of this furrow, and comparing it with the four previously made, concluded that in hauling them the engine exerted a traction force of 24 cwt. In other words, that it would have hauled without intermission three ploughs in a frame on wheels, ploughing three such furrows in such a soil, and moving at a pace of one and a half that of the horses of the district.

3. The engine propelling itself to and from Willesden, hauling behind it a waggon and coal weighing upwards of 3 tons, may be taken as a third experiment, proving the value of the endless railway to all portable engines, so as to enable them to transport themselves from place to place. Several of the road-inclinations measured 1 foot in 6, while an incident on the way home deserves recording. A four-horse waggon with about 4 tons of grains in passing the engine got off the road, and there stuck fast. A second team of three horses was yoked, making seven horses, but of no avail. Mr. Boydell then yoked his "steam horse," which hauled the whole after it on to the road, the horses, terrified at their new-fangled rival, doing more harm than good. Simple as this experiment is, it has perhaps done more to establish in the mind of Middlesex rusticity the traction force of Boydell's engine, or the near prospects of steam superseding horses, than all the others made.

The conclusions to be drawn from these experiments are in favour of the application of the endless railway to portable engines, with the motor force applied to the top of the wheel, but that this force applied to one wheel only reduces the amount of traction force disposable for agricultural or other purposes. That engines may be constructed capable of performing all the cartage of a farm and ploughing by direct traction on comparatively level land; that the endless railway does less harm to the land than horses' feet, and that frames of one-way ploughs must be made so as to avoid outcastings. Whether direct traction, or indirect by means of fixed or travelling windlasses, are to make the best and cheapest work is a question which experiment of course must decide. The probability is that when steam culture and cartage are fairly established, both direct and indirect traction will be required on every farm, waggon and cart wheels of every kind used for slow motion on land being furnished with endless rails. A general error appears to be to place too much confidence in individual projects, without taking into consideration the vast variety of circumstances. The sooner the agricultural mind is disabused of this the better, the grand question at present being to discover and appreciate the different links in the chain of progress—the endless railway being obviously one. *W. B.*

Home Correspondence.

Bone-dust.—In your Paper of 29th March Professor Way says that the phosphate of lime in bone ash is, without decomposition by acid, positively useless. Why is this so? Half inch bones without acid are not useless, and boiled bones are, I believe, considered more useful than raw, in consequence of the grease in the latter preventing a speedy decomposition. In many country places bones may be bought cheap, but there is no mill to grind them, though they may easily be burnt and then crushed. Does the burning render the phosphate less soluble? What quantity of water and acid respectively should be mixed with the fine powder of burnt bones? and how much soluble phosphate may be expected to result? *A Ten Years' Subscriber.*

Alderney Cows.—I see in your Paper of last Saturday a statement from "E. C., Pan-y-Ochin, Gresford, Denbighshire," of four Alderneys giving 712 lbs. (18 oz. to the pound) of butter during the year, besides about 60 lbs. of cheese and a liberal allowance of milk and cream for family uses. Having kept up my own breed for many years from an excellent stock which I brought from Jersey, and never having nearly approached to the amount of butter stated by "E. C.", I am greatly interested in the matter, and shall feel myself deeply

indebted to the gentleman for some information respecting the feeding and general management of his cows, and if he would at the same time kindly communicate some few hints of his dairy processes and the churn employed he would add much to the obligation. *T. I.* ["J. L.", another correspondent, has addressed a similar request to our correspondent "E. C."]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *April* 16: Mr. Raymond Barker, V.P., in the Chair.

Liquid Manure Irrigation.—Mr. Chadwick made the following communication to the Council:

Mr. Chadwick said:—May I ask the favour to be permitted to submit some suggestions to persons who have adopted the principles of liquified manure cultivation, now, I am glad to state, so far extending as to preclude individual communications, even to those with whom I am personally acquainted, and who have acted upon my recommendations. The suggestions relate to the frequency of the applications of the manures. In recent times the "lasting" manures have enjoyed extensive popularity. A dressing which served two years, and much better if it serves three, is deemed sound agricultural economy. Thus manuring with solid bones was once preferred; but this practice has been broken in upon by breaking the bones, and still more by pulverising them; and by the experience of immediate and more heavy as against the lighter though more lasting production. With the farm bailiffs of the older habits, who are accustomed to deem only that as manure which is to be moved by the spade or the fork it is a great upturning of the ideas and of practice to treat, as I have presumed to do, that only as economical and proper manure which is only to be moved by the spoon or the scoop. But eminent agriculturists have agreed with me, and have now moved many of their farm bailiffs, who had been educated to give one dressing for two years, or one dressing for a season, to give—four—eight—and even 10 dressings of liquified and diluted manures. The grumblings and this "everlasting work of dressing" "which would be sure never to answer," have been generally silenced by successive augmentations of crops. But even with yields 45 bushels of Wheat, where 22 and at the utmost 30 had been got before; with even 10 dressings instead of one: with double, treble, and even with quadruple crops; I have still to present myself with an aspect of dissatisfaction, and make remonstrances against remaining sins of waste, and talk even of this practice as backward. I have visited the farms of forward and successful agricultural improvers during the last year and the year before, who have put their farms under good and tolerably complete distributory apparatus, who were still using guano or other artificial manures, whilst they had near the cattle sheds heaps of decomposing dung which ought not to have been there, and whose liquid manure tanks were stinking with the escape of the products of decomposition—denoting the extent of waste which is preventible by putting the manure in its right place. One eminently successful improver is a guano merchant, and is to be excused for displaying to the farmers a liquified application on his farm, the powerful effect of his commodity. Another farm manager has also excusable prepossessions in favour of special manures, which he has been moved to try. But the "opinion—evidence," and the particular examples to which I advert, and the addition of any imported stimuli by the managers, are open to objection, whilst the farm-yard itself presents in the unused dung, and in the products of decomposition evolved from the stagnant contents of the tank, the demonstration of the presence of unused or misused manure. The empirical demonstrations of the absorbent and retentive power of soils which I obtained from trial works on the Manchester canal in 1846-47, such as the marks of a leaky hose visible on the Grass in the second year after a single dressing, corroborated and extended by the scientific researches of Professor Way and others, have been subsequently corroborated practically on a number of the liquified manure farms. Sometimes the corroboration has been accidental. Thus on one farm very capacious tanks were filled by the solid deposit, and they were seen to be overflowing and the unused liquid manure running down a lane. The farm manager was for the removal of the solid deposit by hand labour and cartage, but the owner suggested that the tanks might be more conveniently and cheaply emptied by pumping the contents on some adjacent fallows, to which "it could do no harm," and although it was in the winter, if the rains were not so very heavy as to wash it all away it might do some good; and this course was taken, and the succeeding rains were very heavy, but to the surprise of all the summer crops everywhere displayed "to a splash" the effects of the application of the manure in the preceding winter, affording on a large scale a demonstration that liquified manures are not held in mechanical suspension, as the Baron Liebig and other patentees of solid manures have assumed and alleged, but are at once received in chemical combination. A familiar proof of the combination is the immediate suppression of offensive smells, even from decomposing manures, which is so important for sanitary objects, as well as for agricultural economy, in the prevention of the further waste of manure. Mr. Walker, of Newbold Grange, near Rugby, who receives nearly the whole of the sewerage of that town upon his own estate, has given important demonstrations of the principles for which I have contended. Every day except Monday throughout the year—and except days of very severe frost—the sewerage manure is applied to some part or other of the land by steam power, and hose and jet as distributory apparatus. By the total abolition of cesspools, and of brick house drains or brick sewers of deposit; and the substitution of pipe drains and pipe sewers properly adjusted to the flow—and which are therefore self-cleansing—all the refuse of the town is discharged at a rate of upwards of two miles an hour, and before it can enter any advanced stage of decomposition. The sewerage from 900 houses has some odour, though slight; but has not the odour of decomposition, and does not smell half so bad as the old cesspool matter of a single cottage, as any one who goes to the spot may convince himself. All the refuse matter of the town discharged into the house drains by 9 o'clock will, during nearly 300 days in the year, be upon the land, and not merely upon the surface, but in chemical combination with the soil of that portion of the farm to which it may be applied—freed from all odour, "disinfected," and preserved from all waste usually before 10 o'clock, or within little more than an hour. Usually—not many days afterwards, upon the Grass land—the portions last irrigated may be discerned by the sheep and cattle, which have selected it and are feeding upon it. He informs me that when an accident has occurred to the engine, and the works have been stopped, in about three or four days bubbles of gas are evolved, and decomposition commences, that is to say, waste commences. Now it is this waste which it is of importance to avoid by the application of the manure as frequently as practicable, before the decomposition can commence. Since the manure tanks must be emptied, no great difference will occur in the total amount and expense of labour under proper arrangements, whether they are emptied soon or late. Mr. Walker has applied the sewerage of 900 houses to about 500 acres. But he finds that pumping every day, except Sunday, he only gets about three dressings in the year all over the farm. He is nevertheless well satisfied with the result, as he obviously may be, in more than double crops in his cereals as well as his Grass. But if he were to renew the work he would, as I apprehend, give a more concentrated application, 10 dressings or upwards on a limited area. And the example affords an important demonstration that the complete sewerage of 900 or 1000 houses, including the external surface washings of the streets and roofs of houses may be absorbed, disinfected, and rendered productive on about 200 acres of ordinary land. The other instances of the application of sewer-water to agricultural production are generally, as at Edinburgh, Milan, the Clipstone Meadows, the Duke of Bedford's water meadows at Tavistock are irrigations chiefly with the surface washings of the streets and the overflows of decomposed manure from cesspools, drains, and sewers of deposit, which is the strongest in periods of storm: but in the case of the sewerage of Rugby, from a general water-closet system and self-cleansing pipe-drains and sewers, the manure comes undecomposed—unwasted, chiefly from the interior of houses, and is the weakest in the periods of extraordinary storms. The manageableness of the sewerage without large reservoirs, or offensive marsh surfaces, like the plain water meadows; the manageableness on limited areas are matters of great importance for towns. The Rugby experience demonstrates that the sewerage of the metropolis may be utilised inoffensively, far less offensively than the manurings of market gardens, on an area of 50,000 or 60,000 acres, or 10 miles square, about the extent of the Plumstead marshes, or say a belt of land about a mile and a quarter wide, commencing, at the inner circle, about 5 miles from the centre of the metropolis. On such practical examples what I wish to urge in respect to farm-yard manures is that the liquid manure pump should be kept going for the immediate deposit of the manure on some part of the farm or another; it will be better preserved on fallows than in the tank. In the tank after decomposition commences, it not only wastes but becomes a source of danger to the cattle in the shed; inasmuch as from the manner in which the tanks have been commonly constructed, they are too frequently retorts for the generation of noxious gases, and the drain from the shed serves as the neck of the retort, to convey the gases into the shed where they are sure to operate to a greater or less extent injuriously. In Flanders and Holland where the sheds are kept remarkably clean, the escape of the concentrated gases from the long kept liquid manure of their tanks have in certain conditions of the atmosphere been productive of great mortality amongst the cattle. The long kept liquified manures convert the tank into as dangerous a common cesspool or fosse as such as those which pollute the air, and the interior of the houses of Paris. In the new cultivation 10 dressings with liquified farm-yard manures has been deemed a maximum application. Yet to such an application a dressing of guano has been superadded, as I complain, whilst liquified farmyard manure was in the tanks and might be made further available. I rely upon the evidence of market gardeners as to an experience of many years for the fertilising power of farmyard manures upon the same crops year after year; and the market gardeners to whom I have shown the results obtained on the new liquified manure farms, exceeding, as they have already done, all other agricultural production, deem that production as nowise extraordinary, nor will it be found to be so in relation to the green crops grown by market gardeners; and I rely upon the evidence of horticulturists of practical experience and much superior production in quality as well as quantity, in asserting the expediency of far more frequent applications of liquified manure than has yet been dreamed of by most of the managers of liquified manure farms. Horticultural experience justifies me in saying that not 10, but more than 20 dressings in the course of the season, properly applied, will be attended with remunerative results. The applications of liquified manure to the cereals may be intermitted or moderated during the period of growth, to avoid carrying the vegetation too far into stalk and leaf. But horticultural experience shows that when the leaves are withered and the plant is out of bloom and the corn is set, it should then be well fed to make the corn plump and heavy. If the soils are light and the weather dry, the food may be conveyed in the liquid twice a week. It may be conveyed to the roots of the standing crop by a hose with lateral apertures, as explained at p. 165 of the Minutes of information on the application of the refuse of houses and towns to agricultural production. What I wish then to impress is that it is more economical to have the manure on the land than in the tank; that all delay of the application until decomposition has commenced is wasteful and dangerous; that until the whole of the farm-yard manure is thus used up, any artificial manures are superfluous, and that they do not yet know how far it will go. The information I have received warrants me in saying that the best of the liquified manure farms may by this course far exceed their present crops.

In answer to the inquiries of Mr. Slaney and other members, as to the expenses of the process, Mr. Chadwick stated that Mr. Walker had informed him that he estimated the establishment charges and working expenses of the new works, steam-engines, pipes, and labour of distribution, at 1*l.* per acre per annum; but that was for pipes over double the area that would in future be used; and Mr. Chadwick said that according to the best of his information, 14*s.* per acre might be set down a the establishment charges and working expenses, including 10 dressings during the season. The expense of each additional dressing of 20 tons of liquified manure (or watering with simple water) by steam-power, was stated at about 1*s.* under ordinary circumstances. Where gravitation was obtainable for pipe distribution, the cost might be set down at from 7*s.* to 10*s.* per acre under ordinary circumstances. However new farms had been lately laid down, and got into work on the principle on heavy as well as light lands by steam as well as by gravitation, which would afford further data. It had been stated as a deviation from the principle that on some liquid manure farms guano or solid manure was still applied as a dressing, but almost invariably this manure was "washed in" by the application of plain water, that is to say it was liquified on the ground, instead of in the tank, and this was only another and commonly a clumsy mode of applying the principle.

The discussion on this subject we must unavoidably postpone till next week.

French Pines.—Mr. Baskerville Glegg, having found that the Pine seeds he presented to the Council on a former occasion had grown exceedingly well on his estate in Cheshire, favoured the Council with the following statement respecting the foreign cultivation of that tree:—

"The *Pinus maritima* has long been extensively cultivated on the waste lands in France, and is particularly calculated for sowing on the sand hills on the sea coast, as it is one of the few of the tribe unaffected by the sea breezes. The mode of culture consists in breaking up the surface and sowing about 20 lbs. of seed to the statute acre. It vegetates quickly and well, and the plants come up very thick, and are thus drawn up very straight. When about the thickness of walking-sticks they begin to thin them out. The first use made of them is to support the Vines, there used as fences for the railways and put to different purposes till they reach 14 years' growth; by this time they stand at regular distances, and are called upon to pay their yearly rent. This is done by a strip of the bark being taken off about the width of the hand and 7 feet high. In the summer the turpentine exudes from the wound, and is scraped off as it forms; the following year another strip of the bark is removed, and so on every year till they come round to the part from which the bark was first removed; by this time the sore is healed and they begin to tap it again. It is considered that each tree pays about 5 *sous*, or 2½*d.* a year; and this land, which 20 years ago might have been purchased at 10*d.* an acre, is now worth 4*l.* The French Government sow extensive tracts of these wastes every year, and it is considered that the timber is benefited rather than injured by the process, and found to be harder than those trees that have not been tapped."

Earth-barrows.—Mr. Slaney furnished the following statement of the advantages of sliding barrows for the removal of loose earth from one place to another:—

"This contrivance is a simple machine for moving earth or soil short distances, and chiefly on a slight decline. The importance of lessening the cost of moving earth will be understood by all conversant with rural improvements. In the case of enlarging fields, levelling banks and mounds of earth, lowering headlands, filling up pits and holes, and making farm roads, any facility in moving earth is of consequence. The usual method is by carts or wheelbarrows. In either case the soil has to be loaded by spade and hand, lifted in one case—often from 4 to 6 feet, and always 2 to 3 feet—from the ground; requiring much labour in time. The mollebart, or Flemish barrow, is something like a common barrow without a wheel or legs, with a sharp iron edge in the front, and is so contrived as to slide easily under any loose earth, and thus load itself without using a spade. A short tackle fastened to it on each side is attached to one horse—on a word the horse draws on the little machine, the handles are elevated a little and its edge slides under the earth, and it is loaded. The handles then being pressed upon, the edge is elevated above the ground, and on a word the horse advances, dragging the load in any direction, and on reaching its destination, the handles being loosed, the load turns over. The empty machine is afterwards drawn back for another load, and the process is repeated. The soil ought to be first loosened by a fork or a plough, and when so loosened can thus be easily moved a short distance. Mr. Hammond has been good enough to send me a model of a little machine for a similar purpose. It is somewhat like a barrow without legs, with the bottom taken out, pressed down on loose earth, and then dragging it along the ground to its destination. I bring these implements forward, hoping they may elicit observation and improvement. Mr. R. Stephenson, C.E., with whom I have had the pleasure of acting on the late Commission on Health of Towns, &c., and whose name is known throughout Europe as one of our ablest civil engineers, tells me that hitherto almost all earth work is carried on in the old way, moving the soil in barrows or carts, and loading it by spade or forks. It is evident that any simple implement which would lessen the cost of these operations would, in this country, be valuable. I therefore have ventured to bring this matter before the Society, trusting others may improve on the hints already given."

The late Rev. William Rham, in his Paper on the agriculture of the Netherlands, published in the second volume of the Society's Journal (page 61), gave a drawing and description of the implement referred to by Mr. Slaney.

Deep-Draining.—An interesting discussion took place, which we regret that our limits will not allow us to give, on the question of the depth and frequency of drains on different soils. Mr. Beale Browne hoped a lecture would be given before the Society on this subject. He had found 4 feet the most useful depth. The minimum of depth in any case was considered by the meeting to be from 3½ to 4 feet, and the maximum 5; while very deep drains (as of 10 feet) had been found injurious. Mr. Scott, during his extensive experience, had never known Mr. Parkes's principles fail if only properly applied; he had found 4 feet the standard depth, with the drains not nearer than 24 feet on the closest soil. Mr. Slaney had used 4 feet deep and 36 feet apart, with great advantage.

Miscellaneous Communications.—Count Sparre and Messrs. Burgess and Key transmitted the result of trials (privately made) of their respective churns. Miss Banister, of Steyning, communicated her plan of a homestead, having special reference to the feeding of cattle.

The Council adjourned to the 23d of April at 12 o'clock, when Prof. Way would deliver a lecture "On the Progress of Chemical Science, both at Home and Abroad, in reference to Agriculture."

Reviews.

On Agricultural Chemistry and the Nature and Properties of Peruvian Guano. By J. C. Nesbit, F.G.S., F.C.S., &c. Fourth edition. Longman & Co.

These lectures have been delivered in many parts of the country before farmers' clubs and agricultural meetings. Mr. Nesbit has the power, as he proved last Monday, of commending and explaining his subject to agriculturists in a remarkable degree. And having mixed much with farmers, he is better able than many agricultural chemists to give a practical turn to his suggestions. The book he has now published contains four of his lectures, together with an essay on Peruvian Guano, from which we shall next week make an extract on the mode of supplying guano to the soil.

We may mention as an illustration of the way in which Mr. Nesbit's labours as a lecturer are appreciated by English agriculturists, that, on the conclusion of the discussion at the Central Farmers' Club on Monday evening last, several gentlemen expressed their desire to offer to Mr. Nesbit some testimonial of the appreciation with which they regarded the valuable services he had in this way rendered to agriculture. A subscription list was at once opened. Mr. J. Wood, of Ockley Manor, Sussex, the chairman for the year, has consented to act as treasurer to the fund, and Mr. H. Corbet as honorary secretary.

Calendar of Operations.

APRIL.

Cheshire, *April* 9.—The weather for the last eight weeks has been most favourable for all field operations, consequently farmers generally are very forward with their spring tillage. The sowing of cereals is completed, or nearly so on many farms, and Potato planting of both early and winter kinds is in a very advanced state. Wheats generally are looking well, although, as is always the case at this season of the year, there are complaints about injury from wireworm, grub, &c. Italian Rye-grass is very forward in some situations, and we have seen crops which, if the weather is favourable, will be ready to cut for soiling in a fortnight or three weeks. This is a valuable Grass either sown alone for early cutting or mixed with Clover and other seeds for pasture; it is a Grass that all cattle are fond of, and there is nothing that we have met with that will afford so early and nice a pasture for ewes and lambs. We have seen instances of a partial failure in Clover roots, not in consequence of the land

being "Clover sick," as to our knowledge one field has not had Clover on before for 20 years, and another for 10 or 12. The cause appears to us to be a small worm, similar to a bot, the larva of a kind of moth, which we have known to be very destructive to Turnip crops. On examining some of the diseased plants, which are easily known by their drooping appearance, and, in the more advanced stage, withering of the leaves, we found the roots perfectly healthy and vigorous, but the crown had a brown cankered appearance evidently spreading downwards into the root. We send a few specimens herewith of the diseased plants, and also some of the suspected depredators, with a few small round substances resembling eggs, found in the centre of the plants; we have never noticed anything of the kind before, and hope it is not general. The land in question has a good mixture of seeds upon it, therefore as the Clover is the only plant affected, it may not prove quite so onerous as was first apprehended. Many dairy stocks have already begun to feel the effects of damaged hay occasioned by the prevalence of floods in the meadows last July. This is a matter which requires the most serious consideration of both landlord and tenant in a dairy district, where cattle are almost entirely dependent upon their winter supply of food from the meadows. Ewes and lambs appear to be doing well, and farmers are looking forward to earlier pastures than they have had for the last few years, as nothing can be more favourable to the growth of Grass than the present weather. Milking cows have been fetching high prices, but fat and store cattle are considerably lower than at this time last year, whilst store pigs are as dear as we ever remember them. *W. P.*

Notices to Correspondents.

AN ERROR THAT MAY MISLEAD: *Mr. J. Lockhart Morton*, of Edinburgh, writes to us as follows:—"In the *Agricultural Gazette* of April 5th, I observe a communication from a correspondent in Forfarshire referring to an error in the Scottish Agriculturist's Almanack for 1855. At the 11th page of that little book a summary is given of a number of experiments on the fattening of cattle as conducted by Mr. M'Culloch, of Auchness. The returns per acre for the Turnip crop as therein stated were taken from a table published along with Mr. M'Culloch's prize essay (see Highland Society's Transactions for July 1853, p. 73), and assuming that the figures of such a table would be correct, I unfortunately neglected to check them. As pointed out by your correspondent they are certainly far wrong, but my chief error lay in not discovering this at the time I prepared the summary, which it is right to say was submitted to Mr. M'Culloch before being published in the Almanack."

CHESHIRE: *W B, Cheshire*, wants to know if it is customary for tenants in that county annually to contribute a cheese to the landlord. Many such customs which existed are gradually dying out.

EXPENSE OF IRON ON FARMS: *G W, Bushey*, says, "When I lived in East Lothian about the year 1850 it was the practice with some farmers to contract with the blacksmith for repairs at the rate of 50*s.* a pair of horses per annum. This included the repairs to all gear with the exception of carts, which I think were extra; the farms which particularly came under my notice were strong land with a good proportion of rock. I subsequently farmed in Hampshire, working two pair of horses, when my blacksmith's bill averaged 5*l.* a pair per annum, exclusive of new implements, the soil partly clay and part sand. I can possibly account for the apparent difference in expense if desirable." We should be glad to hear further on this subject, especially as to the quantity of new metal used by the blacksmith in the course of the year.

IRISH MOSS: *J Maguire*. Will any one who has used this in pig feeding state what quantities are given per day, and what proportion of Barley-meal is used with it.

LIME, SALT, AND ASHES: *J B H*. Your own experience is the best answer to your question. We should however be glad to know how your opinion has been arrived at. It is possible that in a calcareous soil near the shore, lime and salt may be useful, because the mixture generates a caustic alkali, which might quicken and dissolve matters now lying inert in such a soil; but for hurrying Turnips through the season of danger from fly, we should prefer something more in the nature of an ammoniacal superphosphate.

RENNET: *Ilderton* says:—"Your correspondent, Feb. 2, 1856, gives an excellent recipe for making rennet, headed 'Diary of a Dairy Farm;' but would it not be better if you could learn from him the weight of vells for every 2 gallons? for he says, 'to every 2 gallons should be added 6 vells.' Now they vary greatly in size, for the other day I got three weighing 3 oz. each, and yesterday one weighing 13½ oz., all last year's curing. Your correspondent does not state whether the rennet should be excluded from the air by tightly covering the jar during the process of making and using."—In answer to this the writer of "Diary of a Dairy Farm" informs our correspondent that Irish vells vary in weight from 5 to 8 ounces each, therefore in making a quantity of rennet it has never been found necessary in his dairy to weigh each vell; taking one with the other the number of 6 to every 2 gallons has been found a sufficient rule. The Irish vells are always prepared better than the English, and are of a more regular size, but the English are oftentimes saved, and used from motives of economy; these vary more in size in consequence of calves being sold at earlier and later ages than in Ireland. A calf is sometimes sold in England at a week old as inferior meat to the butcher, and sometimes kept many weeks and fattened, whereby the vells would of course be greatly increased in size and weight. In a small dairy it might be well to weigh the vells, as also in a small dairy where it is more difficult to ensure good rennet nothing but Irish vells should on any account be used. If there be not an earthen top to the vessel used to hold the rennet, one made of wood to fit the top has been found to answer as well; it is not necessary to exclude the air so entirely as to use any other covering.

SOCIETY OF ARTS EXAMINATIONS FOR CANDIDATES FROM INSTITUTIONS ASSOCIATED WITH THE SOCIETY OF ARTS: *Warrington*. The following are the rules:—The examinations will commence at 10 A.M. on Tuesday the 10th of June, 1856, at the Society's House in the Adelphi. Candidates who propose to offer themselves for examination must give written notice of their intention to the Secretary before the 31st of May, 1856. Each candidate must state the institution to which he belongs, his age, his employment, and by whom employed, and the subjects in which he desires to be examined. All candidates will be required to possess a competent knowledge of writing and spelling. The examiners define good writing as a bold hand in which all the letters are distinctly and completely formed. Every candidate will be expected to come prepared in two subjects (not subdivisions of subjects) at least. The examiners in science merely recommend the text-books set down: they will be prepared to recognise knowledge however obtained. The examination will be conducted by written papers and by oral examination. The examiners will award certificates of three classes. First class certificates will be awarded only to a high degree of excellence. The examiners in agriculture will be Mr. James Caird and Mr. J. C. Morton. The examination will presume such a general knowledge of farm practice and of the management of live stock as must to some extent, at any rate, have been obtained in the field. The text-books by which it will be guided are, Low's Elementary Agriculture (Longmans), Johnston's Agricultural Chemistry (Blackwood), Mr. Pusey's Papers on the Progress of Agricultural Knowledge, in the 26th Number of the Royal Agricultural Society's Journal.

ERRATUM: In "*A Prizeman's*" paper on the Implement Show of the English Agricultural Society, p. 251, at column *a*, line seven from the bottom, for "firm" read "form."

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For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

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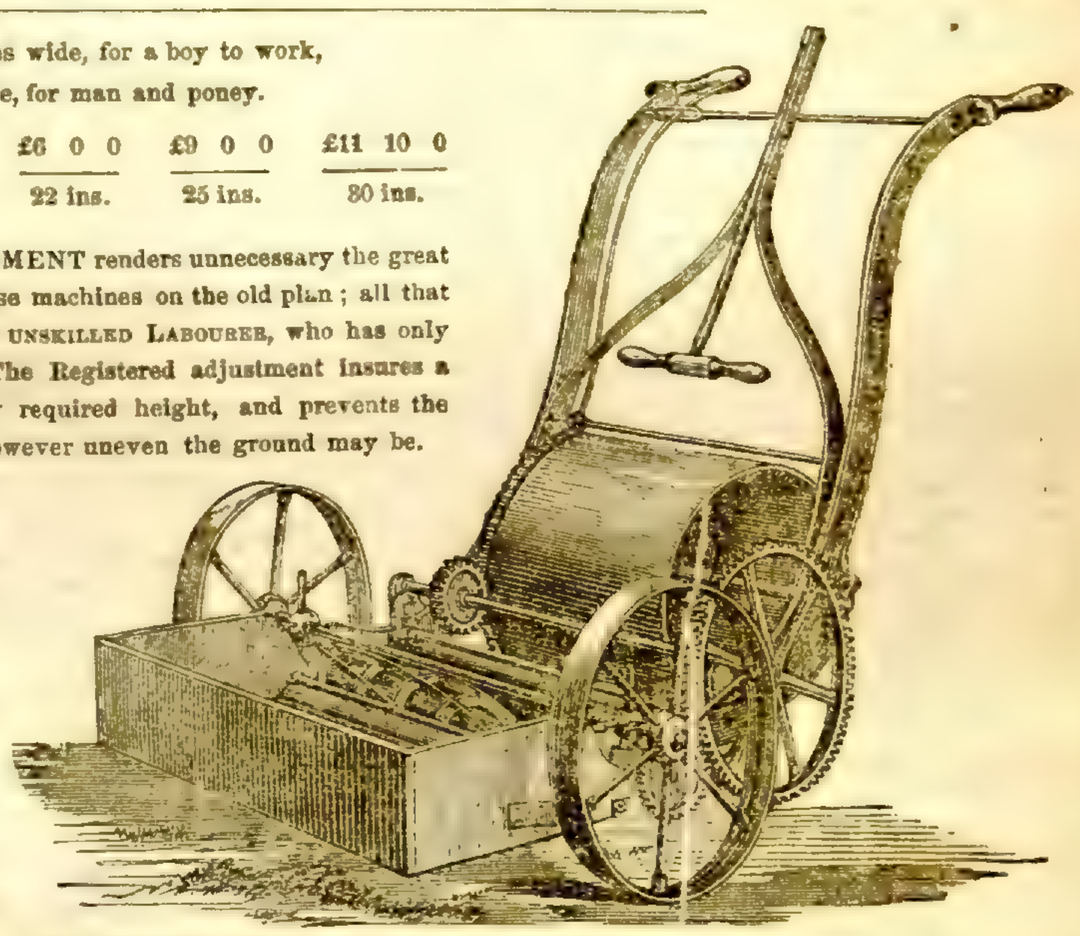

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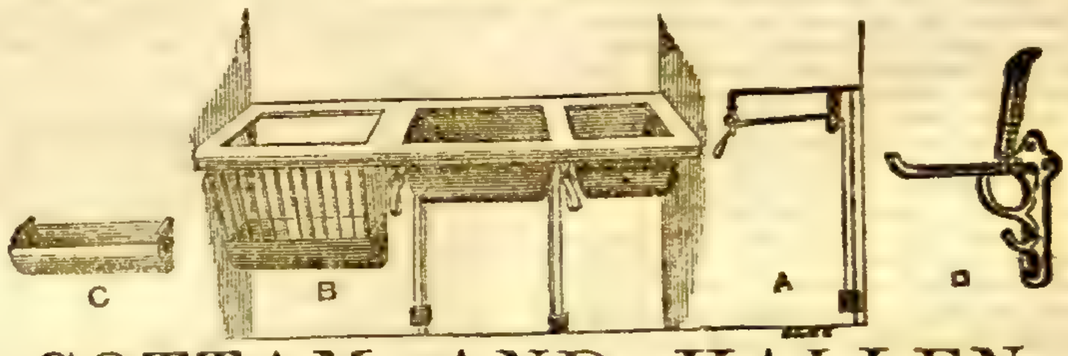

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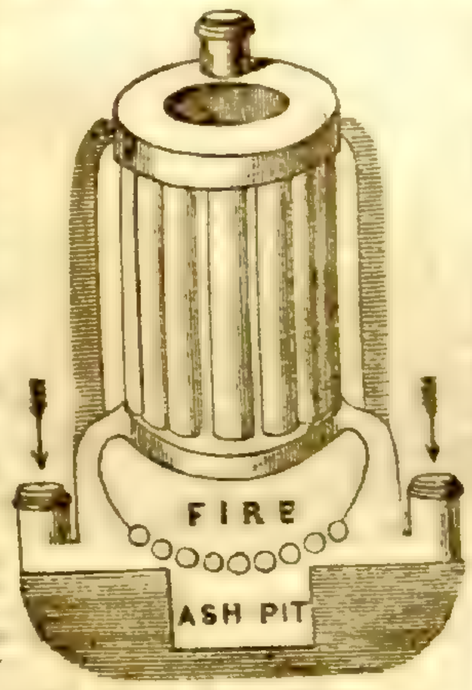

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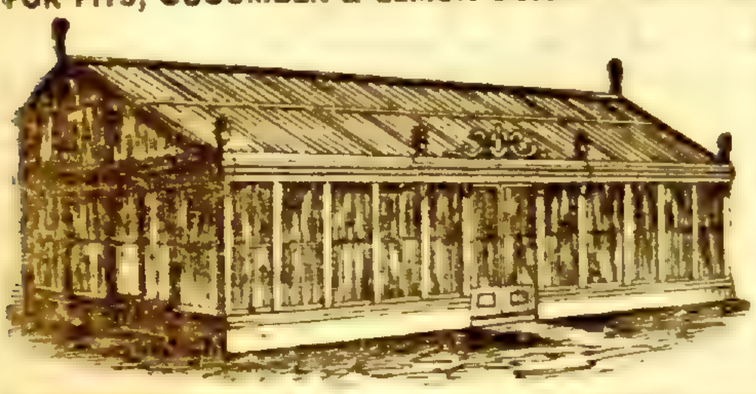

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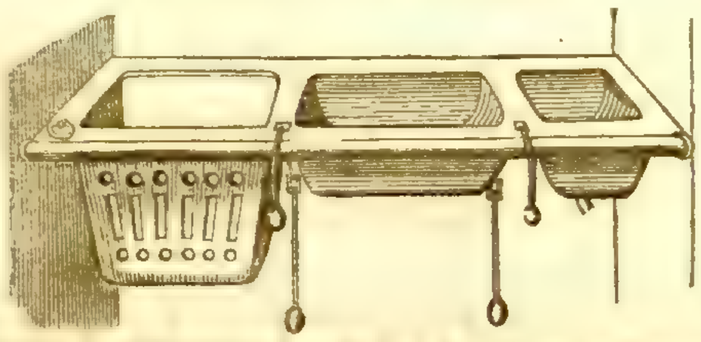


THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps. JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

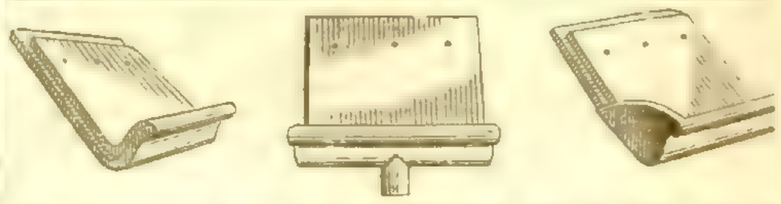
Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTEN, 10 and 11, Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

GREENHOUSE, SHOP-FRONT, WINDOW-SASH, AND DOOR MANUFACTORY.—Greenhouses and Hothouses, Summer-houses, &c., fixed, complete, at 1*s.* per foot; Window-sashes, French Casements, Garden Lights, &c., made and glazed, from 6*d.* per foot; Stout Sheet Glass, in 100 feet cases, 2*d.* per foot; Cucumber Frames, Pits, &c., on the shortest notice.—A List of Prices on application to Mr. SMITH, 8, Queen's Row, New Road, Pentonville, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.

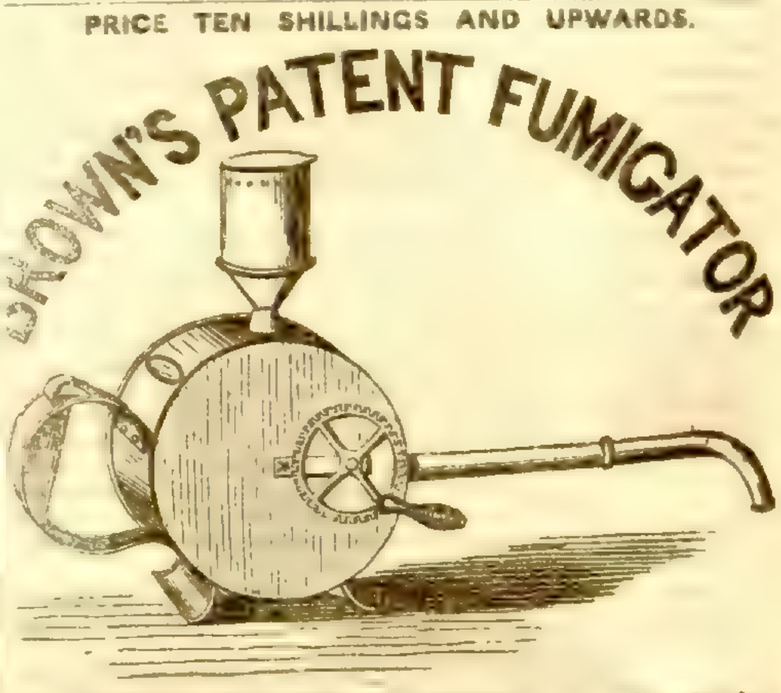
JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 37, Moorgate Street, London. Drawings forwarded by post.



BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building with repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Glo'ster, Bridgewater, and Rugby.

PRICE TEN SHILLINGS AND UPWARDS.



A PORTABLE INSTRUMENT for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers, in the open air more effectually, in conjunction with SANGSTER'S FLORUMBRA, without injuring the most delicate plant; delivering the smoke cool, in a dense mass, and effecting a great saving of Tobacco.—Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

NEW TWINE NETTING, Tanned if required. 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDDINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

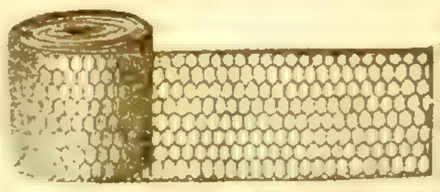
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any with, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of—

PROPAGATING GLASSES.

	£	s.	d.			£	s.	d.	
2-in. diameter	0	3	6	per doz.	11-in. diameter	0	18	0	per doz.
3 " "	0	4	6	"	12 " "	1	1	0	"
4 " "	0	5	6	"	13 " "	1	4	0	"
5 " "	0	6	6	"	14 " "	1	10	0	"
6 " "	0	8	0	"	15 " "	1	16	0	"
7 " "	0	10	0	"	16 " "	2	2	0	"
8 " "	0	12	0	"	17 " "	2	8	0	"
9 " "	0	14	0	"	18 " "	3	0	0	"
10 " "	0	16	0	"	19 " "	3	12	0	"

CUCUMBER TUBES.

12 inches long ...	1s. 0d. each		20 inches long ...	1s. 8d. each	
14 " " ...	1 2	"	22 " " ...	1 10	"
16 " " ...	1 4	"	24 " " ...	2 0	"
18 " " ...	1 6	"	26 " " ...	2 2	"

AQUARIA.

With French polished Stands, 3s. 6d. each. Vase-shaped ditto with Glass Pedestal, 20s. each. Glass Tanks, warranted perfectly watertight, 36 inches long by 18 inches deep, 8l. each. Intermediate sizes at various prices.

GLASS FERN SHADES AND STANDS.

	s.	d.		s.	d.
6 inch diameter, each ...	3	0	12 inch diameter, each ...	8	0
7 " " " ...	3	6	13 " " " ...	10	0
8 " " " ...	4	0	14 " " " ...	12	6
9 " " " ...	5	0	15 " " " ...	17	0
10 " " " ...	6	0	16 " " " ...	22	0
11 " " " ...	7	0			

Fern Cases with Ferns complete suitable for the Drawing-room, from 25s. each.

Perforated Glass for Ventilation, from 1s. 6d. per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the trade.

116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in.	and 6 in.	by 4½ in.	...	...	12s.	0d.
6½ "	4½	" 7 "	5	...	...	12	6
7½ "	5½	" 8 "	6	...	...	13	0
8½ "	6½	" 9 "	7	...	...	13	6
9½ "	7½	" 10 "	8	...	...	13	6
10½ "	8½	" 11 "	9	...	...	14	0
12 "	9	" 13 "	9	...	...	14	0
10 "	10	" 10½ "	10½	...	...	14	0
11 "	10	" 11½ "	10½	...	...	14	0
11 "	11	" 11½ "	11½	...	...	14	0
12 "	11	" 12½ "	11½	...	...	14	0
13 "	11	" 13½ "	11½	...	...	14	0
13 "	12	" 13½ "	12½	...	...	16	0
13½ "	13½	" 14½ "	13½	...	...	16	0
15½ "	13½	... ...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

TRELOAR'S COCOA-NUT FIBRE MATTING AND DOOR MATS.

T. TRELOAR has much pleasure in stating that the Jurors of the Paris Universal Exhibition have awarded him the Prize Medal for Cocoa-nut Fibre Manufactures.

Catalogues, containing prices and every particular, free by post. Warehouse, 42, Ludgate Hill, London.

GARDEN EMBELLISHMENTS AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory, foraviaries, poultry houses, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to COTTAM & HALLEN, Iron Works, 2, Winsley Street, Oxford Street.

THIRTY TO FIFTY PER CENT. BELOW COST.

CHAFF CUTTING, CORN BRUISING, CATTLE WEIGHING, DIBBLING, and other MACHINES, by Ransomes, Garretts, &c., warranted equal to new.—EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (6 doors west of Hampstead Road), London.

SECOND-HAND AGRICULTURAL IMPLEMENTS.—Gentlemen having surplus Machines and Implements may realise their value by application to EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (6 doors west of Hampstead Road), London.

WANTED, about 250 feet of Sound Second-hand 4-inch IRON PIPING, fit for a Hothouse, in the usual separate lengths.—Particulars and lowest cash price forwarded to T. T., The Villetta, Emsworth, Hants.

TO BE SOLD FOR 7l., HUSSEY'S REAPING MACHINE, by R. GARRETT & SON.—Apply to THOS. MOORE, Nursery and Seedsman, Kingsbridge, Devon.

IMPORTANT TO NURSERYMEN AND FLORISTS.

PATENT MACHINE-MADE TALLIES FOR PROPAGATING PURPOSES, five-eighths of an inch wide, perfectly smooth on both sides, and pointed. Price 1s. 8d. per 1000, for cash. A sample by post on receipt of stamped envelope.—E. EDWARDS & Co., St. Paul's Square, Birmingham.

WATER your GARDENS and MANURE your LANDS with GUTTA PERCHA TUBING. Half-inch for gardening, 4d. per foot, medium; 4½d. stout; brass branch, stop-cock, and rose, 5s. 6d. Apply for illustrated price lists to J. SHEATH & Co., Patent Gutta Percha Factory, 35, Old Street Road.

ROLL TOBACCO CORD, the cheapest and most effectual article for Smoking Greenhouses and Destroying the Fly on Plants. Nurserymen can be supplied with the above at 1s. 6d. per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post Office Order payable at Kennington Cross.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

FIRST PRIZE REAPING MACHINE.

NOTICE.

MESSRS BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30l. was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London

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"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL, now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at a great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lacework ground, upon which is engraved in white letters, "ROWLANDS' MACASSAR OIL for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the proprietors in red Ink, "A ROWLAND & SONS." The whole, with the exception of the Profile of her Majesty the Queen, being covered with a lacework pattern, in transparent colourless ink. The Pamphlet enclosed in the label or wrapper has been re-written and thoroughly revised; and instead of the cork and seal to the bottle, a glass stopper, of the Aire and Calder Company's Patent, is now used. The prices of the Macassar Oil are 3s. 6d. and 7s.; family bottles, equal to four small, 10s. 6d.; and double that size, 21s. Sold at 20, Hatton Garden, London; and by Chemists and Perfumers.

PARR'S LIFE PILLS

PURIFY THE BLOOD and Prevent the Establishment of Diseases in the System. The period has now arrived when the necessity for economy, precaution, and judicious attention to the purchase of good medicine is beginning to be felt and acknowledged. The large sale of PARR'S LIFE PILLS shows that the English public are not behindhand in discernment, when they patronise an article of such established repute, and of such decided usefulness.

*** ASK FOR PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country, and by the following appointed Agents:—

E. EDWARDS, 67, St. Paul's Churchyard;
BARCLAY & SONS, 95, Farringdon Street;
SUTTON & Co., 10, Bow Churchyard;
HANNAY & Co., 63, and SANGAR, 150, Oxford Street, London.

In boxes, price 1s. 1½d., 2s. 9d., and in family packets, 11s. each. Protected and guaranteed in every country by the English Government stamp, which is affixed to each box of the genuine medicine.

METCALFE AND CO.'S NEW PATTERN TOOTH BRUSH, PENETRATING HAIR BRUSHES, AND SMYRNA SPONGES.—The Tooth Brush performs the highly-important office of searching thoroughly into the divisions and cleansing in the most extraordinary manner—hairs never come loose. Peculiarly penetrating Hair Brushes, with durable unbleached Russian bristles, which will not soften like common hair, and immense stock of genuine unbleached Smyrna Sponge, with every description of British and Foreign Perfumery, at METCALFE, BINGLEY, & Co.'s only Establishment, 130 B and 131, Oxford Street, second and third doors west from Holles Street.

CAUTION.—Beware of the word "from" Metcalfe's, adopted by some houses. Metcalfe's Alkaline Tooth Powder, 2s. per box.

GOLDEN SPANGLED HAMBURGHS.

EGGS at 10s. per set (of 13), all from Prize Birds, in part from Mrs. Coleridge's celebrated stock, Eton College, Windsor.—Address, Mr. JNO. COMPTON, Portchester, Fareham, Hants.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15s. per dozen, including case.—Address, Holme, Stilton, Hunts.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12s. per doz; box, 1s. extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

TO FLORISTS, GARDENERS, AND OTHERS.

TO BE LET, A PIECE OF GROUND near London, for a term of years, with Greenhouses, Pits, Lights, Stock, Shed, &c. Terms moderate.—Apply to Mr. GODDARD, 14, Great Portland Street.

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on (entry at Martinmas, 1856). The FARM OF MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr, and one from Maybole, where there is a railway station. It extends to 298 acres, one rood, eight poles, imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oilcake Crushers, Millstones for grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, manager at Myremill, will show the Farm; and offers will be received by MR. BROWN, Royal Bank Office, Maybole

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ORCHIDS.

TO BE SOLD, by Private Contract, a small Collection of the above beautiful Plants, the property of a gentleman declining their cultivation on account of ill health. Many of the specimens are very fine, and among them will be found:—Vandas suavis (Veitch's true), tricolor, cærulea; Phalænopsis amabilis (very fine), grandiflora; Saccolabium guttatum, Blumei majus, &c.; Ærides quinquevulnera, vivens, roseum, &c.; Calanthe vestita (Veitch's fine dark-eyed), Burlingtonia fragrans, Cattleyas Aclandiæ, crispa, purpurascens (true), superba, labiata, Ianthina, &c; Cœlogyne cristata, &c.; Dendrobium clavatum, Falconeri, Farmeri, Dalhousianum, formosum, &c.; Lælia purpurata (true), Barkeriana, &c.; Odontoglossum aurepurpureum, Phalænopsis, &c.; Miltonia morelli, spectabilis, virginalis, &c.; Scuticaria, Hadweni, Sophronitis grandiflora, Oncidium, &c.—For further particulars, terms, &c., apply to Mr. FRANCIS FORD, Nurseryman, Southampton Hants; or to Mr. HENRY CLARKE, Seedsman, 39, King Street, Covent Garden.

ORCHIDS.

AN IMPORTATION FROM NEW GRENADA, JUST RECEIVED PER W. I. MAIL PACKET "ATRATO," IN FIRST-RATE CONDITION.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, April 25, at 1 o'Clock precisely, a Collection of ORCHIDS made in the Province of Veragua, New Grenada, consisting of magnificent masses of Trichopilias suavis and coccinea, and a species probably new, Odontoglossum Warczewiczia, Epidendrum maculatum, Cypripedium caudatum roseum, Warrea discolor, Cattleyas from the volcano of Chiriqui, and other species which Mr. Warczewicz failed to bring home alive when he visited that district in 1853.—May be viewed on the morning of Sale and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

THE SPLENDID COLLECTION OF AZALEA INDICA BELONGING TO MESSRS. FRASER, LEA-BRIDGE ROAD, ESSEX.

MR. J. C. STEVENS is instructed to offer for Public Competition at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 29, at 1 o'clock precisely, the whole of the magnificent Collection of AZALEAS, comprising all the finest varieties in cultivation, in the most healthy condition, and beautifully furnished with bloom; a great acquisition to parties intending to exhibit this season.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, April 24, at 12 o'Clock, a first-rate Collection of Carnations, Picotees, and Pinks; also a choice assortment of American Plants, Azalea indica, Fuchsias, Verbenas, Dahlias in dry roots, &c., with a variety of plants in bloom.—On view the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MR. J. WILLMER will Sell by Auction at the Mart, Bartholomew Lane, City, on WEDNESDAY, April 23, at 12 o'Clock, a choice Collection of Picotees, Carnations, Yellow Picotees, Pinks, Roses, Dahlias, Auriculas, Heartsease, Hollyhocks, Paeonies, &c. On view the morning of Sale.—Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

VALUABLE AND RARE FERNS, HOTHOUSE AND GREENHOUSE PLANTS.

POULTON-CUM-SEACOMBE, NEAR LIVERPOOL.

MESSRS. THOS. WINSTANLEY AND SONS will Sell on the premises, near the village of Poulton, on THURSDAY, May 1, at 12 o'Clock precisely, the extensive collection of valuable HOTHOUSE and GREENHOUSE PLANTS, the property of the late Mr. John Bewley. The Stove Plants consist of about 200 to 250 pots, amongst which are fine plants of Strelitzia, Bletia Musa, Cavendishi, Zamia, horrida; Clivea nobilis; Franciscea, Gardenias, &c.; and about 180 pots of Ferns, amongst which are fine well-grown specimens of Adiantum reniforme, varium, macrophyllum; Asplenium nidus, Cassibera palmata, Gymnogramma, Mertensi chrysophylla, Hemionitis cordata, Polystichum capense, &c.—May be viewed on application on the premises any day previous to the Sale. Catalogues are preparing and will be ready in a few days at the Office of Messrs. THOS. WINSTANLEY & SONS, Church Street, Liverpool.

TO THE TRADE.

SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, the 2d week in May, at the following prices:—

16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—April 19.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s.* 6*d.* each. If three packets are ordered by the trade, one will be added.

Chiswick Nursery, London.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

NOTICE TO ALL ENGLAND.

JOHN SLIPPER'S (Villa Nursery, Camden Town, London) is the cheapest place for DAHLIAS, FUCHSIAS, VERBENAS, GERANIUMS, CALCEOLARIAS, HELIOTROPES, CHRYSANTHEMUMS, and all kinds of Bedding and Greenhouse Plants of fine varieties true to name.—Catalogues may be had on application for two postage stamps.

CATALOGUE OF CHOICE PLANTS.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform amateurs and the trade that a Supplement to his Catalogue of Plants is just published, which may be had on application, of his Agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London.

N.B. His New Indian Azalea Eulalie Van Geert will be sent out on the 1st May, at 7*s.* 6*d.* and 21*s.* each; one over for every three plants taken.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of the 12th inst., page 243. Good established plants, 10*s.* 6*d.* each, The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD and INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10*s.* 6*d.* each, with the usual allowance to the trade when three are ordered.

Huntingdon Nurseries, April 19.

BEDDING PLANTS.

F. and A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.

Dulwich, Surrey.

15,000 DWARF ROSES IN POTS NOW READY FOR SENDING OUT.

WM. WOOD and SON beg to solicit the early attention of Planters to their enormous and splendid Stock of ROSES IN POTS; the Plants are strong and healthy, and well adapted either for planting out in masses or for growing on in pots for exhibition or greenhouse decoration. The above consist principally of the leading Hybrid Perpetual Roses, with some Bourbons, Noisettes, and Chinas, and will be supplied from 12*s.* to 18*s.* per dozen, the selection of sorts being left to W. W. & S.

Plants presented for distant carriage. Reference required from unknown correspondents. Catalogues forwarded free on application.—N.B. The months of April and May are very eligible for planting out Roses from pots.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"WHEELER'S little Book will do something to satisfy their Expectations."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

TO THE TRADE.

GEORGE ROBERTS begs to make known that he can supply the following SEEDS at favourable prices. Pharbitis limbata, Ipomea Horsfalli, I. rubro-cærulea, I. bona nox, I. quamoclit, I. purpurea, I. variegata, Convolvulus polyanthus, Aristolochia odoratissima, Brunsfelsia americana, Cæsalpinia sepiaria, Canna Warczewiczi, C. indica, C. lutea, Canavalia altissima, Centanridium Drummondi, Clitoria Plumieri, C. ternatea, Combretum comosum, Duranta Ellisia, Mimosa asperata, M. pudica, Passiflora quadrangularis, Quisqualis indica, Tecoma stans, Thunbergia alata, T. alba, T. aurantiaca, T. Fryeri. Also a large number of fine large Bulbs lately received of Hippeastrum equestria, and Zephyranthes carinata. —32, Moorgate Street, London.

HUGH LOW and CO. have now ready for Sale plants of the undermentioned VERBENAS, seedlings of Rougier and Chauvière, of Paris, which they particularly recommend:—Claire, pure white, striking carmine eye; Edouard, flesh colour, yellow centre; Jaguarita, purpled violet, darker centre, white eye; Medéric, bright crimson red, black centre, yellow eye; Rosati, lilac pink, purple centre; Noel, bright scarlet, black eye; Martial, bright rose, purple centre; Marietta, pure white, bright rose eye; Le Gondolier, bright currant colour, centre clear; Marco, bright cherry colour, sometimes striped with pink, dark centre; Inesille, pale pink, the centre dark lilac and yellow; La Tchernaia, purple amaranthus, yellow centre, surrounded with brown; Auguste Maquet, salmon rose-purpled, violet centre; Alphonsine, poppy red, white and lilac centre.—Price 1*s.* 6*d.* each.

Clapton Nursery, London, April 19.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS and Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

SUTTON'S SELECTED MANGEL WURZEL.

THE MANGEL WURZEL ROOTS *grown from* Messrs. Sutton's *Seed gained the First Prizes at the Birmingham and many other Root Shows last season*—(*see* Times *Newspaper, December* 12, 1855.)

They were also much admired on Messrs. Sutton's stand at the Smithfield Club, shown in Baker Street Bazaar, as see reports in the *Agricultural Gazette, Bell's Messenger, Mark Lane Express,* and other papers of December last. At present, Messrs. Sutton can supply any quantity of Seed. Price of their selected Yellow Globe 9*d.* per lb. The prices of other kinds and of large quantities may be had on application.

Royal Berkshire Seed Establishment, Reading, April 12.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

TO THE SEED TRADE.

W. J. EPPS, Seed Merchant and Grower, Maidstone, begs to offer—

Skirving's Swede	...27*s.* bush.	Orange Jelly ...	...31*s.* bush.
Marshall's selected	...28 "	Smart's White Globe,	28 "
Epps'	...32 "	Long Red Wurzel	...30 cwt.
Laing's ...	...30 "	Yellow Globe ..	...36 "

The above Seeds have been grown by the advertiser from the best selected stocks in the country.

Terms, Cash or satisfactory reference at two months.

POTATOES.

W. and S. GAINES respectfully invite attention to the following List of POTATOES:—

	Per bushel—*s.*	*d.*		Per bushel—*s.*	*d.*
Early Bath	5	0	Bread-fruit	4	0
" Flourball ...	5	0	Walnut-leaf Kidney ...	4	0
Hicks's Early	5	0	White Blossom do. ...	4	0
Ash-leaf Kidney ...	6	0	Cambridge do. ...	4	0
Nevill's Defiance ...	6	0	Fluke do.	4	0
Thruston's Conqueror ...	6	0	Jackson's Improved do.	6	0
Shilling's Early ...	6	0	Red Ash-leaf Kidney ...	6	0
Oxford "	6	0	Lapstone do.	4	0
Cockney "	6	0	Americans	6	0
Frame "	6	0	Fortyfold	4	0
Tiley's Conqueror ...	6	0			

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2*s.* 6*d.*, 15 varieties; packet at 5*s.*, 30 varieties; Scarlet Runners, 10*s.* per bushel; Dwarf French Beans, 12*s.* per bushel, of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. Gaines, Seedsmen and Herbalists, Covent Garden Market.

AGRICULTURAL SEEDS, ETC.

PETER LAWSON and SON beg to intimate that they are ready to send out all kinds of Agricultural Seeds, comprising Hay and Pasture Grasses, Clovers and other Herbage and Forage Plants, Turnips, Mangel Wurzel, Carrots, and other Roots, Seed Oats, Wheat, Barley, and Rye; all of which are of the finest kinds and most approved varieties in cultivation. Priced Lists may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

VEGETABLE AND FLOWER SEEDS.

PETER LAWSON and SON have given their best attention to their Stocks of the above, which they know to be of first-rate quality.

Priced Catalogues may be had on application.

Seedsmen and Nurserymen to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland.

27, Great George Street, Westminster.

LYNCH'S STAR OF THE WEST CUCUMBER. —The Subscribers have just received the following, quite unsolicited, which fully bears out the character given to it by the raiser, Mr. Lynch, Gardener to the Earl of St. Germans.

Extract of a letter received from a scientific Horticulturist in Essex:—

"*Last year I obtained some seed of Lynch's Star of the West Cucumber from you, which turned out everything that could be desired, both as a cropper and for excellent flavour, and in all the general qualities for a first rate Cucumber. As a first rate bearer I may mention that in one plant I counted* FIFTY-EIGHT FRUIT (*after* rubbing off eight where they came double), *before any of them were more than 6 inches long, and the plants begun to show fruit at the first joint on every side shoot.*"

Packets 2*s.* 6*d.* each, containing five Seeds, can be obtained from William E. Rendle & Co., Seed Merchants, Plymouth.

CHOICE BEDDING PLANTS.

WILLIAM F. SMITH has to offer fine healthy Plants of the following choice GERANIUMS and VERBENAS:—Geranium Beauty of Chipstead, brilliant scarlet, of the habit of Cerise Unique; very beautiful. Strong Plants in large 60-size pots, 18*s.* per dozen.—Geranium Lady Holmesdale, improved (Smith's), splendid deep pink with white centre, truss well formed, and as large as an Hydrangea; warranted one of the best for pot culture, 9*s.* per dozen.—Geranium Flower of the Day, in small 60-size pots, 4*s.* per dozen. Ditto, in large 60-size pots, 6*s.* per dozen. Ditto, large in 48-size pots, 12*s.* per dozen. Geranium, Scarlet varieties, 4*s* per dozen.

VERBENA—Mrs. Woodroffe, 4*s.* per dozen. Ditto Mrs. Holford, 5*s.* per dozen.

A remittance or reference must accompany all orders from unknown correspondents. Carriage free to London.

Riverhead Nurseries, Sevenoaks, Kent.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above to be sent out on and after the 19th of April. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

SKIRVING'S IMPROVED SWEDE TURNIP.

MR. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, April 19.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars.	... £1	0	0
25 ditto PICOTEES " " ...	... 1	0	0
25 ditto PINKS " " ...	... 0	10	0
25 plants PANSIES " " ...	... 0	12	0
12 ditto PHLOXES " " ...	... 0	8	0
12 ditto BELGIAN DAISIES	... 0	4	0
25 DAHLIAS	... 0	12	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

NELSON'S NEGRO is the best Dark Shrubby CALCEOLARIA ever offered; unequalled for bedding purposes, and one of the earliest flowering varieties in cultivation. In habit dwarf, clean, free and robust. Blooms abundantly all the summer, producing in the open borders colossal semicircular trusses. The flowers are of a rich deep crimson colour, much finer than "Sultan," which, unlike that semi-herbaceous variety, neither scorches or fades, the colour being proof against sun and rain. Ordered by all the Nurserymen in London, Bristol, and elsewhere who have seen it. Now ready to send out. Fine strong plants, price 5*s.* each; or three sent where two are ordered.

St. Michael's Nursery, Bristol, April 19.

THOMAS VEITCH and CO., Wholesale and Retail Agricultural Seed Merchants, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do., 3*s.*; and upwards according to quality and quantity.

Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flowerpots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. Martin, 14, Gough Square, London; C. Turner, Royal Nursery, Slough; J. Keynes, Nursery, Salisbury. Descriptive drawings sent on receipt of postage stamp.

E. Edwards & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

A CALAMITOUS FIRE which occurred on the night of the 19th March at St. Andrew's Hill, Doctors' Commons, having completely destroyed the FURNITURE, STOCK, &c, of Mr. JAMES MANLEY, formerly Nurseryman at Hackney and Exeter, a few Friends are desirous to raise a small sum to assist his Family under their present straitened circumstances.

Subscriptions will be thankfully received by Hurst & McMullen, 6, Leadenhall Street; by Hugh Low & Co., Clapton; and by Mr. Bruce, Kingston.

Messrs. Hurst & McMullen, 6, Leadenhall Street ...	£2	2	0
Messrs. Hugh Low & Co., Clapton	0	10	0
Mr. W. Ivery, Peckham	0	10	0
Mr. R. Glendinning, Chiswick	1	1	0
Messrs. O. & S.	1	0	0
Mr. W. Addiscott, 6, Leadenhall Street	0	10	0
Mr. W. Clark, 25, Bishopsgate Street	0	10	0
Mr. W. Denyer, 82, Gracechurch Street	0	10	0
Mr. Soden, Middle Barton	0	2	6
Mr. Butcher	0	2	6
Mr. Davis	0	5	0
Mr. Gower, Kingston	0	2	6
Mr. Bruce, Kingston	0	10	0
Messrs. Fraser, Leyton	0	2	6
Mr. Edward Denyer, Brixton	1	0	0
Mr. Jno. Andrew Henderson	0	10	0
Mr E. G. Henderson, St. John's Wood	0	10	0
Mr. T. Sommerville, St. John's Wood	0	5	0
Mr. McArthur, Edgeware Road	0	5	0
Mr. Videon Junr., Edgeware Road	0	10	0
Mr. Charles Woodrooffe, Harrow Road	0	5	0
Mr. G. Jackman, Woking	0	5	0
Mr. R. C. Ward, Bath	0	5	0
Mr. George Gray, Bow	1	0	0
Mr. Marnock, Regent's Park	0	10	0
Messrs. Dobson & Sons, Isleworth	0	5	0
Mr. John Adams, Brentford	0	10	6

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, April 19, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1856.] SATURDAY, APRIL 26. {Price Fivepence. Stamped Edition, 6*d*.

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THE EARL OF STAMFORD AND WARRINGTON will allow the Public to walk in the Grounds of Enville Hall on TUESDAYS and THURSDAYS, commencing the first Tuesday in May.—Application must be made at the Gardens for admission and a Guide.

GRAND HORTICULTURAL AND FLORICULTURAL EXHIBITION AT ROTHERHAM. Open to all England. On WEDNESDAY and THURSDAY, the 6th and 7th August, 1856, during the Show of the Yorkshire Agricultural Society in that town. The list of prizes is now ready, and may be obtained, gratis, of Mr. Charles Dixon, the Hon. Secretary, at Rotherham or Sheffield. The PRIZES offered will exceed ONE HUNDRED POUNDS in amount. Specimens sent for Competition from a Distance will receive every care and attention.—Rotherham, April 26.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Second Exhibition of the above Society will take place at Cashiobury Park, on the 3d of July next. Schedules are now ready, and can be had on application to the Secretary, Mr. J. W. Taylor, High Street, Watford, Herts.

ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

MESSRS. MASTERS AND SON, LANDSCAPE GARDENERS.
Canterbury and Maidstone.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

TO THE SEED TRADE.

SKIRVING'S SWEDE, 8 sacks for sale, warranted all new Seed and pure stock; also Long Yellow and Long Red Mangel Wurzel.—Apply to John Moss, Jun., Feening, Kelvedon, Essex.

GOLDEN CHAIN GERANIUMS.

ROBERT REA, Ipswich Nursery, Ipswich, begs to offer strong Plants at per 100, 75*s*.; per dozen, 12*s*.

CARNATIONS AND PICOTEES.

WOOD AND INGRAM beg to offer fine showy named varieties, well established in pots, from 1*s*. to 1*s*. 6*d*. per pair.—Nurseries, Huntingdon, April 26.

FIRST CLASS PANSIES, ETC.

HART AND NICKLIN, Florists, Guildford, offer a collection of Twenty PANSIES for 12*s*., including Monarch (Hale), Satisfaction (Turner), Sovereign (Dickson), &c.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

NOTICE TO ALL ENGLAND.

JOHN SLIPPER'S (Villa Nursery, Camden Town, London) is the cheapest place for DAHLIAS, FUCHSIAS, VERBENAS, GERANIUMS, CALCEOLARIAS, HELIOTROPES, CHRYSANTHEMUMS, and all kinds of Bedding and Greenhouse Plants of fine varieties true to name.—Catalogues may be had on application for two postage stamps.

NEW BRITISH FERN.

Asplenium Refractum (Moore). For Description see March Part of "Nature Printing."

R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10*s*. 6*d*. each.
Paradise Nursery, Hornsey Road, Holloway.

KALMIAS, ANDROMEDAS, AND AZALEAS.

WILLIAM F. SMITH has for sale several hundreds of fine healthy plants of Kalmia latifolia, 1 to 3 feet; Andromeda floribunda, 1 to 3 feet; Azaleas, in 30 varieties, 2 to 4 feet. All fine blooming plants, warranted to remove well. Price may be had on application.
Riverhead Nursery, Sevenoaks, Kent.

CATALOGUES.

H. LANE AND SONS' CATALOGUE of ROSES, GREENHOUSE, STOVE, and HARDY PLANTS; also TREES and SHRUBS, HOLLYHOCKS, &c. &c., can be had at the Nurseries, Great Berkhamstead, or by letter on receipt of one penny stamp.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—April 26.

WILLIAM BAINES begs to inform his friends and the public that his SPRING CATALOGUE of Indian Azaleas, Cinerarias, Fuchsias, Verbenas, Hollyhocks, Phloxes, Roses, Geraniums, Chrysanthemums, perpetual-blooming Carnations, and other miscellaneous Plants, with an excellent assortment of Herbaceous and Bedding Plants is now ready, and will be sent post free on application.—Camden Nursery, Camberwell.

T. F. WINSTANLEY'S TRADE PRICED LIST OF GARDEN SEEDS is now ready, and can be had on application, 28, Market Place, Manchester.

T. F. WINSTANLEY, Seed Merchant, 28, Market Place, Manchester, is now ready to send out his DESCRIPTIVE CATALOGUE OF GARDEN, AGRICULTURAL, AND FLOWER SEEDS. Attached to this Catalogue is a Calendar of Seeds to be sown in each month; also the mode of cultivating the Dioscorea.

T. F. WINSTANLEY begs to inform his friends that his collections of NEW GARDEN SEEDS are now ready, comprising all the most useful vegetable produce, from 1*l*. to 5*l*. The DESCRIPTIVE CATALOGUE contains the details of each collection on page 11.
Seed Warehouse, 28, Market Place, Manchester.

AMERICAN PLANTS.

JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—April 26.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

AMERICAN PLANTS.

WATERER AND GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

NURSERY & SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., respectfully invite the attention of the Trade to their Turnip, Mangel Wurzel, and Carrot Seeds, the stock of which has been carefully selected and grown by themselves from transplanted roots.
Catalogues with prices can be had on application.

NEW DAHLIA LADY FRANKLIN.

CHARLES SCHOFIELD begs to offer the above splendid Dahlia. It has taken numerous First Prizes in Class showing. The colour is salmon or rich orange, quite distinct. C. S. can recommend it with confidence. Plants now ready, 10*s*. 6*d*. each. Show varieties of Dahlias, 6*s*. per doz.; Pansies 6*s* to 12*s*. per doz.—Knowsthorpe, near Leeds.

SELECT HOLLYHOCKS.

WILLIAM PERRY, Foreman to Mr. Rivers, of the Nurseries, Sawbridgeworth, begs to inform the public that he has published a Descriptive List of Selected HOLLYHOCKS, which will be sent postage free on application.

DAHLIAS, VERBENAS, GERANIUMS, CALCEOLARIAS.

J. GRIFFIN having an immense Stock of all the choicest varieties of the above Plants, begs to offer them at very low prices. Descriptive Catalogues will be forwarded on application.—Weston Road, and 2, New Bond Street, Bath.

800,000 FLATPOLE OR DRUMHEAD CABBAGE PLANTS.

THOMAS MOORE begs to inform the public that he has for Sale, at 5*s*. per thousand, or 20*l*. per hundred thousand, a superior Stock of Plants grown from Seed of his own saving. Information can be given of last year's growth on application.—Kingsbridge Nursery, Devon.

ITALIAN RYE-GRASS SEED.

SUTTON AND SONS having, in anticipation of the present great demand for this invaluable article, provided an extra large stock of the best quality Seed, are still able to execute orders for either SUTTON'S IMPROVED, DICKENSON'S, or Fresh Imported Seed.
Instructions for cultivation are sent with the Seed.
Early orders will be necessary. Priced List of Agricultural Seeds may be had gratis.—Reading, Berkshire.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree, which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s*. 6*d*. each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery London.

NEW AND BEAUTIFUL PHLOXES.

YOUELL AND CO. are sending out a very choice Collection of the above in 60 of the most beautiful and distinct varieties, selected with great care from upwards of 200 kinds in their possession.—Price 9*s*. per dozen, including that fine New Phlox COUNTESS OF HOME.
Royal Nursery, Great Yarmouth, Norfolk.

CHOICE SHOW PANSIES.

J. DOBSON AND SON can supply strong plants of the above at 9*s*., 12*s*., and 18*s*. per dozen.
Woodlands Nursery, Isleworth.

BECK'S NEW PELARGONIUMS.

J. DOBSON AND SON beg to state that a few sets of the above splendid varieties remain unsold. Prices and other information respecting them may be had on application.
Woodlands Nursery, Isleworth.

CHOICE SHOW GERANIUMS.

J. DOBSON AND SON having a large and very healthy stock of all the leading favourites, beg to offer them from 18*s*. per dozen. We flatter ourselves that the plants are unequalled in the trade, as many testimonials can verify.
Woodlands Nursery, Isleworth.

SUPERB YELLOW-GROUND PICOTEES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, can supply 12 pairs extra fine named varieties of the above for 18*s*.

FIRST-CLASS SHOW PANSIES, in strong well-rooted autumn struck Plants, at 6*s*. per dozen.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

FIRST-CLASS DAHLIAS for 1856, strong plants, 6*s*. per dozen.
Spring Catalogues now ready; may be had upon application.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

RHODODENDRONS AND GHENT AZALEAS.

H. LANE AND SON have still to offer fine Plants of the above, well set with bloom buds, consisting of well-known first-rate sorts, Catalogues of which may be had on application.—Great Berkhamstead, Herts.

INDIAN AZALEAS.

H. LANE AND SON have great pleasure in offering Indian Azaleas consisting of all the most popular sorts at from 12*s*., 15*s*., 18*s*., 24*s*. to 36*s*. per dozen, selection left to themselves. Also fine young specimens, price of which can be had on application at the Nurseries, Great Berkhamstead, Herts. Usual discount to the trade.

BERNARD SAUNDERS will be happy to supply Six Growing Plants of GYMNOGRAMMA LEPTOPHYLLA or ANNUAL MAIDEN HAIR FERN, for 2*s*. 6*d*., box and postage included.—Cæsarean Nursery, Jersey, April 26.

BOSSOM'S "CHAMPION" CELERY has proved to be the best in cultivation for size, solidity, and crispness; it also withstands a greater degree of frost than any other variety To be had in sealed packets at 1*s*. The Trade supplied.
T. F. Winstanley, Seed Merchant, Manchester.

THE ONLY BALSAMS TO BE DEPENDED ON.
Glenny's Improved Six Classes, 37 stamps: Mixed, 13; splendid Asters, quilled, 13; Pyramidal, 13; New Bouquet, 13; Double Imperial India Pink, 13; 12 Showy Annuals, 36.
Dungannon House, Fulham.

TO DAHLIA GROWERS.—Three of the best Six coming out, NAPOLEON, EUGENIA, and PRINCESS, sent free to any part of the Kingdom, 10*s*. 6*d*. each, with any others required.—G. Glenny, Horticultural Agent, Fulham.

SACCOLABIUM AMPULACIUM.

WILLIAM MAULE AND SONS have much pleasure in stating that they can supply a year's established Plants of this scarce and charming Orchid at 105*s*. each.
Stapleton Road Nurseries, Bristol.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.
Nursery and Seed Establishment, Sleaford, April 26.

HARDY HEATHS.

WATERER AND GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

WHEAT FOR LATE AND SPRING SOWING.—Samples with prices of Talavera, April, and other kinds of Seed Wheat will be sent free on application to
Mr. H. Raynbird, Basingstoke.

SEED BARLEY FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Chevalier, Golden Drop, Thanet, and other approved sorts of Barley at market prices. Hudson's Golden Melon Barley, a new variety, productive, and of fine Malting quality, may be had on application.

ORANGE TREES.

J. AND C. LEE have just received a consignment of young ORANGE TREES in the finest possible condition, in bloom and in fruit.—Nursery, Hammmersmith.

SUCCESSION PINE PLANTS.

TO BE SOLD, about 90 healthy plants, the property of a gentleman.—For particulars apply to Messrs. Masters & Son, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

SEED POTATOES.—True Ash-leaf Kidney, Jackson's do., Walnut-leaved do., Fluke (true), Lapstone, Flourball, and all other first class varieties, to be had of T. F. Winstanley, Seed Merchant, Manchester.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip: it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1s. per lb.; 40lbs. will be sufficient for an acre. Delivered carriage free.

J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

EARLY CORNISH BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI, celebrated and invaluable for its earliness. (See Testimonials).

Gardeners, Seedsmen, and others who applied too late for Seeds of this superior and rare Broccoli, are informed that they may be supplied with Plants from the Seed beds in May next, at 2s. 6d. per 100 (Carriage or Postage included), by sending their orders during the present month to Hurst & M'Mullen, Leadenhall Street, London; or to Mitchinson & Co., Truro, Cornwall.

FUCHSIAS.

WILLIAM HUSSEY begs to offer the under-named Collection for 12s., hamper included: viz., Queen Victoria, Trentham, Mrs. Story, Voltigeur, Exquisite, Hendersoni, Cartoni, Splendidissima, Clapton Hero, Glory, Hebe, Pearl of England, President, Prince Arthur, Alpha, Globosa magnifica, Prince Albert, Empress Eugenie, Sidonia, Vanguard, Monarch, Princess of Prussia, Lady of the Lake, Kossuth, Standard of Perfection.—Horticultural Gardens, Norwich.

PELARGONIUMS.

WILLIAM HUSSEY begs to offer the under-named Collection from bushy Plants for 20s., package included: Constance, Rowena, Virgin Queen, Rosamond, Conspicua, Chloe, Ganymede, Narcissus, Magnificent, Lord Mayor, Ajax, Emily, Cassandra, Generalissimo, Belle of the Village, Loveliness, Centurion, Alonzo, Optimum, Elise, Nectar Cup, Symmetry, Gulielma, Pearl, Rubens, Lavinia, Chieftain, Enchantress, Prince Arthur, Pulchra, Mochanna, Queen of May, Beatrice, May Queen, Christine, Eurydice, Cuyp, Little Nell, Magnet, Ariadne, Col. of the Buffs, Major Domo.

Horticultural Gardens, Norwich.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10s. 6d. each, with the usual allowance to the trade when three are ordered.

Huntingdon Nurseries, April 26.

SPLENDID SEEDLING CALCEOLARIAS.

WILLIAM BARNES has now to offer his two new and unrivalled CALCEOLARIAS "ADMIRATION" and "CAMDEN HERO," at 5s. each. The former is a very fine, free-blooming, shrubby variety for bedding; flower large and showy, golden cap, velvet crimson centre, encircled by a belt of yellow. Camden Hero possesses all the good qualities of Admiration, is of a beautiful dark glossy crimson colour, fine flower, large truss, dwarf habit, and very free bloomer.

N.B. The stock of the former is limited.

William Barnes, Camden Nursery, Camberwell.

15,000 DWARF ROSES IN POTS NOW READY FOR SENDING OUT.

WM. WOOD AND SON beg to solicit the early attention of Planters to their enormous and splendid Stock of ROSES IN POTS; the Plants are strong and healthy, and well adapted either for planting out in masses or for growing on in pots for exhibition or greenhouse decoration. The above consist principally of the leading Hybrid Perpetual Roses, with some Bourbons, Noisettes, and Chinas, and will be supplied from 12s. to 18s. per dozen, the selection of sorts being left to W. W. & S.

Plants presented for distant carriage. Reference required from unknown correspondents. Catalogues forwarded free on application.—N.B. The months of April and May are very eligible for planting out Roses from pots.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE BEDDING PLANTS.

WILLIAM F. SMITH has to offer fine healthy Plants of the following choice GERANIUMS and VERBENAS:—Geranium Beauty of Chipstead, brilliant scarlet, of the habit of Cerise Unique; very beautiful. Strong Plants in large 60-size pots, 18s. per dozen.—Geranium Lady Holmesdale, improved (Smith's), splendid deep pink with white centre, truss well formed, and as large as an Hydrangea; warranted one of the best for pot culture, 9s. per dozen.—Geranium Flower of the Day, in small 60-size pots, 4s. per dozen. Ditto, in large 60-size pots, 6s. per dozen. Ditto, large in 48-size pots, 12s. per dozen. Geranium, Scarlet varieties, 4s per dozen.

VERBENA—Mrs. Woodroffe, 4s. per dozen. Ditto Mrs. Holford, 5s. per dozen.

A remittance or reference must accompany all orders from unknown correspondents. Carriage free to London.

Riverhead Nurseries, Sevenoaks, Kent.

THOMAS VEITCH AND CO., Wholesale and Retail Agricultural Seed Merchants, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1s.; 12 do. do., 2s.; 12 do., do., 3s.; and upwards according to quality and quantity.

Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, Seedsmen to the Queen, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, Seedsmen to the Queen, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.
Mixtures for improving and renovating old Grass Land, 1s. per lb.
Mixtures (finest sorts) for forming Lawns... ... 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., Seedsmen,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., the Seedsmen to the Royal Agricultural Society of England, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & CO., the Seedsmen to the Royal Agricultural Society of England, corner of **Half-Moon Street**, Piccadilly, London.

Established about Half a Century.

AGRICULTURAL SEEDS.

BASS AND BROWN can supply the following of pure and genuine selected stocks, and of extra quality.

Reduced prices for large quantities.	Per lb.—s.	d.
Mangel Wurzel, Yellow Globe	0	8
" " Red Globe	0	8
" " Long Red	0	8
" " Long Yellow	1	0
White Silesian Sugar Beet	1	0
Carrot, White Belgian	0	9
" Yellow Belgian	1	0
" Long Red Altringham	1	0
Large Cattle Parsnips	1	0
Drumhead Cattle Cabbage (scarce)	4	0
Swede Turnip, purple-top, extra, 40s. per bushel...	0	10
" " Skirving's, 40s. per bushel	0	10

Turnip, Orange Jelly, Lincolnshire Red Globe, Round, Tankard, Scotch, and other Turnips at moderate prices.

Bass & Brown's SELECTED NATURAL GRASSES FOR PERMANENT PASTURES are highly approved, and have given the fullest satisfaction, and can be supplied to suit the soils required.

	Per acre—s.	d.
For Soils generally, including Clovers ...24s. to	30	0
Renovating Mixture for Old Pastures, per lb. ...	0	10
Finest Lawn Mixture, 4s. 6d. per peck, per lb. ...	1	3

All orders and inquiries will receive prompt attention. Carriage free to all stations in London and all Stations on the Colchester Line between London and Norwich.

Bass & Brown, Seed Establishment, Sudbury, Suffolk.

ITALIAN RYE-GRASS, ETC.

W. DRUMMOND AND SONS, Stirling, N.B., beg to call the attention of those engaged in Agriculture to the following Seeds:—

ITALIAN RYE-GRASS, selected from the finest stock in Lombardy, and is especially recommended for its rapid growth and luxuriant habit. Superior home-saved Seed may also be had. *Italian Rye-grass being extremely scarce this season, orders should be transmitted without delay.*

PERENNIAL RYE-GRASS, of the finest growths, perfectly clean and in various weights, weighing from 22 lbs. to 30 lbs. per bushel.

GRASSES FOR PERMANENT PASTURE.—From the extensive experience they have had in this branch, and resulting in giving complete satisfaction to the numerous gentlemen who have favoured them with orders, they feel warranted in recommending their assortments as made up to order—either mixed or separately, to suit all description of soil.

TURNIPS, in all the approved varieties of Swedes, Yellows, and Whites, carefully saved by themselves from *full-formed bulbs.*

VETCHES (or TARES).—Large broad-leaved Scotch.

PRICED CATALOGUES of the above, with every other description of FARM SEEDS, may be had post free on application. Also a valuable Descriptive Catalogue of VEGETABLE SEEDS, containing only such sorts as are really worth cultivating.

N.B.—Free Delivery.—*All Seeds are, under certain limitations, delivered carriage free to the principal shipping ports and railway stations throughout the kingdom.*

*** FARM IMPLEMENTS.—An assortment of the most approved Scotch Implements are usually kept in Stock.

W. DRUMMOND AND SONS,
Seed and Implement Warehouses, Stirling and Dublin.

HUGH LOW AND CO. have now ready for Sale plants of the undermentioned VERBENAS, seedlings of Rougier and Chauvière, of Paris, which they particularly recommend:—Claire, pure white, striking carmine eye; Edouard, flesh colour, yellow centre; Jaguarita, purpled violet, darker centre, white eye; Mederic, bright crimson red, black centre, yellow eye; Rosati, lilac pink, purple centre; Noel, bright scarlet, black eye; Martial, bright rose, purple centre; Marietta, pure white, bright rose eye; Le Gondolier, bright currant colour, centre clear; Marco, bright cherry colour, sometimes striped with pink, dark centre; Inesille, pale pink, the centre dark lilac and yellow; La Tchernaia, purple amaranthus, yellow centre, surrounded with brown; Auguste Maquet, salmon rose-purpled, violet centre; Alphonsine, poppy red, white and lilac centre.—Price 1s. 6d. each.

Clapton Nursery, London, April 26.

FIRST-RATE DAHLIAS FOR 1856.

J. KEYNES' ANNUAL CATALOGUE (Illustrated, see Turner's *Florist*) contains the best selected List of the above, and will be sent on desire. Plants will be ready as usual the first week in May.

P.S. The party who printed the above Catalogues never having printed any before, wishes to explain the nature of the Illustrations. He states, the man looking over the gate is seeking after all the first-rate flowers that were offered in 1855, wondering they are not in J. Keynes's Catalogue. The Nondescript at the end is a new Dahlia Poker (about to be patented), by which a skilful dresser is enabled to make a second class flower look equal to a first. The windmill is a puff, and so are many advertisements, and he wishes the public not to believe even all there may be stated in the Catalogue. The Typographical error (the omission of a comma), he trusts will not put a full stop to the sale of the flowers. Castle Street, Salisbury, April 26.

NEW DAHLIAS TO BE SENT OUT IN MAY BY

GEORGE WHEELER, Nurseryman, Warminster, Wilts.

ECLIPSE (Wheeler's).—Fine dark purple, first-rate form, full high centre, and very constant; obtained certificates at Bath, Clifton, and Salisbury Exhibitions; 3 to 4 feet. 10s. 6d. each.

LADY RAGLAN (Wheeler's).—Buff; a fine back row flower of good form and high centre; obtained certificates at Trowbridge, Salisbury, and Clifton Exhibitions; 4 to 5 feet. 7s. 6d.

The usual discount to the Trade.

HERBACEOUS PLANTS.—A large collection of the following can be supplied by the 100:—Double white Primrose, Campanula carpatica, blue; ditto, pure white variety; Czackia, or St. Bruno's Lily; Hepatica, pure white; Delphinium, Chinese; ditto Barlowi, ditto Wheeleri; Gaillardia splendidissima, ditto bicolor; Helleborus purpurascens; Pæonies, Chinese in variety, viz., rose-scented, Hume's, Reeves's, Potts's, double white, odorata grandiflora, &c.

Fine Bulbs of Anomatheca cruenta, Tigridias conchiflora and Wheeleri, free by post, 4s. per dozen.

Tritonia aurea, good blooming bulbs, free by post, 18s. per doz.

Phlox, a fine collection.

LYNCH'S STAR OF THE WEST CUCUMBER.—The Subscribers have just received the following, quite unsolicited, which fully bears out the character given to it by the raiser, Mr. Lynch, Gardener to the Earl of St. Germans.

Extract of a letter received from a scientific Horticulturist in Essex:—

"*Last year I obtained some seed of Lynch's Star of the West Cucumber from you, which turned out everything that could be desired, both as a cropper and for excellent flavour, and in all the general qualities for a first rate Cucumber. As a first rate bearer I may mention that in one plant I counted* fifty-eight fruit (*after* rubbing off eight where they came double), *before any of them were more than 6 inches long, and the plants begun to show fruit at the first joint on every side shoot.*"

Packets 2s. 6d. each, containing five Seeds, can be obtained from William E. Rendle & Co., Seed Merchants, Plymouth.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of Foreign Orders. The Subscribers have during the past season forwarded Seeds to Australia, New Zealand, United States, Canada, India, Malta, France, Austria, Portugal, Ionian Islands, Madeira, Gambia, China, Cape of Good Hope, Prince Edward's Island, Balaklava in the Crimea, and within the last week they have supplied some Russian Officers (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in Australia, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* so many thousands of miles. *This I consider is owing to their being well ripened and dried, and* carefully and properly packed. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

William E. Rendle & Co., Foreign and Export Seed Merchants, Plymouth.

FLOWER SEEDS.—*We have selected out of our large Collection of Flower Seeds twenty of the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in groups or beds in the Flower Garden. The German Stocks, Asters, Larkspurs, and Wallflowers especially are most superb. The Collection will be sent free by post to any address, price 5s.*

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show: they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Burlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

J. C. Wheeler & Son, Seed Growers, Gloucester.

GRAND EXHIBITION OF AMERICAN PLANTS.

MESSRS. WATERER AND GODFREY, of the Knapp Hill Nursery, Woking, Surrey, have the honour to announce to the Nobility, Gentry, and Amateurs, that they have made arrangements with Mr. T. B. Simpson for a Grand Exhibition of American Plants in the newly erected Pavilion in Ashburnham Park, adjoining Cremorne Gardens, which will far exceed any Exhibition ever seen either in this or any other country. Particulars in future advertisements.

Knapp Hill Nursery, Woking, Surrey.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above are now being sent out. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

DAHLIAS, ETC., CARRIAGE FREE.

C. E. ALLEN having a fine Stock of the best novelties sent out last season can supply plants the first week in May at the undermentioned prices: Dahlias sent out last season, 12*s.* per dozen; older varieties, 6*s.* per dozen. All orders amounting to 21*s.* accompanied with a Post Office order forwarded free on any line of railway or sea-port town having steam communication. A Descriptive Catalogue forwarded on application.—Shacklewell, near London.

TO THE TRADE.

SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, the 2d week in May, at the following prices:—

16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—April 26.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.

Dulwich, Surrey.

GOLDEN CHAIN GERANIUMS, 100 dozen fine healthy autumn-struck plants, at a moderate price. Orion Melon, 1*s.* 6*d.*; Ipswich Standard Cucumber, 2*s.* 6*d.*; Gloxinia, 1*s.*; Dahlia, 1*s.*; Cineraria, 1*s.*; Calceolaria, 1*s.*; Polyanthus, 1*s.*

N.B. A very small quantity of the above remain unsold.

Latter's Primula, Hollyhock, and Pansy, and Suffolk Hero Potatoes are sold out.—Order without delay of

THOMAS WILD, Ipswich.

NELSON'S NEGRO is the best Dark Shrubby CALCEOLARIA ever offered; unequalled for bedding purposes, and one of the earliest flowering varieties in cultivation. In habit dwarf, clean, free and robust. Blooms abundantly all the summer, producing in the open borders colossal semicircular trusses. The flowers are of a rich deep crimson colour, much finer than "Sultan," which, unlike that semi-herbaceous variety, neither scorches or fades, the colour being proof against sun and rain. Ordered by all the Nurserymen in London, Bristol, and elsewhere who have seen it. Now ready to send out Fine strong plants, price 5*s.* each; or three sent where two are ordered.

St. Michael's Nursery, Bristol, April 19.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of the 12th inst., page 243. Good established plants, 10*s.* 6*d.* each, The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth, April 26.

TO THE TRADE.

GEORGE ROBERTS begs to make known that he can supply the following SEEDS at favourable prices. Pharbitis limbata, Ipomea Horsfalli, I. rubro-cærulea, I. bona nox, I. quamoclit, I. purpurea, I. variegata, Convolvulus polyanthus, Aristolochia odoratissima, Brunsfelsia americana, Cæsalpinia sepiaria, Canna Warczewiczi, C. indica, C. lutea, Canavalia altissima, Centauridium Drummondi, Clitoria Plumieri, C. ternatea, Combretum comosum, Duranta Ellisia, Mimosa asperata, M. pudica, Passiflora quadrangularis, Quisqualis indica, Tecoma stans, Thunbergia alata, T. alba, T. aurantiaca, T. Fryeri. Also a large number of fine large Bulbs lately received of Hippeastrum equestris, and Zephyranthes carinata. —32, Moorgate Street, London.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.

	s.	*d.*
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Fine White " " "	18	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.

" Fine mixed border ditto, 6*s.* per dozen pairs.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

BEDDING PLANTS.

WILLIAM HUSSEY begs to offer the under-named collection of fine healthy Plants, well established in small pots, for 25*s.*, package included, viz:—6 choice Fuchsias, 12 Scarlet Geraniums, 6 Petunias, 12 Calceolarias, 18 Verbenas, 12 Heliotropes, 12 Pinks, 12 Picotees, 12 Show Geraniums, 6 Dahlias.—Horticultural Gardens, Norwich.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars. ...	£1	0	0
25 ditto PICOTEES " "	1	0	0
25 ditto PINKS " "	0	10	0
25 plants PANSIES " "	0	12	0
12 ditto PHLOXES " "	0	8	0
12 ditto BELGIAN DAISIES	0	4	0
25 DAHLIAS	0	12	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

BEST SHOW HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD can supply strong Plants of the following first-rate kinds, which will produce fine spikes for exhibition the ensuing blooming season.

Atropurpurea	Beauty of Cheshunt
Criterion	Hedenham Rival
Hon. Mrs. H. Ashley	Jenny Lind
La Tourterelle	Lemonade Improved
Miss Nightingale	Omer Pacha
Princess Alice	Purple Perfection
Queen of the Fairies	Schamyl
Solfaterre	Variegatum

Wholesale orders executed on liberal terms.

Hedenham Rosary, April 26.

POTATOES.

W. AND S. GAINES respectfully invite attention to the following List of POTATOES:—

	Per bushel—*s.*	*d.*		Per bushel—*s.*	*d.*
Early Bath	5	0	Bread-fruit	4	0
" Flourball ...	5	0	Walnut-leaf Kidney ...	4	0
Hicks's Early	5	0	White Blossom do. ...	4	0
Ash-leaf Kidney ...	6	0	Cambridge do. ...	4	0
Nevill's Defiance ...	6	0	Fluke do.	4	0
Thruston's Conqueror ...	6	0	Jackson's Improved do.	6	0
Shilling's Early ...	6	0	Red Ash-leaf Kidney ...	6	0
Oxford "	6	0	Lapstone do.	4	0
Cockney "	6	0	Americans	6	0
Frame "	6	0	Fortyfold	4	0
Tiley's Conqueror ...	6	0			

or any other sort that may be required. Also Packets of Annual Flower Seeds, Packet at 2*s.* 6*d.*, 15 varieties; packet at 5*s.*, 30 varieties; Scarlet Runners, 10*s.* per bushel; Dwarf French Beans, 12*s.* per bushel, of sorts.

All orders must be accompanied by Post Office Orders payable at Charing Cross to W. & S. GAINES, Seedsmen and Herbalists, Covent Garden Market.

SEEDS.

JOHN KERNAN, 4, Great Russell Street, Covent Garden, beg to offer the following List of Agricultural SEEDS:—

	s.	*d.*
Agricultural Carrots, red and white, per lb. ...	1	0
Mangel Wurzel, of sorts, per lb.	1	0
Skirving's Swedish Turnip, per lb.	0	9
Laing's Purple Topped Turnip, per lb.	0	9
Ashcroft Purple Turnip, per lb.	0	9
Green Topped Turnip, per lb.	0	9
Yellow Bullock Turnip, per lb.	0	9
White and Red Globe Turnip, per lb.	0	9
Dale's Hybrid Turnip, per lb.	0	9
Italian Rye-grass (imported), per bushel	8	0
Mixed Permanent Grasses, per bushel	8	0
Parsley for sheep-walks, per bushel	14	0
Cattle Cabbage, per lb.	2	6
Thousand-headed Cabbage, per lb.	2	0
Red Clover, per lb.	0	9
White Clover, per lb.	1	0
Trefoil, per lb.	0	6
Lucerne, per lb.	1	0

Furze or Gorse seed, 2*s.*, which is said to yield more abundant provender for milch cattle, and may be successfully cultivated on the most barren patches.

Bedding out plants, 6*s.* per dozen.

Seeds of the finest new varieties of Gooseberries, Raspberries, Strawberries, and Currants, 6*d.* per packet. May is the best time for sowing.

The trade supplied; Seeds carefully packed for all climates. Catalogues may be had on application.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have much pleasure in offering fine healthy plants of the following new ROSES in pots.

HYBRID PERPETUAL.

	Each—*s.*	*d.*		Each—*s.*	*d.*
Arthur de Sansalles ...	5	0	Marquis de Murat ...	5	0
Docteur Hénon	5	0	Mathurin Regnier ...	5	0
Duc D'Elchingen... ...	5	0	Pauline Lansezeur ...	5	0
General Pelissier	5	0	Pœonia	5	0
General Simpson	5	0	Souvenir de la Reine d'Angleterre	7	6
Josephine Ledechaux ...	5	0	Triomphe d'Avranches ...	5	0
Madame Dé iré Giraud ...	3	6	Triomphe de l'Exposition	7	6
Madame Knorr	3	6			

BOURBON.

Impératrice Eugénie ...	7	6	Marquis de Balbiano ...	7	6

One plant each of the above for 4*l.*

HYBRID PERPETUAL—OLDER VARIETIES.

Alexandrine Bachmeteff	2	0	Lafontaine	3	6
Amandine	1	6	Le Lion des Combats ...	1	6
Auguste Mie	1	6	Louise Odier	2	0
Caroline de Sansalles ...	1	6	Louise Peronny	2	0
Colonel de Rougemont ...	2	0	Madame Campbell d'Islay	1	6
Comtesse de Marennes ...	3	6	" de Cambacères ...	3	6
" Vaillant ...	3	6	" de Trottaire ...	3	0
Duchess of Norfolk ...	2	6	" Ducher	2	0
Duchess d'Orleans ...	2	0	" Lacour Jurie ...	3	6
Duchess of Sutherland ...	1	6	" Theodore Martell	3	6
Empereur Napoleon ...	5	0	Marquis of Ailsa	1	6
Eugène Guinoisseau ...	3	6	Mrs. Harriet Beecher Stowe	2	0
Geant des Batailles ...	1	6	Mrs. Rivers	2	0
General Castellane ...	2	6	President Menoux ...	3	6
" Jacqueminot ...	2	6	Prince Chipetouzikoff ...	2	0
Gervais Roullard ...	1	6	Prince Léon	2	6
Gloire de France	2	0	Queen Victoria	2	0
Jules Margottin	1	6	Souvenir de Leveson Gower	2	0
Julie Guinoisseau ...	3	6	Triomphe de Paris ...	2	0
Lady Stuart	1	6	William Griffiths... ...	2	0

Also other fine sorts of Hybrid, Perpetual, China, and Noisette Roses, at 12*s.* to 18*s.* per dozen.

N.B.—Plants presented for distant carriage. The usual discount allowed to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

SPLENDID CALCEOLARIAS FOR BEDDING.

MESSRS. YOUELL AND Co. beg to invite particular attention to the following list of SHRUBBY CALCEOLARIAS, which they confidently recommend; it comprises all the most beautiful and brilliant varieties in cultivation.

	Per dozen—*s.*	*d.*
Ajax, a fine large rich-coloured flower, of crimson and yellow	9	0
Beauty of Montreal, bright crimson, small flower, an effective and very excellent bedding variety	6	0
Correggio, orange buff, shaded, free, large, and very showy, a first-rate bedding variety	9	0
Crimson King, rich plum crimson	6	0
Empress Eugénie (Youell's), a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety; the habit is robust, flowers large, and well formed ... ... Each	1	6
Golden Chain, fine golden yellow ... ... per dozen	6	0
Gold Cap, rich dark maroon, deep yellow cap	6	0
Integrifolia, an old but favourite variety of erect habit, producing clusters of small yellow flowers	5	0
Kentish Hero, orange buff	6	0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety ...	9	0
Magnificent, rich crimson, with yellow crown...	6	0
Masterpiece, deep maroon...	6	0
Matchless, dark brown red	6	0
Model, brown shading off to orange yellow at the edges, extra	9	0
Mr. White, rich shining bronze red	6	0
Purity, colour pure white, the best exhibited last season, fine habit, with large trusses of flowers, strongly recommended for bedding	9	0
Red Rover, bright crimson shaded with orange, large and free flowerer, fine habit	9	0
Shankleyana, large orange crimson	6	0
Sulphurea splendens, fine large yellow, fine for bedding ...	6	0
Sultan, fine large crimson	6	0
Superba (Turner), fine dwarf, dark crimson, extra fine ...	6	0
——— (Constantine), dwarf crimson	6	0
Surprise, bright orange crimson, extra	9	0
Variabilis, an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white	9	0
Vezzosa, flowers large and fine formed, of a bright orange and crimson, shaded with large trusses, flowering abundantly, and a splendid habit, extra	9	0
Viscosissima, deep yellow	6	0
Wellington Hero, fine golden yellow	6	0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra	9	0
Oxalis rosea and floribunda, two beautiful and hardy herbaceous bedding plants of dwarf habit, producing throughout the season a profusion of rose coloured flowers	6	0

YOUELL & Co. have also to offer a brilliant collection of Verbenas and other bedding plants.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

GERANIUMS,

A LARGE AND FINE STOCK OF FIRST-RATE SORTS.

BASS AND BROWN have a fine and vigorous stock of the following at the annexed low prices:—

NEW SHOW GERANIUMS OF LAST SEASON.

The following 12 *for* 36*s.*, *or separately as priced:*—

Dobson's Silenus ...	5*s.*	0*d.*	Hoyle's Serena ...	5*s.*	0*d.*
" Laura ...	5	0	" Topsy ...	3	6
" Lydia ...	3	6	" Queen Eleanor	3	6
Lowe's Calliope ...	3	6	Story's Fair Helen ...	5	0
Foquet's Petruchio ...	3	6	Turner's Pandora ...	5	0
Hocken's Una	3	6	" King of Portugal	5	0

The following 20 *for* 28*s.*, *or any* 12 *for* 18*s.*:—

Carlos, Duchess of Wellington, Eliza, Empress, Glowworm, Governor-General, Hero of Devon, Leah, Lucy, Mary, Monte Christo, Neatness, Optimus, Pilot, Purple Perfection, Rebecca, Regalia, Rosa (Foster's), Sanspareil, and Virginica.

The following 20 *for* 14*s.*, *or any* 12 *for* 9*s.*:—

Admiral, Alderman, Ambassador, Brilliante, Butterfly, Conspicuum, Commissioner, Enchantress, Flying Dutchman, Ganymede, Jupiter, Kulla, May Queen, Mochanna, Nandee, Novelty, Portia, Prince of Orange, Rosa (Beck's), Spot.

NEW FANCY GERANIUMS OF LAST SEASON.

The following 6 *beautiful varieties for* 15*s.*:—

Ayre's Sir Harry Smith	5*s.*	0*d.*	Ayre's Euphrosyne ...	2*s.*	6*d.*
" Exhibition ...	3	6	Lowe's Metis	3	6
" Gipsey	2	6	Henderson's Evening Star	3	6

The following 20 *varieties for* 28*s.*, *or any* 12 *for* 18*s.*:—

Barbette, Empress, Empress of France, Erubescens, Perfection, Triumphant, Lady Hume Campbell, Lady Downes, Madame Sontag, Magnum Bonum, Caliban, Darling, Fairy Queen, Gipsey Queen, Hero of Surrey, Marie Van Houtte, Marion, Odorata superba, Reine de Français, Vandyke.

Fine selection of Fancies, 9*s.* per dozen.

ACHIMENES, very fine varieties, per dozen ...	6*s.* to 10*s.*
GLOXINIAS, 18 superb new erect and other varieties ...	54
" 12 varieties of previous introduction ...	20
GREENHOUSE PLANTS, 50 fine varieties	45
" " 50 extra fine, and selected ...	65
STOVE PLANTS, 25 superb and select varieties	45
ROSE—MADAME DESIRE GIRAUD, new Carnation-striped Hybrid Perpetual, each	5
" 12 superb new varieties, including the above	40
POTENTILLAS, fine varieties, in pots, per doz., 6*s.*, 9*s.*, and	15
" King of Crimsons, the finest large crimson grown, of dwarf habit, each	5
" 8 new superb vars., including the above	21
HARDY CLIMBING PLANTS, in pots, 20 fine sorts ...	20
PHLOX, 20 fine vars., 10*s.*; 20 superior vars.	15
HERBACEOUS PLANTS, 100 fine and showy varieties, 30*s.*, or 50 for 17*s.* 6*d.*	
" 100 superior, including many new, 50*s.*; or 50 vars.	30

The above are all kept in pots.

A large stock of Bedding Plants in general.

CATALOGUE No. V. is now ready, and may be had on application, containing their superb Achimenes, Gloxinias, Bedding and Soft-wooded plants, &c.; also a List of New and Rare Plants of every class.

GOODS CARRIAGE FREE (not under 20*s.*) to all stations in London, and all stations on the Colchester line between London and Norwich. Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Arthur de Sansal	5s. 0d.	Pauline Lansezeur	5s. 0d.
Docteur Hénon	5 0	Prince Noir	5 0
Duc d'Elchingen	5 0	Souvenir de la Reine d'Angleterre	7 6
General Pelissier	5 0	Triomphe de l'Exposition	7 6
General Simpson	5 0	Triomphe d'Avranches	5 0
Joseph Ledechaux	5 0	Bourbon, Empress Eugénie	7 6
Madame Knorr	3 6		
Marquise de Murat	5 0		
Mathurin Regnier	5 0		

PERPETUAL MOSS.

Alfred de Dalmas, 5s.; Gloire d'Orient, 5s.; Madame de Villars, 5s.

12 of my own selection from above for 60s., or 1 of each for 4l. 4s.

The following at the prices attached, or purchaser's selection 40s. per dozen; my own choice 30s. per dozen.

MOSS.

Baron de Wassenaer	3s. 6d.	Comtesse Doriat	3s. 6d.
Capitaine Ingraam	3 0	Frédéric Soulié	3 6

PERPETUAL MOSS.

Madame Edouard Ory	5 0	Salet	3 6

HYBRID PERPETUAL.

Baron Larray	3 0	Madame Theodore Martel	3 6
Belle Lyonnaise	3 6	Madame Vidot	3 6
Comtesse de Turenne	3 6	Marguérite Lecureux	3 6
Emperor Napoleon	5 0	Maxime	3 6
Evêque de Meaux	3 6	Monsieur Pigeron	3 0
Gloire de Vitry	3 6	Mrs. Standish	3 0
Julie Guinoisseau	3 6	President Menoux	3 6
Madame de Trotter	3 0	Raphaël	3 0
Madame Lacour Jurie	3 6		

BOURBON.

Frilet	3 6	Marguérite Dubourg	3 6
Isabelle II.	3 6	Omer Pacha	3 6

NOISETTE.		CHINA.	
Augusta	5 0	Lucullus	3 0
Polonie Bourdin	3 6		

TEA.

Auguste Vacher	3 0	Louise de Savoie	3 6
Blanche de Solleville	3 0	Madame Maurin	3 0

The following at 20s. per dozen:—

MOSS.

D'Arcet	2 0	Marie de Blois	2 0
L'Ebloulssante	2 0	Princess Alice	2 0
Jeanne de Montfort	2 0	Vandael	2 0

HYBRID PERPETUAL.

Alfred Colomb	2 0	Madame Lacroix	2 0
Alphonse de Lamartine	2 0	Marie de Bourges	2 6
Auguste Guinoisseau	2 0	Panachée d'Orleans	2 6
Cicero	2 0	Prince de la Moskwa	2 6
Conseiller Jordeuil	2 0	Prince Léon	2 6
Dr. Jamain	2 0	Souvenir des Braves	2 6
Duchess of Norfolk	2 6	Souvenir de Leveson Gower	2 0
General Jacqueminot	2 6	Triomphe de Paris	2 0
Jules Margottin	1 6		

BOURBON.

François Herincq	2 6	Reine Hortense	2 0

TEA.

Gloire de Dijon	2 6	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12s. to 15s. per dozen.

Carriage paid to any station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

FLOWER SEEDS RARE AND BEAUTIFUL.

WILLIAM DENYER, Seedsman and Florist, offers the whole of the following, including postage, for 26s., or each kind at the prices quoted.

TRUFFAUT'S NEW FRENCH DOUBLE ASTERS, OR REINE MARGUERITE.

	s.	d.
This collection of Double Asters is the most perfect at present in cultivation. They are really splendid. An assortment of 12 of the finest varieties	3	0
Aquilegia, 6 distinct and beautiful colours ... These are quite hardy, and when planted out will last and flower for several years.	2	0
Convolvulus major, 6 splendid bright colours	1	6
NEW LARGE FLOWERING DWARF TEN WEEKS STOCK.		
The flowers of this variety are very large and double, brilliant colours, quite distinct, 8 vars.	2	0
Stock, Emperor or Perpetual, 6 vars., splendid ... These are quite new, and different to any other stock, being very double and of large growth, lasting and flowering for several years.	2	0
Wallflowers, splendid Double Gigantic, 6 varieties, bright and singular colours	2	0
Alonsoa Warscewiczi ... New and splendid annual of graceful habit, producing long spikes of bright scarlet flowers, suitable for pots or the ground.	1	0
Calceolaria, Tigred and spotted ... Saved by an amateur from the finest collection in this country. Only a limited number of packets.	2	6
Collinsia alba pura, new, snow white	1	0
Escholtzia tenuifolia ... Lovely dwarf annual, well adapted for edging, clear straw colour, compact habit, dwarf and neater than the old varieties; very showy and attractive.	1	0
Gutierezia gymnospermoides ... A new free flowering annual, blooms all through the summer and autumn.	1	0
Gypsophila Muralis ... New dwarf and very pretty annual, with small shining foliage covered with bright pink flowers, suitable for edging of beds, rockwork, or growing in masses, keeps in bloom from June to November.	1	0
Ipomœa limbata, quite new ... Bright purple with white margin, large flower, a lovely Climber, blooms freely in the open ground. This is strongly recommended.	1	0
Leptosiphon aureum, dark orange, purple centre	1	0
Linum grandiflorum rubrum verum, Perennial Flax ... Large, bright scarlet, one of the most beautiful Perennials grown.	1	0
Morna elegans ... New and beautiful Everlasting.	1	0
Salvia Rœmeriana ... A new and splendid variety, bright scarlet, 6 inches high, suitable for clumps.	1	0
Tropæolum minus coccineum ... A dwarf and beautiful bright scarlet variety, suitable for either pots or the open ground, blooms profusely through the whole season.	1	0
Viola striata, quite new ... Or Striped Pansey, saved from the most beautiful striped varieties.	1	6
Whitlavia grandiflora, new ... A beautiful new annual, produces in abundance large dark violet bell-shaped flowers, suitable for pots or growing in masses.	1	0

22, Gracechurch Street, near the Spread Eagle, London.

MESSRS. MASTERS AND SON can supply collections of EXOTIC FERNS from 18s. to 24s. per doz; ditto ORCHIDS, from 30s. to 63s. per doz.; ditto SIKKIM RHODODENDRONS, from 60s. per doz.; GYNERIUM ARGENTEUM, PAMPAS GRASS, 2s. 6d. each; DOUBLE WHITE PETUNIA IMPERIALIS, 6s. per doz.; as well as an extensive collection of the newest and most attractive VERBENAS, PETUNIAS, CALCEOLARIAS, and other Bedding Plants, from 3s. per doz., and 20s. per 100.

Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

NEW ROSE-COLOURED DAHLIA PRINCESS.

ROBERT REA, Ipswich Nursery, Ipswich, begs to announce that he intends sending out, the first week in May, strong plants of the above new Dahlia, at 10s. 6d. each, with the usual discount to the Trade. PRINCESS is a constant, true, and very rich rose-coloured flower, quite distinct from anything: centre well elevated, close, symmetrical, and full petals slightly cupped; perfect outline, good to the last. The finest rose-coloured Dahlia ever offered.

R. R.'s Catalogue of Dahlias, &c., is now ready, and may be had on application.

ORCHIDS.

MESSRS. RANGEL AND MOSER, of Rio de Janeiro, have for sale a rare and magnificent collection of CATTLEYAS, LÆLIAS, &c.; also rare Palms and other Brazilian plants. Orders promptly attended to.—Direct, care of Her Britannic Majesty's Agent for Packets, Rio de Janeiro.

N.B. Since 1853 all the rare and new Brazilian species of Cattleyas, Lælias, &c., sold in London have been forwarded from this establishment.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1s. per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, April 26.

T. F. WINSTANLEY, Seed Merchant, Manchester, begs respectfully to call the attention of the public to his very unique collections of FLOWER SEEDS; each packet of seed bears the name, colour and height of its growth, and the collection is packed in a neat labelled box. Mignonette and Sweet Peas being used in larger quantities are not included in these collections. Prices from 2s. 6d. to 40s.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12s. 4d.; fine Households, recommended for Bread-making, 11s. 8d.; Seconds, 11s.; Wheat-meal, for Brown Bread, 11s. 0d.: best coarse and fine Scotch Oatmeal.—Address Horsnaill & Catchpool, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

ROLL TOBACCO CORD, the cheapest and most effectual article for Smoking Greenhouses and Destroying the Fly on Plants. Nurserymen can be supplied with the above at 1s. 6d. per lb. by Joseph Baker, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post Office Order payable at Kennington Cross.

WATER your GARDENS and MANURE your LANDS with GUTTA PERCHA TUBING. Half-inch for gardening, 4d. per foot, medium; 4½d. stout; brass branch, stop-cock, and rose, 5s. 6d. Apply for illustrated price lists to J. Sheath & Co., Patent Gutta Percha Factory, 35, Old Street Road.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, and CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
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Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
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Daisy Rakes	Hoes of every pattern	Reaping Hooks
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Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
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Flower Scissors	Marking Ink	Sickle Saws
„ Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
„ Loops	Mole Traps	Transplanting Tools
„ Rollers	Mowing Machines	Trowels
„ Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, and CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

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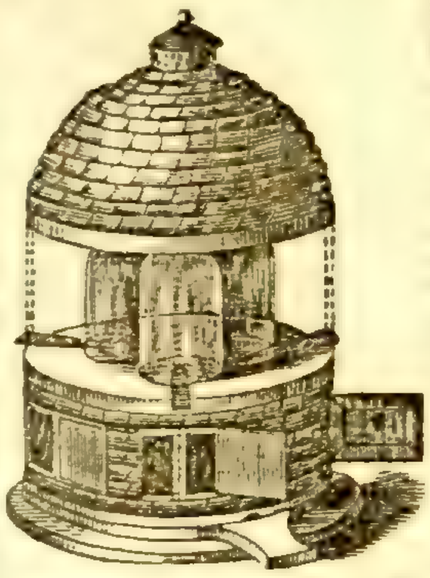
BEEHIVES.

Prize Medal Awarded to G. Neighbour & Sons, for Bee-Hives and Honey, at the Paris Exposition of 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

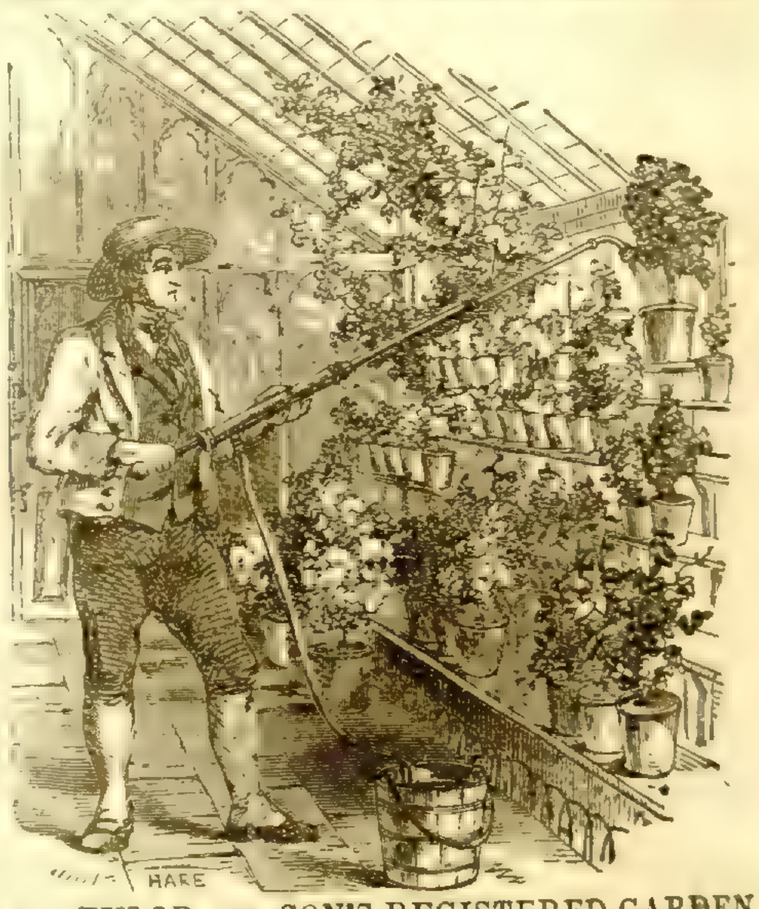


This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to George Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents:—Liverpool, James Cuthbert, 12, Clayton Square; Manchester, J. Wilson, 50, King Street; Glasgow, Austin & M'Aslen, 168, Trongate; Brown & Austen, 10 and 11, Arcade; Dublin, J. Edmondson & Co., 61, Dame Street; Chester, J. Dickson & Sons, 102, Eastgate Street.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order: the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

THE COMFORT OF A FIXED WATER-CLOSET for 1l.—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1l. Also Hermetically-sealed and inodorous chamber commodes, 1l. 2s. and 2l. 4s., and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At Fyfe and Co.'s Sanatorium, 46, Leicester Square.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
PON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

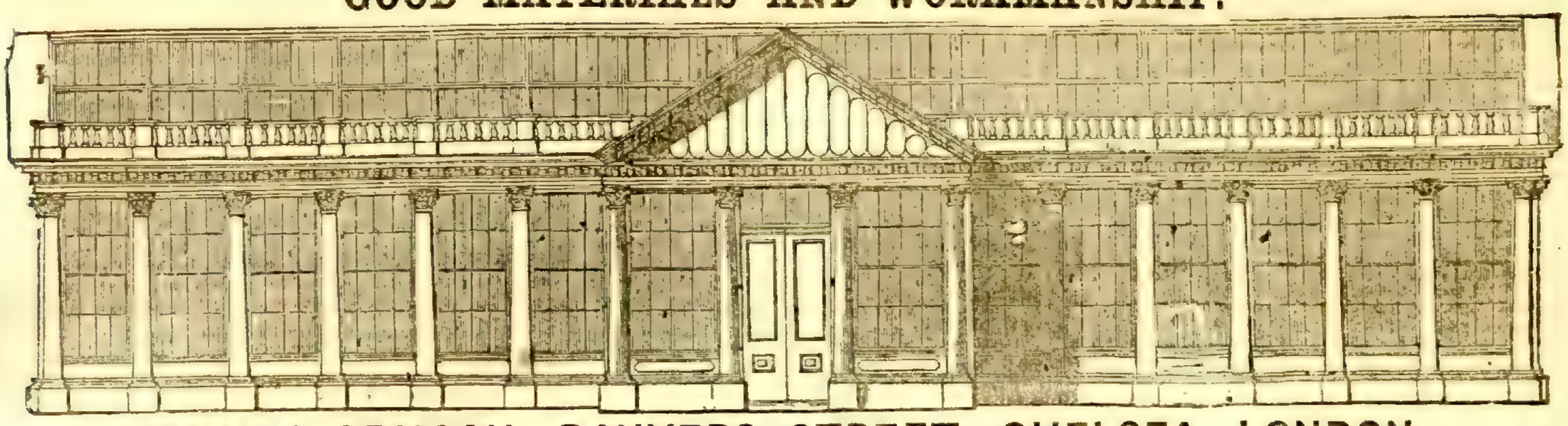
Pamphlets, with instructions for use, free by post on application to

PAGE & CO., Seed Merchants, Southampton.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

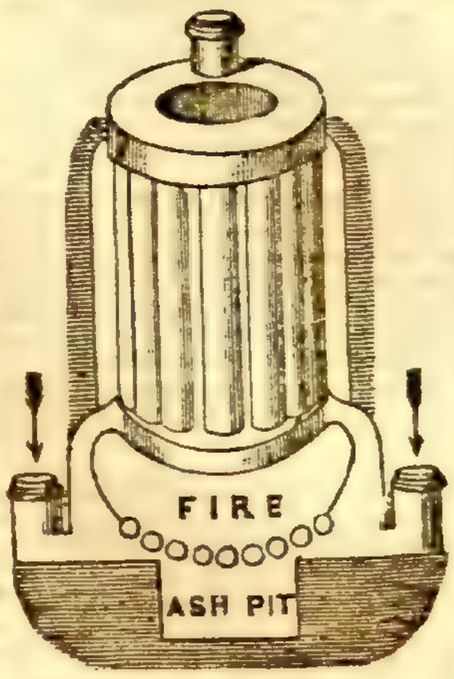
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, he water in the various houses circulating through 5000 feet of Hot-water Pipe.



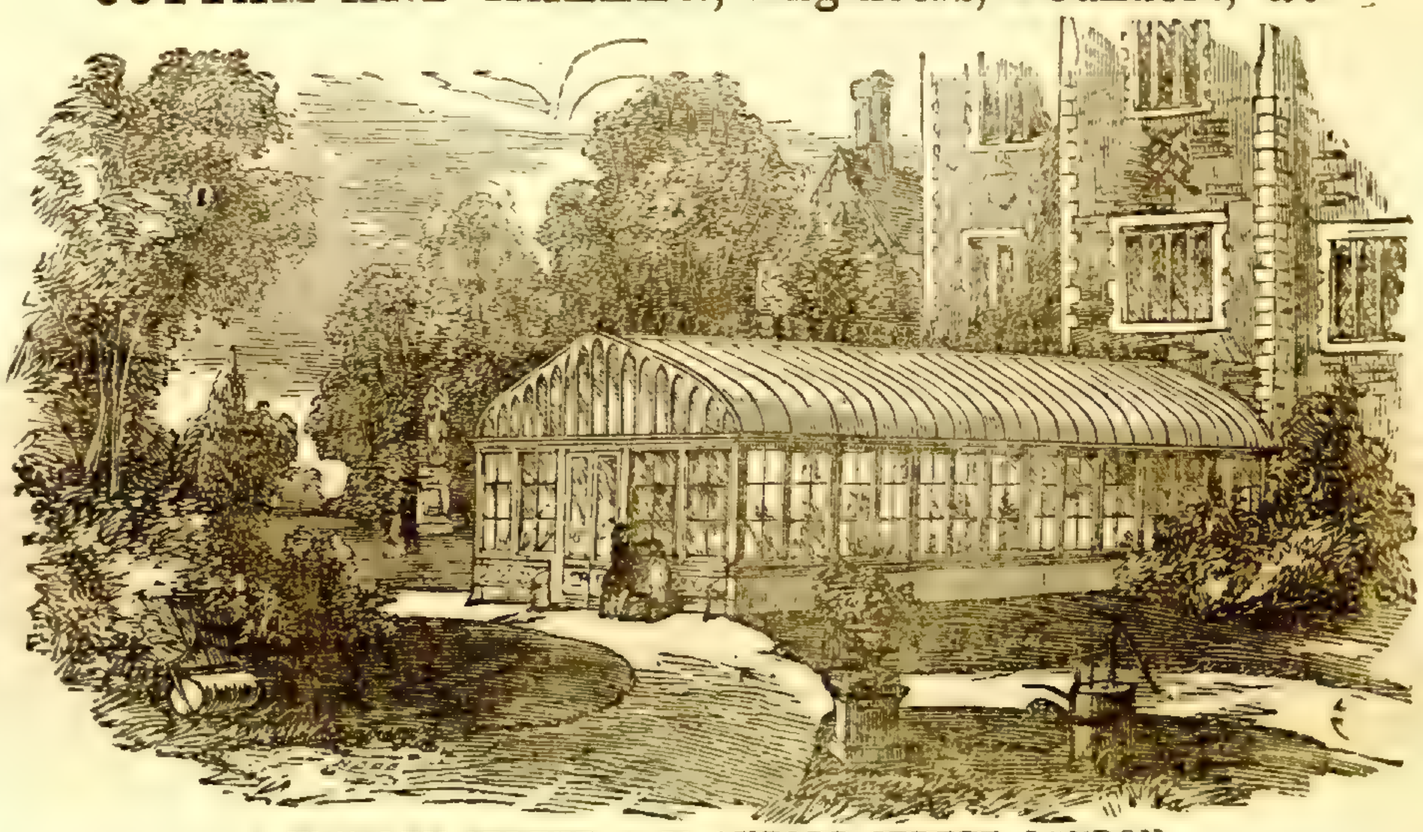
The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

COTTAM AND HALLEN, Engineers, Founders, &c.



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A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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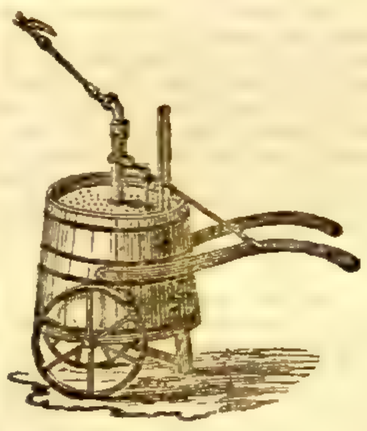
EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.



(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,				throws 30 feet high		...	£4 10
No. 2	„	15	„	„ 45	„	...	5 10
No. 3	„	28	„	„ 45	„	...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds		8 gallons,		throws 25 feet high		...	£2 15
No. 13	„	12	„	„ 30	„	...	3 5
No. 11	„	16	„	„ 40	„	...	4 0
No. 12	„	24	„	„ 45	„	...	5 0
No. 14	„	30	„	„ 45	„	...	5 18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1¾ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London

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IMPORTANT TO NURSERYMEN AND FLORISTS.

PATENT MACHINE-MADE TALLIES FOR PROPAGATING PURPOSES, five-eighths of an inch wide, perfectly smooth on both sides, and pointed. Price 1*s.* 8*d.* per 1000, for cash. A sample by post on receipt of stamped envelope.—E. EDWARDS & Co., St. Paul's Square, Birmingham.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

GARDEN NETS, FISHING NETS, SHEEP NETS, and RABBIT NETS of every description made by machinery, at very low prices. Samples sent free.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Maker of the Worsted Nets and Transparent Sheeting.

WIRE FENCING, 6¾*d.* per square yard, in various widths from 15 inches to 6 feet. Mesh less than 2 inches.—R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B. Pheasantries and Poultry Houses on Sale. Drawings sent free.

MARQUEES AND TENTS ON HIRE AT PRICES TO SUIT THE TIMES. Apply to R. RICHARDSON, TENT MAKER, 21, Tonbridge Place, New Road, London.

N.B.—An immense assortment of large and small MARQUEES, TENTS, and RICK-CLOTHS, new and second hand, on Sale cheap.

THE BEST CURE FOR SMOKY CHIMNEYS.

PATRONISED BY HER MOST GRACIOUS MAJESTY.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25*s.*; Galvanised do., 30*s.*; Cast Iron, 35*s.* each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt—BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers.

Address, JAMES BARTON, 370, Oxford Street, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12s.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	13s.	9 by 7, and 10 by 8 ..	13s. 6d.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

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HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ...	10s. 6d.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	12 0	9 by 7, and 10 by 8 ...	15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25s. each.

AQUARIUMS, with French polished stands, from 10s. each. Vase-shaped ditto, on glass stand, 20s.

Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 8d per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY, HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS. 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12s.	0d.
6½	"	4½	"	7	"	5	...	... 12	6
7½	"	5½	"	8	"	6	...	... 13	0
8½	"	6½	"	9	"	7	...	... 13	6
9½	"	7½	"	10	"	8	...	... 13	6
10½	"	8½	"	11	"	9	...	... 14	0
12	"	9	"	13	"	9	...	... 14	0
10	"	10	"	10½	"	10½	...	... 14	0
11	"	10	"	11½	"	10½	...	... 14	0
11	"	11	"	11½	"	11½	...	... 14	0
12	"	11	"	12½	"	11½	...	... 14	0
13	"	11	"	13½	"	11½	...	... 14	0
13	"	12	"	13½	"	12½	...	... 16	0
13½	"	13½	"	14½	"	13½	...	... 16	0
15½	"	13½	...	...	...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.
Established more than 100 years.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park: in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9s. per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.
E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

CRYSTAL PALACE.

SEASON 1856.

PROGRAMME.

THE DIRECTORS OF THE CRYSTAL PALACE COMPANY have the honour to announce the following arrangements for the coming Season, commencing on the 1st of May:—

I.—FETE IN CELEBRATION OF THE RETURN OF PEACE.

This is intended to be held early in May, and will be on a scale of great magnitude and interest. The details will be fully announced in a separate Advertisement.

II.—FLOWER SHOWS.

1. On Saturday the 24th of May, a Grand Horticultural and Floricultural Fête.
2. A Second Grand Flower Show, on Wednesday the 25th, and Thursday the 26th of June.
3. A Fruit and Flower Show, including special Prizes for Amateurs, on Wednesday, Thursday, and Friday, the 10th, 11th, and 12th of September.

III.—GRAND WATER WORKS.

The arrangements for playing the whole of the Grand System of Water Works being now finally completed, a Fête will be held as early in the Summer as the state of the weather will permit, at which a display will be made of the whole of the magnificent series of Upper and Lower Fountains, Cascades, and Waterfalls. Of this Fête due notice will be given.

IV.—ALTERATIONS AND ADDITIONS TO THE PALACE NOW IN PROGRESS.

1. PICTURE GALLERY.—Steps have been taken for the formation of a Picture Gallery, for the exhibition and sale of the works of artists of the modern Schools of England and the Continent. This Gallery will be situated in the North Wing, hitherto occupied by the Raw Produce Department, and will be open to the Public early in May. The Raw Produce Department itself has been transferred to the Second Gallery on the Garden side of the Great Transept, a position at once more accessible to the public, and more convenient to the Department than that hitherto occupied.

2. NAVAL MUSEUM.—The Directors have also set on foot the formation of a Naval Museum of All Nations, the object of which is to illustrate the progress of Naval Architecture, both in Sailing and Steam Ships, from the earliest times; the Collection being so maintained as to represent the actual state of the science as it progresses. The proposals of the Directors have met with the most favourable consideration in all quarters, and they are able confidently to announce that the Naval Museum will be very shortly opened. The Museum will occupy the Galleries on the Garden side of the North Transept, and in connection with it will be a Department where Inventions and Manufactures of all kinds connected with Ships will be shown.

3. ENGINEERING MODELS.—In proximity to the Naval Museum there will be also a Collection of Models of Engineering and Architectural Works, Bridges, Docks, Viaducts, Churches, and other structures, which, although of great interest in themselves and forming an important branch of Art-manufacture, have, like the models of Ships, been hitherto inaccessible to the public.

4. COURT OF INVENTIONS.—A Department is also in formation for the exhibition of Patent Inventions, in which explanations of the various articles will be given, and the machines shown in motion where necessary.

5. CERAMIC COURT.—In one of the Industrial Courts, on the Garden side of the Palace, the Directors intend shortly opening a Collection of Ceramic Productions, illustrating the art of Pottery, from the earliest specimens of antiquity down to the latest works of the Imperial Manufactory of Sèvres, the manufactures of Dresden and Berlin, and those of Minton, Copeland, Ridgway, and others of the English manufacturers. Extensive promises of assistance have been promptly given to the Directors by the owners of valuable collections of Pottery and Porcelain, as well as by manufacturers, and they have every hope that this Court may be opened early in the summer.

6. EXHIBITORS' DEPARTMENT.—The Directors are happy to announce generally, that, owing to the arrangements lately made for the admission, at a nominal rent, of articles intended for Exhibition, almost the whole of the available space is now allotted, whereby the completeness and interest of the Industrial portion of the Palace will be much increased.

7. COLONIAL DEPARTMENT.—It gives the Directors great satisfaction to be able to announce, that they have made arrangements with the Governments of the two great Colonies of Canada and New Brunswick for the occupation of space in the Palace with exhibitions of the products of those important countries, under stipulations which ensure the maintenance of the Collections as actual representations of the state of the commerce and manufactures of the Colonies from time to time.

8. ENLARGEMENT OF REFRESHMENT ROOMS.—By an alteration now in progress in the mode of approach to the Palace from the Railway, a large additional space will be obtained for Dining-rooms, while the entrance through the Refreshment-rooms—hitherto found so objectionable — will be entirely avoided. Additional facilities have also been provided for the Refreshment of Third Class Visitors.

9. MACHINERY IN MOTION.—The completion of the Water Towers has enabled the Directors to make the final arrangements for working the Steam-Engines which give motion to the machines and tools of the Machinery Department. The Machinery will therefore, for the future, be in action at such times as will be announced in the detailed advertisements. The machinery now in the department comprises a complete set of machinery for Spinning, Carding, Warping, Sizing, Weaving, and all the other processes for the manufacture of Cotton goods, by Walker & Hacking, and Harrison & Co.; Lathes, Shaping Machines, Self-acting Planing, Drilling, and other machinery, by Whitworth, Muir, Harrison & Co., and others; Condie's Steam-Hammer; Sugar-Cane Mill, by De Mornay; Centrifugal Pumps, by Appold, and Gwynne & Sons; Centrifugal Sugar and Drying Machines, by Manlove & Alliott; Steam Engines, by Goodfellow, Dunn, Hattersley & Co., and others; Marine Engines, with Screw Propeller, by Tod and M'Gregor; and a great variety of other machines.

10. GREAT WATER TOWERS.—Arrangements are being made for enabling the Visitors to ascend these Towers, and enjoy the beautiful and extensive view from the top. Particulars will be shortly announced.

11. AGRICULTURAL MACHINERY.—The Department of Agricultural Machinery and Implements is now in a very complete state. Examples will be found there of all the machines of the chief manufacturers, and purchases can be made at the same prices as at the warehouses of the makers. The stock is continually receiving additions, and every means is taken to make it a perfect representation of the state of one of the most important branches of modern industry.

12. FANCY FAIRS.—The Directors are prepared to afford Accommodation to Benevolent Institutions for holding Fancy Fairs in the Palace during the season. Arrangements have been already made by the Managers of the Queen Adelaide Naval Fund for a Fancy Fair on the 7th, 9th, and 10th of June, under the patronage of her Majesty and numerous Ladies of Rank.

13. ARCHERY FETES AND CRICKET MATCHES.—The Directors contemplate arrangements for the encouragement of these elegant and healthy recreations in the Palace Grounds.

V.—GRAND MORNING CONCERTS.

The Directors beg further to announce that they have completed arrangements with Mr. GYE, of the ROYAL ITALIAN OPERA, for a series of TWELVE MORNING CONCERTS to be given in the months of May, June, and July. These Concerts will be supported by the following celebrated Artistes, who have most kindly offered their assistance to Mr. GYE:—

MADAME GRISI.
MADEMOISELLE JENNY NEY.
MADEMOISELLE DIDIEE.
MADEMOISELLE MARAI.
MADEMOISELLE BOSIO.

SIGNOR LABLACHE.	SIGNOR RONCONI.
SIGNOR GARDONI.	SIGNOR LUCHESI.
SIGNOR TAGLIAFICO.	SIGNOR ZELGER.
HERR FORMES.	SIGNOR GRAZIANI.
SIGNOR POLONINI.	SIGNOR GREGORIO.
	SIGNOR SOLDI.

AND SIGNOR MARIO.

The Band of the Royal Italian Opera is engaged, and will be considerably augmented. Mr. COSTA has also most kindly offered his valuable aid, and will himself conduct a portion of the Concerts.

VI.—SEASON TICKETS.

The Directors have resolved to issue different classes of SEASON TICKETS, as follows:—

1. Season Tickets, not transferable, admitting the Proprietor to the Palace on all occasions, except the Twelve Days named for the above Concerts ... ... ONE GUINEA.
2. Season Tickets, not transferable, admitting the Proprietor to the Palace on all occasions, including the Concerts ... ... TWO GUINEAS.
3. *Transferable Tickets*, admitting the Bearer to the Twelve Concerts and to the Flower Shows, but not available on other days ... TWO GUINEAS

As the issue of Tickets under Classes Two and Three must necessarily be limited, an early application for them is desirable.

The Tickets are now issued; and may be obtained at the Crystal Palace; at the Offices of the Company, 79, Lombard Street; at the Offices of the London and Brighton Railway Company, London Bridge, and Regent Circus, Piccadilly; at Mitchell's Library, 33, Old Bond Street; Sams's Library, 1, St. James's Street; and of Mr. Hammond, 27, Lombard Street.

Remittances for Season Tickets to be by Post Office Orders payable to George Fasson.

The rates of admission to the Palace on ordinary occasions remain as before, viz:—

ON MONDAYS, TUESDAYS, WEDNESDAYS, THURSDAYS, and FRIDAYS ... ... ONE SHILLING.
ON SATURDAYS ... ... FIVE SHILLINGS.
CHILDREN UNDER 12 YEARS OF AGE, HALF-PRICE.

The Palace will be opened on Mondays at 9 A.M., on Tuesdays, Wednesdays, Thursdays, and Fridays at 10; excepting on the days of the Concerts by the Opera Company, on which days, and on Saturdays, it will be opened at 12; closing daily about sunset

VII.—RAILWAY ARRANGEMENTS.

During the season, the Trains of the London and Brighton Railway Company will leave London Bridge Station every half hour, and during busy days every quarter of an hour, from 9 o'clock, A.M., till dusk, returning from the Palace at the same intervals throughout the day. (For exact times of starting, see Railway Company's Time Tables.)

Return Fares, including admission to the Palace—

	1st Class.	2d Class.	3d Class.
ON SHILLING DAYS	2s. 6d.	2s. 0d.	1s. 6d.
ON FIVE SHILLING DAYS ...	6s. 6d.	6s. 0d.	5s. 9d.

CHILDREN UNDER 12 YEARS OF AGE, HALF-PRICE.

WEST-END RAILWAY.—The Directors are happy to be able to announce that the West-End Railway, between the Palace and the Waterloo Station, will be partially opened early in the summer.

VIII.—EXCURSIONS.

Arrangements have been made by which Benevolent Societies Schools, and other large bodies may visit the Palace at the following reduced rates—applying only to Shilling Days and Third-class Carriages:—

For a number of Excursionists over 250 and under 500 ...	1s. 3d. per head	instead of	1s. 6d.
Exceeding 500 and under 750 ...	1s. 2d. "	"	1s. 6d.
Exceeding 750 and under 1000	1s. 1d. "	"	1s. 6d.
Exceeding 1000	1s. 0d. "	"	1s. 6d.

Children, Half-price.

(Signed) ARTHUR ANDERSON, Chairman.
JOSEPH PAXTON.
JAMES FERGUSSON, General Manager.

SUTTON'S
GRASS SEEDS FOR PERMANENT PASTURE,

Including the True Perennial, Red, White, and Alsike Clovers.

Achillea millefolium	**Agrostis vulgaris**	**Festuca ovina**	**Glyceria aquatica**	**Lotus corniculatus**	**Poa fertilis**
Agrostis stolonifera	Bromus arvensis	„ rubra	Holcus avenaceus	Medicago Lupulina	„ sempervirens
Anthoxant odoratum	Cynosurus cristatus	„ pratensis	Lolium perenne sempervirens	Phleum pratense	Trifolium minus
Alopecurus pratensis	Dactylis glomerata	„ elatior	„ perenne Paceyanum	Poa nemoralis	„ pratense perenne
Avena flavescens	Festuca duriuscula	„ heterophylla	„ Italicum	„ pratensis	„ repens
Agrostis alba	„ loliacea	„ tenuifolia		„ trivialis	„ hybridum

(Carriage Free), price 24s. to 30s. per Acre.

From Professor Lindley.—"Messrs. SUTTON,—We have already made trial of your Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. "JOHN LINDLEY.
"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

Sutton's Renovating Grass Seeds for Improving Parks, Pastures, and Meadows.

Quantity of Seed required, 8lbs. to 12lbs. per acre. Price reduced to 9*d.* per lb., or 80*s.* per cwt.

From C. F. Thurston, Esq., Talgarth, August 9, 1855.

"Your Seeds have answered admirably. Turnips, Mangel Wurzel, Carrots, and Parsnips, are superb. Your Grass Seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The After-Grass is remarkable—Clover and other seeds spring up where nothing but the poorest pasture had been previously; *and I think that a field of nine acres sown with your Renovating Mixture is now one of the finest in our neighbourhood.*"

From Mr. G Norrington, Rectory Farm, Taplow, 26th 11, 1855.

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old Pastures. At the time I took the farm, the 10 acres of Meadow was almost useless. I have now a most excellent pasture."

SUTTON'S RENOVATING GRASS SEEDS consist of the finest and most nutritive kinds of Perennial Grasses and Clovers, and the price, which is now reduced to 9*d.* per lb., or 80*s.* per cwt., is lower than the same kinds of Clovers and Grasses can be purchased separately at any Seed Establishment in the Kingdom.

Permanent Pasture Grass Seeds for any Soil at moderate charges (as see above).

SUTTON AND SONS have been often requested to appoint Agents for the sale of their Seeds in different localities; knowing, however, that Agencies seldom prove satisfactory, they have adopted the practice of *paying the Carriage* to most parts of England. By this arrangement gentlemen residing in those parts of the kingdom where Seeds are not grown can be supplied with genuine new *Seeds direct from the Growers*, whereby much disappointment and loss of crops may be avoided.

SUTTON'S *Price List of Farm Seeds post free.*

Royal Berkshire Seed Establishment, Reading.

MESSRS. E. G. HENDERSON & SON

WILL shortly send out their NEW CATALOGUE for the present Season, and beg to inform parties who have not hitherto favoured them with orders, that the same can be had post free on application. This useful book should be in the possession of every practical Gardener and Amateur; the care bestowed in compiling and arranging descriptions of upwards of 500 Stove, 700 Greenhouse, and 1000 Miscellaneous Plants, will render it an interesting guide, equally suitable for reference or perusal. In addition to the above-mentioned descriptions, it contains short and select Lists of all novelties of note at present in cultivation, discarding those that have been found not to answer the expectations of their cultivators, and retaining only such varieties as they can confidently recommend.

A Coloured Plate representing a group of Nine new Plants will be published with above, and can be had post free for 12 stamps.

DAHLIA (Dwarf Bedding).

CRYSTAL PALACE SCARLET.—The qualities of this new bedding Dahlia are such that henceforth no garden with but half a dozen flower beds will be complete without it. It fills up that void so long felt by many, viz., the having a bed composed of large bold flowers, brilliant in colour, profuse bloomers, and of dwarf habit. This Dahlia possesses all the above requisites; it will, therefore, be easily imagined how smaller and more diminutive flowers are lost beside it, added to which, it is one of the easiest plants to preserve throughout the winter, and can be propagated in spring by dividing the roots in the same way as an ordinary herbaceous plant. Persons in the habit of visiting the Crystal Palace last season must have been struck with the noble effect the Dahlia there made when pegged down, but this variety from its dwarfness of growth will not require such care; and those who have had the pleasure of viewing the noted gardens of Tedworth House last summer, will be able to appreciate the following particulars given of it by the able superintendent there, Mr. Sanders.

"In colour this beautiful dwarf Dahlia is equal to the most glowing scarlet Geranium. The flowers are of a medium size, very double and full to the centre, of very compact habit, its growth averaging one and a half feet, and having fine dark leaves which contrast admirably with the brilliant colour of the flower. It commences flowering early in July throwing up large quantities of flowers together, and remains one perfect sheet of bloom until cut off by the autumn frosts. As a bedding plant it will stand pre-eminent, and will be found unequalled for the decoration of the flower garden during the autumnal months; another and not less excellent quality of this plant is, that neither rain or sunshine have any effect on its brilliancy."

Plants can be had in May, 5*s.* each.

Wellington Nursery, St. John's Wood, London.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, Seedsmen to ELEVEN of the principal AGRI-HORTICULTURAL SOCIETIES of the BRITISH and CONTINENTAL EMPIRES, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, the *Twenty-first Annual Issue*, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application to JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

MUTCH'S POTATO (TRUE).

MARTIN AND SON will sell the remaining lot of the above valuable POTATO at 5*s.* per bag of 8 pecks, quality and quantity inferior to none. Snowball, York Regents, &c. (try Mutch's). Delivered free to the Hull Packet or Railway Stations.—Cottingham and Hull.

BEDDING PLANTS.

MARTIN AND SON beg to offer well established plants of Verbena, Scarlet Geranium, Ageratum, Fuchsia, Petunia, Calceolaria, Heliotrope, Cuphea, Lobelia, &c., at 17*s.* 6*d.* per hundred; Petunia Imperial, 2*s.* each, 18*s.* per dozen; Cytisus of sorts, strong plants, 6*s.* per dozen; named Geraniums, splendid plants and good sorts, 6*s.*, 9*s.*, and 12*s.* per dozen; Verbena Tranby, a few yet to spare, at 5*s.* each.—Cottingham and Hull.

AZALEA INDICA.

HUGH LOW AND CO. have to offer very fine healthy plants of INDIAN AZALEAS, in small pots. They are all unusually well set with flower-buds, having from 10 to 20 on each plant. Price 30*s.* to 42*s.* per dozen. The undernamed, with many other varieties, can be supplied:—

Alba magna	Magniflora
Albertus	Magnificus, the finest white
Beauty of Europe, the finest striped variety in cultivation	Optima
Bellerophon	Perryana
Coccinea major	Præstantissima
Exquisita	Prince Albert
„ pallida	Queen Perfection
Fulgens	Reine des Belges
Formosa (Ivery)	Salopensis
Iveryana	Trotteriana
	Vittata

Clapton Nursery, London, April 26.

SUPERB VERBENA.

JOHN COLE begs respectfully to offer a few Plants of his beautiful VERBENA CERISE UNIQUE, cerise, with a conspicuous light eye, for form of pip and truss unsurpassed. J. C. flatters himself it will please everybody. Pronounced by many eminent judges, including Messrs. Turner, Fraser, and Edwards, of the Wellington Nursery, first-rate. 2*s.* 6*d.* per plant; six plants for 10*s.*

Also his hybrid Tropæolum odoratum, a fine bedding plant, or for pillars; also for pot culture, perfuming the conservatory equal to the sweetest Tea Rose. 2*s.* 6*d.* per plant.

A remittance solicited from unknown correspondents.

Keyfield Nursery, St. Alban's, Herts.

HORTICULTURAL SOCIETY OF LONDON,
21, REGENT STREET, April, 1856.

It having been Resolved at a SPECIAL GENERAL MEETING of the FELLOWS that the GARDEN at CHISWICK should be relinquished, unless a sum sufficient to maintain it shall have been SUBSCRIBED before the FIRST of MAY; and the COUNCIL having fixed the sum to be so raised at £5000, a SUBSCRIPTION has been opened upon the understanding that no DONATIONS will be called for unless the whole sum of £5000 shall have been Subscribed, or thereabouts.

The following Subscriptions have been already announced:—

His Grace the Duke of Devonshire, President	£100	0	0
His Grace the Duke of Northumberland, V.P.	100	0	0
James Gadesden, Esq. (Members of Council.)	50	0	0
Rev. L. V. Harcourt (Members of Council.)	20	0	0
Col. Challoner (Members of Council.)	26	5	0
Sir Jos. Paxton, M.P. (Members of Council.)	25	0	0
J. J. Blandy, Esq. (Members of Council.)	10	10	0
Rev. W. L. B. Hawkins (Members of Council.)	10	10	0
Mr. James Veitch, Jun. (Members of Council.)	10	10	0
Mr. J. Spencer (Members of Council.)	5	5	0
Dr. Royle, Secretary (Members of Council.)	10	10	0
W. Wilson Saunders, Esq., Treasurer (Members of Council.)	21	0	0
Sir S. M. Peto, Bart. (Members of Council.)	20	0	0
Sir Philip Egerton, Bart., M.P.	10	0	0
R. Hutton, Esq.	20	0	0
Right Hon. Lawrence Sulivan	20	0	0
J. M. Strachan, Esq.	20	0	0
H. G. Bohn, Esq.	10	10	0
The Honourable Mrs. Vernon Harcourt	10	0	0
Nathaniel Lindley, Esq.	5	5	0
J. A. Good, Esq.	10	10	0
Mr. Glendinning	10	10	0
Mr. Cock	10	10	0
C. Wentworth Dilke, Esq.	21	0	0
C. B. Warner, Esq.	5	5	0
Mr. Pontey	10	0	0
Mr. James Veitch	10	10	0
Messrs. James Veitch & Son	10	10	0
Hon. W. F. Strangways	15	0	0
T. B. Simpson, Esq.	5	5	0
Earl of Ilchester	25	0	0
Mrs. Chatfield, 76, Sloane Street	1	1	0
Joseph Martineau, Esq.	20	0	0
Charles Druce, Esq.	10	10	0
Robert A. Hornby, Esq.	5	0	0
Charles Leach, Esq.	5	5	0
General Charles Fox	10	0	0
Alex. Oswald, Esq.	10	0	0
Sir Oswald Mosley, Bart.	10	0	0
Earl Spencer	50	0	0
Walter Ewer, Esq.	10	10	0
Alex. Druce, Esq.	5	5	0
George Wood, Esq.	2	2	0

Continued on next column—

Continued from preceding column—

H. Behrens, Esq., Travemünde*	£100	0	0
Rev. Frederick Beadon	10	0	0
S. Rucker, Esq.	21	0	0
The Lord Bishop of Winchester	20	0	0
C. Loddiges, Esq.	10	10	0
Edmund Johnston, Esq.	10	0	0
Right Hon. W. F. Tighe	10	0	0
J. B. Glegg, Esq.	10	0	0
J. C. Stevens, Esq.	5	5	0
John Ames, Esq.	10	10	0
Sir T. T. Drake, Bart.	10	0	0
Col. Gold	5	0	0
A. R. Stewart, Esq.	5	5	0
E. A. Brande, Esq.	20	0	0
Sir Henry Lambert, Bart.	10	0	0
H. J. Grant, Esq.	15	0	0
Robert Hanbury, Esq.	10	10	0
John Luscombe, Esq.	5	0	0
George Thomas Davy, Esq.	50	0	0
John R. Reeves, Esq.	50	0	0
Wilkinson Dent, Esq.	50	0	0
Edward Rosher, Esq.	5	5	0
Beriah Botfield, Esq.	10	10	0
Her Grace the Duchess Dowager of Northumberland	50	0	0
R. H. Solly, Esq.	21	0	0
W. H. Solly, Esq	5	5	0
The Viscount Downe	10	0	0
Countess de Salis	10	10	0
Joseph Feilden, Esq.	10	10	0
J. T. Brooks, Esq.	5	5	0
Joseph Rigby, Esq.	5	5	0
Rev. Dr. Pinckney	10	10	0
The Baroness Windsor	5	5	0
Sir Robert Peel, Bart., M.P.	50	0	0
J. R. Gowen, Esq.	20	0	0
J. C. Whiteman, Esq.	10	0	0
Col. Rushout, M.P.	10	0	0
Richard Mills, Esq.	10	0	0
Colonel Mason	10	0	0
Proprietors of "Cottage Gardener"	5	0	0
Rev. Harry Lee	1	0	0
Wm. Hervey, Esq.	10	0	0
H. R. Sandbach, Esq.	10	0	0
Prof. Lindley	21	0	0
S. Rickards, Esq.	5	0	0
Chas. Frazer, Esq.	10	0	0
F. L. Popham, Esq.	10	0	0
Joshua Evans, Esq.	20	0	0
Mr. Charles Turner	5	5	0
Sir J. P. Boileau, Bart.	10	0	0
Rev. John C. Clark	10	10	0
G. S. Ridgway, Esq.	10	0	0
Edward Lloyd, Esq.	8	8	0
Mr. George Fleming	5	0	0
Sir J. W. Ramsden, Bart., M.P.	100	0	0
Messr. Gray & Ormson	10	10	0
Thomas Smith, Esq.	10	10	0
Sir T. D Acland, Bart., M.P.	20	0	0
Messrs. T. Jackson & Son	10	10	0
Rev. W. B. Lee	2	2	0
Sir R. P. Glyn, Bart.	20	0	0
Rev. George Rous	10	0	0
Colonel Long	20	0	0
Lady Murchison	10	0	0
Dr. Daubeny	5	0	0
George W. Lenox, Esq.	5	5	0
Wm. Spence, Esq.	20	0	0
R. S. Holford, Esq.	10	10	0
Mrs. Barchard	20	0	0
Right Hon. T. F. Kennedy	10	0	0
Messrs. Jacob Wrench & Sons	10	10	0
Dr. Henderson	10	0	0
Rev W. H. E. Bentinck	10	0	0
Mrs. Bentinck	5	0	0
Miss Parry	10	0	0
James P. Jones, Esq.	10	10	0
Lord Overstone	25	0	0
Earl of Burlington	20	0	0
J. B. Sharp, Esq.	5	5	0
Sir Wm. Middleton, Bart.	20	0	0
Frederick Chatfield, Esq.	10	0	0
Rev. John S. H. Horner	10	0	0
Joseph N. Walker, Esq.	25	0	0
Earl Fitzwilliam	100	0	0
Mrs. Waldegrave Park	10	0	0
Mrs. Smart	5	5	0
Captain Trevor Clarke	10	0	0
J. L. Elliott, Esq.	10	10	0
Messrs. John Weeks & Co.	10	10	0
J. Scott Smith, Esq.	25	0	0
Messrs. Rollissons	10	10	0
The Hon. Payan Dawnay	5	0	0
Wm. Dixon, Esq.	10	0	0

21, Regent Street, April 23, 1856.

* See Mr. Behrens' letter in last week's Number, p. 261.

The Gardeners' Chronicle.

SATURDAY, APRIL 26, 1856.

THERE has been before us for some weeks an account of a new gardening material, called BOGHEAD CHARCOAL. This substance appears to act in the same way as peat charcoal, destroying offensive odours, absorbing gaseous matters, and then detaining them till they require to be given up to a crop. The value of Irish Peat Charcoal for such purposes is we suppose universally admitted; but its extravagant price prohibits its employment where cost is considered. Last Christmas this material could not be had for less than 90*s.* per ton delivered in London, or 50*s.* per ton free on board in Dublin, exclusive of sacks, for which 1*s.* 9*d.* each was charged. Upon such terms it would be a mere waste of money to use it as a manure.

The substance to which we would now direct attention has been favourably mentioned in the *Journal of Gas-lighting* by a correspondent of that paper, signing himself "JOHN MALAM," of Holmpton Lodge, and also by Mr. HODGSON JONES, the civil engineer connected with the Chartered Gas Company's works, Westminster, where we understand it may be obtained at a price not exceeding 1*l.* a ton. Some of our readers doubtless remember a curious trial at Edinburgh concerning what was then called Torbane coal, half a dozen scientific witnesses on one side asserting that the substance under litigation was

coal, and as many other scientific witnesses on the other side asserting that it was not coal. It was a strange business, and did not redound to the honour of science, for simple-minded people had an opinion that before the parties went to loggerheads it would have been desirable to define what the word coal really signifies. We forget how the trial ended, nor does it matter. If science was unable to throw light upon the nature of the mineral, the mineral itself is likely to throw no little light upon science; for it now appears that this Torbane mineral, otherwise termed Boghead coal, is becoming extensively used for gas making.

Mr. Jones informs us that the gas supplied to Buckingham Palace and the Houses of Parliament is made from this coal, which yields upwards of 14,000 cubic feet per ton, with a higher illuminating power than that of any coal gas. It is the residue left in the retorts after the gas is drawn off which bears the name of Boghead Charcoal.

Dr. Fyfe's analysis is :—

Volatile matter	69		
Charcoal ...	31 ...	... consisting of	
		Carbon	9.25 = 30 per cent.
		Ashes	21.75 = 70 "
	31		100

The ashes consist of 71 per cent. of silica ; 21 per cent. remaining consisted of lime, magnesia, alumina, and a minute quantity of iron in union with sulphur. The charcoal has the peculiar property of bleaching vegetable colouring matter ; by filtration Port wine may be so bleached.

In the number of the *Journal of Gas-lighting* for March 18, Mr. Malam recommends the use of Boghead Charcoal saturated with the ammoniacal liquor or gas water of gas-works as a top-dressing for cereal crops and Grass land, and for Turnips and Mangel Wurzel, by putting it into the rows at the rate of 3 tons an acre. But he does not appear to have actually tried this manure on such crops ; his opinion of its utility is merely founded upon the following experiments. He found that "Boghead Charcoal, slightly impregnated with the ammoniacal water of gas-works, and mixed with the soil used for greenhouse plants, promotes the healthy and vigorous growth of the latter. Its effects," he says, "on Cineraria plants are surprising—several of them measuring nearly 2 feet 10 inches in height : their stems and branches being stiff and strong, like those of a shrub, and their foliage very large, of a deep green colour. His Hyacinths and Tulips, in the greenhouse, also look remarkably healthy. His Cinerarias last year were often covered with green fly, and it was necessary frequently to smoke the house with Tobacco or paper, in order to destroy them ; this year, however, on only two plants have a few been discovered. Some coal tar which last spring he poured on the surface of his Vine border, and then well mixed with the soil by turning it over with a fork, caused not only the health and good produce in his Vines, but appeared to have a wonderful effect in freeing them from the attacks of the red spider. A Peach tree, growing in the same house on the wall, which had sewerage manure given to it, was covered on its leaves, &c., with red spider, and destroyed by them ; whilst on the leaves of the Vines there was not a red spider to be found."

From the above facts he is led to infer that carbonaceous manures conduce to the sound healthy growth of certain plants, which are consequently less liable to the attacks of insects and fungi ; and as Boghead Charcoal is a "carbonaceous manure" he concludes it will act in a similar way—a mode of reasoning with which we are not called upon to deal. It is, however, hardly to be doubted that whatever merit may be possessed by the dear and unattainable Peat Charcoal must be equally possessed by this Boghead Charcoal, a mere refuse material as we have shown. Our own personal experience tells us that no better garden manure need be employed for ordinary purposes than what is formed in the following manner :—Into a dry clay ditch stationed near the house, Grass sweepings and mowings, leaves, spoiled vegetables, weeds, and refuse of all kinds are daily thrown. To these is added also daily the fluid refuse of the chambermaid, which the leaves, &c., detain. In order to keep down the offensive odour of the mixture peat charcoal is scattered over it as often as is necessary, and with so good an effect that although the ditch is within a few yards of the drawing-room windows, no unpleasant smell is ever experienced. All this rubbish accumulates until one-half the ditch is full, when it is turned over and cast into the other half ; the space thus cleared is gradually refilled as before. By the time the latter is full the first half is well rotted down and ready to be cast out and mixed with wood-ashes, cinder siftings, and burnt clay. The whole then becomes an excellent garden manure, of good mechanical texture, and quite as strong as is generally required. If a ranker (more azotised) manure is wanted, it can be easily formed out of the same materials by saturating them with gas water. The only difficulty in this operation is the exorbitant price of peat charcoal. That the cheap Boghead Charcoal will answer the same purpose, we cannot doubt, and we trust it will be made the immediate subject of trial by gardeners who live near the works in which the Torbane mineral is used.

We read in the *Flore des Serres* that Mr. Tittlebach, of the Royal Botanic Garden, Berlin, has been successful in his attempts at cultivating the hitherto uncultivable parasites called Broom-rapes or Orobanches. It appears that he sows the seeds of the annual species at the same time as those of the plants on which they grow, or soon after. Thus *O. ramosa* is sown with Hemp, and *O. Picridis* with *Picris*, and so on. As to the perennial species they are sown in autumn, soon after becoming ripe, on the stout roots of the plants they infest. Mr. Tittlebach finds that the seeds of *O. Picridis* will grow without a plant to feed on, but the seedlings do not arrive at maturity. As to *Lathræa squamaria* and *clandestina* they do very well without any artificial support.

We learn from a correspondent in Canada that the American Scientific Association meets at Albany the third week in August, and proposes to send invitations to 20 or 30 of the leading *savants* of Europe. They will ask these gentlemen to become their guests, and to accept free passages to America and back. It is also understood that the Grand Trunk Railway of Canada will pass these visitors over their line free. The "American Scientific Association" is organised like our "Association for the Advancement of Science," and will rise in time for the members to proceed, if they please, successively to the Lower Canada Exhibition, 16th Sept. ; Upper Canada ditto, 23d Sept. ; State of New York ditto, 30th Sept. : all on the river St. Lawrence, and easy of access.

The Canada Exhibition will be a good one, and out of it they hope to obtain a Horticultural Garden and a Floral Hall or small Crystal Palace.

New Plants.

169. Echeveria nuda.

E. foliis in caulem strictum altum sparsis obovatis apiculatis glabris obsoletè carinatis, spicâ longâ nudâ terminali.

This addition to the pretty genus Echeveria has been received by the Horticultural Society from Mexico, where it was found on Orizaba by Mr. Botteri. It has a tall erect stem covered with smooth obovate apiculate leaves, and terminated by a leafless spike of flowers, 8 or 9 inches long. They appear to have been crimson, but the dried specimens from which alone they are at present known have only their remains surrounding the fruit. The present species is most like E. coccinea, which has narrower leaves, and long bracts giving the spike a leafy appearance.

170. Notylia albida, *Klotzsch. Rchb. f. Xenia, p.* 48.

A graceful little thing, deliciously scented, and beautifully formed, although its flowers are no bigger than Peppercorns, and the whole inflorescence the size of an ear of Wheat. From a few thin oblong leaves, not unlike those of *Rodriguezia secunda*, its natural companion, there droops a graceful dense raceme of whitish flowers perfumed like a Lily of the Valley. Their back sepal is oblong, convex, pale apricot coloured, very firm and convex, and being in all cases turned to the outside of the inflorescence the flowers are not unlike little fairy shells. The rest of the blossom is transparent white except one little pale apricot spot at the base of each petal. It has appeared from among the rejectamenta of one of Warczewitz's sales, and was in flower the other day in the Garden of the Horticultural Society. We should scarcely have recognised it as being the plant intended by Dr. Klotzsch had not Professor Reichenbach, jun., obligingly furnished us with a couple of authentic dried flowers of that species. The fresh flower enables us to correct two points in our learned friend's definition. 1, the lower double sepal is by no means bifid, but only emarginate in a very slight degree; and 2, the lip is not angular on each side near the middle, but is trowel-shaped, with a short unguis like that of N. aromatica.

VEGETABLE PATHOLOGY.—No. CXVIII.

471. Phillilesia* (*Leaf-curl, Blister*).—Leaves are liable to wind round and curl up from various causes. In some cases the affection is inherent to the peculiar species or variety, as in *Salix annularis* ; in some it is constitutional, as in the Potato curl ; sometimes it arises simply from the puncture of insects, as in leaves deformed by the attacks of Acari or Aphides ; sometimes it is due to parasitic fungi, as in a very curious affection of Peach leaves arising from the attack of an *Ascosporium ;* sometimes again it accompanies the peculiar hypertrophy of the hairs which is known under the name of *Erineum ;* and finally it may arise from particular conditions of temperature, as in a disease which is common on Peach leaves, resembling very closely the last-mentioned in external aspect, but without any trace of fungi.

472. The affection which I have now more especially in view is this latter of the Peach tree, which is sometimes so prevalent that it is scarcely possible to find a single leaf which is not deformed. I was unable, however, last year to obtain specimens for examination, and I have been by no means more fortunate during the present season. Currant and Apricot leaves are subject to a similar affection, but in general not to so great an extent. It has been said that it arises from the irritation produced by Aphides, and the exhaustion of the tissues which compose the lower stratum of the leaf. The under surface, it is supposed, contracts in consequence of this exhaustion while the upper increases, and consequently the leaf curls inwards. Though however I have been unable to procure specimens of the Peach blister, I have obtained leaves already nursing a host of Aphides and Acari, but with little or no thickening of the substance, though there are here and there little bullate swellings, and sometimes a complete exhaustion of the cells. It is not indeed to be denied that the presence of aphides will sometimes cause a great alteration of texture. I have now before me Pear leaves attacked by a large black aphis, which are so altered in appearance that no one could tell to what tree they belong without previous acquaintance with the fact. The leaves are bright red, or red shaded with green, folded back and swollen so as to look like little boats, while the substance is thickened, brittle, and juicy, with a considerable lustre.† The affection in this case is evidently due to the aphis, for there are no insects on any leaves except those which are thus transformed.

473. In the true Peach blister the leaves are in a similar manner altered both in form and substance. The parenchyme of the upper portion of the leaf is greatly increased, and extremely brittle, with a semi-transparent aspect, but with a far less development of chlorophyll than is usual, while the bullate leaves which came from a forcing-house alluded to in the preceding paragraph are of an extremely dark green. It has been observed frequently that this affection takes place upon sudden depressions of temperature, whether accompanied or not by wet or by strong wind. It is not confined to spring, but may occur in summer or even in autumn. When once produced the leaves may nurse vast quantities of aphides from their superior succulence ; or they may be attacked by white mildew, but the aphides and fungi are not therefore to be considered as the efficient cause. The malady in severe cases is not confined to the leaves, but the young wood is equally deformed, and when once the evil is set up it is apt to return in the succeeding season. The affected twigs should therefore be carefully pruned, which is the only remedial measure which seems practicable.

474. Though it is pretty certain that the malady is due to the cause just named, it is not easy to understand why a sudden check should cause an hypertrophy of the upper surface of the leaf. In the Apricot the effect is somewhat different : the leaf as in the Peach becomes succulent, and blistered, but the under surface becomes convex, and at the same time the cuticle separates from the parenchyme so as to present little white specks coated with a delicate film. In the Apricot the affection is for the most part comparatively slight, but I have seen instances in which it prevailed to such an extent that no wood was ripened, and the proper tone was not recovered for three or four years. *M. J. B.*

VARIETIES OF AMERICAN GRAPES.

How many kinds of Grapes are native to the United States, says *Putnam's Magazine*, it is impossible to say; Dr. Rafinesque catalogues forty species and one hundred varieties in a little hand-book of Vines, published in 1830, which he offers "as the result of his observations during many years, and many thousand miles of travel." Since this was published, much new territory has been added to our great Republic, in some portions of which native Grapes in great variety and profusion are found. Travellers in Texas and California, especially, agree as to the wonderful profusion of Vines noticed in both these States. Upon the Pacific, wine is already manufactured, not in abundance, but still with results so satisfactory, that it will be but few years before it is an established source of revenue to the State. We hear of one farmer there raising ninety thousand pounds of Grapes annually; of premiums given for the best wines; of bunches weighing from one to eleven pounds each. Their Grapes also are represented to be larger than ours—"large as Plums," and superior in colour and flavour. The berries, too, are very tender, and the skins thin. The Vines are pruned down to two or two and a half feet from the ground, and the large indolent masses of fruit rest upon the lap of the common mother.

The Grapes of California are called "Catawba," by some "Sweetwater." The berries are oblong, egg-

* A name adopted from Ré, derived apparently from φυλλον a leaf, and ιλιγγω to wind.

† Pear leaves, when the buds first expand, have the edges rolled in. An aphis takes possession of the convex under surface. The substance immediately begins to thicken; the superior development of the upper surface along and on each side of the midrib soon causes it to project between the two involute margins so as to conceal the insect between the folded lamina. The process is then continued till the border unfolds on either side, so as to form a little pod or boat which completely protects the parasite and its offspring from rain or any other unfavourable condition of the atmosphere.

shaped, of a light reddish brown colour; in flavour delicious; they are destitute of pulp, and so tender as to be difficult to handle. Like all the rest of our native Grapes of any value, they are claimed to be of "foreign origin." History is thus falsified, and our Vines robbed of their birthright. Major Adlum discovered a fine Grape in the gardens of Mr. Johnson, near Frederick-town, Maryland, and another in the gardens of Mrs. Scholl, of Clarksburg. He says, "A German priest, who saw Mrs. Scholl's Vine in full bearing and when ripe, pronounced it the true Tokay, and says he saw the same kind growing in Tokay, in Hungary!" The Schuylkill Muscadel was christened "The Cape Grape," as Mr. Longworth says, "to give it reputation;" and to this day, many believe it to be a native of Africa, although its wild brethren are found in plenty all over Pennsylvania. The Isabella, formerly called the Laspeyre Grape, is a native of North Carolina.

To return, however, to the Grapes of California. There are no vineyards in the immediate vicinity of San Francisco, but Vines are cultivated in the valleys, especially to the southward of the State; and a strong red wine, resembling claret, is drank by the country people from their own Grapes. At Los Angelos they make a very excellent white wine, something like the Catawba in flavour.

The "Mustang" and the El Paso are the peculiar Grapes of Texas. The former, which is scarcely accredited as a wine Grape, is known only at present as a wild Vine, indigenous to the soil which produces it. The El Paso has, however, been successfully cultivated. The following, from De Bow's "Industrial Resources of the South and West," gives us some account of the region which is said to produce the best wine in the world:—

The settlement of El Paso extends from the Falls of the Rio Grande on the north to the Presidio on the south, a distance of 22 miles, and is one continuous orchard and garden, embracing within its area an industrious and peaceable population of at least 8000. This spacious valley is about midway between Santa Fé and Chihuahua, and is isolated from the other Mexican settlements by the mountains which rise on the east and west, and close into the river on the north and south. The breadth of the valley is about 10 miles. The most important production of this district is Grapes, from which are annually manufactured not less than 200,000 gallons of perhaps the best and richest wine in the world. This wine is worth two dollars per gallon, and constitutes the principal source of revenue to the country. Great quantities of Grapes are also dried in clusters and preserved for use during the winter. In this state they are considered superior to the best Raisins that are imported from Europe.

The great Mustang Grape of Texas is also said to be a wine Grape of superior quality. It grows in the greatest profusion, without cultivation, in every part of Texas, and upon all varieties of soil. The wine produced from it is said to resemble port. Not alone in California and Texas, but throughout the entire South, do native Grapes flourish in wonderful luxuriance. The sea islands that fringe the coasts from Norfolk to the Florida reefs are embroidered with wild Vines, laden with clusters, as well as the margins of rivers that intersect the mainland. Florida abounds in this delicious fruit; in Alabama, Grape culture is already exciting much attention, and the native Grapes produce not only wines of most excellent quality, but also a very great variety of wines. Their cultivation is very easy, and the Vines are abundant bearers. A gentleman, in a letter to the "Alabama Planter," says: "A vineyard at maturity, say the fourth year, would be good for from 500 to 750 gallons; the seventh, for 1000 gallons; the Scuppernong much more, to the acre. Among other properties possessed by our native Grape, the quantity of vinous matter they possess is most remarkable. A bushel of bunches, as pulled from the Vine, will give 3 gallons of wine, and after undergoing a second operation, about 1 gallon more of a lighter but most agreeable wine. It would take a third pressure to produce the meagre drink with which, in part, they feed the peasantry in France who tend the vintage."

The woods of Louisiana, Mississippi, and Arkansas abound in varieties of wild Vines that yield masses of fruitage, renowned as Raccoon, Bear, Bull, Chicken, and Fox Grapes. As yet, we have had no specimens of wines of these celebrated brands. One of these wild Vines has been successfully cultivated already, under the name of "Bland's Madeira," and doubtless there are many species which, by the skill of the Vine-dresser, may be made to yield an agreeable variety of wines; in fact, our chief dependence must be upon our indigenous Grapes, that are already acclimated by Nature's unerring training. It is well to observe that a Grape may produce a superior wine in one district, and yet be of little value in another; so that although one species may disappoint the cultivator in Arkansas, that is no reason why it should be rejected by his brother in Tennessee or Louisiana, or *vice versâ*.

In Georgia, the luscious Muscadines gathered in the wild state produce a wine of considerable merit; as yet no attempt has been made to give them a formal training, except here and there upon a small scale. This is also the case in South Carolina.

North Carolina is the natal soil of the Catawba, the Herbemont, and the Scuppernong; the first two of these unquestionably owe their reputation to the skill of the cultivators of Ohio and New York, and have only a limited growth in their native State; but Scuppernong vineyards are found from Currituck, on the extreme north, to the southern counties on the Cape Fear River, and extend inland almost to the foot of the Blue Ridge Mountains; while so various are the qualities of wine produced, that some kinds command 3 or 4 dollars per gallon, and some kinds can be purchased for 5 or 6 dollars a barrel! There are two species of this Grape—the best having a white, silvery skin, with a rich metallic lustre, while the inferior kind bears a small, black berry. Mr. Longworth says, "The black Scuppernong bears from one to four berries on a bunch, and would, in times of war, if lead be scarce, be as valuable, even when fully ripe, as the Fox Grape, for bullets. The white Scuppernong, also, has a very small bunch, and is a better Grape than the black. But the skin is thick, and the pulp hard; it will never be valuable as a wine Grape, unless to give to other must aroma and flavour."

If for no other purpose than this—namely, to mix with the must of less flavoured Grapes, to give character to the wine when made—this Scuppernong will prove to be most valuable to this country. The "Traminer" of the Rheingau, a small-berried Grape, abounding in saccharum, and full of aroma and strength, is so used to mix with the "Riesling," the favourite Grape of the Rhine, in the production of the first-class German wines. And that the generality of European wines owe their excellence to the judicious mixture of various growths and vintages is so well known as scarcely to need repeating here.

But the value of the Scuppernong as a wine Grape has not yet become fairly tried; at least not in North Carolina. Of all the samples we have tasted, not one was the pure and original fermented juice of the Grape, but in every case more or less sophisticated with sugar or honey, and not unfrequently with whisky or brandy. It is usual to add 3 lbs. of sugar to 1 gallon of the must, and then a little distilled spirit of some kind is poured into every barrel of wine "to make it keep." Subjected to this treatment, the fluid degenerates into a sort of vinous grog, and its peculiar character as a wine is almost entirely lost. Still, in spite of this, it has an aroma which is somewhat grateful.

That species of the Muscadine called the Scuppernong is a very sweet Grape, but sweet Grapes are often wanting in saccharine matter. For a familiar instance, take the Catawba and Isabella Grapes. To the taste the latter is by far the sweetest fruit; nevertheless, in making a sparkling wine, the Isabella needs a liberal allowance of sugar, while the Catawba wine requires little or none. M'Culloch, in his treatise on wine-making, makes a very accurate distinction between the "sweet principle" and that which constitutes the "sugar" in fruit. The latter, the saccharine principle, is the element which by the process of fermentation is transmuted into alcohol or spirit of wine, a certain per centage of which is necessary in all vinous fluids. This spirit of the wine is derived directly from the sugar of the Grape. Now, the difference between the sweet element and the saccharine element is very clearly shown by M'Culloch, who illustrates the subject by comparing molasses with refined sugar, the first being much the sweetest of the two to the taste, and yet not comparable to the latter in its proportion of pure saccharum. And if we may venture upon a theory, we should say "that the reason why sweet Grapes make a wine less sweet than those not so dulcet to the taste, lies in this: that in the sweet Grape the whole quantity of saccharum is absorbed in the production of alcohol, while in those more abounding in sugar a portion only is transmuted into alcohol; the superflux of sugar remaining in undisturbed solution, and sweetening the wine, less or more, as may be."

Now the Scuppernong Grape produces a wine naturally hard and dry, with little to recommend it but its peculiar aroma and flavour, and in consequence the must is artificially sweetened to make it a marketable or saleable commodity. So long as this method of treatment is practised, neither it nor any other American wine so used can rank with any wines of Europe, except with the spurious productions of Cette, Lisbon, and Marseilles. The difficulty lies in this: our Vine growers are afraid of a hard, dry wine, because popular taste so far (especially in the rural districts) has been corrupted by the sweetened, sophisticated, poorest class of imported wines, the sweet malagas and pure-juice ports that are current in every country town. Pure wholesome wines never are, and never should be, sweet; a glass of syrup is no refreshment for a labourer, and as a daily beverage for anybody, actually repulsive; and as we are looking forward to the period when our wine shall be used as the common drink for all classes of people, we should define now and here that by "WINES" we mean the pure, fermented juice of the Grape, without the admixture of any thing else whatsoever.

That the Scuppernong is a hard, dry wine, when made without sugar, is doubtless true; but the question is, "What character will this very wine assume when mellowed by age?" The Sercial, the king of Madeiras, is as harsh, austere, and repulsive for the first few years as a blue-nosed Presbyterian elder fresh from the synod, nor is it drinkable until age has corrected the acerbity of its temper? but what then? Then it becomes one of the most exquisite fluids in the world, and commands a price superior, in some instances, to any known wine, with the exception of Imperial Tokay. The real merits of the native wine of North Carolina, then, still need development; age and proper treatment must in time produce something; for the Scuppernong is not destitute of delicate aroma—an important quality, indeed. The mode of culture is peculiar; the Vines (layers, not cuttings) are planted 100 feet apart; the main branches have space to run 50 feet each way, at right angles from the centre, before meeting. Each Vine may be represented thus, +, the laterals interlacing over head and forming a canopy. The branches are never pruned, as it is said "the Vine would bleed to death." Like the Vines in Lombardy, these are high trained, (*haut tige*,) the lowest branches being 8 feet above, and parallel with, the ground. The yield is most abundant, a single Vine often bearing thousands of bunches; the berries small, and but few to the bunch. Instances have been cited of single Vines yielding enough Grapes to make several barrels of wine, and covering 2½ acres of ground.

We have seen specimens of native Vines of Virginia of excellent quality. The Catawba there is an abundant bearer, and the wine made from it essentially different from that of Ohio. The climate of this State would seem to be peculiarly adapted for the purpose, and the wild and waste land might be turned to profitable account in the production of Vines. To Virginia we are indebted for many species already popular, among which we may instance "Norton's Seedling," the "Woodson," and "Cunningham." Here, too, the Bland Grape grows abundantly, under the name of the Virginia Muscadel. In Maryland and Delaware, also, a variety of native Grapes are cultivated, some of extraordinary productiveness. One Vine raised by Mr. Willis (near Baltimore), in 1832, yielded 25,000 bunches; and in the following year, Messrs. C. M. Bromwell and R. Monkland certify "that they counted upon it 54,490 bunches, omitting small and young ones, which would have added at least 3000 more."

That part of the United States between the 38th and 44th parallels of latitude, so far, is entitled to the supremacy in Grape culture. Already the wines of Ohio and Missouri begin to supplant the imported Rhine and Champagne wines here, even at the same prices. Terraces rise above terraces on the hillsides of the Ohio River, and the red bluffs begin to disappear beneath masses of Vine foliage and purple clusters of fruit. In Pennsylvania, at the end of the last century, an association was formed for the purpose of cultivating the Grape for wine, and vineyards were established at Spring Mill, under the superintendence of Mr. Peter Legoux. This was a failure: foreign Vines were tried and abandoned, and finally the wild Grape called Schuylkill Muscadel met with temporary success.

In New Jersey the Vine has been cultivated for many years, especially in the neighbourhood of Burlington. The soil of some parts of this State is peculiarly adapted for this purpose, and we may hope hereafter for better wines than those she now furnishes under a variety of foreign brands. Still further west, we find that Indiana, Illinois, and Michigan are improving the hint given by Ohio; in fact, Indiana must be recognised as one of the pioneers; for, in the beginning of this century, the most considerable quantity of native wine made in the United States was from the Cape or Schuylkill Grape of Vevay, Switzerland county, Indiana.

Missouri already ventures to contest the palm with Ohio. In 1852, the vineyards at Hermann embraced some 40 or 50 acres only, and this year we are informed that no less than 500 are under cultivation there, besides many other vineyards in the interior of this thriving State. At the Crystal Palace Exhibition in New York, six prizes were awarded to Vine-growers of Missouri for samples of superior native wines, both Isabella and Catawba, still and sparkling. The last Grape is the favourite there, as it is also in Kentucky and Tennessee. In St. Louis, the native wines are rapidly supplanting the foreign, especially the sparkling kinds; at the hotels there, the majority of wines on the tables are of home production.

The two principal wine Grapes of Ohio are the Catawba and the Isabella; the first, however, in the proportion of 20 to 1. Both are natives of North Carolina. The first was found and noticed merely as a wild Grape, in the year 1802, by Colonel Murray and others, in Buncombe county, North Carolina. There it reposed for upwards of 20 years without attracting attention, and so would have remained probably until now, had not its merits been discovered by Major John Adlum, of Georgetown, North Carolina, in or about the year 1826. Major Adlum, an officer of the Revolution, formerly Surveyor-General of Pennsylvannia, was a great cultivator of the Grape, and devoted the last years of his life to that purpose. In the course of his experiments with native Vines he found this one in the garden of a German at Georgetown, and after a fair trial was so convinced of its value as a wine Grape, that he sent some of the slips to Mr. Longworth, with a letter, saying, "I have done my country a greater service by introducing this Grape to public notice than I would have done if I had paid the national debt." Adlum paid the debt of nature soon after, but the slips fell into good hands. For nearly 30 years, with patient perseverance, these Grapes were nurtured by Mr. Longworth, until the hour has arrived when the prophecy of Major Adlum seems certain of fulfilment. Thirty years of patient labour; 30 years of unfaltering faith; 30 years of man's life; what a span it is! stretching from hopeful youth to hoary age; a long while, my good friend, to look forward to—a long way to look back. In the 30 years to come we may have occasion to thank these pioneers—we may see greater results than either of them dreamed of.

The Isabella Grape was first introduced to notice by Mr. George Gibbs, of Brooklyn, Long Island. The slips were brought from North Carolina by Mrs. Gibbs, his wife, and the Vine, in compliment to her, was named the "Isabella." Originally, it was called the "Laspeyre Grape," Mr. Bernard Laspeyre, who resided near Wilmington, North Carolina, having the parent Vine

from whence these slips were derived. By him it was supposed to be a foreign Grape; but all scientific writers on Vines in this country assert that the species in a wild state is quite common, and is unquestionably an indigenous production of the United States. Of these two Grapes the best wines are made in Ohio. We may also mention that the "Herbemont," another variety of the "natives," produces an extraordinary fine wine, the flavour being like the purest Amontillado, and essentially different from the other two.

In comparing the American wines with those of Europe, we must bear in mind that they are distinct in flavour from any or all of them. Sparkling Catawba is not Champagne, nor can Isabella be compared with any other wines known in the world. It is a peculiarity of these wines that no spurious compound can be made to imitate them, and in purity and delicacy there is no known wine to equal them.

The most expensive wine in Europe, the "Tokay," contains the least amount of alcohol, 9.85 per cent.; but the "Still Catawba" shows a per centage of 9.50 only, being, in fact, the lowest per centage of spirit to be found in any wine in the world.

One more fact in passing. By the Patent Office Report for the year 1853, it is stated that the value of American wines exceeds that of the Tobacco crop:—

Value of wines grown in the United States ...	2,000,000 dols.
" Tobacco	1,900,000 "

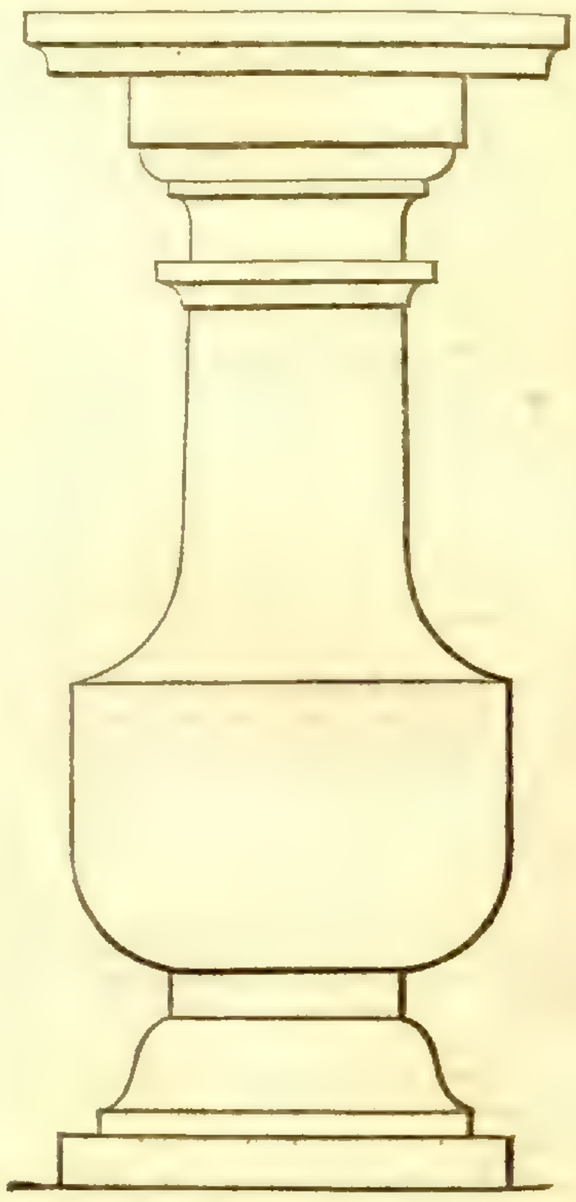
But not alone for the production of wine are Grapes valuable. The seeds of Grapes are eaten by birds; and a fine fixed oil, similar to Olive oil, is made from them in Parma, Lombardy, and other parts of Italy, suitable either for cooking or burning in lamps. The cuttings of the Vines are always saleable to propagate new vineyards; the leaves can be used to feed cattle, and they are fond of them. The finest printer's ink is made from the carbon of the charred stalks of old Vines. And from the lees of wine we get cream of tartar, which no family should be without. And then the Raisins! Whether it be from the enormous crop of children raised annually in our States, or from some other unknown reason, we import more Raisins than all the rest of the world put together! So much for the Vine as a source of national prosperity. *Year-Book of Agriculture.*

Home Correspondence.

Occidental Plane.—Although I head this notice (as a similar one upon a former occasion*) "Occidental Plane," yet now as then my object is to elicit information respecting not only that, but also another and more hardy kind but very similar, often known as Platanus acerifolia, yet confounded with and generally called in nurseries, the Occidental Plane. It was scarcely to be expected that in the winter season the subject should attract much attention; nevertheless it has been discussed by several intelligent contributors to your Journal, and I have had private communications, which will together, I trust, tend to pave the way to a more correct knowledge of these trees. Mr. G. D. Vallance, gardener at Farleigh Castle, Bechington, Somerset, informs me that a very fine tree, which used to be called the "Virginian Plane," was growing a few years ago in the flower garden of the Earl of Cawdor, at Stockport Court, Pembrokeshire. If there is good authority for the name, it ought to be the true Platanus occidentalis, and we should be glad to hear about it in the leafing and flowering season, and to receive specimens recent or dried. Dr. Lindley finds in his herbarium a specimen quite agreeing with the Plane tree which has given rise to this appeal to the *Gardeners' Chronicle*, from Cashmere. This might give rise to the impression that it is of Asiatic origin, though I cannot at all subscribe to the opinion of Aiton, Mr. Loudon, and others, who rank it as a variety of P. orientalis, from which it differs *toto cœlo*—habit, ramification, foliage, constitution, &c. I may observe that my own specimens of Dr. Thomson from Cashmere are the true orientalis, and that is acknowledged to be cultivated. Your correspondent "T. R., Herts," (*Gardeners' Chronicle*, 1856. Feb. 9, p. 85 *c*) proves himself to be familiar with our P. acerifolia, and he considers it quite distinct both from the well-known Oriental and Occidental Plane, and he will, it is to be hoped, favour your readers with further remarks and distinguishing characters in the summer. "C. W. Strickland" (*Gardeners' Chronicle*, Feb. 16, 1856, p. 102 *a*) "has a strong impression that the great trees in the plain of Buyukdere, on the Bosphorus, have leaves like those grown about London, and not the deeply cut ones of the Oriental Plane." This is answered by Mr. Bentham in the following number of the *Gardeners' Chronicle* by the statement that "the large Plane trees of Buyukdere, as well as those that I observed in the neighbourhood of Constantinople, all evidently planted, belong to the common eastern form of the Oriental, with leaves much deeper cut than either the tender Plane that we suppose to be the true occidentalis or the one commonly known in England and France under the name of acerifolia." The Viscount Downe (*Gardeners' Chronicle*, Feb. 23, 1856, p. 118 *c*) confirms the above statement of Mr. Bentham, and goes on to compare the cultivation of Platanus occidentalis with that of P. orientalis in North Yorkshire, saying that "Platanus occidentalis is the quicker grower of the two." Does he not mean P. acerifolia? "J. B. Whiting, Deepdene Gardens," (*Gardeners' Chronicle*, March 1, 1856, p. 134 *b*), tells of some very fine Plane trees at Chart Park, Deepdene (apparently those referred to by Loudon as occidentalis), which he has always understood to be P. orientalis, and which agree with the descriptions of P. orientalis given in Loudon's "Arboretum Britannicum." He adds that he has never seen a large tree of the kind usually called occidentalis. Does he mean true occidentalis (the tender kind), or what we are now considering acerifolia? "Dr. Klotzsch" has favoured us (*Gardeners' Chronicle*, March 29, 1856, p. 213 *c*) with a catalogue of the species of Platanus in the Royal Herbarium, Berlin, where the 5th kind stands as "P. orientalis L., var. acerifolia, Aiton † (P. acerifolia, Willd.) from Spain, by Ruiz." But may this not be a cultivated specimen from the Botanic Garden of Madrid? Nowhere, as far as I can find, is any Platanus recorded as a native of Spain. Yet not only is there another var. of P. orientalis called hispanica (the third Plane in Dr. Klotzsch's list) here said to be from Spain, gathered by Ruiz; but P. acerifolia itself (though said by Aiton to be a native of the Levant) is called, in the 2d ed. of Hort. Kew., Spanish Plane Tree. Indeed the more we endeavour to discover the origin of this tree (P. acerifolia), the greater seems the amount of evidence in favour of its being a native of the Old World; even Tournefort (in whom the name originated—supposing ours to be identical with his) calls it "Platanus orientalis Aceris folio." The author of the botanical notes to Hunter's edition of Evelyn's Sylva (probably Ph. Miller), 2d ed. part ii. p. 54-55, has two species of Plane (P. orientalis and P. occidentalis), and "two vars., the one the Spanish Plane tree, the other the Maple-leaved Plane;" but makes no allusion to their native country, nor does he say of which species they are to be considered varieties. There is an editorial remark in the *Gardeners' Chronicle* following C. W. Strickland's queries, l.c.:—"The late Professor Link once assured us that our common park Plane (P. acerifolia) was a Greek plant. But this was merely an *obiter dictum*." Another country I now find claims the honour of P. acerifolia, as there indigenous, viz., Italy. Tenore, in his Flora Neapolitana, v. 5, p. 265, included three species:—P. orientalis, which he acknowledges to be an introduced plant from Asia; P. acerifolia‡ W. "Native place; it grows solitary in the woods of Abruzzo. I have seen it growing abundantly along the road of the Acqua Santa, near Ascoli. The tree is of lofty stature and ready growth;" and "Platanus cuneata, W." (said by Willdenow to be native of the Levant.) "Native place; this is the common tree with us, and grows along the banks of rivers in Calabria. A tree of low stature and slow growth." My herbarium specimens of this show that P. orientalis is very liable to vary with cuneate leaves; and indeed it is this form of leaf which is figured for true orientalis in Watson's Dendrologia Britannica, Tab. 101. Tenore's remarks on the above three trees are as follows: "When they are seen together, and have been cultivated for several years, they are recognisable without any difficulty. We have them in the same part of the gardens, and they preserve unalterably their diagnostic character. The one last planted being the P. cuneata, I felt uncertain till it attained to be a tree whether it might not be referrible to one or other of the first two species; but I was soon convinced of the contrary. It remained of much lower stature, and all its parts, the leaves especially, continued to be smaller. This latter characteristic has satisfied me that the tree, which came from the royal garden of Caserta, under the name of P. hispanica, and which we had kept for 20 years in our arboretum side by side with P. acerifolia and P. orientalis, ought to be referred to P. cuneata. Taken together with the stature of the tree and with its dimensions, the characters of the foliage serve to discriminate it from the two before-mentioned species, the leaves being cut like those of Platanus orientalis, and thereby entirely dissimilar from those of P. acerifolia, especially by having their three lobes combined in a conical form, so that by this peculiarity alone they are abundantly distinguishable from Platanus orientalis." If the solitary specimens of P. acerifolia in the woods of Abruzzo may be considered wild, which is very doubtful, I should fear that the abundant ones growing along the road of the Acqua Santa cannot possibly be so. I think however we have arrived at the conclusion that P. acerifolia, though nearest in botanical characters to P. occidentalis, is nevertheless quite distinct, readily distinguished by those who have paid attention to it, and not introduced from any part of the New World: that its actual locality is not yet ascertained, and that we want a clearly defined specific character derived from flowers and fruit as well as the foliage, and taken from the living plant; and further we want to know if there are any old trees of true P. occidentalis in the country. Our own rich herbarium of native species of Platanus contains P. orientalis, L. (and the only one of the Old World), P. occidentalis, L. (known by the short and broad lobes to the leaves and the fertile heads of flowers being solitary), P. mexicana, Moricand (perhaps too near P. occidentalis), and P. racemosus of Nuttall (P. californica, Benth.). *W. J. Hooker.*

Remarkable Plants now in flower at Enville.—There is now in bloom here a plant of Medinilla magnifica of the following dimensions:—Height 5 feet, diameter 6 feet, number of bunches of blossom, 97. The plant, which has been here upwards of two years, is in all respects a magnificent object, and perfectly unique in appearance. There is also now in flower at this place a fine specimen of Dendrobium Pierardi var. latifolium. The number of spikes on this plant is 26, many of them 5 feet in length, and few less than 3 feet, each well furnished with flowers. We have likewise a fine plant of Rhododendron Gibsoni, which measures 7 feet from the pot and 3 feet through; this is, I should think, one of the most beautiful plants of the sort. The flowers are large and literally clothe the plant from the base to the top. I have had this Rhododendron in my possession five years, and would recommend every one to grow it who cares anything about early spring flowering plants. *S. Eaton, April* 23.

Sundials.—These are made as cheaply of stone where stone exists as of that nasty cement. Any circular plan is cheap, as it can be turned on a lathe. They can be



bought very cheap and good at the Box station of the Great Western Railway. A common baluster of stout proportions, with a square base and something square above to receive the dial, will cost a very few pounds. I send you a tracing, which will enable you to judge of it from general appearance. *Somerset.*

Cherries Preserved by Burial.—On Monday last I employed a man to excavate a portion of an old Strawberry bed, in order to sink a well some 3 or 4 feet below the surface. He found several Cherries, plump, round, black, fleshy, and still retaining a sweet flavour. How long they may have lain there I know not. Certainly the ground has not been disturbed for four years, the period during which I have been in occupation. I intend trying whether they yet retain the power of germination, and beg to enclose two which you may perhaps think it worth while to submit to a similar test. They appear to belong to the variety termed caroons. *C. A. Johns, Callipers, Herts.* [The specimens sent us quite answered to the above description.]

Societies.

Horticultural, *April* 22.—Sir Philip de Malpas Grey Egerton, Bart., M.P., in the chair. Several remarkably interesting plants were exhibited on this occasion. Foremost amongst them may be mentioned an example, beautifully in flower, of the new Sikkim Rhododendron campylocarpum, a little known species, the blossoms of which are large and showy, and being pale yellow are somewhat unusual in colour. In this instance, the plant was from a greenhouse and was worked standard high on a hybrid Catawbiense; it was mentioned, however, that the same species had blossomed in the open air at Lord Burlington's place at Holkar, in Lancashire. It may, therefore, turn out to be sufficiently hardy for out-door decoration. Messrs. Standish and Noble, from whom this plant came, also sent Gaultheria furens, a hardy evergreen from Chili, having much resemblance to an Andromeda; but unlike that genus was stated to bear a fleshy ornamental fruit. Of Sikkim, Bhotan, and other Rhododendrons, Messrs. E. G. Henderson furnished an interesting collection, consisting of Hookeri, Nuttalli, Boothi, leptocarpum, Javanicum, of which there are two varieties, and Edgeworthi. It is reported that Nuttalli, which has not yet blossomed in this country, has flowers larger and finer than even R. Dalhousiæ itself. Its foliage is also large and handsome. Should it be hardy, therefore, as it is said to be, it cannot fail to be a valuable acquisition. Like Nuttalli R. Hookeri is also a Bhotan species; this has lately

* See *Gardeners' Chronicle* for Feb. 2, 1856, p. 69 *c*.

† Hort. Kew., ed. 1, P. acerifolia Will. ed. 2.

‡ "Foliis subcordatis 5-lobis lobis triangularibus integerrimis vel remote grosse dentatis utrinque glabris subtus venis puberulis, nervis ad folii basin confluentibus; trunci cortice lævi (nec rimoso nec fungoso), frustulis irregularibus plantis sponte defluentibus, stipulis dentatis." *Ten.* Nothing is said about the flowers or fruit.

flowered with Mr. Fairie, of Liverpool. Its foliage is less striking than that of the last-named kind; but its blossoms though small are showy, owing to the great brilliancy of their colour, which is purplish crimson. R. Boothi has not flowered yet. The cream-coloured blossoms of R. Edgeworthi, we need scarcely say, are remarkable for their fragrance. As regards the plant itself, it was stated never to attain a large size even in Sikkim. The same firm also contributed two hybrid Azaleas, and one or two other plants. From Messrs. Veitch & Son, of Exeter and Chelsea, came the charming R. jasminiflorum, a tender kind with long tubular blossoms, a form of flower which it was mentioned that Rhododendrons take more or less as they approach the eastward of Asia. The same nurserymen also showed specimens of a Fuchsia sent from Guatemala by Mr. Skinner; it belonged to that class of this genus of which the now nearly forgotten F. arborescens is the type; likewise Dodecatheon integrifolium, a new kind somewhat like D. Meadia, but different in foliage; Primula mollis, a new sort, the pink flowers of which are produced in successive tiers or whorls all up the stem; and an East Indian Carex, with variegated leaves. Messrs. Lee communicated various variegated Geraniums; the Ribes called Beatoni, a hybrid from R. aureum crossed with R. sanguineum; some cross-bred Rhododendrons, Azalea Verschaffelti, and a magnificent sweet-scented Begonia called splendida. Mr. Mielliez, a nurseryman at Lille, contributed Azalea Madame Mielliez, a white with purple stripes in it, and another rather pretty kind called "Model." Mr. Glendinning, of the Chiswick Nursery, sent a well-flowered specimen of Gesnera Doncklaari, a handsome hybrid nearly related to G. discolor. From Mr. Turner, of Slough, came a collection of extremely well grown and beautifully flowered Cinerarias consisting of some of the best sorts in cultivation; one named Brilliant (Lidgard), a clear white with blue tip, was especially pointed out as a first-class kind, having all the good qualities which a Cineraria could well be expected to possess. Mr. Dobson, of Isleworth, had also a nice collection of these useful flowers, together with a stand of Pansies cut from plants in pots. From Messrs. Henderson, of Pine-apple Place, came extremely well-grown examples of Dillwynia pungens, Boronia pinnata and macrophylla; Tetratheca ericifolia, a handsome lilac-flowered species; Aotus intermedia, and an Eriostemon. The Rev. F. Beadon, of North Stoneham, Hants, furnished a boxful of handsome Camellia blooms cut from plants growing on a south-east wall.

Of fruit Mr. Drummond, gr. to S. L. Stephens, Esq., sent Keens' Seedling Strawberries and Black Hamburgh Grapes, of which some account will be found in another column. Mr. Jones, gr. to Lady Charlotte Schreiber, furnished a Prickly Cayenne Pine Apple, weighing 4 lbs. 9 oz.; and a tray of Beurré Rance Pears came from Mr. Ingram, gr. to the Duke of Rutland at Belvoir Castle. The latter were large and fine, and had not the slightest symptoms of shrivelling about them. The Garden of the Society contributed various plants; among them were the sweet-scented Rhynchospermum jasminoides from Hong Kong and the beautiful Lachenalia aurea mentioned at p. 263; Nemesia versicolor, a perennial from the Cape of Good Hope, with blue flowers about the size of Lobelia ramosa, and produced in sufficient abundance to render the plant worthy of trial in beds out of doors; for this purpose it was stated that it would require about the same treatment as a Verbena. Associated with it were Calceolaria violacea, a kind with helmet-shaped flowers, which although not showy at a distance, when closely inspected are found to be very pretty, and Begonia Ingrami, acuminata, and coccinea. The first of these is a cross-bred between the other two, and is certainly one of the handsomest Begonias which our gardens at present possess. It was raised by Mr. Ingram of Frogmore, who has been very successful in producing new and beautiful hybrids among this class of plants. Rigby Wace, Esq, exhibited an example of a double iron espalier, with iron feet to go into the ground, *i. e.*, two espaliers about a foot or so apart fastened together by crossbars, while on the top was a pent-house roof of galvanised sheet iron, which projected far enough, it was thought, over the sides to prevent nocturnal radiation. The advantages of this contrivance were stated by Mr. Wace to be, 1st, more perfect shelter to the tree on the north side than is obtained by the single espalier; 2d, having a succession of fruit for a larger period than from one tree with one aspect; 3d, complete protection to the blossom from spring frosts by the coping; 4th, earlier production of fruit by having the coping made of glass, giving the advantage of an orchard-house with far less expense and trouble; and 5th, economy and durability. Whether or not, however, all these points will be fully realised in practice remains to be ascertained by experiment.

In connection with the qualities of British Oak, of which so many illustrations were produced at the last meeting, Dr. Lindley exhibited two specimens of the timber used in the construction of the ancient little wooden church of Greensted, near Ongar in Essex. Having been sent by Mr. Beckford of Esher, who had received them from the Rev. Philip Ray, the rector of Greensted, their authenticity was indisputable. One of these pieces which had formed part of the log walls was the timber of Q. pedunculata, and was much worm eaten; the other piece, Q. sessiliflora, was perfectly sound. Dr. Lindley expressed a desire to know whether Q. sessiliflora still grows in the neighbourhood of Ongar.

Notices of Books.

The *Entomologists' Weekly Register* is a penny periodical devoted to communicating immediate intelligence among the collectors of insects. Let us hope it will meet with sufficient support. *Shield's Practical Hints respecting Moths and Butterflies* (Van Voorst, 3s.), conveys in the form of a monthly calendar invaluable information as to the times and places where the young Lepidopterist must seek for his game, and what to do with it afterwards. Of far greater pretensions and wider scope is *The World of Insects* by Mr. Douglas, the learned Secretary of the Entomological Society (Van Voorst, 3s. 6d.); a readable and instructive volume concerning the insects of the House, the *Garden*, the *Orchard*, the Fields, Hedges, and Lanes, Fences, Commons, Downs, Woods, Waters, Seashore, and Mountains. This arrangement of matter is novel, and we think advantageous, especially to those who study entomology as an amusement rather than a science, and who read books with the same end in view. The following extract will illustrate the author's mode of treating his subject:—

"The garden being an artificial assemblage of certain plants within a restricted space, there to be cultivated for the sake of their foliage, flowers or fruit, it follows that all the insects attached thereto have thus the conditions favourable to their increase proportionably multiplied and cared for. Some insects accordingly abound in gardens, not only in those attached to mansions in the country, but in those small parallelograms attached to modest suburban residences, which are ironically, or by courtesy, termed gardens, but the number of species found is not very great. Many garden flowers, however, are attractive to insects born and bred beyond the boundary wall, and draw them from the surrounding woods or fields: so far a garden is an advantage to a collector, for some of the visitors are rare and not otherwise to be obtained, or at least not without great trouble. I allude more particularly to the Sphingidæ.

"Soft moths that kiss
The sweet lips of the flowers and harm not,"

hovering over them, Petunias especially, in some years in great abundance. I suspect that if gardens near the south coast were attentively watched on summer evenings the number of our native species of Sphingidæ, at present very small, might be increased, and some of the rarer species of the family be more often taken than they are at present.

"Did you ever see a Sphinx fly? There is nothing to compare its motion to, except a flash of lightning. While you are looking at a flower in the twilight, between you and it glides a motion, a moving haziness, which is before you and yet conveys to your eye no definite image. Before you have half thought what it can be, you see the flower again distinctly, and rub your eyes, thinking there must have been an illusion, or possibly an unsteadiness of vision caused by the irritation of that gnat that was buzzing about your head; when, lo! the flower just beyond seems to shiver,—you move to see what is there, but there is a move before you, and a dim shadow flits away like a thought. Can be it anything real? Stand still awhile: and now, in the increasing gloom, as you bend over the Petunias, holding your breath, you see a darkness visible drop down before you, but its presence is better made known by the humming caused by the rapid vibration of wings. Stir not, or this aërial body will float away. Now you see it deigns not to alight or touch the margin of the chalice, but, poising itself in air, stretches out its long tubular tongue and quaffs the nectar at the bottom. Now or never, if you wish to catch it. Strike with your ring-net rapidly below the flower, raising your hand and turning your wrist at the same moment. There you have it—Sphinx Convolvuli! Look, what a living glory, its eyes like stars brought down for us to look into, and behold, we can see nothing but light. But if you wish to see the other beauties of your captive to-morrow, you must kill it: first stop its fluttering by a pinch on the under side of the thorax, and then a dose of oxalic acid on the point of a needle will put it *hors du combat*. It has lost a little of its lustre by struggling in the net, as might have been expected, the scales on the wings of all Lepidoptera being easily rubbed off, but it is as good a specimen as is usually got in this way: perfect ones are rarely obtained, except by rearing them from the caterpillar, and such rare species as this are seldom found in their early states."

The *Flower Garden* by E. S. Delamer (Routledge), is a companion to the "Kitchen Garden," formerly noticed in our columns (1855, p. 679). Like its predecessor it is a really useful guide, and its low price (1s.) will doubtless secure it a large circulation. It is evident that the author, whoever he may be in disguise, is not only well acquainted with common gardening and common garden objects, but knows how to communicate his information. These books would make good prizes for cottage gardeners.

Garden Memoranda.

The Grove, Roehampton, the residence of S. L. Stephens, Esq.—This place has been greatly improved within the last few years. Immediately in connection with the house a new flower garden has been formed from designs furnished by Nesfield. It is in sunken panels, and contains some pretty tracery work in Box, the effect of which is heightened in summer by the skilful introduction of flowering plants, both in beds and in vases; while scattered here and there on the lawn in connection with them are some handsome specimens of Thuja aurea, Irish Yews, upright Cypresses and Rhododendrons. Around the bases of many of these shrubs has been planted wild Thyme, which is a favourite here for such purposes, and which when in flower is said to have a very pretty appearance. The flower garden is cut off from the lawn by an ornamental kerb of Caen stone, and beyond this immediately in front of the house is a small lake with an island in it, which in addition to its being an interesting feature in the landscape serves as a breeding place for waterfowl. At one end of the house is a little Rosery, the beds in which are covered over with iron trellises, upon which the plants are kept constantly tied down, and in this way they always present a dwarf and neat appearance. At the other end of the mansion is a conservatory, the centre of which is filled with Orange trees in tubs, with flowering plants in pots set all round them. A border which passes round the house is also kept continually gay with plants in bloom. In front are twiners and plants of neat growth, and on the back walls these are to be intermixed with Camellias, for which room is to be made by cutting away the branches from the stems of the climbers. Thus the latter will occupy the upper portion of the wall and the Camellias the bottom. It may be worthy of mention that for the last two months standard and other Roses, in the culture of which Mr. Drummond has been most successful, have formed a principal feature in the decoration of this house, and we need not say have been greatly admired by all who have seen them. Their treatment is as follows:—When they have done flowering they are pruned, the soil is shaken from their roots, and the plants are placed in smaller pots, moving them into larger ones as they increase in growth. In short, they are annually treated exactly as Geraniums usually are. Young plants for fresh stock are propagated from eyes, like Vines, and are grown on and flowered in small pots. In this way a large amount of gaiety is kept up all through the spring months. The roof of this conservatory is glazed with Hartley's patent rough plate glass.

In the kitchen garden there has been put up within the last three years a handsome new range of glass houses, with sheds, Mushroom house, young men's rooms, fruit room, tool house, and other conveniences of that kind, all of the very best description. The glass houses are divided into two halves by a corridor in the middle, on either side of which are Vineries, Peach-houses, and forcing pits, and each division has its own potting shed, with doors out of the back wall of the houses into them, so that plants can be carried from the one to the other without loss of time or exposing them to the open air. These houses were put up, we believe, by Shakespear, of Birmingham. They are all made of iron and copper, and are heated and ventilated exactly on the same plan as those in the Royal gardens at Frogmore. In the earliest Vinery the Grapes are just beginning to colour; but in a forcing pit new Grapes have been ripe here since about the beginning of this month. They are grown in pots, and this is the second crop that has been cut from the same plants in 24 months. As soon as the first crop was ripe in May last the Vines were shaken out of their pots, the soil carefully washed from their roots, and they were then repotted in the same sized pots. They were placed against a wall during the summer to harden their wood, and were placed in the forcing pit last November. Here they have produced a fair crop of not very large but extremely well coloured fruit, which is covered with a beautiful bloom. The two forcing pits in this range of houses being extremely useful contrivances, are worthy of particular notice. They are both efficiently heated and well ventilated. One is used for forcing Roses, Kalmias, Azaleas, Rhododendrons, and other shrubs for the decoration of the conservatory. The other is used for winter Cucumbers, Vines, and Figs in pots, and French Beans are grown under the Vines. The Cucumbers are placed at the warmest end, the Vines in the middle, and the Figs in the coldest part. By this arrangement all these fruits are successfully cultivated under one roof, and it was from Vines grown in this pit that the fine fruit exhibited by Mr. Drummond last Tuesday was cut. Along the back wall of these pits, as well as that of the other houses, are very convenient hinged shelves supported on moveable brackets, which being taken away allow the shelves to fall down close to the wall when they are not wanted. These in winter and spring are found very useful. Strawberries are grown in all these houses in abundance, and among them some fine fruit of Keens' Seedling is now ripe. They are brought on at first slowly on moveable stages, with which all the houses here are furnished, and placed in heat in succession as they are wanted. After they are ripe they are again removed to a cool house in which a circulation of air is always kept up to give them flavour. In this way fruit of excellent quality is secured. In the different Peach-houses the trees, although young, produce heavy crops. That in the earliest house is just stoning. Figs are forced here in pots. They are placed in heat in November, and as soon as the young shoots have made three leaves their points are pinched, and the shoots are tied down. This causes them to form fruit instead of wood, and thus a crop is obtained from the present season's growth. A second supply of fruit is also got from the same plants in one season by the same practice. French Beans are cultivated here

largely. They are sown in boxes and then planted out in beds—with which some of the housesare furnished—in rows 18 inches apart. For later crops of them dung frames are employed. Potatoes are managed nearly in the same way. We also observed a frame full of British Queen Strawberries. Moved from the open ground and planted here they come in a little before those out of doors.

Miscellaneous.

Potato Manure.—The experiments made by me last year with four barrels of gas-tar, as a manure for Potatoes, on about an acre of arable land, were most beneficial in counteracting the disease—only one Potato in *two thousand*, when taken up, being diseased. The tar was poured in a thin stream, out of a large watering-can, into the rows, and then covered over with three inches of soil, on which the sets were planted. The strength of the tar, however, was too great for the first young shoots, a great many of them being killed by it; and it became evident to me that the tar ought to have been put on the surface of the land, and dug or ploughed in before winter. The produce of Potatoes in my kitchen garden, on a plot of ground 17 yards by 23 yards, was at the rate of about 1800 pecks per acre, and was free from disease, with the exception of those rows near a manure heap, and some that were growing amongst some Artichokes and Raspberry trees. It is now four years since I abandoned the use of farm-yard manure for the cultivation of the Potato; and the manures used by me on the above occasion were wood ashes, gas-tar, lime, and sand from the sea-shore containing protoxide of iron. Some very diseased sets, from St. John's, in America, which were sent to see if I was clever enough to get them to grow, &c., produced a very large crop, perfectly free from disease. It is a well-ascertained fact that diseased sets germinate more freely than sound sets, and produce crops free from disease. The dusting of the haulm and leaves with quick lime three or four times during their growth, I find to be most advantageous in preventing the blight. A row of Potatoes to which sewerage manure was freely given had very large haulms, five feet in length; but the tubers were few and small, the best of which, when cooked, were soapy, and of a most disagreeable taste and odour. Potato sets dipped in tar, with the exception of the eyes, produce good crops; but the use of tar for Cabbages, unless thoroughly decomposed in the soil, is destructive to them. Now, Cabbages contain much gluten in them, and therefore grow luxuriously when fed on putrescent manures; whilst the healthy Potato, whose cells are well filled with starch, grows well in antiseptic carbonaceous manures. It must be evident, therefore, that what is one plant's food is another plant's poison. *John Malam in Journal of Gas-lighting.*

Catawissa Raspberry.—The Catawissa Raspberry, says the *American Horticulturist*, originated in the grave-yard of a little Quaker meeting-house in the village of Catawissa, Columbia county, Pennsylvania. The fruit is of medium size, inferior to many of the new popular varieties, but is sufficiently large for all economical purposes. Its colour is dark red purple when ripe, and is of a very high flavour. It bears most abundantly after the young wood, on which it produces its best fruit; attains a height of 4 or 5 feet; usually begins to ripen early in August, and even sooner. The fruit is produced on branches continually pushing out from all parts, successively appearing in various stages of growth, from the blossom to perfect maturity; and often there may be counted more than 50 berries on a branch. As the fruit of each branch successively ripens, the later ones gradually diminish in size but there is no suspension of blooming or fruiting before the plant is checked by frost. If protected in-doors, it undoubtedly would produce during the winter months. One great advantage of this over other varieties of the Raspberry is, that if the stocks should be accidentally broken or cut off, or should be killed by winter frost, it is all the better for the crop. Another advantage is, that from the small space of a few yards well cultivated, a daily dessert for a small family would be at hand for from three to four months of the year. *Year-Book of Agriculture.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Among winter blooming plants we have few that are so attractive and so useful as Gesnera oblongata and Euphorbia jacquiniflora, both being profuse bloomers and remaining long in beauty. These should be extensively grown wherever winter flowers are valued; and if at the expense of neglecting some of our more recently introduced subjects, they should be afforded every necessary accommodation and attention at the present season, in order to secure good specimens for next winter. Also attend to affording Correas sufficient pot room and a growing temperature, so as to induce free growth at the present season, and get the wood well ripened early in autumn, which is the secret of having them finely in bloom throughout the winter. Primula sinensis, especially the double varieties, is also deserving of every attention, and should not be neglected at the present season. Pot off seedlings of the fringed varieties, and encourage them with a moist genial atmosphere, shading them slightly on bright days. Unless there is a good stock of young plants of the double varieties at hand, the flowers should be picked off the old plants as soon as they show symptoms of weakness, shaking the exhausted soil from the roots and repotting in light fibry peat, well intermixed with sand, keeping the plants well down in the pots, and placing them in a warm shady situation. This will obviate the difficulty which many growers experience in the management and propagation of these showy winter flowers, for if the plants have not been too much exhausted by blooming, young roots will be freely emitted from every branch, and when this is the case the plants should be broken up and repotted separately, affording them a rather warm and thoroughly moist atmosphere until they have become well established, when with ordinary care they will grow and form fine specimens before winter Fuchsias intended for large specimens will require to be shaded from bright sunshine, and will be greatly benefitted by a liberal supply of manure-water; and when free growth is expected from these after this season, the atmosphere can hardly be kept too moist. Young specimens of greenhouse hard-wooded plants should be kept as moist and warm as can be done without inducing weakly growth. See that these are properly supplied with water at the root, and do not allow them to sustain any check from want of pot room. Stove.—Attend to training the shoots of twiners as they advance in growth, and do not allow these to get entangled before giving them attention. Also attend to the stopping and training of other plants, and afford free growing subjects plenty of pot room. Achimenes and Gloxinias, filling their pots with roots, will enjoy an occasional watering with weak manure water. Persevere in keeping down insects, which if allowed will progress with great rapidity. Very little fire heat will now be sufficient if the practice of shutting up early in the afternoon is adopted. Proceed with repotting Orchids as they may require it. Do not use the syringe too freely among those starting into growth, but keep the atmosphere thoroughly moist. See that specimens on blocks and in baskets are not allowed to suffer for the want of water, for when the soil in baskets is once allowed to get thoroughly dry the water is apt to run off. When this is found to be the case the baskets should be immersed in tepid water until the soil gets thoroughly soaked.

FORCING DEPARTMENT.

Pineries.—Where there is not sufficient means of maintaining a thoroughly moist night temperature the growing stock may be dewed with the syringe in the morning, but where plenty of evaporation can be obtained from tanks or evaporating pans the syringe should be used over the foliage only in the afternoon, and then but lightly. Heavy syringing tends to render the soil about the collar of the plant too wet, and makes it difficult to judge of the state of the ball as to moisture, and keeping the axils of the leaves constantly full of water is not favourable to compact sturdy growth. See that none of the young stock is allowed to suffer for want of pot room or to get too dry at the root, for a short time's neglect at this season may end in a great many of the plants fruiting prematurely. Maintain a brisk bottom-heat, as near 90° as can be managed, but on no account exceed this, and keep the atmosphere as warm as the plants will bear without growing weakly. Successions, if all right at the root and near the glass, may safely be kept at from 65° to 70° at night and 75° to 85° with sun-heat, and plants swelling their fruit, if afforded a thoroughly moist atmosphere, will enjoy a night temperature of 70°. Give these plenty of manure water at the root. Vineries.—As soon as the fruit is ripe in the early house discontinue the use of fire-heat as far as the state of the weather will admit, and keep the atmosphere cool in order to prevent the increase of spider and preserve the foliage in a healthy state as long as possible. Where the borders have been covered with fermenting materials this should not be removed in the present state of the weather where the fruit is colouring, but where the fruit is ripe the border should be uncovered so as to expose it to the sun and air and prevent the growth of laterals, &c. See that Vines in pots and boxes are well supplied with manure-water at the root. Give timely attention to the work of disbudding, stopping, and tying in the shoots in succession houses, and endeavour to get the fruit thinned directly the berries are sufficiently large. Peaches.—There will be little trouble from insects where the trees are in a healthy vigorous state; but the excessively dry state of the atmosphere and cold nights, rendering fire-heat still necessary, is a very favourable state of things for red spider, and any weakly or overcropped trees should be carefully watched. See that the inside borders are properly supplied with water, keeping the atmosphere moist, and that every means are used to keep the trees in vigour, and if spider makes its appearance give the trees repeated washings with the engine until the enemy is thoroughly eradicated. Thin the crop severely directly the fruit is stoned, and avoid leaving more than the trees can bring to perfection which would only result in small, flavourless fruit, a continual war with insects, and greatly injure the trees for next season. Keep the young wood thin and neatly tied in, so as to expose all parts of the trees equally to light, &c. Give air freely to houses where the fruit is ripening; but do not let cold winds blow through the house too freely.

FLOWER GARDEN AND SHRUBBERIES.

It is still dangerous to risk even the hardier kinds of bedding plants from under the protection of glass. All that can be safely done until the nights have become warmer, in the way of hardening the stock preparatory to its being planted out, is to give as much air as circumstances will admit without injuring the plants, and to place Calceolarias and the stronger Verbenas in turf pits, where they can be securely protected at nights and sheltered from drying winds. Such things when removed to cold pits should be planted out in fine very sandy soil, which will save trouble in watering, and be much better for the plants than keeping them confined in small pots. Tender annuals that have been raised in heat should be pricked out in light soil under hand-glasses, in order to get them strong before planting out time. If not already done hardy annuals should be sown after the first shower, and do not forget plenty of Mignonette and Stocks the fragrance of which will always render them favourites. Look over the stock of plants at present in flower and mark the most admired for propagation at the proper season.

HARDY FRUIT AND KITCHEN GARDEN.

Disbud Peach trees, &c., as soon as the young shoots will admit of it; but do this carefully at first, going over them two or three times, so as to prevent a too sudden check to the flow of sap, and afford the fruit the protection of the leaves, &c., as long as it can be done without injury. Look sharply after green fly, and apply tobacco-water the moment it is perceived; on light sandy soils, however, it may be kept in check by frequent washings with the engine. But whatever method is preferred see that it is applied before the pests get established.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 24, 1856, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 18	13	30.103	30.058	60	31	45.5	49	47	N.E.	.02
Satur. 19	14	30.238	30.123	49	25	37.0	49	47	N.E.	.00
Sunday 20	○	30.269	30.209	57	23	40.0	49	47	N.E.	.00
Mon. 21	16	30.226	30.110	62	27	44.5	49	46½	N.E.	.00
Tues. 22	17	30.034	29.967	56	24	40.0	49	46	N.E.	.00
Wed. 23	18	29.907	29.872	57	37	47.0	47	46	S.E.	.00
Thurs. 24	19	29.891	29.780	59	35	47.0	48	46	N.E.	.00
Average		30.095	30.017	57.1	28.8	42.9	48.5	46.5		.02

April 18—Overcast; fine; cloudy at night.
— 19—Overcast; densely clouded; fine; frosty.
— 20—Frosty; partially overcast; fine; frosty.
— 21—Frosty; cloudless; very fine; hazy; frosty.
— 22—Overcast; cloudy; hazy; frosty at night.
— 23—Slight haze; overcast; cloudy.
— 24—Uniform haze; overcast; very fine; partially overcast.

Mean temperature of the week 5½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending May 3, 1856.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	59.5	36.0	47.7	14	0.13 in.	10	1	4	2	5	5	2	1
Mon. 28	60.7	37.2	48.9	12	0.32	2	6	5	4	4	5	3	2
Tues. 29	60.9	38.9	49.9	11	0.75	4	3	7	2	4	5	1	4
Wed. 30	62.2	41.2	51.7	11	0.31	4	3	6	1	3	6	3	4
Thurs. 1	61.9	40.6	51.[illegible]	10	0.51	2	4	6	3	5	6	4	—
Friday 2	63.3	40.6	51.9	11	0.72	2	7	7	—	5	6	2	1
Satur 3	62.1	41.4	51.7	15	0.58	2	5	7	1	4	6	1	4

1 The highest temperature during the above period occurred on the 29th, 1840—therm. 81 deg.; and the lowest on the 2d, 1855—therm. 20 deg.

Notices to Correspondents.

Books: *G W.* The best book at present on "Greenhouse Management" is McIntosh's Greenhouse and Stove.‡

Diseased Peach Trees: *John Good.* The probability is that they are worked on unsuitable stocks, and are now going off. It is however impossible to form a positive opinion without being on the spot.

Glass: *A Sub.* Use Hartley's rough plate by all means, and not plate glass.

Insects: *J P.* As the cork in your box had not been fastened down, and no care taken to guard the latter with cotton-wool for transit by the post, most of your moths were lying loose together and broken to pieces. We will see what can be made of the débris next week.—*T A.* Your Wheat plants have been injured by the larvæ or grubs of a small two-winged fly. You will find all the particulars concerning them in the Agricultural portion of our paper.—*R L.* We found no insects on your Peach leaves; but from the mode in which they are gnawed, we think it possible they may have been attacked by the brown weevil (Otiorhynchus sulcatus). Examine the trees about 10 o'clock at night, and if the beetles are seen at work they may be easily caught by laying a newspaper upon the branches, which should be shaken briskly, when the weevils will fall. A toad or two in your Peach-house would do good service. *W.*

Lepidium ruderale: *C K.* This is figured on plate 1595 of the English Botany, which you can see at the British Museum, or probably in any great London library.

Mildew: *S M.* The best remedy for this is sulphur, provided it is applied the moment the mildew appears. First wet the parts affected, and then shake the sulphur thickly over them.‡

Moss on Orchard Trees: *J W R.* What you call Moss is Lichen. Drain your land 4 feet deep, and then, but not before, give the ground a little manure, and your enemy will disappear. The trees will clean themselves; but if you have not patience to wait for the natural operation you must scrape the bark with the edge of an old hoe, or some such tool.

Names of Fruits: *H J O.* Your Pear is the Beurré Rance.—*George Wood.* The Pear is the Bergamotte de Hollande. The Apple has the appearance of the Nanny Apple, and with this sort it also agrees in the remarkably tender, juicy quality of the flesh. We think it is the same variety.‖

Pine Apples: *R W.* If the plants once receive a serious check, and nothing can be more serious than the loss of roots, fruit they will in spite of all precautions.

The Carob Tree: *M C.* We are not aware that this can be purchased wholesale in London. Sometimes Fortnum & Mason have it for sale in small quantities. It is good horse food, but it is too dear, and gives the animals an unpleasant smell. It will not bear this climate; if raised from seed it must be treated like a greenhouse plant.

Tobacco: *Hereford.* You should say where the money is to be had in London or Southampton. We are unable to furnish further information. There is no agent that we know of.

Ventilation: *Granta.* The lecture by Dr. Bence Jones referred to sanitary questions only, and had no bearing upon horticulture.

Wire Baskets: *Reader.* Fill the centres of your two baskets with Fuchsias, Tom Thumb Geraniums, and plants of similar character, and round the sides plant Ivy-leaved Geraniums and Nasturtiums, to hang down and hide the baskets.‡

Wireworms: *An Amateur.* Were the land ours we should burn it. But is your enemy really the wireworm?

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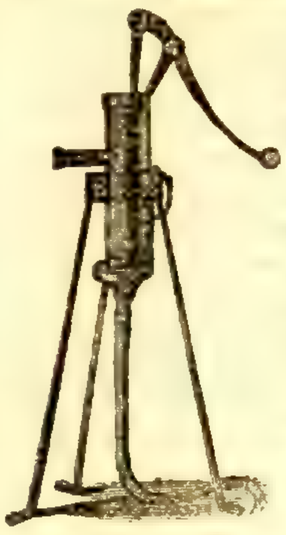
THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

GREEN'S NEW INVENTION IN LAWN MOWERS:—REGISTERED July 24th, 1855, No. 3739.
The advantages of these Machines superseded all others, by having a small wheel in front of the Grass box, consequently will mow verges, and round flower beds, without any change of wheels or adding the old fashioned roller in front as in others; will also cut either wet or dry, and, by the simple adjustment of a thumbscrew in having two rollers behind, and a small one in front, they roll the front, can be raised or lowered to cut the Grass any length required; and width they cut; they will turn round in very little room, and cut at the same time. All the working parts are made much stronger than the old Machines; the bottom blades are so constructed that they cannot tear up the ground; they are *only* drawn, and *not* pushed and drawn as in other Machines, consequently do not require half the power to work them. The three first sizes can be worked by the person with ease; the latter with pony or donkey. List of prices:—16 in., 6*l.*; 20 in., 7*l.*; 24 in., 8*l.*; and 28 in., 10*l.* 10*s.* A quantity of Machines of other kinds at *half* the usual prices.
Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.
To Mr. GREEN, Leeds.
Sir,—As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inch size would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable and useful invention, which in my opinion entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.
I am, Sir, your most obedient servant,
JOSHUA MAJOR, Knostrop, near Leeds, July 19.
THOMAS GREEN, Sole Manufacturer, Iron and Wire Works, North Street, Leeds. Drawings with other copies of Testimonials will be forwarded on application.

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD MEETING.
IMPLEMENTS.—The Entries for Show-yard space required and number of Implements to be sent, will close on the 1st of May. The Specifications of the Implements entered may be subsequently forwarded to the Secretary any time before the 1st of June.
LIVE STOCK.—The Entries of Live Stock will close on the 1st of June.
PRIZE SHEETS may be obtained on application to the Secretary, at 12, Hanover Square, London, to whom all Certificates of Entry must be addressed.

PRIZE MANGEL WURZEL AND SWEDES.
AT THE BIRMINGHAM ROOT SHOW in December last the Yellow Globe and Long Red Mangels, to which the first Prizes were awarded, were grown from Seed supplied by SUTTON & SONS, Seed Growers, Reading; and the two fields of Swedes which gained the two Twenty Guinea Cups presented by H.R.H. Prince Albert to the Royal East Berks and the Royal South Bucks Agricultural Associations last season, were grown from Messrs. SUTTON'S Seeds, as were also the winning root crops in many other parts of the kingdom.
All Seeds warranted new; prices moderate, as see List, which may be had post free. Goods delivered Carriage Free.
Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.
SATURDAY, APRIL 26, 1856.

WE are able to state that the contribution of Scotland alone to the forthcoming Paris Show will be as follows:—

CATTLE.

	Bulls.	Cows.	Total.
1. Shorthorns	11	14	25
2. West Highland ...	9	18	27
3. Polled	12	24	36
4. Ayrshire	19	65	84
			—172

SHEEP.

	Tups.	Ewes.	Total.
1. Cheviots	31	33	64
2. Blackfaced	19	57	76
3. Leicester	12	15	27
4. Southdowns	7	3	10
			—177

making, as before stated, a grand total of 349 head of stock.

In addition to this Messrs. LAWSON are to furnish an assortment of all the vegetable agricultural productions of Scotland. The entries of implements are comparatively small.

THERE can be no more important practical questions connected with land than those which have reference to water supply and the rights to which it gives rise, and yet the whole round of applied science cannot offer a subject for consideration in which its resources are more useful in aiding our practical conclusions. Water has been popularly described as of two kinds:—rain water, which falls directly from the clouds, and spring water—such as gushes out from what are termed springs, or well water, such as is obtained by well sinking to a greater or less depth into the earth. Our present object will be to point out—

1. The origin of spring water.
2. The geological facts which influence its supply; and
3. To deduce from these some practical conclusions as affecting land.

1. In the "Oxford Encyclopædia," published in 1828, we meet with the following theory of springs:—"There is a great abyss of waters occupying the central regions of our globe; and all the phenomena of springs owe their origin to the vapours, rains, and issues of this great abyss, into which they are all returned." And further:—"A perpetual circulation and equality are kept up by a vast subterraneous fire, the springs never failing; and the sea, by reason of its communication with the subterraneous waters, never overflowing." [!!]

This, though so vaguely expressed, favours the absurdity that springs have some mysterious source in the centre of the earth, and would lead to the inference, which indeed is commonly believed, that

spring water is one kind of this fluid derived from unknown depths, whilst rain-water is a kind totally different, having its origin in the clouds. At present, however, we have no difficulty in coming to the conclusion that all spring water is derived from rain, and the chemical differences in the former and the latter are due to the salts and gases which rain dissolves in sinking through the various geological strata.

Springs therefore may differ in volume according as the season be one of great rain or of drought; many springs indeed which afford a good volume of water in the former become nearly or quite dried up according to the continuance of dry weather. Springs may vary much in depth, those at slight depths being considered as surface springs, whilst those at several feet or yards are distinguished as deep springs. Springs, too, must be considered as occasional when the drainage area for their support is but small, and permanent when this area receives a rainfall sufficient to cause a constant and equable flow.

2. In order to understand the geology of water supply it will be necessary just to glance at the usual constituents of the earth's crust; these we shall find to consist of clays, shales, marls, sands, sandstones, lime, limestones.

Masses composed of these materials in a greater or less state of induration will be found interstratified over different parts of the globe, giving rise to alternations of *pervious* and impervious beds; and the simple theory of springs is that the porous beds form the collecting grounds for spring water from rain-water, whilst the impervious ones are the basins in which it is collected, and that, therefore, natural springs arise from the running over of the water at the edge of this basin wherever it is exposed, and well-sinking is simply the operation of boring through the porous strata to the water contained in the impervious basin. Now, let us illustrate this by an actual example taken from a district in which determination about the depth of these so-called springs is often a matter of great importance, namely the Cotteswolds; here we have in the oolitic series of beds many alternations of porous and impervious strata, without a due knowledge of which the operation of well-sinking is rendered uncertain in the extreme, while it becomes a matter of the greatest certainty when this knowledge guides it. To illustrate this the following table of oolitic rocks is here given:—

Rock.	Thickness about	Remarks, &c.
1. Portland oolite ...	80	Porous; surface always dry, no ditches.
2. Kimmeridge clay ...	200	Impervious; surface heavy and wet ditches, and sluggish water-courses.
3. Coral rag	60	Porous; dry, but still a little plastic when broken up.
4. Oxford clay	500	Impervious; heavy and wet, always draining, sluggish rivers.
5. Cornbrash	20	Porous; dry, good corn land for a brash.
6. Forest marble... ...	60	Impervious; consisting of alternations of beds of stone and sandy clay.
7. Great oolite	120	Porous; a porous rock, no ditches, its fields with artificial ponds.
8. Fullers' earth	50	Impervious; very retentive of water, and consequently of great importance as situated between two porous beds.
9. Inferior oolite... ...	200	Porous; its character that of the great oolite (7).
10. Lias	700	Impervious; its character much that of the Oxford clay (4).

Now, here the alternations are so accurately defined that supposing we wished to commence a well through any porous bed to an impervious one, the depth will usually be equal to the thickness of the former, which we shall have to penetrate; and so clearly is this the case over a large area, that the depths and distances of the wells will give us a very exact engineering section of the surface of the country, a fact which may be illustrated by the circumstance of the country as to water supply and wells in the neighbourhood of Cirencester.

Now, it follows that in a district on the great oolite formation houses will usually be situated as near the fullers' earth stratum as possible, which is the case for miles about Cirencester, except in the case of large establishments, such as the Royal Agricultural College, Earl Bathurst's farm buildings, and Mr. Dewes' homestead, in which cases it has been worth while to obtain water at any expense, and consequently the buildings have not been placed in reference to the water supply.

In other parts of the Cotteswold district, where different beds come to the surface, the same process of calculation usually serves the case, of course the amount of the supply being dependent upon the area of porous beds which can act as the collecting ground; if, for example, a porous bed just caps a hill, the impervious stratum beneath it may afford a limited supply of water, but if a large one be required the impervious beds at the broader base will afford a more ample, constant, and equable supply than the more shallow examples. It is therefore no wonder that surface springs, in the case of limited receiving grounds, should be exhausted in a period of dry weather, whilst in the cases of deeper wells and a wider area for collecting, we may look for a supply of greater extent and more permanent in its character. A section of such a country as we are supposing will show how easy it is to arrive at conclusions in some cases with respect to the depth we shall have to sink for water. When arrived at by a geological examination the conclusion depends upon fixed principles. The fact, of course, without the principle may be equally well known to the practical well-sinker; but if the continuity of beds be interfered with by local breaks or faults in the strata, science would be perfectly prepared to grapple with the difficulty, while practice in the mere manual labour of well-sinking would be entirely at fault. Take for illustration the following example from the North Cotteswolds.

A new farm-house was built on the top of a hill, and when nearly completed a well was commenced for the water supply of the new buildings. The spot lay on the side of a fault, which led to its being much higher geologically, and, therefore, much further from the impervious bed below it than the land close by on which the well-sinker had acquired his experience. Before commencing the operation of well-sinking it so happened that the following conversation took place:—

Geologist. How deep do you expect to go for water?

Well Sinker. A matter of 15 feet.

Geologist. Let me assure you that at the spot you have now commenced you will have to go as deep as 150 feet.

Well Sinker. I have sunk wells all my lifetime, and sure I ought to know best.

Geologist. You take it very coolly now, but let me tell you you will be blasting like a miner long before you get water there.

At this point the geologist made his exit, resolving quietly to await the termination of the conflict of practice and science. A fortnight after, however, on going to watch the result, the first thing he hears while yet a long way off is an explosion proving that his anticipations had been all fulfilled.

How often is it the case that nothing less energetic than hard work and gunpowder will satisfy the practical man when a little quiet reasoning and an examination of principles would settle the matter, after all, more practically when practice is founded on a knowledge of not a few but of all the facts.

The new house stood just within the line of a fault, and the well-sinking was carried on to a depth of about 100 feet and then given up in despair; this fault, however, the practical man was not aware of, and his conclusions, though drawn up on correct principles as regarded the other side of the faulted ground, were as much at fault as the stratification.

Many other examples of this kind might be here given, but this will at present suffice as an illustration that a science once thought so *theoretical* is yet capable of guiding us in a truly practical because scientific manner in questions that by some have been dealt with as quite beyond the bounds of science, a fact which will be further considered in a future article on the geology of water rights.

We are just now engaged in sowing Mangel Wurzel. To this end we have had the last year's Wheat stubble ploughed before winter, harrowed, and hand-picked—ploughed, harrowed, rolled, harrowed, and again hand-picked. It has then been ribbed with the plough into ridgelets 26 inches wide, and between them 20 cart-loads, about 12 tons, per acre of farm-yard dung have been applied. Over this several cwts. per acre of guano, blood manure, wool manure, and "Anglican guano" have been spread broadcast in separate plots to determine their relative value for the crop. The ridgelets have then been covered and rolled—the dung being thus in the centre of each, the "artificial" fertilisers being distributed throughout the substance of each—and the moisture being retained in each as well as a drying east wind will let it be. The women are now setting the seed: they have it in their aprons, and each stands on the left side of the drill, down which they go. Having a handful of seed in the left hand, and a stick 18 inches long in the right, they make a rut about 1 inch deep and 3 inches long along the drill with one end of the stick, put three or four seeds into it, cover it with the stick, and put the right foot upon it. The length of the stick applied from the middle of the foot indicates where the next rut is to be made, and so the work proceeds. They do not plant more than an quarter of an acre a day apiece, being unaccustomed to the work: old hands would put in double this quantity. The roller follows, and we wait for rain before the plants can appear.

The point, however, to which we wish especially to call attention is this. We have purchased 7 lbs. of seed per acre for the extent we intend to grow, and that is what we find the women are using. This seems to be the usual quantity sown, and while looking on, as the operation is performed, we find ourselves instinctively cautioning those at work not to spare the seed rather than not to waste it. But how many seeds are they putting in? We want two plants in every yard of drill. There are 6700 yards of such an ridgelet in an acre and twice that number of plants we hope to grow upon it. Now, according to the table published at page 234, every pound of seed contains more than 20,000 seed-vessels, each of which contains two seeds. The quantity we sow should produce 280,000 plants if every seed were living—enough for 20 acres instead of one. This is what the practical man recommends to sow and, as we think, wisely. It is easier, and considering the difference between a sown or transplanted root it is cheaper to destroy a dozen plants than to transplant one.

The plants will come up in bunches, and we expect some time in June to send a number of children into the fields, who, laying the left hand to hold the best plant of each bunch, will, with the right, sweep away at one stroke all the rest. This is done at a cost of 3*s*. or 4*s*. an acre. But as we hope to grow at least 30 tons of roots an acre—as they must therefore average 5 lbs. each—as the difference between a sown and transplanted plant is at least 50 per cent. in favour of the former, if 10 per cent. of blanks should have to be so filled, there would be a loss of nearly 2 tons per acre in the crop. And this, though not entirely, is of course to a great extent guarded against by "wasting" 6 lbs. of seed per acre in the sowing. This "waste" then is justifiable in the case of root crops, where plants are thinned by hand or hoe after the seed has brairded. For grain crops and for Grass crops the comparison between the seed we sow and the plants matured is much more startling, and must be referred to on another occasion.

HOME FARM MANAGEMENT.—No. I.

In treating of this important subject it is well to consider what the great lessons are which well managed home farms ought to teach. Unfortunately there exists a very general impression that a farm cultivated by its proprietor cannot and should not be expected to prove remunerative. Home farms generally are rather looked upon as class hobbies than anything else, and must necessarily, it is thought, prove costly to those who are resolved to ride them. It is certainly too true that heavy losses are often incurred by those who farm their own land, but in nine cases out of ten these are merely the results of mismanagement, either in the injudicious interference of the principal or the incompetency of the manager. To indicate clearly the main object that ought to be attained in good home farming the following propositions may be stated:—1, A home farm should set an example to tenant farmers in everything which can be regarded as really in the van of agricultural progress; and 2, while managed on the newest and most approved principles a home farm can never serve its highest end as an exemplar unless it is known to pay well.

Without adopting formally this division of the subject, I purpose in the sequel to state the sort of management which will be most likely to yield good profits, and also the effects that are sure to be produced in the farming practices of whole districts from high culture and large returns being conjoined in example farms.

When a proprietor takes a farm into his own hand he is often either completely at a loss to know the best course to adopt in its management, or entirely dependent on his overseer or grieve. If the latter is in possession of the qualifications necessary for his responsible position matters may move on satisfactorily, but otherwise it will soon be hinted in the neighbourhood that profit does not seem to be a desideratum at the home farmery. In order that a fair start may be made on sound principles, proprietors not themselves possessed of sufficient practical and theoretical knowledge will do well to obtain the best possible advice in laying down a fixed plan of operations, and by all means keep heavy crops and good returns in view, as the main conditions of success. Being satisfied that this or that general plan of the campaign is the one which with English perseverance is sure to give a complete victory over the savagism of the soil, the next point to determine is the outlay necessary on permanent improvements. In all cases where a landlord farms his own land it is requisite that two ledger accounts should be opened, one as the proprietor

and the other as the tenant. Unless these are kept perfectly distinct there will be endless confusion and unsatisfactory profits. All the outlay on permanent improvements, such as drainage, erection of farm buildings, laying down irrigating pipes, and forming exterior or subdivision roads and fences should be debited to the landlord's account, and a fair interest charged thereon.

The stock and implements of course come under a different head, being part of the floating capital required in the management of the land. While the stock should, if possible, be made remunerative, it is well to rate the outlay on implements as requiring to carry a good interest rather than to be repaid in full by profits. This however, is anticipating a distinct department of the subject, and I proceed, therefore, to treat shortly of the mode in which the permanent outlay should be made.

1. *Arterial Drainage.*—In all wet land drainage is the first improvement, and being a permanent one it should certainly be performed with the greatest possible efficiency. The drains ought to be deep enough to give sufficient dry soil for the roots of cultivated plants to ramify in and not farther apart than will secure the extraction laterally of all water half-way between the drains which will have a tendency to stagnate. Whether the soil is of a clayey or a light porous nature a depth of 4 feet ought to be the minimum, while the distance asunder in the former case may range from 20 to 30 feet, and in the latter from 30 to 45 feet. There is great danger of erring on the side of cheapness in conducting drainage operations, but it should always be remembered, as a general rule, that a permanent agricultural improvement well done is cheaply done. It is not by saving a few lines of drains that profits are to be secured in the management of a home farm, and of all the land in any given district, surely that in the occupation of its owner should at least be thoroughly drained. While avoiding unnecessary expense in the use of pipe tiles of larger calibre than is really indispensable, it is judicious no doubt to see that pipeage only of sufficient size is employed.

Where there is little water, such as at the upper ends of the drains, there is no advantage gained in using 2-inch pipes while 1¼-inch ones may suffice. Neither can there be any use for collars if care is taken to make the subsoil collar the pipes. I have often thought that collars have slipped into use mainly through inadvertency on the part of improvers. "Oh," say they, "the collar keeps out mud." Strange, surely, if it does this, when the opening between the exterior of the pipe and the interior of the collar is as large as the space between the ends of the pipes themselves. "But it keeps the ends of every two pipes opposite each other," continue the collarers. Then I understand the argument—collars are to make up for badly cut drains. Let the workmen be taught and compelled to keep the bottom of the drain only the width of the pipes to be used, and natural collars will in this way be secured. If the subsoil is hard and must be picked, little bits of stone or clay will pack the pipes to a nicety, and with properly kept levels collars may well be dispensed with. All the efficiency of drainage will in many cases depend on the qualifications possessed by the overseer of the work, and the attention he gives to his duties. This and a thousand other things indicates the necessity there is for having a thoroughly qualified manager in all cases where a home farm is to be rendered a profitable model of good management; but this will be more fully referred to in another place.

In covering the pipes there is perhaps nothing equal to a paring of clay taken off both sides of the drain, and folded neatly over so as to form a filtering roof. If the drains are cut lengthwise in the direction of the greatest natural fall, and completed on the most approved principles in respect of outfalls, depth, distance apart, and levels, all that is necessary thereafter is the laying down in a plan-book the position of every drain and outlet. By this means a drain which happens to give way is easily found out and repaired, an advantage which is greatly to be desired in all cases, but an indispensable requirement in the case of a model farm.

2. The next permanent outlay requiring to be noticed relates to farm buildings. The house erections on a home farm should always be substantial and of suitable size to admit of the daily operations being profitably conducted, but there is no sense in their being extravagantly expensive or monstrously large. In many instances proprietors consider that the only way they can make sure of getting a steading to harmonise in costliness and appearance with their position in society, is to employ some eminent architect to furnish a design; the gentleman so employed is, in all probability, totally unacquainted with practical agriculture and the requirements of the erection he is called upon to plan; he does his best, however, and what is lost in want of adaptation he makes up for in bulk and exterior appearance. If his employer is pleased with the general character of the homestead it is all plain sailing with the professional, and his fees, of course, are pocketed with considerable relish. It may be good for landlords to have a very pretty steading to look at, and it is still better for professional men to have the privilege of outwardly embellishing what, in respect of practical usefulness, is but a very naked suit of buildings, but these are not the sort of erections which are wanted when a home farm is to be managed on profitable principles. A farm steading is, or should be, a manufactory of beef, milk, and other marketable commodities, either directly by the dressing of raw produce, or indirectly by its consumption and reconversion into the elements of life. Now, to do this to the greatest possible advantage the various sections must be so arranged with regard to each other that both time and labour will be economised. The straw barn should be of easy access from the cattle stalls, and these again situated in such a position that cooked food if thought advisable may be supplied from the cooking apartment both with ease and dispatch. Provision should be made for the corn ricks being moved bodily from the farm-yard to the front of the threshing loft. If properly designed the engine and connected machinery will be placed in such a way that the least possible loss of power will be entailed in executing the largest possible amount of mechanical labour. With good planning there can be no doubt that an engine may be made to perform an enormous amount of bye-work in the daily operations of a large steading. It may be made to drag in roots from convenient stores,—mince the different kinds of food for use—haul out the manure to the dung-pit—work the liquid manure force-pumps, and many other things which need not be mentioned. If it would be too expensive to keep up the steam of a large engine constantly for minor operations, a small one might be provided for these particular purposes. To have everything going on in a large suit of offices like clockwork necessarily implies considerable outlay on requisite fitments, and may suggest the idea of extravagance and unprofitable investment. But before arriving at a final conclusion on these points, it is well to think a moment of what has already been done in commercial manufactories in the very same direction—that of quickening and cheapening production. It will be long before the cotton-spinner or the machinist think of diminishing their producing machinery simply on the ground of its costliness. No doubt the mode of production in a farmstead is totally different from that of most manufacturing concerns, and cannot be so extensively acted on by machine appliances; but unquestionably an immense saving may often be effected in substituting machinery for manual labour.

There can be no doubt that farm steadings entirely roofed in on the ridge and valley principle are far preferable to those scattered in detached divisions round an open yard. One great aim in planning the former should be to give abundance of fresh air to the interior, the supply being regulated by dampers acting on the ventiducts. For want of due attention to this matter many covered steadings are nothing else than monster nuisances, particularly in summer, when stench and clouds of flies render the cattle-houses an abomination. While avoiding everything like extravagance in the construction of such home farmsteads as are intended to serve a profitable purpose, no outlay should be spared if it can be shown that a fair interest will be realised upon it. If it is found, for example, that boxes are better than stalls for feeding stock, an estimate should be formed of the money difference, so as to ascertain if it is sufficient to afford a fair interest on the extra expense. In the construction of stables having a feeding passage in front of the stalls, there is necessarily a rather larger outlay than without this convenience; but when it is considered that in feeding the animals—not to speak of improved ventilation—there is an immense saving of labour effected, the judicious proprietor will not hesitate to authorise the additional expenditure. *J. Lockhart Morton, Edinburgh.*

AGRICULTURAL STATISTICS OF EUROPE.

(By Mr. H. READER LACK, Board of Trade.)

THE importance of agricultural statistics, which is every day becoming more apparent in this country, has not only long been acknowledged on the Continent, but the perception of their value has led moreover to practical results. In most of the European states returns of the distribution of the soil, of the extent of land under various crops, and the produce thereof, as well as of the number of live stock, are periodically published by their respective Governments, and translations of the returns are for the most part presented to Parliament by the Board of Trade. It is from these returns that the following brief notices of the agriculutural conditions of several European countries have been prepared.

Amongst the countries possessing agricultural statistics we find the vast empire of Russia itself, and surely after such an example as this no excuses as to the difficulty of obtaining like statistics for our own small island can for one single moment be admitted.

Without any further remarks upon British agricultural statistics, however, we will proceed to enumerate the facts relating to those countries embraced in the first division of our inquiry:—

DIVISION I.—RUSSIA, PRUSSIA, SAXONY, HANOVER, AND WURTEMBURG.

Russia.—In the year 1849 the distribution of the soil in the several Governments of the Russian empire (exclusive of Poland and Finland), was as follows:—

	English acres.
Arable	218,387 516
Meadow	107,971,138
Woods and forests; crown	241,205.861
" " private	112,933,310
" " municipal	39,138.242
Domains attached to private residences ...	23,804,743
Waste lands (quality ascertained) ...	320,274,111
" " (quality not ascertained) ...	611,778,027
Lakes, rivers, roads, &c.	13,412,303
Total	1,688,905,251

From these figures it appears that more than half of the area of the empire consisted of waste lands, and nearly one-fourth of woods and forests, so that there remained rather less than one-fifth for land under cultivation or tillage. These results in a great measure bespeak the condition of the empire, yet notwithstanding the large proportion of land uncultivated in Russia, the amount stated as arable alone in the year 1849 exceeded the area of the United Kingdom by 152,447,516 acres, or more than double its extent—thus the arable land in the Russian empire in that year was more than three times the extent of the United Kingdom. What might such an empire become under a liberal Government and a free and industrious people?

Russia is chiefly an agricultural country, its principal exports being natural productions in a raw or half manufactured state. The grain crops are very large; those in the year 1849 amounted to

	Imperial Quarters.
Bread corn (Wheat and Rye)	67,410,156
Other kinds of corn	97,873,272
	165,283,428
Potatoes	12,752,573

As regards the productiveness of the soil we may judge from the following proportions of produce to seed sown in 1849, which were—

	Chetverts.
Bread corn—for every chetvert of seed sown ...	3.90 produce.
Other kinds " " " ...	3 44 "
Potatoes " " " " ...	3.11 "

The manufacture of Beetroot sugar, although not on so large a scale as in some other European nations, is carried on to a considerable extent in Russia, the greatest production being in the government of Kiëf, in which department in the year 1848 there were no less than 42,160 acres under the cultivation of Beet, affording employment in its reduction into sugar to 72 manufactories. The total production of the empire, including Poland, in the same year (1848) was 290,238 cwts. of sugar. The total number of manufactories was 337, and the quantity of Beet consumed 8,744,400 cwts. or more than 30 cwts. of Beet to make 1 of sugar. The returns of live stock for the year 1849 were—

Horses	17,456,503
Horned cattle	21,228.240
Sheep, ordinary	28,187,948
" superior	7,147,717
Swine	8,862.410
Goats	1,055,122

It will be noticed that the number of horses and cattle are very large.

Prussia.—In the year 1852 the distribution of the soil in the kingdom of Prussia was:—

	English Acres.
Under tillage	30,094,640
Meadows	5,266,449
Permanent pastures	5,419,192
Forests	13,614,564
Gardens, Vineyards, and Orchards	892,079
Uncultivated	13,529,614
Total	68,816,538

Of the total area of the kingdom it will be seen therefore, by the above figures, that in the year 1852 between one-third and one-fourth was either occupied by forests or remained in an uncultivated state. The increase in the area of land under tillage in the year 1852 over that under tillage in 1849 was 1,195,110 English acres.

The following are the quantities of each of the principal kinds of grain produced in the Prussian kingdom in the year 1851:—

	Imp. Qrs.
Wheat	3,674,063
Rye	12,020,250
Barley	3,600,000
Oats	14,218,125
Potatoes	52,593,750

The area of land under Vine cultivation in the year 1850 was 38,926 acres, and the quantity of wine produced 6,242,799 imperial gallons.

The farms in Prussia appear to be mostly what would be termed "small holdings" in this country, upwards of 50 per cent. of the total number being holdings of under 3 acres each; and 28 per cent. holdings varying in size from 3 to 19 acres each. The number of large holdings, above 189 acres each, did not amount in the year 1852 to 2 per cent. of the whole. The following table gives the number of farms, classed according to size:—

Size of Holdings.	In 1852	
	Number.	Per centage proportion.
Under 3.15 English acres	986,570	50.20
3 15 Eng. acres to 18·90 Eng. acres...	565,354	28.76
18.90 " 189 " ...	382,515	19.46
189 " 378 " ...	14,020	0.71
Above 378	17,003	0.87
Total	1,965,462	100.00

The number of Beetroot sugar manufactories in the kingdom and its dependencies in the year ended September 31, 1853, was 206, and the quantity of Beet consumed 18,741,677 cwts.

The number of each kind of live stock in the kingdom in the year 1849 was—

Horses	1,575,417
Mules	329
Asses...	7,146
Cattle	5,371,644
Goats...	584,771
Swine	2.466,316
Sheep, merino	4.452,913
" cross-bred	7,942,718
" native	3,901,297
Total Sheep	16,296,928

Saxony.—The distribution of the soil in the kingdom of Saxony in the year 1850 was:—

	English acres.	Per centage proportion.
Arable land	977,800	50 31
Garden „	55,290	2 85
Meadow „	219,309	11 28
Pasture „	40,850	2.10
Forests...	601,619	30.95
Vineyards	2,240	0 12
Waste lands	29,439	1 51
Stone quarries and rivers ...	17,086	0.88
Total	1,943,633	100.00

The waste lands in this kingdom it will be observed bear a very small proportion to those brought into cultivation. The extent of the forests in the above-mentioned year was nearly one-third of the total area of the kingdom.

The quantities of Beer and Spirits manufactured in Saxony are very considerable. The number of breweries in the year 1851 was 766, and the quantity of beer brewed 25,365,000 gallons. The number of gallons of spirits produced in the same year was—

	Imp. galls.
From Grain	708,435
„ Potatoes	2,505,585
Total	3,214,020

Hanover.—In the year 1848 the soil of Hanover was distributed under the following heads :—

	English acres.
Fields and gardens	2,685,680
Meadows and pastures	1,588,302
Woods and forests	1,323,645
Commons, moors, and uncultivated land, &c.	3,788,080
Total	9,385,707

The woods and forests, commons, and waste lands, according to the above account, occupied more than half of the total area of the kingdom. The area of waste land brought into cultivation since the year 1833 amounted to upwards of 340,000 English acres.

The number of each kind of live stock in the kingdom in 1848 was—

Horses	229,493
Cattle...	773,688
Swine...	80,851
Goats and bucks	110,682
Asses and mules	851
Sheep, common	835,584
„ Rhenish	888,493
„ superior	258,500
Total of Sheep	1,982 577

Wurtemburg.—The distribution of the soil in the kingdom of Wurtemburg in the year 1852 was—

	English acres.
Corn land	2,050,102
Gardens	94,773
Vineyards	64,678
Meadows	687,653
Pastures	208,206
Fruits	1,497,062
Mines, quarries, heaths, roads, &c.	225,082
Total	4,827,556

Thus nearly one-half of the area of the kingdom was fit for the cultivation of corn, and one-sixth meadows and pastures. The extent of forests exceeded one-fourth of the area of the kingdom.

The extent of land under actual cultivation of the principal crops in 1852 was—

	English acres.
Winter corn	630,979
Summer corn...	575,129
Peas	12,132
Potatoes	94,376
Fodder	211,061
Cabbages	25,109
Roots	38,049
Linseed, Vetches, Beans, Pulse, and Indian Corn	141,725

Flax and Hemp are also grown in large quantities, there being no less than 17,594 acres under cultivation of Flax, and 18,876 acres of Hemp, in the year 1852.

The number of gallons of wine produced in 1852 was 5,822,180.

The number of each kind of live stock in the kingdom in the year 1852 was—

Horses	95,038
Cattle	811.159
Sheep	458 488
Swine	143,524

(*To be continued.*)

PROGRESS OF BRITISH AGRICULTURE SINCE 1851.

[The following is extracted from the report by Mr. Denison, M.P., to the Board of Trade on the Paris Exhibition.]

To the second, and not the least interesting question—"What progress has been made since 1851?" a reply may confidently be given that progress has been made on every side. In machinery, in scientific acquirements, in field practice; and to such an extent, that beyond all question, the productive powers of these kingdoms have been more largely increased within the last four years than within an equal space of time at any former period.

In machine making, though some interesting novelties have appeared, the characteristic feature has been the constant improvement, tending to perfection, of our established implements, and a great extension of their use through the body of the farming community, a fact significant of the superior intelligence which is now brought to bear on farming affairs, promising a sure and continued progression.

First on the list in point of interest, first in its remarkable increase, stands steam machinery.

No farmer who has ever had a steam engine on his farm will ever again be without one; no farmer who has ever threshed his corn with steam power could bear again to see his horses toiling in the wearisome circle, now jerking onwards when the whip sounds, now brought almost to a stand-still when the machine is clogged by a careless feeder. The regular stroke of the untiring steam engine gives excellence to the work, keeps everybody in his place, and introduces among men, even the most careless, something of its own exactness and precision.

It was thought a remarkable thing that in the year 1851, one firm, Clayton & Shuttleworth, of Lincoln, a firm not known to the agricultural world ten years ago, should have constructed and sold in one year 140 portable steam engines. Since 1851, the annual progress has been as follows :—

	Engines.	Aggregate horse power.
1852 sold	243	1349
1853 „	293	1723
1854 „	363	2297
1855 „	491	3332
	1390	8701

Besides the constant increase in numbers, it will be seen there is a constant increase also in the power of the machines. In the year 1851, each engine averaged scarcely the power of five horses. In the year 1855, they average nearly seven.

It is computed that 90 per cent. of these engines are used for agricultural purposes in England; the remaining 10 per cent. are sent abroad, or are used for purposes not connected with agriculture. We have therefore in the last four years, deducting 10 per cent. from the whole number of 8701, a power equal to 7831 horses added to the force of the farmer from one firm alone. Messrs. Clayton & Shuttleworth direct their attention exclusively to steam engines, and to machinery moved by steam power. This devotion of the undivided attention to one class of objects is of itself an indication of progress, and conducive to perfection.

The increased power afforded by steam has induced to improvements in all machinery moved by steam, in none more than in threshing machines. The corn now is commonly delivered from the stack upon the machine, and delivered from the machine into sacks ready for market; a great economy of time and of money. For these and similar processes, the use of steam power is making rapid strides, and will continually extend itself, to the great help and furtherance of every operation to which it can be applied.

Our leading machine-makers all concur in attributing marked results to the Exhibition of 1851.

Messrs. Garrett have foreign orders arising from connections formed at the Exhibition still coming in. One customer in Hungary has had not less than 8000*l.* worth of machinery, chiefly drills and threshing machines. Drills have been improved by a new steerage patented in 1854.

Chambers' patent manure distributor is a new instrument, the invention of a practical Norfolk farmer. It will sow from 1 to 100 bushels of artificial manure per acre, delivering it with great regularity, and is excellent for the simplicity of its construction.

Drills for liquid manure are still undergoing improvement. If found useful in this country, how much more valuable are they likely to prove in the dry and sunburnt plains of Southern Europe?

Messrs. Hornsby consider the improvements in threshing machines to be equal to a new creation of the implement. Their business has increased threefold since 1851.

Messrs. Howard find the demand for improved implements to come now mainly from the tenant farmers, formerly it was in a great degree confined to amateurs and large proprietors. The business of all the leading machine makers has doubled since 1851.

Messrs. Ransome concur as to the improvement in threshing machines, and as to increased demand for machinery. Much has been done, but much remains to be done still.

Messrs. Smith and Ashby date the wide diffusion of good implements from the Exhibition of 1851. The Paris Exhibition has opened to them several new sources of trade, in France, Algeria, and Germany, and has led to the appointment of an agency in Berlin for the introduction of improved machines into Germany, at the instance of a spirited merchant of that city.

Messrs. Bentall have found the demand for improved machinery increase largely since 1851.

Such has been the uniform tenor of the replies from all the leading machine-makers from whom communications have been received. There is a host of local makers, equally alive to the importance of improvement, and adding largely in their respective spheres to the stock of good implements.

Agricultural Chemistry.—In speaking of the progress of agricultural chemistry, the name of Mr. Lawes must be placed by English farmers in the first place of honour. Without entering on the high controversy between Baron Liebig and Mr. Lawes, lately revived with increased animation, the English farmers have wisely accepted the teaching of Mr. Lawes, based on experiments in the care and accuracy of which full reliance may be placed, and the results of which are open to the view of all. They have learnt that the approved artificial manures are not mere stimulants, but agents of fertility which, when properly applied, may be depended upon with certainty to produce a crop. The principles on which the growth of corn depends are better understood. The repetition of corn crops on the same soil can no longer be considered as necessarily faulty in principle, and to be unconditionally condemned. It is rather a question of expediency, to be decided by the costs of manure and of produce.

These lessons the English farmers have learnt from Mr. Lawes. They have accepted them with becoming gratitude. They are practising them with increasing confidence, day by day, to their great and proved advantage.

Mr. Way, to whom also the farming world is under the greatest obligations, has snatched a few moments from his professional pursuits to furnish me with the following sketch of the general progress of agricultural chemistry.

This department of applied science is now attracting to itself the attention of able chemists in all countries; and the contributions to knowledge resulting from the various investigations have, during the last few years, been very considerable. To attempt anything like an account of these results in this place is obviously out of the question, and we content ourselves with little more than an enumeration of the principal and most interesting investigations.

In this country, Mr. Lawes has continued his experiments on the laws concerned in the feeding and fattening of animals, taking for the objects of trial pigs and sheep. The number of animals experimented upon, the intelligence and care brought to bear upon every detail of the experiments, and the very considerable expenditure which has evidently accompanied them, place these investigations far in advance of any of a similar kind that have been undertaken elsewhere. Although the results are of a practical character, the experiments of Mr. Lawes must not be classed with the very numerous trials on the feeding of animals that are to be found dispersed through agricultural publications, and which are *merely* practical, being undertaken without reference to general principles. The results of Mr. Lawes' inquiries are too numerous to be stated here, but they seem to point out that a just balance of the different constituents of food is of more importance in the feeding and fattening of cattle than a predominance of any one; that neither the albuminous or farinaceous elements of food have an exclusive value for the purposes to which they are applied; and that the classes of vegetable which are peculiar in containing a high proportion of nitrogenous matter are not necessarily, from that circumstance, the most adapted in practice to produce that part of the animal body (muscle) which most resembles them in composition. According to Mr. Lawes, therefore, the valuation of foods in relation to their contents in nitrogen is attended with much fallacy.

Amongst other papers, Dr. Voelcker, of Cirencester College, has published an account of experiments made with a view of ascertaining the cause of the fertility produced by burnt clay when used as manure. He has arrived at the opinion that the effects are partly mechanical, but principally due to the liberation of potash from silicates of that alkali existing in the soil, but only slowly available until released by torrefaction.

Mr. Way has published two further papers on the important subject of the absorption of manure by soils, in continuation of his first research on this subject, which was published in 1850. Mr. Way attributes the power possessed by soils to remove various alkaline bodies (as potash, ammonia, &c.) from solution in water, to the existence of a class of double silicates of alumina and another base, which is generally lime or soda. Mr. Way has succeeded, for the first time, in producing this class of salts; and he argues, from the effects observed in soils, that these latter contain the silicates in question in small quantity, and hence their power to preserve soluble manures from loss by rain and drainage. His second paper on this subject refers to the action of lime on soils; and he endeavours to show, from the large quantity of ammonia existing in almost all soils, which, according to his experiments, very far exceeds the doses of this alkali usually applied in manure, that lime acts much in the same way as ammoniacal manures themselves, by furnishing indirectly a supply of nitrogen to plants. The effects of over-liming are accounted for in the same way.

Mr. Way has also given an account of his examination of certain beds lying immediately below the chalk formation, which contain large quantities of what is known to chemists as "soluble silica." This form of silica has not hitherto been met with naturally, except in the case of some strata in the Department des Ardennes, in France, which were examined four or five years ago by M. Sauvage. From their peculiar nature they are supposed to be available with advantage for many purposes in the arts, and as a source of soluble silica for agricultural use.

The subject in the chemistry of agriculture, which has lately, however, attracted the greatest share of attention, both in this country and abroad, is that of the source from which plants derive their nitrogen. It has been satisfactorily proved that plants growing in the ordinary way often contain more of the element nitrogen than they can obtain from the soil in which their roots are placed; and it is obvious that in some way or other this accumulation is derived from the atmosphere. Now, the air surrounding the globe is composed of a mixture of nitrogen and oxygen gases in the proportion of about four parts of the former to one part of the latter; it also contains small quantities of other gases, such as carbonic acid, nitric acid, and ammonia. The question at issue is, as to whether plants can, under any circumstances, make use of the great bulk of the nitrogen of the air in building up their tissues, or whether they derive the observed excess from the ammonia and nitric

acid in the air. This question, the interest of which, both in a purely scientific and agricultural point of view, can hardly be overrated, has enlisted the energies of chemists on both sides, and has given rise to some admirable researches. It has also involved the extended examination of air and rain-water, in order to ascertain how much ammonia and nitric acid are usually contained in the one, and brought down by the other. The principals in this discussion in France are MM. Boussingault and Ville; both of these chemists have made extended series of experiments on plants grown in glass cases; their conclusions are, however, diametrically opposite: M. Boussingault contending that plants cannot make use of the atmospheric nitrogen, but must be indebted to the nitric acid and ammonia in the air for their supply in excess over that furnished by the soil; M. Ville maintaining that in the absence of both of these, an increase of nitrogen in plants still takes place. A Commission of the French Academy of Sciences, recently appointed to look into this matter, leans rather in its report to the side of M. Ville, but the question is still far from being set at rest.

M. Barral has determined the quantity of ammonia and nitric acid brought down by rain in Paris. M. Boussingault has repeated these experiments as regards ammonia in Alsace, and finds the quantity very much smaller than in the rain of the city, a circumstance which we should be prepared to expect. M. Boussingault has also examined, with the same object, the water of fogs and dew, and of rivers and streams. M. Ville has carefully determined the ammonia existing in the air both in the interior and suburbs of Paris.

Mr. Lawes and Dr. Gilbert have published the results of an inquiry into the quantity of ammonia and nitric acid in rain falling at Rothamsted, in Hertfordshire. The methods of determining the quantities of nitric acid are at present so imperfect, that Messrs. Lawes & Gilbert have not thought it well to publish their results as to this substance, but they are led to believe that in quantity it exceeds that of ammonia in rain. Besides the names we have mentioned in connection with these researches, other continental and English chemists might be referred to, if circumstances admitted of greater amplification. It is, however, obvious, that in this hurried sketch we have omitted all notice of many investigations on this and other subjects of agricultural chemistry which might well claim attention in a more extended review.

Finally, we must not omit to mention that the trade in artificial manures, which is rapidly rising into such national importance, especially in England, is receiving the most important aid at the hands of chemical science. Not only are the various waste substances of manufactures and of daily life worked up into available form, but the manures produced by chemical means, more especially the superphosphate of lime, are daily improving in character, mainly through the suggestions of chemists who have specially devoted themselves to this branch of science. Fresh sources of guano have also been discovered, and new supplies of substances useful to the farmer have in several places been obtained.

It is, therefore, not without reason that we congratulate ourselves on the progress which has within the last five years been made by that department of agriculture which is based upon chemical science.

THE KEYTHORPE DRAINING.

Lord Berners with great kindness has opened his house to a large party of agriculturists during the Easter week for the purpose of giving them the opportunity of inspecting his draining and farming, and as he has with much liberality provoked discussion on his system of draining, at the same time that he has invited the public to benefit by his example, he will I trust be pleased to see his practice freely commented on. His lordship commences draining by sinking test-holes 5 or 6 ft. deep over the field; he then proceeds to cut a drain diagonally across the fall and through the wettest ground, and, as he finds this drain effectual in laying the adjoining holes dry, he proceeds to cut his next drain, and is thus governed in taking each succeeding drain throughout the field; and with respect to depth his lordship has certainly adopted a right principle, for he endeavours to sink each drain to the bottom of the watery strata, frequently going through several feet of clay or apparently dry soil to reach it, and none of the drains that I saw open were less than 4 feet 6 inches deep, and some of the cuttings were as much as 10 or 12 feet deep. His lordship's plans of draining will be seen to differ from what may be said to be the general practice of draining engineers at the present day as follows, viz.:—

1, in not taking his drains directly up the fall and in not keeping them in one uniform direction.

2, in not adopting any uniform width between his drains.

3, in not limiting the depth of his drains to so little as 4 feet.

To account for these variations from the usual practice much has been written and said of certain peculiarities of the soil of Keythorpe, which has been generally described as strong, with a subsoil of retentive clay lying in banks several feet from the surface, and presenting with great regularity natural ridges and furrows between the soil and subsoil which it has been the object to intersect by the drains; but this description of the soil and subsoil I cannot say agrees with my observations. The various strata appeared to me to take the usual line, namely, across the hill, and the soil is much mixed, and is what upon the clays in the south of England would be generally called a loam or good Barley soil, adapted for the alternate growth of roots and grain, and when drained readily ploughed with a pair of horses at all seasons. At the period of my visit there had been a long continuance of east wind, and everywhere the surface of the drained and undrained land, with some exceptions as to the latter, was dry, and therefore did not admit of an opinion being formed as to the perfection of the drains in laying the land uniformly dry. His lordship still continues to lay up his arable land in narrow lands, so as to keep the horses at drill and harrow in the furrows, an admirable practice on wet land, but a loss of labour on such a soil, supposing the land to have been laid perfectly dry. The subsoil comprises sand, gravel, boulder stones, and clay, occasionally stratified, but more frequently in irregular beds and much intermixed, the clay lying at uneven depths and generally intersected by layers of boulder stones with veins or fissures of sand or gravel; and so various and uncertain is the subsoil, that, whilst in many places water in winter is found only a few inches from the surface, holes that have been sunk many feet deep close by are without any symptoms of water, and the subsoil in places is so open that water would rapidly soak away if brought to it. From this description of the land it will be seen in places to call for only partial drainage, and might be often drained on Elkington's plan with a few deep drains sunk through the watery banks, and of this his lordship has wished to freely avail himself, but wherever the surface of the land has presented an uniform call for drains, there the frequency of the deep drains applied has brought the cost of the draining to as much as a judicious uniform draining of 4 feet would amount to, but I cannot think with equal success.

A stranger coming to lay out drains on this description of land, unless he has had great experience on similar soils and has sufficient confidence to incur the risk of occasional failures (for with such wide intervals there must be uncertainty), would, to insure uniform drainage, be likely to place his drains somewhat closer than he might think possibly necessary, or even would apply to land of his own, where he would have the opportunity of amending, without exposing his reputation to be questioned for such little failures as must be incidental to such experimental draining. The advantage of test holes in a soil so varying and uncertain as Keythorpe is doubtless of advantage to one who has the opportunity of watching the draining and of proceeding with so much caution in setting out the drains; and at the present day when so much draining is being left to inexperienced direction it may offer some guide, although I cannot say that I discovered it had in practice been of the use one would have expected; and indeed Mr. Trimmer admits that when one drain does not succeed he puts in another, and sometimes a third, so that in fact the success of this draining is admitted to be attended with much uncertainty, and to call for amendment.

With respect to his lordship's principle as to depth, this is unquestionably to be recommended, and the more so that there are still many afraid to exceed 30 inches for fear of the surface water not finding its way into the drains. With respect to his directions of the drains, taking them across the fall, here I am quite at issue, and I could see no grounds in his lordship's practice for any departure from the principle now so universally admitted of giving the greatest fall to the drains, and although I know his lordship's object is to unite the different porous spots between the clay banks, I was at a loss to discover any guiding rule in the lines taken, for the drains ran irregularly and in several directions, and none other was apparent to me than to secure a fall; and I felt convinced in many instances, that had his lordship commenced with an upright cutting he would have better crossed the various strata, and would have found the water draw off more freely and in greater quantity, and a more uniform drainage would have been gained at less cost.

His lordship's labours as an agricultural improver are far from being limited to draining; the same enterprising spirit is exemplified in his farming, building, the laying out of his grounds, and all that appertains to a country life; and I am at a loss to convey the admiration and respect that I felt in witnessing his earnest desire to benefit others by his example in the field, and the kindness which so freely opened his house to me and many others from a distance. *Hewitt Davis, 3, Frederick's Place, Old Jewry, April 8, 1856.*

P.S.—Lord Berners, with reference to my speaking of his land as a Barley soil, and suited to the alternate growth of roots and corn, says:—"I could not have paid his management of his strong retentive land a greater compliment. What a change a few years has wrought! Deep and autumnal cultivation, after the water is taken out, completely changes the character of the soil." The change in this respect is indeed marvellous, and I have little doubt that good draining will in a few years do much to restore the clay soils to the high appreciation they formerly held.

We have also received the following:—

It is perhaps not generally known that a great meeting of gentlemen interested in land draining took place at Keythorpe Hall during the Easter week. An unavoidable engagement prevented me from availing myself of the invitation with which Lord Berners kindly honoured me; and though I have had some little intimation of what passed on the occasion, I have been looking with interest for some public account of it.

Among those present were gentlemen who represen all the parties into which the land draining world is divided. There was M. De la Trehonnais, the celebrated Anglo-French agriculturist, who is a warm advocate of the system, and has most ably explained its principles, efficiency, and economy to the agriculturists of France; and in France, if not in England, economy is a question of paramount importance. There were present, also, Mr. Bailey Denton and Mr. Hewett Davis, so well known for their uncompromising hostility to the Keythorpe system. Both these gentlemen pronounced judgment on it, before they saw its results. They have at length been eyewitnesses of them, and have now an opportunity, either of confirming their preconceived opinions or of candidly confessing their errors with the best grace they can.

There were also present a number of gentlemen well known in the agricultural world, who may be considered the neutral party. For their opinions I look with considerable interest, and I would suggest to them that whatever they may be it is due to the noble host that they should be publicly expressed, and that if the economy and efficiency of the system are mere fallacies, these fallacies should be exposed.

It is to the opponents of the system, however, that I would principally, and thus publicly, address myself, and call for a public declaration of their opinions of the system, now that they have seen its results. The questions, therefore, which I would address to them, and to which I request categorical replies, are the following:—

1. Is the Keythorpe estate efficiently drained, or is it not?

2. Is the arable land well drained, or is the system, as I have heard it insinuated, only adapted to pasture?

3. Are the geological conditions—the soil, subsoil, and substrata—such as I have described in my pamphlet on the Keythorpe system; and, if not, what are they?

4. Have the furrows, which I have so often pointed out, and on which the efficacy of the Keythorpe system so greatly depends, an actual existence, or they are a mere myth?

5. These gentlemen must have drained many thousands of acres. Are they willing to select from all they have drained any farm of 400 acres, as efficiently drained as that respecting which Lord Berners has furnished the most ample details, and drained at as cheap a rate?

Lastly, are they willing to leave the decision of the question to a jury impartially selected? *J. Trimmer.*

THE BEST METHOD OF APPLYING GUANO.

[The following is the extract from Mr. Nesbit's book on Agricultural Chemistry, to which we referred last week].

It requires but a short consideration of this subject to perceive, that before any useful practical rules can be obtained for the application of guano, we must carefully compare the properties of the soil with those of the manure to be applied. Reference must also be made to the different conditions of the atmosphere at different seasons, particularly as respects moisture, dew or rain. The nature of the crop will also materially influence the quantity of guano to be used, and the time of its application.

Practical men have long been aware of the great difference existing in soils as regards their retentive power for manure. On certain lands, the result of the application of a given quantity of farm-yard dung may be seen for a number of years. On others, the effect of the same quantity ceases to be visible in a very much shorter period. The former class includes the loams, clays, and in general the heavier descriptions of land; the latter comprises the sands, gravels, chalks, and other lighter qualities, not inaptly termed by the farmer 'hungry soils.'

These varieties of soil differ both in chemical composition and mechanical properties. The heavier in general contain more alumina and oxide of iron than the lighter ones. They are also less porous, even when drained; their particles are finer, and their absorptive power is greater. The want of great porosity prevents the too rapid action of the atmosphere on the manures they may contain, and their absorptive power enables them to retain, to a considerable extent, the liquid and volatile elements of the manure, and at the same time to obtain a certain quantity at the expense of the atmosphere.

The case is, however, different with gravels, sands, and the lighter soils; upon which, in consequence of their greater porosity, the atmosphere acts freely, and to a considerable depth.

When manure is applied to them it is rapidly decomposed, and unless there be a growing crop ready to absorb the fertilising particles as they become soluble, they will be washed away; or, if they become volatile, will, to some extent, be absorbed by the atmosphere. These soils, therefore, require different treatment. We may apply to heavier lands a strong dressing of manure at once, and little loss will ensue, for some time at least, from any other source than the action of the growing crops. On the lighter soils, we must use, even of farm-yard dung, a less amount at a time, but it must be applied more frequently. We thus see that light lands have the advantage of more rapidly decomposing the dung, and consequently of preparing it more quickly for the use of the plant. For this reason, among others, light soils are preferred by the market gardeners, who, by their repeated manurings and repeated croppings,

practically show how these soils may be most efficiently managed.

The difference of soils is not the only consideration; the climate of different localities in the British Islands is exceedingly various.

In Ireland, in Scotland, and in the Western districts of England, from Cornwall to Cumberland, the quantity of rain which falls in the year is probably nearly double that which descends in Suffolk, Norfolk, and on the East coast generally. The air also is constantly more humid, and for this reason those parts of our Isles are well adapted for the growth of root and green crops, and are not so well adapted for Wheat. Guano may, consequently, at any time of the year, be there used in larger quantities, without the same danger of burning the crop which would occur in our Eastern counties. In these latter districts, the guano should never be applied as a top-dressing in dry weather, but during a wet or showery day.

Where Wheat is grown in humid climates, it is liable to lodge before harvest, and therefore guano, if used, should be applied with caution to this crop. Two or 3 cwt. per acre, mixed with 4 cwt. of salt, is quite sufficient, one half at sowing, and the other in the spring.

From these and various other ascertained facts, we may deduce the following general rules for regulating the application of guano:—

GENERAL RULES FOR USING GUANO.

1. That guano is best applied in damp or showery weather.
2. That guano should not generally be put on Grass land in the spring later than April.
3. That when guano is applied to arable land, it should immediately be mixed with the soil, either by harrowing or otherwise.
4. That when Wheat is sown very early in the autumn, a less than usual amount of guano must at that time be applied, and the rest in the spring. The Wheat, otherwise, might become too luxuriant, and be injured by subsequent frosts.
5. That guano, and artificial manures in general, should be put on the land only in quantities sufficient for the particular crop intended to be grown, and not with the intention of assisting the succeeding one. Each crop should be separately manured.
6. That guano, before application, should be mixed with at least from five to six times its weight of ashes, charcoal, salt, or fine soil.
7. The guano should on no account be allowed to come in direc contact with the seed.

The preceding rules, if duly attended to, will prevent the recurrence of most of those vexatious losses of time and capital, which many, even of our best farmers, have experienced from want of a due acquaintance with the properties of concentrated manures.

Home Correspondence.

On Town Drainage, its Application to Agriculture.—This is an inquiry of great interest generally, but is especially so to one who, residing in a large and rapidly increasing suburban town, has had constant opportunities of observing the progress of a system of drainage carried on during the last six years. The following remarks are therefore offered with some degree of confidence, and the more so in consequence of the recent improvements in Paris, which have rendered the water of the once foul river Seine a pattern of purity. We are told that the greater portion of the refuse water of houses from culinary and other operations is passed along open street gutters into the river, these being fed by channels from the various houses led across courtyards and foot pavements; whereas the fecal refuse and much of the slops, as those of bedrooms, &c. are passed into cesspools by companies which make a commercial speculation of the matter. It is not our object to describe processes—sufficiently disgusting in themselves—whereby the dry manure called poudrette is produced, but it is evident that the Paris system is wholly different from the one adopted here for disposing of the sewage of London and its neighbourhood. The pollution of rivers is viewed as the chief opprobrium of our drainage system. Rivers are doubtless the natural channels of conveyance, yet from the condition to which the Thames water is reduced by the sewage matters flowing into it from the London drains, the course of the tides, and the constant disturbance maintained by the paddles of steamers, there can be no doubt that some effective remedial measures must ere long be adopted. As to the applicability of sewage to agriculture, we may safely refer to the vast prolificity of grass lands about Edinburgh caused by irrigating them with entire sewage as it flows from its channels, without any attempt to separate the solid and liquid constituents. At Croydon, on the contrary, attempts have for years been made to collect and deodorise the solid matters, suffering the water to flow into the channel of the Wandle. Thus great offence has been given, and much animosity created, which still continues to rankle. The deodorisation of the solids by means of peat charcoal or shale of some kind admits of no doubt; but when that has been effected the question recurs, what have we done? Professors Anderson and Way, both able analytic chemists, have proved that the ammonia of sewage passes away with the water, and is entirely lost. The writer himself has filtrated foul and fetid manure through peat charcoal, till the filtrate passed clear as the water of a spring, and yet it contained all the ammonia that had existed in the sewage. Common earth in a garden pot is also seen to act in a similar manner as an apparent purifier. But then, when a separation of the elements has been produced, experience has shown that the deodorised heap accumulates: that it cannot be sold at a price low enough to induce purchasers; hence, that the delusive idea of a profit to be derived from its sale must be relinquished. Therefore, we infer that if drainage is ever to be employed as a fertiliser, it must be distributed over the surface—whether of grass or arable land—neat and entire as it flows from the drains. Thus then the mode of its application resolves itself into a purely mechanical operation. In bringing the foregoing suggestion to a close, the authority of Dr. Anderson may be referred to; thus we read in the "Transactions of the Highland Society," p. 199, January, 1856:—"Numerous attempts have been made to bring the valuable constituents of sewage water into an available condition, and the methods proposed have been extremely varied." It has been repeatedly shown "that ammonia, the most valuable constituent of a manure, cannot be precipitated by any process whatever, except such as are altogether precluded by their expense." Dr. Anderson then adduces two analyses as illustrations of what may be effected by experiments sufficiently large to test the value of the process. The following table gives the result of the first of these as being the better of the two.

Water	18.04	per cent.
Organic matter	19.71	"
Phosphoric acid	2.03	"
Peroxide of iron and alumina ...	6.93	"
Sulphate of lime	27.05	"
Carbonate of lime	6.43	"
Alkaline salts...	3.00	"
Sand	16.81	"
	100.00	
Ammonia	1.13	

"A very trivial examination suffices to show that these substances are of trifling value; the 2. of phosphoric acid and 1.13 of ammonia, when calculated according to the method used for determining the price of guano, proves the solids to be worth only about 16*s.* per ton, yet these and similar substances are gravely declared to be equal in value to guano." Not to trespass further on Dr. Anderson's report, it is added, "I have seen no reason to alter the opinion expressed in a previous number, that if sewage is to be employed at all, it must be used *in toto* as liquid manure." *J. T.*

Boydell's Traction Steam Engine.—I devoted two days last week to the examination of the operation of this machine as a locomotive and tractive power, and have come to the conclusion that it is "a great success." This success is owing to the endless and wide railway attached to the circumference of the wheels, which gives a fulcrum for the lever, and a bearing sufficiently wide to carry a great weight on soft ground without imbedding in the soil. Hence the avoidance of friction and clogging; we might illustrate this by a sportsman on the mud oozes, whose feet would sink in and thus render his power unavailable, but by attaching to his feet wide pieces of board, the pressure is diminished to a bearing condition. Thus, in the case of Mr. Boydell's machine, although it weighed nine tons, its impress was scarcely perceptible where a horse's foot left a deep indentation. This is a most important desideratum, seeing that weight in a traction engine is indispensable. We can form some idea of the value of this implement when we reflect that a common portable agricultural threshing engine, which only weighs three tons, requires two horses to draw it on the common road, while two more are required to draw the threshing machine. Mr. Boydell's engine walked from Camden Town to Acton, taking in tow its four-wheel waggon, with coals, and four heavy iron ploughs, and water enough for four hours' work. When on the soft Turnip field (after a night's rain) it drew after it ploughs, scarifier, &c., with perfect ease, and then walked home again to Camden Town. It can ascend an acclivity of one in three, which is nearly walking up stairs, our stairs being one in two. It can back, advance, or stop instantaneously, the pinion being shifted from the cogs of the driving wheel, and the power thus suddenly released is carried off by a separate fly-wheel, which may be used for driving threshing machines, mill-stones, or other purposes. In fact, instead of a farmer sending for and sending back a 6-horse power engine and threshing machine, requiring in each trip six horses, this machine will move itself anywhere—draw the corn to market, bring home manure, and do the cultivation and work of the farm. I hope a company will be formed for its development, Mr. Boydell having expended nearly 10,000*l.* in accomplishing his object. A full description of it is given in the *Mark Lane Express* of the 7th inst. It may briefly be described as a horizontal engine mounted on wheels, with a man to steer in front and the engineer behind. The two cylinders were 6½ by 10, worked at 60 lbs. per inch, with a quick movement, and estimated at 16 horse power. 20 lbs. of steam was required to keep the machine moving, the other 40 lbs. for traction. Messrs. Boydell and Glazier's works are at Camden Works, Camden Road. The machine can turn as easily as a common waggon, and does not mind a deep furrow or a side hill. It will evidently require a sort of railway buffer spring at starting, to avoid breaking the chains which attach it to its load. *J. J. Mechi, Tiptree Hall, Kelvedon, Essex, 10th April, 1856.*

Thick and thin Sowing is a question so much of circumstance and condition that it requires more caution in handling than it generally meets with. The extremes are almost always urged by the advocates of both sides with much oblivion of the objections that may be and are put forth. It seems to me so very evident as to require but little discussion, to show that thin seeding is inadmissible where the soil is foul, or from any cause incapable of throwing up a strong plant; and that in a contrary condition thick sowing is not advisable. The why and the therefore of this seems to me very simple, notwithstanding the analogy which has led some few others to a different conclusion. On a first view no doubt it would appear that where a scarcity of food exists, the number of consumers should be lessened in proportion that a rich, well tilled, and strong ground abounding in food in a fit state to be taken up by plants, would bring to perfection a number of plants proportionable to the abundance of food; while the thin, ill-tilled, poor soil, in which there were lack of food, should be limited to a low number of mouths; but from the moment of their formation the organs of plants develope themselves in proportion to the food they find ready for assimilation. In rich strong land so abounding in food they acquire a largeness, a fulness, a vigour of growth that enables their roots to push far and wide into the soil, and their leaves to absorb a large amount of aerial food, while much sunlight is requisite to enable them to deposit carbon; for both from above and below, to preserve a healthful state, all their elements must be taken up in the proper digestible proportions; the excess of any one element is in fact a poison calling for a wasteful action, an injurious energy in the plant to throw it off. In all plants cultivated for their leaves and roots, we feel the necessity to let them stand at distances proportional to the rankness of the soil; the same rule should hold good in those we cultivate for their seeds. It were wise in us to regulate the treatment of our cereal crops by that of our root ones. The future growth of plants depends so much on the food that they find within reach of their early rudiments, that, in poor soils starved from their first germination, their roots, poor, weak, and diminutive, have neither the strength nor the disposition to travel far for their food widely dispersed around them; their leaves consequently small, with their air orifices of proportional minuteness, can only give to the plants very little aerial food although it may probably be found in just proportion to those matters their roots take up. These plants do not then require a wide space for they could make no use of it, and as their produce of seed is in proportion to their size, to realise a tolerable produce we must sow the seed in such quantities as will place the plants so near each other that their number may make up for their weakness, and that the whole food of the soil and the air may find mouths to consume it. There is another motive for thick sowing in such soils, as plants are found to tiller less in them. And with respect to weeds, a thick standing crop of what we wish to grow will keep them down. I have no doubt that in such poor soils a superior crop may be obtained by what I may call a thick and thin sowing, that is, by sowing thick in rows at such intervals as will admit of working the ground between them through the whole period of growth. In this case the vigour of their development might be much increased by a little manure in the drills; this would give their roots such vigour of growth as will enable them to push into the desert around them as well as endure a wider expansion of leaf and a consequent larger growth of the plants with a greater return of fruit. *J. M. G.*

Disease of Pigs.—Allow me to give an account in your journal of a disease that has made its appearance in my pig-styes, in the hope that some of your correspondents may give some information as to the cause and cure of it. When the pigs get to be about three months old they, as the illness attacks them, leave off food and stand for an hour together with their heads pressed hard into the corner of the stye; the moment they are moved from that position the whole body, head, and legs are in continual convulsive motion; they cannot walk when the fit (I may call it) is on, though they jerk themselves along backwards to the corner, where they thrust their heads, and the twitchings cease. The hand placed with a gentle pressure anywhere on the spine, which is very hot, also stops the twitching or involuntary motion of the limbs. They generally die within 24 or 36 hours after being taken ill, though I have three alive now that have been suffering for three days. Bleeding had no effect, and the remedy generally prescribed by farmers in this neighbourhood—a strong dose of castor oil with assafœtida—very little. I made a post-mortem examination of one, half expecting to find the bladder of watery matter in the head that is sometimes seen in sheep; but the brain was quite clean, and the flesh and every part of the body seemed, as far I could judge, healthy and sound. *V. D.*

[The symptoms resemble those of epilepsy and might be caused by indigestion brought on by improper feeding, or the disease might be hereditary and constitutional. In the latter case the symptoms would be directly produced by derangement of the brain and spinal cord. We should not in any case have expected to have found an hydatid on the brain, as the symptoms thereby produced would have been more gradual and moderate in their character, the movement of the body circular, and the general health less impaired. Water in the ventricles or fulness of the vessels, or other morbid appearances of the cerebellum, medulla oblongata, or the spinal cord, would have been much more probable. If there is reason to believe that the disease is hereditary prevention must be sought for by changing the blood; if, on the other hand, injudicious feeding has produced the symptoms, the removal of the cause, and a dose of oil might be suggested. With regard to a remedy, bleeding from the tail, warm baths, stimulating the spine, and internally oily and saline purgatives with sedatives, such as opium and digitalis, are indicated. *W. C. S.*]

Steam-engine Furnaces.—Referring to my last paper on steam-engine furnaces, I continue to find that my

own answers admirably under the new arrangement, the whole space, 30 inches in depth by 28 inches in width, being filled with brilliant pale yellow flame; smoke is seldom seen at the chimney top, and then only for a few seconds. I think I mentioned that the waste steam is introduced into the chimney just above the flue, the pipe pointing upwards, as in a locomotive, the hoarse pulsation falling on the ear at many hundred yards' distance in quiet weather. The intensity of heat produced by such a mass of flame at a temperature of 3000, had the effect of causing a thin layer of "slag" to encrust the furnace bars almost immovably, and thus impede the draught. I effectually remedied this by using about 1 cwt. of coke to 5 cwt. of coal; the coke retaining its form, and thus admitting air, prevents this formation of slag, so that we have nothing now to desire or amend. By using a vertical plunger to our engine pump, about 3-inch diameter and 2½-inch stroke, worked from the eccentric, we have never once been troubled as to a supply of water. Formerly, with a rapid movement and long thin horizontal plunger, there was always trouble, owing, I believe, to a slight vibration which disturbed the packing and admitted air. *J. J. Mechi, Tiptree, April* 21.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

THE following discussion, which we were unavoidably compelled to postpone, took place after the paper read by Mr. Chadwick last week, :—

Mr. Slaney thought that Mr. Chadwick would confer a favour on the agricultural community if he would prepare from the various returns in his possession, or to be obtained by him, a succinct tabular statement of facts in reference to the application of liquid manure, so that economic farmers who wished to employ it might at once be enabled to deduce in pounds, shillings, and pence the advantages they were likely to derive from its application: adding to such statement practical information of every kind required to guide them in procuring the requisite engines, horse-powers, hose, jets, and other apparatus necessary for carrying out the operations. He also referred to the advantages to be taken of declivities in the distribution of liquid manure; and to the location of homesteads on such elevations that the sanitary conditions of the family, as well as the agricultural advantages to the farm, might equally be adjusted.—Mr. Gadesden remarked that Mr. Mechi had furnished all the details Mr. Slaney thought desirable, at least as far as his own operations were concerned. He had inspected Mr. Walker's arrangements, which he understood could now, from the experience he had gained, be made much more economically than they had originally been. His crops were looking most luxuriant.—Mr. Raymond Barker alluded to the impediment that would arise to the continuous laying on of liquid manure from the frost in winter.—Mr. Scott considered it ruinous to irrigate meadows during the continuance of frost. Arable land ploughed up in time of snow gave no crop the following year.—Mr. Sidney considered the natural system of gravitation in liquid manuring to be infinitely superior to artificial distribution. The most successful instances of irrigation were to be found in Italy, where the essential requirement occurred of a constant stream of water rapidly passing over the land. Mr. Robert Smith, at Exmoor, had a stream from the top of the hills, which passing through his farm, where in time of heavy rain men were employed to stir up the manure, was capable of irrigating 80 acres in the course of half an hour. Steam-power, Mr. Sidney thought, should only be employed in the absence of natural privileges. He felt compelled, from his own experience, to enter his strong protest against Mr. Chadwick's system, which, although aided by every advantage of publicity since 1842, had not, in Mr. Sidney's opinion, made much way. Mr. Sidney maintained that liquid manure was only available for green crops, and that it was only to such that it was applied in Italy. The farmers of this country had shown so great a willingness to adopt every rational mode of improvement proposed to them, that he was quite sure they would also have adopted Mr. Chadwick's plan had it been their interest to do so. They had evinced on all occasions a readiness to pay a reasonable interest on the permanent improvements made by their landlords.—Mr. Scott remarked that in Cheshire the tenants paid 10 per cent. interest on the bones applied by their landlords to their land.—Mr. Chadwick appealed to the facts he had adduced, showing the advantages farmers had derived from the employment of liquid manure. Yields of one-quarter more had been obtained by its means at less expense than by any other. Mr. Mechi grew 46 bushels on Tiptree Heath, others 60, and others again 80.—Mr. Scott was well acquainted with Mr. Telfer, who had told him repeatedly that his own operations constituted an experiment, which he had not yet asserted was remunerative, or was ever likely to pay an ordinary farmer. The climate of Italy and the natural advantages of Edinburgh were not fair examples to cite. Sir William Cubitt had reported that we had not yet made the slightest approach to the solution of the great problem of town-sewerage.—Mr. Chadwick remarked that Mr. Telfer had stated that 25 acres of his farm would maintain a steam-engine.—Mr. Sidney had not found a single instance in which liquid manuring was advantageous to corn crops. In Italy it was never applied to corn crops, but only to common Grass crops, and to Italian Rye-grass, at the right time, immediately after cutting, to furnish supplies of green food for their dairies. Chemistry had shown the valuable matters contained in concentrated manures, in guano and other substances yielding ammonia. In Cheshire, cesspool matter, even before its dilution, fetched only one-half the price of horse-dung.—Mr. Chadwick cited the authority of Count Gasparin as to the value of liquid manure; and referred to the growth of cereals in Peru by means of irrigation.

Mr. Slaney, in moving a vote of thanks to Mr. Chadwick, remarked, as the result of his experience in public life, that good humour, dogged perseverance, and calmness in the discussion of every great question, would invariably and eventually succeed when its advocate was in the right, and would assuredly fail, as it ought to do, when he was in the wrong. Guano undoubtedly was a compact and manageable manure. He quite agreed in the opinion expressed that tenant farmers ought not to be called upon to lay down expensive apparatus for the cultivation of the land.—Mr. Scott seconded the motion, remarking that Mr. Chadwick, however led away perhaps on some points by an excusable enthusiasm in the pursuit of his object, possessed the best stored mind statistically of any man living in reference to the application of liquid manure.

WEEKLY COUNCIL. *April* 23.—Mr. RAYMOND BARKER, V.P., in the Chair. The names of 11 candidates, received during the past week for election into the Society at the ensuing monthly Council, were read.

ARACHIDE-NUT CAKE.—Mr. Spooner favoured the Council with the following reply to inquiries made of him in reference to the Arachide-nut cake:

"Eling, near Southampton, March 31, 1856.

"In reply to your communication requesting me to furnish the Council with information respecting the price and the supply of Arachide-nut cake, a sample of which I had the honour of forwarding a short time since, I beg to state that my firm (Spooner and Bailey) have imported two cargoes from Rouen in France since October last, and that the present price is 9*l.* per ton. It appears to be relished more by sheep than by cattle. I think there is likely to be a fair supply of this cake, unless there should be a great depreciation in the value of feeding cakes as well as oil, so as to render the collection of the nuts not sufficiently remunerative. It is scarcely necessary to observe that whilst Linseed-cake will probably always maintain its supremacy amongst the different feeding materials, yet it must surely be the interest of agriculturists to encourage the introduction of other feeding cakes, such as Nut-cake, Poppy-cake, and Cotton-cake, more particularly when such cakes are rich in their nitrogenous elements. Poppy-cake is much relished by cattle as well as sheep, and appears to be very suitable for working oxen. It is rather dearer than Nut-cake. W. C. SPOONER."

Mr. Gadesden was surprised to hear that the Poppy-seed cake was priced so high, as he obtained his own supplies at the rate of 8*l.* per ton.

BARN-FLOORS.—Mr. Greaves, of Matlock-Bath, Derbyshire, favoured the Council with the following information respecting barn-floors, in reference to an inquiry made by Colonel Chapman, "whether any cheaper and equally durable material had been met with, as a substitute for barn-floors, than the old-fashioned Oak-flooring, for which an estimate had been sent in to him of 40*l.*":—

"In reference to your inquiries relative to the laying of barn-floors, I strongly recommend asphalte in preference to wood, for many reasons, a few of which may be mentioned, as (1) the imperviousness of asphalte to moisture; (2) the exclusion it occasions to vermin; and (3) the preservation of the grain in a sweet state from the dryness in which it is kept. I get the asphalte in blocks; and having set up an old boiler near the place, I mix gravel with it while hot, and run out the mixture on the surface required to the thickness of about 2 inches. In a few hours the asphalte-floor will bear any weight, and it will be found not only better but cheaper than wood."

Mr. Devas remarked that there was great economy in this flooring, its cost being only 7*l.* for an area which, laid down with Oak, would be 40*l.* It would not only bear weight, as stated by Mr. Greaves, but was well adapted from its strength and elasticity to bear the application of the flail in the operation of threshing.—Mr. Raymond Barker feared the objection to its use as a threshing floor might be the dust he understood it occasioned.—Mr. Devas had not heard of that objection. H.R.H. Prince Albert had adopted it as the material for the flooring of his sheds and piggeries; and it had been found to answer those purposes extremely well.—Mr. Aldam, M.P., inquired respecting the particular kind of asphalte employed.—Mr. Devas stated that he believed it had been supplied by Mr. Prentice, of Stowmarket, who intended to exhibit specimens of asphalte at the Chelmsford Meeting in July next.

Communications were read from Mr. Brown, late of Arriston, on the subject of shut drains to exclude the entrance of fibrous matter in the neighbourhood of plantations; and from M. Bortier, of Bruges, on the subject of the limestone of Nieuport containing a small proportion of phosphate of lime, and which he thought might possibly be worth importing into England.

Prof. Way (on account of temporary indisposition) was unable to attend for the purpose of delivering his lecture "On the progress of Chemical Science, both at Home and Abroad, in reference to Agriculture." Its delivery was accordingly postponed till the following Wednesday, April 30, at 12 o'clock.

Farmers' Clubs.

London: April 7.—Artificial Manures. We add the following from some of the addresses given after the lecture reported last week:—

Mr. BRADSHAW (of Knole, Guildford), stated the results of an application which he made in 1854, on 18 acres of Oats. In that instance he used three cwt. of damaged guano, at 9*s.* 6*d.* a cwt., which cost 1*l* 8*s.* 6*d.* The land was undrained, very wet, and altogether in a wretched condition. The results were twofold. Upon the guano-manured land he grew 40 bushels of Oats an acre, whilst upon the unmanured land he grew but 20 bushels an acre. Having superintended the carting off and threshing himself, he was satisfied there was no mistake in the matter. The fact was, he got 20 bushels of Oats extra, and three of Crosskill's harvest carts, in addition, of straw. That extra quality of straw he valued at 1*l.* and the 20 bushels of Oats at 3*l.* 15*s.*, or 30*s.* a bushel, making together 4*l.* 15*s.*, and deducting the 1*l.* 8*s.* 6*d.* for guano, a clear profit was left him of 3*l.* 6*s.* 6*d.* He had followed Mr. Nesbit's plan of manuring for Mangel. In November, 1854, he ploughed once ten inches deep. In the spring, three weeks before sowing the Mangel, he applied three cwt. of guano broadcast, and next scarified the land and drilled in two cwt. of superphosphate. Then, previous to horse-hoeing, he sowed broadcast, at twice, one cwt. of nitrate of soda and three cwt. of salt; and the result was that he grew 30 tons of clean root, not including tops, of Long Red Mangel, without the application of a single load of farm-yard manure. By the same method he also grew 25 tons of Orange Globe, and 30 tons of Long Red. The succeeding crop was Wheat. And the soil was loamy; there was no clay upon it. With regard to Swede Turnips, he had applied three cwt. of superphosphate, with about eight or 10 loads of farmyard manure, and grew 20 tons to the acre last year. In 1854 he tried several experiments with Swedes, and they were not upon a small scale, for he tried them on patches of land three and four acres in extent. On two occasions he made use of bones on a field of 14 acres. On one portion of the field he used three quarters of half-inch bones, and four bushels of bones dissolved in sulphuric acid. On another portion of the field, about four acres, he sowed two quarters of half-inch bones, four bushels of bones dissolved in acid, and two cwt. of guano per acre broadcast. The results were, that whilst there was little difference in the size of the Swedes, those grown with guano were more porous—that was to say, spongy—and not of so good quality as those which were grown without.

Mr. J. A. WILLIAMS (of Boydon, Wilts): When Mr. Nesbit proposed to sow the guano broadcast, of course he intended that it should be done on a moist day. He had once applied guano broadcast, and had made up his mind that it should be the last time he would ever do so, for he believed he lost three-fourths of the effects of it. The application was made on a dry day, and the greater portion was carried off by the winds to his neighbours' farms, for aught he knew, miles off. And that he feared would be too generally the case, if guano were applied on the broadcast system. The question had been asked to-night, "What was manure?" He agreed with Dr. Ellis that it was, in fact, the food of the plant; and if they applied manure to the soil which was not suitable for it, they would in effect as much throw it away as if they gave hay to a pig, or the animal food upon which mankind subsisted to a horse. With regard to what Mr. Mechi had stated respecting his drainage, he gave that gentleman credit for experience, derived from experimental farming; but thought that, after observing the effects of his drainage, and the practical means by which he irrigated his land, he would do still further service to agriculture if he analysed the coloured water which ran off through the drains, and ascertained whether that water had not, in truth, left its valuable properties behind. Upon very strong lands he found that the bones themselves were of far greater importance than superphosphate of lime. Wherever he had tried the latter on a light soil, he invariably found there was nothing equal to it; but on strong clays he grew better Turnips where he used ground half-inch bones alone, than where he had put superphosphate.

Mr. W. BENNETT (Cambridge) should be glad to be enlightened as to which artificial manures were the most likely to produce premature decay in the root crops. It was one of the drawbacks to the extensive use of these manures that roots—Turnips for instance—were more liable to decay where artificial manures were used than where they were not: that, he hesitated not to state, was the result of his own experience. It had been his practice for many years to manure partly with farmyard dung, and partly with such artificials as he thought best adapted to the particular crop. But this year, finding the farmyard manure holding out better than he expected, he applied it to eight acres of Swedish Turnips without artificial manures; and the result was that his Turnips stood a vast deal better there, and with less rot among them, than where the artificial manure had been used. He recollected that, some few years ago, prizes were offered for the best crops of Turnips in Bedfordshire, by the County Society, both at Leighton Buzzard and Luton, and being put upon his "mettle," he dressed heavily for Turnips, and used Rape-cake in addition to farmyard manure. One of the most splendid crops of Swedes he ever saw was the result; but several of the roots had begun to exhibit signs of decay as early as the first week in November, and he was disqualified by the judges on the ground that the Turnips were not all sound. He should be glad, therefore, if Mr. Nesbit would give them some idea as to which artificial manure was likely to cause decay at an earlier period than another. With regard to what Mr. Mechi had stated respecting his liquid manure being carried through the drains 300 yards off as black as treacle, the statement was very staggering. Of course, he did not deny that it was true; but he was inclined to think that by this time the land would have extracted pretty nearly all that was valuable in the manure, provided there was anything valuable in

it in the first place. Colour was a most mistaken test of value. As to irrigations of this description, he would rather his friend Mr. Mechi should have recourse to them than himself, for he had derived so little benefit from irrigation by liquid manures in the long run, that he belived he might put in his eye and see none the worse for it all the good it had ever effected. He would infinitely prefer using his liquid manure, mixed in compost heaps, to carrying it in its liquid state on the land.

Mr. Owen Wallis (of Overstone) said that Mr. Bennett's remedy would lead him to suppose that decay in the Turnip arose in some degree from the use of artificial manures, and as on his farm he had used bones in considerable quantities for several years past, and his Turnips had suffered much from rot this year, he had himself entertained a similar notion. Having made inquiries amongst his neighbours, however, he discovered many instances in which rot had been equally prevalent on land where no artificial manures had been applied within any man's recollection. It occurred to him that it was highly probable that decay in Turnips might be something like decay in the Clover plant; that it might be occasioned by the exhaustion of some quality in the soil that was necessary to its proper growth; and if practical agricultural chemists would turn their attention to that point, he believed they would render greater service than ever to the cause of improvement in agriculture. He would readily contribute his 5*l.* or 10*l.* towards a good prize for the discovery of a remedy for this evil.

Mr. Nesbit alluded to the question of soluble phosphates, and said that there had been a tendency amongst professional chemists, Professors Anderson, Way, and others, to recommend the manure makers to make all phosphates soluble. He could not say, however, that he would advise anything of the sort at present. He believed if they had not a sufficient amount of insoluble phosphates for the latter growth of the Turnip, there was a chance of its growing too rapidly at the beginning, and being checked and stunted afterwards, and so rendered liable to disease; and he had observed that where there was too large an amount of soluble phosphates, the Turnips had shown a tendency to early decay. As to the running away of manure through the drains of which Mr. Mechi had spoken, they must be aware that a loss of manure was always going on upon every description of soil: only where the land was undrained it went off the surface, and the loss was much greater than where the land was drained. With reference to the various kinds of soils, a more scientific nomenclature of soils was wanted; but as a general rule he should say that superguano suited light land better than heavy, and guano suited heavy land better than light. Mr. Nesbit said there were something like 20 different substances which the manure makers had to select from, in making their superphosphate. They might, therefore, have a superphosphate almost of any colour. For instance, if it were made of calcined bone, which was white, it must be white; if of animal charcoal, black; and if of the two, grey. Salt was certainly useful for strengthening the straw in all cereal crops, and would be found advantageous in almost every district, applied with any dressing that was given to the crops. It would enable them to stand a much larger dressing of ammoniacal and nitrogenous substances than if it were not used; though it was not so beneficial where land was well drained.

Calendar of Operations.

APRIL.

Farm near Hexham, *April.*—If "a peck of March dust be worth its weight in gold," emigration to the "diggings" may cease for one year, as throughout the whole month there was dust in abundance, and a finer seed time we could not well have, closed as it has been by some fine mild rains, which have already made the fields look bright in their spring clothing. Early ploughed lea, from exposure to the black frosts of January, required very little of the harrow, but Turnip land, where at all strong, was difficult to reduce to such a tilth as Barley likes, but by the use of the harrow and grubber after the plough, and then ribbing, we succeeded in getting the clods reduced in some degree, and the late rains, with the help of the roller, whenever the surface is dried, will complete the work. Our Oats have all been up for some time, and the first sown Barley is also brairded. We have still a few acres to sow where the sheep are on, but shall not be long detained with them, Turnips being just about finished. Stock is being crowded to market, but still prices keep up; 7*s.* 3*d.* per stone for the best beef, and 6½*d.* per lb. for clipped sheep. Fallow cleaning has been going on apace during the dry weather, and will be almost ready to sow by the time that we began it last year. Our lambing season is just at a close, and has been very favourable both in regard to the health of the ewes and the number and quality of the lambs, more than two-thirds of our ewes having twins.

Notices to Correspondents.

Anti-mange Recipe: *T T.* Your letter has been forwarded.

Blood Manure: *X.* We will next week describe their works: it may suffice to say at present that they use about 3000 gallons of blood a day, and that their stowage for manures made of it and bones with acid will hold many thousand tons, from which the quantity daily sent away is quarried as it were, and thus has the advantage of lying in mass during several months, when the chemical processes, on which its solubility and much of its efficiency depends, gradually attain completion.

Bone-dust: *Scotus.* Mr. Pusey recommended a layer of moist ashes to be formed, the bone-dust to be laid thereon, as in a basin, and half its weight of acid to be gradually applied. But perhaps you refer to his expedient for reducing the bones by fermentation. To this end he mixed a heap of the bones with their weight of moistened sand or peat ashes, and in a few weeks he found that it heated and fell into a powder.

Gutta Percha: *Wigan.* We will make inquiry. Naphtha is we believe the solvent usually employed.

Rape Cake: *E Y.* The best way of getting stock to eat it is gradually to replace oilcake by it. If you soak either, it will fall in the water and may be thrown over chaff. Just take a little oilcake from the daily allowance thus used, gradually increasing the quantity so taken, and gradually replacing it by a gradually increased addition of the Rape-cake treated in like manner.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*
Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
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Catalogues, containing prices and every particular, free by post.
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SCYTHES.—Order Boyd's Patent Vulcan Scythe; it is the cheapest and best. It is sold ready for immediate use, avoiding loss of time and Blacksmith's fees. Price only 4*s.* 6*d.*, or with handle complete, 6*s.* 6*d.* Prospectus on application.
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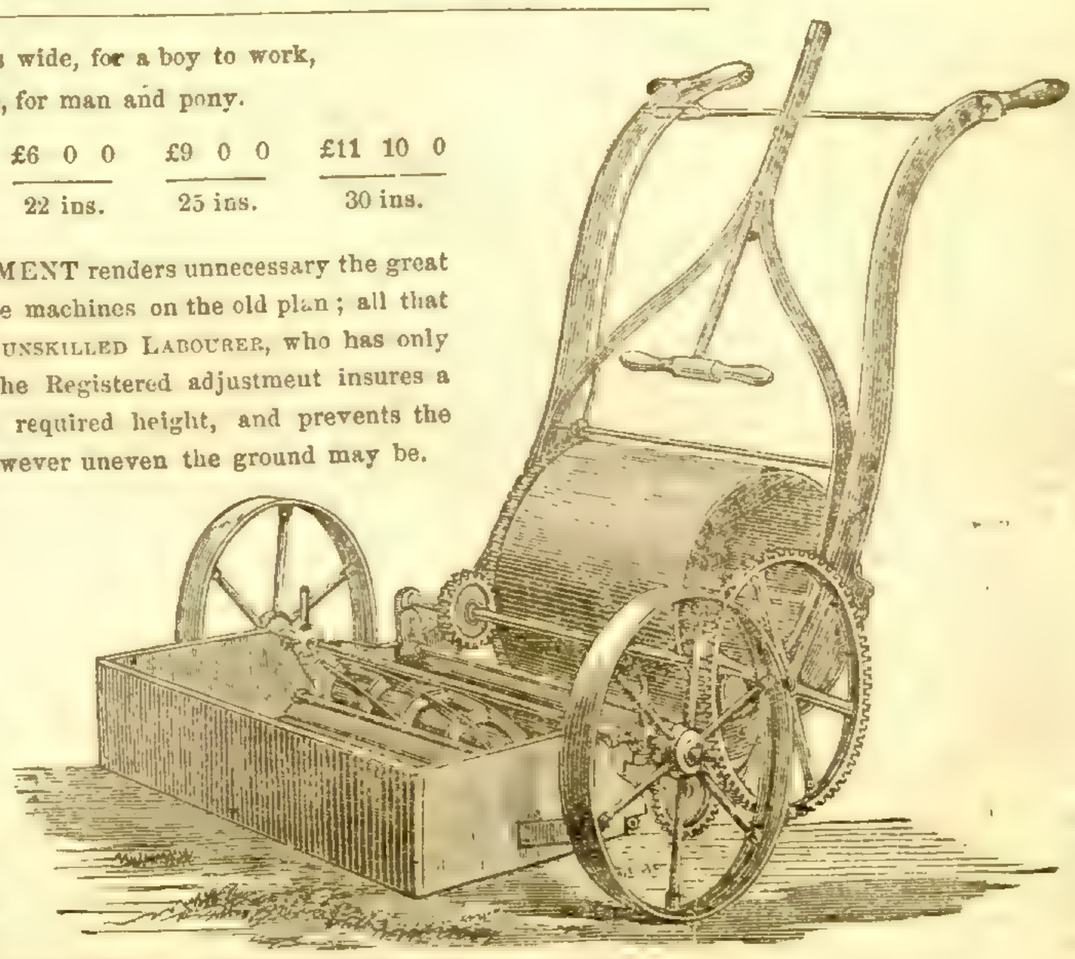
SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES.
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled Labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



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A. SHANKS and SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace, and Osborne. A. Shanks & Son have much pleasure in submitting the following from the numerous unsolicited testimonials received by them in favour of their New Hand Machine:—

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"Gentlemen,—We must inform you that your Hand Machines give extreme satisfaction; indeed, they are preferred to all others."

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From James James, Esq., of Samiston, near Jedburgh.
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From Thos. Mitchell James, Esq., of Phantassie, Haddingtonshire.
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"Mr. Forbes Mitchell's compliments, &c. As far as he has been able to judge of the Mowing Machine, it answers perfectly, better than expected, and is likely to become a necessary implement wherever known."

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Illustrated Price Lists forwarded on application.

N.B. A. Shanks & Son finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

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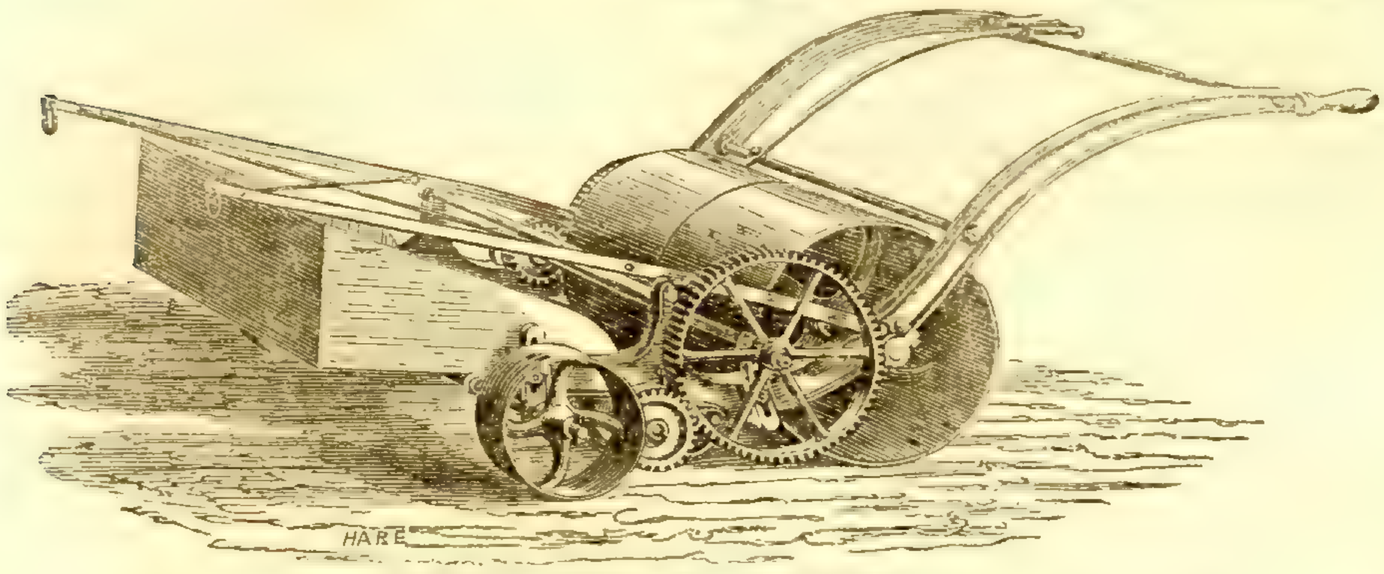

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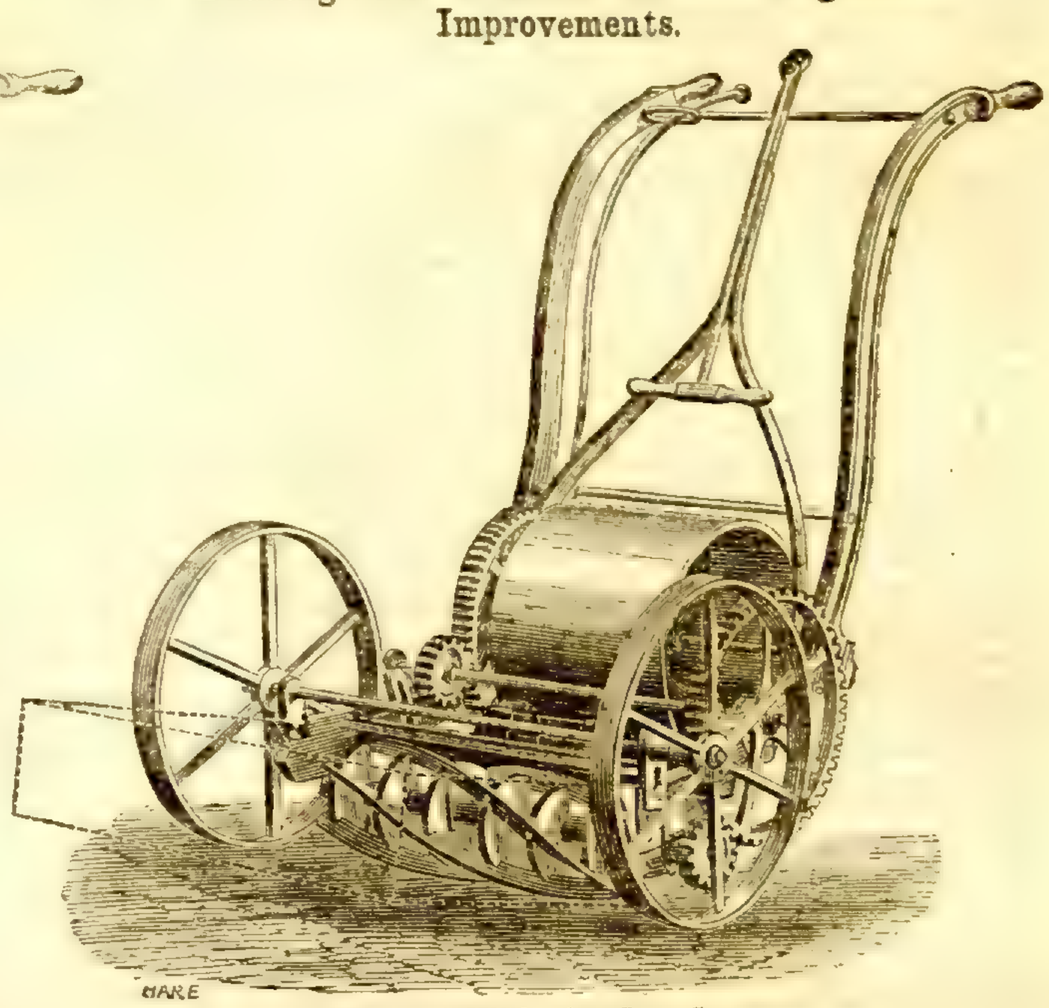

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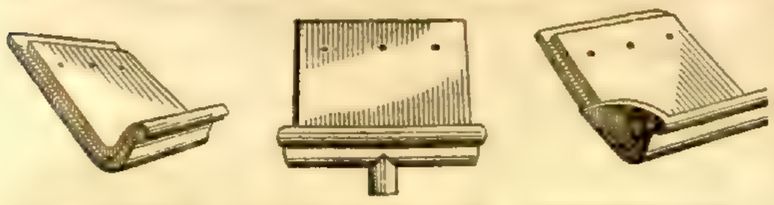

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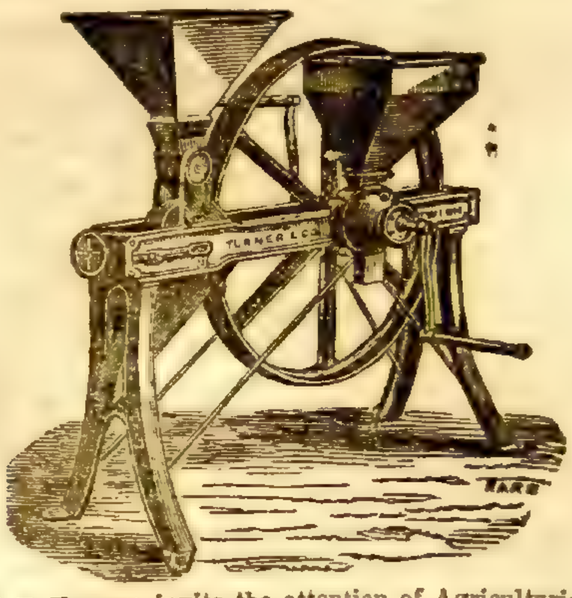

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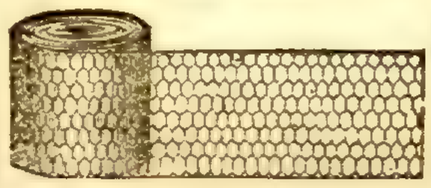

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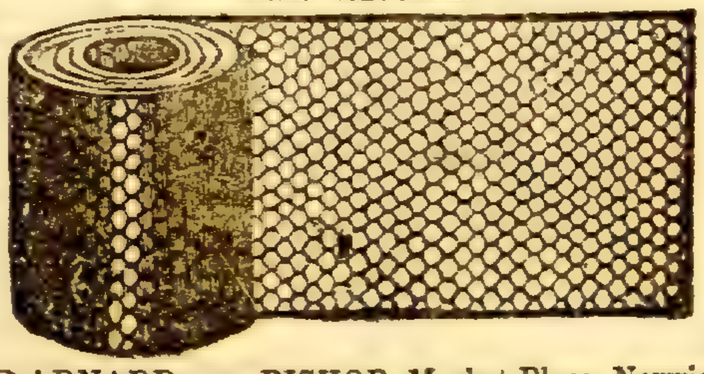

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1856.] SATURDAY, MAY 3. {Price Fivepence. Stamped Edition, 6d.

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CRYSTAL PALACE.—THREE FLOWER SHOWS will be held at the Crystal Palace during the ensuing season; viz., on SATURDAY the 24th May, on WEDNESDAY and THURSDAY the 25th and 26th June, and on WEDNESDAY, THURSDAY, and FRIDAY, the 10th, 11th, and 12th SEPTEMBER. Schedules of the Prizes to be awarded are now ready, and may be obtained on application to the Secretary. By order, G. Grove, Secretary.
Crystal Palace, May 3.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—The THIRD EXHIBITION will be held on THURSDAY next, the 8th inst., when PRIZES will be offered for Azaleas, 3 varieties; Ericas, 3 varieties; Cinerarias, 4 varieties; and Pansies, 12 blooms. No entrance fee. Everything intended for exhibition must be staged before 12 o'clock.
SEEDLINGS AS USUAL.
*** Tickets for free admission may be obtained on application.
John Edwards.

GRAND HORTICULTURAL AND FLORICULTURAL EXHIBITION AT ROTHERHAM. Open to all England. On WEDNESDAY and THURSDAY, the 6th and 7th August, 1856, during the Show of the Yorkshire Agricultural Society in that town. The list of prizes is now ready, and may be obtained, gratis, of Mr. Charles Dixon, the Hon. Secretary, at Rotherham or Sheffield. The PRIZES offered will exceed ONE HUNDRED POUNDS in amount. Specimens sent for Competition from a Distance will receive every care and attention.—Rotherham, May 3.

CHERTSEY HORTICULTURAL SOCIETY.—The SUMMER FLOWER SHOW of the above Society will take place on FRIDAY, June 27th, in the Grounds of the Rev. J. C. Clarke, Cowley House, Chertsey, when Prizes will be awarded for the best collections of Plants, Flowers, Fruits, and Vegetables.—Schedules, &c., may be had on application to the Secretary, Henry Lamb, Chertsey.

CAMBRIDGESHIRE HORTICULTURAL SOCIETY.—The Committee of this Society have decided that the next Show, to be held on WEDNESDAY the 21st of the present month, shall be an open one. The Exhibition is to take place in the Grounds of the Old Botanic Garden, and the splendid Band of the Coldstream Guards will attend by permission of Colonel the Hon. G. A. Upton, C.B. The Prize List has been considerably extended for the occasion, and amongst other additions are Three Prizes for 12, 6, and 3 Tulips.
Further particulars may be obtained of the Hon. Secretary, Mr. C. E. Brown, 62, Sidney Street, Cambridge.—May 3.

ALTERATION OF DAYS OF SUMMER SHOW.
BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.
By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

SLEAFORD HORTICULTURAL SOCIETY.—The Annual Exhibition of this Society will be held on WEDNESDAY, July 23, when Prizes will be awarded to Members of the Society for Flowers, Fruit, and Vegetables exhibited, according to merit; also for Cottagers' productions; and on this occasion Extra Prizes, open to all England, will be awarded for the best collection of 12 Stove and Greenhouse Plants, 5*l.*; best stand of 24 Roses, varieties, single bloom, First Prize, 2*l.*; Second do., 1*l.* Prizes are also offered by the Society to Cottagers and Mechanics recommended by Members, for the best cultivated plots of Garden Ground not exceeding half an acre—1*l.*, 15*s.*, 10*s.*, and 5*s.*; not exceeding half a rood, 15*s.*, 10*s.*, and 5*s.* Cottagers desiring to compete must give notice to the Treasurer or Hon. Secretary in the month of June. All articles intended to be exhibited must be sent in as early as possible after 8 o'clock, and no article will be admitted after 10 o'clock. The Rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. Warwick, the Treasurer; or to Mr. Peake, the Hon. Secretary.—Sleaford, May 3.

NEW BRITISH FERN.
Asplenium Refractum (Moore). For Description see March Part of "Nature Printing."
R. PARKER begs to offer the above new and distinct species, of which he possesses the entire stock. Plants forwarded post free on application, at 10*s.* 6*d.* each.
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SUTTON'S DESCRIPTIVE CATALOGUE, *with prices, may be had gratis, Post free.*
Royal Berks Seed Establishment, Reading.—May 3.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

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J. WALTERS, Hilperton, Wilts, begs to say that his 20th ANNUAL CATALOGUE of the best and most popular kinds of Geraniums, Fuchsias, Dahlias, Verbenas, Petunias, Roses, Hollyhocks, Bedding Plants, also his new Petunias, &c. &c., may be had on application.

AMERICAN PLANTS.
JOHN WATERER'S CATALOGUE of RHODODENDRONS, AZALEAS, &c., as exhibited at the Royal Botanic Gardens, Regent's Park, London, is now published, and can be had on application.
☞ The Catalogue describes the colours of the Rhododendrons.
The American Nursery, Bagshot, Surrey.—May 3.

AMERICAN PLANTS.
WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
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GOLDEN CHAIN, fine foliage, slow growth, narrow crimson flowers; good for edging, per dozen ... ... 18*s.* to	24 0
ODORATA VARIEGATA, variegated Prince of Orange, very good; strong plants, per dozen	21 0
LADY PLYMOUTH, good variegation, useful for edgings, per dozen	12 0

CONIFEROUS PLANTS.

THUJA GIGANTEA, a noble hardy tree of great beauty; introduced 1855. Strong plants ... 10*s.* 6*d.* to	21 0
THUJA DONIANA, the most elegant of the tribe ... 5*s.* to	10 6
THUJOPSIS BOREALIS, very graceful and quite hardy ... ... 7*s.* 6*d.* to	10 6
BIOTA GLAUCA, a very neat glaucous Arborvitæ ...	7 6
PINUS JEFFREYI, new and very distinct, one year seedlings	7 6
" BEARDSLEYI, new, one year seedlings	7 6
" TUBERCULATA, very ornamental, 1 year seedlings	3 6
" SABINIANA, strong plants " "	7 6
" BENTHAMIANA, a distinct and fine species, three years seedlings	21 0
" PONDEROSA, scarce, two years seedlings	10 6
" ABCHASICA, new and scarce, two years seedlings ...	7 6
PODOCARPUS CHILINA, distinct ... 10*s.* 6*d.* } Said to be	
" NUBIGENA " ... 10*s.* 6*d.* } hardy	
LIBOCEDRUS CHILIENSIS, from seed ... 3*s.* 6*d.* to	5 6
JUNIPERUS SINENSIS LEEANUS, a great acquisition for terraces, and forming a noble upright column about 1 foot in diameter	7 6

NURSERY AND SEED ESTABLISHMENT,

Hammersmith.

CHOICE SEEDS.

BASS AND BROWN'S 25th Annual Edition of their SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1. (20 quarts Peas, and all other Vegetables in proportion), for 1 year's supply	£3 0
Collection No. 2. in reduced proportions	2 0
Collection No. 3. do.	1 5
Collections for small Gardens ... ... 10*s.* 6*d.* and	0 15

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections see Catalogue.

A FEW NEW AND SELECT FLOWER SEEDS.

For an abridged list of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 2d, page 78, and Feb. 16th, page 109.

Smith's New Balsams, 6 varieties, separate ... 2*s.* 6*d.*
" " in larger packets, mixed 2*s.*

FLOWER SEEDS.—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.

	s. d.
100 vars. select showy Annuals, including newest ...	15 0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4 0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5 0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5 0
20 vars. choice Greenhouse perennials, including new, 10*s.* 6*d.*; 12 vars.	7 6
20 vars. hardy biennials and perennials, including new, 7*s.* 6*d.*; 12 vars.	5 0

CHOICE IMPORTED GERMAN SEEDS,

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stock, 5*s.*; 15 vars. ...	3*s.* 0*d.*
Choice mixed do. packets, 6*d.* and 1*s.*; new pale sulphur	1 0
Fine dwarf carmine, 6*d.*; new White Hybrid	1 0
8 superb vars. new large flowering Stocks	2 0
New large Chamois, 6*d.*; new white dwf. Wall-leaved, 6*d.* &	1 0
12 superb vars. Wall-leaved or Prussian	2 6
15 superb vars. Autumn Brompton	3 6
Fine scarlet do., 6*d.* and 1*s.*; mixed fine, 6*d.* and	1 0
6 superb vars. Perpetual Emperor, blooming three times a year	2 0
4 superb vars. new large flowering do.	2 0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3 0
12 superb vars. Globe flowering do.	2 6
16 superb vars. Pyramidal, do.	3 0
10 superb vars. Bouquet double dwarf do.	3 0
8 superb vars. Pæony-flowered French do. (Truffaut's) ..	4 0

Also superb imported Wallflower, Larkspur, Balsam, Sinecio or Jacobœa, Cockscomb, Zinnia, and many others. See Catalogue, p.46.

FINEST LAWN GRASS SEEDS.

These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 3*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

ROOTS FOR EARLY SPRING PLANTING.

Anemones, Ranunculus, Gladioli, Iris Germanica, Lilium, Tritonia aurea, Tigridia, Oxalis, Achimenes, Gloxinia, and a great variety of other roots. See Catalogue, page 57 and 58.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London termini and all stations on the Colchester line between London and Norwich.

CATALOGUES for the season to the present time sent free for three penny stamps.—Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury Post Office.

BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

GERANIUMS,

A LARGE AND FINE STOCK OF FIRST-RATE SORTS.

BASS AND BROWN have a fine and vigorous stock of the following at the annexed low prices:—

NEW SHOW GERANIUMS OF LAST SEASON.

The following 12 *for* 36*s.*, *or separately as priced*:—

Dobson's Silenus	5*s.* 0*d.*	Hoyle's Serena	5*s.* 0*d.*
" Laura	5 0	" Topsy	3 6
" Lydia	3 6	" Queen Eleanor	3 6
Lowe's Calliope	3 6	Story's Fair Helen	5 0
Foquet's Petruchio	3 6	Turner's Pandora	5 0
Hocken's Una ...	3 6	" King of Portugal	5 0

The following 20 *for* 28*s.*, *or any* 12 *for* 18*s.*:—

Carlos, Duchess of Wellington, Eliza, Empress, Glowworm, Governor-General, Hero of Devon, Leah, Lucy, Mary, Monte Christo, Neatness, Optimus, Pilot, Purple Perfection, Rebecca, Regalia, Rosa (Foster's), Sanspareil, and Virginica.

The following 20 *for* 14*s.*, *or any* 12 *for* 9*s.*:—

Admiral, Alderman, Ambassador, Brilliante, Butterfly, Conspicuum, Commissioner, Enchantress, Flying Dutchman, Ganymede, Jupiter, Kulla, May Queen, Mochanna, Nandee, Novelty, Portia, Prince of Orange, Rosa (Beck's), Spot.

NEW FANCY GERANIUMS OF LAST SEASON

The following 6 *beautiful varieties for* 15*s.*:—

Ayre's Sir Harry Smith	5*s.* 0*d.*	Ayre's Euphrosyne	2*s.* 6*d.*
" Exhibition	3 6	Lowe's Metis ...	3 6
" Gipsey ...	2 6	Henderson's Evening Star	3 6

The following 20 *varieties for* 28*s.*, *or any* 12 *for* 18*s.*:—

Barbette, Empress, Empress of France, Erubescens, Perfection, Triumphant, Lady Hume Campbell, Lady Downes, Madame Sontag, Magnum Bonum, Caliban, Darling, Fairy Queen, Gipsey Queen, Hero of Surrey, Marie Van Houtte, Marion, Odorata superba, Reine des Français, Vandyke.

Fine selection of Fancies, 9*s.* per dozen.

ACHIMENES, very fine varieties, per dozen ... 6*s.* to	10*s.*
GLOXINIAS, 18 superb new erect and other varieties ...	54
" 12 varieties of previous introduction ...	20
GREENHOUSE PLANTS, 50 fine varieties	45
" 50 extra fine, and selected ...	65
STOVE PLANTS, 25 superb and select varieties	45
ROSE—MADAME DESIRE GIRAUD, new Carnation-striped Hybrid Perpetual, each .. .	5
" 12 superb new varieties, including the above	40
POTENTILLAS, fine varieties, in pots, per doz., 6*s.*, 9*s.*, and	15
" King of Crimsons, the finest large crimson grown, of dwarf habit, each	5
" 8 new superb vars., including the above	21
HARDY CLIMBING PLANTS, in pots, 20 fine sorts ...	20
PHLOX, 20 fine vars., 10*s.*; 20 superior vars.	15
HERBACEOUS PLANTS, 100 fine and showy varieties, 30*s.*, or 50 for 17*s.* 6*d.*	
" 100 superior, including many new, 50*s.*; or 50 vars.	30

The above are all kept in pots.

A large stock of Bedding Plants in general.

CATALOGUE No. V. is now ready, and may be had on application, containing their superb Achimenes, Gloxinias, Bedding and Soft-wooded plants, &c.; also a List of New and Rare Plants of every class.

GOODS CARRIAGE FREE (not under 20*s.*) to all stations in London, and all stations on the Colchester line between London and Norwich. Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.

	s. d.
12 pairs of fine kinds by name	18 0
12 " extra fine "	24 0
Fine old Clove Carnations, per dozen pairs	12 0
Finest mixed Border Carnations and Picotees, per dozen pairs	9 0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.

" Fine mixed border ditto, 6*s.* per dozen pairs.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

NEW ROSES IN POTS.

WILLIAM WOOD AND SON have much pleasure in offering fine healthy plants of the following new ROSES in pots.

HYBRID PERPETUAL.

	Each—s. d.		Each—s. d.
Arthur de Sansalles	... 5 0	Marquis de Murat	... 5 0
Docteur Hénon ...	... 5 0	Mathurin Regnier	... 5 0
Duc D'Elchingen...	... 5 0	Pauline Lansezeur	... 5 0
General Pelissier ...	... 5 0	Pœonia	... 5 0
General Simpson ..	... 5 0	Souvenir de la Reine d'Angleterre	... 7 6
Josephine Ledechaux	... 5 0	Triomphe d'Avranches	... 5 0
Madame Dé-iré Giraud	... 3 6	Triomphe de l'Exposition	7 6
Madame Knorr ...	... 3 6		

BOURBON.

Impératrice Eugénie	... 7 6	Marquis de Balbiano	... 7 6

One plant each of the above for 4*l.*

HYBRID PERPETUAL—OLDER VARIETIES.

Alexandrine Bachmeteff	2 0	Lafontaine	... 3 6
Amandine	... 1 6	Le Lion des Combats	... 1 6
Auguste Mie ...	... 1 6	Louise Odier ...	... 2 0
Caroline de Sansalles	... 1 6	Louise Peronny ...	... 2 0
Colonel de Rougemont	... 2 0	Madame Campbell d'Islay	1 6
Comtesse de Marennes	... 3 6	" de Cambacères	... 3 6
" Vaillant	... 3 6	" de Trottaire	... 3 0
Duchess of Norfolk	... 2 6	" Ducher ...	... 2 0
Duchess d'Orleans	... 2 0	" Lacour Jurie	... 3 6
Duchess of Sutherland	... 1 6	" Theodore Martell	3 6
Empereur Napoleon	... 5 0	Marquis of Ailsa ...	... 1 6
Eugène Guinoisseau	... 3 6	Mrs. Harrie Beecher Stowe	2 0
Geant des Batailles	... 1 6	Mrs. Rivers ...	... 2 0
General Castellane	... 2 6	President Menonx	... 3 6
" Jacqueminot	... 2 6	Prince Chipetouzikoff	... 2 0
Gervais Rouillard	... 1 6	Prince Léon ...	... 2 6
Gloire de France ...	... 2 0	Queen Victoria ...	... 2 0
Jules Margottin ...	... 1 6	Souvenir de Leveson Gower	2 0
Julie Guinoisseau	... 3 6	Triomphe de Paris	... 2 0
Lady Stuart ...	... 1 6	William Griffiths...	... 2 0

Also other fine sorts of Hybrid, Perpetual, China, and Noisette Roses, at 12*s.* to 18*s.* per dozen.

N.B.—Plants presented for distant carriage. The usual discount allowed to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Arthur de Sansal	... 5*s.* 0*d.*	Pauline Lansezeur	... 5*s.* 0*d.*
Docteur Hénon ...	... 5 0	Prince Noir ...	... 5 0
Duc d'Elchingen	... 5 0	Souvenir de la Reine d'Angleterre	... 7 6
General Pelissier	... 5 0	Triomphe de l'Exposition	... 7 6
General Simpson	... 5 0	Triomphe d'Avranches	5 0
Joseph Ledechaux	... 5 0	Bourbon, Empress Eugénie ...	... 7 6
Madame Knorr	... 3 6		
Marquise de Murat	... 5 0		
Mathurin Regnier	... 5 0		

PERPETUAL MOSS.

Alfred de Dalmas, 5*s.*; Gloire d'Orient, 5*s.*; Madame de Villars, 5*s.*

12 of my own selection from above for 60*s.*, or 1 of each for 4*l.* 4*s.*

The following at the prices attached, or purchaser's selection 40*s.* per dozen; my own choice 30*s.* per dozen.

MOSS.

Baron de Wassenaer	3*s.* 6*d.*	Comtesse Doriat	... 3*s.* 6*d.*
Capitaine Ingraam	... 3 0	Frédéric Soulié	... 3 6

PERPETUAL MOSS.

Madame Edouard Ory	5 0	Salet	... 3 6

HYBRID PERPETUAL.

Baron Larray ...	... 3 0	Madame Theodore Martel ...	... 3 6
Belle Lyonnaise ...	... 2 6	Madame Vidot	... 3 6
Comtesse de Turenne	3 6	Marguérite Lecureux	3 6
Emperor Napoleon	... 5 0	Maxime ...	... 3 6
Evêque de Meaux	... 3 6	Monsieur Pigeron	... 3 0
Gloire de Vitry ...	... 3 6	Mrs. Standish...	... 3 0
Julie Guinoisseau	... 3 6	President Menoux	... 3 6
Madame de Trotter	... 3 0	Raphaël ...	... 3 0
Madame Lacour Jurie	3 6		

BOURBON.

Frilet	... 3 6	Marguérite Dubourg...	3 6
Isabelle II. ...	... 3 6	Omer Pacha ...	... 3 6

NOISETTE.		CHINA.	
Augusta ...	... 5 0	Lucullus ...	... 3 0
Polonie Bourdin	... 3 6		

TEA.

Auguste Vacher	... 3 0	Louise de Savoie	... 3 6
Blanche de Solleville...	3 0	Madame Maurin	... 3 0

The following at 20*s.* per dozen:—

MOSS.

D'Arcet... ...	... 2 0	Marie de Blois	... 2 0
L'Eblouissante	... 2 0	Princess Alice...	... 2 0
Jeanne de Montfort	2 0	Vandael ...	... 2 0

HYBRID PERPETUAL.

Alfred Colomb	... 2 0	Madame Lacroix	... 2 0
Alphonse de Lamartine	2 0	Marie de Bourges	... 2 6
Auguste Guinoisseau	2 0	Panachée d'Orleans	... 2 6
Cicero	... 2 0	Prince de la Moskwa	2 6
Conseiller Jordeuil	... 2 0	Prince Léon ...	... 2 6
Dr. Jamain ...	... 2 0	Souvenir des Braves	... 2 6
Duchess of Norfolk	... 2 6	Souvenir de Leveson Gower ...	... 2 0
General Jacqueminot	2 6	Triomphe de Paris	... 2 0
Jules Margottin	... 1 6		

BOURBON.

François Herincq	... 2 6	Reine Hortense	... 2 0

TEA.

Gloire de Dijon	... 2 6	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12*s.* to 15*s.* per dozen.

Carriage paid to any station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA, and within the last week they have supplied some RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

SPLENDID CALCEOLARIAS FOR BEDDING.

MESSRS. YOUELL AND Co. beg to invite particular attention to the following list of SHRUBBY CALCEOLARIAS, which they confidently recommend; it comprises all the most beautiful and brilliant varieties in cultivation.

	Per dozen—s.	d.
Ajax, a fine large rich-coloured flower, of crimson and yellow	9	0
Beauty of Montreal, bright crimson, small flower, an effective and very excellent bedding variety	6	0
Correggio, orange buff, shaded, free, large, and very showy, a first-rate bedding variety	9	0
Crimson King, rich plum crimson	6	0
Empress Eugénie (Youell's), a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety; the habit is robust, flowers large, and well formed ... ... Each	1	6
Golden Chain, fine golden yellow ... ... per dozen	6	0
Gold Cap, rich dark maroon, deep yellow cap...	6	0
Integrifolia, an old but favourite variety of erect habit, producing clusters of small yellow flowers	5	0
Kentish Hero, orange buff	6	0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety ...	9	0
Magnificent, rich crimson, with yellow crown...	6	0
Masterpiece, deep maroon...	6	0
Matchless, dark brown red	6	0
Model, brown shading off to orange yellow at the edges, extra	9	0
Mr. White, rich shining bronze red	6	0
Purity, colour pure white, the best exhibited last season, fine habit, with large trusses of flowers, strongly recommended for bedding	9	0
Red Rover, bright crimson shaded with orange, large and free flowerer, fine habit...	9	0
Shankleyana, large orange crimson	6	0
Sulphurea splendens, fine large yellow, fine for bedding ...	6	0
Sultan, fine large crimson	6	0
Superba (Turner), fine dwarf, dark crimson, extra fine ...	6	0
——— (Constantine), dwarf crimson	6	0
Surprise, bright orange crimson, extra...	9	0
Variabilis, an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white	9	0
Vezzosa, flowers large and fine formed, of a bright orange and crimson, shaded with large trusses, flowering abundantly, and a splendid habit, extra	9	0
Viscosissima, deep yellow	6	0
Wellington Hero, fine golden yellow	6	0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra	9	0
Oxalis rosea and floribunda, two beautiful and hardy herbaceous bedding plants of dwarf habit, producing throughout the season a profusion of rose coloured flowers	6	0

YOUELL & Co. have also to offer a brilliant collection of Verbenas, Geraniums, scarlet and variegated, of sorts; Petunias, Lobelias, Fuchsias, Anagallis, Antirrhinum, Delphiniums, Heliotropes, Pentstemons, Pansies, and other Bedding Plants of the most select kinds, at 4s. and 6s. per dozen.

All Orders of 2l. and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

MESSRS. JOHN WEEKS AND CO. have the satisfaction of acquainting their patrons and the public generally, that their new HELIOTROPIUM GIGAS will be sent out in good well established plants on the 1st of June this year.

The leaves of a well-cultivated plant are 1 foot in length, and 6 inches wide; the flower, of a pale and dark violet in colour, is of enormous size. Specimens can daily be viewed at the nursery. Price 10s. 6d. each. A select list of novelties in the exclusive possession of their firm will shortly be published.

Horticultural Establishment, King's Road, Chelsea.—May 3.

AZALEA INDICA.

HUGH LOW AND CO. have to offer very fine healthy plants of INDIAN AZALEAS, in small pots. They are all unusually well set with flower-buds, having from 10 to 20 on each plant. Price 30s. to 42s. per dozen. The undernamed, with many other varieties, can be supplied:—

Alba magna	Magniflora
Albertus	Magnificus, the finest white
Beauty of Europe, the finest striped variety in cultivation	Optima
Bellerophon	Perryana
Coccinea major	Præstantissima
Exquisita	Prince Albert
" pallida	Queen Perfection
Fulgens	Reine des Belges
Formosa (Ivery)	Salopensis
Iveryana	Trotteriana
	Vittata

Clapton Nursery, London, May 3.

FLOWER SEEDS.—*We have selected out of our large Collection of Flower Seeds twenty of the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in groups or beds in the Flower Garden. The German Stocks, Asters, Larkspurs, and Wallflowers especially are most superb. The Collection will be sent free by post to any address, price 5s.*

The following unsolicited testimonials will give some slight idea of the high repute in which our seeds are held:—

"I beg to inform you that the German Stocks and Asters you sent me last year met my entire satisfaction, for I had a most splendid show; they were admired by every one who saw them."—*Mr. John Eyre, of Long Buckby.*

"The Wallflower seed you sent me is much finer than ever I saw before; they are grand in the extreme—spikes of flowers 12 inches long."—*Mr. Cleeton, Gardener to E. Holland, Esq., M.P., Dumbleton.*

"The German Stocks and Asters have given general satisfaction, having surpassed all I have yet seen, both for brilliancy of colour and compactness of bloom."—*Mr. Vertegans, Florist, Edgebaston, Birmingham.*

"The German Stocks came up to your recommendation; they gave me great satisfaction, and many friends who visited the gardens asked me where I had the seed from."—*Mr. Barlass, Gardener to T. B. Le Baker, Esq., of Hardwicke Court.*

"The German Stocks and Asters you sent to the Heath last year were really good."—*Mr. Chapman, Gardener, The Heath, Cardiff.*

J. C. WHEELER & SON, Seed Growers, Gloucester.

CHOICE VARIETIES, ALSO GOOD PLANTS.

MITCHELL AND CO. are now sending out the following good plants, consisting of first-rate varieties, viz.:

NEW FUCHSIAS, consisting of Story's New White Corollas; all other first-rate varieties, 10s. 6d. per dozen, basket included.

VERBENAS.—A first-rate collection, none but the best of 1855, 6s. per dozen, or four dozen for 20s., basket included.

CALCEOLARIAS, Henderson's and Turner's new varieties of 1855, 12s. per dozen, hamper free; older varieties, 4s. per dozen, or 6 for 21s., basket free.

DAHLIAS of 1855 & 54.—Our own selection of the following first-rate varieties:—Lord Bath, Pre-Eminent, Ruby Queen, Baron Alderson, The Nigger, Emperor, Napoleon, Omer Pacha, John Keyne's Rachel Rawlings, Primrose Perfection, Topsy, Uncle Tom, Miss Pope, &c., 12s. per doz., package free; older well-known varieties, 6s. per doz., or 4 dozen for 20s., basket included.

LOBELIA SPECIOSA, the best blue dwarf bedding variety, 6s. per dozen.

PETUNIA IMPERIALIS, Double White, first-rate for bedding, True, 6s. per dozen; True Crimson Clove, 6s. per dozen; Prince of Denmark, bright Scarlet Clove, 6s. per dozen.

PETUNIAS.—A Choice Collection, 4s. per dozen.

Pinks, our collection consists of all the best show varieties, 4s. and 6s. per dozen.—Carnations, first-rate varieties by name, 12s. per dozen pairs.—Picotees, 12s. ditto.—Tree Carnations, our collection stands unrivalled; our own selection, good strong plants, 12s. per doz., trade price per 100 upon application.—Phloxes, first-rate sorts, 6s. per dozen.—Phlox Drummondi Radetzky, 6s. per dozen.

Post Office Orders are respectfully requested from unknown correspondents payable to JOHN FAIRBROTHER. All orders over 20s. are delivered free in London, or to any station on the London and South-Coast Railway.

Bristol Nurseries, Kemp Town, Brighton.

SUPERB VERBENA.

JOHN COLE begs respectfully to offer a few Plants of his beautiful VERBENA CERISE UNIQUE, cerise, with a conspicuous light eye, for form of pip and truss unsurpassed. J. C. flatters himself it will please everybody. Pronounced by many eminent judges, including Messrs. Turner, Fraser, and Edwards, of the Wellington Nursery, first-rate. 2s. 6d. per plant; six plants for 10s.

Also his hybrid Tropæolum odoratum, a fine bedding plant, or for pillars; also for pot culture, perfuming the conservatory equal to the sweetest Tea Rose. 2s. 6d. per plant.

A remittance solicited from unknown correspondents.

Keyfield Nursery, St. Alban's, Herts.

NEW ROSE-COLOURED DAHLIA PRINCESS.

ROBERT REA, Ipswich Nursery, Ipswich, begs to announce that he intends sending out, the first week in May, strong plants of the above new Dahlia, at 10s. 6d. each, with the usual discount to the Trade. PRINCESS is a constant, true, and very rich rose-coloured flower, quite distinct from anything; centre well elevated, close, symmetrical, and full petals slightly cupped; perfect outline, good to the last. The finest rose-coloured Dahlia ever offered.

R. R.'s Catalogue of Dahlias, &c., is now ready, and may be had on application.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10s. 6d. each, with the usual allowance to the trade when three are ordered.

Huntingdon Nurseries, May 3.

HORTICULTURAL SOCIETY OF LONDON,

21, REGENT STREET, May 1, 1856.

At the ANNIVERSARY MEETING held this day it was Resolved that the SUBSCRIPTION for the Maintenance of the GARDEN be kept open till TUESDAY, June 24, the sum of 2773*l.* 10*s.* having been already Subscribed.

The following additional Subscriptions have been received since last week:—

G. F. Heneage, Esq., M.P.	£10	0	0
Mrs. Mason	10	0	0
Joseph Edlmann, Esq.	10	0	0
John Smith, Esq.	10	0	0
D. B. Chapman, Esq.	21	0	0
Henry Sich, Esq.	10	10	0
Colonel Robert Ferguson, M.P.	25	0	0
A. W. MacTier, Esq.	10	10	0
T. Gambier Parry, Esq.	20	0	0
John Henry Hedge, Esq.	5	0	0
J. B. Nichols, Esq.	10	10	0
C. D. Bruce, Esq.	5	5	0
H. Hobhouse, Esq.	5	0	0
B. Edgington, Esq.	10	0	0
Sir Walter C. Trevelyan, Bart.	20	0	0
John Clough, Esq.	10	0	0
Mrs. Cotton	5	5	0
H. T. Leigh, Esq.	5	0	0
F. H. S.	2	2	0
Henry Pouncy, Esq.	5	0	0
William Graham, Esq.	5	0	0
H. J. Brook, Esq.	20	0	0
Mr. Joseph Henderson	2	2	0
Lady Grenville	20	0	0
Neill Malcolm, Esq.	25	0	0
Lady Dorothy Nevill	10	0	0
Charles Dorrien, Esq.	10	0	0
Sir Thomas Parkyn, Bart.	10	0	0
Thomas Grisell, Esq.	10	10	0
Geo. G. Sandeman, Esq.	21	0	0
Sir W. M'Arthur (Sydney)	10	0	0
Mr. M'Ewen, Arundel	5	5	0
W. S. Gillett, Esq.	10	0	0
James Browning, Esq.	5	5	0
M. C. Maxwell, Esq.	10	0	0
G. R. G. Ricketts, Esq.	2	2	0
Thos. Farmer, Esq.	10	0	0
W. Wilshere, Esq.	10	0	0
Sir G. Carroll	10	10	0
B. Attwood, Esq.	20	0	0
S. Holmes Godson, Esq.	10	0	0
C. W. Strickland, Esq.	10	0	0
W. Leaf, Esq.	25	0	0
Mr. Jas. Cuthill	1	1	0
Jas. Montgomery, Esq.	10	0	0
E. Barnard, Esq.	10	0	0
C. B. Warner, Esq. (additional)	5	5	0
M. T. Bass, Esq.	10	0	0
Thos. Wood, Esq.	5	5	0
H. Vernon Harcourt, Esq.	10	0	0
Lady Frances Harcourt	2	0	0

MESSRS. E. G. HENDERSON & SON

ARE now prepared to forward their NEW SPRING CATALOGUE, and parties who have not hitherto favoured them with orders can have the same sent free on application. This useful book has been compiled with the utmost attention, and while it notices the latest novelties, gives only such varieties of each class as can with safety be recommended. It should be in the possession of every Amateur and practical Gardener, either for reference or perusal, the simplicity and correctness of its arrangement being a decided improvement on anything of the kind hitherto brought before the public. In addition to the above-mentioned novelties, &c., it contains descriptions and colours of 500 Stove, 700 Greenhouse, and 1000 other Plants of Miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c., with short and select Lists of those varieties best adapted for the various purposes connected with the Stove, Greenhouse, and Garden, full descriptions of the following and many other novelties are given in it.

With the above will also be published a Coloured Plate, representing a group of Nine new Plants, and can be had post free for 12 stamps.

CRYSTAL PALACE SCARLET BEDDING DAHLIA.
HENDERSON'S FAVOURITE VERBENA, GEANT DES BATAILLES.
HENDERSON'S FAVOURITE PETUNIA, COUNTESS OF ELLESMERE.

	s.	d.		s.	d.		s.	d.		s.	d.
Azalea Admiration ...	5	0	Croton discolor	5	0	Perpetual flowering Carnations			Phlox Madame Fontaine		
" Criterion	5	0	Cuphea eminens			Pampas Grass (Gynerium argenteum) each	1	6	Pyrethrum carneum ...	1	6
Boronia Drummondi 2s. 6d.	3	6	Chrysanthemums, best six flowered last year			Petunia, new flaked and striped flower			(See leading article at p. 259)		
Bouvardia longiflora			Chusan Palm	5	0				Pretty Polly and Virginia Bedding Geraniums		
Clematis cœrulea odorata			Delphinium cardinale ...	10	6				Select Achimenes and Gloxinias		
Calceolaria Purity ...	1	6									

PETUNIA IMPERIALIS, now in flower at the Wellington Nursery, a fine free flowering double white, centre well up and full; form, a half globe.

MADAME DESIRE GIREAUD, and other fine new Roses of 1856, 5s. each.

DUCHESSE DE CAMBACÈRES, ditto ditto ditto 1855, 2s. 6d. each.

VERBENA IMPERATRICE ELIZABETH (pulchella Maonetti).

A distinct species, with elegant laciniated foliage, and beautiful compact creeping habit, will prove quite a new feature among Verbenas. It is admirably adapted for planting in vases and ornamental baskets, as well as for groups and edging; the plant is well covered with flowers, the trusses (although small in comparison with other Verbenas) are large in proportion to its elegant foliage and habit; the colour is violet rose, with pure white flakes down each side of the petal, forming one of the most beautiful striped Verbenas in cultivation, 1s. 6d. each; 100s. the hundred.

Wellington Nursery, St. John's Wood, London.

The Gardeners' Chronicle.

SATURDAY, MAY 3, 1856.

THE VINE DISEASE still lingers among us, and continues to destroy the crops of the inexperienced. Hardly a week passes but something is heard of its appearance, and of the alarm it creates in the minds of those who know not how to arrest its further progress. It is, however, as certain as anything in natural history that its irresistible enemy is sulphur, dusted copiously upon the parts affected as soon as it appears, the precaution being previously taken to syringe the Vines. For gardens this is so ready and simple a plan that others are superfluous. We therefore by no means agree with the author of a recent pamphlet upon the subject that "empirical nostrums can have no place in a case of this kind and ought to be rejected." On the contrary the case calls for the application of any remedy which answers the purpose, whether we can account for its mode of action or not. Sulphur is such a remedy, and it would be folly to refuse to employ it merely because we do not know why it kills our enemy.

While we say this we are by no means insensible to the necessity of searching diligently for the cause of the disease. We fully admit that it is of great

importance to learn if possible why the Vine has become of late years a prey to a malady till now unknown, for doubtless it is better to prevent illness than to cure it. We therefore willingly listen to Mr. Dow's account of what he supposes to be the origin of the matter in the vineyards of Portugal.

This gentleman, who appears to be an Oporto merchant, is of opinion that it is bad management which has brought the constitution of the Vine into a state which predisposes the plant to receive morbific influences which it was formerly able to resist.* After stating that out of 26,000 pipes of wine of the last vintage not more than 4000 are exportable, the evil evidently becoming aggravated in each succeeding year, he observes that :—

"There are several circumstances which lead to the opinion that the proximate cause of this so-called disease is to be found in some abnormal condition of the atmosphere, in conjunction with a diminished power of resistance, from other causes, in the Vine itself."

In support of the opinion that the fungus was derived from the atmosphere, and that the weakly or unhealthy condition of the Vines was the cause of their being attacked, he produces the following evidence :—

"In the year 1854, on the appearance of the fungus on my Grapes (Muscatel and others), I at once cleared off every particle of it with a clean soft-haired painter's brush (pinzel), before it had time to fasten its root on the skin, on the juices of which it feeds and prevents its expansion, not only in this way, but by superinducing a state of cold several degrees below that of the surrounding atmosphere, kept up and increased in the sun's rays by the force of constant evaporation from its own cold, damp, white surface. It was quite visible that with this incubus it was impossible for the Grape to increase to its natural size, though sometimes it appeared to struggle very hard, and occasionally succeeded. I was, however, perfectly successful in ripening all my Grapes, by care and watching to clear off the fungus immediately after damp and fogs, on which occasions it generally again showed itself. I ripened even the delicate Muscatel which, in the five previous years, had been a total failure from other causes. Of this fact I invited many of my friends to become witnesses at the time, and which, if now dormant in their memories, I have no doubt they will at once recal. It is well known that scarcely a Grape was produced elsewhere in the city. I felt therefore warranted in concluding that those Vines were not in a state of disease, but that the fungus emanated from the atmosphere. To still further test their state of health, I took several cuttings from the infected branches and planted them out in the spring of the present year. They have nearly all taken root, grown well, and shown no sign whatever of fungus on their leaves, for fruit of course they have none. It has also been observed that, on Vines infected with the disease, bunches of Grapes and branches of the Vine, well-sheltered especially from above, have escaped, while all the rest of the Grapes on the same Vine have been destroyed. Singularly enough, bunches of Grapes growing near the earth, and even resting on it, have not been touched by the fungus, while the rest of the Vine standing higher in the air has suffered severely. Many Vines in the Alto Douro have escaped altogether, though surrounded on all sides by infected Vines, probably through possessing constitutionally a greater power of resistance to the atmospheric fungus. There are also other wine districts in the direction of Almeida, which have not been hitherto visited by the fungus, whose production has been regular, and even in this present year, abundant."

"It has never been the practice," he adds, "to apply manure of any kind to the Vines of the Alto Douro, and I believe, with just reason, as the manures usually talked of *are too gross and heavy*, and are quite incompatible with the great delicacy of pure Douro wine. The amount of produce carried off at the end of every vintage is not greater than can be supplied, in ordinary years, *by the disintegration of the soil* effected by the operations of the farmer in hoeing and breaking it up, so as to expose it to the constant action of the weather and atmosphere. To assist these operations, rain is most essential during the winter to act as a solvent in reducing the natural nourishment derived from the soil to a state in which the spongeolets of the roots will easily absorb it in the spring; and if I can show that this important condition was wanting for three successive winters—1848-49, 1849-50, 1850-51—and that a large proportion of the farmers, being poor from the low prices obtained for their wines for some years previously to 1851, did not, or could not, afford the expense of the labour necessary to effectually prune their Vines, renew their stocks, and properly disintegrate the soil to effect the necessary exposure to the action of the weather, without which produce must decrease, I think these facts, with the excessive overproduction of the three years, 1846-47, and 48, will go far to account for a considerable degree of weakness that had been observed in the Vines generally before the fungus made its appearance in 1853."

In 1851 the rain came down in October and lasted with little intermission till May 1852, of which year the spring was cold, wet, and late. In May vegetation became rank and luxuriant; the Vines produced branches of twice or thrice their usual length, and formed leaves of enormous size; these Vines were little pruned, and so the evil kept increasing :—

"In its altered condition after this inundation," adds Mr. Dow, "the Vine was well prepared in the following year to become an easy prey to the Oidium Tuckeri, which, unlike other fungi, except mildew, which it resembles, is not so ceremonious as to wait till its victim is dead and decaying before making its attack, but appears, on the contrary, to fasten on its living juices with a pertinacity so great that the weakened resistance of the Vines generally has not been able to shake it off. In cold and damp localities, where vegetation was most rank, it appears to have revelled in excess."

"The average annual production of the Douro district throughout the century, as published, has been about 70,000 pipes until the years 1846-47, and 48, when it rose to the extraordinary average quantity of 106,000 pipes, that of 1848, the last of the series, being 111,000 pipes. This extreme overproduction could not but be an additional cause of future weakness. The three following years brought no rain of any consequence. For three successive months in the depth of each winter we had dry easterly winds, sunshine, and no rain whatever. Wells that had never been known to be dry gave no water. The electrical state of the air must have been abnormal, for I do not recollect one thunderstorm during the whole of those three years. The vintages became comparatively short in quantity, the bunches of Grapes much smaller in size than usual, from the want of sufficient food."

What Mr. Dow considers to be the remedy for the present state of things is thus stated :—

"To strengthen the Vine, then, I should conclude must be the primary object of treatment, to enable it to present a greater power of resistance to the attack of the fungus, and this can only be done by a judicious system of pruning according to the actual sum of force in each Vine; the general mode of pruning having had quantity rather than strength for its object, necessarily produced weakness; the soil ought not only to be cleared of Grass and weeds, but they and the prunings should as early as possible be burned, and the ashes scattered over the vineyard, for the roots of the fungus must in certain localities be in the soil, which ought to be broken up with hammers and pickaxes to change its surface—an operation much neglected by all—to effectually expose it to the action of the weather, and to dissolve its elements. Every year, in the end of June and beginning of July, all defective and ill-formed Grapes and bunches should be *removed and buried around the Vines, one foot in depth, along with all the superfluous shoots or branches broken into small pieces*, which only weaken while on the Vine; but when buried in this green state, at that time, *are decomposed in less than thirty days, and return again into the Vine to immediately increase its force*, and if annually practised, to maintain its vigour, as trees are maintained in a forest for centuries by the annual decomposition of their own leaves. In other wine countries this practice is adopted with the very reasonable view of restoring back to the soil some part of its produce instead of carrying off the whole, as has been the uniform practice here for time immemorial. The Argol (Sarro), an element of the soil and of the wine, and nitrate of potash, if judiciously and sparingly spread among the Vines, and mixed with the soil in small pieces (not pounded), would also be of great service in recovering them from their present prostrate condition; but the *chief reliance must be in a due disintegration of the soil to change its surface, and reduce its elements to a state in which they can be easily assimilated.*"

"Were these views immediately adopted, and diligently carried out every year, I can scarcely doubt that the Vine will speedily recover its strength, be preserved in health and vigour, and flourish as formerly; but should unfortunately nothing be done, as there is too much reason to fear, from the very diminished means of the great body of the farmers to carry out any effective system, I am afraid the future results will be still more disastrous."

It must be owned that these recommendations are such as evince much knowledge of the constitution of plants; they are those of a practical man; and cannot fail to produce an important effect upon the vineyards where Mr. Dow's advice is listened to. Had he recommended the heavy lands to be thoroughly drained 4 or 5 feet deep, still better results might be expected. We have ourselves seen how greatly the Potato disease, a perfectly analogous malady, has given way before the influence of good cultivation, and it is hardly to be doubted that similar happy consequences may be expected in the case of the Vine.

Our own gardeners will do well to study carefully what Mr. Dow suggests, for there can be no doubt that what he recommends for a vineyard is equally true of a Vinery. They may also learn that experienced men in the countries where the Vine is most at home do not recommend dead horses, dead pigs, and all sorts of garbage to be introduced into the soil. On the contrary, he writes as if he had been a pupil of our skilful friend at Lois Weedon.

* An inquiry into the Vine Fungus, with suggestions as to a remedy, by a 23 years' resident in Portugal. Saunders & Otley. A pamphlet of 16 pages.

A very remarkable trade catalogue is now before us, containing a greater number of hardy novelties than we have before seen recorded in any one nursery list. We allude to a priced enumeration of the Japanese plants actually cultivated in the nursery of Siebold & Co., of Leyden. As is well known, the Dutch monopolise the intercourse of Europeans with Japan, the country most in climate like our British isles, but resplendent with a vegetation infinitely richer and more varied than our own. Camellia, Cephalotaxus, Cryptomeria, Aucuba, Chimonanthus, Clematis, and Pyrus japonica sufficiently indicate how beautiful and hardy is the Flora of Japan, to say nothing of Weigela, Forsythia, and the whole race of Moutans. Availing themselves of their commercial privileges the Dutch have sedulously occupied themselves with the acquisition of everything most worthy of introduction to Europe, and the result is already a total number of 3 or 400 species and varieties offered for sale by the firm above mentioned. Of so curious an assemblage we are sure that a brief account will be interesting to all lovers of gardens. We shall however confine our remarks to what are represented to be hardy races.

In the first rank stand Conifers, among which we find four species of *Cephalotaxus*, *Juniperus japonica* and *procumbens*, *Pinus densiflora* and "the true" *P. Massoniana*, *Podocarpus Coraiana*, *Retinospora squarrosa*, and that famous *Thuja dolabrata* mentioned the other day by our correspondent "R." (p. 261). The last however has no price attached.

Among forest trees are mentioned two Sycamores, Acer japonicum and polymorphum, the stock of which is held by Van Houtte, and Ulmus Kejaki, which we are assured furnishes the most valuable timber known in Japan.

Fruit trees comprehend a very early Apricot called *Armeniaca Mume*, whose early rose-coloured flowers are extremely ornamental, while the fruit, owing to the firmness of the flesh, is particularly well adapted for preserving. There is also a plant allied to *Pyrus japonica*, named *Chœnomeles umbilicata*, thus described: "The fruit of this variety is perfumed like Violets, and in the hands of the confectioner surpasses in flavour all the fruit in our gardens." Mention moreover is made of a Japanese variety of Peach.

Small flowering trees and shrubs form a considerable part of the catalogue. The following appear to be the most remarkable:—*Acacia Nemu*; a weeping Apricot named *Armeniaca pendula*, whose branches are described as falling almost perpendicularly; a new variety or two of *Aucuba japonica*; *Catalpa Kœmpferi*; a Judas tree, *Cercis chinensis*; *Corylopsis spicata*, a small bush resembling the Hazel; *Weigela hortensis*; *Indigofera Iwafusi*; a variety of *Kölreuteria japonica*; a new Privet; *Litsœa glauca*, a yellow-berried Laurel; *Malus Toringo*, *floribunda*, and *Rinzo*, three dwarf Apples, abundant flowerers well adapted for forcing; *Rhus Osbeckii*, "on whose leaves galls are formed of better quality than those of Aleppo;" *Ligustrum Ibota*, the true wax Privet, on which the wax insect (Asiraca cerifera) naturally feeds; two Roses called Iwara and Camellia; *Spiræa rupestris*; *Tamarix chinensis*; and a great many sorts of Tree Pæony.

Climbing shrubs include *Tecoma Thunbergii*, the true *Bignonia grandiflora* of Thunberg; some new Wistarias; *Aristolochia Kœmpferi*, and *Ampelopsis heterophylla*.

Finally, there is a considerable number of herbaceous plants, among which are included several new kinds of *Funkia* and *Lilium*, a Burdock called *Lappa edulis*, the roots of which are eaten like Scorzonera; a couple of Irises; *Polygonatum japonicum*, whose roots are a substitute for Aspa-

ragus; a *Polygonum* called *Sieboldi*, recommended as a green crop for cattle food, as an excellent bee plant, &c. &c.; and the Chinese Yam, which M. SIEBOLD calls *Dioscorea opposita*, and to the hardiness of which he fully testifies. He also offers seeds of the Soja japonica, the real plant from which the sauce called Soy is prepared.

We doubt not that all these things will soon be in our own nurseries for sale; some indeed are already announced as having been acquired by "Mr. HENDERSON" and "Mr. E. G. HENDERSON."

THE Entomological Society of France has just elected Mr. JOHN CURTIS, our veteran English entomologist, an honorary member of their learned body. Considering that this Society admits but six honorary members, among whom stand such men as HUMBOLDT, LÉON DUFOUR, and the Marquis SPINOLA, and that the late Mr. KIRBY and Mr. CURTIS are the only Englishmen on whom the honour has been conferred, the recent election must be considered a very graceful as well as important recognition of solid merit. It give us the more pleasure to record it, coming as it does when blindness is about to render all future labour on the part of Mr. CURTIS impossible; and when therefore it is most especially consolatory to find that the devotion of a life to science is appreciated by those best able to measure its value.

New Plants.

171. FUCHSIA PANICULATA.

F. foliis ovato et obovato-lanceolatis subdentatis ramisque glabris, paniculâ (parviflorâ) pyramidali, petalis patulis lineari-cuneatis tubo calycis dimidio brevioribus, stigmate capitato quadrilobo.

Very nearly allied to the almost forgotten F. arborescens, from which it differs in its pyramidal inflorescence, much smaller flowers, and small obovate or ovate-lanceolate leaves. The flowers are wine-red and in mass pretty. It was exhibited by Messrs. Veitch at the last meeting of the Horticultural Society. Mr. Skinner sent home the seeds from Guatemala. It appears to be the "Fuchsia sp. arborescens flore purpureo bacca nigra; Cuesta grande de Jalacingo, reg. temp. Dec. 28" of Deppe's Mexican collections.

VEGETABLE PATHOLOGY.—No. CXIX.

475. CLADODYSTROPHIA* (*Stag's head*).—This word adopted from Ré, though not very harmonious to English ears, expresses exactly the main feature of the disease under consideration, known by the French under the name of Couronnement or Décurtation.† All trees may be subject to the affection, but it is the Oak which more especially suffers from it, and in which it is most conspicuous. It is a malady which is popularly recognised, insomuch that a wood in my own neighbourhood, in which almost every Oak of any age is stag-headed, is known by the name of Hornstock, in allusion, as it is said, to the condition of the trees. Whether the etymology is correct or not, the interpretation at least shows the prevalence of the disease. The Oak though extremely long-lived, like other timber trees after a certain number of years attains its full maturity and perfection, beyond which, though it may live for centuries, decay of greater or less importance commences, increasing year by year till the timber is perfectly useless for the purposes of art. It has always been a question, what is the age at which the Oak must be cut down, so as to have the timber in full perfection, and beyond which it is not wise in an economical point of view to let it stand. The question perhaps does not admit of a very ready answer, but it is certain that when the terminal branches show the least sign of decay, the tree will make no more profitable growth, and should at once be felled. On estates liable to impeachment of waste, this is a safe rule, and one which within my own knowledge has been strictly carried out; and I have learnt from a person of the soundest judgment and most extensive experience in such matters, that if a tree under such circumstances is left till the course comes round again, which is usually one of fourteen years, material injury is always found to have taken place in that period. Where the eye is practised, and the rule properly carried out, it is probable that the timber will be cut down almost at the proper moment. In such cases the decay of the terminal branches is due to the energies of the plant beginning to give way, insomuch that nutriment is not conveyed to them with the same certainty and rapidity as before, and in consequence the buds are not properly developed, the terminal shoots themselves perish, and decay at last attacks the branch from which they spring.‡ This may be the case where the soil itself is congenial, and other circumstances are favourable to growth. The disease however which is more especially under consideration is not that of trees which have arrived at perfection and are beginning to fail, but of those which have not attained a third of their proper dimensions when decay sets in. The circumstances under which this occurs are totally different from those which have been just mentioned. It is well known that the Oak will not flourish except the soil is suitable. Oaks of enormous size occur in very different soil, but it is necessary that it should be rich and strong, with proper depth, and that there should be a fitting subsoil. It should in the first place be calcareous; but if this condition is secured, it is of no great consequence whether it is a deep loam or clay, for noble trees may be found under both conditions; and even where the soil itself is thin, the Oak will flourish provided the tap root can strike into some vein of marl or other congenial matter. Where however the soil is thin and poor, and at the same time the subsoil is unsuitable or impenetrable, the trees can never attain good dimensions, but after a few years will show inevitable signs of decay in the leading shoot. It is perfectly useless to leave them after this takes place, but it is also evident that the wiser course is to destroy such woods altogether and convert the soil to some more profitable culture. The evil is not in general due to bad management but is inherent in the soil itself.

476. Before leaving the subject it may not be out of place to recommend a matter for investigation to those landholders who may chance to have woods in which the trees are naturally stagheaded. It is believed that certain roots have an especial relation to certain parts of the tree, and that any injury to such roots must affect that part of the tree which corresponds with them. It is probable that the notion is well founded, and if so, supposing the tap-root to become unsound or diseased, corresponding injury might be expected in the leading shoot. It would be worth while, therefore, where woods are much affected by this malady, to examine the condition of the tap-roots, which can only be done at some expense of time and labour by large proprietors.§ The roots of Oaks are not in general subject to decay like those of many other trees, but even they cannot continue sound for ever; and as the tap-root is the first formed, it is most likely in the natural course of things to give way first, and if so the destruction of the leading shoot will probably follow. *M. J. B.*

* From κλάδος a branch, δυς badly, and τρέφω to nourish.

† See Léveillé in "Bon Jardinier," 1852, p. 198. The words are also applied to accidental loss of the leading shoot, and to Pollarding.

‡ In some trees which have no well defined leader, where the main branches are horizontal, and vertical shoots are sent up from them, it is the tips of these shoots which at length fail as being at a greater vertical distance from the soil, and therefore having a greater height from which to derive their nutriment.

§ Where trees are felled by the axe without the assistance of the saw the tap-root is sometimes drawn to a considerable depth when the tree falls, and where the trunk proves unsound it will often be found covered with white mucedinous threads. Numerous observations therefore may sometimes be made without much trouble and with no expense.

NEW GARDEN FERNS.—No. XI.

22. GONIOPTERIS GRACILIS, Moore and Houlston, Gen. — and Sp. of Cult. Ferns, ined.

Fronds narrow-elongato-lanceolate, erect, pinnate below, pinnatifid and proliferous above; the lower pinnæ scarcely stalked, distant, deflexed, obliquely subhastate, *i.e.* obtusely oblong-ovate with a strong anterior and a slight posterior auricle, subcrenate; the central ones oblong-obtuse falcate, adnate, scarcely subhastate, slightly crenato-lobate near the base, otherwise entire; the upper ones shorter, confluent; rachis and the nerves beneath pubescent with minute forked hairs; sori uni- or bi-serial, the spore-cases intermixed with prominent forked hairs; barren fronds shorter spreading with more crowded pinnæ; fronds terminal, adherent.

This plant resembles and is undoubtedly allied closely to Goniopteris reptans, but it presents several marked differences. It is a larger and stouter plant with less disparity in the character of the barren and fertile fronds, the latter being more erect, arching and proliferous towards the point. The upper pinnæ moreover are almost always confluent and crowded, instead of

distinct and distant as they constantly are in G. reptans; and the pubescence of the rachis is of a different character, the hairs being short, instead of long and spreading; besides this the texture of the plant is stouter, G. reptans being considerably more lax and slender as well as more prostrate in habit. G. gracilis grows from a foot to a foot and a half long, having deep green fronds shining on the upper surface, the taller fronds abundantly fertile, and both these and the barren ones bearing proliferous buds from the rachis. The barren fronds, about half the length of the fertile ones, much resemble small fronds of G. asplenioides, and are not all like those of G. reptans. It is an elegant small evergreen hothouse Fern, a native of Jamaica, and has been introduced within a few years to the Botanic Gardens of Kew and Glasnevin. The species occupies an intermediate position between G. reptans and G. asplenioides. *T. M.*

ECONOMY OF WASPS' NESTS.

[FROM a description by the Rev. Professor Henslow, of specimens in the Museum at Ipswich. The article, though rather long, and relating to objects which our readers cannot see, is nevertheless too graphic to be advantageously curtailed.]

An illustration, in several portions—presently to be described, is placed in case No. 72 in the gallery. I may first remark that three species of wasp are common in the neighbourhood of Hitcham: viz, Vespa crabro (Hornet), Vespa rufa (Anchor-faced Wasp), and Vespa vulgaris (Common Wasp). The first generally selects or forms cavities in the trunks of rotten trees, or else chooses the open space beneath the roofs of cottages as a chamber for its nest; though instances occur of its building in holes underground. The other two almost always build underground, though occasionally in some convenient situation above ground. I am not certain that either Vespa Holsatica or Vespa Britannica are found in Suffolk. They both suspend their nests from the branches of trees and bushes. My observations having been made upon the three first-named, these remarks will refer to them, and more especially to the nests of the Anchor-faced and Common wasps.

No. 1. A cavity or nest-chamber in stiff clay soil, in which a small nest of the Anchor-faced wasp was suspended. This cavity has been preserved in two separate pieces, one with the base and the other with the roof, by enclosing the soil in plaster of Paris, and otherwise securing it from falling to pieces. It is the work of the wasps; whenever they leave the nest in search of fresh materials for enlarging it, or for food for the young, they carry out, embraced by their legs, a small pellet of earth, which they drop a short distance from the entrance hole; and thus the cavity is continually enlarged, the progress of the colony requiring the constant enlargement of the nest itself. Our stiff clay-drift being full of chalk and flint pebbles, the wasps are perpetually obstructed by these whilst they are enlarging their nest-chamber. By undermining them, and removing the surrounding earth, these pebbles subside to the bottom of the chamber, and there form a rude sort of pavement, immediately below the nest. This is shown on the left hand, in the bottom portions of the chamber. It often happens that a stone is too large to be readily undermined and allowed to subside to the bottom, before the wall or outer case of the nest has advanced up to it and around it. The stone in such cases is advisedly surrounded by and embedded in the materials of the nest, and at length fairly built into it. As the nest increases the stone is prevented, by props below and suspended above, from crushing the fragile materials in which it rests, and is ultimately to be found far within the nest, among the comb.

The roof or vault of the nest-chamber is on the right hand, and so tilted that the whole of the interior and the entrance hole at the top may be exposed as well as a portion of the surface of the soil, with the Grass on it, thus showing the depth at which the nest was suspended. The bases of some of the short columns by which this was effected may be seen adhering to the roof. The diameter of the nest being always somewhat less than that of the chamber in which it is suspended, a free passage is thus left all round the nest for the wasps to traverse it in every direction.

No. 2. A small nest of the Anchor-faced wasp, taken from the cavity just described. The very soft materials of which it is composed have apparently been procured from herbaceous stems, and not from either solid or rotten wood; though I believe it is generally considered this wasp and the hornet build their nests of the latter. I have often observed some of the layers of the shell-like patches on the surface of these nests when fresh captured, quite green and pulplike; such materials would naturally become brown and brittle when dry, as we here see them.

No. 3. A small nest of the Common wasp, which was suspended in a chamber not more than 12 feet from the last, and at about the same depth below the surface. As both were captured early in the season (21st August, 1854), they were still conveniently small for the purpose for which they are required; but they contained neither drones nor young queens, both of which only appear later in the year. This nest (like those of V. Holsatica and V. Britannica) is constructed from firm woody fibre, which the wasps may often be observed collecting from posts and window-sills. The wood fibre is completely masticated and mixed with a somewhat glutinous secretion, and thus forms a pulpy material like *papier mâché*, which these native paper-makers put to a purpose it would be hopeless for the more clumsy operations of the mill to imitate. Concentric laminæ of different tints are united in shell-like patches on the surface of the outer wall of these nests, and each of these patches becomes a segment of a sphere resting

upon others below, with a cavity intervening. The whole work is thus made very light, and at the same time is strongly bound together.

No. 4. Another smaller nest of the Common wasp is rather irregularly built, owing to the numerous obstructions from large pebbles in the soil. This has been divided vertically into two equal portions, to show the horizontal arrangement of the layers of comb with the cells open below and ranged in single layers. In beehives the comb is in vertical layers of double rows of cells placed back to back. The material of which the cells are composed is the same description of *papier mâché* as that which forms the outside case. The topmost layer is suspended from the case itself, and each of the others from the one above it, by columns or suspenders of the same material as the cells. The several layers do not come close to the outer case, except here and there where they are sometimes partially attached to it for support. A ready communication is thus kept up with the different layers, as the wasps have secured a continuous passage over the whole of the inside as well as over the outside of the nest-case. The entrance hole through the nest-case is generally somewhere about midway between the top and bottom—an (E) marks its position in each of the three nests here preserved. The cells are hexagonal, like those of the honey-bee, but are not destined to contain honey or any kind of food. They are constructed for the sole purpose of receiving each one egg from the queen mother of the whole colony.

No. 5. A small nest prepared by a queen wasp. This beginning, of what is afterwards converted by the neuters into such structures as those at Nos. 3 and 4, is often popularly regarded as the work of the so-called "solitary wasp," which in fact it is, but not in the sense intended. The solitary wasp who completed this elegant little structure was a queen, destined to become the fruitful mother of a whole swarm. Having secreted themselves during the winter in some crevice, the young queens come forth in spring, seek out convenient spots for laying the foundation of their colonies, and then set to work, each by herself, to build a nest. This little nest differs from the form which it afterwards assumes when greatly enlarged by the neuters. It consists of two thin outer coats suspended from a single point, and enclosing one small horizontal tier of about half-a-dozen to a dozen cells. The outermost of the two coats is little more than a hemisphere, and does not extend more than half way over the innermost, which is oval. The latter has rather a large opening below, which serves as an entrance hole. The queen deposits an egg in each cell; and these eggs soon produce maggots, or caterpillars. These caterpillars suspend themselves with their mouths downwards and close to the entrance of the vertical cells. Those first hatched are fed by the queen. The nectar secreted by the glands, on the under side and near the base, of Laurel leaves is much sought after by the queens at their first coming forth in early spring. If the weather prove propitious, the queens succeed in bringing a few caterpillars to maturity. Each of these, when full grown, spins a cocoon within its cell, closing the mouth of this with a delicate white silk covering; and then it passes to the chrysalis state. In a few days the young wasps emerge from their chrysalis state, gnaw their way through the silken cover, and after taking a little refreshment from their queen mother, are prepared to ease her of all fur her labour about the nest. This they speedily enlarge, whilst she continues to lay an egg in each of the new cells. In favourable seasons, wasp nests often attain very large dimensions, and a queen has been known to lay as many as 20,000 eggs! The wasps which proceed from those laid early in the season are called neuters, which are, as in the hive bee, imperfectly developed females. The males or drones have no sting, and are produced later. Their caterpillars occupy some of the lower tiers of cells, which are somewhat larger than those which contained the neuters. The lowest, or last formed, tiers are composed of still larger cells, and from these the queens, or fully developed females, proceed. I have counted as many as 500 young queens in a large nest. As each of these might (the following year) become the mother of 20,000 wasps, and as 500 times 20,000 are 10 millions, it is clear the world might soon be filled with wasps, if the possible rate of increase were allowed to take its course! A favourable, or (to any but entomologists) a rather disagreeable wasp season, seems to depend, in a great measure, on the young queens having struggled successfully through the difficulties of their early position, whilst preparing their nests, and feeding the caterpillars first hatched. If the weather prove unpropitious they do not succeed in rearing this first corps of assistants, and are thus left helpless and soon perish. This accounts for the great difference between the number of wasps in one year and another. Though thousands of young queens may be seen in spring, each prepared to produce her thousands of eggs, it does not necessarily follow that we shall have a plague of wasps in autumn. On capturing a nest the queen mother may readily be distinguished from her children subjects by her larger size. Late in the season, when the young queens have come forth, their mother is still distinguishable by her tattered wings and by other symptoms of old age, whilst her handsome daughters are as yet fresh and fair.

No. 6. A small nest of Vespa Holsatica, captured during last summer by W. Calvert, Esq., at East Bergholt. I have been informed by C. Bree, Esq., of Stowmarket, that he has met with nests of this wasp in that neighbourhood also. As before stated, I have not found it at Hitcham. The material of which this nest is composed is firm, and resembles that employed by Vespa vulgaris, but the mode of construction is different. Instead of the shell-like patches of which the outer case is composed in the nest of the common wasp, we have here a series of thin cases continued all round, one over-lapping the other, the innermost leaving a small entrance hole at the bottom. The present specimen is attached to a branch of Hawthorn.

No. 7. Nest of Vespa crabro, the "Hornet," in a cavity of an old Pollard Elm. This specimen is suspended between iron rods, and may be moved to show the lower parts. The material resembles that employed by the Vespa rufa, and is very tender. The nests of this large wasp never contain so many cells as those of moderate sized nests of V. vulgaris and V. rufa. When built in the hollow of a tree, or among Thatch, the hornets dispense partly or entirely with an outer case round the tiers of cells. In the present specimen the well-formed lower portions of the case may be seen, in which there is always an extensive opening at bottom. It is also distinct in two other places, where openings in the tree expose the nest to view. When a nest is suspended in free space, as beneath the thatched roof of a cottage, the case is then completed all round the cells. By waiting till the close of the season before capturing a hornet's nest, we shall find it well stocked with young queens and drones, but with very few neuters remaining. By pouring a little alcohol over two fine nests brought home on the same day, and placed on my study table, I discharged between 100 and 200 queens and drones from them, but there were scarcely half a dozen neuters. They came out in rather quick succession, and nearly all flew directly to the windows, where they were captured with a pair of forceps. By keeping the nest between himself and the light, the operator is in very little or no danger of being stung by the queens; but it is as well to be armed with a net in hand, in case a vicious neuter, declining to turn to the light, should be disposed to attack, as they sometimes will. In all cases, attacking wasps may be out-manœuvered by the operator standing perfectly still, and briskly agitating a hoop net at the end of a stick. They fly at the object in motion, and are readily caught. By acting on this knowledge, a Hornet's nest may be secured without danger in broad daylight. First capture as many neuters as possible, as they fly out or return, during three or four hours; then let one person begin to saw the tree, whilst another continues on the watch. If a hornet or two should be disposed to attack the sawyer, the sentinel must shake his hoop-net at them, gradually retreating at the same time; they are sure to turn upon him, and he must be clumsy indeed if he does not catch them. With the assistance of our village carpenter, and sometimes with the aid of one or two others, I secured seven hornets' nests in this village during one summer. Three of these were in the hollows of trees, which we cut down; a remarkably fine one (now in the Kew Museum) was obtained by sawing through the thatch and main rafter of a cottage roof, also taking away with it a portion of the wattles and stucco of the gable. There were not many active neuters about: the queens, however, uttered loud indications of their displeasure, but were too dignified to come out. We bore it off carefully, in an inverted position, in a cart. Fragile as such an object is, it is possible to transport it in safety to a distance, provided it be not entrusted to the tender mercies of railway porters! By acting as convoy to this (and a few others), I secured its safety; but shortly afterwards, on sending another beautiful specimen, firmly secured (as I supposed) in a hollow trunk of a tree, it arrived at Kew a mass of powder! These two were the nests to which I have alluded as being on my study table on the same day, and from which I discharged the hornets by means of alcohol. *J. S. Henslow.*

Home Correspondence.

The Horticultural Society.—I have been waiting to see how those great gardeners would act, in reference to this Society, who have derived immense benefits from it and have taken their hundred pounds a year from it in the shape of prizes, before I could offer my small mite towards the 5000*l.* required for its support, and which I hope will soon reach 10,000*l.* and at once set the Society upon a firm basis. Can any one forget those Chiswick Shows where people from the whole breadth of the United Kingdom and Ireland were assembled within the gardens; can we forget the endless equipages covering many miles of road and occupying many acres of ground round Turnham Green; and what was all this enormous turn-out for but to witness the finest grown plants from every part of the known world, as well as the finest fruits that earth and the skill of man could produce? Can it, then, for a moment be supposed that this country will allow this great national society to sink for the want of the small sum asked for? Surely it may look to the great aristocracy, the wealthy merchants, the rich amateurs, for support. All of them are deeply indebted to the Society. What were their gardens 30 years ago compared with what they are now? has not the Horticultural Society of London done much towards their recent improvements? In conclusion I beg to say that my small sum of 1*l.* 1*s.* is ready when called for, and I trust that many others in a small way as I am will do the same. To allow this Society to fall will be a disgrace to the whole horticultural people of this country; it would very much lower us in the estimation of even the smallest foreign state, or even our youngest colonies. Each and all of them have their Horticultural Society. *James Cuthill, Camberwell.*

Ivy.—I lately met with a remarkable looking Ivy plant, growing in a wild situation on the bank of a small stream; the plant is about six feet in height and about as much in diameter, and growing without any attachment to other substances, such as rocks and trunks of trees; the leaves are not lobed like the common Ivy, but are ovate or obovate. Such a hardy evergreen might be useful in exposed situations. Is this plant the Hedera arborescens of Loudon's "Hortus Britannicus?" *P. Mackenzie.* [Yes.]

The Grove gardens, Roehampton.—You will I am sure excuse my calling attention to an omission in your notice of these gardens at p. 283 of your last Saturday's number. The forcing-houses were, as you have stated, erected by me, but at the request of S. Lyne Stephens, Esq. the heating was done by Messrs. Bailey, of Holborn, in justice to whom, and not liking to take the credit of other persons' work, I have been induced to trouble you with this statement. *Wm. Shakespear, 55, Lionel Street, Birmingham.*

Cutting down Old Thorn Hedges.—Some time ago a hint was given in the agricultural portion of your Paper to the effect that old Thorn hedges when cut over with a hedgebill or hatchet made better shoots than those that were sawn over. I lately saw a hedge that was some years ago cut over about 2 feet from the ground; the plants before they were cut would be about 20 feet high, part of them were cut both ways, and at present the one part is as good as the other, as far as the strength of the shoots is concerned. *P. M.*

Seeds.—Acting on the advice of your correspondent to ascertain whether the seeds I have had this season had undergone the cooking process or not, I counted a small packet of Cornish Broccoli containing 670 seeds, of which 647 have produced plants. This, in my opinion, is a fair sample of what seeds should be. They were purchased of Mr. H. Watkinson, Market Place, Manchester. *J. S., Gardener to W. Harter, Esq., Hope Hall, Pendleton.*

Large Beet Root.—I had last week a root of Beet which weighed, when cleaned and ready for dressing, 9 lbs. I have had them often 5 and 6 lbs., but never so large as this. The seed I obtained from Messrs. Bass & Brown, of Sudbury (Mitchell's dark blood red Beet and Cattell's also), and in justice to Messrs. Bass & Brown I should say that all their seeds for Carrots, Turnips, Beet, &c., are excellent, and do well in our Northamptonshire soil. I have tried them well myself, and have given them also to farmers in the village, who have praised them highly. *W. A. Buckland, the Vicarage, Ravensthorpe, Northampton.*

Ayres' Perpetual and Wild's Ipswich Standard Cucumbers.—As my duties here will soon terminate, I think it well to report on the two kinds of Cucumbers sent me to test, viz., Ayres' Perpetual and Wild's Ipswich Standard, black spines. I have tried one plant of each in a pot in a Pine pit, under exactly similar conditions, and Ayres' is both a better grower and a better bearer than Wild's. We have cut five brace good fruit from the former and one brace imperfect from the latter. In frames they are just coming into bearing and the same characters were perceptible. In flavour, however, I prefer Mr. Wild's, although both are good. The only test with which I am not satisfied is, that time may yet prove that the Ipswich Standard is an excellent summer Cucumber. But for general usefulness I unhesitatingly give the preference to Ayres' Perpetual. *G. M'Ewen, Arundel Castle, April 24.*

Breeding Fancy Canaries to contest for prizes at the various canary exhibitions in the metropolis requires some skill in the selection of the breeding birds, but it is to be regretted that the general method followed in breeding the commoner varieties of the canary is too much confined to a haphazard system to be the means of rendering that benefit which otherwise it might be expected to produce; and although very great numbers are reared in Norfolk and Yorkshire, yet the Germans are able annually to import many thousands, and the shops to sell them at even a lower price than our home-bred birds. The dictum, now the rule laid down for breeding canaries, is simply to match birds of opposite qualities. Can this be a rational rule for the purposes of improving and developing the breeds of canaries? It is evident from the many varieties and the varying qualities which these birds have broken into, that there is a plasticity in their nature which, if duly matched and judiciously persisted in by breeding for a series of seasons to a specific end, might result in new and novel varieties and qualities as great in contrast as we find to exist between the Belgian and the small varieties of the common canary. As the canary has been domesticated, are there not other species of birds which might be bred indoors, and eventually break into several varieties from like cultivation, and new properties and capabilities impressed upon their progeny? In breeding mules from the canary and other birds, not only for the purposes of producing birds of novel colour, but also of a hardier and more robust constitution, the breeder has to contend against the unplasticity of the wild parent and the more plastic nature of the canary, as the general result of these pairings are young taking very much more after the wild bird than the canary. Most animals when bred under the varying artificial sheltering feeding care and protection of man for a considerable series of years, change in colour and other qualities, showing that the very uniform nature of the wild individuals is influenced and made more plastic; now, if the wild species with which we

pair the canary for the purpose of breeding mules were domesticated like the canary, its power of impressing its nature, &c., upon its hybrid issue would be diminished and more upon a par with the canary, and therefore the mule from such a union would doubtless be a more equal mixture of the qualities, dispositions, &c., of the two than it is between a domesticated canary and a wild goldfinch, linnet, siskin, greenfinch, &c. The greenfinch is said to pair with the canary readily, but that the progeny is too much like the greenfinch to make them favourites or profitable to rear for sale. It is also said the hen greenfinch will breed with the cock canary; if so, and this bird is very docile and yielding, accommodates itself to confinement with great facility, it would be a very suitable bird to experiment with and try to breed indoors. It is known to have considerable capacity to learn the song of others, &c., and so might be taught to sing a new ditty, which very probably, if its offspring was also instructed the same for a series of years, would become its permanent song. *W. W.*

Wild Cherry Tree.—A large heap of shale from a coalpit was set on fire for the purpose of reducing the shale; it has been burning for several months, and is not burnt out yet. There is an old wild Cherry tree growing near the edge of the shale; about one half of the tree is in leaf and in blossom, while the other parts are little more than bursting their buds. *P. M., Stirling, April* 27. [The roots next the heat are stimulated into action, which is communicated to the branches and buds.]

Societies.

HORTICULTURAL.—ANNIVERSARY, *May* 1.—Col. Challoner in the Chair. A statement was read recapitulating the proceedings of the Society during the past year, with which our readers are familiar. In conclusion the Council reported what has been done to give effect to the resolution that the Garden be relinquished unless funds sufficient for its support be provided by subscription, as already advertised. On the 3d of April the Council reassembled, and after a careful review of the financial condition of the Society, arrived at the conclusion that a smaller sum than 5000*l.* would be insufficient to enable the experiment of maintaining the Garden to be fairly tried. A circular letter was shortly afterwards sent by post to every Fellow, representing the objects of the Society, and announcing the names of donors to the amount of 580*l.* Since that time a further list of subscriptions has been sent to every newspaper (563) in the United Kingdom, with a request that the editors would be good enough to draw the attention of their readers to the position of the Society; a request which the Council have reason to believe has been most readily complied with. The lists of subscriptions have been advertised gratuitously by the *Athenæum*, the *Literary Gazette*, and the *Gardeners' Chronicle*, to the proprietors of which the Council desire thus publicly to express their thanks. A second and further list of subscriptions has been forwarded to all Fellows. Finally, many hundreds of circulars and lists of subscriptions have been sent through the post to wealthy inhabitants of the metropolis not being Fellows. The Council stated that these measures had not produced the sum required. Some Fellows object to any attempt being made to preserve the Garden, others have answered by sending in their resignations; but from the greater number no reply has been received, so that the subscription list, when closed, amounted to no more than 2773*l.* 10*s.*, contributed by 181 persons, of whom 15 are not Fellows. Conspicuous among the latter is Mr. Heinrich Behrens, a German gentleman, residing near Lubeck, wholly unconnected with the Society, who has most liberally offered to contribute the large sum of 100*l.* towards the proposed fund. The Council however considered that the result of this appeal is so far satisfactory, that it seems reasonable to defer closing the subscription for the present, not doubting that the spirit which has been already displayed, will ultimately lead to the contribution of the full sum required. They proceed to say that "It does not necessarily follow, that the Society is to have no Garden, and that its horticultural operations are to terminate, even if the Garden at Chiswick is relinquished. It will be in the recollection of the Fellows, that in the scheme proposed by the Council, on the 24th of December, for reorganising the Society, it was contemplated that a small garden should still be maintained for the purpose of raising such seeds as may not arrive in sufficient quantity for distribution, for restoring the health of imported plants, and for experimental purposes. This also formed part of the plan laid before the Society on the 5th of February. Among the many suggestions which have been lately made to the Council is one from Sir John Lubbock, Bart., an old Life Member, who remarks, in a letter dated April 11, that the obvious course for the Society is to move the Garden to the grounds of the Crystal Palace, there being no doubt that an arrangement might easily be made by which the Garden would be there preserved in a better locality to the advantage of both Societies. Within the last two days the Council have received a communication from the Directors themselves of the Crystal Palace, conveyed through Sir Joseph Paxton, suggesting the expediency of an arrangement being made between them and the Horticultural Society, on terms of mutual interest, by which a portion of the grounds in the Crystal Palace Park may be occupied by a Garden for the Horticultural Society. This proposal is so recent that the Council are not at present in a position to do more than announce the circumstance. The actual state of the finances of the Society will be seen from the Balance-sheet laid before the Meeting. It is there shown that the debt of the Society is now 9388*l.* 10*s.* 4*d.*, while at the last anniversary it was 8821*l.* 4*s.* 4*d.*, indicating an increase of only 567*l.* 6*s.* But on the other hand there is a diminution in the available assets of the Corporation to the amount of 1544*l.* 19*s.*, chiefly caused by the sale of property: namely, of Stove-plants, which produced 569*l.* 4*s.* 6*d.*; of the Herbaria, for which the unexpectedly large sum of 253*l.* 15*s.* was obtained; and of the old stock of Transactions, &c., which realised 282*l.* 19*s.* 9*d.*, or nearly 83*l.* beyond the sum at which they were valued." In consequence of the unsettled state of the affairs of the Society it had been found impossible to make any arrangements for Exhibitions during the present year; but should the appeal to the public prove successful, the Council hope they may look forward to the revival of the Exhibitions with all their former splendour.

A discussion ensued, during which conflicting opinions were expressed as to the expediency of maintaining the Garden even if the proposed 5000*l.* were raised. It was generally admitted that the money could only be regarded as a means of trying the experiment of placing the Society upon a broader basis, and by that means of increasing the number of Fellows enough to provide the requisite income. Eventually the following resolutions were carried:—1. The meeting receives and confirms the report of the Council, and fully approves of that part of the report in which it is determined to extend the period for receiving subscriptions towards the sum of 5000*l.* proposed to be raised for the purpose of maintaining the Garden. 2. The meeting stands adjourned to Tuesday, June 24. 3. The cordial thanks of the Horticultural Society are returned to Mr. Heinrich Behrens, of Lubeck, for the very handsome offer he has made of contributing 100*l.* towards the experiment of maintaining the Garden.

The Chairman announced that the following Fellows, viz., Messrs. Sigismond Rucker, Conrad Loddiges, John Lee, and H. G. Bohn had been elected into the Council in the room of his Grace the Duke of Northumberland, Sir Philip de Malpas Grey Egerton, Bart., M.P., Robert Hutton, Esq., James Gadesden, Esq.; and that his Grace the Duke of Devonshire had been elected President; William Wilson Saunders, Esq., Treasurer; Dr. Royle, Secretary; and Messrs. Stevens and Leach, Auditors for the ensuing year.

BOTANIC GARDEN, CAMBRIDGE: Extracts from the Report of the Syndicate.—Trinity College Lodge, *March* 5, 1856.—The Botanic Garden Syndicate, in making their First Annual Report to the Senate, think it desirable to give a more detailed account of the character and state of the Garden than will be necessary in future years. In the formation of the new Garden, it was intended to make science the first consideration; but in order to encourage a general taste for botanical studies, and to render the Garden an agreeable acquisition to the University, the designers consulted ornamental appearance, whenever it did not interfere with the main object. Owing chiefly to the services of two successive Curators, their views have been gradually carried out with considerable, though not entire, success. The funds applicable to the support of the Garden being small, its objects are necessarily limited; efforts, however, have been made to render it complete in particular departments. The formation of a collection of hardy plants was thus preferred to one consisting of numerous tender species, which would have required the erection of extensive and costly plant-houses for their preservation. The hardy plants may be divided unscientifically, but conveniently for the cultivator, into trees, shrubs and herbs, and such a division was adopted by the designers of the Garden. The trees form a belt surrounding the whole of the ground, to which they will ultimately be a considerable protection. They are arranged as far as possible on a scientific plan, so that allied genera and species are near to each other. Amongst them will be found nearly all the trees that will stand our climate, and it is believed that, when grown up, they will form one of the most perfect arboreta in the kingdom. The hardy shrubs will be found in a series of beds crossing the Garden at the upper end of the central walk. They were planted in accordance with their affinities, but it is now found that some of them will not succeed in that part of the ground, and, therefore, the plan must be partially disarranged by their removal to a portion of the unoccupied land near the proposed pond. The introduction of a few trees into the place now appropriated to shrubs would add considerably to the beauty of the grounds, would ultimately be of much use as a protection to the upper part of the Garden from the prevalent winds, and would not interfere with the convenience of the scientific arrangement of the plants. The herbaceous plants are arranged in beds on the right of the great walk. Each bed contains a single natural order, or a division of one. This is a very perfect and valuable collection, and it is much used by the members of the University who study scientific Botany. The mode in which the plants are arranged has been found to be well suited for this purpose. As has already been stated, no attempt is made to keep an extensive collection of tender plants, for that would require very much larger plant-houses than the University can afford to erect or maintain. The houses recently erected from a plan originated by the Curator, Mr. Stratton, are capable of containing a sufficiently numerous collection to be tolerably illustrative of the chief groups of the plants that inhabit the warmer regions of the earth; and such, to a great extent, is the collection which is now successfully cultivated in them. It includes a considerable number of fine specimens of the older inhabitants of greenhouses, now rarely to be seen, and also many very interesting species which, from possessing slight claims to beauty, have fallen out of cultivation. The Syndicate are glad to report that the plant-houses have been successful, and that the novel plan upon which they are arranged has been found to be very convenient. Owing to an imperfection in the chimney of the furnaces, it is necessary to have it rebuilt upon a different plan, and the Syndicate have given directions for the work to be done. There is reason to believe that when the new chimney is erected, there will be a much smaller consumption of coal, and consequently a considerable reduction in one of the largest items of annual expenditure. In the Report of the Syndicate, dated Feb. 23, it was stated that two small houses were wanted for the propagation of plants, and for operations that could not well, if at all, be carried on in the existing plant-houses. When these are built, they will add considerably to the efficiency of the Garden, and remove much that is unsightly from the greenhouses. According to the rules and orders at present in force, the Garden is open daily (Sundays excepted) to all graduates of the University; to all undergraduates giving their name and college, if required; and to all respectably dressed strangers, on condition of giving their name and address. Servants with children, children by themselves, and persons accompanied by dogs are excluded. The plant-houses may be visited from one till four. No fees are allowed to be received by any of the attendants. The accounts for the year ending Nov. 3, 1855, have been examined and audited by the Syndicate. The following is a summary:—

	£	s.	d.
RECEIPTS	873	0	7
DISBURSEMENTS.			
Salaries	132	0	0
Tradesmen's bills	219	4	2
Labourers' wages...	285	6	2
Rates and taxes	80	16	5
New drain to supply the pond with water ...	58	12	3
Carriage of plants, postage, travelling expenses, &c.	16	13	2
	792	12	2
Balance against the Garden ...	419	11	7

The above sum of 419*l.* 11*s.* 7*d.* was allowed to the Vice-Chancellor of last year by Grace of the Senate, Feb. 6, 1856. The Syndicate have been informed by the Curator that an annual saving of about 40*l.* would be effected if a horse, cart, horse-roller, and mowing machine were procured for the use of the Garden, and they have accordingly given directions for making the requisite purchases. The following is a summary of the accounts for building the new plant-houses for the two years ending Nov. 3, 1855:—

RECEIPTS.	£	s.	d.
In respect of the purchase by the University of the site of the Old Botanic Garden ...	3448	4	4
Interest on Exchequer Bills	86	4	11
	3534	9	3

DISBURSEMENTS.	£	s.	d.			
Messrs. Bell & Sons, builders ..	2454	0	4	3206	15	10
Mr. Potter for water apparatus	521	0	0			
Architect's commission ...	148	15	0			
Drawings, and legal and travelling expenses	60	18	6			
Removal of plants from the old houses	22	2	0			
Balance in hand				327	13	5

W. Whewell, Vice-Chancellor; R. Tatham, H. W. Cookson, R. Okes, L. Neville, H. J. H. Bond, W. H. Drosier, Charles C. Babington, O. Fisher, Fenton J. A. Hort.

ENTOMOLOGICAL, *April* 7.—The President in the chair. The President announced that the subject of the prize essay for the present year is the Natural History and Economy of a small Moth (Gelechia terrella) extremely abundant in pasture grounds, with a view to determine whether it be injurious to agriculturists or not. It was also announced that a new part of the Transactions, completing the current volume, was ready for delivery to the members. Mr. Augustus Shepherd exhibited a specimen of Ennomos Alniaria (of which species only two individuals had hitherto been found in this country), taken near Margate in September last. Mr. Newman communicated a note by Mr. Oxley on the mode of flight of the genus Synæmon, a group of small Lepidopterous insects, natives of New South Wales, which fly in the hot sunshine like Skipper-butterflies, and sit with their wings partially erect. The genus had been regarded by its founder, Mr. Doubleday, as Heterocerous, notwithstanding its clubbed antennæ, but Mr. Newman considered it as the connecting link between the Skipper butterflies and the Castniæ. Mr. Westwood gave an account, illustrated with analytical figures, of two remarkable genera of small beetles, the males of which have the head greatly dilated and flattened at the sides. One, a native of Guinea, belonged to the family Erotylidæ, the other from Colombo in Ceylon is of doubtful affinity. Mr. Westwood also communicated an account received by him from Dr. Lee, F.R.S., of the development of vast quantities of a species of mite in a small cabinet of curiosities belonging to a lady at Lyme Regis. They first appeared in connection with a Palm leaf fly-flapper from Egypt, and thence spread over several of the adjoining rooms, proving extremely difficult to be destroyed, and consequently becoming a

great nuisance. The fumes of sulphur had destroyed numbers, but had injured both furniture and drawings. The employment of chloride of lime, solution of corrosive sublimate, Chamomile, and other substances were suggested by several of the members. A note from Mr. Bates, at present in Brazil, was read on the sexual distinctions in the genus Agra, belonging to the family Carabidæ and sub-family Brachinidæ. In addition to the donations of books from the Royal, Linnæan and other societies, &c., a collection of minute insects from Ceylon was presented by Mr. Thwaites.

Notices of Books.

The British Hieracia, by James Backhouse, junr. (York, Simpson, 8vo.), is a monograph of our wild Hawkweeds, by a hawk-eyed botanist. Everybody who has studied the Flora of this country knows that Hieracium is a worthy companion of Rosa, Rubus, and Salix, not at all less perplexed and intricate, and therefore the subject of endless differences of opinion. Not to us belongs the task of settling them. Mr. Backhouse admits 33 species, to say nothing of nine others which he does not think are really British. The former are placed in nine groups, and each is carefully described, with its habitats, synonyms, and comparative characters. As far as a hasty glance enables us to judge, the work is done well and conscientiously. The marks of practical field-knowledge are visible at every step. We only wish such a useless word as "phyllary" to express an involucral scale had been dispensed with. Were Mr. Backhouse as much inconvenienced as general Botanists are by the nuisance of multiplied and endless technical terms, he would, we are very sure, be no party to their adoption.

Garden Memoranda.

Mr. Gaines' Nursery, Battersea.—The show house here (a span roofed one) is now extremely gay with Azaleas, Rhododendrons and other early flowering plants. Conspicuous among the Azaleas were Nonesuch, a large rosy flowered kind with a brilliant fiery centre; Magnifica, a purple sort with fine foliage; "Illustrious," a variety in the way of Perryana, and Mont Blanc, an extremely good white. Among the Rhododendrons the greatest novelty by far was Incomparable, a seedling of Mr. Gaines' with handsome peach coloured flowers edged with white after the manner of Azalea Exquisite. This will prove a decided acquisition. Among yellows Gaines' Aureum is at present finely in flower; it forms a fine contrast with the more ordinary coloured kinds. In a house devoted to Azaleas we noticed some pretty kinds. Amaranthina was especially remarkable on account of its handsome colour. Punctata rosea, atrapurpurea, and dilecta, were also showy. A house 54 feet in length was completely filled with Rhododendrons, all of them magnificent specimens. Among them were Victoria Regina, a light kind, which was reported to have had quite 100 trusses of bloom on it; Princess Royal, also a light-coloured variety with cone-shaped trusses of flowers 5 inches high, and as much through at the base; Princess Alice, spotted pink; Prince of Wales and floribundum, red. The finest specimen was, however, magnificum, a light kind with 140 trusses of bloom on it. This was quite a little tree. The above are all hybrids of the handsomest description. In another house we also noticed a desirable red sort, with compact heads of flowers, all the petals of which were prettily spotted with minute black spots. This was named Eximium.

Among Cinerarias were some promising kinds, all seedlings sown last June, and we also observed some pretty varieties of Mimulus. Acacia armata is largely grown here for market, as is also Cytisus racemosus, of which we remarked pitfulls of pretty plants, beautifully in blossom. These were stated to have been struck from cuttings about two years ago. Pelargoniums are extensively cultivated here, several large houses being entirely filled with them. That containing the best specimens of them is 80 feet long, and the stage on which the plants are set is 10 feet deep. A grand display of these flowers may therefore soon be expected. Already several of the early kind are in blossom. Of these the more remarkable were Gauntlet, album multiflorum, Gage, magnificum, and Gaines' White, the last a beautiful variety pure white, with a small spot in the upper petals. We also noticed some of the new French sorts, which forming as they do large trusses of bloom, and being of new and peculiar shades of colour, promise to be acquisitions for early forcing.

Tulips in open bed will soon be very gay; their flowers are uninjured, but the late spring frosts have hurt their foliage a little. Double Stocks in flower are being put under cradles covered with mats, to make room in pits for other things, and all kinds of bedding plants are now being hardened off with all possible expedition.

Miscellaneous.

Sale of Orchids.—A small collection of these made in the province of Veragua, New Grenada, was sold the other day by Mr. Stevens. Trichopilia suavis, a large mass, fetched 2*l.* 2*s.*; smaller lots, 10*s.* to 1*l.* 4*s.*; Odontoglossum Warczewiczi, two fine specimens, 2*l.*; Trichopilia coccinea, one fine specimen, 2*l.* 4*s.*; Lycaste Lawrenceana, (?) several plants, 1*l.* 4*s.*; Cattleya, species unknown, said to have been found at an elevation of 4000 feet, at the base of the Volcano of Chiriqui, two fine healthy plants, 4*l.* 4*s.*; Odontoglossum sp., probably new, 2*l.*; Lælia superbiens, 2*l.* 1*s.*; Epidendrum maculatum of Reichenbach (what is this?) 3*l.*; Cycnoches sp., fragrant, 1*l.*; ditto, with flowers said to be pale purple, 2*l.*; Cypripedium caudatum roseum, 1*l.* 4*s.*; Cyrtochilum sp., 1*l.* 4*s.*; Warrea discolor, 1*l.*; other lots, of which there were in all 177, fetched from 10*s.* to 1*l.* per lot. A few lots of Stangeria paradoxa realised from 1*l.* to 1*l.* 4*s.* each.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Azaleas, as they go out of bloom, should have their seed vessels picked off, and those that require more pot room should be shifted at once. Some recommend mixing a portion of loam in soil intended for these; but strong rich fibry peat, with plenty of silver sand, forms the best compost for them. After potting every plant should be neatly staked and tied before taking it out of the potting shed, for besides this being better done at once it will not occupy half the time it would do if deferred until the plants have made their growth. These beautiful plants are exceedingly subject to thrips, and unless a sharp war is carried on with these pests immediately they make their appearance it will be difficult to subdue them. To avoid the nuisance of having to smoke houses or pits, have a light frame of a convenient size covered with oiled calico in which to smoke the plants. This may be placed over the infested plants in any of the houses or on a bed of coal-ashes out of doors and filled with tobacco smoke by means of a fumigator and allowed to remain for a few hours. If the calico is properly put upon the frame every insect to which tobacco smoke is inimical will be destroyed, for not a breath of the smoke can escape. We find this simple cheap contrivance very serviceable and economical, as very little tobacco serves when the smoke cannot escape, and it is a great comfort to be able to smoke plants without being obliged to inhale the disagreeable fumes. Go over the conservatory frequently to regulate growth and to see that the borders are kept moist, giving a thorough soaking when necessary, for mere surface waterings will not reach the roots, and although useful in keeping the atmosphere moist will not serve to maintain the plants in vigour after this season.

FORCING DEPARTMENT.

Pineries.—In cases where a regular supply of fruit is required at all seasons of the year, it will be necessary to examine the stock of plants, frequently marking those considered the most likely for fruiting, so as to be able to keep them rather dry at the root for a month or so, which will, in most instances, have the desired effect of checking growth and throwing the plants into fruit. The only effectual method, however, of securing a supply of fruit at any particular time is foresight in the management of the stock, taking care to get the growth well matured in sufficient time to allow of affording the plants a short period of comparative rest, which is the only certain means of inducing them to fruit at any desired season. With plenty of convenience this is easily enough managed, but where the accommodation is limited, it is by far the most difficult part of the culture of the Pine. And in cases where a regular supply of fruit has to be furnished from limited accommodation, it is safer to grow the plants in pots, so as to secure perfect command over the roots, and also be able to move the plants to a cooler pit or otherwise, as may be necessary. Black Jamaicas and Cayennes are the best varieties for winter fruiting, and the stock of these should receive every attention at this season so as to induce them to make free growth, and a portion of them should be shifted into their fruiting pots as soon as possible. Use every means to afford growing stock a moist atmosphere, which in the present state of the weather is a work that requires much attention, but must be done if the plants are to be kept in first-rate condition. Give air freely, but avoid draughts of cold drying air, and use shading to assist in keeping down the temperature without being under the necessity of admitting cold drying air too freely.

Vineries.—In cases where Muscats are grown in the same house with Hamburghs, and other free setting varieties the temperature must be kept sufficiently high during bloom, and until the berries are fairly set to suit the Muscats; for a crop of these cannot be depended upon from the most healthy Vines, unless they can be afforded a brisk temperature while in bloom and setting their fruit. It will be better, however, to risk having the Muscat bunches somewhat thin than to injure other varieties by maintaining a night temperature of 75°, which is the practice of some good growers; 68° or 70° will be found quite sufficient. Get the borders prepared for planting out young Vines, and if these are started into growth before planting do not keep them too warm, or it will be difficult to prevent their sustaining a check after planting out.

FLOWER GARDEN AND SHRUBBERIES.

Now that we have showery and somewhat milder weather, these will afford ample employment for all the strength which in most cases can be concentrated upon them. Hardy annuals must be sown at once, covering them lightly with fine soil. Stocks, Pentstemons, Antirrhinums, Hollyhocks, &c., that have been properly hardened off should be planted where they are to bloom, as also any remaining stock of biennials and perennials. The planting of tender Roses should not be longer delayed, and those previously planted must be examined, replacing those that appear to be much injured by the weather. Get bedding plants hardened off as expeditiously as possible, but in removing them from the pits and frames place them where they can be covered at night in case of necessity, and also take care that they are not injured by too sudden exposure to bright sunshine.

HARDY FRUIT AND KITCHEN GARDEN.

Recently transplanted trees, &c., must be carefully attended to with water. Take advantage of the present state of the ground to get manure wheeled upon quarters where it will soon be wanted, and see that there is a good supply being prepared for the Celery crop; for without plenty of old rich manure large crisp Celery can hardly be obtained. Directly the weather becomes more favourable get the spring-raised Cauliflowers and Lettuce planted out, if not yet done, selecting for them a sheltered situation and light rich soil. A few branches of evergreens stuck amongst such things after planting, so as to screen them from the sun, is a great protection, and prevents their being dried up until the roots get hold of the ground.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending May 1, 1856, as observed at the Horticultural Gardens.

April and May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth 1 foot deep.	Temperature. Of the Earth 2 feet deep.	Wind	Rain
Friday 25	20	29.695	29.591	76	35	55.5	50	46½	S.E.	.22
Satur. 26	21	29.487	29.457	63	40	51.5	51	47	S.W.	.53
Sunday 27	[illegible]	29.560	29.442	44	32	38.0	50½	47	E.	.14
Mon. 28	23	29.561	29.540	55	25	40.0	50	47	N.	.00
Tues. 29	24	29.610	29.568	56	31	43.5	50	47	N.W.	.00
Wed. 30	25	29.643	29.610	57	29	43.0	49	47	N.W.	.07
Thurs. 1	26	29.838	29.463	47	30	38.5	49	47	N.E.	.12
Average		29.626	29.524	56.8	31.7	44.2	49.9	46.9		.58

April 25—Foggy; very fine; cloudy; rain.
— 26—Rain; cloudy and fine; heavy rain at night.
— 27—Cold rain throughout.
— 28—Clear; fine in forenoon; low dusky-white clouds; frosty.
— 29—Partially overcast; cloudy and cold.
— 30—Fine throughout; slight frost at night
May 1—Overcast; cold showers, partly hail; clear and cold.
Mean temperature of the week 5 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending May 10, 1856.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	62.6	40.1	51.3	11	0.70 in.	4	6	8	—	5	4	2	1
Mon. 5	62.5	40.3	51.4	18	1.16	5	6	3	3	7	4	1	1
Tues. 6	60.8	40.3	50.5	12	0.64	—	9	3	2	4	6	4	2
Wed. 7	62.3	40.9	51.6	11	0.39	3	6	3	2	5	6	3	2
Thurs. 8	62.0	40.2	51.1	13	0.57	—	5	5	—	5	5	6	4
Friday 9	61.8	40.4	51.1	13	0.60	3	7	4	1	4	9	2	—
Satur. 10	61.7	39.6	50.6	12	0.10	4	5	4	1	2	7	4	3

The highest temperature during the above period occurred on the 4th, 1833, and 6th, 1830—therm. 81 deg.; and the lowest on the 8th, 1836—therm. 21 deg.

Notices to Correspondents.

To our Correspondents.—By an unlucky accident three or four notes containing inquiries have been lost. Will our correspondents accept our apology and repeat their questions?

Annuals: *Furioso.* We hardly understand your question. Their flowers may be preserved by pressing them between the leaves of a book, and drying them; or by plunging them in spirit, or glycerine and water. But your inquiry probably points in some other direction.

Delphinium Cardinale: *S H.* It is certainly a perennial and not an annual.

Guatemala Plants: *N B.* Neither of the species you inquire about has been figured.

Guano Water: *C. R D.* Guano water suitable for "most common plants" may be made as follows:—Put a handful of guano into a gallon of water; stir it up well two or three times at intervals of two or three hours; when clear decant, and it is then fit for use. The residue may be added to the compost heap.‡

Insects: *J P.* Your moths are—No. 3, Caradrina cubicularis; 4, Erastria fuscula; 6, Tephrosia extensaria; 7, Cheimatobia rupicapraria; 9, Depressaria Heracleana; 10, Orthosia lota; 11, Glea vaccinii; 12, Apamæa didyma; all injured, and the rest destroyed.—*A M D.* The little caterpillars on your Paradise Stock are just hatched from the spiral whorl of eggs upon the twig. They are the young of the common Lackey Moth, Bombyx neustria, and at a more advanced age they live in large webs among the leaves.—*W H.* The beetles you have sent are the destructive weevil Otiorhynchus sulcatus. The best plan is to lay a table cloth under the trees infested, and shake them well two or three hours after dusk, using a lamp, which alarms the insects, and (with the shaking) causes them to fall, when they may be destroyed with boiling water. *W.*

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*C F.* Cyrtopodium Andersoni. —*J F.* A small specimen of Morchella esculenta, the Morel, an eatable species.—*R G A.* Lathræa squamaria.—*Mary.* We will tell you next week.—*O F S.* It is a Morel, pretty nearly of the ordinary size.

Names of Fruits: *P W J.* Your Apple is the Bedfordshire Foundling.‖

New Syringe: *An Old Sub.* We regret to say we do not understand your drawing. What are the four great black holes intended to represent? If we are to publish it we must have a sectional drawing from some one accustomed to make such things.

Soot Fungus: *G O L.* We presume that your Plum trees are not sufficiently ventilated. The best thing to do is to syringe with water, and then dust with flowers of sulphur as soon as it makes its appearance.

Tricks: *Tynemouth.* If it is true that the gardener tied borrowed Camellia flowers on his bushes in order to make them look gay and satisfy his employer, we can only say that he is as bad as Prince Potemkin, who is said to have stuck up pasteboard villages to cheat the eye of his Imperial mistress; or as a London poulterer, who sells a plumped-out bag of bones under the denomination of a fowl.

Water: *J G.* The plants are ruined by the lime which the water contains. No doubt it is excessively hard. It is contrary to all rule and experience to employ hard water for syringing. Everybody provides, or should provide a tank for rain-water, which should be scrupulously reserved for syringing, or even for watering plants under glass.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

PEAT CHARCOAL FOR DEODORISING, AND WOOD CHARCOAL FOR FUEL, free from all noxious smell or effluvia.—The above are made under the Patent recently taken out by Mr. LADLIN, and can now be had in any quantity at very reasonable prices. The Wood Charcoal may be burnt in a room without a chimney, as Mr. LADLIN has deprived it of all noxious effluvia.—For particulars, address the Wigan Coal Company, 4, Luke Street, Dublin.

PHŒNIX CHEMICAL WORKS, PLYMOUTH.
BURNARD LACK AND CO. are ready to deliver in London or at any convenient Railway Station or Seaport, BIPHOSPHATE OF LIME considered as neutral soluble phosphate, at PROFESSOR WAY'S standard price, viz., 6*s.* 6*d.* per cent. per ton.

B. L. & Co.'s No. 1 Concentrated Superphosphate contains 40 per cent. of neutral soluble phosphate delivered as above (bags included) at 13*l.* per ton, four months acceptance, or less 2½ per cent. discount for cash. A considerable reduction made for quantities.

Guaranteed analyses and opinions by PROFESSORS WAY and VOELCKER sent on application.—Apply as above.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.
THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—
Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).
NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.
Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.
Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

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HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—
SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.
SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.
N.B. Manures specially prepared for Grass and Flax.
The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

TO AGRICULTURISTS.
PONTEY, ROWE, AND CO., MANURE MERCHANTS, Drake's Place, Plymouth, are now supplying their MURIO-PHOSPHATE (fit for the drill), at 7*l.* 10*s.* per ton, strength as guaranteed from analysis by Nisbet, Herapath, and Way.
Agriculturists wishing to prepare (for the Drill) themselves, can be supplied with pure dissolved Bone or Bone Ash, at 8*l.* 10*s.* to 9*l.* per ton. The Muriophosphate as prepared by P., R., & Co. has been found superior to all other artificial manures, in the continued support it yields to Turnips, Mangel Wurzel, and the succeeding crops.
BONE MANURE of their own manufacture.
BEST PERUVIAN GUANO, from Gibbs & Co. only.
MANURE, SALT, GYPSUM, &c., constantly on sale.
PONTEY, ROWE, & Co. are the authorised Agents for Odams's Patent Nitro-phosphate or Blood Manures for Corn, Turnips, Mangel Wurzel, &c., which have produced extraordinary results throughout the country. Prices on application.—May 3.

THIRTY TO FIFTY PER CENT. BELOW COST.
CHAFF CUTTING, CORN BRUISING, CATTLE WEIGHING, DIBBLING, and other MACHINES, by Ransomes, Garretts, &c., warranted equal to new.—EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (6 doors west of Hampstead Road), London.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.
BY ROYAL LETTERS PATENT.
Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,
ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace, and Osborne. A. SHANKS & SON have much pleasure in submitting the following from the numerous unsolicited testimonials received by them in favour of their New Hand Machine:—

From Mary Wedlake & Co., London.
"Gentlemen,—We must inform you that your Hand Machines give extreme satisfaction; indeed, they are preferred to all others."

From R. K. Goode, Esq., of Heather Hall, Ashby-de-la-Zouch.
"Gentlemen,—The Machine does its work far better than can be done with the scythe, and at half the expense."

From James James, Esq., of Samiston, near Jedburgh.
"Gentlemen,—I am happy to say that I am much pleased and satisfied with the manner in which the Machine does its work. It is, I find, a very great saving of labour, and far surpasses the scythe in the manner that it leaves the Grass after mowing."

From Thos. Mitchell James, Esq., of Phantassie, Haddingtonshire.
"Mr. Thomas Mitchell James has received the Grass Cutting Machine from Messrs. Shanks & Son. It has given great satisfaction."

From D. Forbes Mitchell, Esq., of Thamiston, Aberdeenshire.
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"Twelve months' experience enables us to indorse all the Patentees set forth as to the capabilities of their improved Machine. Our Gardener delights in its use."

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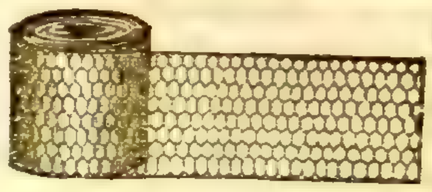

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IMPLEMENTS.—The Entries for Show-yard space required and number of Implements to be sent, will close on the 1st of May. The Specifications of the Implements entered may be subsequently forwarded to the Secretary any time before the 1st of June.
LIVE STOCK.—The Entries of Live Stock will close on the 1st of June.
PRIZE SHEETS may be obtained on application to the Secretary, at 12, Hanover Square, London, to whom all Certificates of Entry must be addressed.

BATH AND WEST OF ENGLAND POULTRY SHOW.—Prize Lists and Certificates for the above Show may be obtained of the Secretary, Mr. KINGSBURY, 10, Hammet Street, Taunton. Entries close on the 14th of May next.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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BASS AND BROWN can supply the following of pure and genuine selected stocks, and of extra quality.

Reduced prices for large quantities.	Per lb.—*s.*	*d.*
Mangel Wurzel, Yellow Globe	0	8
" " Red Globe	0	8
" " Long Red	0	8
" " Long Yellow	1	0
White Silesian Sugar Beet	1	0
Carrot, White Belgian	0	9
" Yellow Belgian	1	0
" Long Red Altringham	1	0
Large Cattle Parsnips	1	0
Drumhead Cattle Cabbage (scarce)	4	0
Swede Turnip, purple-top, extra, 40*s* per bushel...	0	10
" " Skirving's, 40*s.* per bushel	0	10

Turnip, Orange Jelly, Lincolnshire Red Globe, Round, Tankard, Scotch, and other Turnips at moderate prices.

BASS & BROWN'S SELECTED NATURAL GRASSES FOR PERMANENT PASTURES are highly approved, and have given the fullest satisfaction, and can be supplied to suit the soils required.

	Per acre—*s.*	*d.*
For Soils generally, including Clovers ...24*s.* to	30	0
Renovating Mixture for Old Pastures, per lb. ...	0	10
Finest Lawn Mixture, 4*s.* 6*d.* per peck, per lb. ...	1	3

All orders and inquiries will receive prompt attention. Carriage free to all stations in London and all Stations on the Colchester Line between London and Norwich.
BASS & BROWN, Seed Establishment, Sudbury, Suffolk.

The Agricultural Gazette.
SATURDAY, MAY 3, 1856.

THE great international Cattle Show at Paris will be the most extraordinary of its kind that has yet been witnessed. We hear that already upwards of

1200 head of cattle, 1000 sheep, and 200 pens of pigs have been entered, besides more than 440 pens of poultry. The best breeders of England, Scotland, Ireland, Belgium, Holland, Denmark, Holstein, Saxony, Austria, Germany, Switzerland, Italy, and France have promised contributions. Scotland, as we said last week, shows 172 head of cattle and 177 sheep. England, not so vigorously canvassed, or requiring a *more* vigorous canvass, has entered 94 head of cattle and 170 sheep, beside 35 pigs, 290 entries of farm implements, 39 of produce, and 199 of poultry. Of Ireland we have not received the actual numbers to be sent; but it is said to have contributed more than its proportion.

The exhibition will be held in the Palais de l'Industrie: and a horticultural fête will take place at the same time in the same place.

The few attempts that have been made to determine the number of seeds of our common crops actually sown per acre in our ordinary farm practice have not issued in any very uniform results. And it was not to be expected that they should, seeing that the seeds of the same plant vary exceedingly in weight and size, and that samples such as those prepared by our correspondent "J. C. X.," botanically exact, have been compared with samples professing merely to be commercially honest. It is plain that the figures obtained by an examination of the latter only are proper to be used as agricultural data: and that even these will not agree among themselves, must appear to any one considering the enormous discrepancies of weight and quality, which different samples, all of them, it may be, genuine, present. Thus, for instance, Common Rye-grass (Lolium perenne) varies from 10 lbs. to 30 lbs. per bushel:—if this difference be one of individual weight in seeds of a common size, it is plain that 1 lb. of the lightest will contain three times as many seeds as 1 lb. of the heaviest; and so of all the other seeds enumerated. Mr. Summers, who points out how "J. C. X." and Mr. Lawson differ, must accept these differences not as errors chargeable on one or other of the authorities he quotes, but as actual results properly obtained from the examination of different samples. Our own results, given in the same number of the *Agricultural Gazette* with those of Messrs. Lawson and of "J. C. X." (see pages 234 and 235), are another illustration of the same discrepancy. Thus, Lolium perenne is put down as yielding 199,680, 192,000, and 344,000 seeds per lb.; Trifolium pratense as 322,560, 192,000, and 249,600 per lb.; Trifolium repens as 821,760, 344,000, and 686,400 per lb.; Phleum pratense as 948,400, 888,000, and 1,178,400 per lb.; and Festuca ovina as 1,113,600, 768,000, and 548,000 per lb., the third figures in every case being our own, and exhibiting quite as distinct a character as either of the others, on a comparison.

The following table, therefore, must be taken with the understanding that its figures, however widely they show the quantity of seed used per acre in English agricultural practice to vary, yet do not give the limits of this variation wide enough—for of some crops it turns out that two men sowing apparently equal *weights* may yet, owing to differences in the quality of the seed employed, be sowing *numbers* differing 50 per cent. and more from one another.

The following table relates to those crops in ordinary cultivation which are not thinned during their growth:—

	Bushels per acre.	Weight of seeds in lbs.	No. of seeds in a lb.	No. of seeds sown per acre.	Seeds per square foot.
Wheat	1 to 2	60 to 120	10,500	630,000 to 1,260,000	14 to 28
Barley	3 „ 4	50 „ 220	15,400	2,310,000 „ 3,388,000	52 „ 70
Oats	3 „ 6	120 „ 240	20,000	2,400,000 „ 4,800,000	55 „ 110
Vetches ...	3 „ 4	180 „ 240	8,300	146,400 „ 1,952,000	32 „ 42
Beans (horse)	2 „ 3	120 „ 190	1,000	120,000 „ 190,000	3 „ 4½
Peas	2 „ 3	120 „ 190	2,000	240,000 „ 380,000	5½ „ 8
Flax	2½ „ 3	140 180	100,000	14,000,000 „ 18,000,000	320 „ 380
Lucerne ...	...	16 „ 20	200,000	3,200,000 „ 4,000,000	75 „ 90
Sainfoin ...	4 bushels	80	23,300	1,864,000	43 „ 44
Clover	...	12 to 20	*370,000	4,440,000 to 7,400,000	100 „ 170

It is to the last column that the attention of the farmer is required. What is the use of trying to obtain 300 or 400 plants of Flax or 100 to 170 plants of Clover on every square foot we sow?

The question was asked some weeks ago in these columns:—What is the annual waste of iron per acre in the cultivation of land? It is probably curious rather than useful, and might have remained unanswered without any serious loss to our readers. Nevertheless, we are very much obliged to Mr. Howard, of the Britannia Iron Works, Bedford, who has kindly examined the accounts of a farm in Bedfordshire with which he is acquainted, and has given as the result of his inquiries the following statement of an experience. The farm consists of 330 acres of arable land and 120 acres of meadow or permanent Grass. The following is the list of the implements employed upon it:—

6 Iron ploughs	1 Hay-making machine
2 Ridging do.	1 Reaping machine
2 Double furrow do.	2 Horse hoes
1 Broadshare do.	10 Carts
1 Clod-crusher	1 Waggon and 1 van
1 Iron and 3 wood cylinder rollers	1 Steam engine
4 Sets of iron harrows	1 Combined threshing machine
2 Scarifiers or cultivators	1 Flour mill
8 Sets of iron whippletrees	1 Linseed mill
1 Land marker	1 Bean splitter
1 Corn drill	2 Chaff machines
1 Liquid drill	1 Cake breaker
1 Turnip drill	2 Winnowing machines
1 Grass seed drill	1 Corn blower
1 Liquid manure cart	1 Barley hummeller
1 Water cart	4 Turnip cutters and pulpers
1 Liquid manure pump	20 Iron troughs
Weighing machine and weights	Shepherd's field house
1 Horse rake	Sheep racks and cribs
	Hand tools, chains, &c.

The estimated weight of iron in these implements is 20 tons, and to it there may be added at least 4 tons for iron work in farm buildings, gates, &c. The estimated annual consumption of iron in order to keep these implements good is about 6½ cwt., or rather more, per annum of wrought iron, and 7 cwt. of cast iron. The number of horses kept is 14; each of them on an average uses 32 shoes per annum, weighing about 2 lbs. each of them; one-eighth or so are lost, and the average weight of the old shoes worked up is about ¾ lb. each. From these data it is calculated that nearly 5½ cwt. of wrought iron are annually used yearly in horse shoes alone. And this makes the total consumption of wrought iron 12 cwt., and of cast iron 7 cwt. per annum. We are not informed as to the quality of the soil—the number of horses would lead one to suppose it heavy—but from their being spoken of as 'pairs,' and from the use of double furrow ploughs we suppose it to be light, and the latter is more probably the case.

On this farm in Bedfordshire, then, it appears that on 450 acres there is a consumption of rather more than 4 lbs. of iron per acre per annum. And this must be taken by our French correspondent as the only answer to his inquiry we have been able to obtain—the only one indeed we have ever seen attempted. He must remember however that the relative proportions of arable and pasture on this farm are not those which obtain over the country generally, and that the stock of iron implements upon this farm very far exceeds the quantity generally in use. On both these grounds we have little doubt that in this experience there is nearly double the consumption of iron which generally obtains per acre; and, therefore, that this, over the country generally, ought to be assumed rather as being between 2 and 3 lbs. per acre yearly than as between 4 and 5.

HOME FARM MANAGEMENT.—No. II.

Of the outlay on permanent improvements connected with a home farm the irrigating appliances of modern times form no inconsiderable part. With many excellent farmers, the vital question "will it pay?" is still in respect to irrigation thought to be unanswered. Looking at the heavy expenditure of from 4*l.* to 5*l.* an acre, which is necessary to bring the process into operation, a superficial examiner of the subject will naturally leap at the conclusion that it is certain to prove unremunerative. A careful profit and loss calculation on the other hand will generally demonstrate the fact that under judicious management it is sure to prove successful even in a money point of view. One great error committed in some well-known cases has been that of laying down more pipeage than could be kept in constant operation. In this way a very heavy interest has been incurred, and a comparatively small return obtained on the gross expenditure. There is so much liquid manure required for a small breadth of irrigated land that an excess should always be at command rather than that there should be the slightest risk of deficiency. Another evil in some of the liquid manuring practices of our day is that of employing urine alone. Every one acquainted with the chemical composition of animal excreta is aware that neither urine nor fæces contains separately all the elements of nutrition required by plants, but if used together they do supply these elements in perfection. The only way then in which manure in a liquid form can be employed with advantage, is to have both solid and liquid exuviæ present in solution. Not to anticipate the discussion of this department of my subject, however, I proceed to notice the outlay on irrigation as constituting an important part of the landlord's proportion of the investments on improvements. With a let farm it would be too much to expect the liquid manuring system to be adopted, unless the proprietor were agreeing to bear the major part of the expense, and in farming his own land the latter would therefore require to place the cost of all irrigating fitments at the debit of the permanent improvement account. On this outlay no doubt a more liberal interest should be allowed than would suffice on drainage expenditure, but taking everything into consideration 6½ to 7 per cent. would be enough. While it is advisable by all means to limit as far as practicable the cost of irrigating appliances, real efficiency and its certain concomitants should suggest the danger of unwise stintedness. Whether it be in the tanks, the engine, the force-pumps or the subterraneous pipage, true economy will always point to substantiality as a sound test to go by.

Nothing can be more annoying to a keen agriculturist farming his own land than an interruption every few months in the working out of his plans, and yet this is just what may be expected if there is a want of power in the engine, a defectiveness in the tank construction, or a general weakness in any of the other fittings connected with the irrigating machinery. How greatly do some of the older fashioned and more prejudiced farmers rejoice when a little mishap impedes the success of a new species of farm practice, which, as if by intuition, they have long ago condemned without a trial. In too many cases irrigation and other progressive systems, with the principles of which men who were thought to be enthusiasts have endeavoured to stir the cerebral faculties of the farmer, have experienced greater obstruction by some defect or practical inadequacy in the means adopted to bring them into operation than from any other cause. If a home farm, therefore, is to become a great school or a repertory of experience for the guidance of tenant farmers, all the new processes which may be introduced, whether relating to irrigation or otherwise, should only be so under such circumstances as give the greatest probability that the end in view will be gained. Extravagance in the construction of necessary fittings, or expensiveness in carrying into practice anything new that may be suggested, should certainly be avoided with as sedulous a care as the extreme which might be dictated by parsimony.

The next landlord's improvement which calls for a passing notice is that of *road construction*. A farm having bad roads cannot be expected to bring so high a rent as one more favourably circumstanced in this respect, and if good roadways add to the rental, the increase when sufficient to yield five or six per cent. on the expenditure, should give complete satisfaction. Every one knows that with a large addition to the produce of a farm in consequence of the adoption of the highest systems of farming, the wear and tear of its roads must also be greatly increased. Hence it is well for a proprietor in taking a home farm into his own hands to put all the necessary roads into substantial and thorough repair, and from year to year they should be kept in the highest possible state of efficiency. While the outlay requisite in forming the roads ought certainly to be charged against permanent improvements, such repairs as may be made from time to time belong to the tenancy account. In some cases it will be a matter worthy of consideration whether tram-roads, or even railways might not be preferable to ordinary macadamised roads. It may seem an absurd idea, but I confess I have a strong conviction that ere thirty years it will be no uncommon thing to see the produce of a farm brought from its outskirts to the vicinity of the homestead by means of a railway, the working plant of which will either be fixed or locomotive as may be desired. How handily might the farm-yard manure be run out to distant fields in this way! It could not perhaps be laid down at the very spot at which it was required, but if brought to within 200 or 300 yards of it a most important end would be served. For a farm of 400 to 500 acres with the steading near its centre, two main lines crossing each other at right angles, and a few branches would be sufficient. Here, however, let the purse-stirring question be put—"Will this railway scheme leave a dividend?" Why should it not? But I am again anticipating a future section, and must pass on. Of the profitableness of cheap tram-roads there can be no doubt, and in many cases it will be found advisable to make them the substitutes of metalled roadways.

The only remaining improvement, the cost of which should be placed to the landlord's account, is that of *fencing*. Whether live or dead fences are employed, it is the proprietor who should provide them, the tenant being bound to perform necessary repairs. On some estates the live hedges are kept in order at the mutual expense of the landlord and tenant, the work being performed by a staff of hedgers kept for the purpose. This is no doubt the fairest way of rating the tenancy account of a home farm. Let the hedgers' wages be debited to the proprietor, and a fair proportion, say about a half thereof, including cost of paling, carried to the tenant's ledger; on the same principle the gates should all be put in good working order, half the expense of repairs being debited to the tenancy outlay. With stone dykes, or other dead fences, the case is very similar. The landlord derives the greatest—because the most enduring—advantage from the erection of permanent fences; but the tenant has also an interest in the matter, and should contribute a share of the expense towards maintaining them in first-class order.

As it is not my object in this department of the subject to enter more fully into the question of permanent improvements, I shall conclude this letter by referring to the superior position in which proprietors farming their own land are generally placed in comparison to that of many tenant farmers dependent on their own means and exertions for success. The greatest drawback which a tenant can experience is the want of sufficient capital, and notwithstanding the present high

* This is on the supposition that the mixture is 2 lbs. of red, one of white, and one of yellow.

prices of produce there are still many farmers who are far from being in a favourable position as to money matters. True, the personal attention which a tenant farmer is enabled to give to the daily operations of his farm makes up to some extent for a deficiency of capital; but with good management money commanded by the home-farmer oils the wheels of fortune, and ought to throw a liberal balance on the credit side of his ledger. So far as necessary funds are concerned, then, amateurs cultivating their home farms have far greater chances of success than lessees can be expected to have. The former are not compelled to send their produce to market merely to obtain cash to serve a particular end, nor do they need to delay the purchasing of portable manures till the spring demand raises them not unfrequently 20 to 30 per cent. in price. All this rates in favour of home farms as against let farms, but the latter have also their advantages, though in many cases these are not sufficient to counterbalance their disadvantages. The shoal rocks on which the profits of home farms are generally wrecked may be described in the agricultural chart by two words, "extravagance" and "incompetency." If the proprietor is ignorant of practical farming and will yet keep the helm of affairs in his own hand, or think himself justified in dancing a minuet with every builder of agricultural castles in the air who comes in his way, why it is quite right in that case that he himself should pay the piper. By his extravagance, unguided by sound practical judgment, he is certain to squander far more than would give a fair profit on expended capital were the management more judicious. That incapacity is exhibited in numerous instances by persons in charge of the practical operations in home farming cannot for a moment be doubted, and to incompetency of the manager as much perhaps as extravagance of the employer are many of the failures of home farming to be ascribed. With sufficient capital, a skilled and prudent responsible steward, and a proper selection of farm servants, whose intellectual and moral culture will be cared for, there can be no sound reason for supposing that the profits of a home farm will bear a discreditable comparison with those of any similar occupancy farmed by a tenant.

In my next letter I purpose to enter on the tenancy department of my subject. *J. Lockhart Morton.*

PROGRESS OF BRITISH AGRICULTURE.

[The following concludes our extract from the report by Mr. Denison.]

Field Practice.—The greatest improvements in cultivation and management have taken place in the strong lands. Draining is the foundation of all these improvements. Draining, now better understood and generally well executed at a sufficient depth, has changed the character of whole districts, turning unmanageable and unprofitable soils into easy-working and productive land.

It would be interesting to ascertain the extent of land drained each year; but no sufficient data exist for a reliable estimate. Draining operations are carried on by means of the public loan, the capital of private companies, and of individual proprietors.

Of the public loan of 4,000,000*l.*, the sums issued for works in each of the last three years have been—

1852	£410,478
1853	318,6[illegible]7
1854	322,728
	£1,051,843

What proportion do the lands drained by the public loan bear to the lands drained by private capital? If the example of this district should be a clue to the whole area of the country, the lands drained by the public loan would not be more than one-fourth of those drained by private capital. In such case, the total sum expended in draining for the last three years would amount to 5,257,615*l.*, and allowing 5*l.* for the expense of an acre, the extent of land drained would exceed 1,000,000 acres. This sum, or whatever sum may have been expended in draining, will have been capital supplied mainly by the proprietors of land. A sum equal to the above in amount has been expended, mainly by the tenant farmers of the three kingdoms, in the purchase of a single article of manure; and this is not a vague estimate but an ascertained certainty.

The sale of Peruvian guano by Messrs. Gibbs for the last three years have been—

	Tons.
1852	118,000
1853	135 000
1854	177,000
	430,000

Allowing 12*l.* per ton for cost and carriage, the sum expended amounts to 5,160,000*l.*

To this must be added the large outlay on Linseed cake, on bones, rags, on minerals containing fertilising principles, on lime, plaster, &c. With these combined efforts on the part of the owners and occupiers of the soil, there can be no danger in asserting that the productive powers of these islands have largely increased, and are continually gaining new force.

I have said that the most marked improvement has taken place on the strong lands. Draining and autumn cultivation, materially assisted by good implements, have enabled the occupier of strong land to add Swede Turnips to this course of cropping. The importance of this addition is beginning only to make itself felt. This root, which, with its different varieties, created the value of the light lands, is now performing a service almost as great to the strong lands, not, as on light lands, for feeding sheep, but for feeding cattle The quality of the Turnips grown on strong lands is greatly superior. The land will bear the whole crop to be carted off to feed cattle in yards. Cattle supply manure, manure gives corn. It is difficult to estimate the addition, in meat and in grain, which this alternating process will surely afford.

It may be thought by some that too much stress has been laid on the value of improved implements. It may be worth while to examine the point more closely.

What saving might be effected on a farm of 200 acres of arable land (the rental, say, 25*s.* per acre,) drained and laid into fields of a suitable size, by the use of good implements? All land is ploughed at least twice a year. The difference in labour between ploughing drained or undrained land is very great.

It would be an estimate much below the mark to put it at 1*s.* per acre for each ploughing.
For the year, 2*s.* per acre.

The next process would be sowing the seed.

On the old system, 2½ bushels of seed Wheat would be sown broadcast per acre.
On the new system, with an improved drill, 1½ bushel would be sown with better results.

There would be a saving, therefore, of 1 bushel per acre on the 50 acres sown with Wheat, which, at 7*s.* per bushel, amounts to 17*l.* 10*s.*, or per acre, over the whole area, 1*s.* 9*d.*

On 50 acres of Barley there would likewise be a saving of 1 bushel of seed per acre, which, at 4*s.* per bushel, would give a saving per acre of 1*s.*

Next comes the preparation of the grain for market. There are to be threshed the produce of 50 acres of Wheat, at a yield of 4 quarters only per acre, 200 quarters; of Barley, 50 acres, at a yield of 5 quarters per acre, 250 quarters. The cost of threshing Wheat by the flail, and dressing, is 4*s.* per quarter; by an improved steam machine, 1*s.* 6*d.* Saving on 200 quarters of Wheat, 25*l.*, or per acre, 2*s.* 6*d.* The cost of threshing Barley by the flail is 3*s.* per quarter; by steam machine, 2*s.* Saving on 250 quarters, 12*l.* 10*s.*, or per acre, 1*s.* 3*d.*

Total saving by the use of drill and threshing machine, 8*s.* 6*d.* per acre, or one-third of the rent, 25*s.*

Besides the economy and direct gain to the farmer, the saving of 1 bushel per acre of the grain employed in reproduction is an important aid to the consumer, and when multiplied over the total area of land still cultivated under the old system would form no insignificant addition to the annual resources of the country.

The rapid spread of useful information and of approved practice must be laid to the account, in no small degree, of the journal and of the meetings of the Royal English Agricultural Society. The meetings of Society, held in each year in different districts, enforce precept by example, and communicate every variety of useful information in the most attractive form.

Such are some of the proofs of the onward march of agriculture, and of the progress which it has made since the Exhibition, and, in many points, by virtue of the Exhibition of 1851. Still we feel ourselves to be only on the threshold, and much remains to be done. We ask of science to penetrate yet deeper into the secrets of Nature's laws. We ask of mechanical art to bring to our aid in the field the mighty agency of steam.

We call upon the farmers to continue and increase their efforts, so alone will they be able to keep pace with the demands made upon them by a population ever increasing in numbers and in wants, and to maintain the place in the front rank which they now honourably hold.

Home Correspondence.

Alderney Cows.—Having seen a statement from "E. C., Gresford, Denbighshire," in your Paper, of four Alderneys giving 712 lbs. (18 oz. to the pound) of butter during the year, besides a small quantity of milk, cheese, and cream for family uses, I would wish to state the true Guernsey (or Alderney) cow is only to be obtained pure in this island. Those seen in England are mostly brought from Jersey, and sell rather cheaper. The pure Guernsey cows are infinitely [!] larger, taller, and of a somewhat darker colour than those from Jersey. Instances have been known of a Guernsey ox being fattened to 15 cwt., but the heaviest in Jersey has not exceeded 11 cwt. It is an invariable practice throughout Guernsey to tether the cattle, staking them by the horns to the earth, by means of an iron or wooden peg attached to a halter about 12 feet in length; this is shifted about four times in a day, allowing a fresh range of 4 or 5 feet. They are milked three times a day throughout the summer months; the milk is churned with the cream. The butter is in great request by the country people as an article of food, and is pretty palatable; cheese is never made. The general quantity that a Guernsey cow will give throughout the year is about 365 lbs. of butter. In summer many instances occur in which cows give as much as 15 lbs. of butter in a week. So convinced are the people of the eminence of their cows, that every foreign breed is rigorously excluded, oxen only being imported for the slaughter-house. A Guernsey farmer would not even allow a Jersey cow to come on his land, though this distinction is not known in England. As a guide to the English purchaser, it may be observed, that a thoroughbred Guernsey cow is required to exhibit on its person 20 marks before the Agricultural Society of the island pronounce it perfect. These marks are the following:—The pedigree of the father being proved to be good, and yielding yellow butter, the distinctive marks of which property being yellow ears internally, yellow circlet round the eyes, round tinge at the root of the tail, and full udder—these count for 7 points; general appearance, colour cream, light red, or both mixed white, and the hair smooth and short, count for 3 points; handsome head, ditto horns, slightly curved inwards, bright and prominent eye, 4; deep barrel-shaped body, the flanks well rounded, 3; handsome legs, not knocking each other when walking, 1; the hind quarters flat and right-angled, back straight and level, 2. Criterion of perfection, 20 marks. *J. Charlton, Gardener to P. de Jersey, Esq., Queen's Road, Guernsey.*

Filtration of Manures through Soils.—Mr. Mechi writes, at p. 251, "The quantity of liquid manure applied was about 100 gallons per minute. * * * Total application per acre about 20,000 gallons, or 1 inch rainfall." May not the rapid rate of that application be the cause of the liquid manure passing through Mr. Mechi's drains "strong and highly coloured." One inch rain-fall in six hours is a very heavy rain, and what we do not frequently get. According to Mr. Mechi's quantities he pours on the soil 1-inch fall in three hours and a half. I would suggest that Mr. Mechi make a trial of an application of liquid manure at the rate of 1-inch fall in nine hours, which will be a nearer approach to an ordinary heavy rain-fall, when I think, excepting in cases of an application upon very dry ground, he will not find his "spring-water tainted at a mile distant from the field irrigated," or the water running coloured through the drains. Seeing "the solution from an ordinary dung heap on the surface of a strong clay field flowing though drains several hundred yards from it," I think is no argument that such is the case from dung spread on a field. Soils in a very dry condition are much slower in absorbing water, especially clays, than when they are only in a moderately dry state, consequently their powers of filtration are shown. The state of the soil should govern the rate of the application of liquid manures if a perfect filtration is desired. Very dry clay cannot hold in solution for a sufficient time to produce filtration the quantity of liquid manure Mr. Mechi tells us he found on his field in about three hours and a half time. With such a pressure the interstices of the clays would convey the water directly and rapidly to the drains—hence the failure in filtration. *Henry Bundy, Dynevor Castle.* [It is desirable that there should be a careful re-examination of Mr. Mechi's extraordinary experience. We should be inclined to attribute some of the waste to a flow over the surface of the land.]

The Keythorpe Draining.—I have read a paper on the Keythorpe draining in your Number of the 26th inst., signed "J. Trimmer," in which that gentleman expresses his confidence in what he terms the "Keythorpe system," and challenges any disciple of the perpendicular and parallel principle to produce a farm of 400 acres as efficiently and cheaply drained as that at Keythorpe. Unfortunately I have not had an opportunity of seeing that farm, nor am I strictly speaking in a situation to take up the gauntlet so boldly thrown down by Mr. Trimmer, inasmuch as my farm contains but 340 acres, of which 170 only are under the plough. Should Mr. Trimmer however, be willing to extend his limit from 400 to 340 acres, I am prepared to accept his challenge and "leave the decision of the question to a jury impartially selected." Having now disposed of the draining question, I will venture a step farther, and challenge Mr. Trimmer or any other person in the United Kingdom for 100 guineas to produce a farm of 170 or any greater number of acres, carrying a Wheat crop of equal luxuriance and comparative extent with mine, taking into account the quantity and quality of corn produced in 1855; the aforesaid draining jury to decide this question also, either now or just before or after harvest. I offered a similar challenge last year to Surrey and Sussex, but as I found no competitor, I am in hopes by making the invitation more general I shall meet with better success this year. *J. C. Sherrard, Kinnersley Manor, Reigate.*

Agricultural Statistics.—The following letter, which has been sent to us for publication, was lately addressed by Colonel Clinton to the Secretaries of the Royal Agricultural Societies of England and of Scotland:—

I have the honour to state to you that I object to the proposal of compelling the Farmers of England to make agricultural returns. What is sauce for goose is sauce for gander, according to a vulgar but sharp truth-telling saying. May not the question be asked, if the country has a right to force farmers to answer such questions, whether the country may not—claiming a similar constituted authority—call upon bankers to give upon oath periodical returns of the 'Fields' of capital they lay down?—of 'the crops' of interest of that capital which they reckon upon reaping? May not the country lay claim to a right of demanding similar returns from all merchants and shopkeepers, from manufacturers of cotton, iron, silk, wood, wool, &c.? *H. Clinton, Colonel.*

On Ladders.—Among all the prizes offered and given for so many and various articles and productions, I do not recollect ever to have seen a prize "for the best ladder," yet for the general convenience of the community it is an article which of all others should be good of its kind; in fact it should be strong and light. As I have succeeded in making a good ladder, perhaps some of your readers would wish to hear some of the particulars. Being in want of a couple of ladders for stack building, &c., we procured two good Norway spars, and having divided one of them I was advised to place the convex sides inwards for the convenience of any one who might have to sit on it; so we made a very good ladder, but as usual a pretty heavy one. When the other spar was divided it struck me that we might make two ladders of it instead of one, and accordingly we had

one side divided again, each quadrant presenting its point to the spoke; and this I need not say is little more than half the weight of the other, and it is much more than half as strong, as you will see. Our ladder has been eminently successful, and is a prime favourite in the farm-yard. I may add that the holes should be bored with an auger of a tapering form, so as to weaken the sides as little as possible, at the same time leaving the rungs of full strength where they require it. *I. T.*

Fluke Potatoes.—I last year purchased a bushel of Fluke Potatoes for sets, and thinking them too large to set whole, I cut the largest in two, and set the smaller whole. As soon as they came up there was a perceptible difference in the growth from the cut and the whole sets; the whole sets all grew with a strong top, but the cut ones grew some of them feebly, and about one-fourth of them entirely failed. I took up several of the sets that did not grow, and I found them eaten away with a grub near an inch long, of a light colour, the whole length of the body. I do not know the name of it, but perhaps you may know it from my description; the same grub frequently destroys the crop of Onions. I had a quantity of Regents planted with cut sets by the side of the Flukes which were not damaged in the least; it would therefore appear that the grub is partial to the Flukes, but that it will not eat through the skin. *J. Aldroyd, Royston.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *April* 30.—Mr. Miles, M.P., Vice-President, in the chair. The names of 29 additional candidates for election at the next monthly Council were received.

Chemical Science.—Prof. Way, the consulting chemist of the Society, read his first report on the progress of chemical science both at home and abroad in reference to agriculture; which he was requested to revise for publication in the Journal. On the motion of Lord Berners, seconded by Mr. Evelyn Denison, M.P., the thanks of the meeting were voted to Prof. Way for the report he had then read to the Council. Mr. Deeison added that it had given him great satisfaction to listen to the reading of that report. As far as his own limited knowledge went, he fully concurred with what Mr. Way had stated, especially in reference to the controversy between Baron Liebig and Mr. Lawes. He was glad to find that we might possibly see ourselves within that term of the discussion at which those two eminent chemists might come into harmony on points respecting which they had hitherto held opposite opinions. He concurred with Mr. Way in his views on the impulse which mechanical progress in the cultivation of land might give to the development and application of chemical science.—Mr. Miles, on putting the motion from the chair, remarked that the great utility of communications such as the one they had then heard from Professor Way, consisted in their bringing at particular times before the minds of the members connected statements of such facts as had occurred, or been communicated, at irregular intervals during a long course of years. They supplied at once in connected order a vast amount of matter for careful consideration. The early attention of the genius of Liebig to the application of chemistry to agriculture, the great experimental research of Mr. Lawes, and the perfect unanimity which appeared likely to take place eventually between them, to the benefit of agriculture, were all of them circumstances of an important and gratifying character.

The Council adjourned to their Monthly Meeting on Wednesday, the 7th of May.

Farm Memoranda.

The Works of the Nitrophosphate Company near the Victoria Docks are well worth a visit. The quantity of material accumulated for future use, the enormous daily supply for daily use, and the store of manufactured manure accumulated, though now rapidly diminishing by daily issue, impress one with a very high sense of the extensive operations of the company and of the demands of agriculture which here meet with but one of a multitude of sources of supply. Bones from Spain and South America lie in shiploads—in heaps exposed to the air. Storage for oil of vitriol is provided in large cisterns within the building. Blood to the extent of 3000 gallons daily is brought in by the company's collecting vans. These are the three ingredients employed. The bones are crushed upon the premises, and with a certain proportion of crushed coprolites are placed in a horizontal cylindrical vessel, and sulphuric acid being added the whole is mixed up for some minutes by the revolution of an armed axis: and, the end of the vessel being then opened, the whole pours out on to the floor below. Though liquid as it issues it soon solidifies, and, the process continuing, the floor soon becomes filled up to the level of the machine from which the supply proceeds. This machine is placed so as to permit the material from it after mixture to fall into another division of the premises, which when filled up to the level of the machine presents a mass of the manure 50 yards by 12, and 5 or 6 yards high. So large a mass insures some months' supply, so that the material is not hurried into use, but lies for many weeks before being sent out to customers. The perfect completion of the action of the acid upon the materials used is thus secured, and the article is proportionally efficient.

We have often referred to the fact now fully established, that the main object of artificial manure should be to supply the two ingredients ammonia and phosphoric acid—the mixture of blood with bones and acid seems to be the cheapest and the most efficient way of presenting these two substances in a form available for use in the field. This mixture, to which we understand the company professes to possess a patent right, is now made in probably every manufactory of manures in the country. And it is fortunate we think that no attempt has been made by patentees to maintain an exclusive right, even if it exists. There is thus a better chance of a large demand being more fully supplied: and certainly the Nitrophosphate Company appear to have as much to do as they can execute.

Reviews.

Reports of Jurors and others on the various classes of the Paris Exhibition.

We refer to this for the purpose of extracting passages from the report of Mr. Denison, M.P., to the Board of Trade on the agricultural implements and produce exhibited. It commences with the picture of English and French agriculture given by M. Leonce de Lavergne in his work on the "Rural Economy of England." Reports on the trials of ploughs and reaping machines, the one by Mr. Amos and the other by Mr. Fairbairn follow. Neither of them adds much to existing knowledge on the subject. Mr. Fairbairn concludes his remarks on the reaping machines with the following sentences:—

"On a careful examination of the several machines entered for the prizes, it will be observed that in every one of them an attempt was made to effect a certain purpose by certain means of transmission, calculated to retard rather than facilitate the progress of cutting. In machines of this description, where horses are employed as a motive power, it is desirable to make the action as easy as possible, and to effect the motion of cutting, reaping, &c., with as light wheels and gear as practicable. Now these small wheels and their attachments at present in use appear to me to be the very worst and heaviest parts of the machine, and I would earnestly urge upon the makers of reaping machines the absolute necessity of increasing the diameters and dimensions of the gear which works the cutters, and at the same time to fix and attach the journals and ends of the shafts into one casting, so that they cannot vary in position, but must move, and technically speaking, go and come with the machine. These alterations being made, the proper clearing apparatus being attached to the receiving-boards, we might then look forward to the labours of the harvest being performed with much greater certainty and effect than is now accomplished by the present machines. The following table, which Mr. Edward Combes has kindly handed to me, gives the results of the different trials as follows:—

Trial of Reaping Machines on the Farm of M. Dailly, at Trappes, near Paris, 2d August, 1855.

No.	Name.	Country.	Breadth of Cutting. ft.	in.	Square Metres.	Time.	Number of Horses.	Price.	Remarks.
1	Courtier ...	France ...	4	3	1628	67	1	£ 26	Driving-wheel 3 feet 3 inches; crank makes 11 revolutions to 1; knives not serrated.
2	Atkins... ..	American	5	3	1733	24	2	36	Diameter of driving-wheel, 4 feet 4 inches; crank makes 24 to 1.
3	Lawrent ...	France ...	5	0	1825	66	2	...	Diameter of driving-wheel, 3 feet; crank makes 15 to 1; similar to Bell.
4	Mazier... ...	France ...	2	7	Broke down		1	...	Small machine, cutting either right or left, by means of the cutting-frame turning on a central moveable axis; knives worked by wheel and worm.
5	Manny... ...	American	4	6	1900	26	2	26	Diameter of driving-wheel, 2 feet 6 inches; crank makes 13 to 1.
6	Crosskill Bell's	England ..	5	0	Broke down		2	45	.....
7	M'Cormick ...	American	5	6	1987	17	2	80	.....
8	Dray	England...	5	0	2250	35	2	25	.....
9	The Canadian	.....	6	6	Retired		2	...	.....

"From the above table it will be seen that M'Cormick's American machines performed the most work in the least time; that Atkins' and Manny's executed as nearly as possible the same quantity of work in the same time, there being a fraction in favour of Manny; and that Dray was the next in the order of time and the quantity of work done.

"Reducing the whole work done to a standard of 2000 square metres, the competing machines will stand thus:—

M'Cormick's	would cut	2000 metres	in 17.00	minutes.
Manny's	"	"	27.36	"
Atkins'	"	"	27.69	"
Dray's	"	"	31.11	"

"If we are, therefore, to take the quantity of grain cut in the least time, Mr. M'Cormick's machine will stand first on the list, and the others according to their position in the above scale.

"In the investigation of this subject, we have hitherto confined our observations to the machines. There is, however, another element equally important and essential to the efficiency of the process of reaping, and that is, *the preparation of the land;* and, in fact, before we can look forward to ultimate success, the surface must be levelled, and the present injurious system of ridges dispensed with. To a casual observer it is obvious that the present state of culture, as pursued in most parts of Europe, is not calculated to afford the necessary facilities for ensuring a successful progression to machinery. To apply machinery successfully to the labours of a farm, the land must be prepared, not for hand but machine labour; and the successful introduction of reaping machines will chiefly depend upon the preparations that are made for their reception. The system of ridges may be tolerated, and overcome by the sickle, but to give to the new process of reaping by machinery its full effect, a totally different plan of operations must be pursued, and the fields laid down with a perfectly smooth surface. The larger description of stones and other obstructions should be removed, and in place of the superfluous water not required for the nourishment of the plants being allowed to flow between the ridges on the surfaces of the field, sweeping in heavy streams, as it now does, everything before it, the new system of drainage will require to be adopted, and the water carried under in place of running over the surface.

"To make a machine, such as a reaping machine work well, everything must not be left to the machine; the agriculturist must do his duty as well as the engineer, and that duty once duly performed on both sides, a certainty of action will be secured, which will solve the problem, and effect satisfactory results."

The most interesting feature of Mr. Denison's report however relates to the question which he had to answer: "What has been the progress, if any, which has been made in agriculture since 1851." The very interesting pages in which this question is answered we are reprinting elsewhere in successive numbers of this Paper (see pages 288 and 307).

Miscellaneous.

Rotten v. *Green Manure.*—I have been in the habit of using manures for 25 years, and it has always run in my mind that the rotten or decomposed manures were the best for green crops. Some two or three years ago, in 1852 I think, some little conversation was taking place, I dare say I may say with a pipe and a pot, about the best state of using manures. One said green manure was the best, others said it should be decomposed. I thought: this is a little matter which may be of some benefit to me. I went home determined to try a little next year, which I did, saying nothing to any one. That was in 1853. I tried the experiment on a small scale for early Potatoes, and was not able to ascertain which was the best. I did not see any difference between the early Potatoes and the second crop. You will understand this when I say I am a great early Potato grower, and I try to get second crops. In 1854 I tried it again, and the way I did was this: I carted out my farm-yard manure in the latter part of January, saving a quantity of the green manure undisturbed. I did not throw it broadcast, but put it down and turned it over in a heap well trodden down at the sides. This I tried in March, putting on both kinds of manure at the same time, in the same quantity as nearly as possible. I got up my Potatoes in July, and then found that the decomposed manure was much better than the green manure; the decomposed manure yielded half as many Potatoes again as the green manure. As that was a dry season I was not satisfied with that result, and so I have tried it this year again in a similar way, and yesterday I took the weights of the second crop now growing, which I will read to you. The rotten manure was carted from the farm yard into a heap, and turned well over at the time, about the middle of February. The green manure, which was made at the time the other was carted into a heap, was carted into the field, put upon the Potato butts and ploughed in at once when the Potatoes were being planted. As nearly as possible an equal quantity was used of each kind of manure, allowance being made for the additional bulk of the green manure. The Potatoes were Early Radicals, planted about the 25th of March, and taken up on the 25th of July. There were at least half as many more on the rotten manure and of better quality than on the green manure. They were not accurately weighed, but while two pairs of getters filled a hamper from the green-manure land, two pairs from the rotten manure filled rather more than a hamper and a half. The Turnips were sown on the 21st of July, and at the present time those from the rotten manure appear vigorous in growth and quite green, while those on the green manure appear to have grown little or nothing in top for the last fortnight, but

more in bulb. A portion of each lot was taken up and weighed yesterday, and the result is—on the rotten manure, total weight of the tops and bulbs per statute acre, 10 tons, 14 cwt., 1 qr., 4 lbs.; weight of bulbs only, 2 tons, 4 cwt., 1 qr., 4 lbs.; ditto of tops only, 8 tons, 10 cwt. On the green manure, total per acre of tops and bulbs, 6 tons, 2 cwt., 3 qrs., 12 lbs.; weight of bulbs only, 2 tons. 10 cwt.; ditto of tops only, 3 tons, 12 cwt., 3 qrs., 12 lbs. So that although the rotten manure exceeds the green in weight of tops and bulbs by 4 tons, 11 cwt., 1 qr., 20 lbs., the green manure exceeds in weight of *bulbs only* by 5 cwt., 2 qrs., 24 lbs. The rotten manure Turnips are, however, still green and vigorous, while those on the green manure have a very small top, which is brown and withered. *Mr. Taylor, at Chester.*

Calendar of Operations.

APRIL.

WESTER ROSS, *April* 23.—A more favourable seed time than has now nearly concluded could not be desired. Throughout the month of March we scarcely had a drop of rain, and the long continued easterly winds dried up the soil, and admirably prepared it for the seed. In the beginning of this month the lighter soils were standing much in need of a copious shower; the growing Wheat was withered with continued frost; the Grass was making no progress, and on the 12th inst. when all was expectation, we were favoured with 24 hours of an abundant rain. Since then vegetation has been progressing satisfactorily, Wheat has greatly improved, and now looks thick-set, dark-coloured, and broad-leaved; Oats are well brairded, and Grass, on the earlier fields, is already affording a good bite to the cattle. Barley sowing, which ordinarily takes the last place in this neighbourhood, is nearly finished also. Of this kind of grain there is such an unusually small proportion sown this year, that it is probable that, in the coming year, there may not be such a disproportion between the price of Wheat and Barley as there has been these last two years. The allotment for Oats has been greatly narrowed too, and should we have another visit of the Pototo disease this coming season, we should be necessitated to import a large quantity of this grain. Potato planting is well advanced generally, and on many farms is concluded. The breadth planted this year is smaller than has been planted for many years. Although they were pretty sound when taken up last year, many of them rotted in the pits, and although the price has continued throughout the winter about 3*l.* per ton, the demand has not been so good as in years gone by. The Muir of Ord market was held last week on Wednesday for sheep, and for cattle on Thursday. For the better lots of Cheviot hoggs there was a brisk demand, and the price of last market was pretty well maintained; but for inferior lots and for Leicester crosses there was little demand, with lower prices. On Thursday there was an unprecedentedly large number of good cattle on the ground, but prices were sadly fallen. On cattle worth 12*l.* there was a drawback from last year's prices of fully 2*l.*; and as many a lot that was there exhibited had eaten all their Turnips and nearly all the straw ere they came away, they had to be disposed of at the current price, so not a few farmers returned home with no more money in their pockets than the purchase price of the same animals six months ago.

Notices to Correspondents.

AMERICAN PURCHASES OF SHORTHORNS: *F R S.* It is owing to these, no doubt, in some measure, that prices have been maintained so high; but this has been seen rather in the case of particular strains or families of the breed than in sales of the general quality. There has been a great demand, especially for animals descended from Mr. Bates' herd, from across the Atlantic, and this having been met by most determined competition—especially by Captain Gunter, of Earl's Court, Old Brompton, who has more of what is called the Duchess and Oxford families of Shorthorns than any other in England—prices have been run up at sales where any of these animals have been shown to an extraordinary height. This has been seen more especially at the Tortworth and Hendon sales. Such sales as the late one at Fausley, however, prove the esteem in which the breed generally is held. There were shipped from Liverpool for New York only last week 24 head of shorthorned cattle, purchased at sales and from herds in various parts of the kingdom, and amongst the breeders are to be found the names of Earl Ducie, Sir C. Knightley, Messrs. Booth, Bolden, Fawkes, Towneley, Barnett, Fowler, Lindsell, Sanday, and that enterprising Irish farmer Mr. Christy. Among them was a yearling heifer which took the first prize for the best yearling heifer at the Royal Dublin Society's show against all Ireland, and also won the challenge cup of 50*l.*, given by Col. Towneley, of Towneley Hall—a bull, Vatican, which took the first prize at the Royal Agricultural Society's show held at Lincoln in 1854, and several other fine specimens from the herds of F. H. Fawkes, Esq., of Farnley Hall, and the above-named breeders. A portion of the animals were consigned to Mr. Thorne, of New York, who bought some of the highest priced animals at Tortworth, and lately paid Mr. Bolden, of Lancaster, 1000 guineas for a bull.

BLUE VITRIOL IN CHEESE: *H* will, if he looks again at the Diary, see that the use of blue vitriol was described as a fact—not recommended; that, on the contrary, other plans of attaining the end for which it was used were recommended. We know that in Wiltshire and in Gloucestershire blue vitriol has been and probably still is used in the way described, in quantities however which must be harmless; though in any quantity its use is culpable.

LINEAL MEASURE: *Messrs Hardy* write, in answer to an anonymous correspondent, that the number of feet per acre of what they call lineal measure means the number of feet long of a strip an acre in extent. Of course the length will vary with the width of the strip in question. If a foot wide it will be 43,560 feet long.

STABLE ARCHITECTURE: *An Anonymous Correspondent* says:—"The very high value of cart horses (irrespective of other considerations) seems to demand from their owners more attention to their welfare than they have hitherto received. I am about erecting a stable for 10, and would be very glad to have a little light on the subject from yourself or any of your correspondents. I propose to have no loft, and to use slate, laid upon inch boards, for the roof. What is the best plan of ventilation? and would not the horses be better placed as we tie up cattle, with a feeding path at their heads; half the space allowed to each horse being for manger, and half for rack, on the ground? Such an arrangement, it seems to me, would avoid the inconvenience and chance of accident from feeding the horses from behind, and promote their comfort by keeping their noses further from the wall." [The stalls must be cleaned from behind, and if the width of the building be fixed upon, it seems to us that there is greater diminution of risk by widening the space between their heels and the wall than by giving a gangway between their heads and the wall. For farm horses we would recommend pantile roof not pointed, and that would ensure ventilation enough.]

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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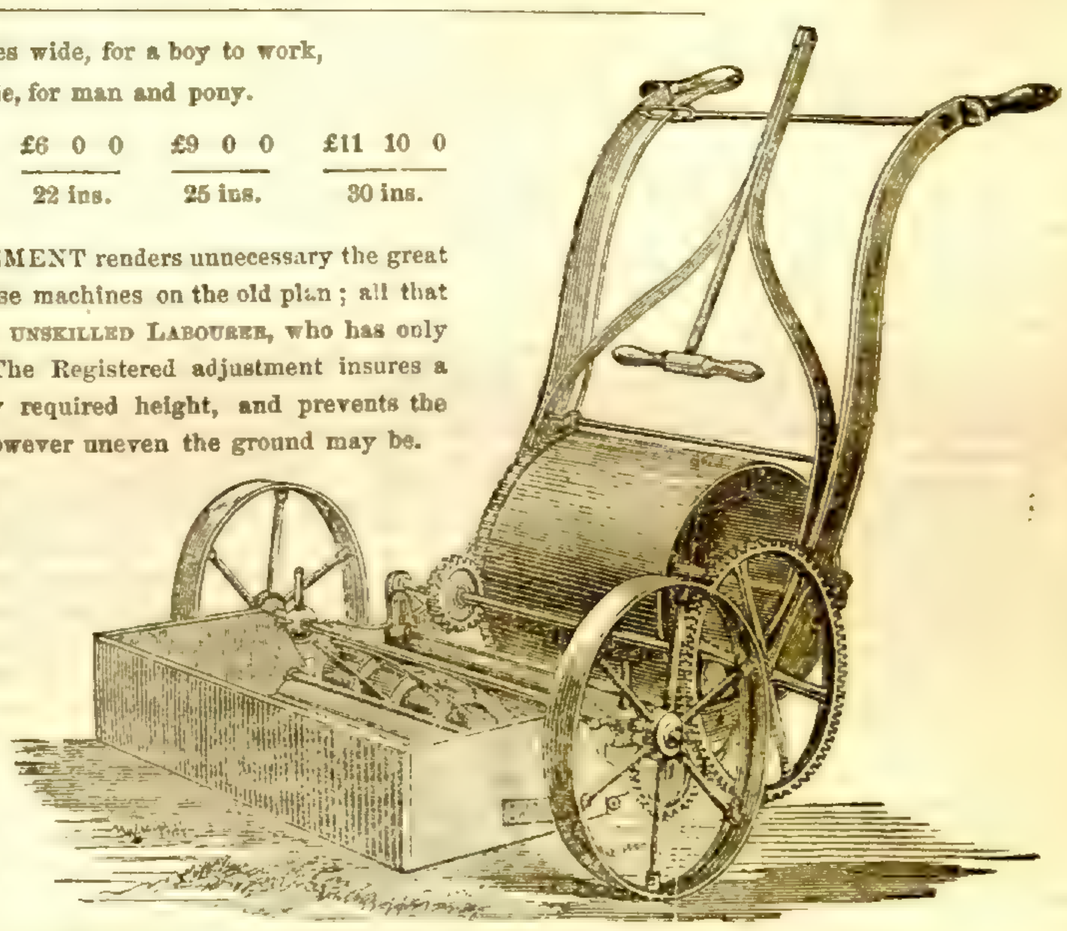
Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



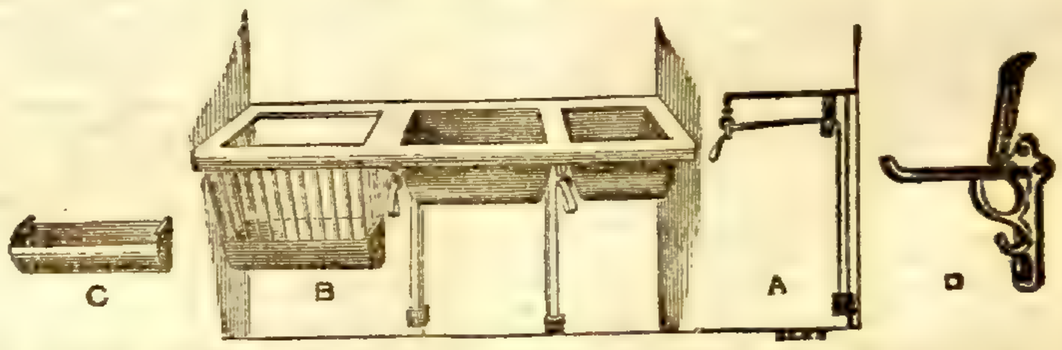
THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

NEW PATENT INVENTIONS FOR STABLE REQUISITES
Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanatorium, 46, Leicester Square.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,
is strongly recommended, for durability and low price, viz., 2l 19s., to hold 10 gallons. Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high			...	£4 10
No. 2	15	"	" 45 "	...	5 10
No. 3	28	"	" 45 "	...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high			...	£2 15
No. 13	12	"	" 30 "	...	3 5
No. 11	16	"	" 40 "	...	4 0
No. 12	24	"	" 45 "	...	5 0
No. 14	30	"	" 45 "	...	5 18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

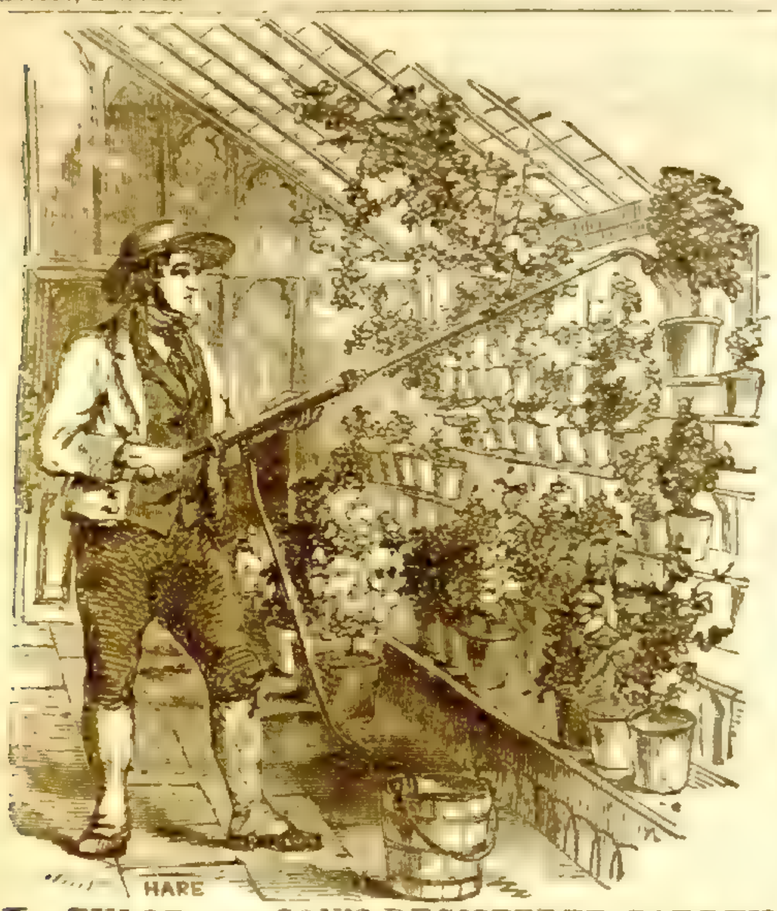
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅛ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

IMPORTANT TO NURSERYMEN AND FLORISTS.

PATENT MACHINE-MADE TALLIES FOR PROPAGATING PURPOSES, five-eighths of an inch wide, perfectly smooth on both sides, and pointed. Price 1s. 8d. per 1000, for cash. A sample by post on receipt of stamped envelope.—E. EDWARDS & Co., St. Paul's Square, Birmingham

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

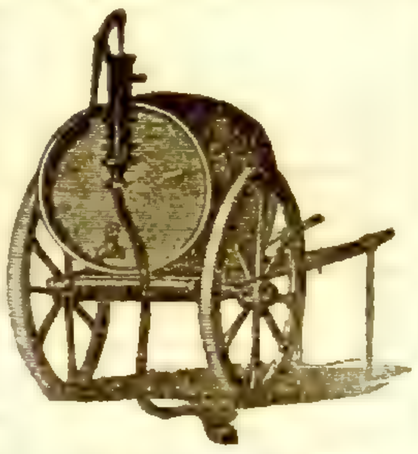
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ " long	3 " 3 "		1 14 0
3 " ditto	3 " 6 "		2 8 0
3½ " ditto	3 " 6 "		2 12 0
4 " ditto	3 " 6 "		3 3 0
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



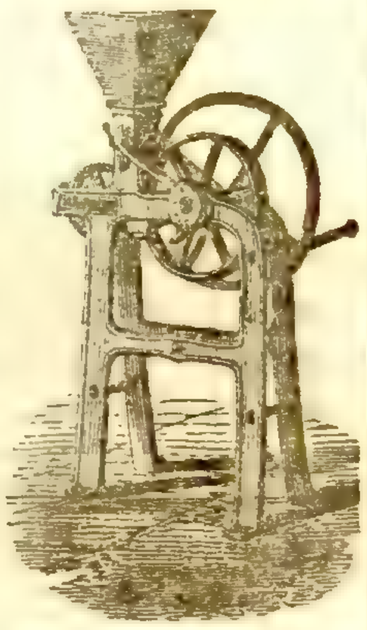
Price of Pump and Union, 50s.

1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 6d. per foot.

1½ Gutta Percha Suction, 1s. 9d. per foot.

OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).

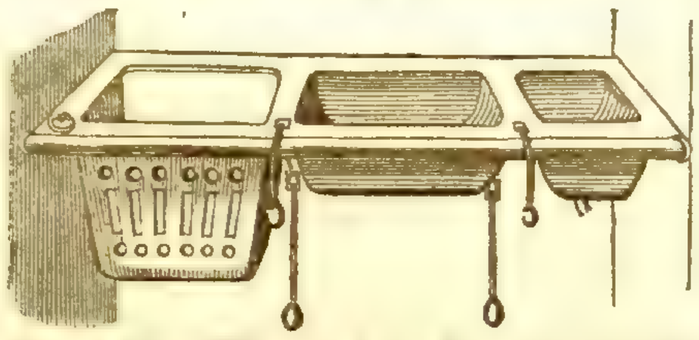
This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15s. 6d.

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

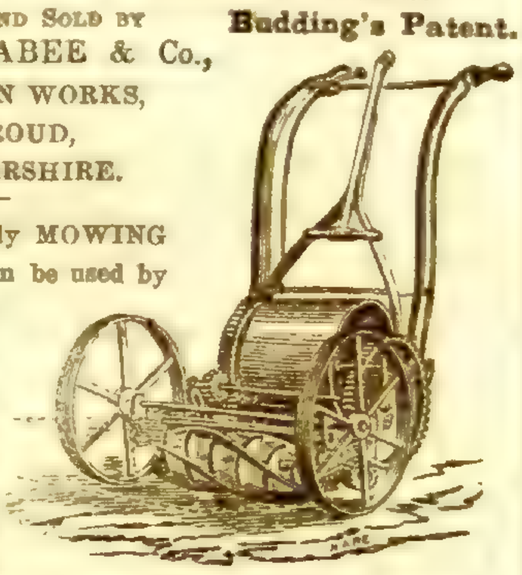
JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co., PHŒNIX IRON WORKS, NEAR STROUD, GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.



Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	...	£5 10s.	0d.
Ditto for Man and Boy	" 22 ditto	...	6 0	0
Pony Machine (or Donkey)	" 26 ditto	...	8 0	0
Horse Machine	" 28 ditto	...	11 0	0
Ditto	" 36 ditto	...	15 0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

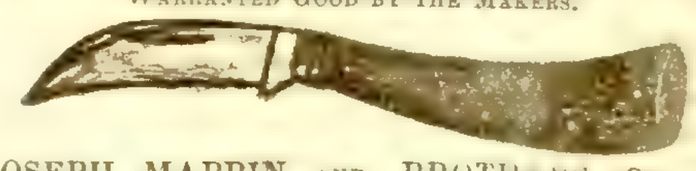
IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5s. 3d. each.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67 and 68, King William Street, London. Drawings forwarded by post.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTEN, 10 and 11, Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9s. per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard. Half-inch mesh ditto, 2 yards wide, 8d. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½d. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½d. per yard; 4 or 6 yards wide, 3d. per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50s. each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

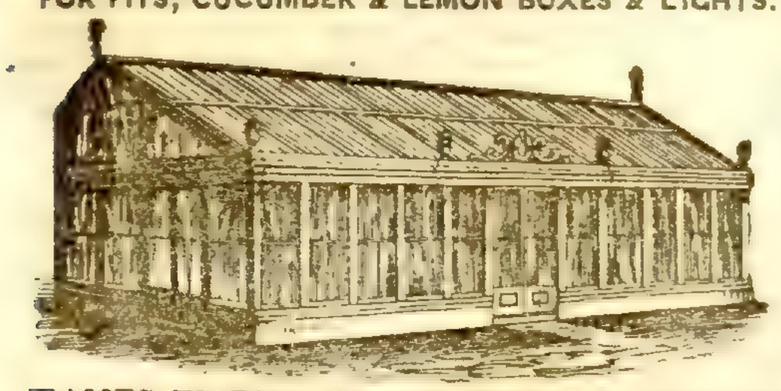
HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	Grape Gatherers and [Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	„ Knives, various
Borders, various pat- [terns	Hammers	„ Saws
Botanical Boxes	Hand-glass Frames	„ Scissors
Brown's Patent Fumigator	Hay Knives	„ Shears
Cases of Pruning In- [struments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
„ Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
„ Loops	Mole Traps	Transplanting Tools
„ Rollers	Mowing Machines	Trowels
„ Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument), London Bridge. Established A.D. 1700.

BRUISED OATS THE BEST; weighed 40 lbs. per Bushel delivered to any part of London, or to any Railway Station, on receipt of cash or good reference.—Apply to HORSNAILL & CATCHPOOL, Caledonian Road, London.

Every description of Corn supplied on the lowest terms.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15s. per dozen, including case.—Address, Holme, Stilton, Hunts.

COLDEN SPANGLED HAMBURGHS.

EGGS at 10s. per set (of 13), all from Prize Birds, in part from Mrs. Coleridge's celebrated stock, Eton College, Windsor.—Address, Mr. JNO. COMPTON, Portchester, Fareham, Hants.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12s. per doz.; box, 1s. extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

FARM OR MARKET GARDEN WANTED TO HIRE.—The Advertiser (connected with the Seed Trade) is in want of the above. Respectable Residence and good Outbuildings indispensable; within a circuit of 20 miles from London preferred. Possession immediate, or at Michaelmas next.—Apply, stating rent and particulars, to A. B., 12, Mornington Place, Camberwell New Road, London.

TO MARKET GARDENERS, CAPITALISTS, & OTHERS.

TO BE LET OR SOLD, with immediate possession, a First-class FREEHOLD NURSERY at Brighton, with about 2 acres, containing 12 Forcing Houses and a first-rate House of Peaches, very forward. Coming in for stock and crop 250*l.*, or the Freehold for 3500*l.*—CLEMENTS & DROVER, Estate Agents, 38, Western Road, Hove, Brighton.

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on (entry at Martinmas, 1856). The FARM OF MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr, and one from Maybole, where there is a railway station. It extends to 298 acres, one rood, eight poles, imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oilcake Crushers, Millstones for grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, manager at Myremill, will show the Farm; and offers will be received by MR. BROWN, Royal Bank Office, Maybole.

Sales by Auction.

RANELACH HOUSE, FULHAM.

MR. J. C. STEVENS will Sell by Auction on the Premises, on MONDAY, May 5, at One o'Clock precisely, by order of Sir Fredk. Roe, Bart., who is leaving Fulham, about 5000 Bedding Plants including Geraniums, Calceolarias, Lobelias, Verbenas, Heliotropes, Ageratums, &c. 500 Strawberry Plants in pots, 11 Large Camellias, 24 Humea elegans, 200 Pots of Pinks and other Plants, 48 Forcing Frames for 1, 2, and 3 Lights, and 24 Hand Lights, &c. &c.—May be viewed on the morning of Sale, and Catalogues had on the premises, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

THE LODDIGES' COLLECTION OF ORCHIDS.

MR. J. C. STEVENS is favoured with instructions to Sell by Auction at his Great Room, 38, King Street, Covent Garden, on THURSDAY, 15th, FRIDAY, 16th, FRIDAY, 30th, and SATURDAY, 31st of May, the whole of the unrivalled COLLECTION of ORCHIDS. The plants are in the best possible health, and comprise upwards of 1200 species in 2000 specimens, including all the most rare and splendid varieties in cultivation, many of which are unique.—Catalogues are preparing, and will be ready 10 days before the Sale, and may be had at Mr. J. C. STEVENS'S Offices, 38, King Street, Covent Garden.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on SATURDAY next, May 10, at 1 o'Clock precisely, the remaining portion of the importation per the "Atrato," and a small Collection of established Orchids, including some of the best East Indian varieties.—May be viewed on the day of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

MR. HASLAM will Sell by Auction at the Mart Bartholomew Lane, on THURSDAY and FRIDAY, May 8 and 9, a collection of BEDDING PLANTS, ROSES IN POTS, CARNATIONS, PINKS, and other Herbaceous Plants, AZALEA INDICA, &c. &c.

TO TULIP FANCIERS.

MR. J. WILLMER will submit to Public Auction, on the Premises, Sunbury Nursery, on MONDAY, May 19, at 12 o'clock, a choice and valuable collection of TULIPS, the property of Mr. Willmer, Sen.—May be viewed one week prior to the Sale, and Catalogues had at the Auction Mart, City; on the Premises; or by enclosing a postage stamp to Mr. J. WILLMER, Auctioneer, Surveyor, and Valuer, Sunbury, Middlesex.

MR. W. A. FRICKER will Sell by Auction on the Premises, Smith's Nursery, Norbiton, Kingston, Surrey, on TUESDAY, May 13, at 2 o'clock, in lots, the materials of two large Greenhouses, a Propagating and a Forcing House, comprising 30 pairs of large sliding Lights, eight pairs of nearly new ditto, and 30 Side Lights; all the brick and timber work, consisting of Sound Bricks, Rafters, Plates, Mould Boarding. A capital nearly new 12-tier Deal Flower Stage with uprights and bearers complete, 51 feet long. About 300 feet of Hot Water Pipe, two Patent Valves, an excellent Iron Boiler and Cistern, quantity of Flower Pots, Strawberry Tiles, a very good Light Spring Cart, and various other effects.—May be viewed the day preceding and morning of Sale. Catalogues to be had on the Premises, and at the Auctioneer's Office, Town's-end, Kingston, Surrey.

TO NOBLEMEN, GENTLEMEN, ARCHITECTS, BUILDERS, LANDSCAPE GARDENERS, AND OTHERS.

SECOND ANNUAL SALE OF THE VALUABLE AND BEAUTIFUL MATERIALS MANUFACTURED OF RANSOME'S PATENT SILICEOUS STONE.

MESSRS. MANSELL AND ELLIOTT are favoured with instructions from the Directors of the Company to Sell by Auction on the Premises, Whitehall Wharf, Cannon Row, Westminster, on TUESDAY, May 13, and two following days, at 12 for 1 o'Clock precisely, in lots adapted for private purchasers, the trade, and shippers, a well-selected assortment (from the extensive stock at Ipswich) of Items manufactured of RANSOME'S PATENT SILICEOUS STONE, adapted for ornamenting Ecclesiastical Buildings, Mansions, and Cottages, designed in the various styles of architecture by first-rate artists, including plain and elaborately worked chimney pieces, basso and alto relievos, pillars, pilasters, entablatures complete, capitols, caps, bases, cornices, mouldings, porch and window dressings and architraves, brackets, trusses, enriched and plain balustrading, gate and other piers, pedestals in great variety, terminals, ashlar quoins, copings, and string courses. The Garden decorations comprise fountains, shell and rock work, figures, vases, tazzas, flower stands and boxes, Fern tazzas, sundial pedestals, and terrace balustrading; the miscellaneous articles consist of coats of arms, turrets, pinnacles, fonts, mural tablets, tombs, and every other item that can be made in wrought or sculptured stone.

Messrs. MANSELL & ELLIOTT beg to draw especial attention to this important Sale, for the Patent Siliceous Stone is superior in appearance and durability to any other, being unaffected by weather or age, and as its extraordinary capabilities of application are too numerous to particularise in an advertisement, they invite an inspection of the material.—The whole may be viewed three days preceding the Sale, and Catalogues had (14 days prior) on the Premises and at the Offices of Messrs. MANSELL & ELLIOTT, Auctioneers and Valuers, Belgrave Square (corner of Halkin Place), and 12, Birchin Lane, Cornhill, from whom Plates of Designs may be had.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Goldham to submit to public competition by Auction, without reserve, upon MONDAY, May 26, on the Premises, Merton Lane, Mitcham, Surrey, a further portion of his costly and unrivalled collection of TULIPS; comment on this magnificent stock is superfluous.—Catalogues may be obtained on and after the first week in May by application on the premises; or of the Auctioneers, American Nursery, Leytonstone, Essex.

CHOICE TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction on the Premises, 1, Alpha Place, Coburg Road, Old Kent Road, on THURSDAY, May 22, at 3 o'Clock, a well selected collection of TULIPS, the property of Messrs. Clark and Howe, comprising flowers from the stocks of Messrs. Goldham, Saunders, Delaforce, Groom, Laurence, May, and other growers of celebrity; also sundry New Flowers and Breeders raised by Mr. Clark. A capital Tulip Stage with Top and Side Cloths, Rollers, &c., complete. A Cabinet for 168 rows, Shades, and sundry effects.—May be viewed one week prior to and on the morning of Sale. Catalogues may be obtained on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, May 8, at 12 o'Clock, a first-rate Collection of Carnations, Picotees, and Pinks; choice Fuchsias, Verbenas, Dahlias in dry roots; also fine Geraniums, Azalea indica, and other plants in bloom; with a variety of Ornamental Plants for Bedding.—On view the morning of Sale. Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO EXHIBITORS, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction on the Premises, Warwick House, Warwick Road, Maida Vale, Paddington, on MONDAY, May 19, at 11 o'Clock (by order of C. P. Lochner, Esq., leaving the neighbourhood), the whole of the valuable Collection of GREENHOUSE AND BEDDING PLANTS, consisting of fine Specimen Azalea Indica of the choicest sorts; Scarlet, Variegated and Hybrid Geraniums; Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Mimulus, Petunias, Phloxes; Antirrhinum Hendersoni, Pompone Chrysanthemums; Cinerarias, Eccremocarpus, Maurandias, &c. Also fine Lilium giganteum, Lilium lancifolium rubrum, punctatum, album, &c.; together with two Greenhouses, eight Two and One-light Boxes, Propagating Glasses, a capital Iron Roller, Wire Trellis work, Turning Lathe, Show Boxes, Carnation Sticks, and sundry effects.—May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

TWELVE THOUSAND BEDDING AND OTHER GREENHOUSE PLANTS, IN CONVENIENT LOTS FOR ALL PURCHASERS.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the Premises, Mile End Nursery, Bow Road, Middlesex, on TUESDAY and WEDNESDAY, May 20 and 21, at 12 o'Clock each day, 12,000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Genista, Cactus, Azalea Indica, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias sorts, Petunias, Mimulus, Nierembergia, Lobelia crinus, Phlox Drummondi, Cuphea, Ageratum, Gaillardias, &c.; also an assortment of Dahlias, comprising all the leading kinds, Chrysanthemums, Intermediate Stocks, Maurandias, Tropæolum canariensis, Cobæa, Lophospermum, Eccremocarpus, &c.—May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MODERN AND EXCELLENT HOUSEHOLD FURNITURE, FINE BRONZES, SELECT ENGRAVINGS, PAINTINGS, COLLECTION OF CHOICE CAMELLIAS AND OTHER GREENHOUSE PLANTS, &c., AIGBURTH, NEAR LIVERPOOL.

MESSRS. THOMAS WINSTANLEY AND SONS, of Liverpool, are instructed to Sell by Auction on TUESDAY the 6th, WEDNESDAY the 7th, and THURSDAY the 8th May next, at 11 o'clock precisely each day, on the Premises, White Hedge, Matilda Road, near the New Church, Garston, near Liverpool, the modern and genuine HOUSEHOLD FURNITURE, fine-toned horizontal grand piano-forte, by Broadwood and Sons, handsome china, richly cut glass, tasteful ornaments, and articles of vertu, a few books, paintings and fine engravings, the property of Mr. John Blake, who is leaving the north of England. The Drawing Room contains a set of 16 handsome zebrawood chairs, and elegant bookcase of the same material, with arched plate glass panelled front, maplewood cabinet, with plate-glass doors and marble top, circular loo table of curled oak, pair of fancy (Madagascar) wood card tables, rosewood sewing chair, satinwood Davenport, mahogany-framed couch in silk tabaret, the fine-toned grand pianoforte, in mahogany case, by Broadwood and Sons, a pair of beautiful ormolu candelabra for five lights, each on opal pillars, pair of Louis Quatorze pedestals, of carved wood, in white and gold, tapestry carpet, fender, fire-irons, &c. The Dining Room Furniture consists of a set of capital mahogany dining tables, 18 feet long, 5 feet wide, on extending frames, a handsome side table, with drawers, elliptic centre table, sofa and lady's work ditto, large mahogany framed sofa in Utrecht velvet, cheval fire screen, set of 16 and two armed substantial mahogany chairs, a carved mahogany lounging chair, handsome French timepiece on black marble and ormolu stand, richly cut glass chandelier, Brussels carpet, fender, fire-irons, &c. In the Breakfast Parlour are a set of six carved walnut chairs, well made mahogany chiffonnier, lady's work table, elliptic loo table, bergere chair in leather, two glazed cases for articles of vertu, &c. The Hall contains four carved mottled oak chairs, a side table of mahogany, by Gillow, several remarkably fine bronzes, viz., two fine and beautifully executed figures, 27 inches high, emblematical of the elements, the Eagle Slayer, by Bell, a very spirited group of the Lion and Wild Boar, pair of enamelled India china jars, 24 inches high, &c.; Brussels carpet on floor, stairs and landings. The Bedchamber Articles comprise two handsome four-post bedsteads, with crimson merino and white hangings, excellent feather beds, mattresses, and bedding, pair of handsome mahogany pedestal wardrobes, large and handsome trio ditto, invalid sofa bedsteps, mahogany toilet tables and washstands, with marble tops, and chamber service to suit, toilet glasses. In the secondary apartments are several iron-framed bedsteads, with spring mattresses and appropriate bedding. Brussels and other carpets, in good condition, painted dressing tables, washstands, wardrobe or linen press. In the Kitchen and Offices will be found the usual assortment of culinary articles, and others of domestic utility. The Folio of Engravings contains artists' proofs of the "Greenwich and Chelsea Pensioners," and others, after Wilkie and other favourite artists. The Collection of Greenhouse Plants consists of a great variety of choice Camellias, amongst which are several remarkably fine and valuable specimens, with numerous other esteemed sorts and miscellaneous plants, which will be described in the printed catalogues now preparing, which will be ready a few days previous to the Sale, at Mr. THOMAS WINSTANLEY & SONS' Office, Church Street.

The whole may be viewed on Monday, the 5th of May next, when catalogues may be had on the premises, and at Messrs. THOMAS WINSTANLEY & SONS' Office, Church Street, Liverpool.

N.B.—The MODERN RESIDENCE, which is in thorough repair, is TO BE LET, with immediate possession.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s.* 6*d.* each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.

Dulwich, Surrey.

TO THE TRADE.
SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, the 2d week in May, at the following prices:—

16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—May 3.

ROBERT PARKER begs to invite the attention of his friends and the public to his large and select Stock of EXOTIC ORCHIDS, STOVE, GREENHOUSE and HARDY FERNS, SHOW, FANCY and BEDDING GERANIUMS, ROSES, DAHLIAS, VERBENAS, CHRYSANTHEMUMS, &c. &c., all of which are in the best possible health, and are offered at the lowest prices. His new descriptive and priced Catalogue will be ready in a few days, and will be forwarded post free on application.

Paradise Nursery, Hornsey Road, Holloway.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of the 12th inst., page 243. Good established plants, 10*s.* 6*d.* each. The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth.—May 3.

EARLY CORNISH BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI, celebrated and invaluable for its earliness. (See Testimonials).

Gardeners, Seedsmen, and others who applied too late for Seeds of this superior and rare Broccoli, are informed that they may be supplied with Plants from the Seed beds in May next, at 2*s.* 6*d.* per 100 (Carriage or Postage included), by sending their orders during the present month to HURST & M'MULLEN, Leadenhall Street, London; or to MITCHINSON & Co., Truro, Cornwall.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following select Plants, post free.

	s.	*d.*
12 fine distinct varieties FUCHSIAS, for	4	0
12 extra superb choice varieties FUCHSIAS	12	0
12 fine distinct varieties VERBENAS	2	6
12 extra superb choice varieties VERBENAS	6	0
12 fine varieties large-flowered CHRYSANTHEMUMS ...	3	6
12 fine varieties distinct Pompon CHRYSANTHEMUMS	3	6

Descriptive Catalogues may be obtained on application, inclosing a postage stamp, at 67, High Street, Battle, Sussex.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars. ...	£1	0	0
25 ditto PICOTEES " "	1	0	0
25 ditto PINKS " "	0	10	0
25 plants PANSIES " "	0	12	0
12 ditto PHLOXES " "	0	8	0
12 ditto BELGIAN DAISIES	0	4	0
25 DAHLIAS	0	12	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

BEST SHOW HOLLYHOCKS.

HEDENHAM ROSARY, BUNGAY, SUFFOLK.

BIRCHAM AND WARD can supply strong Plants of the following first-rate kinds, which will produce fine spikes for exhibition the ensuing blooming season.

Atropurpurea	Beauty of Cheshunt
Criterion	Hedenham Rival
Hon. Mrs. H. Ashley	Jenny Lind
La Tourterelle	Lemonade Improved
Miss Nightingale	Omer Pacha
Princess Alice	Purple Perfection
Queen of the Fairies	Schamyl
Solfaterre	Variegatum

Wholesale orders executed on liberal terms.

Hedenham Rosary, May 3.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

W. FULLER, FLORIST, Newton Bushel, Devon, formerly Gardener to the late W. H. Story, Esq., of Whitehill, begs to inform the Trade and the Public generally that he will be prepared to send out immediately strong plants of the following beautiful new FUCHSIAS, all raised by Mr. Story.

GEM OF WHITEHILL.—This flower is hitherto unrivalled in form and quality: the sepals are of a rich carmine, remarkably long and reflex elegantly, giving the flower a bell-shaped appearance, corolla deep violet, very free bloomer and good habit. 7*s.* 6*d.* each.

PILOT.—Long scarlet tube, sepals well reflexed, large double dark corolla, very attractive. 5*s.* each.

STAR.—Tube rather short, sepals well reflexed, beautiful large double corolla. 5*s.* each.

DANDIE DINMONT.—Stout scarlet tube and sepals well reflexed, deep violet corolla. 5*s.* each.

GLORIOSA SUPERBA.—Beautiful scarlet tube and sepals of great substance beautifully reflexed, so as to resemble in shape the Turk's Cap Lily; deep violet corolla, very attractive, a good flower for exhibition; 5*s.* each, or the set for 1*l.* 1*s.*, when Gloriosa superba will be given in to compensate for carriage.

PRIZE MANGEL WURZEL AND SWEDES.

AT THE BIRMINGHAM ROOT SHOW in December last the Yellow Globe and Long Red Mangels, to which the first Prizes were awarded, were grown from Seed supplied by SUTTON & SONS, Seed Growers, Reading; and the two fields of Swedes which gained the two Twenty Guinea Cups presented by H.R.H. Prince Albert to the Royal East Berks and the Royal South Bucks Agricultural Associations last season, were grown from Messrs. SUTTON'S Seeds, as were also the winning root crops in many other parts of the kingdom.

All Seeds warranted new; prices moderate, as see List, which may be had post free. Goods delivered Carriage Free.

Royal Berkshire Seed Establishment, Reading.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.
Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre.
Mixtures for improving and renovating old Grass Land, 1*s.* per lb.
Mixtures (finest sorts) for forming Lawns... ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.

GEORGE GIBBS & CO., SEEDSMEN,
26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to **THOMAS GIBBS & CO.**, the Seedsmen to the Royal Agricultural Society of England, corner of **Half-Moon Street,** Piccadilly, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

WILLIAM BARNES begs to inform his friends and the public that his SPRING CATALOGUE of Indian Azaleas, Cinerarias, Fuchsias, Verbenas, Hollyhocks, Phloxes, Roses, Geraniums, Chrysanthemums, perpetual-blooming Carnations, and other miscellaneous Plants, with an excellent assortment of Herbaceous and Bedding Plants is now ready, and will be sent post free on application.—Camden Nursery, Camberwell.

THOMAS VEITCH AND CO., WHOLESALE AND RETAIL AGRICULTURAL SEED MERCHANTS, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do., 3*s.*; and upwards according to quality and quantity.

Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, May 3.

SKIRVING'S IMPROVED AND EAST LOTHIAN PURPLE TOP SWEDES.—A Grower has on hand a few sacks of the above seed, warranted growth of 1855, and true to name, all raised from selected and transplanted Bulbs, and guaranteed to grow OVER NINETY PER CENT. Also for disposal about 3 cwt. of ORANGE GLOBE MANGEL WURZEL, warranted a genuine and carefully selected stock. Terms moderate.

Apply to Mr. W. TAYLOR, Nashenden Farm, Rochester.

MESSRS. MASTERS AND SON can supply collections of EXOTIC FERNS from 18*s.* to 24*s.* per doz.; ditto ORCHIDS, from 30*s.* to 63*s.* per doz.; ditto SIKKIM RHODODENDRONS, from 60*s.* per doz.; GYNERIUM ARGENTEUM, PAMPAS GRASS, 2*s.* 6*d.* each; DOUBLE WHITE PETUNIA IMPERIALIS, 6*s.* per doz.; as well as an extensive collection of the newest and most attractive VERBENAS, PETUNIAS, CALCEOLARIAS, and other Bedding Plants, from 3*s.* per doz., and 20*s.* per 100.

Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

HUGH LOW AND CO. have now ready for Sale plants of the undermentioned VERBENAS, seedlings of Rougier and Chauvière, of Paris, which they particularly recommend:—Claire, pure white, striking carmine eye; Edouard, flesh colour, yellow centre; Jaguarita, purpled violet, darker centre, white eye; Medéric, bright crimson red, black centre, yellow eye; Rosati, lilac pink, purple centre; Noel, bright scarlet, black eye; Martial, bright rose, purple centre; Marietta, pure white, bright rose eye; Le Gondolier, bright currant colour, centre clear; Marco, bright cherry colour, sometimes striped with pink, dark centre; Inesille, pale pink, the centre dark lilac and yellow; La Tchernaia, purple amaranthus, yellow centre, surrounded with brown; Auguste Maquet, salmon rose-purpled, violet centre; Alphonsine, poppy red, white and lilac centre.—Price 1*s.* 6*d.* each.

Clapton Nursery, London, May 3.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

UNBLOOMED SEEDLING CALCEOLARIAS.

MR. HENRY MAJOR, Knowsthorpe, near Leeds, begs to announce that his Unbloomed Seedling Calceolarias are now ready, in one parcel of 20 for 6*s.*, or three for 15*s.*, post free. They have been produced from rich and beautiful varieties, therefore striking colours and beautiful shapes may reasonably be expected.

H. M. has still on hand a few sets of his 18 beautiful new Calceolarias, price 3*l.* the set. For description see Catalogue, which may be had on application.

Twelve very select Calceolarias, including his best sorts of last year, as well as several Seedlings not yet let out, price 25*s.*

Very choice Calceolaria Seed, 2*s.* 6*d.* per packet.

Pampas Grass, 2*s.* 6*d.* each.

N.B. It is requested that orders from unknown correspondents be accompanied by a Post Office Order.

15,000 DWARF ROSES IN POTS NOW READY FOR SENDING OUT.

WM. WOOD AND SON beg to solicit the early attention of Planters to their enormous and splendid Stock of ROSES IN POTS; the Plants are strong and healthy, and well adapted either for planting out in masses or for growing on in pots for exhibition or greenhouse decoration. The above consist principally of the leading Hybrid Perpetual Roses, with some Bourbons, Noisettes, and Chinas, and will be supplied from 12*s.* to 18*s.* per dozen, the selection of sorts being left to W. W. & S.

Plants presented for distant carriage. Reference required from unknown correspondents. Catalogues forwarded free on application.—N.B. The months of April and May are very eligible for planting out Roses from pots.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPLENDID SEEDLING CALCEOLARIAS.

WILLIAM BARNES has now to offer his two new and unrivalled CALCEOLARIAS "ADMIRATION" and "CAMDEN HERO," at 5*s.* each. The former is a very fine, free-blooming, shrubby variety for bedding; flower large and showy, golden cap, velvet crimson centre, encircled by a belt of yellow. Camden Hero possesses all the good qualities of Admiration, is of a beautiful dark glossy crimson colour, fine flower, large truss, dwarf habit, and very free bloomer.

N.B. The stock of the former is limited.

WILLIAM BARNES, Camden Nursery, Camberwell.

DILLISTONE AND CO. beg to offer strong well-hardened PLANTS for Bedding purposes, viz.:—Ageratums Anagallis, Cupheas, Calceolarias, Dahlias, Fuchsias, Geraniums, Heliotropes, Lobelias, Petunias, Phloxes, Salvias, Verbenas, &c. A box or hamper containing 100 from the above of the best quality for 30*s.* Carriage paid to London. Best kinds of Roses on the Mannetti Stock, 18*s.* to 30*s.* per dozen; Hardy Climbers, 20 kinds, 6*s.* to 9*s.* per dozen; do. Roses, 6*s.* to 9*s.* per dozen. Hollyhocks, Pansies, with every article connected with the nursery business. Post-office Orders payable at either Halstead or Haverhill will oblige.

The Nurseries, Sturmer, near Halstead.—May 3.

LYNCH'S STAR OF THE WEST CUCUMBER.—The Subscribers have just received the following, quite unsolicited, which fully bears out the character given to it by the raiser, Mr. Lynch, Gardener to the Earl of St. Germans.

Extract of a letter received from a scientific Horticulturist in Essex:—

"*Last year I obtained some seed of Lynch's Star of the West Cucumber from you, which turned out everything that could be desired, both as a cropper and for excellent flavour, and in all the general qualities for a first rate Cucumber. As a first rate bearer I may mention that in one plant I counted* FIFTY-EIGHT FRUIT (*after* rubbing off eight where they came double), *before any of them were more than 6 inches long, and the plants begun to show fruit at the first joint on every side shoot.*"

Packets 2*s.* 6*d.* each, containing five Seeds, can be obtained from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 3, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1856.] SATURDAY, MAY 10. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT in the Gardens of the Society this season will take place on WEDNESDAY, May 28th, June 18th, and July 9th, and of AMERICAN PLANTS on SATURDAY, June 14th.

Tickets of admission are now being issued, and can be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, before May 17th, 4s.; after that day, 5s. each. The American Garden is undergoing considerable alteration.

NATIONAL FLORICULTURAL SOCIETY, 21, REGENT STREET.—By Royal Proclamation THURSDAY, the 29th inst., being the day appointed for National Rejoicings and as a general holiday, THIS IS TO GIVE NOTICE that the Society's Exhibition, advertised for that day, will be blended with the one announced for THURSDAY, June 12. All subjects eligible to compete for the Prizes of the 29th inst. may be staged on June 12. John Edwards.

UNDER THE PATRONAGE OF H.R.H. PRINCE ALBERT.

A GRAND FLORAL AND HORTICULTURAL EXHIBITION, open to the United Kingdom, will take place at CHELMSFORD on WEDNESDAY and THURSDAY, July 16 and 17, during the Show of the Royal Agricultural Society in that town. The Schedule of Prizes, which will amount to nearly 250*l.*, may be obtained on application to Mr. W. W. Duffield or Mr. Fred. Chancellor, at Chelmsford, the Honorary Secretaries. The greatest care will be bestowed upon specimens sent from a distance.—All Plants and Flowers will be conveyed to and from the Show, on the Eastern Counties Line, *free of charge.*

ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

OXFORD GRAND COMMEMORATION.

THE COMMITTEE of the ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY offer for competition at their next Show to be holden in the Gardens of Worcester College, Oxford, on TUESDAY, June 3, the following Prizes, open to all England:—Stove or Greenhouse Plants in pots, nine varieties, 1st prize, 12*l.*; 2d prize, 9*l.*; 3d prize, 7*l.* Geraniums, not fancies, in 8-inch pots, twelve varieties, 1st prize, 5*l.*; 2d prize, 3*l.*; 3d prize, 2*l.* Entrance Free.

The Flowers to be staged ready for the Judges by 11 o'clock that morning. Notice of intention to exhibit to be given to Mr. W. R. Hobbs, 23, St. Giles's Street, Oxford, by Saturday the 24th of May, of whom any further information may be obtained.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—The FIRST EXHIBITION (open to all competitors) of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held at the Society's Gardens, Old Trafford, on WEDNESDAY, June 4th, when Two Hundred Pounds will be given in Prizes.

Schedules are now ready, and may be obtained on application to the Secretary. By order, John Shaw, Secretary.
Council Room, Princess Street, Manchester, May 10.

BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—Two Horticultural Shows will be held at the Gardens of this Society, on THURSDAY, June 5, and THURSDAY, August 28.

Terms of Subscription—Half a Guinea for Six Tickets; three for each Fête, or the whole may be used for the first Fête. Single Tickets, 2s. 6d. Admission at 2 o'clock.

The Band of the Royal Artillery, Woolwich, will be in attendance at the First Fête.

Admission may be obtained at 1 o'clock on payment of 4s., or Two Subscribers Tickets. Invalids in Bath Chairs, 1s. extra, but no Chairs admitted into the Gardens after half-past 1, nor into the Exhibition Tents after 2 o'clock. Admission at the gate from 2 to 4 o'clock, 2s. 6d.; after 4 o'clock, 1s. Full Military Bands are engaged for both Fêtes, and will play from 2 to 6 o'clock. Tickets are now ready, and may be obtained of Mr. Mardon, Mr. Lancaster, Mr. Shepherd, Mr. Cooper, Messrs. Giles & Son, Messrs. Baskerville, and Mr. Raddenberry, Clifton; Messrs. Ridler, High Street; Messrs. Garraway, Mayes, & Co., Durdham Down; Mr. John Nelson, Horfield Road, Bristol; or at the Lodge of the Zoological Gardens. Arrangements have been made with the Railway Companies for Special Trains on the days of Exhibition.

SLEAFORD HORTICULTURAL SOCIETY.—The Annual Exhibition of this Society will be held on WEDNESDAY, July 23, when Prizes will be awarded to Members of the Society for Flowers, Fruit, and Vegetables exhibited, according to merit; also for Cottagers' productions; and on this occasion Extra Prizes, open to all England, will be awarded for the best collection of 12 Stove and Greenhouse Plants, 5*l.*; best stand of 24 Roses, varieties, single bloom, First Prize, 2*l.*; Second do., 1*l.* Prizes are also offered by the Society to Cottagers and Mechanics recommended by Members, for the best cultivated plots of Garden Ground not exceeding half an acre—1*l.*, 15*s.*, 10*s.*, and 5*s.*; not exceeding half a rood, 15*s.*, 10*s.*, and 5*s.* Cottagers desiring to compete must give notice to the Treasurer or Hon. Secretary in the month of June. All articles intended to be exhibited must be sent in as early as possible after 8 o'clock, and no article will be admitted after 10 o'clock. The Rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. Warwick, the Treasurer; or to Mr. Peake, the Hon. Secretary.—Sleaford, May 10.

GRAND EXHIBITION OF AMERICAN PLANTS.

MESSRS. WATERER and GODFREY, of the Knap Hill Nursery, Woking, Surrey, have the honour to announce that they have made arrangements with Mr. T. B. Simpson for an Exhibition of their American Plants in the newly erected Pavilion in Ashburnham Park, adjoining Cremorne Gardens. Particulars in future advertisements.
Knap Hill Nursery, Woking, Surrey.

MESSRS. MASTERS and SON, LANDSCAPE GARDENERS, Canterbury and Maidstone.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

NEW DOUBLE WHITE PETUNIA "IMPERIAL."

CHARLES TURNER can supply strong plants of this beautiful Petunia, which is now in bloom at Cliveden and other places, and has proved a most valuable acquisition. Colour clear white, perfectly double, and very fragrant. Strong plants, 2s. 6d. each, or 18s. per dozen.—Royal Nursery, Slough.

FIRST-CLASS SHOW PANSIES, in strong well-rooted autumn struck Plants, at 6s. per dozen.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

FIRST-CLASS DAHLIAS for 1856, strong plants, 6s. per dozen.
Spring Catalogues now ready; may be had upon application.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

GOLDEN CHAIN GERANIUMS.

ROBERT REA, Ipswich Nursery, Ipswich, has 200 strong plants left unsold, which he offers at 9s. per dozen.
This Advertisement will not be repeated.

BERNARD SAUNDERS will be happy to supply Six Growing Plants of GYMNOGRAMMA LEPTOPHYLLA or ANNUAL MAIDEN HAIR FERN, for 2s. 6d., box and postage included.—Cæsarean Nursery, Jersey, May 10.

DAHLIAS, VERBENAS, GERANIUMS, CALCEOLARIAS.

J. GRIFFIN having an immense Stock of all the choicest varieties of the above Plants, begs to offer them at very low prices. Descriptive Catalogues will be forwarded on application.—Weston Road, and 2, New Bond Street, Bath.

SACCOLABIUM AMPULACIUM.

WILLIAM MAULE and SONS have much pleasure in stating that they can supply a year's established Plants of this scarce and charming Orchid at 105s. each.
Stapleton Road Nurseries, Bristol.

THE GIANT AUSTRALIAN WATER LILY (Nymphæa gigantea, Hook.).—Flowering bulbs of this magnificent WATER LILY are to be had at Mr. Silberrad's Office, 5, Harp Lane, Great Tower Street, London, at 5s. each. (From Van Houtte's Establishment).

NEW PLANTS.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer his following New Plants:—

Tydæa ocellata picta (vera)	£0	10s.	6d.
Abutilon marmoratum	0	12	0
Camellia Auguste Delfosse	1	0	0

WILLIAM KNIGHT, Florist, &c., begs to offer the following select Plants, post free.

	s.	d.
12 fine distinct varieties FUCHSIAS, for	4	0
12 extra superb choice varieties FUCHSIAS	12	0
12 fine distinct varieties VERBENAS	2	6
12 extra superb choice varieties VERBENAS	6	0
12 fine varieties large-flowered CHRYSANTHEMUMS ...	3	6
12 fine varieties distinct Pompon CHRYSANTHEMUMS	3	6

Descriptive Catalogues may be obtained on application, inclosing a postage stamp, at 67, High Street, Battle, Sussex.

BEDDING PLANTS.

JOHN HAYES, Florist, Farnham, Surrey, begs to say he is prepared to send out Bedding Plants the latter end of May, from 2s. 6d. to 6s. per dozen.
Catalogues sent on the receipt of one postage stamp.

FINE SHOW
DAHLIAS & UNBLOOMED SEEDLING CALCEOLARIAS.

CHARLES KIMBERLEY can supply the above in fine established Plants. Dahlias at 18s. per dozen, all new last season; older varieties, all the best, at 6s. per dozen.

Calceolarias, in 4-inch pots, at 7s. per dozen, including hamper, &c. Priced List on application.—Stoke Nursery, near Coventry.

NEW DAHLIA LADY FRANKLIN.

CHARLES SCHOFIELD begs to offer the above splendid Dahlia. It has taken numerous First Prizes in Class showing. The colour is salmon or rich orange, quite distinct. C. S. can recommend it with confidence. Plants now ready, 10s. 6d. each. Show varieties of Dahlias, 6s. per doz.; Pansies 6s. to 12s. per doz.—Knowsthorpe, near Leeds.

NEW SWEDE AND TURNIP SEEDS.

SUTTON'S DESCRIPTIVE CATALOGUE, *with prices, may be had gratis, Post free.*
Royal Berks Seed Establishment, Reading.—May 10.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

S. WALTERS, Hilperton, Wilts, begs to say that his 20th ANNUAL CATALOGUE of the best and most popular kinds of Geraniums, Fuchsias, Dahlias, Verbenas, Petunias, Roses, Hollyhocks, Bedding Plants, also his new Petunias, &c. &c., may be had on application.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c. &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, Seedsmen to Eleven of the principal Agri-Horticultural Societies of the British and Continental Empires, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *Twenty-first Annual Issue*, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application to James Carter & Co., Seedsmen, 238, High Holborn, London.

AMERICAN PLANTS.

WATERER and GODFREY beg to announce their Priced and Descriptive Catalogue of American Plants for this season is now published, and will be sent free on application. As the collection of American Plants at this Nursery is altogether unequalled in extent or quality, purchasers will find it to their interest to pay a visit to the Nursery, which may be readily done by the South Western Railway to Woking Station.
Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

CRYPTOMERIA JAPONICA.

R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10s. 6d. each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

SUTTON'S RENOVATING GRASS SEEDS *for improving Parks, Meadows, and Upland Pastures.* Quantity required per acre 6 to 12 lbs, price 9d. per lb.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

TO THE TRADE.

CHARLES SHARPE and CO. have a quantity of GREEN and PURPLE-TOP SCOTCH TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.
Nursery and Seed Establishment, Sleaford, May 10.

NURSERY & SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE and CO., respectfully invite the attention of the Trade to their Turnip, Mangel Wurzel, and Carrot Seeds, the stock of which has been carefully selected and grown by themselves from transplanted roots.
Catalogues with prices can be had on application.

MR. ROBERT BAKER, Writtle, Essex, begs to offer Improved SKIRVING'S and other SWEDE TURNIP SEED, at 2*l.* per bushel. Upon a remittance payable at Post Office, Chelmford, with 1s. in addition for the bag, it will be immediately forwarded. Also select MANGEL WURZEL SEED of superior stock, 1s. 6d. per lb.

HARDY HEATHS.

WATERER and GODFREY respectfully invite attention to their large stock and first-rate collection of these most beautiful Hardy Plants. Priced Catalogues may be had free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

TO BE SOLD, very handsome large IRISH YEWS, from 4 to 8 feet. Purchasers taking a large number will be liberally dealt with. Prices on application.—Thomas Jackson & Son, Nurseries, Kingston, near London.

TULIPS.

TO BE SOLD, without the least reserve, nearly 200 Rows of TULIPS, many very fine sorts, the collection of an Amateur. May be seen in bloom after the middle of the month, and will be parted with a bargain.—James Cook, 7, Penton Row, Walworth Road.

BEDDING PLANTS.

WILLIAM F. SMITH has for sale thousands of choice BEDDING PLANTS in great variety, at 4*s.* per dozen, 25*s.* per 100.

Geranium Beauty of Chipstead, strong plants, 18*s.* per dozen: G. Flower of the Day, strong, 4*s.*, 6*s.*, 9*s.* per dozen; G. Lady Holmesdale Improved, fine pink, 9*s.* per dozen.

Catalogues may be had on application by enclosing a postage stamp. Post-office orders payable at Sevenoaks.

Riverhead Nurseries, Sevenoaks, Kent.

FIRST-RATE NEW FUCHSIAS OF 1855 AT GREATLY REDUCED PRICES.

WILLIAM RUMLEY AND SONS are now sending out the following best white-corolla'd and other new FUCHSIAS of 1855 at 12*s.* per dozen, six for 7*s.* 6*d.*, or 1*s.* 6*d.* each, or the set of 24 for 1*l.*; or left to our selection, 9*s.* per dozen, six for 5*s.*, or 1*s.* each, hamper included, or free by post, viz.:—Atlas, Beauty of the Bower, Climax, Dominiana, Empress Eugenie, Florence Nightingale, Lady of the Lake, Mrs. Story, Mrs. Bouch, Mr. Ewart, Mr. G. Lawrence, Nimrod, Omar Pacha (Banks's), Omar Pacha (Smith's), Orlando, Prince Albert, Princess of Prussia, Painter, Queen Victoria, Queen of Roses, Raffaelle, Thalia, Violæflora plena, and Water Nymph.

Galanthiflora plena, double white-corolla'd Fuchsia, 3*s.* 6*d.* each.

GERANIUMS, extra fine show and fancy varieties, 6*s.* to 40*s.* per dozen. Dwarf scarlet, white and pink, for bedding, 3*s.* to 6*s.* per dozen.

CINERARIAS, extra fine, 5*s.* to 15*s.* per dozen.

PANSIES, choice varieties, 4*s.* to 6*s.* per dozen.

VERBENAS, extra fine, 4*s.* to 6*s.* per dozen.

DAHLIAS, extra fine, 4*s.* to 18*s.* per dozen.

HOLLYHOCKS, choice, 10*s.* 6*d.* to 18*s.* per dozen.

CALCEOLARIAS and HELIOTROPES, 4*s.* to 6*s.* per dozen.

MIMULUS, extra fine, 6*s.* per dozen.

CUPHEAS, AGERATUMS, SALVIAS, &c., 3*s.* to 4*s.* per dozen.

GERANIUM Shrubland Pet, 5*s.* per dozen.

The above can be forwarded immediately on receipt of a Post-office order payable at Richmond, Yorkshire.

Our New Descriptive Catalogue of the above may be had on application.—Gilling, near Richmond, Yorkshire.

CHOICE VARIETIES, ALSO GOOD PLANTS.

MITCHELL AND CO. are now sending out the following good plants, consisting of first-rate varieties, viz.:

NEW FUCHSIAS, consisting of Story's New White Corollas; all other first-rate varieties, 10*s.* 6*d.* per dozen, basket included.

VERBENAS.—A first-rate collection, none but the best of 1855, 6*s.* per dozen, or four dozen for 20*s.*, basket included.

CALCEOLARIAS, Henderson's and Turner's new varieties of 1855, 12*s.* per dozen, hamper free; older varieties, 4*s.* per dozen, or 6 for 21*s.*, basket free.

DAHLIAS of 1855 & 54.—Our own selection of the following first-rate varieties:—Lord Bath, Pre-Eminent, Ruby Queen, Baron Alderson, The Nigger, Emperor, Napoleon, Omer Pacha, John Keyne's Rachel Rawlings, Primrose Perfection, Topsy, Uncle Tom, Miss Pope, &c., 12*s.* per doz., package free; older well-known varieties, 6*s.* per doz., or 4 dozen for 20*s.*, basket included.

LOBELIA SPECIOSA, the best blue dwarf bedding variety, 6*s.* per dozen.

PETUNIA IMPERIALIS, Double White, first-rate for bedding, True, 6*s.* per dozen; True Crimson Clove, 6*s.* per dozen; Prince of Denmark, bright Scarlet Clove, 6*s.* per dozen.

PETUNIAS.—A Choice Collection, 4*s.* per dozen.

Pinks, our collection consists of all the best show varieties, 4*s.* and 6*s.* per dozen.—Carnations, first-rate varieties by name, 12*s.* per dozen pairs.—Picotees, 12*s.* ditto.—Tree Carnations, our collection stands unrivalled; our own selection, good strong plants, 12*s.* per doz., trade price per 100 upon application.—Phloxes, first-rate sorts, 6*s.* per dozen.—Phlox Drummondi Radetzky, 6*s.* per dozen.

Post Office Orders are respectfully requested from unknown correspondents payable to JOHN FAIRBROTHER. All orders over 20*s.* are delivered free in London, or to any station on the London and South-Coast Railway.

Brighton Nurseries, Kemp Town, Brighton.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Arthur de Sansal	5*s.* 0*d.*	Pauline Lansezeur	5*s.*
Docteur Hénon	5 0	Prince Noir	5
Duc d'Elchingen	5 0	Souvenir de la Reine d'Angleterre	7 6
General Pelissier	5 0	Triomphe de l'Exposition	7 6
General Simpson	5 0	Triomphe d'Avranches	5 0
Joseph Ledechaux	5 0	Bourbon, Empress Eugénie	7 6
Madame Knorr	3 6		
Marquise de Murat	5 0		
Mathurin Regnier	5 0		

PERPETUAL MOSS.

Alfred de Dalmas	5 0	Gloire d'Orient	5 0

12 of my own selection from above for 60*s.*, or 1 of each for 4*l.*

The following at the prices attached, or purchaser's selection 40*s.* per dozen; my own choice 30*s.* per dozen.

MOSS.

Baron de Wassenaer	3*s.* 6*d.*	Comtesse Doriat	3*s.* 6*d.*
Capitaine Ingraam	3 0	Frédéric Soulié	3 6

PERPETUAL MOSS.

Madame Edouard Ory	5 0	Salet	3 6

HYBRID PERPETUAL.

L'Etendard des Amateurs	3 6	Madame de Trotter	3 0
Lord Raglan	5 0	Madame Lacour Jurie	3 6
Louise de Chateaubourg	3 6	Madame Theodore Martel	3 6
Baron Larray	3 0	Madame Vidot	3 6
Belle Lyonnaise	3 6	Marguérite Lecureux	3 6
Comtesse de Turenne	3 6	Maxime	3 6
Emperor Napoleon	5 0	Monsieur Pigeron	3 0
Evêque de Meaux	3 6	Mrs. Standish	3 0
Gloire de Vitry	3 6	President Menoux	3 6
Julie Guinoisseau	3 6	Raphaël	3 0

BOURBON.

Frilet	3 6	Marguérite Dubourg	3 6
Isabelle II.	3 6		

NOISETTE. CHINA.

Polonie Bourdin	3 6	Lucullus	3 0

TEA.

Auguste Vacher	3 0	Blanche de Solleville	3 0

The following at 20*s.* per dozen:—

MOSS.

D'Arcet	2 0	Princess Alice	2 0
Jeanne de Montfort	2 0	Vandael	2 0

HYBRID PERPETUAL.

Alphonse de Lamartine	2 0	Gloire de Parthenay	2 0
Auguste Guinoisseau	2 0	Jules Margottin	1 6
Cicero	2 0	Panachée d'Orleans	2 6
Duchess of Norfolk	2 6	Souvenir des Braves	2 6
General Jacqueminot	3 6		

BOURBON.

François Herincq ... ... 2*s.* 6*d.*

TEA.

Gloire de Dijon	2 6	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12*s.* to 15*s.* per dozen.

Carriage paid to any station on the Eastern Counties Railway.

St. John's Street Nursery, Colchester.

HARDY FERNS.

HUGH LOW AND CO. have to offer as follows:—

	each—*s. d.*		each—*s. d.*
Adiantum pedatum	2 6	Osmunda interrupta, large and fine	15 0
Aspidium molle	3 6	Pycnopteris Sieboldi	3 6
Asplenium acrostichoides	2 6	Struthiopteris germanica	7 6
" Fontanum	2 6	Woodwardia onocleoides	7 6
Lastræa filix fœm., var. Cristata	5 0	" augustifolia	3 6
		&c.	&c.

Having a large number of choice hardy vars., when ordered by the doz., selection left to us, the price will be 30*s.*

Clayton Nursery, London, May 10.

HUGH LOW AND CO. have to offer the following hardy North American herbaceous plants:—

	Each—*s. d.*		Each—*s. d.*
Cypripedium spectabile	2 6	Pinus Benthamiana, 1 ft.	7 6
" pubescens	3 6	" Sabiniana, 6 in.	3 6
" arietinum	3 6	" Beardsleyi, 2 yrs.	3 6
Trillium grandiflorum	1 6	" tuberculata, 2 yrs.	3 6
" atropurpureum	2 6	" Jeffreyi, 2 yrs.	3 6
Parnassia Caroliniana	2 6	Picea Nordmanniana, 6 in., from seed	7 6
Mitchellia repens	1 6	Picea Pinsapo, 9 in., seed	3 6
NEW HARDY CLIMBERS.		Thuja aurea, 9 in., bushy	5 0
Clematis Amalia	3 6	" gigantea, original plants from seed, 1 foot high	21 0
" Helena	3 6		
" Louise	3 6		
" Sophia	3 6		
Wistaria sinensis alba	3 6		
" brachybotrys	3 6		
Akebia quinata	2 6		
CONIFERÆ.		MISCELLANEOUS (HARDY).	
Abies orientalis	2 6	Prunus pinensis, fl. pl.	3 6
Podocarpus Andina	10 6	Spiræa Reevesi, fl. pl.	2 6
Pinus contorta ? new sp., 9 inches	5 0	Hydrangea hortensis, fl. pl.	2 6
		Berberis Neuberti	5 0
		Quercus Cerris variegata	5 0
		Pampas Grass 2*s.* 6*d.* to	10 6

The above are all in pots, and may be safely moved.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above are now being sent out. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

NEW DAHLIAS.

THOMAS BARNES begs most respectfully to announce that he is now prepared with a fine healthy stock of the following fine New Dahlias, to which he begs to direct attention:—

SHOW CLASS.	*s. d.*
Duchess of Cambridge (Barnes), white, heavily edged, deep carmine, centre close and prominent	10 6
Pearl (Barnes), blush cupped petals, and fine shape	7 6
Annabal (Mignet), carmine red, splendid form and habit	10 6
Sebastopol (Mignet), fiery scarlet, perfect form and habit	10 6
FANCY CLASS.	
Lady Middleton (Barnes), deep lilac, purple-edged, pure white, fine shape and centre	7 6
Iris (Barnes), yellow, striped with red, shape and centre good, very attractive	7 6
Motley (Barnes), pale yellow and orange, striped, fine shape and constant	7 6

Separately at the prices affixed, or the seven for 50*s.*

T. B. begs to state his stock of Dahlias, consisting of several thousand plants, is fine and healthy, embracing every good variety of last and former years, at 6*s.*, 9*s.*, 15*s.*, and 20*s.* per doz. Considerable reduction when 100 or more are ordered.—Catalogues with descriptions on application free.

Danecroft Nurseries, Stowmarket, Suffolk.

CHOICE BEDDING PLANTS.

YOUELL & CO.

BEG respectfully to submit the following, and to invite particular attention to their List of SHRUBBY CALCEOLARIAS, which they confidently recommend; it comprises all the most beautiful and brilliant varieties in cultivation, viz.:—

	Per dozen—*s.*	*d.*
Ajax, a fine large rich-coloured flower, of crimson and yellow	9	0
Beauty of Montreal, bright crimson, small flower, an effective and very excellent bedding variety	6	0
Correggio, orange buff, shaded, free, large, and very showy, a first-rate bedding variety	9	0
Crimson King, rich plum crimson	6	0
Empress Eugénie (Youell's), a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety; the habit is robust, flowers large, and well formed ... Each	1	6
Golden Chain, fine golden yellow ... per dozen	6	0
Gold Cap, rich dark maroon, deep yellow cap	6	0
Integrifolia, an old but favourite variety of erect habit, producing clusters of small yellow flowers	5	0
Kentish Hero, orange buff	6	0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety	9	0
Magnificent, rich crimson, with yellow crown	6	0
Masterpiece, deep maroon	6	0
Matchless, dark brown red	6	0
Model, brown shading off to orange yellow at the edges, extra	9	0
Mr. White, rich shining bronze red	6	0
Purity, colour pure white, the best exhibited last season, fine habit with large trusses of flowers, strongly recommended for bedding	9	0
Red Rover, bright crimson shaded with orange, large and free flowerer, fine habit	9	0
Shankleyana, large orange crimson	6	0
Sulphurea splendens, fine large yellow, fine for bedding	6	0
Sultan, fine large crimson	6	0
Superba (Turner), fine dwarf, dark crimson, extra fine	6	0
" dwarf crimson	6	0
Surprise, bright orange crimson, extra	9	0
Variabilis, an excellent grower, of very compact, pretty habit, and produces in great profusion immense trusses of blossom, which open of a delicate primrose colour, and change to white	9	0
Vezzosa, flowers large and fine formed, of a bright orange and crimson, shaded with large trusses, flowering abundantly, and a splendid habit, extra	9	0
Viscosissima, deep yellow	6	0
Wellington Hero, fine golden yellow	6	0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra	9	0

Fine selections, left to YOUELL & Co., 6*s.* per dozen.

Geraniums, scarlets, such as Trentham, Tom Thumb, &c., per 100, 30*s.*, or	4	0
" Flower of the Day	6	0
" Boule de Neige, fine white	9	0
" Kingsbury Pet, salmon	9	0
" Golden Chain	12	0
" Mountain of Light	12	0
" Ardens major	9	0
" Ivy leaf, large white	9	0
" " crimson	9	0
" " silver variegated	12	0

With many other fine varieties.

Verbenas (white), Mrs. Foster and Mrs. Holford.—These are, without exception, the finest in this class yet offered, and prove to white Verbenas what "Defiance" was to the scarlet varieties that preceded it	6	0
Verbenas, scarlet, red, crimson, claret, rose, pink, blush, lavender, blue, purple, plum, striped and variegated of the newest and handsomest vars. in cultivation, 25*s.* per 100	4	0
Lobelia compacta alba, dwarf white	4	0
" Lindleyana, lilac	4	0
" lucida, light blue	4	0
" lutea, fine yellow (new)	6	0
" ramosoides, dark blue	4	0
" speciosa, large blue, each flower nearly 1 inch across, the finest of its class	6	0
" Feu du Roi, tall scarlet, fine ... Each	1	0
Heliotropes of the best kinds ... 4*s.* and	6	0
Petunia Imperial (true).—This very beautiful variety is as double as an Oleander, and fragrant	6	0
Petunias, including the handsomest of the new kinds, 6*s.* and	9	0

	Per dozen.—*s.*	*d.*
Anagallis Breweri, large blue	5	0
" rubra grandiflora, large red	5	0
" andomariensis, claret	6	0
Ageratum cœlestinum, blue	6	0
Antirrhinums of finest sorts by name	6	0
Belgian Daisies in 30 best kinds by name	3	0
Calystegia pubescens, rose coloured double flowering Convolvulus, a good hardy climber	6	0
Cheiranthus Marshalli, golden yellow, very fragrant	6	0
Carnations, finest sorts by name, per dozen pairs	18	0
" " mixed border " "	9	0
" Tree in perpetual flowering, per dozen	18	0
" true old Clove, per dozen pairs	12	0
Chrysanthemum regalium plenum, yellow, per dozen	6	0
Chrysanthemums, the handsomest of the new large flowering and Pompone kinds	6	0
Cobæa scandens	9	0
Cuphea platycentra	6	0
" strigulosa sanguinea	6	0
Dahlias, fine show varieties ... 6*s.* and	9	0
Delphinium Barlowi, dark blue	6	0
" Hendersoni, large rich blue	18	0
" Mooreanum, deep blue, distinct and fine	6	0
Dielytra spectabilis, strong flowering plants	9	0
Fuchsias, finest bedding varieties	6	0
Gazania rigens, large orange, dark centre	6	0
Genista tinctoria, double, deep orange	6	0
Koniga variegata, pretty for edging	6	0
Lantanas, of sorts	6	0
Lophospermums, of sorts	9	0
Lychnis dioica alba pleno, fine double white	9	0
Mimulus, in 12 handsome varieties	6	0
Nasturtium, double dark	9	0
" " yellow	9	0
Nierembergia filicaulis, white; lavender eye, very pretty for bedding	6	0
Oxalis floribunda and rosea, quite hardy, producing a fine bed of rich rose colour	6	0
Pansies, finest 1st class show varieties	9	0
" " mixed	4	0
Pentstemons, a choice collection of the handsomest kinds	6	0
Phloxes, a fine collection of 60 of the most beautiful and distinct varieties, selected with great care from upwards of 200 kinds, including that fine new Phlox "Countess of Home"	9	0
Phlox Nelsoni, pure white, rosy edge, of dwarf trailing habit, a profuse bloomer, and best adapted for rockwork or edging	9	0
Picotees, finest sorts by name per doz. pairs	18	0
" " mixed border " "	9	0
" " yellow by name " "	20	0
Pinks " 1st class show flowers by name " "	9	0
" " mixed for borders " "	6	0
Potentillas, of the finest kinds ... per dozen	6	0
Salvia porphyrantha, an extremely pretty species, of dwarf habit, bearing a profusion of scarlet flowers	12	0
Salvias, of sorts	6	0
Saponaria ocymoides	6	0
Sedum Sieboldi	6	0
Statice latifolia	6	0
" maritima rosea and pseudo-armeria. Strong plants of these two beautiful and hardy species, producing throughout the year a profusion of lake-coloured flowers ... each	3	0
Statice sinuata, large blue ... per dozen	1	0
Trachelium cæruleum	6	0
Wallflower, double yellow	6	0
" " dark	6	0

N.B.—Less quantities than per dozen will be charged at same rate.

Herbaceous Plants, of which we possess an extensive collection of the most showy kinds, 6*s.* per doz., 30*s.* per 100.

FUCHSIAS.

The following new and beautiful varieties at 12*s.* per dozen, viz., Queen Victoria, Prince Albert, Mrs. Story, Lady of the Lake, Empress Eugenie, Raffaelle, Omar Pasha, Climax, Thalia, Princess of Prussia, Fairy Queen, Clio, Grand Sultan, Beauty of the Bower, Violæflora pleno, &c.

A Catalogue of Bedding Plants is just published, and may be had on application.

All orders of £2 and upwards are delivered Carriage Free to London, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery. It is respectfully requested that all Post-office Orders be made payable to YOUELL & Co., *Yarmouth, Norfolk. Communications by Steamers and Railway to all parts of England, Ireland, and Scotland, as well as to the Continent.*

YOUELL & CO., Royal Nursery, Great Yarmouth, Norfolk.

NEW AND BEAUTIFUL PLANTS

OFFERED BY

MESSRS. WILLIAM ROLLISSON & SON.

THE annexed List of valuable Plants has been selected from a large and rich collection of novelties; and the Advertisers having proved them to be desirable acquisitions, have therefore no hesitation in strongly and confidently recommending them. Messrs. W. R. & SONS beg to say that their

NEW CATALOGUE,

containing prices and descriptions of upwards of TWO HUNDRED NEW PLANTS in species and varieties, is now ready, and can be had per return of post by enclosing two postage stamps.

MEYENIA ERECTA.—This beautiful plant is a native of the south-west coast of Africa, and was first discovered by Dr. Vogel, in the Niger Expedition, and introduced by us in 1854. It is of easy culture, growing very freely in an intermediate house or stove: of shrubby habit. By plant cultivators it will be hailed as a great acquisition, being of a colour so much to be desired in plants grown for show purposes, which is of a beautiful bluish purple, much superior to Thunbergia chrysops, or the well known Maurandia Barclayana, with a distinct yellow eye or throat. The blossoms are produced in the greatest profusion from the axils of the leaves, and shaped somewhat after the style of a large Achimenes flower, but with a tube considerably larger, and about 2 inches in length. Without enlarging further on the merits and extreme beauty of the plant, we deem it quite sufficient to quote the opinion of Sir W. Hooker, who pronounced it to be the most beautiful plant of modern introduction. During the past season it was exhibited as a new plant at the principal Horticultural Exhibitions, and received various prizes, with the highest encomiums that could be passed upon it. 21*s.* each.

AZALEA INDICA EMPRESS EUGENIA.—An Indica variety, of an excellent and compact habit, and blossoming in the most profuse manner: its colour is extremely pleasing, of a beautiful transparent rose, with intense spotting on the upper petals; the flowers are large and exquisitely formed. We have much pleasure in being able to offer this superb variety, and make no doubt that it will be an universal favourite for many years to come; as some proof of its merits, we may add that during the past season it has received the following prizes:—First Class Certificate at the Horticultural Society's Rooms, Regent Street; Silver Medal at the Royal Botanic Society's Gardens, Regent's Park; First Class Certificate at the Horticultural Society's Exhibition, Gore House, Kensington. Plants 21*s.* each.

AZALEA INDICA IMPERATRICE JOSEPHINE.—Colour bright cerise, blossoms of good form, spotted on upper segments, free growth and excellent habit. 10*s.* 6*d.* each.

DENDROBIUM CYMBIDIOIDES.—This interesting pseudo-bulbous Orchid has been sent to us from Java: our Collector found it on one of the small hills adjoining the Mountain Megamendung in the western district; the flowers are of a lemon colour, freely produced in short spikes. 5 guineas each.

RHODODENDRON COCCINEUM PUNCTATUM.—This peculiar free flowering variety will be a desirable addition to our thoroughly hardy kinds: the habit is good, colour a crimson scarlet, and the flowers are richly spotted on all the petals, after the style of an Alstrœmeria. 15*s.* each.

RHODODENDRON INCOMPARABILE.—A useful, hardy, and very late blooming kind, with noble trusses of finely shaped bright red blossoms. 15*s.* each.

RHODODENDRON STAMFORDIANUM.—This variety is an immense acquisition, possessing all the sterling qualities which constitute a good Rhododendron, being perfectly hardy, late, and a profuse bloomer, with unexceptionable growth; colour crimsonish purple, with intense black marking on the upper petals, which renders it extremely attractive. 31*s.* 6*d.* each.

RHODODENDRON PAVONIUM.—A very conspicuous, late, and free blooming hardy variety, of a deep blush colour and rich dark blotch on the upper petals, similar to a Geranium. 15*s.* each.

RHODODENDRON CLOWESIANUM.—A free flowering thoroughly hardy kind; the blossoms are pure white, of exquisite shape, and the upper petals are strikingly marked with dark spots. 10*s.* 6*d.* each.

RHODODENDRON MAGNIFLORUM.—A late blooming hardy variety, with remarkably fine foliage, immense truss, and most gigantic blossoms; colour lilac purple, shaded with red, intensely spotted with greenish brown on the top petals. 21*s.* each.

*** A set of the above Six Rhododendrons, 4*l.* 15*s.*

DICTAMNUS ELEGANS.—A beautiful herbaceous plant with reddish crimson flowers, the spikes of blossom are much larger than in the older varieties; altogether it is a great improvement. 10*s.* 6*d.* each.

ABIES CRASSIFOLIA.—This very distinct and handsome species has been raised from seed, being perfectly hardy; it will be a great acquisition. Grafted plants, 31*s.* 6*d.* each.

AZALEA HARTNELLI.—A new hardy variety that we can very strongly recommend; it blossoms freely with very large trusses, the flowers individually are also large and well formed: the colours are pleasing, and distinct from other existing varieties; top petal yellow; all the other petals of a light orange, peculiarly shaded with scarlet, and each spotted in a remarkable manner with brown at the base. We offer this variety with confidence, having selected it from several hundred seedlings, all of which were pretty, but not possessing sufficiently distinctive properties to entitle them to be named. 21*s.* each.

ERICA PHYSODES VIRESCENS.—This new and interesting distinct species we have lately imported from the Cape of Good Hope: the plant is of pretty close habit; the flowers somewhat resemble in shape the old and well-known E. physodes, but are considerably longer, and instead of being white, as in the last-named species, they are of a clear transparent green. 21*s.* each.

ERICA AMABILIS.—A very distinct and pretty variety, of good habit, belonging to the "retorta" section: it is a most abundant bloomer, the flowers individually are large and flask-shaped; colour white, shaded with rose. This variety will be very useful for autumnal exhibition purposes, as it blossoms from July to October. 15*s.* each.

ERICA AFFINIS.—This is a nice variety, much resembling our well-known E. Cavendishi, but for exhibition purposes it will be found a desirable acquisition, as it blossoms earlier than the last-named variety; the flowers are also a shade lighter, being more of a lemon colour; the habit is good, and the blossoms are produced in the most profuse manner. 10*s.* 6*d.* each.

RHODODENDRON RETUSUM.—A very distinct greenhouse species, discovered by Mr. John Henshall on the "Pangerangse," one of the lofty volcanic mountains in the western part of Java, at an elevation of 10,000 feet above the level of the sea; the flowers are of a tubular form, freely produced, and of a beautiful golden yellow colour. See drawings in "The Florist," May No., 1855. 42*s.* each.

HUNTLEYA CERINA.—This is really a lovely Orchid from St. Paul, of a delicate canary colour, very showy, and by far the handsomest species in this section, 21*s.* each.

The following is a List of New and Good Plants, selected from our general stock of novelties, that were introduced by us and other horticulturists, and sent out for the first time during the past year: it contains the new plants imported from foreign growers that we have proved to be of sterling merit; and we also include in this list a few new plants of especial merit that we have imported from foreign horticulturists during the present year.

GESNERIA MIELLEZI.—This plant will be found a most desirable acquisition, and some idea may be formed of its beauty when we say that it is more handsome than G. Donckelaari; the flowers in shape are similar to the Gloxinia erecta, but produced after the manner of a Gesneria; colour lilac purple, with a white throat. 63*s.*

BEGONIA SPLENDIDA.—This exquisite plant was discovered in Java by our collector, Mr. John Henshall, during his researches in the Indian Archipelago. It is an extremely beautiful plant, of ornamental foliage, the stems and leaves of which are covered over with a bright crimson hirsute down; altogether it presents so striking an appearance that it is alone much to be desired for its magnificent foliage, for which we are now offering it, the plant not having yet flowered in this country. 21*s.*

WEINMANNIA TRICOSPERMA.—A greenhouse plant from Valdivia, exceedingly handsome for its fine foliage, which is equal in beauty to that of a Fern; it is of good habit and easy cultivation. 10*s.* 6*d.*

MANDIROLA ROEZLI.—An extremely handsome Gesneriaceous plant, producing fine spikes of lilac-coloured blossoms. 7*s.* 6*d.*

VACCINIUM ERYTHRINUM.—A most beautiful evergreen shrub, from the volcanic mountains in Java, sent to us by our collector, Mr. John Henshall, who found it growing about 10,000 feet above the level of the sea; the habit of the plant is very dense and bushy, the foliage of a very dark green colour, ovate and thickly set; the flowers are of a fine bright crimson, produced in bunches at the axils of the leaves. This magnificent species will probably prove hardy, as V. Rollissoni has done. 21*s.*

AZALEA INDICA EULALIE.—This distinct variety we can strongly recommend; the blossoms are large, of thick waxy substance, blush colour, intensely and richly spotted with carmine. 7*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

LOMATIA FERRUGINEA.—This fine evergreen shrub was found in Chiloe and Patagonia, and is remarkable for its beautiful Fern-like foliage; as a fine-leaved greenhouse or conservatory plant, it is perhaps without a rival. 10*s.* 6*d.*

TYDÆA ELEGANS.—A beautiful stove plant from New Granada, with bright scarlet flowers: very showy. 7*s.* 6*d.*

BIGNONIA CHRYSOLEUCA.—A distinct species, and a great addition to our stove creepers; the blossoms are yellow, tipped with white, exceedingly handsome and attractive, 10*s.* 6*d.*

MANDIROLA LANATA.—A pretty Gesneriaceous plant, of a delicate violet colour inside the mouth of the blossoms, and shaded lilac outside; very fine bloomer. 10*s.* 6*d.*

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour; altogether this is a very distinct variety. 15*s.*

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower, and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first seedling prize at the Royal Botanic Gardens, 1852. 21*s.*

BIOTA MELDENSIS.—This distinct ornamental plant is a valuable addition to our evergreen Coniferæ. It has been raised from seed, and is reported to be a hybrid between the Red Cedar (Juniperus virginica) and the Chinese Arbor-vitæ (Thuja occidentalis); being quite hardy, and a handsome free growing plant, we can strongly recommend it. 50*s.*

AMPHICOME EMODI.—A beautiful greenhouse plant from Northern India; flowers large, funnel-shaped, with an orange tube, and pale rose-coloured limb. 21*s.*

GENETYLLIS HOOKERIANA (syn. G. fuchsioides).—This is the extremely rare scarlet species, and the plant alluded to in Dr. C. F. Meisner's paper "On new Species of Chamælanciæ," recently read before the Linnean Society. It has been introduced from West Australia, and succeeds well in a greenhouse. 21*s.*

RHOPALA ORGANENSIS.—An exquisite ornamental stove plant, far exceeding in beauty any other sort in this family. 42*s.*

AUBRIETIA MOOREANA.—A distinct and very free flowering Alpine plant, of a purplish blue colour. 5*s.*

BIGNONIA ROLLISSONI.—A first-rate stove climber from Brazil; the blossoms are of a bright golden colour, tipped with white, which make a pleasing and striking contrast; the plant is of good habit, and the flowers freely produced in bunches. 21*s.*

RHODODENDRON PELARGONIÆFLORUM (Van Houtte's).—Pink, shaded with yellow, beautifully spotted; a splendid hybrid, extra. 42*s.*

BEGONIA SCAMANNI.—A very distinct species from Panama; leaves beautifully spotted. 10*s.* 6*d.*

DAMARA OBTUSA.—A most distinct and handsome species from New Caledonia; a great acquisition to our greenhouse Coniferæ. 63*s.*

RHODODENDRON FERRUGINEUM ALBUM.—This is precisely the same as the old R. ferrugineum, with the exception that it has blossoms of snowy whiteness; it is an interesting plant, and extremely rare. 31*s.* 6*d.*

RIBES SUBVESTITUM.—This new species has been introduced from California; its flowers are of a deep crimson, and the foliage highly ornamental. 10*s.* 6*d.*

SALISBURIA ADIANTIFOLIA INCISA.—This is a very interesting plant, with pretty laciniated foliage. 10*s.* 6*d.*

PTERIS ASPERICAULIS.—A stove Fern from the East Indies, and one of the most handsome of this pretty tribe; an indispensable plant in every collection where Ferns are grown. 15*s.*

CROTON DISCOLOR.—A truly magnificent ornamental stove plant, dark green on the upper surface of the leaf, with bright red underneath, which makes a striking contrast. 31*s.* 6*d.*

DIDYMOCARPUS POLYANTHUS.—A very free flowering, handsome, and desirable plant; the leaves are few, lying on the pot; the flowers are of a delicate pale lilac blue colour, and produced in a panicle, which rises from the base of the leaf. 15*s.*

BEGONIA OPULIFLORA MINIATA.—This remarkable hybrid has been obtained by fertilising B. opuliflora with B. miniata, and the result is that the variety now offered has the bright-coloured flowers of the last-named variety, but produced in umbels similar to B. opuliflora. 210*s.* each.

Messrs. WILLIAM ROLLISSON & SONS, The Nurseries, Tooting.

MESSRS. JOHN WEEKS AND CO. have the satisfaction of acquainting their patrons and the public generally, that their new HELIOTROPIUM GIGAS will be sent out in good well established plants on the 1st of June this year.

The leaves of a well-cultivated plant are 1 foot in length, and 6 inches wide; the flower, of a pale and dark violet in colour, is of enormous size. Specimens can daily be viewed at the nursery. Price 10*s.* 6*d.* cash. A select list of novelties in the exclusive possession of their firm will shortly be published.

Horticultural Establishment, King's Road, Chelsea.—May 10.

NEW ROSE-COLOURED DAHLIA PRINCESS.

ROBERT REA, Ipswich Nursery, Ipswich, begs to announce that he intends sending out, the first week in May, strong plants of the above new Dahlia, at 10*s.* 6*d.* each, with the usual discount to the Trade. PRINCESS is a constant, true, and very rich rose-coloured flower, quite distinct from anything; centre well elevated, close, symmetrical, and full petals slightly cupped; perfect outline, good to the last. The finest rose-coloured Dahlia ever offered.

R. R.'s Catalogue of Dahlias, &c., is now ready, and may be had on application.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.

Dulwich, Surrey.

TO THE TRADE.

SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, the 2d week in May, at the following prices:—

16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—May 10.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of the 12th inst., page 243. Good established plants, 10*s.* 6*d.* each, The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth.—May 10.

MESSRS. MASTERS AND SON, Canterbury and Maidstone, are prepared to supply the following Plants:—

	Per plant—*s.*	*d.*
MYENIA ERECTA	21	0
AZALEA INDICA BEALI ... ... } " " CRISPIFLORA ... ... }	5	0
SKIMMIA JAPONICA	5	0
GYNERIUM ARGENTUM, PAMPAS GRASS	2	6

EDMONDS' NEW VERBENAS.—Standard Bearer, Victory, King of Sardinia, Duke of Cambridge, Blue Bonnet, Loveliness, Charles Dickens, Crimson Perfection, Dr. Maclean, Field Marshal, 2*s.* 6*d.* each; the set of 10 for 21*s.*

ROUGIER AND CHAUVIERE'S NEW VERBENAS.—Claire, Edouard, Jacquarita, Medirio, Rosati, Noel, Marshall, Marietta, La Gondolier, Marco, Inesille, La Tchernaia, Auguste Maquet, Alphonsine, Belle Gabrielle, Diogone, 1*s.* 6*d.* each; the set of 16 for 21*s.*; Petunia Imperialis, new double, 6*s.* per dozen. Also a fine stock of Bedding Plants from 3*s.* per dozen, and 20*s.* per 100.

Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

CEPHALOTUS FOLLICULARIS, OR AUSTRALIAN PITCHER PLANT.

HUGH LOW AND CO. have to offer fine healthy established plants with pitchers, of the above very rare and curious plant, at 21*s.* each.

CALYPTRARIA HÆMANTHA, a splendid new Melastomaceous greenhouse plant, flowers exceeding in beauty those of the well-known Pleroma elegans. Strong plants 25*s.* to 31*s.* 6*d.* each.

LAPAGERIA ROSEA, styled in Chili "the climbing Lily," unquestionably the most beautiful conservatory climber in cultivation. 10*s.* 6*d.* each.

LASIANDRA HOOIBRENKII, a beautiful foliaged plant. 3*s.* 6*d.*

THYRSICANTHUS RUTILANS, a fine winter flowering plant. 2*s.* 6*d.*

GESNERIA DONCKELAARI, the most showy of the genus. Extra strong roots. 15*s.*

GLOXINIA ERECTA, in 12 choice varieties. 2*s.* 6*d.* each.

BEGONIA SEMPERFLORENS SANDERSI, a very showy scarlet winter-flowering variety, sweet scented. 3*s.* 6*d.*

Clapton Nursery, London, May 10.

HUGH LOW AND CO. have now for sale healthy Plants of the undermentioned:—

VERBENAS, 14 new varieties, Seedlings of Rougier and Chauviere of Paris, were selected by us when in flower, and can be confidently recommended. 1*s.* 6*d.* each.

Verbena pulchella Maonetti, a fine new bedding variety, of dwarf habit, perfectly distinct from any other, the flowers as finely striped, and very similar to those of Phlox Radetzki. Per dozen, 12*s.*

Verbenas in variety, of the best old sorts for bedding, such as Lord Raglan, King of Scarlets, Purple King, Mr. F. G. Caley, White Perfection. Per 100, 30*s.*; per dozen, 4*s.*

PETUNIA IMPERIALIS, new double white, 9*s.* per dozen.

PETUNIA EMPEROR NAPOLEON III., an improvement on Prince Albert, 6*s.* per dozen.

CALCEOLARIA AMPLEXICAULIS, 4*s.*; SULTAN, and other fine varieties, 6*s.* per dozen.

HELIOTROPE BEAUTY of the BOUDOIR, and other fine varieties, 6*s.* per dozen.

LANTANAS, in roots, 6*s.* per dozen.

SCARLET GERANIUMS, TOM THUMB, and other varieties, 40*s.* per 100.

VARIEGATED SCARLET GERANIUM, FLOWER of the DAY, 6*s.* to 9*s.* per dozen.

MIMULUS, 6 fine varieties, 4*s.* per dozen.

PHLOXES, 18 varieties, raised by Mr. Lierval, of Paris, of dwarf habit, with very large flowers. Having seen these in bloom, we can safely say they will add to the high reputation already acquired by Mr. Lierval, as the most successful hybridizer of this class of plants. Price 1*s.* 6*d.* each.

Clapton Nursery, London, May 10.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

GRASS AND AGRICULTURAL SEEDS, 1856.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that their bulks of Agricultural and Grass Seeds are now finished cleaning, and that they shall be able to execute immediately any orders which may be entrusted to them.

Mixtures of Grass Seeds for laying down land to permanent Pasture and Meadow.

Mixtures of Grass Seeds for Irrigation or Water Meadows.
" " Upland Sheep Walks.
" " Parks and Field Lawns.
" " Cemeteries and Church Yards.
" " Garden Lawns and Grass Plots.
" " Renovating old Pastures.

Rye-grasses, Clovers, Carrots, Cabbages, Parsnips, Mangel Wurzels, Swedes, Hybrids, Turnips, and all other Seeds requisite for the Farm.

Kitchen Garden Seeds and Flower Seeds.

Priced Lists and detailed Catalogues are now ready, and may be had, post free, on application to THOMAS GIBBS & CO., the Seedsmen to the Royal Agricultural Society of England, corner of **Half-Moon Street**, Piccadilly, London.

ROBERT PARKER begs to invite the attention of his friends and the public to his large and select Stock of EXOTIC ORCHIDS, STOVE, GREENHOUSE and HARDY FERNS, SHOW, FANCY and BEDDING GERANIUMS, ROSES, DAHLIAS, VERBENAS, CHRYSANTHEMUMS, MISCELLANEOUS BEDDING PLANTS, &c. &c., all of which are in the best possible health, and are offered at the lowest prices. His new descriptive and priced Catalogue is now ready, and will be forwarded post free on application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21s. each; where three are taken in the Trade one will be added.

Chiswick Nursery, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

CARNATIONS, PICOTEES, PINKS, PANSIES, PHLOXES, BELGIAN DAISIES, ETC,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the above, in sets, as in former years, and none but the usual strong plants and extra fine show varieties, which have given such high satisfaction to his customers, will be forwarded.

25 pairs CARNATIONS in 25 different vars.	...	£1	0	0
25 ditto PICOTEES " " ...	...	1	0	0
25 ditto PINKS " " ...	...	0	10	0
25 plants PANSIES " " ...	...	0	12	0
12 ditto PHLOXES " " ...	...	0	8	0
12 ditto BELGIAN DAISIES	...	0	4	0
25 DAHLIAS	...	0	12	0

Hamper, &c., included.

Descriptive Catalogues now ready. Post Office orders to be payable at Middleton, Lancashire.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10s. 6d. each, with the usual allowance to the trade when three are ordered.

Huntingdon Nurseries, May 10.

LYNCH'S STAR OF THE WEST CUCUMBER.—The Subscribers have just received the following, quite unsolicited, which fully bears out the character given to it by the raiser, Mr. Lynch, Gardener to the Earl of St. Germans.

Extract of a letter received from a scientific Horticulturist in Essex:—

"Last year I obtained some seed of Lynch's Star of the West Cucumber from you, which turned out everything that could be desired, both as a cropper and for excellent flavour, and in all the general qualities for a first rate Cucumber. As a first rate bearer I may mention that in one plant I counted FIFTY-EIGHT FRUIT *(after* **rubbing off eight where they came double**), *before any of them were more than 6 inches long, and the plants begun to show fruit at the first joint on every side shoot."*

Packets 2s. 6d. each, containing five Seeds, can be obtained from WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1s. per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, May 10.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12s. 4d.; fine Households, recommended for Bread-making, 11s. 8d.; Seconds, 11s.; Wheat-meal, for Brown Bread, 11s. 0d.; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

BRUISED OATS THE BEST; weighed 40 lbs. per Bushel delivered to any part of London, or to any Railway Station, on receipt of cash or good reference.—Apply to HORSNAILL & CATCHPOOL, Caledonian Road, London.

Every description of Corn supplied on the lowest terms.

IMPORTANT TO NURSERYMEN AND FLORISTS.

PATENT MACHINE-MADE TALLIES FOR PROPAGATING PURPOSES, five-eighths of an inch wide, perfectly smooth on both sides, and pointed. Price 1s. 8d. per 1000, for cash. A sample by post on receipt of stamped envelope.—E. EDWARDS & Co., St. Paul's Square, Birmingham.

ROLL TOBACCO CORD,

THE Cheapest and most Effectual Article for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1s. 6d. per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post Office Order payable at Kennington Cross.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9s. per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

NEAT AND DURABLE LABEL.—Send three Postage Stamps for a specimen label, painted and lettered in oil, to F. H., Post Office, Lydbury, North Salop.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1d. per square yard; 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17 Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard. Half-inch mesh ditto, 2 yards wide, 8d. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½d. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½d. per yard: 4 or 6 yards wide, 3d. per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5s. 3d. each.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

MESSRS. E. G. HENDERSON & SON

ARE now prepared to forward their NEW SPRING CATALOGUE, and parties who have not hitherto favoured them with orders can have the same sent free on application. This useful book has been compiled with the utmost attention, and while it notices the latest novelties, gives only such varieties of each class as can with safety be recommended. It should be in the possession of every Amateur and practical Gardener, either for reference or perusal, the simplicity and correctness of its arrangement being a decided improvement on anything of the kind hitherto brought before the public. In addition to the above-mentioned novelties, &c., it contains descriptions and colours of 500 Stove, 700 Greenhouse, and 1000 other Plants of Miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c., with short and select Lists of those varieties best adapted for the various purposes connected with the Stove, Greenhouse, and Garden, full descriptions of the following and many other novelties are given in it.

With the above will also be published a Coloured Plate, representing a group of Nine new Plants, and can be had post free for 12 stamps.

CRYSTAL PALACE SCARLET BEDDING DAHLIA, 5s.
HENDERSON'S FAVOURITE VERBENA, GEANT DES BATAILLES, 2s. 6d.
HENDERSON'S FAVOURITE PETUNIA, COUNTESS OF ELLESMERE, 3s. 6d.
VERBENA IMPERATRICE ELIZABETH (pulchella Maonetti), 1s. 6d.

	s.	d.		s.	d.		s.	d.		s.	d.
Azalea Admiration ...	5	0	Croton discolor	5	0	Perpetual flowering Carnations			Phlox Madame Fontaine	9	6
" Criterion	5	0	Cuphea eminens	7	6	Pampas Grass (Gynerium argenteum) each	1	6	Pyrethrum carneum ...	1	6
Boronia Drummondi 2s. 6d.	3	6	Chrysanthemums, best six flowered last year			Petunia, new flaked and striped flower			(See leading article at p. 259)		
Bouvardia longiflora	3	6	Chusan Palm	5	0				Pretty Polly and Virginia Bedding Geraniums		
Clematis cœrulea odorata			Delphinium cardinale ...	10	6				Select Achimenes and Gloxinias		
Calceolaria Purity ...	1	6									

PETUNIA IMPERIALIS, now in flower at the Wellington Nursery, a fine free flowering double white, centre well up and full; form, a half globe, 1s. each, or 6s. and 9s. per dozen.
MADAME DESIRE GIREAUD, and other fine new Roses of 1856, 5s. each.
DUCHESSE DE CAMBACÈRES, ditto ditto ditto 1855 2s. 6d. each.

MESSIEURS E. G. HENDERSON et FILS ont l'honneur d'annoncer que leur catalogue générale pour cette saison vient d'être publié, qui sera adressé aux personnes qui en feront la demande par lettre affranchie.

Ils saisissent cette occasion pour prévenir leurs correspondents étrangers que les plantes nouvelles (page V. du catalogue) introduites par Monsieur J. Linden à Bruxelles, suivant les arrangements conclues avec lui ne sont livrables qu'en Angleterre. Nul commande pour le continent en consequence sera effectuée par l'établissement.

E. G. HENDERSON und SOHN beehren sich hiermit ergebens anzuzeigen, dass der diesjährige Hauptcatalog die Presse verlassen hat, und zur portofreien Versendung bereit liegt.

Um allen Missverständnissen vorzubeugen wird darauf aufmerksam gemacht, dass in Folge abgeschlossener Bedingungen mit Herrn J. Linden in Brüssel die vier durch ihn eingeführten neuen Pflanzen (Seite V des Catalogs) nicht an auswärtige Correspondenten geliefert, sondern Bestellungen auf dieselben nur für Gross Brittanien vom Etablissement ausgeführt werden können.

Wellington Nursery, St. John's Wood, London.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

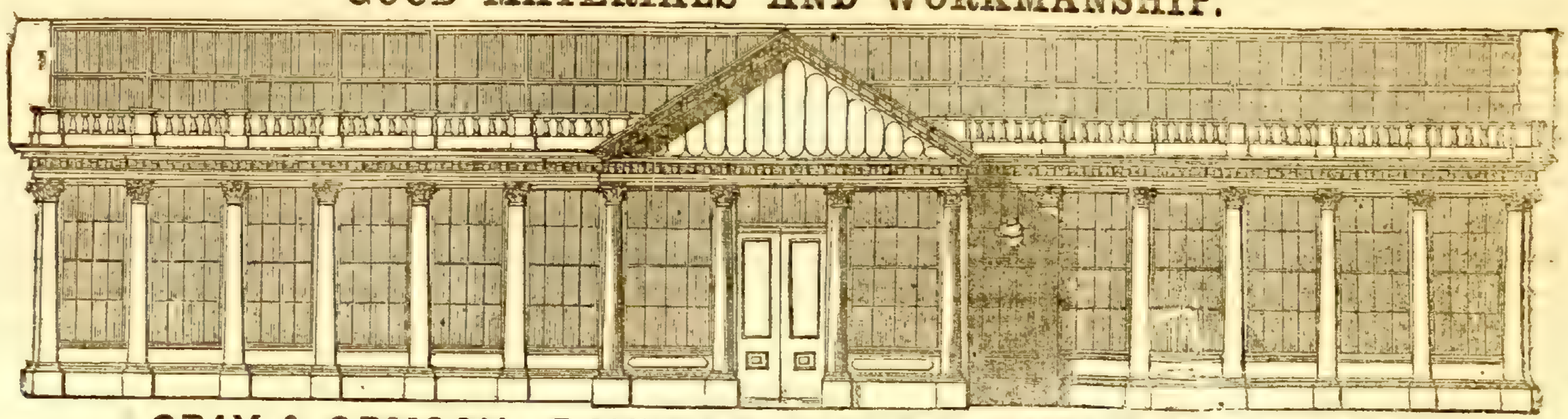
Pamphlets, with instructions for use, free by post on application to

PAGE & CO., Seed Merchants, Southampton.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

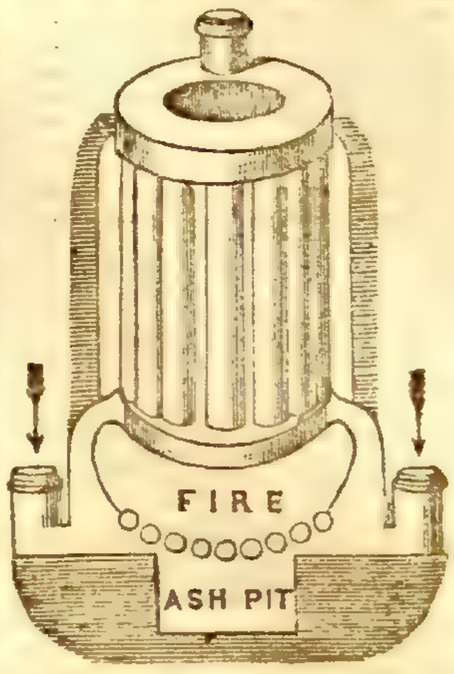
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"I am more than satisfied with the extraordinary results of what Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden."*

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



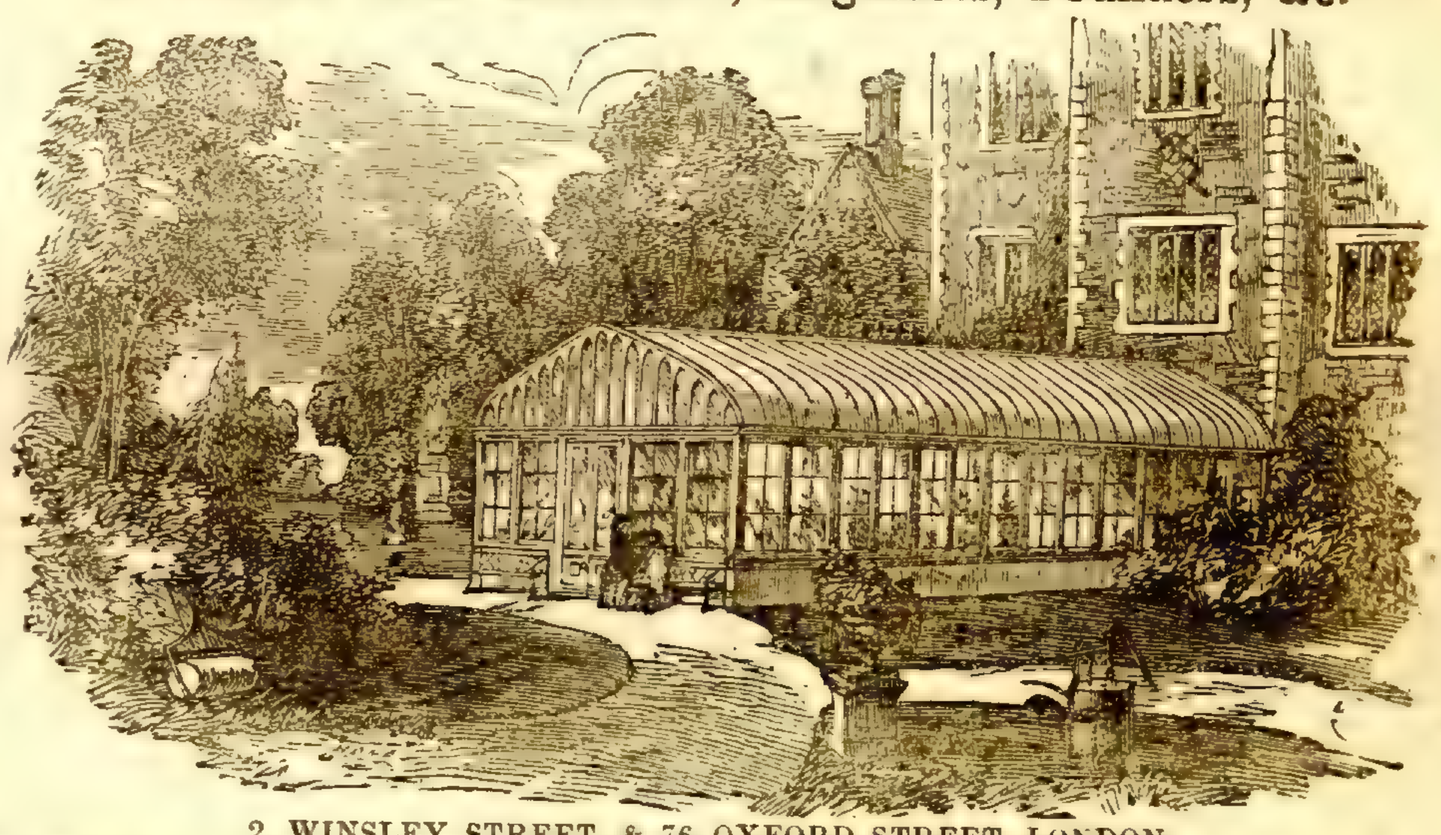
The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea, Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

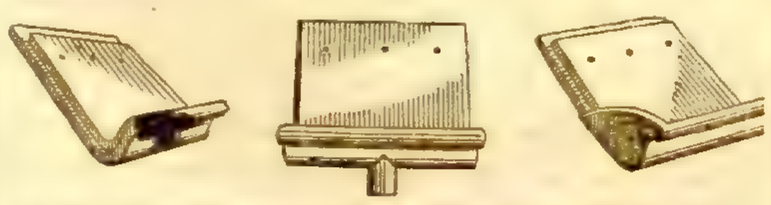
These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY,

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.



BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Gloster, Bridgewater, and Rugby

---

EDWARD ELEY, HOT-WATER AND IMPROVED HOT-AIR WORKS, opposite the Eagle Tavern, City Road, London, Manufacturer of the various descriptions of Hot-Water Apparatus for Heating HORTICULTURAL BUILDINGS, CHURCHES, MANSIONS, PUBLIC BUILDINGS, OFFICES, &c. &c., on the most scientific principles. Manufactories requiring Artificial Heat fitted up with effective and economical Apparatus, by contract or otherwise. Old work taken down, re-modelled, and refixed.

HOT AIR and STEAM WORK for Domestic or Manufacturing purposes.

E. ELEY, being a practical and scientific workman, is able to execute work at prices which defy competition. Parties, by sending a rough sketch of the building and dimensions, can be supplied with the most improved Pipe Boilers, or any other description, with connections and pipes fitted and marked according to an accompanying plan; also Cement for Joints for their own tradesmen to fix them.

N.B.—To those Gentlemen who prefer one Boiler to heat the whole series of Hot-houses, &c., he recommends his large economical and powerful Boiler, capable of doing a larger quantity of piping than any Boiler in use; and all works executed by him warranted perfect.

E. E. does not make it a practice to praise his own works, but would be most happy to refer to numerous Noblemen, Gentlemen, and Nurserymen, where Apparatus, &c., fitted up by him can be seen in full operation.

Please to observe the Address, having no connection with any other House in the Trade.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67 and 68, King William Street, London. Drawings forwarded by post.

RICK CLOTHS AT GREATLY REDUCED PRICES; also in consequence of the termination of the war, a quantity of TARPAULING, 9 yards by 6 yards, made expressly for the Crimea, to be Sold cheap at DAVIS'S, 64, West Smithfield, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12s. | 8 by 6, and 8½ by 6½ ... 13s. 6d.
7 by 5, and 7½ by 5½ ... 13s. | 9 by 7, and 10 by 8 .. 13s. 6d.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2d. to 3½d., 21 oz from 3d. to 5d., 26 oz from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS. Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3 d.

Foreign Sheet Glass, in cases of 200 feet 34s., 38s., 40s., and 42s. per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10s. 6d. | 8 by 6, and 8½ by 6½ ... 13s. 6d.
7 by 5, and 7½ by 5½ ... 12 0 | 9 by 7, and 10 by 8 .. 15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25s. each.

AQUARIUMS, with French polished stands, from 10s. each. Vase-shaped ditto, on glass stand, 20s.

Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6	in. by	4	in. and	6	in. by	4½	in. ...	... 12s.	0d.
6½	"	4½	"	7	"	5	...	... 12	6
7½	"	5½	"	8	"	6	...	... 13	0
8½	"	6½	"	9	"	7	...	... 13	6
9½	"	7½	"	10	"	8	...	... 13	6
10½	"	8½	"	11	"	9	...	... 14	0
12	"	9	"	13	"	9	...	... 14	0
10	"	10	"	10½	"	10½	...	... 14	0
11	"	10	"	11½	"	10½	...	... 14	0
11	"	11	"	11½	"	11½	...	... 14	0
12	"	11	"	12½	"	11½	...	... 14	0
13	"	11	"	13½	"	11½	...	... 14	0
13	"	12	"	13½	"	12½	...	... 16	0
13½	"	13½	"	14½	"	13½	...	... 16	0
15½	"	13½	...	...	...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

THE BEST CURE FOR SMOKY CHIMNEYS.
PATRONISED BY HER MOST GRACIOUS MAJESTY.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25s.; Galvanised do., 30s.: Cast Iron, 35s. each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt—BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers.

Address, JAMES BARTON, 370, Oxford Street, London.

HORTICULTURAL SOCIETY OF LONDON.

21, REGENT STREET, May 6th, 1856.

THE HORTICULTURAL SOCIETY OF LONDON is a Corporation, chartered in the year 1809 for the improvement of Horticulture in all its branches. It has now existed for 52 years, during which time, by its importations and distributions of Rare Plants and Seeds from all countries, by its Exhibitions of Plants and Fruits in London and at Chiswick, by giving Prizes (alone amounting to above 20,000*l.*) to Gardeners for conspicuous merit, and by its continual investigation of the merits of new Esculents and Fruits, it has succeeded in changing the whole aspect of English Horticulture.

In the year 1822 it commenced the formation of a large experimental Garden at Chiswick, upon which considerably more than 40,000*l.* has been expended. But this undertaking having proved greatly beyond the means of the Society, a debt of nearly 22,000*l.* had been contracted by the year 1830. It has been the object of successive Councils to discharge this large amount of liabilities without curtailing the usefulness of the Corporation: and so much success at one time attended their efforts, that by the year 1852 the debt had been reduced to about 7000*l.* But a variety of circumstances, especially the rivalry of other associations, has of late years so diminished the means of the Society as not only to have put an end to all reduction of debt, but to have caused its advance once more to nearly 9400*l.* Under these circumstances the Council have found themselves under the painful necessity of recommending that the Garden at Chiswick should be relinquished, and the property therein realised.

But the Fellows, naturally most anxious to preserve this important establishment, if possible, have resolved to appeal for assistance to that public which has so largely benefited by the Society, and have caused a subscription to be opened for the sum of 5000*l.*, with which the Council are willing to try the experiment of maintaining the Garden, with a view to the further prosecution of experimental Horticulture, the continued distribution of new plants, seeds, and fruit trees, the trial of new methods of cultivation, and also for placing the Corporation upon a more popular basis. The Subscription List, which was to have closed on the 1st of May, is now ordered, by a resolution of the Fellows, to be kept open till June 24th, by which time it is hoped that the entire sum will have been subscribed. Those who are interested in Horticulture and willing to assist in this most desirable undertaking are requested to observe that whatever sum they may signify their intention to contribute, *will not be called for unless the whole sum of 5000l., or thereabouts, shall be subscribed.*

The following notifications of subscriptions have already been received, partly from Fellows of the Society, and *partly from lovers of gardening unconnected with the Corporation.* The Council therefore trust that they may hope for assistance from all public-spirited persons whose means permit them to join in the attempt to maintain the Garden of the Society at Chiswick: the only establishment in the United Kingdom exclusively devoted to the promotion of Horticulture:—

His Grace the Duke of Devonshire, President	£100	0	0
His Grace the Duke of Northumberland ...	100	0	0
James Gadesden, Esq. ... ... (Lately Members of Council.)	50	0	0
Rev. L. Vernon Harcourt	20	0	0
Col. Challoner...	26	5	0
Sir Joseph Paxton, M.P.	25	0	0
J. J. Blandy, Esq.	10	10	0
Rev. W. B. L. Hawkins	10	10	0
Mr. James Veitch, Jun.	10	10	0
Mr. J. Spencer	5	5	0
Dr. Royle, Secretary	10	10	0
W. Wilson Saunders, Esq., Treasurer	21	0	0
Sir P. Grey Egerton, Bart., M.P. ...	10	0	0
Sir S. M. Peto, Bart.	20	0	0
R. Hutton, Esq.	20	0	0
Professor Lindley	21	0	0
Right Hon. Lawrence Sulivan	20	0	0
J. M. Strachan, Esq.	20	0	0
H. G. Bohn, Esq.	10	10	0
*Honourable Mrs. Vernon Harcourt	10	0	0
*Nathaniel Lindley, Esq.	5	5	0
J. H. Good, Esq.	10	10	0
Mr. Glendinning	10	10	0
Mr. Cock	10	10	0
C. Wentworth Dilke, Esq.	21	0	0
C. B. Warner, Esq....	10	10	0
Mr. Pontey	10	0	0
Mr. James Veitch	10	10	0
*Messrs. James Veitch & Son	10	10	0
Hon. W. F. Strangways	15	0	0
T. B. Simpson, Esq.	5	5	0
Earl of Ilchester	25	0	0
*Mrs. Chatfield	1	1	0
Joseph Martineau, Esq.	20	0	0
Charles Druce, Esq.	10	10	0
Robert A. Hornby, Esq.	5	0	0
Charles Leach, Esq.	5	5	0
General Charles Fox	10	0	0
Alex. Oswald, Esq....	10	0	0
Sir Oswald Mosley, Bart....	10	0	0
Earl Spencer	50	0	0
*H. BEHRENS, Esq., TRAVEMUNDE† ...	100	0	0
Walter Ewer, Esq.	10	10	0
Alex. Druce, Esq.	5	5	0
George Wood, Esq....	2	2	0
Rev. Frederick Beadon	10	0	0
S. Rucker, Esq.	21	0	0
The Lord Bishop of Winchester	20	0	0
C. Loddiges, Esq.	10	10	0
Edmund Johnston, Esq.	10	0	0
Right Hon. W. F. Tighe	10	0	0
J. B. Glegg, Esq.	10	0	0
J. C. Stevens, Esq.	5	5	0
John Ames, Esq.	10	10	0
Sir T. T. Drake, Bart.	10	0	0
Col. Gold	5	0	0
A. R. Stewart, Esq....	5	5	0
E. A. Brande, Esq.	20	0	0
Sir Henry Lambert, Bart.	10	0	0
H. J. Grant, Esq.	15	0	0
Robert Hanbury, Esq.	10	10	0
John Luscombe, Esq.	5	0	0
George Thomas Davy, Esq.	50	0	0
John R. Reeves, Esq.	50	0	0
Wilkinson Dent, Esq.	50	0	0
Edward Rosher, Esq.	5	5	0
Beriah Botfield, Esq.	10	10	0
Her Grace the Duchess Dowager of Northumberland	50	0	0
R. H. Solly, Esq.	21	0	0
W. H. Solly, Esq.	5	5	0
The Viscount Downe	10	0	0
Countess de Salis	10	10	0
Joseph Feilden, Esq.	10	10	0
J. T. Brooks, Esq.	5	5	0
Joseph Rigby, Esq....	5	5	0
Rev. Dr. Pinckney	10	10	0
The Baroness Windsor	5	5	0
Sir Robert Peel, Bart., M.P.	50	0	0
J. R. Gowen, Esq.	20	0	0
J. C. Whiteman, Esq.	10	0	0
Col. Rushout, M.P.	10	0	0
Richard Mills, Esq.	10	0	0
Colonel Mason	10	0	0
Proprietors of "Cottage Gardener"	5	0	0
Rev. Harry Lee	1	0	0
Wm. Hervey, Esq.	10	0	0
H. R. Sandbach, Esq.	10	0	0
Joshua Evans, Esq.	20	0	0
Mr. Charles Turner	5	5	0
Sir J. P. Boileau, Bart.	10	0	0
Rev. John C. Clark	10	10	0
G. S. Ridgway, Esq.	10	0	0
Edward Lloyd, Esq.	8	8	0
*Mr. George Fleming	5	0	0
Sir J. W. Ramsden, Bart., M.P.	100	0	0
Messrs. Gray & Ormson	10	10	0
Thomas Smith, Esq.	£10	10	0
Sir T. D Acland, Bart., M.P.	20	0	0
Messrs. T. Jackson & Son	10	10	0
Rev. W. B. Lee	2	2	0
Sir R. P. Glyn, Bart.	20	0	0
Rev. George Rous	10	0	0
Colonel Long	20	0	0
Lady Murchison	10	0	0
Dr. Daubeny	5	0	0
George W. Lenox, Esq.	5	5	0
*Wm. Spence, Esq.	21	0	0
R. S. Holford, Esq.	10	10	0
Mrs. Barchard	20	0	0
Right Hon. T. F. Kennedy	10	0	0
Messrs. Jacob Wrench & Sons	10	10	0
Dr. Henderson	10	0	0
Rev W. H. E. Bentinck	10	0	0
*Mrs. Bentinck	5	0	0
Miss Parry	10	0	0
James P. Jones, Esq.	10	10	0
Lord Overstone	25	0	0
Earl of Burlington	20	0	0
J. B. Sharp, Esq.	5	5	0
Sir Wm. Middleton, Bart.	20	0	0
Frederick Chatfield, Esq.	10	0	0
Rev. John S. H. Horner	10	0	0
Joseph N. Walker, Esq.	25	0	0
S. Rickards, Esq.	5	0	0
Chas. Frazer, Esq.	10	0	0
F. L. Popham, Esq.	10	0	0
Mrs. Waldegrave Park	10	0	0
Earl Fitzwilliam	100	0	0
Alex. Rowland, Esq.	10	10	0
Colonel Tynte	10	10	0
*Mr. Philip Frost	2	10	0
Captain and Mrs. Smart	5	5	0
Captain R. Trevor Clarke	10	0	0
J. Lettsom Elliott, Esq.	10	10	0
Messrs. John Weeks & Co.	10	10	0
James Scott Smith, Esq.	25	0	0
Messrs. William Rollisson & Son	10	10	0
The Hon. Payan Dawnay	5	0	0
Wm. Dixon, Esq.	10	0	0
G. F. Heneage, Esq., M.P.	10	0	0
Mrs. Mason	10	0	0
Joseph Edlmann, Esq.	10	0	0
John Smith, Esq.	10	0	0
D. B. Chapman, Esq.	21	0	0
Henry Sich, Esq.	10	10	0
Colonel Robert Ferguson, M.P.	25	0	0
A. W. MacTier, Esq.	10	10	0
T. Gambier Parry, Esq.	20	0	0
John Henry Hedge, Esq.	5	0	0
J. B. Nichols, Esq.	10	10	0
C. D. Bruce, Esq.	5	5	0
*H. Hobhouse, Esq.	5	0	0
B. Edgington, Esq.	10	0	0
Sir Walter C. Trevelyan, Bart.	20	0	0
John Clough, Esq.	10	0	0
Mrs. Cotton	5	5	0
H. T. Leigh, Esq.	5	0	0
F. H. S.	2	0	0
Henry Pouncey, Esq.	5	0	0
William Graham, Esq.	5	0	0
H. J. Brook, Esq.	20	0	0
*Mr. Joseph Henderson	2	2	0
Lady Grenville	20	0	0
Neill Malcolm, Esq.	25	0	0
Lady Dorothy Nevill	10	0	0
Charles Dorrien, Esq.	10	0	0
Sir Thomas Parkyn, Bart.	10	0	0
*Thomas Grisell, Esq.	10	10	0
Geo. G. Sandeman, Esq.	21	0	0
*Sir W. M'Arthur (Sydney)	10	0	0
*Mr. M'Ewen (Arundel)	5	5	0
W. S. Gillett, Esq.	10	0	0
James Browning, Esq.	5	5	0
M. C. Maxwell, Esq.	10	0	0
G. R. G. Ricketts, Esq.	2	2	0
Thos. Farmer, Esq.	10	0	0
W. Wilshere, Esq.	10	0	0
Sir George Carroll	10	10	0
B. Attwood, Esq.	20	0	0
S. H. Godson, Esq.	10	0	0
C. W. Strickland, Esq.	10	0	0
Jas. Montgomrey, Esq.	10	0	0
*Mr. James Cuthill	1	1	0
W. Leaf, Esq.	25	0	0
Edward Barnard, Esq.	10	0	0
M. T. Bass, Esq., M.P.	10	0	0
Thos. Wood, Esq.	5	5	0
*G. G. Harcourt, Esq.	10	0	0
*Lady Frances Harcourt	2	0	0
Mrs. Stackhouse Acton	10	0	0
Messrs. John and Charles Lee...	10	10	0
William Gibbs, Esq.	50	0	0

* Those to whose name an asterisk is prefixed are not Fellows of the Society.

† The Council would particularly direct attention to the following letter, which accompanied the announcement of this liberal donation

"TO PROFESSOR LINDLEY,

"Sir,—I have anxiously attended to all that has been published regarding the question of relinquishing the garden of the Horticultural Society. Being a foreigner and no Fellow of the Society, I am perfectly aware that I am as little entitled to meddle with English affairs as the poet in Shakspeare's Julius Cæsar with the grudge of the generals, and that I may perhaps risk a similar treatment. Nevertheless, the lively interest I take in everything concerning Horticulture, and the thorough conviction that there is no institution in Europe, the discontinuance of which would be in a higher degree deplorable for all friends of gardening that the London Horticultural Society in its full and unabated efficiency, are too strong in me, not to give them way and make me bold to offer 100*l.* on the same terms as will be fixed for other subscribers of funds to be collected for the conservation of the Chiswick Horticultural Gardens. Sir, I know very well that 100*l.* is a trifling sum in England; but I am no man of large pecuniary means, and I think a good will does not fail to find a good place. Directions for payment will be given upon notice.

"HEIN. BEHRENS."

"TRAVEMUNDE, NEAR LUBECK, April 9, 1856."

AZALEA INDICA.

WM. B. JEFFRIES begs to offer a fine healthy stock of the following varieties in 48-size pots, at 12*s.* per dozen; also the same varieties in small 60 pots, at 7*s.* 6*d.*, viz., Alba Magna, Iveryana, Perryana, Prince Albert, Garland, Glory of Sunning Hill, Variegata, Delicata, Coronata, Magnifica, Lateritia elegans, Apollo, Duke of Devonshire, &c.

GERANIUMS.—A very fine collection of Show varieties, 6*s.* per dozen; or large plants in 48 pots, covered with flower buds, 9*s.* and 12*s.* per dozen. As the first Grand Exhibition of the Ipswich Horticultural Society will be held in his grounds on the 15th inst. W. B. J. solicits visitors to the Exhibition to inspect his stock.—Arboretum Nurseries Ipswich.

NEW FUCHSIA, VERBENA, AND HELIOTROPE.

T. TURVILL begs to offer strong Plants of his first-rate Seedlings, which he can with confidence recommend.

FUCHSIA ALMA.—Large bold flower, with scarlet tube, from 6 to 7 inches long, well reflexed, with bright purple corolla striped and shaded with bright vermilion to the edge, which is often edged with white; excellent habit. Plants 10*s.* 6*d.* each.

VERBENA BRIDE.—Beautiful light blue, very fine truss, with large smooth petal, excellent habit, very free flowering, makes a beautiful bed. Plants 5*s.* each.

HELIOTROPE ELEGANCE.—This is a beautiful scented, and very free in flowering, with a large blue flower; a great improvement on "Gem," being very close in habit, with good foliage, well adapted for beds or for pots. Plants 7*s.* 6*d.*

Chelmsford, Essex, May 10.

DILLISTONE AND CO. beg to offer strong well-hardened PLANTS for Bedding purposes, viz.:—Ageratums, Anagallis, Cupheas, Calceolarias, Dahlias, Fuchsias, Geraniums, Heliotropes, Lobelias, Petunias, Phloxes, Salvias, Verbenas, &c. A box or hamper containing 100 from the above of the best quality for 30*s.* Carriage paid to London. Best kinds of Roses on the Mannetti Stock, 18*s.* to 30*s.* per dozen: Hardy Climbers, 20 kinds, 6*s.* to 9*s.* per dozen; do. Roses, 6*s.* to 9*s.* per dozen. Hollyhocks, Pansies, with every article connected with the nursery business. Post-office Orders payable at either Halstead or Haverhill will oblige.

The Nurseries, Sturmer, near Halstead.—May 10.

THOMAS VEITCH AND CO., WHOLESALE AND RETAIL AGRICULTURAL SEED MERCHANTS, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.

SEED POTATOES and all articles connected with the Seed Business.

Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do. 3*s.*; and upwards according to quality and quantity.

Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.

N.B. A Registry kept for Bailiffs and Gardeners.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA, and within the last week they have supplied some RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & CO., Foreign and Export Seed Merchants, Plymouth.

FLOWER SEEDS RARE AND BEAUTIFUL.

WILLIAM DENYER, SEEDSMAN and FLORIST, offers the following:—

Truffaut's New French Double Asters, or Reine Marguerite, an assortment of 8 of the finest varieties	2 0
Aquilegia, 6 distinct and beautiful colours	2 0
Convolvulus major, 6 splendid bright colours	1 6
New large flowering dwarf Ten Weeks Stock, 8 vars. ...	2 0
Stock, Emperor or Perpetual, 6 vars., splendid	2 0
Very double and of large growth, lasting and flowering for several years.	
Wallflowers, splendid Double Gigantic, 6 varieties, bright and singular colours	2 0
Alonsoa Warscewiczi	1 0
New and splendid annual of graceful habit, producing long spikes of bright scarlet flowers, suitable for pots or the ground.	
Calceolaria, Tigred and spotted	2 6
Saved by an amateur from the finest collection in this country.	
Escholtzia tenuifolia	1 0
Lovely dwarf annual, well adapted for edging, clear straw colour, compact habit.	
Gutierezia gymnospermoides	1 0
A new free flowering annual, blooms all through the summer and autumn.	
Gypsophila muralis	1 0
New dwarf and very pretty annual, with small shining foliage covered with bright pink flowers, suitable for edging of beds, rockwork, or growing in masses, keeps in bloom from June to November.	
Ipomœa limbata, quite new	1 0
Bright purple with white margin, large flower, a lovely climber, blooms freely in the open ground.	
Linum grandiflorum rubrum verum, Perennial Flax ...	1 0
Morna elegans, new and beautiful Everlasting	1 0
Salvia Rœmeriana	1 0
A new and splendid variety, bright scarlet, 6 ins. high.	
Tropæolum minus coccineum	1 0
A dwarf and beautiful bright scarlet variety, suitable for either pots or the open ground, blooms profusely through the whole season.	
Viola striata, quite new	1 6
Or Striped Pansy, saved from the most beautiful striped varieties.	
Whitlavia grandiflora, new	1 0
A beautiful new annual, produces in abundance large dark violet bell-shaped flowers, suitable for pots or growing in masses.	

62, Gracechurch Street, near the Spread Eagle, London.

BEDDING PLANTS!—BEDDING PLANTS!!

JAMES HOLDER, FLORIST, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20*s.* cash, or three dozen for 10*s.* 6*d.*, consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Pitunias, Gallairdias, Cupheas, Dahlias, &c. &c.

BEDDING PLANTS.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset, offers one of the most complete collections in the country, at 2*s.* 6*d.* per dozen, containing Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Salvias, Petunias, Geraniums, Cupheas, Ageratums, Anagallis, Mimulus, &c.

The new white corolla'd Fuchsias at 4*s.* per dozen; Dahlias at 4*s.* per dozen; the beautiful new double white Petunia imperialis, 4*s.* per dozen, forms half a globe, and sweet-scented; the curious and beautiful Pelargonium triangulare, 2*s.* 6*d.* each.

Catalogues sent on application, inclosing a stamp. Plants put in to help to pay Carriage.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.

Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

PLANTS

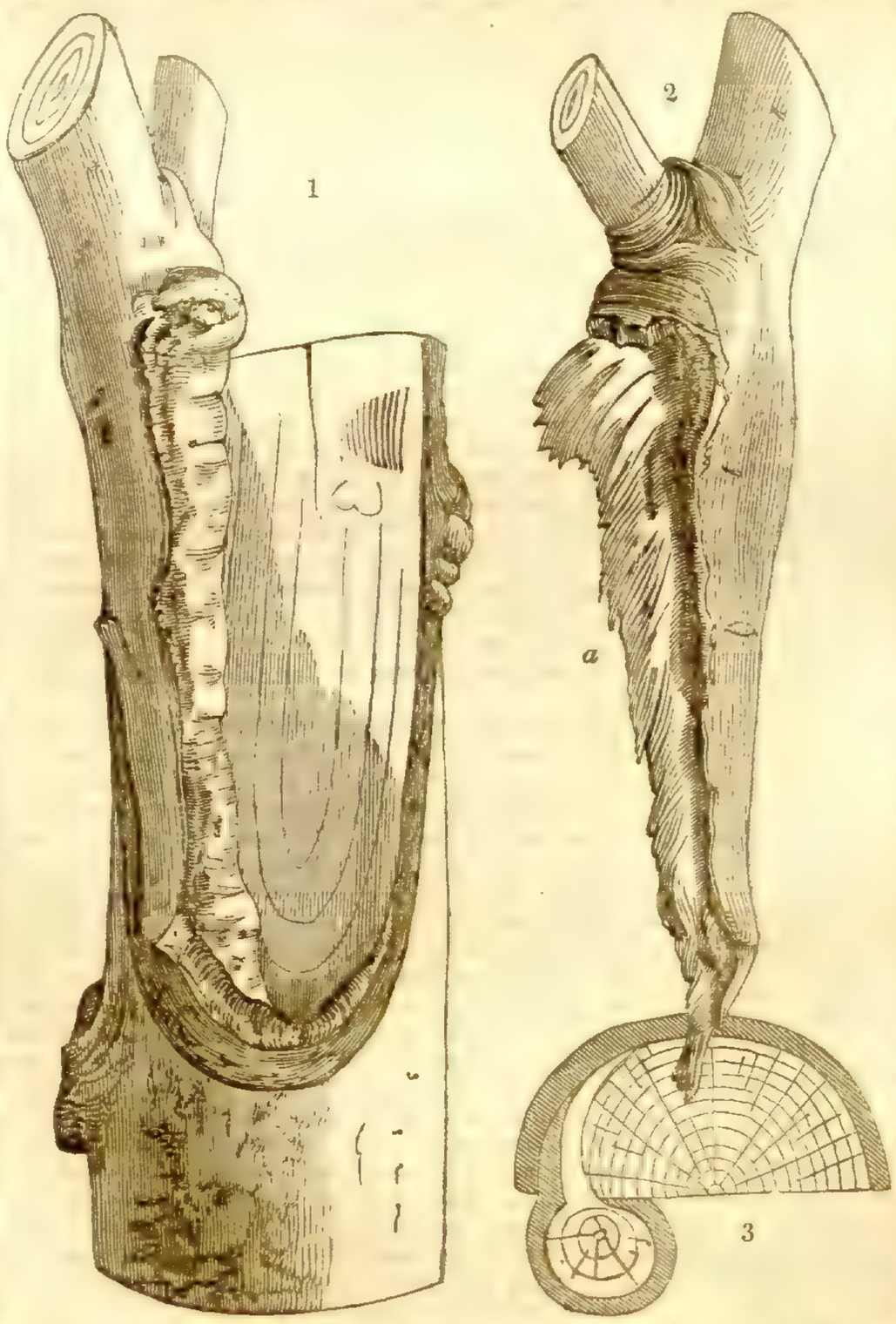
SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

The Gardeners' Chronicle.

SATURDAY, MAY 10, 1856.

WHILE examining lately some examples of bad grafting we met with the following remarkable case, which will be regarded with no small interest by those who are desirous of learning HOW WOOD IS really FORMED. A small scion of an Apple had been whip-grafted upon one side of the cut of a much larger stock, as is shown in the annexed figure, 1. It had apparently formed as strong a union as is usually found in such cases, but upon applying a little lateral pressure the scion came away, as at 2, bringing with it a considerable quantity of young wood, 2 *a*. Upon a more minute examination it



was found that this wood had been insinuated between the bark and wood of the stock as at 3, the wood of the scion having remained quite independent of that upon which it was moulded; it had moreover divided into very fine descending fibres, the broken points of which are shown at 2 *a*. In other words the scion had formed a woody sheath of its own, which covered over the wood of the stock and was independent of it.

How is this to be explained? Those who believe with GAUDICHAUD, DUPETIT THOUARS, and others of their school, will accept the specimen as a new proof of the accuracy of their views that wood really descends from above in the form of fully organised tissue. On the other hand those who adopt the more common opinion that wood is organised where it is found by organisable matter passing downwards will see here a confirmation of their theory; while the physiologists who maintain that wood is a mere secretion from the surface of old bark or old wood will, it is to be hoped, admit that such a specimen as this is inexplicable upon their interpretation. It is obvious, indeed, that the new wood 2 *a* is really derived in either a solid or liquid form from the two branches at 2.

This is much the same as the case of a Willow which formed a sheath of wood several feet long over dead wood, and beneath dead bark, where any superficial deposit was obviously impossible. Or it may perhaps be better compared to the celebrated example of a Rose Acacia mentioned by the late Prof. ACHILLE RICHARD. The Rose Acacia had been grafted on the common Pseudacacia. The stock had died; but the scion had continued to grow, and had emitted from its base a kind of plaster composed of very distinct fibres, which surrounded the extremity of the stock to some distance, forming a sheath, and thus showed incontestably that wood descends from the base of a scion to overlay the stock.

That being demonstrated it becomes the more difficult to understand how it is that although the wood of a stock is derived from the scion, yet the branches which sprout from that wood are not like those of the scion but of the stock. In other words A (the scion) under its new condition of life does not produce A, but B (the stock).

The true explanation of this puzzling phænomenon is doubtless that in our common trees there are two distinct systems of organisation, simultaneous in their appearance, coexistent and coæval, but independent; the one longitudinal, which is what passes downwards, and the other horizontal; that the first is incapable of producing new roots, and is to be regarded as a mere provision for conveying sap, and for giving strength to a tree; that the latter alone has the power of furnishing new shoots. This latter, called the medullary system, is perpetually growing outwards and fitting on its myriads of extremities to the surface of the wood beneath the bark; so that when a branch is produced it necessarily comes from the horizontal system, derived in the beginning from the stock and not interfered with by the scion.

This is the view that was many years since taken by the writer of the present notice, and we are not aware of any attempt having been made to show its inaccuracy. Dr. HARVEY, in his "Trees and Their Nature" (noticed at p. 132 of the present volume) does not advert to it; or if he does we have failed to find the place, for which we trust to be excused, seeing that life is not long enough to permit the use of books without an index.

It is not for the sake of puzzling physiological heretics, or for the sake of the orthodox that this question has been thus revived. The case before us has been fixed to our pages for the sake of the ignorant, or the ill informed, who have not yet discovered that to remove the branches of a tree is to paralyse its wood-producing powers; and who sally forth in mid-winter, or indeed in mid-spring, or whenever they happen to think about it, armed with saw and axe, and good brown bills, for the purpose of making a raid upon the plantations under their care. Incredible as it may seem, there are plenty of woodmen who firmly believe that few branches will furnish as much new timber as many. Let us hope that they will reflect upon our Apple tree, repent of their foolish courses, and resolve in future to follow a wiser and better practice.

IT seems to be intended that the Camp at Aldershott shall be permanent; for we find that the ground near her MAJESTY'S Pavilion there is enclosed for the purpose of being covered with ornamental plantations. About 50 acres are within a fence 7 feet high; the ground is much broken and undu-

lated and the pavilion stands upon its highest part, commanding a magnificent view of the surrounding country. Although the crests of the undulations are for the most part very poor, yet there is in the valleys good soil on a clay bottom well adapted to the growth of Rhododendrons and other ornamental plants. The design of the ground and the planting are entrusted to Messrs. Standish and Noble, of Bagshot.

The last number of the Revue Horticole contains the following statistical account of the quantities of Vegetables and Fruit consumed in Paris in the year 1853. It professes to be an extract from an unpublished work by M. Husson, an officer attached to the Prefecture of the Seine.

We have reduced the French weights and values to their English equivalents, and corrected a manifest error of the press in the French original.

	Tons.	Cwts.	Average price per kilo of 2 lb. 3¼ oz. s.	d.	f.
Potatoes	26,298	17	0	0	2 $\frac{8}{10}$
Cabbages	20,166	11	0	0	1 $\frac{6}{10}$
Carrots	20,225	19	0	0	2
Turnips	3810	11	0	0	2
Parsnips	1210	9	0	0	1 $\frac{6}{10}$
Leeks	12,400	15	0	1	
Salads	5934	12	0	3	
Onions	2976	3	0	0	3 $\frac{2}{10}$
Cauliflowers ...	2437	1	0	5	
Brussels Sprouts...	124	1	0	4	
Asparagus ...	3543	0	0	6	
Artichokes ...	2327	18	0	1	2
Sorrel	7440	18	0	2	
Spinach	382	15	0	3	
Chicory	2075	12	0	2	
Salsafy	254	17	0	1	
Summer Radishes	425	2	0	2	
Black Ditto ...	431	0	0	0	2
Cress	570	15	0	1	
Celery	1417	3	0	1	
Cardoons ...	88	11	0	2	2
Mushrooms ...	470	0	0	3	0 $\frac{8}{10}$
Peas	4012	0	1	0	
Broad Beans ...	2117	1	0	3	2
French Beans ...	3336	16	0	4	
Ripe do. in the pods	2894	17	0	0	
Do. shelled ...	954	12	0	6	
Melons (312,000 fruits, average weight 5½ lbs.)	767	0 each	1	11	1 $\frac{2}{10}$
Gourds (105,600, average weight 55 lbs.) ...	2598	0 „	1	2	2
Cucumbers (2 lbs 3½ oz. average weight) ...	118	0 „	0	3	0 $\frac{8}{10}$
Gurkens	179	1 per 110 lbs.	8	4	0 $\frac{4}{10}$
Tomatoes... ...	354	6 per 100	0	8	2
Aubergines ...	11	15 each	0	1	2 $\frac{8}{10}$
Beet	708	11 per 2 lb 3¼ oz	0	1	
Apples	110,520	10	0	2	
Pears	147,847	13	0	1	2
Plums	115,946	12	0	1	2
Peaches & Nectarines...	90	16	0	3	
Apricots	4118	15	0	2	2
Grapes	4428	16	0	6	
Strawberries ...	9212	0	0	4	
Cherries	14055	2	0	8	3 $\frac{6}{10}$
Currants and Black Currants	8513	4	0	2	2
Raspberries ...	1328	12	0	2	2
Fresh Figs ...	3228	1	0	4	
Medlars and Services ...	147	12	0	1	2
Walnuts	620	0	0	2	0 $\frac{8}{10}$
Filberts	49	0	0	3	
Fresh Almonds ...	98	0	0	3	
Spanish Chesnuts	6397	3	0	3	
Pine Apples ...	200, from 2*s.* 6*d.* to 4*s.* 2*d.* each.				

Included in this quantity are 15,480 kilos of forced Asparagus, forming 5160 bundles, averaging 10*s.* each. Of forced Kidney Beans there were only 400 kilos, averaging 8*s.* 4*d.* to 16*s.* 8*d.* the kilo.

The value of the fruits is not so exact as that of vegetables, owing to the manner in which the market people sell their forced productions. A small pot of Strawberries with a few fruit fetches 1 franc the pot. The first crop of Grapes is worth 24 fr. per kilo, the second crop 16 fr. Pine Apples raised near Paris fetch on an average 10 fr. each.

In addition to the foregoing statistics, M. Husson has computed the annual consumption per head of fruits, and he finds that on an average each person in Paris consumes about 233 lb. of Apples, 313 lb. of Pears, 245 lb. of Plums, 29 lb. of Cherries, 20 lb. of Currants and Raspberries, and rather more than 13 lb. of Spanish Chesnuts.

The greatest collection of Orchids in the world is announced for sale. That assemblage of all that is most rare and beautiful, formed with such care and skill by the late Messrs. Loddiges, is about to come to the hammer. The 15th of the present month will witness the commencement of its dispersion. Two hundred and eighty lots will be offered by Mr. Stevens on the two first days, and the remainder will be disposed of afterwards. Altogether about 450 distinct species and varieties, *correctly named*, will thus pass beneath the hand of the auctioneer. We understand the plants to be all in high health.

VEGETABLE PATHOLOGY.—No. CXX.

477. Hemidystrophia* (*Partial nourishment*). This again is a term invented by Ré to express that condition under which one side of a tree is nourished while the other is starved. Though the agency by which the sap is distributed to every portion of a tree is partly vital, like the circulation even in the highest animals, it is greatly affected by dynamic laws. Thus the fertility of a branch is much increased in many instances by deflection, which presents an obstacle to the too speedy return of the sap; the lower side of a branch or of a leaning trunk independent of branches is more strongly nourished than the upper, and so in similar cases.

478. External agents also exercise a powerful influence on the distribution of sap. The side of a tree which is exposed to the most inclement weather is that on which the least wood is deposited, and this law is so constant that when once the general direction of the prevailing winds and their nature is known, the savage directs himself with unerring certainty through the most extensive woods, simply by examining a branch every now and then as he goes along, to ascertain from the comparative position of the pith in which direction he is steering. A familiar instance of the effect of prevailing winds is seen on almost every coast in the leaning of the trees away from their course, insomuch that every tree in an exposed position presents an instance of hemidystrophy, the branches failing on the exposed side, and not always to the same point of the compass. Another instance arising from mechanical impediment is presented in every garden wherever a tree is trained to a wall or other impenetrable substance; but this, of course, can only be brought forward as an illustration, as the express object of this kind of cultivation is to expose all the fruit bearing branches to the most favourable conditions, and to obtain at once the benefit of shelter and of reflected heat.

479. There is however another cause which affects the distribution of sap, inducing distortion and disease, and that form which Ré had more especially in view. It was mentioned in the last article that individual roots had a more particular relation to particular portions of the tree, the trunk of which is in a very great degree affected in its growth by the distribution of the branches. If then a tree is placed in such a position that the roots on one side can penetrate into a highly congenial soil, while on the other they meet with poor or injurious earth, or any mechanical impediment to their further progress, the consequence will be that the one side will be well nourished, while the other is starved or supplied with injurious matter, hence that few branches will be developed on that side, and those subject to early decay. It is obvious that when the evil has once taken place little can be done towards the removal of deformity, but where the preservation of some particular tree is a matter of interest, some measures may be adopted for amending the soil on the one side, or checking luxuriant growth on the other. Such steps however must be taken with caution. Ré also recommends incisions in the bark of the weaker branches, where more generous diet is administered to guard against the contrary evil of repletion, but whether this recommendation depends on personal experience or not of its benefit, is not stated.

480. Ré speaks of another case belonging to the same category under the somewhat barbarous name of Cladipodystrophy,† in which the upper portion of a tree is so vigorous that the base fails, but I have seen no instances of such an affection. In grafted trees where the graft and stock are not well adapted to each other, the trunk of the graft will sometimes greatly exceed in diameter that of the stock, large warts will often be formed at the point of union, and the top may in some cases become so heavy as to prove more than the stock can bear. I have never, however, seen any cases in which the stock has perished from the overluxuriance of the graft. All the nutriment must pass through it, and it can avail itself of all as it passes, and as it is on its own roots, such nutriment will be as suited to its nature as if it were ungrafted. The returning sap will certainly be altered in quality and does in some cases affect the stock, but I am doubtful whether to such an extent as to cause serious disease or death. Where the stock fails, which is sometimes the case without any previous disease in the graft, it is generally from some other cause. *M. J. B.*

* From ἡμισυς half, δυς badly, and τρεφω to nourish.

† From κλαδος a branch, πους a foot, δυς badly, and τρεφω to nourish.

EXOTIC SHRUBS AND TREES,

Grown in a Small Garden in the East of Scotland.

My garden covers in all about a third of an acre, and a considerable part of the space is required for vegetables, fruit, and Grass. In the remainder, indeed in every spot where room could be found or made, I have (chiefly within the last two or three years) attempted the rearing of exotic shrubs and of a few trees of the same character, to a number which will one day make the place a jungle. Everything of the sort which I have must grow out of doors, winter and summer. I have no glass beyond a one-light frame. However, almost all my plants are still very young, and failures in my earliest season or two have rendered me very cauticus. Accordingly, not a few of the more doubtful plants have hitherto received so much protection that their safety is far from giving conclusive evidence of hardiness. But my collection contains a good many things that are not very generally grown out of doors in Scotland, and as a whole, it is pretty considerable for an amateur, who has little ground and no permanent gardener.

If any part of my experience is worth recording, it should be understood how our climate in the east of Fifeshire stands both for evil and for good.

My eastern wall is about 600 yards from the nearest point of the beach, and though houses close on the east do shelter me a little, the spring winds from the sea cause plants even farther west than the town, to be in danger nearly as great as that to which our notorious bay exposes shipping. The March gales tell with great severity on most of the Conifers. The mountain plant Pinus Cembra, for instance, which grows beautifully about Edinburgh lives indeed here, but my plants are gradually losing their laterals. The Irish Yew and common Thujas have their eastern sides stripped bare, and the whole tree made scraggy, at least in my garden and most places in the neighbourhood; although even these succeed better in a closely sheltered little walk of mine beyond the garden; and in the garden a hedge of the Common Yew (which is not safe everywhere in the town) is growing well and bushily. For broad-leaved Evergreens we are yet worse off. The Common Laurel, everywhere delicate, has lost with me in the garden every leaf, and been transferred to the walk just mentioned; the Laurus nobilis does not thrive even there. The Portugal Laurel, as is usual, succeeds better. Arbutuses keep their leaves tolerably; there are in gardens here plants of the A. Andrachne, and at least one old tree of the A. unedo, the comrade of which however was killed some winters ago; and, here as elsewhere, the red-flowered variety of the A. unedo is much hardier than the species. Experienced gardeners dissuade from all attempts at growing any of the finer Rhodoraceæ.

On the other hand, we have several advantages for growing tender shrubs and trees that are deciduous. Although a very hard bed of blue clay runs below our ground, yet in most places and throughout my garden it lies several feet deep, and above it is a subsoil sandy and dry, for some plants too dry and thick. It may be noted too that I myself have several borders very much dried by deeply-drained walks and by a large sunk compartment; and that in some of my more slipppery experiments I have dug for the special soil of the plants (as sand, peat, rotted turf, or leaf-mould) pits three feet or more in depth, bottoming these with loose stones and sand. Our lowest temperature in winter is a good way above that of places even a little more inland, though considerably farther south. In February, 1855, when the Horticultural Society's Garden in Edinburgh had frost going down to + 5°, my thermometer noted morning and evening gave nothing below + 18°, and the registering thermometer of one of my scientific friends marked only about + 16°. Last winter again I noted nothing below + 21°. Some of the older kinds of Fuchsia prosper exceedingly with us. The F. globosa planted by me on a south wall preserved its wood till it covered a space of 9 or 10 feet up and across; the F. Carolina and more than one of those with white or pink calyces, if only slightly covered with leaves or litter, throw up every spring strong flowering branches from the root. The wood of the Grape vine is, as might be expected, pretty hardy; so is that of the Fig; a young Fig tree of my own, on a south wall, has come near to ripening a crop, and the ripening, I am told, is quite reached by a tree belonging to one of my neighbours. Walnuts, here and further north, ripen far enough for pickling. In warm summers we gather ripe Mulberries plentifully from an old tree of mine (Morus nigra), which, by the way, has imitated in its growth the well-known tree at Canterbury, its trunk running horizontally for about 8 feet from the root, and steadying itself for rising, at the end of that space, by throwing out a root thicker than a man's leg. Perhaps, also, some amusement may be given by a whim of mine which certainly amused myself. A Casuarina equisetifolia placed in a sheltered border, several feet from the nearest walls, survived two winters; but it made no growth, and was killed outright in February, 1855. I had been tempted to try it by seeing a smallish plant, in the shelter of Coniferous trees, in Mr. Roy's nursery at Aberdeen.

As to a good many of my plants, I hesitate whether they are worth naming at all. Not a few of them are quite familiarly known: and probably the rarer or more novel among them, or such as will generally be thought worthy of cultivation, have their character for hardiness already ascertained. But there are at least some, in regard to which gardeners in Scotland may be willing to get encouragement if not information. Therefore I set down here a miscellaneous list of shrubs and trees, most of which have stood in my bit of ground for more winters than one, while a good many of them

have had no protection at all, and those which have had any are promising to need less and less.

Cedrus Deodara, top shoots always in danger from frost, unless horizontally covered; Pinus excelsa, top shoots hitherto protected from above; two plants thriving well, but less thickly leaved, and becoming more like the P. strobus than they were in a nursery not more than a mile to the west; Pinus pinaster and P. pinea, the latter troublesome and doubtful and plants already lost; Taxodium sempervirens, ripe wood perfectly hardy, and growth quick, but leaves by spring almost completely browned, as in every other place where I have seen the plant in Scotland; Salisburia adiantifolia, hardy on a wall here, and in Edinburgh I am assured by nurserymen hardy as a standard. Varieties of the Quercus Ilex, which thrive admirably here; two handsome upright evergreen Oaks (hybrids of the Q. Ilex!) the one the Q. Fordi, my other plant, I think, the Q. Shepperdi of catalogues; the Quercus suber also keeping its leaves, as it seems to me, better than in the Edinburgh Botanic Garden; Fraxinus lentiscifolia pendula, grafted 5 feet high on common Ash, fine and perfectly hardy; Linodendron and Ailantus, perfectly hardy; Wistaria sinensis, the lilac-flowered (the white I am just about to plant) thriving better at a pole, round which it twines spontaneously, than on a wall, and quite hardy in both places; Fortune's Weigela and Forsythia; his Jasminum nudiflorum which totally uncovered has flowered on a west wall for the whole winter; Jasminum revolutum, east wall, quite hardy; Piptanthus nepaulensis, standard, almost perfectly evergreen this winter, and now in luxuriant flowering; Hypericum nepaulense, Syringa Emodi, Deutzia, Yucca gloriosa (frequent in Scotland); Mahonias (several species), the M. aquifolium, M. magnifica, and M. repens, leaves a good deal hurt; M. nervosa, quite unhurt; Tamariscus gallica and T. germanica, the latter very hardy; Hydrangea hortensis, unprotected, wood now alive a foot up; Euonymus japonica, wall; Garrya elliptica, Bupleurum fruticosum, Menispermum canadense, Austolochia sipho, several Honeysuckles, Catalpa syringæfolia, growth doubtful; Paulovnia imperialis, a small plant killed to the ground by each of last two winters (in spite of some covering), but now for the second season budding from the root; Halesia tetrapterus, Diospyros virginiana, Chionanthus virginiana and Magnolia tripetala, all of which have stood the last two winters, but the thriving of the plants still very uncertain; Calampelis scabra, growing up a tree, stems now building more than a foot up, and higher than the straw-covering.

Here may come a very short Herbaceous appendix:—Dielytra spectabilis, as hardy as a Dandelion; Lilium lancifolium, several varieties; and L. eximium, covered in autumn when planted with small hillocks of Moss, all safe and shooting freely; Agapanthus umbellatus, in border, covered with some straw, and occasionally an inverted flower pot, alive but probably spoiled; Richardia æthiopica, placed last autumn in a small tank, result as yet doubtful; probably no doubt at all of the failure of a Cornum capense, which also is, or was, in the tank.

The treatment which has assisted in preserving the shrubs and trees still to be named may deserve to be described rather more minutely; accordingly they are arranged according to the head and amount of protection they have received. To each name is annexed, in parenthesis, a cypher denoting the number of winters the plant has stood in my ground. Plants having a higher figure than 1 have endured the February frosts of 1855; and the few having a figure above 2 have been tested also by the few hours of frost which swept the whole island so destructively towards the end of April, 1854. If the plants are on walls, the point is noted.

I. *Slight covering of straw above roots, and round lower part of stem.*—Berberis Jamesoni (1), healthy and flowering; the B. Darwini, killed in spring 1855, but about to be tried again; Arbutus procera (2), on east wall, flowering richly just now; another plant about to be set out as a standard: Paliurus aculeatus (3), growth almost *nil*; Gaultheria Shallon, and G. procumbens (1); Bignonia radicans (3), west wall, not yet flowering; Photinia glabra (serrulata?) (2), on east wall, thriving; Ligustrum japonicum (2), an invaluable evergreen, which, far from walls, and having merely a small straw rope about its roots, has at present scarcely a part of any leaf withered or discoloured on either of two plants.

II. *Plants on walls; covering as in No. I., but thicker and wider; withered Spruce branches also in front.*—Camellia japonica, double-flowered red (1), wood and leaves quite safe, the flowering looms in the future; Pittosporum Tobira (1), planted out in May last, flowers undestroyed till near Christmas, and new flower-buds now seemingly in promise, more round lower part of stem; Eucalyptus cordata (1), the plant which was obligingly identified in the *Gardeners' Chronicle* for 1855, page 646, on a south wall, and closely sheltered by a wall from the east, not a twig or leaf hurt, and the branchlets quite healthy, which since the spring growth began have been allowed to project beyond the loose coverings, growth also very rapid.

III. *Small plants on walls S. and W.; straw over roots, and a short way up; a mat fixed as a penthouse or sloping roof above, and let down also in the worst weather.*—Broad-leaved Myrtle (5) about 5 feet high, grown well in several gardens here in defiance of Sydney Smith; Escallonia macrantha (1), totally unhurt and brilliantly healthy, flowered well last autumn; Escallonia albo-coccinea (1), seemingly a variety or hybrid of E. rubra (?), leaves gone and wood much nipped, but now shooting and leafing vigorously; Acacia dealbata (1), a plant lost before, probably through insufficient care; Chimonanthus grandiflorus (1), this also a second attempt; Pentstemon cordifolius (1), much blasted but recovering; Ceanothus rigidus (1), and Veronica formosa (1), both quite uninjured.

IV. *Standard Plants—tops covered with cloth horizontally stretched on hoops; hillocks of straw or Moss round lower parts; withered Spruce branches stuck in loosely around.*—Sophora japonica pendula (2), thriving well—a plant killed in April 1854; Aralia japonica (2), upper part of stem twice lost, but has made 12 or 15 inches of safe upright growth each season, leafing luxuriant; Cupressus sempervirens stricta, two plants (5 and 2), adopted in despair as substitutes for Irish Yews, and really thriving and looking well, especially the older of the two; but other plants of the species have died with me, as have the C. torulosa and C. Lambertiana (macrocarpa?), the latter most probably through my own fault, and both (two different-looking plants of the last names) about to be tried again; Cryptomeria japonica (1), mat hung on east side during spring gales, full 5 feet high, lower branches much browned, most of the upper ones and the whole cluster of top shoots quite green and healthy, a young plant lost previously; Pinus insignis (1), mat as for Cryptomeria, a good bushy plant, 3 feet high, ends of many leaves browned, but the mass of the foliage brightly green as yet, and the buds pushing very freely; Libocedrus chilensis (1), about 2½ feet high, very promising, has lost only the very tips of lower and outer branchlets, budding strongly. *W. S., St. Andrews, Fifeshire.*

Home Correspondence.

The Lacebark Tree.—This plant, described by your correspondent "S." as being perfectly hardy in Dorsetshire (Abbotsbury), is, if I am not mistaken, Philippodendron regium. Seeds were sold by Carter of Holborn a few years since under the name of the New Zealand Lacebark Tree, together with a crimson flowering shrub from the same country. I purchased a packet of both, but the latter proved to be the well-known Clianthus, and the former the tree I name. It is tolerably hardy with me in South Devon, but certainly does not grow "prodigiously." Against an east wall in a somewhat exposed situation it was much injured during the cruel winter preceding that we are now emerging from, but in a shrubbery border more sheltered it stood well. I too have had many Indian Rhododendrons blooming gorgeously lately, and Acacia dealbata, 30 feet high, has been a mass of flowers. *A Devonian.*

Parsley in many gardens is liable to disease, and the crop sometimes dies out rapidly, so that where there is a demand for it, a want is felt for some months of the year. I do not recollect whether the disease to which Parsley is subject has been noticed in "Vegetable Pathology" or not. One of my neighbours some time ago had his Parsley crop very much cut up before winter, and the frost that followed finished it, so that he had none in the spring months, and the call for it was rather increased than diminished, which is often the case when there is a short supply of an article; at least gardeners think so. A large party was expected to dinner, and a plentiful supply of Parsley was wanted; the gardener had none of the genuine article in the garden, so he had to look about for a substitute, and found one in a commonly despised yet wholesome vegetable, belonging to the same natural order as the Parsley, although the leaves were simply pinnate, and those of the Parsley I think are tripinnate. So he gathered a supply as near the appearance of the article wanted as possible, and sent it to the kitchen. The article took well—no one found fault with it, the gentleman declaring that he never eat better Parsley in his life, and wished to know where the gardener got such a good article. He however kept his thumb on the secret, and he had no difficulty throughout the spring in supplying the house with Parsley. *P. M.*

Petunia Imperial.—Two plants of this novelty in the Petunia way have been in flower here for the last three weeks. The blooms measure considerably over two inches across, and are quite as double as those of any first-rate Carnation. It is very sweet, the scent resembling that of a rich Stock. It will prove a great acquisition for bouquet making and room decoration, vases, &c. The habit in pots is dwarf and good, flowering early, and it has every appearance of continuing in blossom for a length of time. *J. F., Cliveden, May* 8, 1856.

Canopy for the Protection of Wall Trees.—The gardening world is respectfully informed that there is this season an abundant crop of Apricots at St. Fagan's, near Cardiff, being the fifth year in which the trees have borne plentifully under the protecting canopy figured at page 389, 1854, and that Peaches and Nectarines are being trained in a similar manner. The words a good and bad fruit year will no more be heard; there will be always a plentiful crop of wall-fruit unless the prejudices of mankind get the better of the good sense and advantage of the public. Received opinions it is sometimes difficult to remove, though the alteration is only a sure and cheap remedy. Therefore, let all such doubting persons visit St. Fagan's without delay, and be convinced on the spot that the writer's assertions are just and true. *W. B. M. Lisle, LL.D., St. Fagan's, May* 2, 1856.

Moss on Trees.—In some gardens there is a melancholy crop of Moss and Lichen with which both trees and bushes are covered. Such crops may be useful to dyers and Cryptogamic botanists; but they are not profitable on bushes in gardens or on fruit trees, and although various modes for destroying them have appeared from time to time in your pages, there is yet a plentiful crop of them in many places. Good drainage, quick lime, and lime-water applied from time to time, will keep them in check. Some gases also are too strong for them. Some time ago the gases arising from the burning of iron-stone had a strong effect upon Lichens that were growing upon trees and old wood; they were both killed and bleached by the gases, and the stems of the trees and wood upon which they grew appeared as if they had been whitewashed. *P. Mackenzie.*

Force of Growth in Plants.—Will you, or some one of your readers, explain the *modus operandi* by which it is believed by physiologists the young plant gets through the surface of the ground. Is it due to the effect of a mechanical force in the plant, acting with a continuous yet infinitely slow motion, or in other words a mere slow thrust? [Yes.] Or is there any chemical action upon the surrounding soil by which the soil is caused to expand, and so a passage is opened through it for the prisoner ready to escape? The marvellous phenomenon of a young Mushroom bursting through the hard surface of the ground without any breaking or bruising of its outer skin has long puzzled your constant reader, *A Bumpkin, Ross.* [Its cells multiply and expand irresistibly under the influence of vital force.]

Grafting Pears.—In the case of fan-trained trees, what do you think of grafting the centre of stronger Pears with others of weaker growth? I think it would be an advantage. It may be done without lopping or disfiguring the trees—merely cut a notch in the side of the branch; slip the scion under the bark, and in two years it will take the place of the original shoot. This is an old plan, but our modern gardeners seem to have forgot it. In this way I intend to put a Forelle centre in a tree of Marie Louise. *J. M'R.*

Ancient Trees.—Some memorial trees have suffered from the late high winds. We learn from the newspapers that Wallace's Oak, which has stood for centuries as a land-mark at Elderslie, was uprooted with the gale. One of the large Silver Firs, which grew in front of Bannockburn House, is also upset. It was no doubt an ornamental plant in the days of "Prince Charlie," when he made Bannockburn House his head quarters, 110 years ago. *P. Mackenzie.*

Foreign Correspondence.

THE PUNJAB—A DAY IN THE KANGRA VALLEY.—*Kangra, March* 8.—Since I had the pleasure of writing to you last time I have left China and I am now in India in the Punjab. I shall not trouble your readers at present with my journey from Calcutta to the north-west provinces, but shall ask them to accompany me at once to the Kangra Valley. It was dark when I reached the Old Fort here, in which I had been kindly invited to take quarters with Dr. Williams. Early on the following morning Dr. Jameson and myself set out for a place called Holta, where there is a large Tea plantation belonging to Government. Our road led us round the side of a barren hill covered with Euphorbia heptagona and other weeds which invariably indicate a dry, gravelly, and useless soil, with a hot dry atmosphere during the winter months. When we rounded the furthest point of this hill a very different scene presented itself to our eyes. This was a large and beautiful valley, here and there studded with low hills of an irregular form and bounded on the north by the Himalaya mountains, which are here about 16,000 feet above the level of the sea. This valley appeared very fertile and was covered with crops of Wheat and Barley, which at this season (March 2) were quite green and just coming into ear. It is well watered even during the driest weather with numerous streams which are fed by the melting snows of the Himalaya. I stood still and gazed upon the wonderful scene which lay before me. Valleys as fertile and as well watered I had often seen in China where they are by no means rare, but this wonderful northern boundary white with snow, and whose peaks reared themselves far above the lower clouds, was grand indeed.

As we rode onwards through the valley and had a nearer view of the cultivation, it did not give me a very high idea of Indian farming. The natives do not seem to have that energy which the Chinese possess, and leave much to nature. Their crops of Wheat and Barley were generally very poor, and their Flax, which is grown for its seeds only, from which oil is expressed, was poorer still. Perhaps there may have been some excuse for this state of things this year, as the season had been unusually dry, but I cannot help thinking that much was owing to bad or careless farming. When the winter crops are ripe the ground is irrigated, and Rice cultivation commences. This I am told is the staple crop of the valley, and a large quantity is annually produced, and bought up to send to the more populous places of the Punjab. Indian corn is also grown largely on the higher and drier lands.

The common trees of the valley are the Mango, the Silk Cotton tree (Bombax), Melia Azedarach, Ficus religiosa and other species of Fig; with Bamboos, Willows, Mulberries, Peaches, Plums, Wild Cherry, several species of Jasmine, &c. This list will give an idea of the sort of climate which the valley enjoys, and in addi-

tion I may mention that the Musa is common, and ripens its fruit, and that I observed an Orchid, an Aerides apparently, growing upon many of the trees. The Linum trigynum is quite the Primrose here; at this season of the year the barren hill sides are covered with its pretty yellow blossoms. On rich soil it forms a tall bush, but on waste places and hill sides, where the herbage has been closely eaten by cattle, the flower stalks rise out of the ground like our own Primrose. I had no idea of the beauty of this species until I met with it here, and I cannot help thinking it is worth more attention than is generally bestowed upon it at home. In company with this, and flowering at the same time, is a small species of Gentian, with its thousands of pretty tiny light blue blossoms, growing sometimes out of the crevices of the rocks, and at other places in such profusion on the brown sward as to form a neat yet brilliant carpet of flowers.

Through such scenery we rode from daybreak until 4 P.M., and visited and inspected two small Tea plantations by the way. At one point of our journey I observed one of those curious examples of Nature's grafting, or, I should rather say, apparent grafting, which at first sight might make the unwary believe in the old Virgilian tale of Apples growing upon Plane trees. This was no less than a good sturdy Peach growing out of an old Mango at some 6 or 8 feet from the ground. The union at first sight seemed complete, but no doubt the old stem of the Mango was hollow, and the Peach was deriving nourishment from its own roots from mother earth. I am afraid I shall not be able to find you an example either in China or in India to confirm the old Roman theory.

The Government Tea plantation of Holta, of which more anon, is situated considerably higher than the valley through which we had passed, and is about 4000 feet above the level of the sea. It is just at the foot of the high mountain range, and within a short distance of the snow. Pinus longifolia is abundant on the spurs, and also apparently a long way up the sides of the mountains. At some short distance up I observed forests of Pinus Webbiana. Here, too, the Rhododendron arboreum begins to be met with, Vacciniums are abundant, as well as Berberis asiatica, Hypericum, several species of Rubus, Roses, and such plants as flourish best in a temperate climate. The Rhododendron is now in full bloom, and presents a most gorgeous appearance. A jungle of these trees seems almost on fire, so brilliant is the colouring. If I tell your readers that these trees are so large and so abundant that Dr. Jameson is cutting them down and using the wood to make tea-chests, they will think it a "traveller's story;" but it is true nevertheless. *R. F.*

Notices of Books.

Mr. Murray has published a new and cheap edition of *Gordon Cumming's* famous *Lion Hunter*, illustrated with numerous clever woodcuts. Such a sportsman as Mr. Cumming is unique. Such a five years' wandering was never before the subject of a tale. Elephants and lions are bagged like rabbits; the destruction of a rhinoceros is as simple an affair as running down a fox; and as for elands, quaggas, antelopes, and such "small deer," Mr. Cumming talks of them as if he had been shooting hares. Not but what the work was sharp enough on some occasions. Take the following as a specimen of the life of such a wild hunter as our author, who had concealed himself on this occasion in a watching hole at midnight:—

"Soon after a heavy clattering of hoofs was heard coming up the vley, and on came an immense herd of blue wildebeest. They were very thirsty, and the leading cow came boldly up and drank in front of me. I sent a ball through her, when she ran 60 yards up the slope behind me and fell dead. Her comrades thundered across the vley and took up a position on the opposite rising ground, leaving the carcase of their companion to the hyænas and jackals: soon after a lion gave a most appalling roar on the bushy height close opposite to us, which was succeeded by a deathlike stillness that lasted for nearly a minute. I had then only one shot in my four barrels, and, hastily loading, kept with breathless attention the strictest watch in front, expecting every moment to see the terrible king of beasts approaching; but he was too cunning. He saw all the other game fight shy of the water, so made a circuit to leeward to get the wind off the fountain. Soon after he roared I heard a number of jackals bothering him, as if telling him to come across the vley to the wildebeest; he growled from side to side as if in reply, and then all was still.

"I had listened with intense anxiety for about 15 minutes, when I heard the hyænas and jackals give way on either side behind me from the carcase of the wildebeest, and, turning my head round, beheld a huge and majestic lion, with a black mane which nearly swept the ground, standing over the carcase. He seemed aware of my proximity, and lowering his head, at once seized the wildebeest and dragged it some distance up the hill. He then halted to take breath, but did not expose his broadside, and in a quarter of a minute again laid hold of the wildebeest and dragged it about 12 yards further, when he once more raised his noble head.

"I had not an instant to lose; he stood with his right side exposed to me in a very slanting position, and taking him rather low, I fired: the ball took effect, and the lion sank to the shot. All was still as death for many seconds, when he uttered a deep growl, and slowly gaining his feet, limped towards the cover, where he halted, roaring mournfully, as if dying. I had now every reason to believe that he was either dead or would die immediately, and if I did not look for him till the morning, I knew very well the hyænas and jackals would feast upon his carcase. I accordingly went up to camp, and, having saddled two horses, went with Martin to seek him, taking all the dogs, led in strings by the natives. On reaching the body of the wildebeest, the dogs were slipped and went off after the hyænas and jackals: we listened in vain for the deep growl of the lion, but I was persuaded he was dead, and rode forward to the spot where I had last heard him roar, when I had the immense satisfaction of beholding the magnificent old lion stretched out before me.

"The ball had entered his belly a little in front of his flank, and traversed the length and breadth of the body, crippling him in the opposite shoulder. No description could give a correct idea of the surpassing beauty of this most majestic animal, as he lay still warm before me: I lighted a fire and gazed with delight upon his lovely black mane, his massive arms, his sharp yellow nails, his hard and terrible head, his immense and powerful teeth, his perfect beauty and symmetry throughout; and I felt that I had won the noblest prize that this wide world could yield to a sportsman. Having sent for rheims and the lechteruit, we bore the lion to the camp. On my way from the water I shot with a single ball an extremely old black bull rhinoceros.

"On the afternoon of the 4th I deepened my hole and bagged three black rhinoceroses, and the best pallah in a troop which came to drink.

"By the following evening we had cleared away the greater part of two of the rhinoceroses which lay right in the way of the game approaching the water; I, however, obliged their leaving the third rhinoceros almost opposite to my hiding-place, in the hope of attracting a lion, and soon after the twilight had died away, went down with Kleinboy and two natives, who lay concealed in another hole, with Wolf and Boxer ready to slip, in the event of our wounding a lion.

"On reaching the fountain I looked towards the carcase of the rhinoceros, and, to my astonishment, beheld the ground near it alive with large animals, which Kleinboy remarked were zebras. I answered, 'Yes;' but I knew that zebras would not be capering round the carcase of a rhinoceros, so I quickly arranged my blankets, pillow, and guns in the hole, and then lay down to feast my eyes on the interesting sight before me. It was bright moonlight, as clear as I need wish, and I could see six large lions, about 12 or 15 hyænas, and from 20 to 30 jackals, feasting on and surrounding the carcase and remains of the two rhinoceroses. The lions feasted peacefully, but the hyænas and jackals fought over every mouthful, chasing one another round and round, growling, laughing, screeching, chattering, and howling without intermission. The hyænas did not seem afraid of the lions, although they always gave way before them; for I observed that they followed them in the most disrespectful manner, and stood laughing, one or two on either side, when any lions came after their comrades to examine pieces of skin or bones which they were dragging away. I lay watching this banquet for about three hours, in the strong hope that when the lions had eaten enough they would come and drink. During this time two black and two white rhinoceroses made their appearance, but, scared by the smell of blood, retired.

"At length the lions, apparently satisfied, walked about with their heads up, and seemed to be thinking of the water, and in two minutes one of them, turning his face towards me, came forward; he was immediately followed by a second lion, and in half a minute by the remaining four. It was a decided and general move, and evident that they were all coming to drink, within 15 yards of me.

"I charged the pale and panting Kleinboy to convert himself into a stone, and knowing from old spoor exactly where they would drink, I cocked my left barrel and placed myself and gun in position. The six lions came steadily on along the stony ridge, until within 60 yards of me, when they halted for a minute to reconnoitre; and one of them stretched out his massive arms on the rock and lay down. Again they came forward, walking as I had anticipated to the old drinking-place, and three of them put down their heads and were lapping the water loudly, when Kleinboy put up his ugly sconce; I turned mine slowly to rebuke him, and again looking at the lions, found myself discovered.

"An old lioness, who seemed to be the leader, had detected me, and, with her head high and her eyes fixed full upon me, was coming slowly round the corner of the little vley to cultivate my acquaintance! This unfortunate proceeding put a stop at once to all further contemplation: I thought, in my haste, it was perhaps most prudent to shoot her, especially as none of the others had noticed me. I accordingly covered her; which she saw me do and halted, exposing a full broadside. I fired; the ball entered one shoulder and passed out behind the other. She bounded forward with repeated growls, and was followed by her five comrades all enveloped in a cloud of dust; nor did they stop until they had reached the cover behind me, except one old gentleman, who looked back for a few seconds. I listened anxiously for some sound to denote the approaching end of the lioness; nor listened in vain. We soon heard her growling and stationary, as if dying. I then slipped Wolf and Boxer, and following them into the cover, found her lying dead within 20 yards of where the old lion had fallen two nights before. She was an old lioness, with perfect teeth."

Sport like this is something different from deer-stalking. Similar stories fill above 370 pages, and he must be something more or less than human who can read them without breathless attention. Had their hero lived in former days he would have been deified as a second Hercules. Everybody who has five shillings to spare will find his money uncommonly well laid out in the acquisition of this extraordinary narrative, the truth of which is now unquestioned.

A Manual of Quotations from the Ancient, Modern, and Oriental Languages, including Law Phrases, Maxims, Proverbs, and Family Mottoes. By E. H. Michelsen, Ph. D. 12mo. Crockford. Pp. 308.

It is difficult to discover what principle has guided Dr. Michelsen in this edition of Macdonnell's Dictionary of Quotations. The object of such a book would seem to be that of explaining to the unlearned the meaning of classical and other phrases often in the mouth of the learned, or of showing the application of proverbial and other expressions, the point of which may escape the ordinary understanding. Such a purpose is intelligible and useful. But we fail to discover that it has guided the compiler in the work before us, which looks as if it had been written to order, the object being to form a saleable volume containing a given number of phrases. In what other way such words as Fandango, argentarius, Harmattan, Hidalgo, &c., or common sentences having no difficulty about them, are introduced, appears incomprehensible. Take for instance "Je suis prêt," "Rectè et suaviter," or a quotation from Boileau, at p. 70, which involves no peculiarity or idiomatic difficulty whatever. With sentences like that any quantity of pages may be filled. Then as to the mottoes of our nobility in foreign languages, some are given, but many are omitted. And in what concerns proverbial expressions, the selection is to the last degree meagre; a few French, Italian and German ones are discoverable here and there, but of the Spanish, the most pithy of all, scarcely one appears. We must also be permitted to remark that "Scapham scapham dice" is not *to* call a boat a boat; nor do the letters D. M. S. signify "Divis maniis (!) sacrum." Nevertheless the book has its use, and we doubt not will be acceptable to those who are not fastidious about quality, providing an article is cheap. Nor indeed would it be fair to conceal that a good many of the quotations are rendered happily. Such a book, thoroughly well done, would be both instructive and amusing.

A second number of Dr. Hooker's *Flora of Tasmania* (Lovell Reeve), has just reached us. The text includes the remainder of Leguminous plants, and terminates in the midst of Umbellifers. In addition to what we formerly said we have only to add that the colony may well be proud of having secured the publication of such a work, and Mr. Gunn of having his long and invaluable labours so brilliantly illustrated.

The Manual of School Gardening (National Society) is a little pamphlet of 53 12mo pages, intended to show how such a garden as a National Schoolmaster is likely to possess may be managed. The directions are plain and sensible, and what are wanted. With the following sentence all will agree:—

"The schoolmaster who devotes his leisure hours to gardening will of course avail himself of the help of his boys; and a most valuable return he will make to them for their services, if, while he is superintending their labours, he can impart habits of order and forethought. This he can only do, firstly, by working out a pre-arranged plan on well understood principles; and secondly, by explaining to his fellow labourers the reasons on which each operation is founded, thus exciting their interest and securing their confidence. What boys do out of school hours is, after all, the best test of what they learn in school."

Garden Memoranda.

Shrubland Park, Ipswich, Suffolk, the seat of Sir William Middleton, Bart.—The flower gardens at this place have of late years acquired great celebrity, and the alterations recently in progress being now completed, we have great pleasure in presenting our readers with a short descriptive notice of them, for which we have the permission of Sir William Middleton. The mansion and gardens are so intimately blended together, both from situation and design, that our sketch of the grounds would be imperfect did we not devote a few lines to describe the mansion, as each affords evidence of great taste in design (and execution also); and we should not be doing justice to the liberal proprietor of Shrubland and his estimable lady, if we omitted informing our readers that Shrubland is the work of their own creation—the designs for the gardens and parterres, we understand, as well as the main features of the mansion, having been laid down by themselves. A residence for a considerable period in Italy appears to have imbued both Sir William and Lady Middleton with the spirit of the great Italian masters in architecture and gardening, which they so well knew how to combine. And they have thus been enabled to carry out at Shrubland the purest designs of the Italian school, as exhibited in the palaces and villas near Rome. True, we cannot assimilate our climate and scenery to that of the south of Europe; but, notwithstanding, Sir William has been wonderfully successful, and without question has formed a very perfect copy of Italian gardening; and, taking

into consideration the great superiority of English gardens, as regards floral embellishment, Shrubland must far outvie the best gardens of Italy, though we must yield in comparison to her glorious climate—her groves of Orange, Myrtle, and Bay, and the classic associations of her villas.

First, then, the mansion is situated on the brow of an eminence, which rises abruptly from the general level of the country to the west, which is overlooked by the commanding position on which the house stands. Within these few years great alterations and additions have been made to the exterior of the house, under the direction and from the designs of that eminent architect, Sir Charles Barry. From the south wing rises a lofty campanile tower: the view from the upper story of this comprises a wide extent of country, and affords a bird's-eye view of the magnificent gardens below; we may also add, that the entire designs of the upper and lower terraces, and adjoining grounds, are seen to best advantage from this elevated position.

The situation of the house and ground immediately in front was extremely well adapted for displaying the Italian style of gardening. As before noticed, the ground on which the mansion stands shelves rapidly to the west, and forms naturally a steep woody bank: advantage has been taken of this position to form two grand terrace gardens—the lower one being some 70 or 80 feet below the upper one, with which it is connected by a noble flight of stone steps, leading from a pavilion which forms a centre of the balustrade, the boundary of the upper terrace, and directly opposite the centre of the mansion. We omitted to name that, connected with the house, on the west front, is a plant conservatory, which is kept constantly gay with plants in bloom, and which can be thrown open to the morning gallery. The balcony garden, as we have before stated, is directly in front of the house, and is divided in two by a centre walk leading to the pavilion, through which a fine view is obtained of the country beyond, and likewise of a loggia at the extremity of the lower garden.

To describe any of these gardens without referring to a plan is almost a hopeless task. The principal feature in the design of the balcony garden is a group of four large beds on each side the centre walk. These have raised stone borders, wide and massive; next a band of turf; and between the turf and Box edging inside a band of white sand. This gives a high architectural finish to the garden, and is, besides, quite in keeping with the walls, balustrading, vases, and other architectural accessories which surround it.

The great object in this garden is to have large masses of colours; hence it was imperative that the beds should be large, to produce a grand effect, and rich warm colours are only employed for the like purpose—four of these beds are scarlet, two purple, and two blue. The scarlet beds are planted in this way:—In the centre, Shrubland Scarlet Geraniums; next, a band of Punch Geraniums; then a band of Mangles' Variegated, followed by Tom Thumb; the edging to finish being a band of "Harkaway," a very dwarf scarlet Geranium. When in full bloom nothing can exceed the richness of these groups as regards arrangement of colour.

The two purple beds have for centres a mass of "Prince's Feather;" surrounding this, "Love-lies-bleeding;" next, Geranium Purple Unique; followed by a band of Golden Chain, and finished off by an edging of the Baron Hugel or Princess Royal Geranium, with a well-defined horse-shoe leaf, from which the flowers are taken off, that they may not interfere with the colour of the bed.

The two blue beds are planted with the centre of Salvia patens, mixed with Chinese Delphinium (Larkspur); next a band of the African Lily (Agapanthus); then a band of Lobelia racemosoides; next, Golden-chain Geranium, finishing with an edging of Barou Hugel, as for the purple beds, the scarlet flowers also taken off.

Two long square turf plots flank each side of these beds, forming altogether a balcony garden. These have a tracery pattern in white sand with stone tripods, and in the centre a fine plant of Libocedrus chilensis, planted by H.R.H. Prince Albert, when he visited Sir William and Lady Middleton in 1851.

The eight beds described above are connected by a stone pattern and three circular beds. The centre one is planted with Hydrangeas, and the one on each side with Yuccas. There are stone boxes planted with Humeas, and the same on each side the centre walk, planted with Portugal Laurel, in imitation of Orange trees, for which they are excellent substitutes. The borders under the retaining wall at the top nearest the house, which supports the terrace walk, is planted with Hollyhocks in lines, fronted with Lady Middleton Geraniums, a rosy coloured scarlet raised here by Mr. Beaton, and very valuable for bedding purposes.

Before leaving this part we must not forget to mention two beds of yellow Calceolarias, which fill up a vacant space to the right and left at the top of the garden; these have a good effect, and contrast well with the warm-coloured beds in the centre. To the left, leading towards the entrance gate from the park, is a long border under the conservatory terrace, formed into the "chain pattern." The oval centre beds are filled with Cerise Unique and Commander-in-Chief Geraniums, alternately; the bands are yellow Heartsease and blue Lobelia, with the space intervening between the beds and the parallel lines of the border filled in with white sand.

On leaving the balcony garden, and descending by the steps to the panel garden (a lower terrace), the view is very striking, with the loggia directly in front, in the boundary line within which is a large open space, filled with beds, vases, and statues. Towards the bottom the steps branch off right and left, forming a circular sweep, the area of which is filled with a fountain in a large stone basin, with a circular walk leading from the steps round it. A wide central walk starts from this direct to the loggia, and four Grass terraces diverge to the right and left, having the fountain as a common centre. Passing through the loggia, a deep dell separates the highly dressed grounds from those beyond. This part has only very recently been added; and crossing the dell by a rustic bridge, we find ourselves among great masses of shrubs (selected chiefly for their foliage), herbaceous and common wild plants—everything, in fact, which conveys the idea of wild and natural scenery. Looking from the upper pavilion—or, indeed, any part of the higher grounds—these masses of shrubs are completely under the eye, and it was important that they should by contrast set off the floral embellishment within the boundary, as well as form a back-ground for the panel gardens and other part of the grounds on a line with them; and we doubt not, as they grow up, they will produce the desired effect.

We must, however, retrace our steps to the panel garden, to notice the long green glade or drive which passes through it, having the fountain in its centre. This green walk is nearly a mile in length, and terminates at one end with a flight of steps and balustrade to a platform from which diverge walks and drives in the woods. From this eminence there is a fine vista of its entire length, passing through the lower ground, and ending near the Swiss cottage at the other extremity of the grounds. This drive is margined by parallel beds of Savin, Irish Yews, Arbor-vitæ, vases raised from the ground filled with choice Geraniums, &c. To the right of the panel garden is the French garden, enclosed within a Laurel wall, in which, set in niches cut out of the wall, are a number of marble busts, 4 feet high. This garden is laid down on gravel with Box edgings, and is planted with dwarf flowering plants, as Lobelias, Brachycomes, Cupheas, Golden-chain Geraniums, &c.

Proceeding southward from the panel garden by the long walk, we reach the fountain garden, which lies to the right. This is nearly circular in shape, and has a fountain in its centre, from which four walks radiate, throwing the garden into four divisions. There are, besides, a boundary wall and a conservative wall, taking the sweep of the garden to the west. This wall is built hollow, and is heated by hot-water pipes: the west side is covered with greenhouse and half-hardy climbing plants, which have the protection of glass during winter; the plants grow with great luxuriance, and bloom profusely in the summer months, when the glass is removed. On the garden side plants of a more hardy nature, including Roses, &c., are planted; and the border at the base contains many interesting half-hardy plants.

The four divisions of the fountain garden are each planted in six colours, with white to begin and finish with. Each division has its separate plants, but the colour and height of each are the same. Commencing with the centre it is white, which is continued all round through the four divisions; next purple, yellow, scarlet, blue, pink; and lastly, white again at the outside. This arrangement takes up a vast number and variety of plants, as the height and habit have to be studied, as well as the colour of each; but the arrangement, when well done, is unique and very pleasing.

Beyond the fountain garden are some beds on gravel, with raised stone edgings, and planted with mixed colours; amongst others, the shot-silk bed our esteemed friend Mr. Beaton speaks so much of, is very conspicuous: its composition—variegated-leaved Geraniums, mixed with Verbena venosa, or any light purple variety—is now well known.

Below these beds is the Rosery, which contains a very choice collection of summer Roses. The climbing varieties are trained to a fancy iron trellis, which forms bowers over the walks. A circular bed in the centre is in the form of the heraldic York and Lancaster Rose, with red and white Roses and a yellow centre bed.

Towards the southern extremity of the grounds is an exceedingly characteristic Swiss cottage, with the accompaniments faithfully carried out. It contains a museum of curiosities collected by Sir William Middleton, and among other things, some interesting relics of Napoleon the First, the Duke of Wellington, Lord Nelson, &c.

At a short distance from the Swiss cottage is the Verbena garden, in which are planted those kinds not used in other arrangements. By this garden is the Box terrace, forming a beautiful scroll pattern laid down on a smooth surface of fine sand of a reddish tint, completely in the parterre style of the French. The interior is planted with very dwarf flowers—as Silene Schafta, dwarf French Marygold, Lobelia ramosa, &c.

The whole of the retaining and dividing wall is surmounted with rich balustrading, in the same style as the mansion, pavilion, and loggia, all of which are from the designs of Sir C. Barry. Hence, there is a harmony and unison between the several parts rarely met with, which does credit to the admirable taste and judgment of Sir William Middleton. In addition to the Italian features of the entire place, a great number of busts, vases, and statues are disposed throughout the grounds in appropriate positions. These greatly assist in forming the peculiar tone of Italian scenery so characteristic of Shrubland.

Mr. Foggo, the present head gardener, informs us that 80,000 plants of Geraniums, Verbenas, Petunias, Lobelias, &c., &c., are annually required for turning out into the numerous beds, border, vases, &c., and this independently of annuals, &c., raised from seed, which are likewise worked into the general arrangement. To procure annually such a large number of plants, and to arrange each to the several compartments for flowering, requires a large amount of care and forethought. Both Sir William and Lady Middleton are deeply interested in all that is going on, and provide liberal help to keep the whole in the highest order of neatness; and to keep up so large and brilliant a display of bloom throughout the season, large reserves are always ready to fill up vacancies and maintain uninterrupted the display. We purpose noticing the kitchen garden, forcing, and extensive plant-growing departments hereafter, as well as the grand Spanish Chesnuts on the Brownlow terrace.

To be appreciated, Shrubland should be seen in its summer glory—say between June and October. The *coup d'œil* from the steeps leading from the upper temple, which overlooks the panel garden, 80 feet below, with its fountains, statuary, parterres, and exquisite loggia, or open temple, at the further side, in the foreground, and a wide stretch of country beyond, has few equals.

Mr. Beaton, so well known to the horticultural world, was for many years gardener here, and many of the Geraniums, &c., employed were raised here by him. He was followed by Mr. Davidson, who superintended the principal improvements noticed. Mr. Foggo, who succeeded Mr. Davidson 18 months back, is very successful in meeting the requirements of so large an undertaking, and will maintain the high character Shrubland for many years has enjoyed, as one of the finest and best kept places in the country. *From the Florist, Fruitist, and Garden Miscellany for May.*

FLORICULTURE.

Ranunculuses.—In a season like the present, the following advice by Messrs. Tyso regarding the watering of Ranunculuses will doubtless be acceptable:—Genial showers in April and May are essential to a vigorous and healthy growth. The Ranunculus delights in a moist soil, and if there be a deficiency of rain in May, water must be plentifully supplied, just at the time the flower buds are appearing. This is a critical period, and for lack of moisture many plants fail to bloom, and send up only an abortive flower stem. Water from a pond or brook is better than from a well; if such cannot be obtained fill a large vessel with water from a pump, and expose it to the sun and air before use. It should be applied (morning or evening, according to the state of the temperature) between the rows, from a spouted pot, and not over the foliage, except in cloudy and showery weather. It may appear an anomalous direction to water in wet weather, but advantage should be taken of a shower falling to give a generous watering, as the plants are then naturally in a better state to receive moisture than in dry weather, when their pores are contracted. As a general observation, it is better to water copiously three times a week, than to administer a small quantity every morning and evening. To obtain fine blooms for exhibition a little weak manure water may be occasionally given. We have tried numerous natural and artificial guanos, &c., in some instances without perceptible benefit, and in others with positive injury. The most simple and useful agent we know of is superphosphate of lime, reduced to fine powder, and mixed with the water. We are aware that many connoisseurs have been at first delighted with the luxuriant foliage of their plants, traceable to potent doses of liquid manures of varied name, but the apparent benefit has in almost all instances been realised at the future risk of the health of the tubers. We are not adverse to novelties, because they are such, but to the experimentalist we would speak the language of caution. Try your hand on a small scale only; never apply a new nostrum on a larger portion of stock than you can afford to lose.

National Floricultural Society, *April* 24.—Mr. Lochner in the chair. Censors Mr. Moore, Mr. Lochner, Mr. Robinson, Mr. Parsons, and Mr. Hamp.—The most remarkable flowers shown on this occasion were Azalea potissima, colour pale rosy salmon, not over bright; evenly spotted. Cineraria Mrs. Hoyle, from Mr. C. Turner, colour pure white, tipped with purplish rose; of vigorous habit and spreading truss. Cineraria Vivid, from Mr. Pope, a very pure white ground variety, heavily tipped with lively rosy purple. Epacris carnea rubra, from Mr. Kinghorn, a variety in character intermediate between minista and impressa. Pelargonium Blanchfleur, from Mr Wheeler, a flower for forcing, much resembling the well-known Mont Blanc No. 1 of Storey, but with remarkably full trusses and vigorous habit; a variety for similar purposes was contributed by Mr. Peck. A useful Pelargonium called Review was staged by Mr. Hoyle, which is likely to be a fine early variety. Other Cinerarias of merit were Mrs. Turner and Mr. Edwards, both raised by Mr. Bousie; Earl of Clarendon (Turner), and Queen of May (Lidgard).

Miscellaneous.

The Coco Nut Palm.—Of all the gifts which bountiful nature has bestowed on the inhabitants of the tropics, this perhaps is the most valuable, and certainly the one most fitting them for a paradisiacal state of idleness. What other fruit is there in which, as in the Coco Nut, we find a refreshing beverage contained in a cool limpid state in a nutritious pulp of the consistence of blancmange, and as agreeable to the taste! In a young nut the lining pulp of which was thin and almost of gelatinous softness, the quantity of contained fluid exceeded rather half a pint. It was quite clear, as much so as spring water, pleasantly, slightly sweet, of specific gravity 10183. The pulp was rendered brown by the

tincture of iodine. No starch particles could be detected in it under the microscope, nor oil globules. The water of a ripe Coco Nut, much less in quantity and nearly transparent, was of the specific gravity 10203. It did not become turbid on boiling, or by the addition of acetic or nitric acid. Sugar, it may be inferred, was its principal ingredient. The lining pulp was found to consist of 36 per cent. solid matter and of 64 water, as determined by thorough drying. As is well known, it abounded in oil. I could detect in it no starch particles. In composition I believe it to be very like the ripe Almond. The emulsion it makes is equal to that of the Almond, and is an excellent substitute for milk for tea. The Coco-Nut Palm, I may add, thrives best by the sea-shore; it thrives even within high-water mark. Viewed in this light, may it not be considered as designed by a kind Providence to yield a drink in situations in which springs of fresh and wholesome water are often not to be found. It is only the traveller in such regions who can justly appreciate its value, and be sufficiently thankful for such a blessing. In Ceylon the natives are in the habit of putting a portion of salt into the ground when they plant the Nut, so convinced are they that salt is required for its successful growth. *Dr. Davy in the Edin. New Philosophical Journal.*

The Apple.—Apples have been believed by some to have been introduced into Italy from Media, and that the Falisci, or inhabitants of Montefiascone, were the first to plant them in rows. But this must apply to some particular variety, not to the species, which we have already stated to be indigenous, but very early cultivated. Pliny enumerates 23 varieties, which appear still more difficult to identify with ours than the Pears. Among the few that modern authors have recognised, the Appiani of the Romans are supposed to be the Appie or Appiole of modern Italians, the Appia pyriformis to be the Appiolona lunga, the Syriaca rubergima to be the red Calvetto, &c. In more modern Tuscany, Micheli, in his above-mentioned manuscript, describes 56 sorts under the Medici princes, 52 of which are figured by Costello. *Journal of the Hort. Society.*

Artificial Manures.—In these days of unscrupulous adulterations, it is well for the farmer to know where he may be sure of procuring an artificial manure in a genuine state. Whoever sees the *Gardeners' Chronicle* is aware how repeatedly the learned editor has warned his readers against profligate dealers, who make no scruple of adulterating guano, even to 90 per cent.! And I have also heard of parties who buy up a worthless material, the "rough stone" as it is called at the quarries, to grind up and mix with the coprolite! No wonder so many farmers are shy of using manures which they find do not answer their expectations. Yet nothing can be more distinctly shown by Mr. Lawes's experiments, as well by those of a few others who know how to perform experiments, that certain artificial manures are powerful stimulants to certain plants; some for one kind, some for another. The rate at which Mr. Lawes manufactures superphosphate of lime, and the degree of care with which he tests its qualities, enable him to present the public with this article in as genuine condition as it can be procured. This is not said to the disparagement of others, who may be prepared to do the same; but as there is a well-known chief source for pure guano, so there is unquestionably, at Deptford, a genuine supply of superphosphate of lime, with no further admixture of extraneous matters than such as the so-called coprolites, and other sources from whence it is obtained, themselves contain. Here there are no poisonous scrapings of ships'-bottoms to make weight, no ground rough-stone, no grey earth from Wimbledon Common, nor any other of the numerous extras thought quite good enough for farmers who will not trouble themselves to take the necessary precautions to have the article they purchase tested by competent authority. *Lecture by Rev. J. S. Henslow.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Although a slight shade is indispensable on the forenoons of bright warm days, this must be used sparingly when the weather proves unsettled, for without abundance of light flowers never colour properly, and they soon fade if kept in too shady a position. Air should also be admitted freely whenever the weather will admit. Where it can be accomplished watering should be done in the morning, in order to get all superfluous moisture dried up before evening, so as to avoid night damps, from which there is some danger during the present state of the weather. New Holland twiners, when done flowering, should have their shoots well trimmed in before growth commences; thin the main branches where necessary by cutting out weakly ones, but always have an eye to securing plenty of young wood towards the bottom. If the plants are at all infested with scale they will be most conveniently cleaned, and where necessary the paint washed, &c., immediately after pruning, so as to have all clear before the plants start into growth.

FORCING DEPARTMENT.

Pineries.—For plants intended for winter fruiting we would recommend using a somewhat lighter soil than is generally employed for Pines, as there will not be so much danger of getting this too wet as when a strong tenacious loam is used. We prefer a compost consisting of about two-thirds mellow turfy loam, with one-third good strong turfy peat, adding a liberal sprinkling of clean sharp sand, and some crushed broken bones, when they can be obtained. In this the plants root vigorously, and fruiters can be liberally supplied with manure water without any danger of the soil getting sodden. But the great advantage of a light soil is that it soon parts with its moisture, and the plants are more manageable in the way of getting them into fruit at the proper time. Maintain a thoroughly moist atmosphere, especially where the fruit is swelling, and give plenty of manure water to all growing stock, as well as to plants in fruit. Vineries.—See that inside borders are properly supplied with water, giving sufficient quantities to thoroughly moisten the whole mass of soil. The Vine is a gross feeder, and absorbs vast quantities of water when in vigorous health and swelling a heavy crop. Give Vines in pots manure water, first diluting it slightly with warm water to bring it to about the same temperature as that of the house. Attend to the regulation of the growth, stopping laterals, &c., and timely thinning of the bunches and berries, before they injure the principal foliage. And see that the Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. Figs.—Attend to stopping and thinning the shoots, and aim at securing short-jointed strong growth by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist. Where the fruit is ripening, syringing must, of course, be dispensed with, and the atmosphere kept drier, therefore be careful to have the foliage perfectly clear of insects up to the time the fruit begins to ripen. Melons.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil, for it is generally somewhat difficult to secure a crop from wood of this sort. Give air as freely as the state of the weather will admit, in order to secure firm short-jointed wood, and where the crop is setting, as the young fruit is very apt to damp off unless the atmosphere is kept moderately dry. Endeavour to secure a steady bottom heat of about 80° or 85° for plants in all stages, and also to keep the soil in a proper state as to moisture; avoiding having to water while the crop is setting, by well soaking the soil before the principal blossoms begin to expand. Keep a careful look-out for insects, and use every precaution to prevent these getting established upon the foliage, for there is hardly any chance of a crop of fruit unless the foliage can be preserved in health.

FLOWER GARDEN AND SHRUBBERIES.

Except in favoured localities it will be unsafe to commence planting out bedding stock until we experience a decided change of weather. Meantime get the plants well hardened off and nicely arranged, so that when planting out is commenced it can be done expeditiously. Also decide upon what is to occupy each bed, and have everything in readiness before planting out time. Push forward late propagated stock and endeavour to keep the whole healthy and growing slowly in their pots. It is a common and very bad practice to allow bedding stock to remain in small pots exposed to the sun and wind, and very scantily supplied with water, until they get almost dried up. They should be exposed to the weather as freely as circumstances will admit, but never to such an extent as to brown the foliage and dry up the tissues. Endeavour to get mowing and other work here in a forward state so as to be able when bedding out can be safely commenced to command sufficient strength to properly care for the plants in the way of watering, protecting, &c., as may be necessary.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with the disbudding of Peach and Apricot trees, leaving for the present, however, any shoot the leaves of which overhang and shelter fruit, but the points of such should be pinched out in order to afford those intended to be left at the final disbudding every encouragement. It will also be necessary to go over Pear, Plum, and Cherry trees, to remove gross shoots and to stop those not wanted for laying in. This repeated as may be necessary during summer is greatly preferable to the old practice of allowing the shoots to remain upon the trees till midsummer, and then cutting them back to two or three eyes. This showery weather seems to be very favourable for the increase of insects, and nothing must be allowed to interfere with the destruction of these pests. Ground from which Broccoli and other winter greens have been cleared should be manured and trenched, or dug, as may be requisite for the succeeding crop; or if it is intended for Celery, the trenches should be got out at once, so as to be able to get a crop of Lettuce or Spinach between the trenches. See to getting Tomatoes prepared for planting out, also Sweet Basil, &c., with ridge Cucumbers and Vegetable Marrows; also make a sowing of Sweet Basil, Marjoram, Savory, &c., on a light warm border, and get the early Celery prepared for planting out as speedily as possible, and attend to the plants for succession crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending May 8, 1856, as observed at the Horticultural Gardens.

May.	Moon's Age	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep	Wind.	Rain.
Friday 2	27	29.977	29.970	54	27	40.5	48	46½	N.W.	.01
Satur. 3	28	30.098	30.015	52	37	44.5	48	46¾	N.W.	.15
Sunday 4	○	30.111	30.048	52	21	36.5	48	46	N.E.	.00
Mon. 5	1	30.172	30.044	53	35	44.0	48	46	N.E.	.08
Tues. 6	2	29.917	29.568	52	41	46.5	47½	46	S.E.	.24
Wed. 7	3	29.699	29.409	44	39	41.5	47	46	N.	.16
Thurs. 8	4	30.115	29.792	49	41	45.0	47	46	N.	.06
Average		29.999	29.835	50.8	34.4	42.6	47.6	46.1		.57

May 2—Frosty; quite clear; masses of dusky white clouds; cloudy.
— 3—Cloudy and cold; showery; cloudy.
— 4—Uniformly overcast; cloudy; clear and cold; sharp frost.
— 5—Frosty; fine; cloudy and cold; cloudy.
— 6—Fine; cloudy, yet much dryness in the air; windy, with rain at night.
— 7—Cold rain throughout; lightning in the evening.
— 8—Densely clouded, and cold with brisk north wind.
Mean temperature of the week 8¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending May 17, 1856.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11	62.1	40.6	51.3	11	0.36 in.	5	6	3	1	5	5	3	2
Mon. 12	64.1	40.9	52.0	12	0.40	4	5	8	1	4	4	1	3
Tues. 13	63.2	39.4	51.3	14	1.10	3	7	4	2	3	5	3	3
Wed. 14	63.2	40.9	52.0	11	0.66	3	7	6	1	3	5	4	1
Thurs. 15	64.2	40.8	52.5	8	0.41	3	8	2	2	8	4	2	1
Friday 16	65.6	43.0	54.3	10	0.34	6	5	6	—	2	8	2	1
Satur. 17	65.7	42.3	54.0	12	0.59	1	6	4	1	3	7	4	4

The highest temperature during the above period occurred on the 15th and 17th, 1833——therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

Notices to Correspondents.

Anemones: *G L.* There is no reason why they should not be grown in pots. Treat them exactly as if they were in the open ground; when the leaves are down turn the pots, earth, roots, and all into a dry shed, where they may remain till the season of growth returns. Your plants die from wet and cold.

Amphicome Emodi: *R F.* It has been, and may still be in the country; but is very rare.

Asparagus Kale: *E D S.* This is the same as Jerusalem or Buda Kale and requires exactly the same treatment as ordinary winter Greens. It may, however, be blanched as you would do Seakale by turning a pot over it, and covering it with tree leaves, over which a little rough dung may be put to keep them from blowing about. When cut and dressed in a blanched state it is said to be excellent. Seed of it may be obtained of any of the great London seedsmen, and the sooner it is procured and sown now the better. ‡

Books: *T C T.* Whiting's Flower Gardening for Ladies may possibly answer your purpose.‡—*M W.* You had better provide yourself with Koch's Flora Germanica, 1 vol. 8vo, if you can read Latin; if not, take Grenier and Godron's Flore de France, 2 vols. 8vo. There is nothing in Spanish or Italian likely to answer your purpose.

Correspondents: *Rockwell.* We presume to differ from you and to be of opinion, not only that an editor is *not* bound to insert authenticated communications that may reach him, but that he *is* bound to refuse admission to such as are mischievous, absurd, or silly. Moreover he is the sole judge of fitness in this matter. To say that some papers act upon an opposite principle is very far from satisfying us that their principle is right—rather the contrary.

Diseases: *J M.* The affection of your Cauliflowers is very curious. Does your bottom heat bear too high a proportion to the heat in your frame? There must have been some check to the proper circulation, and it is highly probable that under these circumstances disease should take place at some point intermediate between the excited roots and the gorged leaves. *M J B.*

Lilies of the Valley: *S E A.* We really do not know. They like a stiff soil, in which when once established they flower most profusely.

Lily of the Nile: *E A.* If by this name is meant the Nelumbium, then we should say that a double state is unusual. But such a variety exists, at least in Italy, if we are to trust drawings which have been sent from that country. You should save the seeds of your double flower, and see whether they do not perpetuate the double character.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Roydon.* It is the common Morel, Morchella esculenta, which would seem to be very common this year, if we are to judge from the frequent specimens that have reached us to be named.—*J K H.* A Teasel is Dipsacus fullonum; a Burdock is Arctium Lappa. They have no resemblance to each other. The first is alone used for fulling cloth.—*W C E.* There is no plant known to us by the name of Cupressus excelsa.—*Mary.* 1, Pelargonium ardens; 2, P. fragrans.—*Emma.* Edwardsia microphylla. You may propagate it by either cuttings or layers, but with some difficulty.

Old Putty: *W C.* No; you will find the attempt at softening the old putty more costly than new glass. The only way is to chip it out carefully.

Orange Trees: *E J.* In all probability they have overflowered themselves, and may require a season's rest to recruit their strength. In order to assist them in this respect repot them now into fresh soil, carefully rubbing off as much of the old balls as possible, so as to enable them to be replaced in pots of the same size as those they came out of. Drain well, and when potted give a good watering to settle the soil. When they have got established in their pots water them occasionally with weak liquid manure-water, and otherwise encourage them as much as possible to make their wood early, so that it may get well ripened before winter. By a little kindly treatment of this kind they will doubtless recover their health, and flower as usual with you next season. If you can manage to give them some gentle bottom heat now, we advise you to do so.‡

Rust in Grapes: *Constant Reader.* Handling, rubbing with the head, currents of cold air, bad atmosphere are all causes of this, which is an affection of the skin produced by injury when very young and tender.

Siebold's Catalogue: *A Devonian.* We believe you can only obtain it by direct application to Messrs. Siebold & Co., Pépiniéristes, Leyden.

The Ipswich Cucumber.—If Mr. Wild is not satisfied with the result of Mr. M'Ewen's trial, we are; at all events we shall be so unless the other trial should lead to a different conclusion. We cannot open our columns to further correspondence on this subject. Mr. Wyld invited a comparison; the comparison seems to be unfavourable to him. If he is not satisfied he ought to be.

Vine Borders and Garbage: *J D.* We do not regard the question of feeding Vines upon garbage open to further discussion. It is evident that you entirely misunderstand the matter.

THE PATENT
NITROPHOSPHATE OR BLOOD MANURE COMPANY (Limited).

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BLOOD MANURE FOR TURNIPS AND RAPE.

The phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Superphosphate of Lime, and, the Blood supplying Nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or, if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B. For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though 2 or 3 cwt. per acre will produce a crop superior to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20, or 30 tons an acre; so that an addition of 8 or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

MANGEL WURZEL AND CARROTS.

Blood Manure is an excellent fertiliser for these crops. Four cwt. to the acre, with an equal weight of common salt, should be sown broadcast over the field and well harrowed in, the seed being drilled in the usual way; repeated horse-hoeing between the rows is of great importance for air and nutriment, and great advantage will be obtained by occasionally sprinkling a little Blood Manure between the rows previous to the hoeing.

Testimonials from the most eminent Agriculturists who have used the Manure may be had from the local Agents.

The Directors of the above Company (many of whose names are well known to the Agricultural community), feel much confidence in recommending the use of these Manures to their brother Farmers, and to assure them that they are determined to send out a genuine article; the fact of many of them, as well as of the general body of the Shareholders, being large consumers, is a strong guarantee against imposition. Price, delivered at any Wharf or Railway Station in London:—

Corn and Grass Manure, 7l. 10s. per ton; Turnip Manure, 6l. 10s. per ton; Flax and Hop Manure, 8l. 10s. per ton.

The Company beg to caution the public against the attempts of spurious imitators, who, since the introduction of this Manure, have professed to make one possessing similar qualities. As security, therefore, to the purchaser, every bag is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

PEAT CHARCOAL FOR DEODORISING, AND WOOD CHARCOAL FOR FUEL, free from all noxious smell or effluvia.—The above are made under the Patent recently taken out by Mr. LADLIN, and can now be had in any quantity at very reasonable prices. The Wood Charcoal may be burnt in a room without a chimney, as Mr. LADLIN has deprived it of all noxious effluvia.—For particulars, address the Wigan Coal Company, 4, Luke Street, Dublin.

LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.: Sulphuric Acid and Coprolites, 6l.—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

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The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

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TO AGRICULTURISTS.

PONTEY, ROWE, AND CO., MANURE MERCHANTS, Drake's Place, Plymouth, are now supplying their MURIO-PHOSPHATE (fit for the drill), at 7l. 10s. per ton, strength as guaranteed from analysis by Nisbet, Herapath, and Way.

Agriculturists wishing to prepare (for the Drill) themselves, can be supplied with pure dissolved Bone or Bone Ash, at 8l. 10s. to 9l. per ton. The Muriophosphate as prepared by P., R., & Co. has been found superior to all other artificial manures, in the continued support it yields to Turnips, Mangel Wurzel, and the succeeding crops.

BONE MANURE of their own manufacture.
BEST PERUVIAN GUANO, from Gibbs & Co. only.
MANURE, SALT, GYPSUM, &c., constantly on sale.

PONTEY, ROWE, & Co. are the authorised Agents for Odams's Patent Nitro-phosphate or Blood Manures for Corn, Turnips, Mangel Wurzel, &c., which have produced extraordinary results throughout the country. Prices on application.—May 10.

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BURNARD LACK AND CO. are ready to deliver in London or at any convenient Railway Station or Seaport, BIPHOSPHATE OF LIME considered as neutral soluble phosphate, at PROFESSOR WAY'S standard price, viz., 6s. 6d. per cent. per ton.

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CALIFORNIAN GUANO.—The attention of Agriculturists, Dealers in Guano, and others, is invited to the FIRST CARGO, recently arrived by the "Skimmer of the Seas," from the Island of Patos, Gulf of California, on account of the Mexican Guano Company, which from the large proportion of Phosphates it contains, and its condition otherwise, is peculiarly adapted for increasing the production of all kinds of root crops. This will be better seen by the Analyses detailed below, and made by Professor Way and Messrs. Teschemacher and Smith, the well known analytical chemists.

By PROFESSOR WAY.		By TESCHEMACHER & SMITH	
Moisture	12.62	Salts of Ammonia and Animal Organic matter capable of yielding 0.90 parts of real Ammonia, equal to 0.74 parts of Nitrogen	10.75
Organic Matter and Salts of Ammonia containing 0.70 nitrogen equal to ammonia 0.85	15.15	Phosphate of Lime and little Phosphate of Magnesia	58.25
Sand	10.86	Sulphate of Lime	1.25
Phosphate of Lime ...	54.58	Salts of the Alkalies ...	1 50
Alkaline Salts, containing Phosphoric Acid equal to Phosphate of Lime 5.86, soluble	6.79	Sand, Stones, &c.	13.00
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The above will be Sold by Auction at the New Corn Exchange Tavern, Mark Lane, on Monday, May 12, at half-past 2, unless disposed of previously by Private Contract.

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THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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Respectable Agents wanted.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

BATH AND WEST OF ENGLAND POULTRY SHOW.—Prize Lists and Certificates for the above Show may be obtained of the Secretary, Mr. KINGSBURY, 10, Hammet Street, Taunton. Entries close on the 14th of May next.

PARIS AGRICULTURAL EXHIBITION.

MR. G. W. YAPP, Bureau Anglo-Français, 16, Rue Chateaubriand, Paris, will be happy to act as AGENT for BRITISH CONTRIBUTORS to the above Exhibition, which opens on the 30th inst. Letters, stating articles to be exhibited and amount of attendance required, will receive immediate attention, and definite terms will be named.

The Agricultural Gazette.

SATURDAY, MAY 10, 1856.

OUR readers will doubtless remember the very able address—on the contributions of geological science to the improvement of agriculture during the past 15 years—given by Mr. PAINE, of Farnham, before the Society of Arts, on the occasion of Mr. HOSKYNS' paper on recent Agricultural Progress. It was, in our opinion, by much the most satisfactory and instructive of the reports then given on geology, chemistry, mechanics, and practice, respectively; presenting in the fullest, tersest, and most substantial manner what lay within the limits of the subject assigned to the speaker. Among the topics named was that distribution of soil and drifted material in varying thickness over the true subsoil, a knowledge of which would materially cheapen and facilitate the operations of the land drainer. Although this was placed foremost on the list of subjects introduced by Mr. PAINE, yet it was barely more than named, the experience of Lord BERNERS in the drainage of the Keythorpe estate being referred to as an illustration of the benefits derivable in this way. Such a mention of what Mr. TRIMMER calls the Keythorpe system of drainage was perhaps all that it could claim from one who in a single quarter of an hour had to trace the whole long boundary line between geology and agriculture. But when a speaker has an hour at his disposal for discussing the relations of geology exclusively to the art of draining land, a much fuller discussion of this topic might have been expected. This, however, it did not receive at the hands of Mr. BAKER, of Writtle, who gave a lecture last Monday before the members of the London Farmers' Club on geology and hydraulics in connection with the drainage of the land.

We have not space to give a full report of the opening address, or of the discussion which followed it. If the former was in our opinion defective in its bare allusion to this subject, the importance of the Keythorpe system was amply vindicated in the subsequent discussion, the greater part of which was occupied by Mr. BAILEY DENTON in its condemnation. He asserted that such facilities for drainage as the Keythorpe estate had exhibited were the result of gravel veins underneath the clay, not of occasional gravel and porous beds above it—that nevertheless the cost of the operation when compared with instances of the ordinary system within his own experience was not remarkable, while the actual result in the drainage of the land was by no means satisfactory—that in fact the theory of the operation as furnished by Mr. TRIMMER was erroneous, while the result of the operation, as held out for examination by Lord

Berners, was imperfect. We must add that, while doing this, Mr. Denton did full justice to his lordship's public spirit in throwing Keythorpe open for agricultural inspection and discussion; and we must also say that his opinion that the drainage of that estate was imperfect did not appear to be shared by those members of the Club who had visited it.

Mr. Baker's allusions to the geology of his subject were almost entirely confined to those considerations on which the theory of springs is based—that alternation of porous and impervious strata, and that distribution of them at various angles of inclination, and over districts furrowed by valleys on whose sides they crop out—a knowledge of which is certainly necessary to an economical determination of the number, depth, and direction of the drains to be laid down. In his references to the hydraulics of his subject he very properly considered drains merely as channels through a medium saturated with water, the several particles of which by their mutual pressure, consequent on the earth's attraction, make their way by paths of least resistance. An exit by a channel of this kind is as truly the opening of the flood-gates of a pond as if, instead of being filled up to it with earth, the surface of the land were the surface of a lake. In such a case, the sill of the gates being but three feet below the surface, all the water below that level remains unmoved and unaffected by the motion of the layers above it. There is no pressure upwards, forcing the water to boil up to the exit channel opened: there is pressure downwards, forcing those portions nearest to the exit out, and causing each in turn of all the portions lying above the level of this channel to escape. The drop of water from the clouds on reaching the earth does in fact sink at once, urged by its own weight and afterwards by the weight of others over it, until it reaches an impervious bed: this may be a bed of earth already saturated, being below the level of the drains or other means of exit, or it may be a bed of hardened earth; in either of these cases there it stops, forming, it may be (in virtue of the capillary attraction of the soil), a little nucleus of moisture, a patch of saturated earth above the general level of the drains, down whose sides as it were other drops percolate, and thereby approach the exit channel, out of which the additional drops of water ultimately escape. It was to the existence of these impervious layers of earth that Mr. Baker directed much of the attention of his hearers, deducing from an experience of their existence an argument for shallower drainage than what is now generally contended for. And it was here, we think, that he might have referred more fully than he did to the existence of that furrowed surface of our clay formations contended for by Mr. Trimmer, as a general rule, the accidental use of which on the estate at Keythorpe furnished a most gratifying illustration to him of truths which his researches into surface geology in Norfolk, Hampshire, and elsewhere had enabled him to detect. The existence of a furrowed subsoil under the drifted porous material over which the surface soil is often found, is the point on which what Mr. Trimmer calls the Keythorpe system turns.

You must be satisfied to walk over your fields without seeing these furrows in your subsoil, and of course it needs considerable faith in the deductions of geology to be assured of their existence. Any section furnished by a chalk pit will however exhibit them to the eye—and though we cannot *see* them under ordinary clay soils, their existence seems in many cases verified by the action of a trial drain on holes full of water in its neighbourhood, some of which it empties while others remain full, thus proving to all that there is a porous separation between it and the former, and an impervious interval between it and the latter; and proving to Mr. Trimmer that this is a case, like those he has *seen* elsewhere, of a wavy conformation of the impervious subsoil, a whole line of lofty clay being the impervious interval in question, and a series of troughs or worn hollows filled with gravel, sand, or other porous stuff being the porous interval in question.

This conformation Mr. Denton has not seen, and therefore does not believe; in this, resembling some of a party with whom we this week visited the neighbourhood of Barking, where energetic and extensive clearance is proceeding on the crown lands. Mr. Fowler's drain plough was at work, but the tiles it pulled along were invisible, and those who watched it could not be satisfied that they were being efficiently laid. The test, of course, will be furnished by a year or two's experience; and we must say that in the general opinion of its visitors this seems already to have satisfactorily resulted in favour of the Keythorpe system on the estate of Lord Berners.

We are unable to give more than a passing reference to the subsequent discussion. Mr. Bullock Webster contended, with Mr. Baker, that if you found water pouring into drains at 30 inches or 3 feet deep, just where it was obvious that an alteration in the texture of the subsoil forbade its sinking further, there could be no use in making the drainage deeper. This of course is Mr. Trimmer's opinion also. Mr. Parkes' system of deep drains was generally condemned by these speakers, and it was vigorously defended by Mr. Sidney. The general opinion seemed to be, as it has hitherto been at meetings of the London Farmers' Club, that the depth of 4 feet and further sanctioned by the Government inspectors on all sorts of soil was extravagant. So that when a gentleman, whose years entitled him to say so, rose at the close of the discussion to express the opinion that common sense and experience are the two ingredients most needed by the land drainer, it was evidently thought that he too was about to condemn these extravagant proceedings, and it was with some surprise that he was heard to add that those who had not that experience would be astonished to find through what an extraordinary depth of clay soil water percolates to drains. Our experience, though limited enough, enables us to corroborate this remark, and we must conclude with the opinion that the true policy will ultimately, and in the long run, be found to recommend a system so far uniform as to interval (in conformity with the uniform supplies of water from the clouds on to the surface of the land), and so far uniform as to depth (in conformity with the uniform wants of plants beneath the surface of the land), as to fail in justifying on the one hand that exclusive advocacy of the Keythorpe practice as a system which Mr. Trimmer argues, and on the other that condemnation of the "gridiron" plan of drainage in which everybody last Monday seemed willing to agree.

NOTES ON COPSE WOOD.

The English and Continental methods of treating copsewood differ in some details; in others they are identically the same, or very nearly alike. The German system is never to make a complete clearance, except of the underwood, and to remove the timber by successive fellings at intervals of about 10 years, reserving at each the most promising trees, so as to establish a forest of such trees as are most congenial with the soil. These are not felled until they have attained a mature growth. This is the usual British practice also. In Germany and in France the fellings do not usually recur so frequently as in England, where there is a more frequent and general clearance. In Scotland and in Ireland the fellings are at longer intervals of time, more after the continental usage.

Mr. Monteath, in his "Forester's Guide," fixes from 24 to 30 years as the period which ought to intervene between the fellings of natural Oak-wood, as the bark is then in its prime. He would have the first felling from a planted coppice at the end of about 15 years from the time of heading down the young trees (not designed for standing timber) in the third year after planting them, when the roots of the stocks or butts will enable them to bear several shoots. But this experienced forester discouraged the practice of felling Oak coppices sooner than 24 years. Bark, when he wrote his book, was of very high value, three or four times more than at present, and therefore an important element in the calculations. But now, when other chemical agents have been substituted for bark in the tanning of leather, and the trade in foreign timber has become free, the chief motives for allowing coppice timber to stand for a long time have ceased. The commercial value of British Oak for house and ship-building being now comparatively inconsiderable, the question is rather the value of fellings, for the purposes to which underwood can be applied. Quick returns pay best, and the demand from coopers, mopstick makers, and others, is sufficient to insure a fair price for underwood of eight or nine years' growth, the usual age at which it is cut in many of the English woodland districts. In some counties, however, the cuttings are not made until the twelfth season, and according to the prevailing quality of the soil. For instance, copses are generally cut in Berkshire, which is gravelly in the copsewood localities, every eighth year, though in the chalk soil of Hampshire the twelfth year is the average period of cutting. Climate also has its effects on the growth. The most rapid vegetation is in gullies and hollows, and the slowest in high and open land. The absence or presence of moisture in the soil, besides its constituent qualities, will also influence the growth of coppices.

When there is a remunerating price for young Oak copse wood, it is more beneficial to cut and sell it than to leave much of it standing. The local market is chiefly for Oak, Birch, Hazel, Alder, and Willows. Oak and Beech saplings are fit for hoops and staves at eight years' growth, and Alder is at this age of sufficient height for five lengths of a mopstick, and Hazel at the same age is fit for barrel staves. Ash indeed may be profitably left standing for 18 years; it is then best suited for Hop poles, sheep cribs, and other farm purposes, and also for those of the cooper; it grows very freely and is appropriate to every coppice of which the soil is loamy; but it should give place to Birch in very poor soils. Underwood of eight or nine years' growth is better for hurdles and hoops than that which is older; it will then produce middling hoops 13 feet long, and these are worth 7*s.* 6*d.* per 1000.

The state of the case as regards the commercial value of coppice wood seems to be this: foreign timber of full growth can be imported by us on cheaper terms than our native timber can be sold with much profit; as regards the use of wood for fuel, the facilities of conveying coals by land and water to every part of the kingdom have greatly tended to discourage the extension of coppices unless where nothing more valuable will thrive. The same remark applies to plantations generally. Where wood fuel is wanted and therefore valuable, as in Normandy and Brittany, land under coppices and forests is of proportional estimation. There also there is a continual demand for native timber of various sorts and ages for buildings, ordinary furniture, farm implements, barriques, sabots, and fuel, proving the commercial advantage resulting there from a careful economy of every thing under the denomination of wood.

In calculating the relative advantages from selling copsewood without reserve once in every eight years, or of merely selling the underwood and retaining Oak trees to an advanced age, the English land proprietor has to consider whether the frequent returns of cash at short dates are not more advantageous than the money proceeds from trees 1 ft during a long period—a return which he may not live to enjoy, and which, even if beneficial to his heirs, may not produce to them a sum equivalent to that which would have accumulated by banking the sums received during every eight, nine, or twelve years, fructifying at compound interest. While taste for embellishment exists among us, timber in a park or demesne will be left unfelled; but to gratify this natural and justifiable taste the owner often incurs much pecuniary loss.

Many persons must look to the pecuniary considerations alone with regard at least to coppices and plantations. The nature of the produce of a single felling of copsewood of eight years' growth ranges in Berks—a model county in rural economy—from 4*l.* to 15*l.* per acre, nay even beyond these extremes. Assuming the maximum to be the value, the return for the occupation of land by coppice timber during eight years (with some deductions for preserving fences, tithes, poor and land rates) is not equal to what the ordinary return would be in the same time from the land if under ordinary farm cropping. But in very inferior soils, on the slopes of rocky or gravelly elevations, and in ravines and mountain dells, coppice is not only ornamental, but very remunerative; and the periodical clearings afford pleasing occupation to the labouring poor.

Some estimates of the value of copsewood made, or rather imagined 25 years ago, appear now to be quite fabulous: they are very far removed, indeed, from the reality at the present day.

In Berkshire the ordinary coppice consists of Ash, Oak, Birch, Alder, and Willows. In clay soils the Oak predominates; in gravelly and stony, the Birch and Ash; in bottoms and marshy land Alder and Willow are chiefly grown; but the Birch grows in very moist ground, though it succeeds best in dry soil and shade, which latter peculiarity gives it especial value as underwood. The Alder, though formerly of little estimation, and generally planted for the mere purpose of affording shelter to less hardy trees, runs up so rapidly, and is so useful in its live state for protecting river banks from the destructive influences of undermining currents, that it is no longer despised, and when cut and seasoned for the turner's purposes and various other uses, it answers so well as to be in full request.

The management of a natural or long established coppice in Berkshire is as follows:—In November the owner of it makes his bargain with a woodman, who undertakes to cut and clear away the crop of underwood by the 10th May following. The implements with which he performs his work are the axe and billhook. With these he makes a clean cut slanting upwards of every stem and twig from the butt without jagging or loosening the bark from the portion of stool left, else the channel for conveying the sap from the roots to the new shoots would be obstructed; if however the felling be not delayed beyond the 25th March, there is little danger of injury from this ill treatment.

If Oak trees in a coppice be doomed to the axe, principally with a view to the profit derivable from the bark, they are not felled until the end of April or commencement of May, nor later than the middle of July, for then they will yield their bark most freely. Thus an exception is made in the case of Oaks, from the general rule that timber cut when the sap is most stagnant is the most solid and durable. A sufficient reason for cutting all underwood designed for hoops and every article requiring pliancy, is that if they be not cut in winter and therefore before the rising of the sap they will become brittle, neither will they be durable in such case.

The felling by the purchaser cannot, like other kinds of piece-work, be executed to the disadvantage of the seller or employer, because both parties wish to have the closest possible cut—the buyer, in order to have the entire crop, of which the butt ends are the most valuable, and the seller to have the stocks nearly level with the ground for the strengthening of the shoots. For the purpose of layering to supply vacant spaces, which is a more cheap and expeditious mode of renewing vacancies than replanting, the cutting cannot be too low. Besides, from repeated high cuttings the stocks might become

eventually 2 or 3 feet higher than the surface; the unsightliness of such stumps is another objection, and vigorous shoots would not issue from them. It is better to have few and strong stems than numerous and feeble ones; and those are always the strongest which have their origin nearest to the ground. Mr. Monteath observes that "the purchaser should be bound to cut all the plants or seedling trees with a saw 2 inches above the surface of the ground." We have not seen a saw so used in England; the adze is the tool within our observation employed for cutting wood both large and small, and our woodmen cut closer than 2 inches; and the stools as treated by them do not require dressing as Mr. Monteath suggests, unless a stool here and there may need being rendered convex enough to prevent moisture from lodging upon it. At the general felling the live wood is entirely cut away from the adjacent fence; but in this case every care should be taken, by fixing rails if necessary, to keep off trespassing cattle; the ditches should be scoured, and the mould from them thrown over the stocks in the banks.

The application of fresh earth to the roots of trees even in decay may prolong their vigour and existence to almost an indefinite period. The saplings of the Black and Huntingdon Willows, which will grow freely in any clay soil, may be layered with especially good effect to fill up gaps in the fence. The hedge-row timber is either left standing (we still allude to the Berkshire system) or treated like their congeners within the boundary. Where ornamental appearance is an object, the permanence of Oak, Spanish Chestnut, and Mountain Ash is duly encouraged. How beautiful is the Holly tree!—and happily how well able to protect itself with its "touch me not" prickles! Even on commons which have been for ages trampled on, ill-treated by man and beast, the Holly often stands, a vestige of primeval forests. To avoid the naked appearance which woodland stripped of its sylvan garb exhibits, even the standing Oaks or Chestnuts relieve it in some measure; the copse, however limited in extent, may be felled in successive portions; this is not unusual except when proprietors look more to convenience and profit than to picturesqueness. *M. D.*

A STEAM-CULTURE REVERIE.—No. VII.

"A SYSTEM of preparing and constructing land, whereby land, which in its natural state has but a thin surface soil capable of yielding only the most scanty herbage, may be rendered fit for the growth of corn, Pulse, shrubs and trees!" Such is the high-sounding title of a scheme patented May 8th, 1847, by Messrs. Bryant & Tothill. *Arridet aridum*—"the wilderness and the solitary place shall be glad, and the desert shall rejoice and blossom as the Rose."

When good old Jethro Tull farmed a shallow soil on the chalk hills of Hampshire, he gathered it into narrow ridges, exposing the substratum in the intervals, in order to double the thickness of good soil under his drill-rows of plants. Mr. Smith, of Lois-Weedon, not content with such an artificial staple, deepens his Northamptonshire clay by spade-trenching, burying the upper staple, and bringing up the bad subsoil to be meliorated and transformed into rich mould. The above patentees in a different manner proposed to double the available stratum of surface soil by gathering it into strips—packing one furrow-slice upon another, and leaving intervening spaces of chalk, sand, or clay raised to the same level, open to tillage and atmospheric enrichment: the process being effected by a novel instrument called "the land-transposing plough." This is a sort of traction paring implement fitted with shears and cutters; and the slices of soil being collected into a curved "apron," are there broken up and then delivered on one side in a stream of powdered earth—this being effected by means of a horizontal shaft transverse armed with blades arranged in a screw form (like the barrel of a pug-mill or a sausage-meat mincer), this shaft revolving inside the apron and being driven by gear-work from the roller-wheels supporting the machine.

I did not see this instrument, however, at my mechanical friend's *rendezvous* of outlandish-looking tillage engines; inasmuch as the preposterous nature of the operation to be accomplished, combined with the power needed to perform it, had too nearly the character of the invention which a newspaper paragraph in 1850 proposed for taking up the soil bodily into a receptacle (after the manner of a patent street-cleaner), there pounding and comminuting it by cutters, rollers and sieves, extracting weeds, mixing seed and manure, and then discharging and spreading it again as a sheet or layer of earth in the finest and most flattering condition imaginable. Could the "transposing plough" be made to act, it is possible that some work might be found for it; but the system of culture suggested by the inventors is little better than one devised by a Mr. Thomas Vaux eight or 10 years before, which had in view the introduction of the Turnip crop on poor lands, enabling the roots to be fed off where grown; and this was to be carried into effect by tilling and sowing the ground in small squares, leaving spaces around them in their primitive state for sheep to tread and lie on.

Among the number of revolving tilling-cylinders or diggers—which, as I have before stated, my friend tested by attaching behind a light pneumatic locomotive, and driving them by spurwheels or pitch-chains from the crank-shaft of the engine—I observed a fac-simile of the subsoiler patented July 29, 1847, by Mr. Joseph Paul, farmer, of Thorp Abbott's Hall, Norfolk. This is a modification of the well-known drain-cutting machine included in the same patent; which consisted of a wheel (suitably hung in a frame) having curved cutters fixed on its periphery, and made to revolve so that the blades entered the soil at the bottom of the trench, cutting their way upward and delivering the loose earth during the upper half of their rotation. Rotary motion was communicated to this "slotting" or grooving machine by a short endless chain from the windlass of a portable horse-work immediately in advance: and by simultaneously winding-up a single chain anchored ahead, the horse work also slowly propelled itself dragging the excavator behind it. To keep the endless driving chain at a proper tension, and the horse-work and excavator a sufficient distance apart for the horses to pass between in their walk round the windlass, an iron bar was interposed; and the cutting wheel or disc was, of course, supported upon a lever frame by which the depth of its work could be regulated. The implement proposed to be worked in a similar way for raising subsoils to the surface of land consists of a horizontal spindle with four or more tines or teeth fixed round it, which in curvature are almost quadrants of a circle; and the peculiarity of the invention is that, instead of the cut being downward, moving the soil backwards and forking it up behind, the teeth make their cut upwards, bringing up the subsoil in front of the axle; thus the broken earth lies in the way of the tool's advance; the tines are unable to clear themselves, and much of the soil (as I saw for myself) is carried back over the top of the cylinder. The rotation of the subsoiler also acts against instead of with the progress of the carriage which supports and the power that propels it, involving a great expenditure of motive force.

At first view, I must say, the strong curved tines—bolted to the shaft or to a nave or socket, and fitted with side-blades in some cases to give them the broader action of spades—appear exactly suited to undermine and prize-up a strong subsoil; and the slow motion with which they are driven suggests a most important principle (of which, indeed, it is the earliest example,) in the working of rotary diggers intended to deal with heavy earth in considerable masses—turning it in "spits" rather than in a granular and pulverulent state. But considering that the action of the machine is merely that of stirring and mingling instead of perfect trenching, no provision being made for carefully burying the surface earth; and that the teeth forcing their way downward through the broken soil, and penetrating the hard ground in the same direction that the machine travels, renders necessary an enormous amount of power for its propulsion, I do not wonder that all hope of its general application should have vanished under my friend's repeated trials. *I. A. C.*

ROTATIONS OF CROPPING.

Is it not pitiable and at great risk of famine to find ourselves so dependant on others for a large amount of our daily bread, and is it not most lamentable that we should be so because we will not avail ourselves of the means in our hands? Is it not absurd, where wealth and science so abound, that much land in England—I do not speak of Ireland, for there it might be expected—should not yield one-third of the produce that it might and ought to do?—that our fathers' practice in a barbarous age should be deemed all sufficient for their sons in one of progress?—that while the rich capitalist is expending sums which place him far beyond the reach of competition with his poorer *confrères*, the last, without comparison by far the most numerous class, do not avail themselves of the light thrown on perpetual fallows by the Lois-Weedon system to which their means may be found equal?—that they do not adopt some such way of thorough working their land cropped and uncropped, doing the heavier work of deep forking (and not very deep either) in the dead months of winter, when labour is so much more easily attainable, and when the violent mechanical actions of frost and thaw would disintegrate and reduce the crude upturned portions of subsoil, and the lighter work of superficial stirrings in the parching summer months, when actions perhaps equally powerful are in operation to fertilise those crude matters, and to enrich the whole surface opened out by such light workings to the continual instant inflow of the dews, light rains, and other sources of aerial wealth; their very inpourings and outrushings serving also not only to the improvement of the soil but to the feeding, through the leaves, the grateful vegetation, which, never stinted, ever fed, will bring to them at harvest abundant reward for their toil?

It is not a question to adopt exclusively and in its integrity the Lois-Weedon system; it is enough to take it as a text, but to adopt one of perpetual fallow, one in which every crop would be a preparation for a succeeding one, where the tillage of the cereal should rival that of the root or green crop, where the corn stubble should be clean and broken, and as fit for the reception of a succeeding crop as the Turnip track. To effect this, the grain crop must be sown in rows with such intervals as to permit of frequent light surface stirrings through the whole time of its growth, even to its blossoming. These stirrings, after the deeper winter forking, may be superficial; indeed, all that appears to me as necessary, except where it is required to uproot weeds, is to keep broken up the thin crust that lies on the surface, for it is on this crust that the dews and light showers rest; they penetrate it not till the warmth of the sun and other natural causes of evaporation volatilize them, when they carry, in their vapours, their fertilizing contents to enrich other lands more pervious to their reception on their future descent. This crust so continually forming by the closing effects of surface disintegration requires to be as continually broken by mechanical operations.

The destruction of weeds and the continual inflow of atmospherical elements of the food of plants will so maintain the fertility of the soil as to render it capable of yielding grain crops, as we see proved by the Lois-Weedon Wheat fields, and being in such a state of fertility it will necessarily require less manure to bring it into a state to bear in great perfection the most *exigeant* green crop, and such an amount of manure we may well suppose the ordinary refuse of the farm will supply; so that the man of small capital may thus be enabled to compete with him of large who does not avail himself of these natural resources.

When I speak of the deep winter forking of the ground let not the expense alarm or deter any one, for, however desirable it may be to deepen the active surface of the land—and this is palpable to every one, for who would give as high rent for land with a shallow workable surface as for that with a deep one?—yet it does not appear to me necessary for the purpose of obtaining a fresh supply of the inorganic elements of plants to bring up any large quantities of crude soil or to do so very frequently. In most soils the bringing up of an inch would give a supply of them for years; possibly once in ten years would be more than often enough to bring up fresh stuff; and taking this to be true, and placing our rows of grain 2 feet asunder, a single row of forking in the centre of each interval once in ten years would certainly not be any very frightful amount of labour, or incur any alarming expense.

Except for this purpose of bringing up fresh mineral matters, the inorganic food of plants—and everybody knows how small is the quantity they take up—this deep forking does not appear to be requisite, since for the production of good and remunerative successive crops of Wheat, and of course of other cereals, mere and very superficial stirrings of the surface, without even what can be estimated as a fallow, seem all-sufficient (aided by some light matters in the way of manure to make good perhaps the inorganic and organic matters subtracted from the soil by the previous crop, and which may have become necessary from the absence of fallow and deep working), for several persons have so obtained more than average crops, and Mr. Piper's experience gives us more than 10 successive crops of Wheat on the same ground to the full as heavy as those of Mr. Smith's without using spade, plough, or fork, or stirring in any way the soil to a greater depth than what the hoe can effect in drills 1 foot apart, and this merely with the view of destroying the weeds; as these hoeings with him are only two to the crop, and indeed as the closeness of the rows preclude a greater number, the land derives no benefit from fallowing, for this cannot be considered in any way a fallow, either in the disintegration of the soil or in the exposing it to atmospheric influences.

Now to make a beginning all that will be necessary, after the customary preparation of the land, will be to sow the spring cereals in rows about 2 feet apart by the ordinary means at the farmer's disposal: there is no necessity for new implements or other preparation; the future work may also be effected in the same way and by the same implements as used in the common fallow crops; there is nothing in it to perplex the simplest, it is all plain sailing, only let the work be well done. The labour will be well repaid at harvest by a superior crop, by the increased fertility of the land, and by its greater fitness for a succeeding crop, whether of grain or otherwise; if it be desirable to lay down to Grass there will be time for two or three hoeings before the seeds may be sown, and from not being oppressed by a smothering crop of grain, the air freely sweeping along the intervals, they will be more luxuriant and advanced in autumn than if sown earlier among close growing grain; they will also be cleaner. Indeed, take it in any way you will, the perfect fallowing of our grain crops will be most advantageous, not only to the succeeding crops, not only to the future fertility of the land, but even possibly more largely so to the immediate crop, for I have no hesitation in saying that in nine cases out of ten such a wide-rowed crop will yield one-fourth more than one sown broadcast or in rows at less distance, and I am quite satisfied that in persisting in this course generally through the land we should become independent of foreign supply, for I do expect that the increasing fertility of our soil would keep pace with the increasing demand on it by a growing population.

In offering these views to the consideration of the less rich of our husbandmen, showing how without incurring the expenses of high farming, they may assuredly obtain equal benefits by availing themselves of aerial influences, by drawing on the bank of atmospheric wealth, as the rich among them do by drawing on the banks of Peru, I do not object to their employing every means in their power to artificially enrich their grounds, the cleanliness of tilth induced, the acquisition of larger amounts of soluble inorganic matters will fit the soil for the reception of more and more organic matters. A healthy state of vegetation must demand a proportionate amount of all the elements that build it up; do any exist in excess they must be taken up and voided by plants at a cost of much vital energy to the eminent deterioration of their growth and perfection. It were well did our

science teach us to equalise all that we give to plants to their needs.

In proposing 2 feet as the distances of rows of grain I do so as an average. I am quite sure that in poor land under proper preparation this will not be found a great deal too much, and I am as sure that in rich land it will be found even too little. I have found it so. It is also the least distance at which we could effectually work the fallow. Let me not be twitted then with it as a nostrum. *J. M. Goodiff.*

DIARY OF A DAIRY FARM.

MAY.

THE work of the dairy in the month of May is always of much importance, it can now be conducted with regularity, the calves not being expected therewith to interfere; as in all well regulated dairies they are now old enough to do without much milk, and the cows having the advantage of pasturage, the cheese is expected in this month to be of prime quality. If any of the cows should be of late calving, their milk should not be used for cheese for at least a fortnight, new milk always having a tendency to make it heave. The same mode of management should be adopted in the making of cheese in this month as that recommended in the month of April. The whey from the cheese is generally allowed to stand 24 hours for the cream to rise upon it for butter, it should then be allowed to stand 12 hours longer, and skimmed a second time, though some persons let it remain, and only skim it once before being taken from the dairy for the pigs. It is a much better plan to skim it at two several times, the whey butter being greatly improved thereby. Whey cream is very apt to ferment when in the vessels prepared for its reception, and the butter will then be likely to be soft and not so good in quality; nothing will so effectually prevent this as constantly changing it from one utensil to another, and frequently stirring it in the same manner as that recommended for the milk cream, taking great care that the same slice be not used for both, which would cause the milk butter to partake of the flavour of the whey. Cheese is now supposed to be made twice a day, and the brine which drops from it when in the last press before it is taken out and placed on the shelves for drying is quite clear, the quantity is small, and it ought to be put into the rennet jar, perhaps every two or three days, which keeps up the quantity, and is thought an improvement to the cheese; it will not have the effect of weakening the rennet for a few weeks, as it increases in strength by being moderately old. When it is found to become weaker this addition of the brine must of course be discontinued, but even then, if the brine be saved, it is better to use it with the next quantity of fresh brine made for rennet.

In most cases it is better to postpone making thick cheeses, which weigh about four or five to the cwt., at least till the month of June. When the thin cheeses have been in the loft about a fortnight in dry weather they will be firm enough to scrape; this is accomplished with a common knife, first moistening the cheese with a wet flannel, and must be done carefully all over the cheese, so as to take off the roughness that may be left upon it from the cloth or any other cause, leaving it quite smooth on the surface, and sharp in the edges. The sooner this can be done the better, in order to get it into a state of forwardness for the factor; it will only require wiping round the edges and about an inch within after this scraping once a week, taking care to allow the blue coat to remain on the top of the cheese; this blue coat is considered a sign of richness by the factor. There is a plan frequently adopted to promote this by rubbing the shelves with Elder leaves or the green of the Potato. The ripeness of the cheese is often ascertained by the favourable appearance, and it is desirable to see it look well, although of secondary importance to the taste. In some districts it is customary to paint the outside of the cheese with Indian red; this should be mixed up with a little warm water, and rubbed on with a piece of flannel, and should be done immediately after the cheese is scraped before any grease arises upon it, and the same mode of treatment afterwards be adopted as if not painted. This practice is not nearly so general as formerly, as it is of no advantage to the cheese, and is unpleasant in consequence of the colour coming off upon the board and shelves, thereby giving additional trouble to the dairymaid, and oftentimes an untidy appearance to the cheese rooms.

Sage cheese is greatly esteemed by many persons. It should be made at the end of May or beginning of June, and kept 12 months before it is fit for use; a thick vat is proper for this cheese. The plan of making it is to bruise a quantity of Sage in a mortar, also a little Spinach for the sake of the juice, which will give a nice green colour, the Sage alone not being bright enough in itself; these juices squeezed together through a cloth, and added to about a pailful of milk, with a proper proportion of rennet, will make enough Sage curd for one thick cheese. When the whey is drawn from this in the usual manner, the curd will be found of a much deeper colour than might be expected from the pale green given to the milk. This Sage curd should be kept quite separate from the bulk; all the whey should be carefully got from it and thrown away: when the curd is ready for the vats, having been crumbled into small particles separately, some of the green curd should be mixed with the other—about one-third is sufficient, either by laying it in rows or mixing it together in the vat; care should be taken that none of the whey drawn from it get into that intended for butter, or it will give it the flavour of the Sage. The after management of this cheese is the same as that of other thick cheese.

The milking cows by this time may be considered to be turned to the most forward Grass in the richest pastures, and as their supply of this food must be so variable, depending very much on the season being a forward one or otherwise, a good dairy farmer should have provided a supply of Rye or Italian Rye-grass, so that a little given in the yards when the cows come to be milked will give them full feed of green crops, as it is found they resist hay. Even when they have not a full supply from the pastures they will not readily make a good meal of dry food after tasting the green, which not being sufficient to satisfy them they roam about restless and uneasy, and of course fail to yield anything like a full supply of milk, and as the produce this month is considered very good in quality, the quantity should be by all means secured to be as great as possible. It is of great importance that good water should be supplied to dairy cows. A stream that has been some little while exposed to the air after rising from the spring before running through their pastures is considered the best water, and the drinking place should have the soil removed and filled with clean gravel or sand, so that the water may pass through pure and fresh. Cows much prefer drinking from a narrow trough or hole, and are shy of going to a large surface of water, though there should be abundant access and egress to and from the watering place, or the master cows will often damage the others in meeting them. The weaning calves should get fed now much the same as described last month, the only difference being in the case of the older ones, which may be gradually getting a diminished quantity of Linseed or oatmeal, this of course being less needful for them as they become stronger and more able to eat the food provided for them. They should have a sunny field to run in by day, with some Grass to pick from it, but through this month it has been found that they do better on finely cut Swedes or Mangel Wurzel and good hay, on which they will feed plentifully, having the moisture of a little skim milk, or the mixture of Linseed or oatmeal, which though much shortened in quality, should be given a little warm, though it should become gradually cooler as the calves get older. Should Grass be supplied at this time as their stable food, it is found to produce too great looseness in the bowels, to which calves are particularly liable; and carefully guarding against this is very essential to their starting into strong growth. They have been found to do far better in small numbers together, on account of their great disposition to feed and be constantly very close together; and their readily taking any infectious disorder renders careful attention to what may appear trifles in the rearing of calves very desirable to ensure success, by simple means and inexpensive food. A strong healthy herd of dairy cows, which have been proved to be far more useful and profitable when weaned or reared on the farm than if purchased at market and brought on the farm at almost any age, will be thus obtained. They should have warm sheds by night, and to feed on their hay and roots, and it has been found a very good plan to tie them up to give them their milk, as it makes the animals quiet, and each one then gets its proper quantity undisturbed; and if convenient to let them remain so for an hour afterwards, until they like to eat their hay, after having their liquid food, all the better, as it prevents their sucking each other's ears or skins, which is often productive of much harm. It is calculated that about one pig can be reared on the sour whey for every two cows in the dairy. Supposing a dairy to consist of 50 cows, three breeding sows, reckoning that each one would have eight young pigs each, might now be kept with a run in any rough Grass under orchard trees not much used for other purposes, and given as much of the sour whey as they will drink, and these will make strong growing pigs. The whey should be conveyed from the dairy in pipes to prevent the slopping of its being carried out in buckets, and it should run into a very large vat to collect, for it is much better for pigs' food when old, or at least some mixture of it should be so; and using daily from this vat, which is as often getting replenished from the dairy, makes a very wholesome drink for pigs, on which they will grow and do remarkably well. And as the pigs are small to begin upon it, and do not drink so much as afterwards, a stock collects for their larger appetites, and this with the wash which large farm houses must supply, with garden refuse in addition, is found enough to keep the number of pigs mentioned, viz., about one, of the age and description given, to every two dairy cows in milk.

AGRICULTURAL STATISTICS.

AGRICULTURE—PROPORTION OF OUR POPULATION ENGAGED IN IT—THE ANNUAL VALUE OF ITS PRODUCTION IN THE UNITED KINGDOM—A MINISTER FOR SUGGESTED—HOW ITS STATISTICS SHOULD BE COLLECTED.

I SHALL proceed, in continuation of my previous papers which have appeared in your columns, to demonstrate that, even in this pre-eminently manufacturing country, "the greatest of all manufactures is the manufacture of a nation's food," by—

1. A view of the amount of employment afforded to our population by the labours of agriculture.
2. An estimate of the annual value of our agricultural production.

First—*Labour Employed in Agriculture.*—Of this I make an enumeration from the census tables of 1851. It will be observed that I include merely the workers in agriculture, excluding altogether the classes of landed proprietors, land agents, corn factors, manure dealers, also the artisans employed in making and repairing the machinery and implements used in agriculture:—

	Males.	Females.	Total.
Farmers	275,676	28,044	303 720
Graziers	3,036	11	3,047
Bailiffs	12,805	—	12,805
Agricultural labourers ..	1,006,728	70,899	1,077,627
Shepherds	19,075	—	19,075
Farm servants (in-doors)	235,943	128,251	364 194
	1,553,263	227,205	1,780,468

If we add together the workers in all the branches more usually termed "manufacturing," we shall have an array of numbers small compared with the above. I find by the same census tables that the aggregate of the workers in cotton, wool, silk, and linen is but 1,186,061. Thus the producers of a part of the nation's food are 50 per cent. more in number than are those engaged in producing the fabrics which clothe not only our own population but also a large proportion of the world's inhabitants.

Again, if we number the whole adult male population between the ages of 20 and 60, we find them to be 4,769,212; of whom there are enumerated under the six classes of agricultural employment stated above 1,224,546 persons. Thus one out of every four male adults at the labouring age is directly engaged in the labours of "the fields and pastures."

Second—*The Annual Value of Agricultural Production.*—Here we have no such precise information as has guided us in our comparison of numbers. I shall not follow the estimates of M'Culloch, Mill, or other statists, for the result of the Scottish inquiry, limited as it was, has conclusively shown that their estimates were very random guesses; I shall use as a guide the degree of information a partial inquiry has afforded us.

By the Scottish returns we have what I believe to be a close approximation to the production of that portion of the kingdom. I have valued that production by a medium standard of prices, about midway between the highest and the lowest years of a cycle of seven (8*s.* per bushel for Wheat may be taken as the key to my scale); and I attain thereby to the result of 16,148,715*l.* as the value of the produce of the agricultural industry of Scotland in the year 1855.

For England and Wales we have as yet to guide us only the returns from the 12 selected counties "statisticated" last year. Building on this foundation we may, by a rule of three comparison of acreage, deduce an estimate of the area devoted to each species of crop, which cannot be far from the reality. Taking that estimated acreage and approximating to it the production of a very moderate return of crop (26 bushels per acre of Wheat is the key-note which governs my scale) I obtain, using the same standard of price as was applied to the Scottish returns, a result of 125,245,871*l.*, as the value of one year's agricultural production in England and Wales. Comparing this with the Scottish aggregate given above, I see no reason to think that it is likely to be much in error. The population of England and Wales is rather more than six-fold that of Scotland, while the scale of living is certainly considerably higher.

The returns of Scottish production are—say in round numbers—16¼ millions. Of this we may safely assume that sheep and cattle of the value of 1¼ millions are exported to and consumed in England. The consumption would then stand thus:—

In Scotland	£15,000,000
In England and Wales, including 2¾ million imports from Ireland	130,000,000
In Ireland (suppose)	20,000,000
We arrive at	£165,000,000

as the product of the agricultural industry of the United Kingdom.

The declared value of our whole foreign exports was in 1854 (the year of greatest export ever known) 97,184,726*l.*, being but equal to 4-7ths of the production of British industry in the "fields and pastures!" Thus certainly we prove that the first occupation given to man—that of tilling the ground—is still the chiefest of all industries: of it is emphatically said by an inspired writer, "the profit of the earth is for all; the king himself is served by the field."

Of this greatest of all interests what cognizance has been taken by our ruling powers—by our legislature and executive? (Of course I exclude from my view protective and free trade legislation.) What department of state is charged with a surveillance over the relations of agriculture with other home interests and with foreign countries? To what minister can agriculturists carry their wishes? For commerce there is a Board of Trade with a responsible minister at its head, and a large staff of officials who are not supposed to eat the bread of idleness. To the colonies local self government is accorded, yet Canadians and Australians have still access to a chief secretary of state. The Woods and Forests and the Duchy of Lancaster have great officers of state in superintendence of their affairs. Why should there not be a responsible minister of agriculture? "They manage these things better in France." Nay, even from Canada we may take a lesson; the president of her council, or prime minister, being also "minister of agriculture." Who that heard our present Premier's speech at the Lewes meeting of 1853 can doubt that he would be "the right man in the right place" here also?

For such a minister there would be no lack of functions legislative and consultative, with some executive. He would be the focus for the collection, comparison,

and dissemination of the knowledge of home and foreign events and discoveries bearing on agriculture. He would take cognizance of drainage, improvement, and enclosure schemes, and of other like measures, which are now entrusted to the management of a subordinate board, the enclosure commissioners, who are irresponsible to Parliament, and indeed unknown except to a few energetic and improving landowners and their improvers.

He would give attention to guano explorations and monopolies; to geological surveys at home and abroad which may be expected to disclose hidden treasures of phosphatic and other mineral-manurial deposits; and finally, though I have not even glanced at many useful functions which could be exercised by such an official, he would control and direct an agricultural census or inquiry which, carried out at intervals of 5 or 10 years with great exactness, would annually record more full information, as I shall afterwards show, than is sought to be collected by the measure at present proposed.

I leave this suggestion of a minister of agriculture to the consideration, and I trust advocacy, of others having more weight of influence than I possess or aspire to,

> "If as I believe its vein be good,
> The world will find it after many days;"

and pass on to a consideration of the bill for the collection of agricultural statistics now under discussion.

Its compulsory powers I approve of, believing that they will but seldom require to be exercised if any management is shown by the officials charged with the inquiry; but I think that the agency through which it is proposed to work the measure is very objectionable. That the "Board of Trade" should have the supreme direction of an inquiry to be responded to solely by agriculturists seems absurd; and that the poor law officials should be entrusted with the organization of the local details of management is more than absurd—it is insulting. As a national measure the proposed inquiry is very defective. A national collection of rural statistics should be comprehensive or rather exhaustive. It should give a view of the appropriation of every acre of the soil of the country; while the inquiry as proposed is confined to the portion under agricultural occupation. I observe an epitome of the agricultural statistics of several European countries in your number of April 26th, and they are in this respect more complete than those proposed for England, than those collected in Scotland; take Prussia as an example—there are six heads under which acreage is enumerated. 1. Under Tillage. 2. Meadows. 3. Permanent Pastures. 4. Forests. 5. Gardens, Vineyards and Orchards. 6. Uncultivated. The first three headings are those which only will be filled up under the proposed British system; are the others so unimportant that no notice should be taken of them? Woods and forests form no insignificant portion of our national wealth; why are they untabulated? Uncultivated lands are not unknown even in our finest counties; let us be informed where they are and what is their extent. There are brawny arms which would prefer to employ themselves in subduing these home wilds rather than in hewing Canadian forests, or digging in Australian gold mines.

He who criticises and censures the plan of others should be ready with a plan of his own. Mine would be very simple. Let a central authority, say the minister of agriculture, be charged with the issuing, receiving, and tabulating the schedules required, no local officer having any interference or concern therewith; this would obviate all local prying into and disclosure of farmers' doings. This minister to hold a record of the proprietors of the soil. For the formation of such a record there is perfect facility; and the census tells us that the number of the class is not excessive, being but 34,627 in all. To each of those let a "proprietor's schedule" be issued, in which he should fill up the number of acres he owns; how many of these under wood, how many in parks and demesnes; how many waste, how many let, and to whom. A summation of these schedules would give us the total acreage of the kingdom, and a view of its appropriation whether to agriculture, pasturage, timber growing, or to purposes of ornamentation and pleasure. An "occupant's schedule" transmitted direct to the tenant farmer would be filled up by him with the acreage under each denomination of crops, and with the live stock he holds.

The "proprietor's schedules" being filled up at Lady-day there would be abundance of time after their receipt to prepare and circulate the "occupant's schedules" before the 1st of June; and by the 1st of July a very moderate amount of diligence should enable the departmental staff to prepare, and the minister to publish, a statement of the acreage under each species of crop in each county of the kingdom.

For the direction of commercial operations, this publication at so early a date would be very valuable, and we may rest confident that having it, trade inquiries and the extended correspondence which your own and other journals devoted to agricultural affairs hold with individuals in every county, and which you give to the world some weeks before and after the ingathering of the harvest, would lead to the formation of an estimate close enough to the truth to serve the purpose of directing the currency of the markets, weeks if not months earlier than any estimate could safely be published under official authority.

That official estimate may, under the circumstances, be advantageously deferred till December, when the minds of farmers will be fully decided as to what the actual result is from three or four months of threshing. How should it then be formed? Let some men of energy and practical knowledge, such as we have in abundance among our metropolitan and provincial land valuators and improvement inspectors, be commissioned to visit the different counties, forming them into districts when they are too large or diversified for a single estimate to be applied to their whole extent. Let these "inquirers" call to their aid in each county or division a jury—as the French would term it a "*Conseil des Experts*"—and obtain from it a verdict of the acreage production of each crop. The clerkly computation required to form from those materials a full return of the produce of the kingdom would be but light; and by the 31st of December an authoritative statement thereof, with every claim to public confidence in its accuracy, could be published, this serving as a record of the closing year's production; the purposes of an early estimate had been already accomplished.

I believe that this system would work well and smoothly, as it would enlist in its favour the opinions and feelings of the farming class, who have some right to be jealous and suspicious when they observe that the State, with which they have no relation as farmers, enjoins them under penalties to give answers to questions which they may without much stretch of imagination suppose will, under the proposed system of employing the poor-law officials, be turned to their disadvantage by disclosure; while landowners, who in relation to the State as they have rights also have duties, are not called upon to give information which, as I have already pointed out, would make the proposed collection a real record of the rural state of our country. Even the intelligent farmers of Scotland whom you so much praise for their carrying through of a *quasi* volunteer scheme of statistics are getting rusty on this point, as you may judge from the strong expression of opinion contained in the last number of their organ *The North British Agriculturist*. It is not well that cause for distrust and suspicion should be thus allowed to prejudice a measure to the usefulness, if not necessity, of which I have already given my humble testimony. *S. May* 2, 1856.

HOME FARM MANAGEMENT.—No. III.

WHEN a tenant farmer enters to a farm which he has taken in lease, he naturally looks pretty sharply to his own interests in bargaining with the outgoing tenant for stock or crop. If the value of the stocking is to be determined by valuators mutually appointed by the away-going tenant and himself, he will be very careful to appoint only such a person as he considers likely to do him full justice. Now, however necessary this may be in the case of a tenant entering to a farm, it is still more requisite when the occupant is to be both landlord and tenant. Amongst the worst informed classes of workmen, there is a very general impression that they need not work quite so hard when their employer is a landed proprietor as when he is a tenant; or is at least dependent on his own exertions for a livelihood. And I fear that this innate desire to act differently towards the rich than towards those who are in poorer circumstances, is not confined to workmen, and may actually exist to some extent in the mind of a well-meaning outgoing tenant farmer without his really being sensible of the fact. Man is so much a creature of circumstances and his actions are so largely influenced by association that even a well-intentioned person may thus unconsciously err. It may be only to a very small extent that the evil referred to is indulged in, but as it is the principle and not simply the act itself that I point to, its smallness is scarcely an extenuation. Most certainly the assumption that, because a man is high in station or in good circumstances, he can afford to let poorer persons who have dealings with him have favourable bargains now and then, is much too general amongst those who are connected with agricultural pursuits. Is it not a fact that in many instances the proprietor who farms his own land is leeched in every direction, and counted lawful prey to those harpies who openly or covertly hover round almost every nobleman and gentleman's seat in the United Kingdom? No wonder that home farm management is rather a sorry game for landlords to play at in many instances. No wonder that an amount of shrewd sharpness, in addition to general agricultural qualifications, is essentially necessary to qualify the manager of a home farm for his responsible charge. There are very few instances in which a respectable tenant relinquishing a farm about to be taken into the proprietor's hand would willingly take any advantage of the latter. Nay, such a tenant would be the first to agree to a fair valuation being made of the stock to be assigned. But it may be requisite even in such a case that the proprietor should look to his own interests in a very careful manner. On the farm there may be both live stock and implements, which though entitled to have a price put upon them may yet be worth very little on land about to be managed on high farming principles. Better far in that instance to let the outgoing tenant make the most of his farm stocking by bringing the portion of it usually recognised as moveable to a public sale. Indeed in most cases a landlord beginning to farm his own land will do well to stock it anew altogether. His steward can in that case select the kind of horses most suitable for the farm, the feeding and dairy stock that are likely to give the largest returns, and the various implements which in the circumstances will best serve the ends in view. It may cost more money to go to a general market to procure necessary stocking than to purchase it from the away-going tenant, but then if the management is judicious there is no throwing away of means on unsuitable purchases. And the very facilities that this general marketing affords for introducing both cattle and implements of superior classes to a district where, from having been seldom seen before they will excite surprise and curiosity amongst the older fashioned farmers, should be looked upon with some degree of favour. An old-school farmer will not admit the advantages resulting from improvements on his own practices, but neither will he lose sight of any new agricultural system introduced to his neighbourhood, for if it is once proved to be worthy of his attention he will quietly adopt it without acknowledgement, as if he had practised it all the days of his life.

It is of home farm management as furnishing a useful example to tenant farmers, while at the same time proving remunerative to the joint proprietor and tenant, that I wish to treat in this series of articles. High farming without good profits goes for very little with some persons, and it may be safely affirmed that unless a careful distinction is observed between the landlord's and the tenant's business and cash accounts, endless confusion and unsatisfactory profits are sure to be the result in home farming.

It is obvious, therefore, that an accurate system of book-keeping is indispensably necessary on such a farm. Farmers generally are notorious neglecters of even the semblance of book-keeping, and it would be a pity if a proprietor failed to set his tenantry a good example in this respect. There is no necessity for adopting a complicated system of book entries, but that it should be sufficiently elaborate to admit of the figures being properly checked and balanced from time to time no practical mind can doubt. Assuming that a proprietor has just got possession of a farm he intends to cultivate for a series of years, let us see what mode of ledgerizing would be most suitable for keeping the whole accounts in a satisfactory state.

In a previous letter I stated that there should be two primary headings in the books, or perhaps better two distinct books—one for permanent improvements on the landlord's outlay and the other for the tenancy account. But under each of these heads or separate ledger accounts there should be numerous sub-headings. The permanent improvements ought to include—1, cash; 2, drainage; 3, farm buildings; 4, irrigating and engine works; 5, roads and tramways; 6, fences; and 7, general appliances. Under the tenancy heading will be ranged — 1, cash; 2, aggregate stock account; and 3, rent account. These three will cover everything connected with the farm, and will afford facilities for checking the other subsidiary accounts in detail as well as in the gross. The second account will contain—(1) feeding cattle, (2) dairy stock, (3) young cattle, (4) horses, (5) machinery, and (6) implements. In addition to these there should be accounts under the following heads:—green crops including (1) Potatoes, (2) Turnips, and (3) other feeding crops; white-crops comprehending—(1) Wheat, (2) Barley, (3) Oats, (4) cut Grass and hay, and (5) pasturage; and black crops, comprising—(1) Beans, (2) Peas. In this way every kind of stock, crop, &c., has a ledger account for itself; but that account is subsidiary to one to which the profit or loss at the end of the year is transferred.

All this may appear complicated, but it is in reality a matter of great simplicity. Let me just trace the order in which an entry made in either the day or cash-book finds its way into the ledger account to which it belongs. Some cattle intended to be fattened are bought from the outgoing tenant at a fixed price, and the transaction is at once noticed in the day-book.

If the price is not to be paid at the time, but is to stand as part of some larger sum to be afterwards settled for, then the book-keeper will transfer the entry in the day-book into the regular journal and post the amount to the credit of the tenant, and to the debit of the account entitled Feeding Cattle. But if payment is immediately made, then the amount will be entered on the credit side of the cash-book, and carried to the ledger to the debit of the Feeding Cattle account. So with every distinct account, guano or nitrate of soda intended for a cereal crop will be debited against Wheat, Barley, or Oats, as the case may be, and credited to cash by the payment being made. Whenever an account is debited for any particular purchase, some other one must be credited to balance with it. The Feeding Stock account becomes indebted to cash for the price of purchased animals, and when these are fattened off and sold cash in its turn becomes indebted to Feeding Stock for the price. It is in this manner that all double entry books are kept, and without such entries it is impossible to check the various accounts from time to time with any degree of accuracy.

The following may be taken as a full set of books for the tenancy department of a home farm:—

1. *Day-book*, into which every buying or selling transaction is carefully recorded, according to its date.

2. *A Memorandum-book*, not intended for money transactions, but for any other kind of entries that the daily occurrences may render desirable.

3. *A Journal*, intended to be a descriptive record of every transaction involving the question of money. No entry can be made in any of the ledger accounts till it has been journalized in the pages of this book, and whether the transaction be a cash or a credit one, it must appear here in detail, the creditor always balancing with the debtor side of the account.

4. *A Ledger* large enough to hold all the tenancy accounts for at least a couple of years.

5. *A Rotation-book*, in which the extent and yearly course of cropping of every field will be stated in a

tabulated form. In another part of this book the annual estimated produce of the different kinds of crops and of the entire farm should be recorded.

6. *Time-book* for recording the work on which each workman is daily engaged, and stating the wages payable to him. At the end of every week or fortnight, according to the return of the pay-day, the amount paid is posted to the credit of cash and to the debit of the different accounts to which it belongs.

And 7. *The Horse Labour Book.* This is distinct from the ledger account entitled Horses, being simply a day book in which the work performed per diem by each horse, and the money value thereof are respectively stated.

Now it may be thought that really there is no necessity for being at the expense of procuring all these books and at the trouble of keeping them in good order on the principle which has been pointed out, but I would just say that if book-keeping of any kind is necessary, surely the proprietor who farms his own land and desires to set a good example to his tenantry should adopt a creditable system of keeping his accounts. A day-book, cash-book, and ledger may suffice for a farm where the entries are all made by the farmer's own hand, but on a home farm managed altogether by employees the case is very different. The books of a home farm should at all times be in that state that the proprietor or his agent can turn up the ledger account under any particular head, and ascertain the exact state in which it stands as to profit or loss. And then in his private books he may have an account entitled "The Home Farm," showing the profit or loss at the end of every year, as brought from the regular books, and in this way he may know at any time not only how the farm is paying on the whole, but discover also the exact department in which there has been a loss that may in future be avoided. If the labour necessary to keep farm books in the way I have indicated be the principal objection to the system there need not be much difficulty in removing that. There must be some sort of book-keeping, and the difference in the time required to attend to the incomplete as compared with the complete system is frequently little more than the time which under the former would hang heavily on the hands of the clerk. On all the best managed estates a clerk must be kept at any rate, and the person who attends to the farm books may either be his assistant, or if the property is too small for this, one good penman will do all the writing which is required.

By having an active farm manager there will be no necessity for much expense being incurred in the keeping of the accounts, for a mere lad, if his education and general intelligence are up to the mark, will be quite able to overtake the work. One thing is perfectly certain that if a home farm cannot afford to keep a junior clerk, it will not pay without at least some system of book-keeping, and may be given up at once if that system proves a defective one.

I have dwelt somewhat longer on the keeping of farm accounts than I intended, but really the whole question of successful management is often dependant on this point. Even the knowledge that all the expenditure of a home farm must pass through a regular set of books and be open to inspection at any time will prevent a needless outlay in many instances. And the conclusive evidence of profit or loss which well-kept books afford is a great incitement to the manager of such a farm to do his best in developing its resources and adding to its profit. *J. Lockhart Morton.*

Home Correspondence.

Relative Value of Guano and Oilcake.—In Mr. Nesbit's interesting lecture alluded to in your Paper of the 19th, he says, that "one ton of guano is equal in manuring power to 2½ tons of oilcake." I believe Mr. Lawes's estimate is much higher, viz., 1 ton of guano equal to 4¾ tons of oilcake; but perhaps in this he only takes account of the ammonia in each, and reckons the oilcake as consumed for food, *i. e.*, deducting the portion assimilated by the animal. In Stockhardt's Chemistry the proportion is given as 1 of guano to 3 of oilcake. Would it be too much to ask Mr. Nesbit for the data on which he founds his calculation? It is a very difficult practical question to many, Is it better to use oilcake or guano? If Mr. Nesbit is right, and nearly half the cost of cake may be charged to the manure, it ought to answer at least on those farms (or districts) where any profit is made on stock. And the case is still stronger with Rape-cake (where the stock can be got to eat it), since the cost of 2½ tons of Rape-cake is only 2*l.* or 3*l.* more than that of 1 ton of guano. *X.*

Thick Sowing Poor Land.—My answer to your correspondent "On Thick Sowing on Poor Land" not having appeared in the *Gazette*, I conclude it has either been mislaid or not considered worth notice. As the subject is most important, it may be hoped a Leader will on some future occasion be given to set the question at rest, fully explaining the meaning of "poor land" in its legitimate sense, not bad soil made fertile by tillage. Another note published on the 26th ult. recommends Wheat to be sown thick to smother weeds! When the advanced season will not admit of land being thoroughly cleaned, it is sometimes highly manured for Vetches, which grow rapidly, overtop, and kill the weeds, but Wheat for the same purpose, unless to be cut green, is rather a new light—is it not? In these days of scientific pursuit details may be swallowed up by generalities, nevertheless the former are the essentials to practical men who have to live by their industry. *Falcon.* [The article in question was never received.]

Waste of Iron per Acre.—The particulars furnished by Mr. Howard in last week's *Gazette* of the estimated annual consumption of iron per acre on a farm, are probably as correct an estimate as can be formed of the wear and tear of that material in a light land district. I have no doubt they will be considered sufficiently approximative for the object of the inquiry, notwithstanding they exhibit a wide difference from the data furnished by the agricultural establishment at Grignon, where the land is of a similar character (mechanically) to Mr. Howard's; but where the consumption is, according to the *Journal des Economistes* for June 1854, no less than between 7 and 8 kilos of iron per acre. The inquiry, though apparently of small interest, is really of some importance to us just now. The strong convictions of their impolitic and prejudicial bearing on agriculture that induced the agricultural jury of the late Exhibition to seek for a diminution of the protective duties on agricultural machinery are now largely participated in by the agriculturists of France generally. The approaching Exhibition, at which English implements and machines will be largely represented, will no doubt furnish them with another opportunity for demanding still further relief from those fiscal charges which even now practically prohibit the importation of many of those machines most desirable for the cultivation of their land. *W.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *May* 7:—Mr. Miles, M.P., Vice-President, in the Chair. Fifty-six new members were elected.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, submitted the monthly report on the accounts of the Society; from which it appeared that the current cash-balance in the hands of the Society's bankers was 3657*l.* He also laid on the table the several quarterly statements of account in reference to the different branches of income and expenditure.

Journal.—Mr. Thompson, Chairman of the Journal Committee, reported recommendations in reference to the preparation of a complete analytical Index to the Journal of the Society; and to an alteration of the terms in which the grant is at present made to the Royal Veterinary College. It also expressed, on the part of the Journal Committee, a request that the members of the Council would favour them by suggesting, before the 1st of June, subjects for the essay prizes to be offered for 1857.

Chemical Analysis.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported the progress made in preparing the new schedule of charges to be made by the consulting chemist of the Society to its members.

Guano-Substitute.—Mr. Raymond Barker reported communications from the committee, and the Council gave instructions in reference to them.

Chelmsford Meeting.—Mr. Barnett, Vice-chairman of the Chelmsford Committee, reported the suggestions of that committee, which were adopted. The dining pavilion to accommodate one thousand guests on Thursday, the 17th of July, the principal day of the show, was finally ordered.

Dynamometer.—Colonel Challoner transmitted the engagement entered into by the Implement Committee with Messrs. Easton and Amos, to complete for the Chelmsford meeting the requisite dynamometers for the trial of field implements on that occasion.

Foreign Prize Sheet.—Mr. Miles, M. P., reported the steps he had taken, in conjunction with Lord Feversham, to carry out the intentions of the Council in reference to the conditions under which foreign cattle were to be shown in competition for prizes at the Chelmsford meeting.

Trustee.—On the nomination of Mr. Milward, seconded by Mr. Raymond Barker, Mr. Evelyn Denison, M.P., was unanimously elected one of the Trustees of the Society, in the place of the late Mr. Neeld, M.P.

Thorough-bred Horses.—Mr. Fisher Hobbs presented from the Chelmsford Local Committee a memorial, requesting the Council to accept the following prizes for competition, under the general regulations of the Society, at the ensuing country meeting.

For the best thorough bred Stallion	£30
For the best weight-carrying Hunter Stallion ...	30
For the best Coaching Stallion	25
For the best Hackney Stallion	25
For the best weight-carrying Hunter Mare	20
For the best Hackney Mare	20
For the best Gelding of any age for Hunting purposes	15
For the best Gelding under 4 years old	10
For the best Hackney Gelding of any age	15
For the best Hackney Gelding under 4 years old ...	10
	£200

No Horse being allowed to compete in two Classes.

Honorary Member.—On the motion of Mr. Evelyn Denison, M.P., M. Léonce de Lavergne, author of the excellent work on the Rural Economy of Great Britain and Ireland, was unanimously elected an Honorary Member of the Society.

Poultry Steward.—On the motion of Mr. Fisher Hobbs, Mr. Joseph Cooke, mayor of Colchester, was appointed Steward of the Poultry department for the Chelmsford Meeting.

Implement Steward Elect.—On the motion of Mr. Cavendish, Mr. Barnett, of Stratton Park, was appointed Steward Elect of Implements for the Chelmsford Meeting.

Country Meeting of 1857.—Invitations were received from the authorities of Bath, Dorchester, Salisbury, Taunton, and Winchester, requesting the Council to select the place of the country meeting for the next year from one of their respective localities. The various memorials, plans, and other documents thus received, were referred to an inspection committee, with a request that the members of it would personally visit the proposed localities, and report upon them to the Council on the 4th of June.

House List.—The balloting list of Council to be recommended for adoption by the general meeting on the 22d inst. was prepared agreeably with the terms of the bye-laws.

Lecture.—On the motion of Mr. Lawrence, Professor Simonds's second lecture "On Parasites affecting Domesticated Animals," was arranged to be delivered as proposed on the 25th of June, at twelve o'clock.

Foreign Cattle Entries.—On the motion of Mr. Brandreth Gibbs, the period for receiving entries from abroad of foreign cattle intended to compete at the Chelmsford meeting was extended from the 1st to the 12th of June, in order that entries might be effected during the Paris exhibition, to take place in the first week of June.

Farm Memoranda.

Lea Green Hall: Church Minshull, Cheshire.—To Mrs. Mary Robinson, as tenant and occupier, for the best managed Dairy or Grazing Farm of not less than 150 acres, 10*l.*

"*Inspectors' Report.*—The claimant's farm contains 257 acres. The soil is of a strong rich description, with the exception of some 25 acres, which is of a sandy nature.

"This year the cropping was as follows:—Pasture land, 115 acres; meadow land, 65 acres; meadows irrigated, 4 acres; Wheat after Potatoes, 18 acres; Oats, 26 acres; Barley, 1 acre; Clover and Vetches, 4 acres; Potatoes, 5½ acres; Turnips and Carrots, 3 acres; Mangel Wurzel, 1 acre; orchards and gardens, 3½ acres; plantations, occupation roads and waste, 11 acres.

"The customary course of cropping adopted is as follows, viz.:—1st year, Oats; 2d, green crops; 3d, Wheat; 4th, Oats or Barley with seeds to lie one or two years.

"The quantity and description of stock kept this season, is:—Farm horses, 6; dairy cows, 69; heifers, 5; sheep, 6; lambs, 60; pigs, 40; rearing calves, 12; total, 192. The cattle are fed in winter on hay, straw, Turnips, and ground Oats, and in summer are turned-out to Grass.

"About 400 tons of manure is annually made on the premises, which is applied to the meadows and green crops. Claimant purchases annually about 10 tons of boiled bones, and 1 ton of guano, all of which is applied to the green crops, Clover roots and pasture lands. The meadow land on this farm is maintained in a productive state; the pasture land is principally of a strong, deep rich soil, and in old turf. A considerable portion of the pasture land has been drained; still there are several acres which require that operation. The Wheat in No. 1 field was part after Clover, and part after Turnips; that which succeeded the Clover was by far the best crop, the other was but thin on the land. Oats after leas, a medium crop; Oats after Wheat, only a light produce, with the exception of about one-half, which was a fair and full crop. The Clovers were mostly uniform and thick. The Potatoes, Turnips, and Mangels were kept free from weeds, and showed good management. Claimant has used annually for draining 10,000 tiles, which are laid on slate soles; and she has also within a period of seven years marled 35 acres; eradicated 3000 lineal yards of old hedges, drained the ditch bottoms, and levelled up pit-steads, at a cost of 40*l.*; has also sunk a well and put down a pump adjoining the kitchen, and erected over it a large shed; and built two walls to surround the gardens. All the materials for these erections were found by the landlord, and the work completed at claimant's expense. All the fences and gates on this farm are in good order. The farm-yard, barns, and other accommodations for cattle appeared to have been particularly well attended to, and were well arranged. Everything about the house and gardens in most respectable keeping."—*Journal of the Manchester and Liverpool Agricultural Society.*

Hungarian Agriculture.—I find the Magyar character to have a great resemblance to that of the Turks, the Magyar is uncivilised because he feels no desire to be better; he is on perfectly good terms with himself; he has no internal desire to labour, to improve, to take pains, and to persevere until he arrives at a great future result. Even if the common Magyar go to Pesth or Vienna, you find him a waiter in a tavern, a barber, or any light sauntering employment, but rarely in a trade that requires severe labour or a long apprenticeship. If he stay at home and devote himself to agriculture, he is equally remarkable for a spirit of antique, incurable, Asiatic indolence. Of the value of manure they have not the least idea, or rather they set too much store by it, for it accumulates in the towns so as to breed a fever from time to time. The agent of the Steam Navigation Company wished a heap of dung to be removed from the vicinity of the landing-place here; but the peasant answered that the dung of his father and grandfather had lain there, and he did not under-

stand how he should be called on to remove it for the public convenience. It never struck him that if he laid it on his land he should put money in his pocket, so it was removed by the steam boat agent. The ploughs here are of the rudest description, and are all of wood, except a coarse ploughshare, which turns aside the earth so insufficiently that all the ploughing is done with six oxen, when, with a modern plough, a pair of stout oxen is quite sufficient for the heaviest land. The harrows look as if they had come out of Noah's ark, being entirely of rude branches of trees pegged together in the most inartistic manner, and do their work so imperfectly that a considerable part of the seed corn is blown away. When harvest time comes, the Wheat instead of being reaped is mown down like grass, the mower receiving an eighth of the whole for his trouble in mowing. The corn is then heaped up in stacks, and often lies on the ground until the outside grows green again. There is no threshing except in the model farm of a wealthy magnate here and there, and even with them if a wheel goes wrong there is nobody in all the country round who can repair it, and a man must be sent for from Pesth and Vienna. The grain is trodden out by horses in the open air, at an immense loss, and the substitute for a granary is no doubt the same as between the Lena and the Oxus before the days of Arpad. A hole is dug in the earth, narrow at the top and broad below, and here the corn is deposited. To exclude the damp, the mouth is so narrow and the cavity so deep, that the man that takes it out is let down with a rope, like Joseph into the pit, and after half a year the corn gets so earthy a flavour that the bread gets an unavoidable *goût*, which every traveller in the back settlements of Hungary can remember. The ground about Szolnok, as well as all along the Theiss from Tokay to its confluence with the Danube, near Belgrade, is fat black humus, and consequently not good for Potatoes, but excellent for Rapeseed and Wheat, the proportion of Rape sown to the product being around Szolnok as 1 to 90—95 and 100. With more hands and better agriculture the vale of the Theiss might become a Peruvian gold mine; for instance, from here to Mezö Tör is a five hours' journey, all black alluvial soil, and only two houses are to be seen. It, therefore, follows that those who really are laborious and understand the modern process of agriculture have very good incomes; for instance, Mr. Z——, a native of Stuhlweissenburg, rents a fine estate near here of 4,000 acres from the Almasy family, for the sum of 33,000 florins (about 1,300*l.* sterling); the expenses of cultivation amount to about the same sum—together 2,600*l.* One year lately his income, from Rapeseed alone, was 90,000 florins, or about 3,600*l.* sterling; and this from only a third of the land, another third being grain, and the rest pasture and mixed crops. In a good year he makes 6,000*l.* per annum, which, with the deduction of 2,600*l.* per annum for rent and cultivation, leaves him above 3,000*l.* per annum. But you may rest assured that Mr. Z——knows the value of time, and does not saunter about all day smoking his pipe. The poor, simple, brave, and good-natured Magyar sadly needs a "Poor Richard" to tell him that there are "no gains without pains."

Miscellaneous.

Finger and Toe in Turnips.—I shall close this paper with a few remarks on a recent innovation in our nomenclature, which, I am afraid, is to pass into use without any discussion, and that assent to it, on the part of agriculturists, is to be given through their maintaining silence on the subject. I allude to the meaning which we have hitherto attached to the term "finger and toe" in Turnips. Professor Buckman, in the 15th vol. of the Transactions of the Royal Agricultural Society of England, has written an elaborate paper on this subject, and contends that the disease of "finger and toe" in Turnips should be restricted to the degeneracy which takes place in Turnips when they grow coarse stems and branched roots. The same views have been maintained with great ability in some recent numbers of the *Agricultural Gazette* (November and December 1855.) Mr. Berkeley, a most profound writer on vegetable pathology, also adopts the same views in the *Gardeners' Chronicle* (8th December 1855), and maintains that a distinction should be drawn between the disease of "anbury" in Turnips, and "finger and toe." But I do not hesitate to confess that I cannot discover sufficient reasons for drawing any distinction between "finger and toe" and "anbury." Nay, I consider such a distinction is altogether uncalled for. The causes of degeneracy in Turnips have been very ingeniously traced, both by Mr. Buckman and Mr. Berkeley. But no one, until now, I believe, ever thought of considering the tendency of the cultivated root to revert to its wild state, as a diseased condition of the Turnip. The degeneracy of Turnips was never confounded with the disease so well known under the not inappropriate name of "finger and toe." It is a great reflection upon the intelligence of the officers of the Highland Society to suppose, as Professor Buckman has done, that they were analysing soils for the purpose of discovering the causes which produced degeneracy in their root crops. If the term *degeneracy* is not sufficient to express the reverting to wildness in our cultivated varieties of Turnip, the finger and toe, it appears to me, is exceedingly inappropriate. Indeed, both the writers who are now contending for the restriction of the term "finger and toe," are obliged to admit that this degeneracy—this running wild of the cultivated varieties of Turnips, is not a disease in the strict sense of the term. Why then call it a disease? Why call the tendency of certain plants to revert to their natural methods of growth a malady; a malady which can only be said to attain its worst stage when the plants are about to attain their most healthy or natural state, by entirely running wild! But we are told that this degeneracy—"this malformation, is finger and toe, being merely a forked or digitate method of growth. Finger and toe is common to all root crops" It seems to me, however, that the use of the term digitate here, and in all Professor Buckman's writings on this question is improper. In his paper in the "Royal Journal of Agriculture," there is a drawing of one root, which is as like a hand with its five fingers as could be imagined, and which is described as digitate, and affected with the disease of "finger and toe." But, notwithstanding this, the root cannot be said to be either "digitate," or "fingered," or "toed" in the botanical sense of the term. It is forked or branched certainly. "A digitate root," says the "Imperial Dictionary," "is one in which the tubercles are divided into lobes like fingers." Now, none of the degenerating roots which have been figured and described by Professor Buckman answer to this description; but, on the other hand, a Turnip, attacked by anbury, often has its roots lobed by the formation of excrescences; in short, it is digitated or fingered and toed in the proper sense of the term. Therefore, to restrict the term of finger and toe to the degeneracy of root crops seems to me totally inadmissible, from whatever position we may choose to look at the matter. And besides, were it adopted now, it would cause great confusion in all that has been formerly written and done in the matter. I think we should still adhere to the view which Mr. Curtis has taken on this question in Morton's "Cyclopædia of Agriculture," that "anbury is a disease in Turnips sufficiently indicated by its other name of fingers and toes." *Mr. Russell in the Quarterly Journal of Agriculture.*

Manures for Turnips.—The Turnips were Skirving's Purple-top Yellow; they were sown on the 11th June, 1855, and lifted and weighed on the 22d of November. The soil is black loam, lying on whinstone rock, naturally dry, of medium fertility, and inclined to grow a small quantity of straw.

Manure applied.	Per acre.		Cost per acre.	Produce per acre.		Value of crop per acre.		Value of crop less cost of manure.
	cwt.	price. s. d.	£ s. d.	tons	cwt.	ton s.	acre. £ s. d.	£ s. d.
Guano ...	4½	11 4½	2 11 2¼	20	4½	10	10 2 3	
Phosphate of lime .	4½	8 4½	1 17 6 9/10	19	16	...	9 18 0	7 11 0¾
Bone-dust.	4½	8 6	1 18 3	18	18¾	...	9 9 1½	8 3 5 1/10
								7 10 10½

From the time the Turnips brairded until the end of August the different lots could scarcely be distinguished from each other. About that period the whole began to suffer from want of rain, and became much mildewed; however, those grown with guano suffered less than the others, and from that time until the end of October distinctly marked themselves by a greener and fresher appearance, which, although to a less extent, continued until they were lifted. The Turnip tops have been all left on the ground to be ploughed in, and it is intended to sow the field with Wheat, and next season ascertain the result of the Wheat crop. The following is an analysis of the manures employed, as furnished by Professor Anderson, Chemist to the Highland and Agricultural Society of Scotland:—

	Guano.	Bone-dust.	Phosphate of lime.
Water	14.22	8.10	8.48
Organic matter and ammoniacal salts ...	50.63	38.70	3.95
Phosphates	26.54	44.50	Insoluble . 11.54; Soluble ... 11.69
Alkaline salts	7.38	...	2.42
Sulphate of lime	...	...	41.62
Sulphuric acid	...	...	8.86
Carbonate of lime... ...	...	7.14	...
Sand	1.23	1.56	6.44
	100.00	100.00	100.00
Ammonia	16.15	4.96	1.21
Phosphoric acid in alkaline salts equal to 5.11 phosphate of lime	2.34		

Mr. Scott, in the Highland Society's Transactions.

Mr. Nisbet Hamilton on the Agricultural Statistics of East Lothian.—He states the "average return of five parishes in 1854—without exception the greatest harvest known—as amounting to 35 bushels per acre." There have been larger harvests in Scotland than that of 1854. In looking at the returns, two of the enumerators, for districts No. 3 and No. 4, each embracing four parishes, give the returns at 35 bushels—the one, Mr. Wright, of Southfield, the other Mr. George Hope, Fenton Barns. To which of the two enumerators Mr. Hamilton refers, when he speaks of the enumerator as "an honest and reputable man," it is impossible to say. In the county generally, both gentlemen may be thus described. But it would appear that, though honest in Mr. Hamilton's estimate, they are, like the Highland reiver Rob Roy, "honest after a sort." For, although returning the produce of their respective districts, the highest in Scotland, they, according to Mr. Hamilton, have returned it 15 bushels under the fact; and, curious enough, he gives as a reason that without 50 bushels of Wheat they, as occupiers, could not meet their engagements, and pay rent, some 4*l.* an acre. In 1854 some farms were upwards of 5*l.* an acre. Now, what is the fact with reference to the produce of East Lothian? Upon one of the farms on the estate of Dirleton, rented above his highest statement, the produce in Wheat for the years 1827, '28, '29, '30, and '31, was 14½ bushels. This we had from the then tenant, the late Mr. Walker, who at that time was one of the largest occupiers in the county, having, besides, other farms. Nor were his crops under those of his neighbours. The best farmer in the county of his day, the late John Brodie, occupied two large farms; during the same year his average produce did not exceed that of Mr. Walker. The farm of Lawhead, occupied by the late Andrew Howden, rather exceeded, but not much, this amount. We could furnish other instances, but these being three of the leading farmers of their time are sufficient. These were doubtless years of very small produce, and certainly, with such crops, rents were paid with difficulty, but they were generally paid. 14½ bushels leave a large margin contrasted with 50 bushels, the estimate of Mr. Hamilton as necessary to pay such rents. We are not surely to infer from this estimate of Mr. Hamilton's, that on the two farms in the occupancy of the owner, the home farms of Biel and Dirleton, that amount—50 bushels, was the produce of 1854. We can assure the honourable member, if he could secure his tenants 50 bushels of Wheat, and other crops corresponding, the rental of the estates would soon be doubled, and the tenants still in a flourishing condition. But however high the produce is, mainly through the skill and capital of the occupants, it is yet far below any such estimate. *North British Agriculturist.*

Bone Manure in Chester.—It must be admitted that during the last 15 or 20 years, and especially during the last 10, most extraordinary improvements have been effected in this country by the application of bone manure and by drainage. It is notorious that by these improvements the quantity of the herbage has been so increased, and the quality so improved, that on many farms double the number of dairy cows are now kept on the same extent of Grass, and in better condition than formerly. The fertilising effects of bone manure are such, especially when applied to our poor clay soils in a state of Grass, that herbage often the most miserable becomes supplanted by white Clover, Trefoil, and other nutritious Grasses, whose verdant stems then start up from the grateful soil without the help of either the seedsman or the sower, although their existence previously could scarcely be at all recognised. But perhaps to no crop is the application of bone manure more beneficial than to that which is commonly termed in Lancashire and Cheshire "Clover roots," and in other counties "seeds." When I state that the usual rotation of cropping is, 1st, Oats; 2d, Potatoes, Turnips, or other green crops (manured); 3d. Wheat; 4th, Oats or Barley, and laid down to Grass; the necessity of some manure being applied to the seeds or young Grass-root after the two last white crops will be obvious. Notwithstanding the present high prices of bone manure (boiled bones being 5*l.* 10*s.* to 6*l.* per ton, and raw bones 8*l.* per ton) nearly all our best Cheshire farmers—excepting those in the neighbourhood of large towns, where night soil and other manures are readily obtained—are applying either crushed boiled bones or finely-ground raw bones, but principally the former, to their Clover roots, and after the rate of 10 to 12 cwt. per statute acre. Such confidence have many of our farmers in bones, that they will apply them to wet clay land, I will not say with the expectation of rendering drainage unnecessary, but at least with the belief that if bones are applied, the turf will be so improved that drainage, whilst the land is in Grass, may be dispensed with. It is, however, a well-known fact, that whilst some moisture, such as rain, is necessary to dissolve any solid manure and fit it as food for plants, excessive moisture, stagnating on the surface or in the soil, will destroy much of the virtue of the manure, and, of course, render it less durable. *Mr. White, at Chester.*

Calendar of Operations.

MAY.

WEST SUSSEX, *May* 5.—We hardly ever remember such a continuance of frosty nights as we have had for the past three weeks, with north winds and little sun by day, and the land wet underneath and cold prevent the advance of vegetation at that pace that is so much wanted for many. Flocks have been long on short allowance, and no signs of being better off; with some the seeds have failed, which adds to the evil. Good fat stock of the sheep kind has now become scarce, and the price has risen, which has had the effect of bringing many out to market that ought to have had another month's keep; this will be the case for some time to come, as it is well known that to begin to eat the Clover off too soon has the effect of keeping us short through the season, unless we can reduce our flock; and to do this we are obliged to call in the aid of artificial food, and perhaps that is the best we can do at present; only that we sometimes make the mistake of supposing that it will be a substitute for short commons. But where it is used other food ought to be given freely, and with cake added they will soon go to market and so relieve us. On our fatting farms, which mostly are on the flat rich coast land, there is not much artificial seed, such as Rye and Tares, sown, but we generally count upon putting the ewes and lambs upon the young Trefoil and Dutch Clover as soon as the Swedes are done; so that in a year like this, when so many of the Swedes rotted, and then the seeds failed or came late, it is hard rubbing along. It is better, and we may all think so after a few years like this, to have some Rye or Vetches as a reserve, as they can always be used, and if keep is too plentiful more hay can be cut. Wheat, as may be expected, shows signs here and there of the unkindly weather by yellow spots, but still the general appearance is not bad, and with fine weather, which we may expect before long, it will come all right. The earliest sown of the spring corn does well, but that sown late must wait till a more congenial time for it. All kinds of lean stock are getting higher, in anticipation of summer

and stock run low, as it no doubt is. Sheep have been dull for the last five months, but are now moving. Lean cattle are always dear here, but there has not been much sale for them for some time. Store pigs have been very dear, and though still high, are rather lower than they were. Even now at from 10 to 14 weeks old they fetch from 20*s* to 25*s*. each; but respecting them we do not think that any part of the county possesses a better breed of them. Of course there are choice lots to be found that surpass them, but we believe no part of the kingdom have a better sort generally diffused. They combine the breeding and fatting properties in perfection. The Berkshire spotted are good breeders, but hard to fat; the white, commonly called Chinese, are good fatters, but bad breeders; at least this is the property that we have found in them. But here we have a black sort that possess the good qualities of each of the former, with full size: and we do not expect that strangers will obtain much favour with us for some time to come. Mangel sowing is nearly over with us; and preparing for Swedes must now be our work. *G. S.*

Notices to Correspondents.

FAIRS: *Beta.* Stagshaw Bank Fair (for Cheviots). The first fair is held on Whit-Friday for ewes and lambs, hoggs, and wedders; on Saturday for short-horn cattle, Scotch and Irish cattle and horses. The fair is held on July 3, for sheep, principally hoggs and wedders. This is the last show for unclipped sheep; July 4 is again for cattle and horses. Third fair is on August 6, for lambs only. The fourth is on October 24, for ewes and tups. Nine-tenths of the sheep shown at these fairs are Cheviots and mixed breeds.

GUTTA PERCHA: *Wigan.* We are informed by Messrs. Burgess & Key that coal tar naphtha is the best solvent of naphtha for your purpose; ether, chloroform, &c., will dissolve it, wood naphtha will not dissolve it. There is a fabric consisting of calico, cloth, &c., with one side covered with gutta percha already manufactured.

QUESTIONS ON DAIRY MANAGEMENT: *F C.* (1.) What number of cows per 100 acres are generally kept on dairy farms?—As at least nine-tenths of dairy farms in general in the vale of Gloucester is pasture land, and that of a description peculiarly adapted to dairy purposes, at least 25 cows can be, and generally are kept on 100 acres, besides the usual quantity of young stock necessarily reared to keep good the proper number of cows actually in milk.—(2.) At what age are they generally sold when considered unfit for the dairy; and if fat or lean, when disposed of?—It is allowed by all dairy farmers that the younger the cow, the richer is the milk yielded, although the quantity given is not usually so great the first year of the cow's calving as the second or third; the second and third years are the most profitable, quantity and quality of milk being considered. Supposing the cow to be 3 years old at the time of her first calf, at 4 and 5 she is at her prime; if she continues to produce her calf in good season, *i. e.*, from February to April, she is generally retained in the dairy till 7 or 8 years old, after which age it is not advisable to continue to milk her; as, 1st, her milk is fast deteriorating in quality; 2d, she is becoming of less value every year to the grazier; and, lastly, which is a material point, it has been proved beyond question that an aged cow consumes much more food than a young one, particularly in winter, when hay being nearly her only food, it adds very considerably to the expense of maintenance. From 7 to 9 years of age is to good farmers the usual time for casting off the dairy cow. In all packs there are favourites either on account of breed, or on account of being peculiarly good milkers; these are occasionally allowed to remain in the dairy pack to 10 or even 12 years of age, as fatting and milking does not work well together. The cast-off dairy cows are seldom fatted by dairy farmers, but are usually sold in November (when they cease to milk for the season) to grazing farmers.—(3.) What are the usual prices realised for old cows when sold?—The price usually obtained for old cows varies from 8*l*. to 12*l*., according to age and condition.—(4.) What do you consider the value of young cows which have just dropped their first calves?—From 14*l*. to 18*l*. for 3-year olds, which is the more general age of the cow's producing her first calf; but some farmers, particularly on very rich land, allow their cows to calve at 2 years old. From 10*l*. to 14*l*. is the usual price for this age.—(5.) What prices do calves fetch as sold by Gloucestershire dairymen?—It is now nearly an invariable rule for dairy farmers to wean a sufficient number of heifer calves each year to keep up the proper quantity of cows yielding milk. The quantity required for this purpose is one-fourth or fifth of the number of cows milked; after these are selected, the remainder of the heifer calves and all the males are either sold to the hill farmers for weaning, or are sold (very young—not more than 4 or 5 days old) to butchers at a very low price, frequently for 10*s*. or 15*s*.; the price obtained for those for rearing is generally from 25*s*. to 30*s*.—(6.) How many acres of Grass are allowed to each cow in summer (1st of May to 1st November); and how much hay will she consume in winter?—One and a half acre of Grass is the usual allowance for a cow from the 1st of May to 1st of December; and as she will consume about 2½ tons of hay (if fed on that food only), during the six winter months it will require the same quantity of land, viz. 1½ acre, for the winter as for the summer.—(7.) Estimated expense of summer and winter keep for each cow?—The value of the land required to keep a cow during the six summer months we presume would be about 4*l*.; and as the expense of hay-making and attendance on the cow during the winter must be added to the same quantity of land, we think 5*l*. is a fair estimate of the cost of her keep from 1st of December to 1st of May.—(8.) What quantity of Turnips or other roots are allowed in winter, if any; and also if oilcake, Linseed, or Bean-meal are ever given to cows?—As a general rule, Grass in summer and hay in winter is the only food given by dairy farmers to their milking cows; certainly in no instance is oilcake, Linseed-meal, and rarely any roots; occasionally Barley straw, where any is grown, is cut into chaff with hay, and given during the time no milk is yielded, which is through the months of January and February.—(9.) Average quantity of milk produced annually by each cow, and at what period does she give most?—From 500 to 550 gallons is as nearly as possible the quantity of milk yielded per cow annually; and the months of May, June, and July are the most productive months in the season for quantity, after which time it gradually diminishes.—(10.) Average quantity of cheese, double and single, and whey butter yielded by each cow?—Very little double Gloucester cheese is now made, the farmers finding the thin or single Gloucester the most profitable. From 3½ to 4 cwt. is the average of the county per cow, and about 30 lbs. of whey butter annually.—(11.) What is the whey worth for feeding pigs?—The value of the whey for feeding pigs is estimated at 20*s*. per cow per annum.

RAPESEED: *R A.* 1. The true "branching Rape," if you can get it. There is but a trifling difference between different sorts of Rape, but inquire, when you purchase, what kind of crops the seed has been produced from. 2. About 2 quarts of seed per acre; generally about 8*s*. or 10*s*. per bushel. 3. You can sow seed just as Turnip seed; cut when only some has begun to turn brown: let it lie to ripen, then thresh in the field with flails. 4. The straw makes good litter for the farmyard. Let the poor of your neighbourhood fetch the stocks left standing, for they make good firing; cannot say what their value is. 5. The produce is four or five quarters per acre, a quarter weighing about 30 or 32 stones. 6. Consult the price lists in the newspapers.

VALUE OF MANURE: *T Cridland.* The analysis gives 27.5 per cent. of phosphate of lime. The note at its foot explains this as meaning 12.5 per cent. of "soluble phosphate and phosphoric acid." But these two statements do not accord. On the one the manure is worth about 2*l*. 15*s*., and on the other about 3*l*. 9*s*. per ton.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

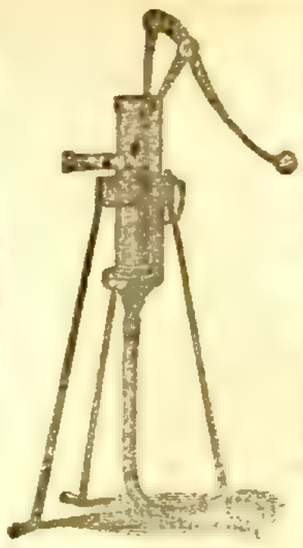
Diameter of Barrel.	Length of Barrel.		£	s.	d
2¼ in. short	1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „ long	3 „ 3 „	gutta percha,	1	14	0
3 „ ditto	3 „ 6 „	or cast iron	2	8	0
3½ „ ditto	3 „ 6 „	flanged pipe,	2	12	0
4 „ ditto	3 „ 6 „	as required.	3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2¼ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l*. 3*s*. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s*. 9*d*. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s*. 6*d*. per foot.

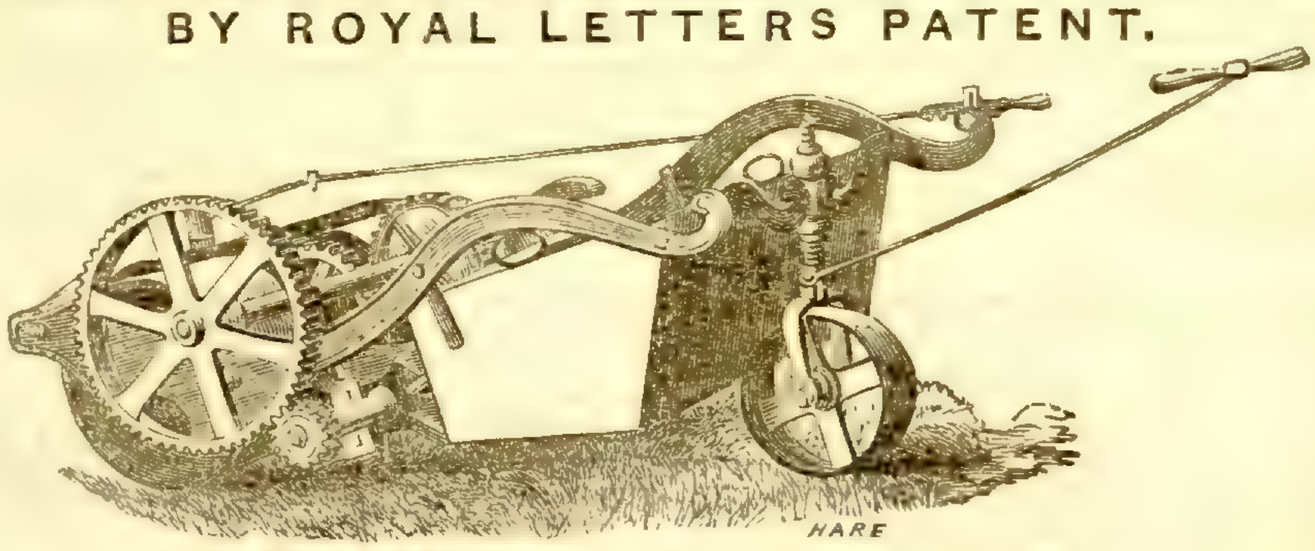
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

MAPPIN'S CUTLERY AND ELECTRO-PLATE WAREHOUSE is Removed from Moorgate Street, London, to the extensive Premises, No. 67 and 68, King William Street, London.

JOSEPH MAPPIN & BROTHERS, Queen's Cutlery Works, Sheffield.

BY ROYAL LETTERS PATENT.



ALEXANDER SHANKS & SON'S

NEW HAND MOWING AND ROLLING MACHINE

IS ADMIRABLY ADAPTED FOR MOWING SMALL LAWNS, VERGES, around FLOWER BEDS, &c. The Machine will cut close to the edge of Flower Beds, requires no change of Wheels or Rollers in Mowing Verges; has great facilities for Quick Turning, Cutting and Rolling at the same time. The length of the cut is regulated by merely turning a screw, and being simple as well as complete in its construction, the machine can be easily worked and managed by a labourer.

PRICES:—

22 inch Machine ... £7 0 0 | 19 inch Machine ... ... £6 10*s*. | 16 inch Machine £6 0 0

TO BE HAD ON APPLICATION TO

WILLIAM DODDS, 28, Leadenhall Street, London.

AGENT FOR THE MANUFACTURER.

WILLIAM DODDS also supplies every description of manufacture in plain and ornamental Iron and Wire Work, such as Iron Bridges, Iron Conservatories with Hot Water Heating Apparatus, Entrance Gates, Field Gates, Iron and Wire Fences, Iron Hurdles, Garden Chairs, Wire Netting, and a variety of useful and ornamental articles for Flower Gardens, &c., the prices of which will be found moderate, and the manufacture of the most substantial character.

WILLIAM DODDS, 28, LEADENHALL STREET, LONDON.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace, and Osborne. A. SHANKS & SON have much pleasure in submitting the following from the numerous unsolicited testimonials received by them in favour of their New Hand Machine:—

From Mary Wedlake & Co., London.

"Gentlemen,—We must inform you that your Hand Machines give extreme satisfaction; indeed, they are preferred to all others."

From R. K. Goode, Esq., of Heather Hall, Ashby-de-la-Zouch.

"Gentlemen,—The Machine does its work far better than can be done with the scythe, and at half the expense."

From James James, Esq., of Samiston, near Jedburgh.

"Gentlemen,—I am happy to say that I am much pleased and satisfied with the manner in which the Machine does its work. It is, I find, a very great saving of labour, and far surpasses the scythe in the manner that it leaves the Grass after mowing."

From Thos. Mitchell James, Esq., of Phantassie, Haddingtonshire.

"Mr. Thomas Mitchell James has received the Grass Cutting Machine from Messrs. Shanks & Son. It has given great satisfaction."

From D. Forbes Mitchell, Esq., of Thamiston, Aberdeenshire.

"Mr. Forbes Mitchell's compliments, &c. As far as he has been able to judge of the Mowing Machine, it answers perfectly better than expected, and is likely to become a necessary implement wherever known."

From the National Garden Almanack for 1856.

"Twelve months' experience enables us to indorse all the Patentees set forth as to the capabilities of their improved Machine. Our Gardener delights in its use."

Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

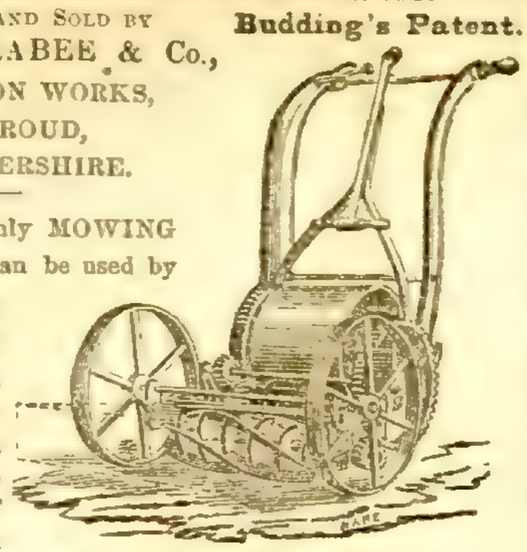
AGENTS:—

Messrs. J. & C. Lee, Hammersmith.
Mary Wedlake & Co., 118, Fenchurch Street, City.
Messrs. William Dray & Co., Swan Lane, London.
„ William E. Rendle & Co., Plymouth.
„ F. & A. Dickson & Sons, 106, Eastgate Street, Chester; and 14, Corporation Street, Manchester.
Mr. G. Folkard, Hertford.
„ T. Johnson Leicester.
Messrs. Danks & Nixon, Nottingham.
„ Mapplebeck & Lowe, Birmingham.
„ Wm. Drummond & Sons, Stirling; and 58, Dawson Street, Dublin.
„ Brown & Austin, Argyll Arcade, Glasgow.
„ James Dickson & Sons, 32, South Hanover Street, Edinburgh.
„ Dickson & Turnbull, Perth.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	" 22 ditto	... 6	0	0
Pony Machine (or Donkey)	" 26 ditto	... 8	0	0
Horse Machine	" 28 ditto	... 11	0	0
Ditto	" 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

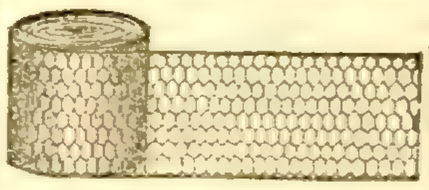
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

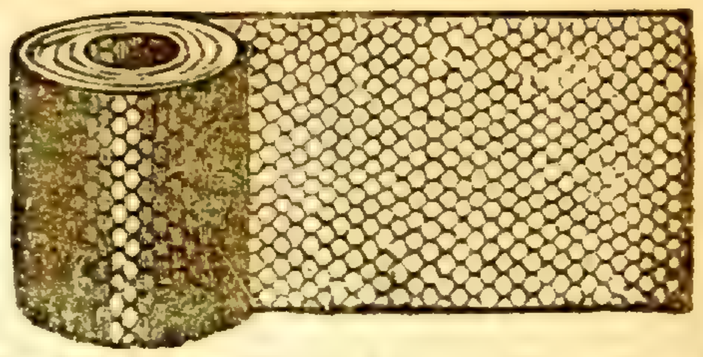
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d*, and 7½*d* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

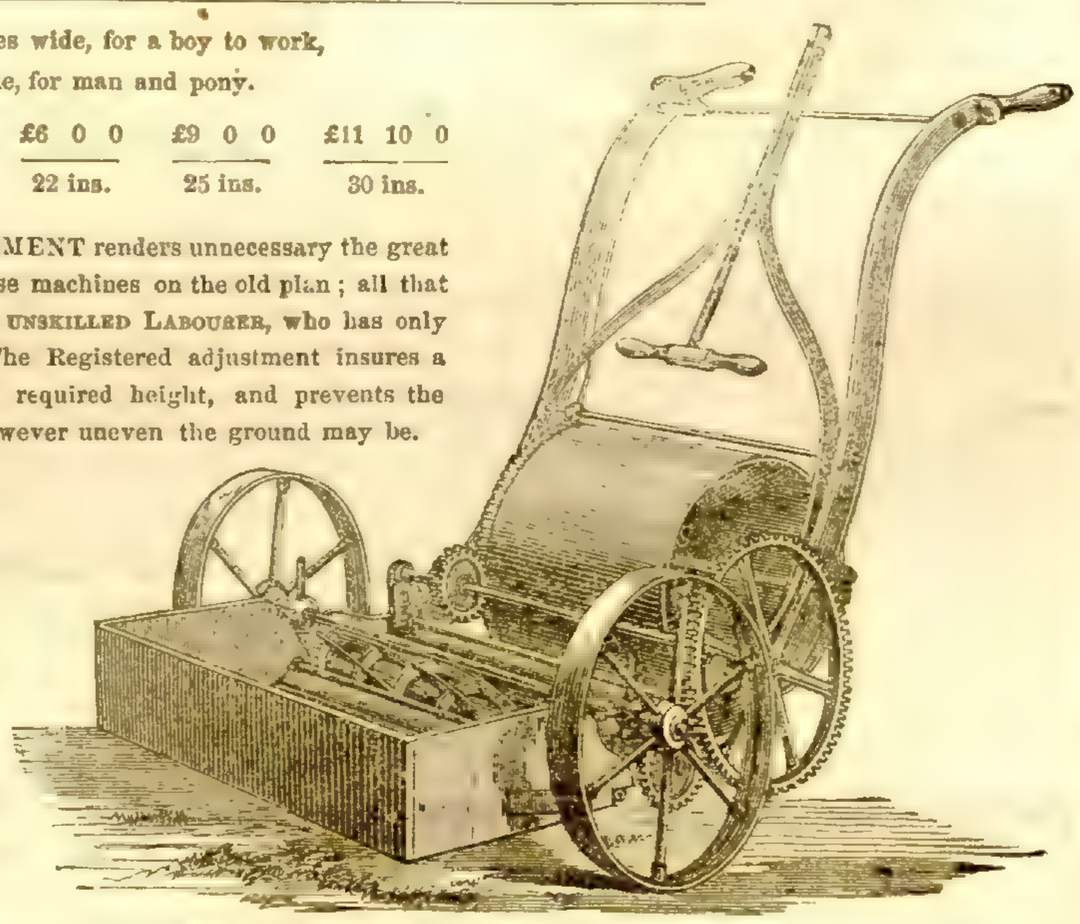
Illustrated Catalogues and Patterns forwarded by post.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

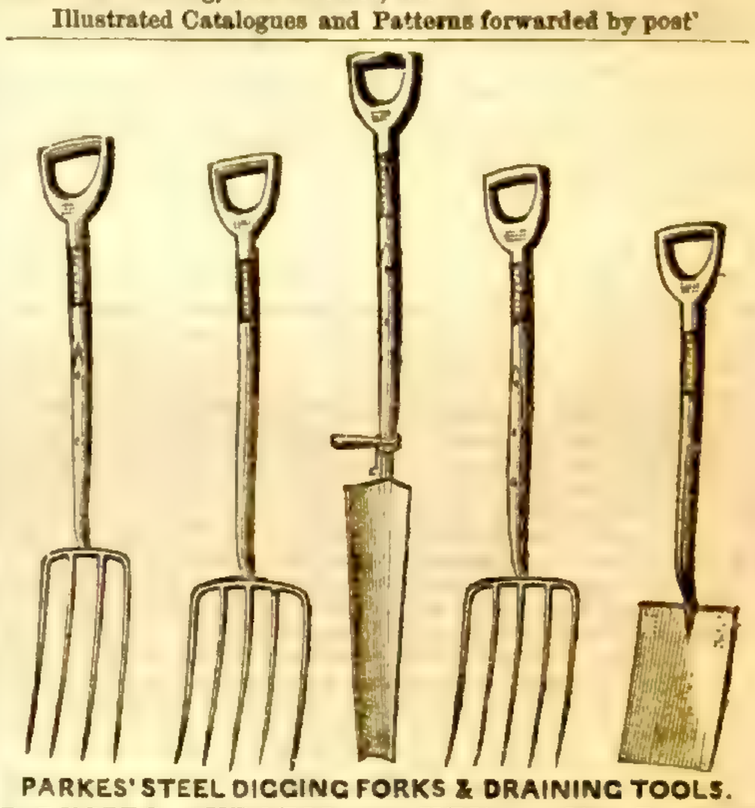
THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs' J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the latter with a pony or donkey.

LIST OF PRICES:—

16 inches	20 inches	24 inches	28 inches
£6 0 0	£7 0 0	£8 0 0	£10 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

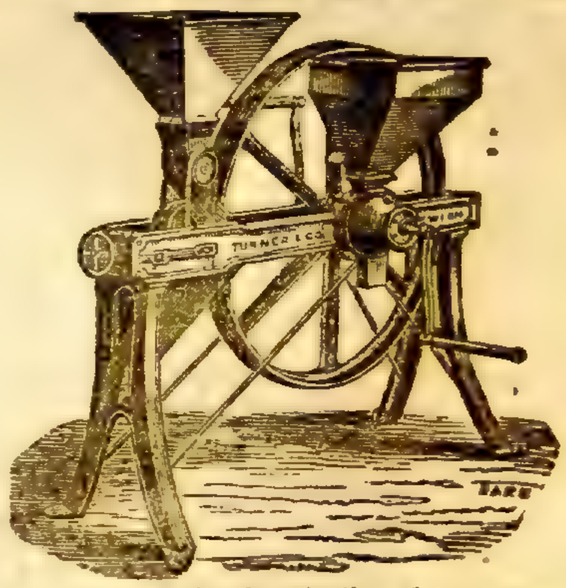
TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the largest size (28 inches) would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

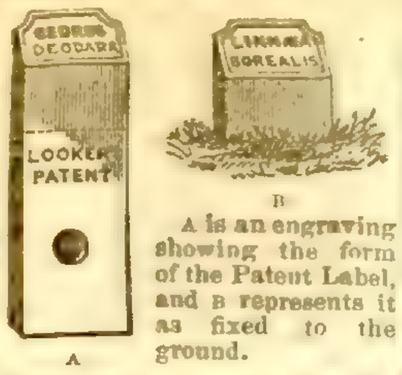
OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

LOOKER'S PATENT IMPERISHABLE GARDEN LABELS.—These Improved Garden Labels are made hollow, in well-burnt red or other earthenware, with a thick sloping top, on which are impressed any names of Trees, Plants, &c., that may be required. The lower part of the Label has openings, which give it a firm hold in the ground. These Labels will stand for years unaffected by damp or change of atmosphere; and the letters, &c., being impressed, are as durable as the Label itself. Their appearance is extremely neat; and they occupy but little space, while a broad view is presented of the impression on the top. Each Label can be impresssd with any Name that may be desired.—Further particulars and prices may be obtained on application to BENJAMIN LOOKER, Jun., Inventor, Patentee, and Manufacturer, Kingston-on-Thames.



A B

A is an engraving showing the form of the Patent Label, and B represents it as fixed to the ground.

*** A limited number of Licenses will be granted to respectable Manufacturers.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high	...	£4	10
No. 2	15	"	" 45	" ...	5	10
No. 3	28	"	" 45	" ...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high	...	£2	15
No. 13	12	"	" 30	" ...	3	5
No. 11	16	"	" 40	" ...	4	0
No. 12	24	"	" 45	" ...	5	0
No. 14	30	"	" 45	" ...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅛ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅛ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

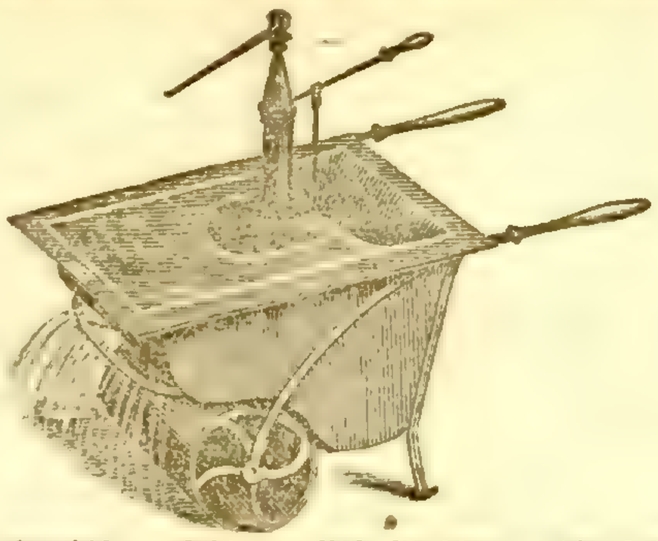
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

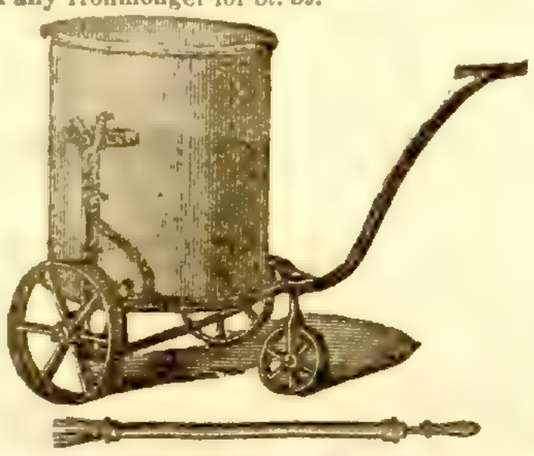
THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

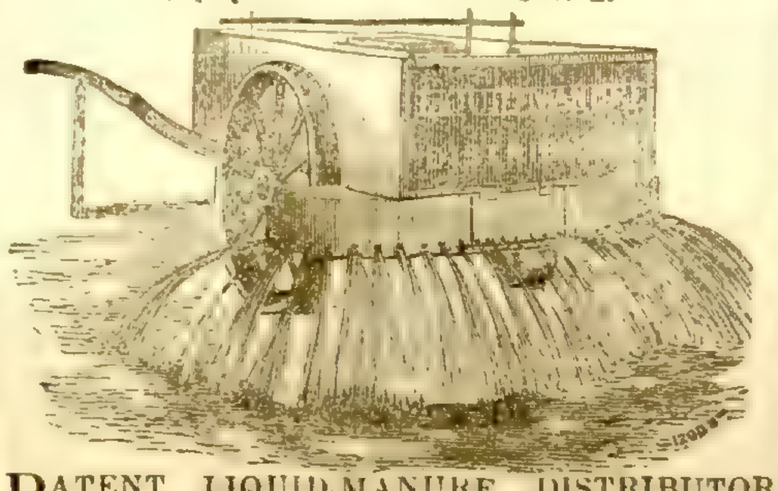


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

LIQUID MANURE.

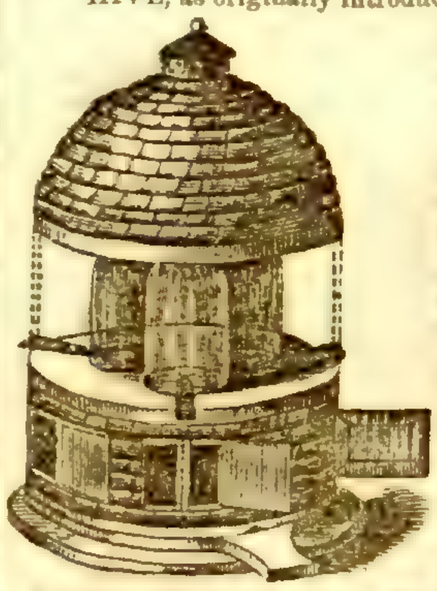


PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee. ISAAC JAMES, Tivoli, Cheltenham.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.



This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTEN, 10 and 11, Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each; of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, permatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, by E. J. ROBERTS (late Army Surgeon), 9, North Terrace, Moor Edge, Newcastle-on-Tyne.

GARDEN VASES, PEDESTALS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has now ready a large Stock of Vases and Pedestals of exquisite designs, superior workmanship, and from the material of which they are made and mode of manufacture, are capable of resisting the most severe weather, and at little more than half the cost of any others possessing the same durable qualities. From their great strength they may be made available throughout the year by being filled with flowering plants during the summer months, and shrubs during the winter, and would thereby form a pleasing object in the pleasure grounds at all times. Samples of the above may be seen, and prices obtained at the grounds in the Garden Road as above.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	Grape Gatherers and Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	" Knives, various
Borders, various patterns	Hammers	" Saws
Botanical Boxes	Hand-glass Frames	" Scissors
Brown's Patent Fumigator	Hay Knives	" Shears
Cases of Pruning Instruments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
" Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
" Leops	Mole Traps	Transplanting Tools
" Rollers	Mowing Machines	Trowels
" Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of One Thousand Bedsteads in stock, One Hundred and Fifty of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures, complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest Japanned Deal for Servants' Rooms, to the newest and most tasteful designs in Mahogany and other Woods. The whole warranted of the soundest and best manufacture. HEAL and SON'S Illustrated Catalogue of Bedsteads, and priced List of Bedding, sent free by Post.

HEAL & SON, 196, Tottenham Court Road.

BEDSTEADS, BATHS, AND LAMPS.

WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from...	12*s.* 6*d.* to 12*l.* 0*s.* each.
Shower Baths, from	7*s.* 6*d.* to 5*l.* 15*s.* each.
Lamps (Moderateur) from ...	6*s.* 0*d.* to 6*l.* 6*s.* each.
(All other kinds at the same rate.)	
Pure Colza Oil	4*s.* 8*d.* per gallon.

TEA URNS OF LONDON MAKE ONLY.—The largest assortment of London-made TEA URNS in the world (including all the recent novelties, many of which are registered), is on SALE at WILLIAM S. BURTON'S, from 30*s.* to 6*l.*

The alterations and additions to these extensive premises (already by far the largest in Europe), which occupied the whole of last year, are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, and Turnery, Lamps and Gaseliers, Iron and Brass Bedsteads and Bedding), so arranged in Sixteen Large Show Rooms, as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

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39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place. Established A.D. 1820.

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IN all quarters of the globe the reputation of PARR'S LIFE PILLS is successfully established; and it is a fact that no "household words" are more familiar with the people than those of the invalid, who speaks of health restored as the consequence of using PARR'S Life Pills.

The advantages to be derived from taking PARR'S Life Pills are
SOUND AND REFRESHING SLEEP.
GOOD APPETITE.
ENERGY OF MIND AND CLEARNESS OF PERCEPTION.
GENERAL GOOD HEALTH AND COMFORT.

THEY ARE FOUND, AFTER GIVING THEM A FAIR TRIAL FOR A FEW WEEKS, TO POSSESS THE MOST ASTONISHING AND INVIGORATING PROPERTIES.

*** ASK FOR PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country, and by the following appointed Agents:—
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In boxes, price 1*s.* 1½*d.*, 2*s.* 9*d.*, and in family packets, 11*s.* each. Protected and guaranteed in every country by the English Government stamp, which is affixed to each box of the genuine medicine.

GLENFIELD PATENT STARCH,
USED IN THE ROYAL LAUNDRY,
AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS TO BE
THE FINEST STARCH SHE EVER USED.
Sold by all Chandlers, Grocers, &c. &c.

MARKING LINEN MADE EASY.—The Pen Superseded.—The most easy, permanent, and best method of Marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, &c, so as to prevent the Ink blotting, or the possibility of its washing out, is with CULLETON'S PATENT ELECTRO-SILVER PLATES. Any person can use them. Initial plate, 1s.; name plate, 2s.; set of numbers, 2s.; crest plate, 5s., with directions. Sent post free to any part of the kingdom, by the Inventor and Sole Patentee, T. CULLETON, 2, Long Acre (exactly one door from St. Martin's Lane).—N.B. To prevent imposition it is necessary to write down the address.

BUY OF THE MAKERS.

BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade, at the Manufacturers, J. & J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street). Warranted Tooth Brushes, 3d.; superior ditto, 4d.; the best that can be made, 6d. each.—N.B. The lowest price asked, and no abatement.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S. & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing thirteen penny post stamps, to Miss Coupelle, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, &c., of the writer, with many other things hitherto unsuspected.

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LIGHT BROWN COD LIVER OIL,
Prescribed with complete confidence and the greatest success by the Faculty for its purity, speedy and uniform efficacy, entire freedom from nauseous flavour, and marked superiority over every other variety in the treatment of CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

EXTRACTS FROM SELECT MEDICAL OPINIONS:—
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Medical Officer of Health to the City of London, &c.
"The Oil corresponds in all its characters with that named 'Huile Brune,' and described as the best variety in the masterly treatise of Dr. de Jongh. From my investigations I have no doubt of its being a pure and unadulterated article."
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Chief Analyst of the Sanitary Commission of the *Lancet*, &c. &c.
"So great is my confidence in the article, that I usually prescribe it in preference to any other, in order to make sure of obtaining the remedy in its purest and best condition."

Sold by ANSAR, HARFORD, & CO., 77, STRAND, London, Dr. DE JONGH'S sole British Consignees, and by many respectable Chemists throughout the United Kingdom.
Half-pints (10 oz.), 2s. 6d.; Pints (20 oz.), 4s. 9d.; Quarts (40 oz.), 9s.; IMPERIAL MEASURE.
Caution.—Each bottle is sealed with a stamped metallic capsule, and bears beneath the pink outside wrapper a label with Dr. De Jongh's stamp and signature. ALL OILS OFFERED AS DR. DE JONGH'S, OR AS OF THE SAME KIND, WITHOUT SUCH MARKS ARE FRAUDULENT IMPOSITIONS.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1s. 1½d. and 2s. 9d. per box.

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NEW LABEL.—In consequence of the great variety of Counterfeit Labels of A. ROWLAND & SONS' MACASSAR OIL, now in circulation, and which so nearly resemble the original as frequently to deceive the unwary—they have employed those eminent artists Messrs. PERKINS, BACON, & Co., who, at a great cost, and by a peculiar process of their own, have succeeded in producing from steel "A NEW LABEL," which cannot be forged. It is composed of a section of an engine-turned circle, repeated 130 times, and forms an original lacework ground, upon which is engraved in white letters, "ROWLANDS' MACASSAR OIL for the growth, restoration, and for beautifying the Human Hair." Under which is the Signature of the proprietors in red Ink, "A ROWLAND & SONS." The whole, with the exception of the Profile of her Majesty the Queen, being covered with a lacework pattern, in transparent colourless ink. The Pamphlet enclosed in the label or wrapper has been re-written and thoroughly revised; and instead of the cork and seal to the bottle, a glass stopper, of the Aire and Calder Company's Patent, is now used. The prices of the Macassar Oil are 3s. 6d. and 7s.; family bottles, equal to four small, 10s. 6d.; and double that size, 21s. Sold at 20, Hatton Garden, London; and by Chemists and Perfumers.

COMFORT IN THE RAIN—UTILITY AT ALL TIMES.

BERDOE'S well-known VENTILATING WATER-PROOF LIGHT CAPES, COATS, SHOOTING JACKETS, also LADIES' CAPES, &c., resist any amount of rain, without obstructing free ventilation, and are adapted for general use at all times. Capes, 30s. to 40s.; Coats, 40s. to 50s.—W. BERDOE, Tailor, 96, New Bond Street, and 69, Cornhill (only).

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AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.
The same prices charged at all the Establishments.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.
MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City.
Circulars free by post.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l*.—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l*. Also Hermetically-sealed and inodorous chamber commodes, 1*l*. 2s. and 2*l*. 4s., and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanatorium, 46, Leicester Square.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

ASTHMA.—Surprising Testimonial of Efficacy of Dr. LOCOCK'S PULMONIC WAFERS. From Mr. H. Armstrong, chemist, 8, Church Street, Preston, "One most intimate friend, who was for years troubled with an asthma; the oppression at his chest, wheezing, and difficulty of breathing were so great that you might have heard him breathe three or four yards off. After he had taken two boxes he could get up and dress without coughing, and his breathing was perfectly free. On getting another box from me, he said, 'They are, indeed, a wonderful medicine.' H. ARMSTRONG." Price 1s. 1½d., 2s. 9d., and 11s. per box. Sold by all druggists. Beware of counterfeits.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dullness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1s. 1½d. and 2s. 9d. per box.

CURES (without physic) of CONSTIPATION, Indigestion (Dyspepsia), Flatulency, Phlegm, all nervous, bilious, and liver complaints, hysteria, neuralgia, dysentery, diarrhœa, acidity, palpitation, heartburn, headaches, debility, despondency, cramps, spasms, nausea, and sickness at the stomach, sinking, fits, cough, asthma, bronchitis, consumption, also childrens' complaints, by DU BARRY'S delicious REVALENTA ARABICA FOOD, which restores health without purging, inconvenience, or expense, as it saves 50 times its cost in other remedies. Recommended by Drs. Ure, Shorland, Harvey, Campbell, Gattiker, Wurzer, Ingram; Lord Stuart de Decies; Dowager Countess of Castlestuart; Countess of Uffington; Major General Thomas King; and 50,000 other respectable persons whose health has been perfectly restored by it after all other means of cure had failed. In canisters 1 lb., 2s. 9d.; 2 lb., 4s. 6d; 5 lb. 11s.; 12 lb., 22s.; the 12 lb. carriage free, on receipt of Post-office order.—BARRY DU BARRY & Co, 77, Regent Street, London; FORTNUM, MASON, & Co., 182, Piccadilly; ABBIS & Co., 60, Gracechurch Street.

NOTICE.

MR. W. A. FRICKER begs to notify that the Sale of Materials of Greenhouses, &c., at Smith's Nursery, Norbiton, Kingston, advertised for Tuesday, the 13th May, will not take place, the whole having been disposed of by private treaty.—Town's-end, Kingston, May 10.

SION NURSERY, CROYDON.

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TO EXHIBITORS, GENTLEMEN, FLORISTS, & OTHERS.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1856.] SATURDAY, MAY 17. {Price Fivepence. Stamped Edition, 6d.

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CRYSTAL PALACE.—FLOWER SHOW.—The First Grand Horticultural Exhibition of the present year will be held on SATURDAY next the 24th inst. Doors open at 12 o'Clock. Admission by Season Tickets or by payment of Half a Guinea. Tickets for single admissions on this day may be purchased by Season Ticket holders up to FRIDAY, the 23d inclusive, at 7*s.* 6*d.* each. These Tickets may be obtained at the Crystal Palace, and of Mr. Sams, Mr. Mitchell, and Messrs. Keith, Prowse, & Co. By order, G. Grove, Seretary.
Crystal Palace, May 17.

CRYSTAL PALACE.—FLOWER SHOW. To Gardeners.—No specimens can be entered for Exhibition at the Flower Show on SATURDAY the 24th inst. after TUESDAY next. Gardeners applying in writing to the Secretary on or before WEDNESDAY next the 21st inst., and producing satisfactory evidence of their employment, will receive Special Tickets admissible on payment of 5*s.* at the doors.
Crystal Palace, May 17. By order, G. Grove, Secretary.

CRYSTAL PALACE.—FLOWER SHOW.—A SPECIAL TRAIN for the accommodation of Gardeners attending the Flower Show at the Crystal Palace on SATURDAY next, the 24th instant, will leave the London Bridge Station at 6.0 A.M. By order, G. Grove, Secretary.
Crystal Palace, May 17.

UNDER THE PATRONAGE OF H.R.H. PRINCE ALBERT.
A GRAND FLORAL AND HORTICULTURAL EXHIBITION, open to the United Kingdom, will take place at CHELMSFORD on WEDNESDAY and THURSDAY, July 16 and 17, during the Show of the Royal Agricultural Society in that town. The Schedule of Prizes, which will amount to nearly 250*l.*, may be obtained on application to Mr. W. W. Duffield or Mr. Fred. Chancellor, at Chelmsford, the Honorary Secretaries. The greatest care will be bestowed upon specimens sent from a distance.—All Plants and Flowers will be conveyed to and from the Show, on the Eastern Counties Line, *free of charge.*

OXFORD GRAND COMMEMORATION.
THE COMMITTEE of the ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY offer for competition at their next Show to be holden in the Gardens of Worcester College, Oxford, on TUESDAY, June 3, the following Prizes, open to all England:—Stove or Greenhouse Plants in pots, nine varieties, 1st prize, 12*l.*; 2d prize, 9*l.*; 3d prize, 7*l.* Geraniums, not fancies, in 8-inch pots, twelve varieties, 1st prize, 5*l.*; 2d prize, 3*l.*; 3d prize, 2*l.* Entrance Free.
The Flowers to be staged ready for the Judges by 11 o'clock that morning. Notice of intention to exhibit to be given to Mr. W. R. Hobbs, 23, St. Giles's Street, Oxford, by Saturday the 24th of May, of whom any further information may be obtained.

ALTERATION OF DAYS OF SUMMER SHOW.
BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Cary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.
By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

MANCHESTER BOTANICAL and HORTICULTURAL SOCIETY.—The FIRST EXHIBITION (open to all competitors) of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held at the Society's Gardens, Old Trafford, on WEDNESDAY, June 4th, when Two Hundred Pounds will be given in Prizes.
Schedules are now ready, and may be obtained on application to the Secretary. By order, John Shaw, Secretary.
Council Room, Princess Street, Manchester, May 17.

BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL SOCIETY.—Two Horticultural Shows will be held at the Gardens of this Society, on THURSDAY, June 5, and THURSDAY, August 28.
Terms of Subscription—Half a Guinea for Six Tickets; three for each Fête, or the whole may be used for the first Fête. Single Tickets, 2*s.* 6*d.* Admission at 2 o'clock.
The Band of the Royal Artillery, Woolwich, will be in attendance at the First Fête.
Admission may be obtained at 1 o'clock on payment of 4*s.*, or Two Subscribers' Tickets. Invalids in Bath Chairs, 1*s.* extra, but no Chairs admitted into the Gardens after half-past 1, nor into the Exhibition Tents after 2 o'clock. Admission at the gate from 2 to 4 o'clock, 2*s.* 6*d.*; after 4 o'clock, 1*s.* Full Military Bands are engaged for both Fêtes, and will play from 2 to 6 o'clock. Tickets are now ready, and may be obtained of Mr. Mardon, Mr. Lancaster, Mr. Shepherd, Mr. Cooper, Messrs. Giles & Son, Messrs. Baskerville, and Mr. Raddenberry, Clifton; Messrs. Ridler, High Street; Messrs. Garraway, Mayes, & Co., Durdham Down; Mr. John Nelson, Horfield Road, Bristol; or at the Lodge of the Zoological Gardens. Arrangements have been made with the Railway Companies for Special Trains on the days of Exhibition.

LEYTON and WALTHAMSTOW FLORICULTURAL SOCIETY.—The First FLOWER SHOW of the above Society will be held at the School Rooms, Leyton, on WEDNESDAY, July 16. Admission from 2 to 4, 1*s.*; from 4 to 8, 6*d.*—E. Good, Hon. Secretary, at J. and J. Fraser's, Leyton, Essex.

NEW SWEDE AND TURNIP SEEDS.
SUTTON'S DESCRIPTIVE CATALOGUE, *with prices, may be had gratis, Post free.*
Royal Berks Seed Establishment, Reading.—May 17.

SUTTON'S RENOVATING GRASS SEEDS *for improving Parks, Meadows, and Upland Pastures.* Quantity required per acre 6 to 12 lbs, price 9*d.* per lb.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

J. DOBSON and SON'S New Descriptive Catalogue of choice PANSIES, CINERARIAS, FUCHSIAS, VERBENAS, &c., is now ready, and may be had on application.
Woodlands Nursery, Isleworth.

CHOICE CINERARIA SEED.
J. DOBSON and SON are now sending out Seed secured from a very choice collection of this popular flower, in packets at 1*s.* and 2*s.* each, post free.
Woodlands Nursery, Isleworth.

NEW DAHLIAS, ETC.
CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

NEW DOUBLE WHITE PETUNIA "IMPERIAL."
CHARLES TURNER can supply strong plants of this beautiful Petunia, which is now in bloom at Cliveden and other places, and has proved a most valuable acquisition. Colour clear white, perfectly double, and very fragrant. Strong plants, 2*s.* 6*d.* each, or 18*s.* per dozen.—Royal Nursery, Slough.

GEORGE BAKER begs to announce his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, seven miles from Staines, Windsor branch, South Western Railway, where conveyances may be had.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.
Fine selected GRASSES for PERMANENT PASTURE, 30*s.* per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.
Fine LAWN GRASS, 1*s.* per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

NEW PLANTS.
A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer his following New Plants:—

Tydæa ocellata picta (vera)	£0	10*s.*	6*d.*
Abutilon marmoratum	0	12	0
Camellia Auguste Delfosse	1	0	0

MR. ROBERT BAKER, Writtle, Essex, begs to offer Improved SKIRVING'S and other SWEDE TURNIP SEED, at 2*l.* per bushel. Upon a remittance payable at Post Office, Chelmford, with 1*s.* in addition for the bag, it will be immediately forwarded. Also select MANGEL WURZEL SEED of superior stock, 1*s.* 6*d.* per lb.

TO THE TRADE.
CHARLES SHARPE and CO. have a quantity of GREEN and PURPLE-TOP SCOTCH TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.
Nursery and Seed Establishment, Sleaford, May 17.

NURSERY & SEED ESTABLISHMENT, SLEAFORD.
CHARLES SHARPE and CO., respectfully invite the attention of the Trade to their Turnip, Mangel Wurzel, and Carrot Seeds, the stock of which has been carefully selected and grown by themselves from transplanted roots.
Catalogues with prices can be had on application.

W. STEWARD and CO., Plymouth (Growers, Agents for the United Kingdom), have a large stock of superior MANGELS, CARROTS, TURNIPS, &c. N.B. Orders above 20*s.* carriage free. Prices on application.

IPSWICH STANDARD CUCUMBER.
THOMAS WILD continues to send out specimens of this celebrated Cucumber (warranted not grown in a pot). Orders already received for Golden Chain Geraniums will be executed at the usual low price. Samples of New Suffolk Hero Potatoes will be sent out from the open ground in the course of the present month.—Handford Road, Ipswich.

AZALEAS.
H. LANE and SON, The Nurseries, Great Berkhamstead, beg to inform their patrons that the above are now coming into bloom, and can be seen any day (Sundays excepted.) They can also recommend them to the trade.
The Nurseries are within five minutes' walk of the London and North Western Railway, Euston Square.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.
DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.
Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

BASS and BROWN beg to offer their surplus stock of first-rate Show and Fancy GERANIUMS. Strong and fine plants for abundant blooming at reduced prices.
Sudbury, Suffolk.

FIRST-CLASS SHOW PANSIES, in strong well-rooted autumn struck Plants, at 6*s.* per dozen.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

FIRST-CLASS DAHLIAS for 1856, strong plants, 6*s.* per dozen.
Spring Catalogues now ready; may be had upon application.
John Holland, Bradshaw Gardens, Middleton, near Manchester.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

CRYPTOMERIA JAPONICA.
R. GLENDINNING has just received a second and more recent supply from Mr. Fortune by the last Overland Mail, direct from China, of this well-known Hardy Ornamental Tree which will be sold in packets containing from 2000 to 3000 each. Free, by post, at 10*s.* 6*d.* each. If three packets are ordered by the trade, one will be added.—Chiswick Nursery, London.

TULIPS.
TO BE SOLD, without the least reserve, nearly 200 Rows of TULIPS, many very fine sorts, the collection of an Amateur. May be seen in bloom after the middle of the month, and will be parted with a bargain.—James Cook, 7, Penton Row, Walworth Road.

BEDDING PLANTS!—BEDDING PLANTS!!
JAMES HOLDER, Florist, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20*s.* cash, or three dozen for 10*s.* 6*d.*, consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Petunias, Gaillardias, Cupheas, Dahlias, &c. &c.

FINE SHOW
DAHLIAS & UNBLOOMED SEEDLING CALCEOLARIAS.
CHARLES KIMBERLEY can supply the above in fine established Plants. Dahlias at 18*s.* per dozen, all new last season; older varieties, all the best, at 6*s.* per dozen.
Calceolarias, in 4-inch pots, at 7*s.* per dozen, including hamper, &c. Priced List on application.—Stoke Nursery, near Coventry.

DAHLIAS, VERBENAS, GERANIUMS, CALCEOLARIAS.
J. GRIFFIN having an immense Stock of all the choicest varieties of the above Plants, begs to offer them at very low prices. Descriptive Catalogues will be forwarded on application.—Weston Road, and 2, New Bond Street, Bath.

CHOICE FUCHSIAS, PANSIES, ETC.
HART and NICKLIN, Florists, Guildford, beg to offer the following choice FUCHSIAS and PANSIES:—
FUCHSIAS.—Prince Albert, Climax, Beauty of the Bower, Grand Sultan (all of Banks' raising), Queen Victoria, Empress Eugenie (Story's), white coloured varieties, and other kinds equally new, to the number of 12, with 18 choice and first-rate PANSIES, for 1*l.*, package included.

BERNARD SAUNDERS will be happy to supply Six Growing Plants of GYMNOGRAMMA LEPTOPHYLLA or ANNUAL MAIDEN HAIR FERN, for 2*s.* 6*d.*, box and postage included.—Caesarean Nursery, Jersey, May 17.

SKIRVING'S IMPROVED SWEDE TURNIP.
WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, May 17.

TO THE TRADE.
SEEDLING CRYPTOMERIA JAPONICA.
GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, at the following prices:—
16*s.* per 100 | 72*s.* 6*d.* per 500 | 120*s.* per 1000.
N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—May 17.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of the 12th inst., page 243. Good established plants, 10*s.* 6*d.* each, The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post Office Orders on Richmond, Surrey.
St. Margaret's Gardens, Isleworth.—May 17.

SKIRVING'S IMPROVED and EAST LOTHIAN PURPLE-TOP SWEDES.—A Grower has on hand a few sacks of the above Seed, warranted growth of 1855 and true to name, all raised from selected and transplanted bulbs, and guaranteed to grow over Ninety per Cent.
Also for disposal some WHITE GLOBE TURNIP SEED, growth of 1855, a genuine and carefully selected stock. Terms cash, at grower's prices.
Apply to Mr. Wm. Taylor, Nashenden Farm, Rochester, Kent.

MESSRS. MASTERS and SON
LANDSCAPE GARDENERS,
Canterbury and Maidstone.

WILLIAM BARRATT,
LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

MR. DAVIDSON, who is extensively engaged in LANDSCAPE GARDENING and GARDEN ARCHITECTURE, respectfully offers his services to Noblemen, Gentlemen, and the Public, in Designing and Directing New Works and Improvements in Parks, Gardens, Cemeteries, &c.
Offices, 36, Great Russell Street, Bedford Square, London.

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH AND SON,

OF THE

EXOTIC NURSERIES, EXETER AND CHELSEA,

HAVE much pleasure in now offering for sale, for the first time, the following novelties, of their own recent introduction, and in the selection of which they have been guided solely by the determination of submitting only such plants as are of general usefulness and sterling merit.

Plants will be ready for Delivery on and after the 26th of May.

ÆSCHYNANTHUS FULGENS.

A very fine species, of a rich orange scarlet, shaded with yellow. Collected at Moulmein by Mr. Thomas Lobb, and figured in Curtis's "Botanical Magazine" for January, 1856, where Sir William Jackson Hooker says, "It blossoms very freely, and few plants can exceed it in beauty." It was exhibited at the Horticultural Society's Rooms, 21, Regent Street, in November, 1855, and deemed worthy of a First Class Certificate. Fine established plants, 10*s.* 6*d.* each.

CEANOTHUS FLORIBUNDUS.

Perhaps the finest species of Ceanothus yet introduced; raised from seeds sent home by Mr. William Lobb, and has proved to be perfectly hardy. It was figured by Sir William Hooker in Curtis's "Botanical Magazine" for September, 1854, and described as being "certainly the most beautiful of the several blue-flowered kinds yet known to us. The leaves are copious, compact, and glossy; and the flowers, though really growing in corymbs, are so dense as to be perfectly globose, and these heads, crowded at the extremity of numerous short branches, and of the richest mazarine blue that can be looked upon. It flowers in June." A few extra sized plants, 21*s.* each; smaller size ditto, 10*s.* 6*d.* each.

CLEMATIS GLANDULOSA.

This is a fine stove climber of free growth, and an abundant bloomer. Sent home from Mount Salak, in Java, by Mr. Thomas Lobb. The petals are dark purple or nearly black, with pure white anthera. The two distinct colours produce a fine contrast. Strong plants 10*s.* 6*d.* each.

CUPRESSUS M'NABIANA.

We have succeeded in raising plants of this beautiful Conifer from seeds gathered by Mr. W. Lobb, who found it on the Sierra Nevada of North California, where it forms a bush from eight to ten feet high. Dr. Lindley, in describing it as a new plant in the *Gardeners' Chronicle*, June 23, 1855, said, "The specimens gathered by Mr. W. Lobb, and from which Messrs. Veitch have raised young plants, presented a most striking appearance, with their green and glaucous scales associated with the deep rich brown of Tamarix gallica on their branches, and show that in youth and vigour the species must be exceedingly handsome." A few extra sized plants, 21*s.* each. One year seedlings, 10*s.* 6*d.* each.

DELPHINUM CARDINALE.

A new and rare introduction, of remarkable beauty, possessing a colour hitherto unknown in the genus to which it belongs. It was figured in the "Botanical Magazine" for December, 1855, and described by Sir Wm. J. Hooker in the following terms:—"We have now the pleasure of making known a species of Delphinium equalling, if not surpassing, any other in size and symmetry of the plant, and excelling in the brilliancy of colour of the flower, and that as rich a scarlet as can well be looked upon. It is one of the many novelties selected by Mr. William Lobb, in California, and introduced to our gardens by Messrs. Veitch and Son, of the Exeter and Chelsea Exotic Nurseries. Treated as a hardy perennial it cannot fail to be a great favourite with all overs of handsome flowers." Strong plants, 10*s.* 6*d.* each.

DODECATHEON INTEGRIFOLIUM.

A new and beautiful species from California, perfectly distinct from D. media, and being hardy and free blooming it is an important addition to our spring flowering plants. Established plants, 5*s.* each.

FUCHSIA MALAKHOFF.

A large and very showy double variety, raised at our Nursery. Broad crimson sepals, and purple corolla. Pronounced by the editor of the "Florist" to be "certainly the most striking and showy of the double varieties." It is of excellent habit, and Messrs. V. and Son have no hesitation in warranting it to give satisfaction. Good plants, 7*s.* 6*d.* each.

FUCHSIA PENDULINA.

A very distinct and beautiful hybrid raised between F. serratifolia and a pendulous Peruvian species, producing even on small plants fine corymbs of delicate carmine flowers 3 inches in length, and very glossy, deep pink corolla, foliage ornamental and altogether it may be considered one of the most elegant of its tribe. It received a Certificate of Merit at the National Floricultural Meeting, October 4, 1855. Good plants, 7*s.* 6*d.* each.

JUNIPERUS PYRIFORMIS.

A very distinct and fine species, met with by Mr. W. Lobb on the mountains of St. Barnardino, in California, where it forms a low tree 10 to 12 feet high. The fruits are remarkable for being very like small Pears, when young, and the berries are deep purple with a glaucous bloom, and it is perfectly hardy. Price 10*s.* 6*d.* each.

LEPTODACTYLON CALIFORNICUM.

A lovely plant for the greenhouse or conservatory. It is from South California, and forms an exceedingly pretty low shrub, remarkable for the slender segments of its copious foliage, and for the great beauty of its Phlox-like flowers, which are produced from May to August in very great profusion, completely covering the plant. Colour of flowers rosy pink, most delicately shaded. It may be called a miniature tree Phlox. It was exhibited at Chiswick on the 20th June, 1855, and at the Royal Botanic Society's exhibition on the 4th July in the same season, and on both occasions was awarded a Large Silver Medal as a new plant of sterling merit and great beauty. It was very accurately figured in the "Florist" for October, 1855. This is unquestionably one of the finest and best plants Messrs. V. and Son have ever had the pleasure of offering to the public. Plants of two sizes—largest size, 21*s.* each; smaller ditto, 10*s.* 6*d.* each.

OUVIRANDRA FENESTRALIS.

It affords us much gratification to be the medium of offering for sale plants of this singularly beautiful aquatic, which, until a very recent period, was known in this country only by dried specimens and drawings. It is a native of Madagascar, from whence a considerable number of living plants were brought home last year by the Rev. Mr. Ellis, and transferred by that gentleman to us exclusively, with the exception of specimens presented by him to the gardens at Kew, Regent's Park, and Chiswick, and others retained only for his own private collection. It would be difficult by mere verbal description to convey an adequate idea of this interesting plant, which has been designated by Sir W. Hooker as "one of the most curious of Nature's vegetable productions." It consists solely of beautiful "network" or skeleton leaves, the appearance of which fully justify the popular name of "Lattice Plant" which has been applied to it. We have found it thrive successfully cultivated in glass or earthenware pans in water at a temperature from 70° to 80°; the skeleton leaves float gracefully just beneath the surface of the water, and the effect produced by a large plant, with leaves of various sizes and shades of green, is very striking. We invite all lovers of plants to an inspection of this remarkable and beautiful novelty.—Price 105*s.* each.

PHYGELIUS CAPENSIS.

A very desirable new and perfectly hardy perennial plant producing long crimson tubular blossoms very freely. It was exhibited at Chiswick, July 11, 1855, and awarded a First Class Certificate of Merit. Sir William Hooker figured it in the "Botanical Magazine" for November, 1855, and said, "This beautiful plant, only recently discovered in Caffreland, at Witbergen, reminds one singularly of the Pentstemons of North America. Our noble flowering specimen was sent us by Messrs. Veitch, of the Exeter and Chelsea nurseries, where it came to great perfection in the open border in the summer months." From its having proved perfectly hardy it will doubtless be a great acquisition as a bedding plant, growing from 18 inches to 2 feet high. It is likewise a handsome plant for pot culture. Price 10*s.* 6*d* each.

RIBES SUBVESTITUM.

A very pretty flowering hardy shrub, sent from California by Mr. W. Lobb, and belonging to the same section as our R. speciosum. The flowers, however, are considerably larger than those of that species, and of a deep crimson colour. Strong plants, 7*s.* 6*d.* each.

RHODODENDRON MOULMEINENSE.

A white species from Moulmein, where it was discovered by Mr. Thomas Lobb, on the Gerai mountains, at an elevation of 5000 feet above the level of the sea. It is figured by Sir William Hooker in Curtis's "Botanical Magazine" for March 1856; and is quite distinct from all other Rhododendrons in flower, foliage, and habit. Price 10*s.* 6*d.* each.

RHODODENDRON PRINCESS ROYAL.

Our plants of this lovely hybrid greenhouse Rhododendron are not yet ready in numbers equal to the very large demand for it, but we shall duly advertise the same when it will be sent out, and orders taken in the interval will be executed in the rotation received. It was exhibited at Chiswick June 20, 1855, and described by Dr. Lindley, in a leading article of the *Gardeners' Chronicle*, the same week in the following terms:—

"To turn to the real novelties there, it is impossible not to direct attention, in the first instance, to the very curious and singularly beautiful Princess Royal Rhododendron exhibited by Messrs. Veitch. This striking novelty was obtained from the white R. jasminiflorum by the palest variety of R. javanicum. In form it was intermediate between its parents, but its flowers were a clear pure rose colour." At this exhibition it was awarded a Large Silver Medal.

When ready, the plants will be of two sizes.

The large size..... 63*s.* each.
The smaller size..... 42*s.* each.

TECOMA FULVA.

A beautiful Bignoniaceous plant with tubular flowers of bright yellow shaded with crimson, figured in the "Botanical Magazine, February, 1856, and described by Sir William Hooker, who says, "There cannot be a question but that the handsome plant here figured is the Bignonia fulva of Cavanilles, till recently apparently only known to that author and to Louis Née, who is reported to have gathered it. Our flowering specimens were reared by Messrs. Veitch, of the Exeter and Chelsea Nurseries, and sent by them in November, 1855." Strong plants, 10*s.* 6*d.* each.

The usual allowance of one plant over will be made to the trade if three plants of a sort are ordered at one time.

MESSRS. VEITCH AND SON also offer the following choice selection of Plants, the majority of which are comparatively new, and all are of intrinsic excellence:—

ARALIA PAPYRIFERA; OR RICE PAPER PLANT.

In addition to the fine foliage of this beautiful Stove Plant, it possesses peculiar interest from the circumstance of its pith being the material from which the Chinese manufacture their beautiful Rice Paper. Plants in two sizes, 21*s.* and 42*s.* each.

DESFONTANIA SPINOSA.

This fine evergreen shrub, originally sent us by Mr. William Lobb, from Patagonia, where he discovered it in the region of snow, has proved, as we expected it would do, perfectly hardy in this country. Its glossy Holly-like foliage and rich scarlet tubular flowers, tipped with yellow, render it a very desirable acquisition. Extra-sized plants, 30*s.* each; second ditto, 21*s.* each; smaller plants, 10*s.* 6*d.* each.

HEDAROMA TULIPIFERUM.

Young plants of the best variety of this first-class Greenhouse novelty, 7*s.* 6*d.* and 10*s.* 6*d.* each.

LAPAGERIA ROSEA.

Confessedly the finest conservatory climber yet known, the flowers being of a rich bright rose, marbled with white inside, nearly 3 inches in length and 2 in diameter; of particularly waxy substance, and consequently the flowers remain a considerable time in perfection. Plants, 10*s.* 6*d.* and 21*s.* each.

LILIUM GIGANTEUM.

This noble Lily having been generally exhibited, is too well known to render any description of it necessary. Fine specimens from 21*s.* to 84*s.* each, according to strength of bulb. Small seedlings, 5*s.* each.

LOMATIA FERRUGINEA.

This fine evergreen shrub was found in Chiloe and Patagonia by our Mr. William Lobb. It attains a height of 6 or 8 feet, and is remarkable for its beautiful Fern-like foliage. As a fine leaved conservatory plant it is perhaps without a rival. Plants, 10*s.* 6*d.* and 21*s.* each.

NEPENTHES RAFFLESIANA.

Having been successful in raising seeds of this fine Nepenthes, we are able to offer beautiful seedling plants of it, forming an abundance of pitchers. 21*s.* each.

PINUS BENTHAMIANA (TRUE).

Having raised seedlings of this beautiful Pine (which is doubtless the finest of the long-leaved Californian kinds, and which has proved to be perfectly hardy), we are now enabled to offer established plants in pots as follows:—Single plants, 10*s.* 6*d.*; 6 plants, 50*s.*; 12 plants, 84*s.*

PHILESIA BUXIFOLIA.

A beautiful dwarf evergreen hardy shrub, with small dark foliage, discovered by Mr. William Lobb on the Andes of Patagonia beyond the snow line, producing freely its beautiful large bell-shaped deep rose-coloured flowers, the petals of which are of great substance. Plants, 7*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

PODOCARPUS NUBIGENA.

A perfectly hardy and fine Taxaceous plant, sent from Patagonia by Mr. W. Lobb. Established plants, 21*s.* each.

PTERIS ASPERICAULIS.

A stove Fern from the East Indies, very distinct and of great beauty. Strong plants, 21*s.*, smaller ditto, 15*s.*

RHODODENDRON CALIFORNICUM.

A distinct species, sent from California by Mr. W. Lobb, having fine trusses of rose-coloured flowers. It is perfectly hardy, having survived the past two winters in the open border, without any protection whatever. The foliage is good, and it is an abundant and late bloomer, and will doubtless be a great acquisition to hybridisers. Good plants, 7*s.* 6*d.* each.

RHODODENDRON JASMINIFLORUM.

Few plants have excited so much admiration as this lovely Rhododendron, sent home by Mr. Lobb from Mount Ophir, and exhibited by us so often that any further description is unnecessary. Plants, 10*s.* 6*d.* to 21*s.* each.

RONDELETIA ANOMALA.

A beautiful hothouse shrub, raised from seeds sent to the Horticultural Society by its generous and indefatigable correspondent, G. U. Skinner, Esq. The Plant has something the appearance of a Bouvardia; the flowers are of a rich vermillion red and flowering in November, it must be regarded as one of the most brilliant species which even Mr. Skinner has been able to add to our gardens. Plants, 5*s.* to 7*s.* 6*d.* each.

SONERILA MARGARITACEA.

Perhaps the most chaste of all variegated plants, producing with dark glossy green leaves, dotted all over with silvery white spots, a profusion of beautiful crimson flowers with yellow stamens. It is a dwarf compact plant, of particularly neat habit, and requires the temperature of a cool stove or warm greenhouse. Good plants, 5*s.* and 7*s.* 6*d.*

TECOMA VELUTINA.

Found by Mr. Skinner in Guatemala growing in a temperature from 68° to 78°, and raised from seeds sent by that gentleman to the Horticultural Society, and described by Dr. Lindley as a plant of uncommon beauty. Established plants, 7*s.* 6*d.* and 10*s.* 6*d.*

TORREYA MYRISTICA.

This is a splendid hardy Taxaceous plant, sent from California, by Mr. W. Lobb. It is from the Sierra Nevada, at a high elevation, and attains the height of from 100 to 150 feet. The stock of this plant is very limited. Strong seedling plants, 63*s.* each.

WELLINGTONIA GIGANTEA.

Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say that it is a Coniferous tree of immense dimensions and great beauty, and perfectly hardy. A few of the first raised, extra sized plants, 42*s.* Smaller plants, 15*s.* and 21*s.*

All Wellingtonias sent out by us are Seedlings.

A general Retail Catalogue of Plants, now in course of publication, will be ready shortly, and may be had on application.

CHOICE BEDDING PLANTS.

YOUELL AND CO.

Beg respectfully to refer to the Advertisement of the above, which appeared in last week's Paper.

Royal Nursery, Great Yarmouth.

SUTTON'S CHAMPION SWEDE.

THIS SUPERIOR SWEDE has gained some of the most distinguished Prizes at the Shows of 1855 throughout the kingdom, including the TWO TWENTY GUINEA CUPS PRESENTED BY H.R.H. PRINCE ALBERT to the Royal South Bucks, and the Royal East Berks Agricultural Association. This Swede is very large, yellow flesh, with purple top, and stores well. It is very hardy, and of free habit of growth. PRICE OF SEED, 1*s.* PER LB., or 48*s.* PER BUSHEL. At the Smithfield Club Show at Baker Street Bazaar in December last, our collection of roots was much admired.

EXTRACTS FROM LETTERS TO MESSRS. SUTTON:—

From Mr. G. Norrington, Taplow, Oct. 15, 1855.

"I have been the successful candidate again this year for Swedes at the South Bucks Show. I received H.R.H. Prince Albert's Cup, value 20 guineas. I received the first prize 1851, first ditto 1853, and first ditto 1855. These prizes were all from your Seed. There were 11 of us competitors this year."

(Another of our customers, Mr. Joseph Hobbs, Cookham, gained the other 20 guinea Cup for Swedes, presented by H.R.H. Prince Albert at the East Berks Agricultural Show; and the same gentleman gained the first prize for Mangel Wurzel at the same Show for our Seed.)

From Mr. F. Mander, Inlease, near Hungerford.

"You should see a 20 acre field of Swedes for a heavy crop. The seeds came from you. There have been a great many people to see them."

From Mr. E. Curtis, Kempshott, May 25, 1855.

"Your seeds of last year, notwithstanding the bad season, produced the best plant both of Turnips and Swedes I ever saw. Not a vacancy could be seen over a breadth of 40 acres. They took the first and two extra prizes at the Basingstoke Root Show. The Swedes kept well, and my sheep are feeding them off now."

Price of the CHAMPION SWEDE SEED, 1s. per lb., or 48s. per bushel.

A Priced Catalogue of Choice Turnip Seeds may be had post free.

Royal Berkshire Seed Establishment, Reading, May 17.

MESSRS. E. G. HENDERSON & SON

ARE now prepared to forward their NEW SPRING CATALOGUE, and parties who have not hitherto favoured them with orders can have the same sent free on application. This useful book has been compiled with the utmost attention, and while it notices the latest novelties, gives only such varieties of each class as can with safety be recommended. It should be in the possession of every Amateur and practical Gardener, either for reference or perusal, the simplicity and correctness of its arrangement being a decided improvement on anything of the kind hitherto brought before the public. In addition to the above-mentioned novelties, &c., it contains descriptions and colours of 500 Stove, 700 Greenhouse, and 1000 other Plants of Miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c., with short and select Lists of those varieties best adapted for the various purposes connected with the Stove, Greenhouse, and Garden, full descriptions of the following and many other novelties are given in it.

With the above will also be published a Coloured Plate, representing a group of Nine new Plants, and can be had post free for 12 stamps.

MESSIEURS E. G. HENDERSON et FILS ont l'honneur d'annoncer que leur catalogue générale pour cette saison vient d'être publié, qui sera adressé aux personnes qui en feront la demande par lettre affranchie.

Ils saisissent cette occasion pour prévenir leurs correspondents étrangers que les plantes nouvelles (page V. du catalogue) introduites par Monsieur J. Linden à Bruxelles, suivant les arrangements conclues avec, lui ne sont livrables qu'en Angleterre. Nul commande pour le continent en consequence sera effectuée par l'établissement.

E. G. HENDERSON und SOHN beehren sich hiermit ergebenst anzuzeigen, dass der diesjährige Hauptcatalog die Presse verlassen hat, und zur portofreien Versendung bereit liegt.

Um allen Missverständnissen vorzubeugen wird darauf aufmerksam gemacht, dass in Folge abgeschlossener Bedingungen mit Herrn J. Linden in Brüssel die vier durch ihn eingeführten neuen Pflanzen (Seite V des Catalogs) nicht an auswärtige Correspondenten geliefert, sondern Bestellungen auf dieselben nur für Gross Brittanien vom Etablissement ausgeführt werden können.

Messrs. E. G. H. & SON *beg to state that in consequence of the great influx of business, they have found it impossible to send out Plants with their usual despatch. They trust, however, that those parties whose orders have been detained through this circumstance will kindly overlook the delay, as they hope in the course of the ensuing week to clear off all orders now in hand.*

CRYSTAL PALACE SCARLET BEDDING DAHLIA, 5*s.*
HENDERSON'S FAVOURITE VERBENA, GEANT DES BATAILLES, 2*s.* 6*d.*
HENDERSON'S FAVOURITE PETUNIA, COUNTESS OF ELLESMERE, 3*s.* 6*d.*
VERBENA IMPERATRICE ELIZABETH (pulchella Maonetti), 1*s.* 6*d.*

Wellington Nursery, St. John's Wood, London.

TURNIP SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that they have still on hand a good supply of various TURNIP SEEDS from selected stocks.

SWEDES—Purple-top, Skirving's, and other kinds.
HYBRIDS—Green-top Yellow, Purple-top Yellow.
GLOBES OR ROUNDS—White, Red, and Green.
TANKARDS—White, Red, and Green.
EARLY STUBBLE OR STONE—Hertfordshire White and other kinds.
KOHL RABI, or Hungarian Turnip.
MANGEL WURZELS—Yellow Globe, Long Red, Red Globe, and Long Yellow.

Mixtures of Grass Seeds for permanent Pasture and Meadow, for Cemeteries and Churchyards, for Parks and Field Lawns, for Garden Lawns and Grass Plots. Renovating Mixtures for old Pastures.

Italian and other Rye-grasses, and all other Seeds for the Farm, Kitchen Garden, and Flower Garden.

Detail Catalogues will be sent, post free, on application to **THOMAS GIBBS & CO.**, the Seedsmen to the "Royal Agricultural Society of England," corner of **Half-Moon Street,** Piccadilly, London.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA, and within the last week they have supplied some RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & CO., Foreign and Export Seed Merchants, Plymouth.

CEPHALOTUS FOLLICULARIS, OR AUSTRALIAN PITCHER PLANT.

HUGH LOW AND CO. have to offer fine healthy established plants with pitchers, of the above very rare and curious plant, at 21*s.* each.

CALYPTRARIA HÆMANTHA, a splendid new Melastomaceous greenhouse plant, flowers exceeding in beauty those of the well-known Pleroma elegans. Strong plants 25*s.* to 31*s.* 6*d.* each.

LAPAGERIA ROSEA, styled in Chili "the climbing Lily," unquestionably the most beautiful conservatory climber in cultivation. 10*s.* 6*d.* each.

LASIANDRA HOOIBRENKII, a beautiful foliaged plant. 3*s.* 6*d.*

THYRSICANTHUS RUTILANS, a fine winter flowering plant. 2*s.* 6*d.*

GESNERIA DONCKELAARI, the most showy of the genus. Extra strong roots. 15*s.*

GLOXINIA ERECTA, in 12 choice varieties. 2*s.* 6*d.* each.

BEGONIA SEMPERFLORENS SANDERSI, a very showy scarlet winter-flowering variety, sweet scented. 3*s.* 6*d.*

Clapton Nursery, London, May 17.

HUGH LOW AND CO. have now for sale healthy Plants of the undermentioned:—

VERBENAS, 14 new varieties, Seedlings of Rougier and Chauviere of Paris, were selected by us when in flower, and can be confidently recommended. 1*s.* 6*d.* each.

Verbena pulchella Maonetti, a fine new bedding variety, of dwarf habit, perfectly distinct from any other, the flowers as finely striped, and very similar to those of Phlox Radetzki. Per dozen, 12*s.*

Verbenas in variety, of the best old sorts for bedding, such as Lord Raglan, King of Scarlets, Purple King, Mr. F. G. Caley, White Perfection. Per 100, 30*s.*; per dozen, 4*s.*

PETUNIA IMPERIALIS, new double white, 9*s.* per dozen.

PETUNIA EMPEROR NAPOLEON III., an improvement on Prince Albert, 6*s.* per dozen.

CALCEOLARIA AMPLEXICAULIS, 4*s.*; SULTAN, and other fine varieties, 6*s.* per dozen.

HELIOTROPE BEAUTY of the BOUDOIR, and other fine varieties, 6*s.* per dozen.

LANTANAS, in roots, 6*s.* per dozen.

SCARLET GERANIUMS, TOM THUMB, and other varieties, 40*s.* per 100.

VARIEGATED SCARLET GERANIUM, FLOWER of the DAY, 6*s.* to 9*s.* per dozen.

MIMULUS, 6 fine varieties, 4*s.* per dozen.

PHLOXES, 18 varieties, raised by Mr. Lierval, of Paris, of dwarf habit, with very large flowers. Having seen these in bloom, we can safely say they will add to the high reputation already acquired by Mr. Lierval, as the most successful hybridizer of this class of plants. Price 1*s.* 6*d.* each.

Clapton Nursery, London, May 17.

THE PAMPAS GRASS—"CYNERIUM ARGENTEUM."

LUCOMBE, PINCE AND CO., having now for Sale the finest Stock of *Flowering Plants* in this country of the above, are enabled to offer their well established Plants to *bloom strongly this Season*, in fine specimens, 7*s.* 6*d.* to 10*s.* 6*d.* each. L., P. & Co. have also strong healthy Seedlings at 24*s.* per dozen; but to parties wishing at once to see the beauty of the plant they recommend the larger sizes, being in every respect much better and cheaper; and it is also advisable that they should be planted as early as possible. A full description of this noble plant is given in the *Gardeners' Chronicle* of Oct. 6, 1855, page 659.

Exeter Nursery, Exeter.—Established 1720.

NEW FUCHSIA, VERBENA, AND HELIOTROPE.

T. TURVILL begs to offer strong Plants of his first-rate Seedlings, which he can with confidence recommend.

FUCHSIA ALMA.—Large bold flower, with scarlet tube, from 6 to 7 inches long, well reflexed, with bright purple corolla striped and shaded with bright vermilion to the edge, which is often edged with white; excellent habit. Plants 10*s.* 6*d.* each.

VERBENA BRIDE.—Beautiful light blue, very fine truss, with large smooth petal, excellent habit, very free flowering, makes a beautiful bed. Plants 5*s.* each.

HELIOTROPE ELEGANCE.—This is a beautiful scented, and very free in flowering, with a large blue flower: a great improvement on "Gem," being very close in habit, with good foliage, well adapted for beds or for pots. Plants 7*s.* 6*d.*

Chelmsford, Essex, May 17.

NEW VERBENAS, FUCHSIAS, PETUNIAS, AND MIMULUS.

GEORGE SMITH is warranted in pronouncing his SEEDLING VERBENAS unequalled. They are highly recommended by the National Floricultural Society, and have had six first-class certificates awarded to them. The three Seedling Fuchsias are very fine, either for exhibition or ornamental purposes. The Petunia Hermione exceeds all others for its great beauty, and must be a favourite for years to come. Mimulus Lydia received a Certificate, awarded at the National.

The above are now being sent out. For descriptions see Catalogue, which will be forwarded on application.

Tollington Nursery, Hornsey Road, Islington, London.

The Gardeners' Chronicle.

SATURDAY, MAY 17, 1856.

THE readers of the *Gardeners' Chronicle* will not have yet forgotten POLMAISE HEATING, or the long and earnest discussion that was excited by the plans of the enthusiastic and much to be lamented Mr. MEEKE. Knowing as he did the immense importance to gardeners of air in rapid motion, eager to render their work œconomical, and convinced that this could only be accomplished by dispensing with costly hot-water apparatus, he proposed a plan for obtaining currents of heated air by means of hot iron plates over which cold air was to be compelled to travel on its road into the house. In short, he clearly saw that, if it could be accomplished, the true way of heating the air of a plant-house must be, not by radiation from pipes, but by warm currents driven or drawn in every direction.

It is needless now to relate how many attempts were made to bring this plan to bear; how certain success at one time appeared to have become, or how continually hopes were disappointed at the last moment. It was like the gold making of the alchemists—the precious metal disappeared at the moment of projection. Sometimes the iron plate cracked, on another occasion smoke found its way through the sand-joints into the house, now and then the draught took a wrong turn; and worst of all, everything else having succeeded, no sufficient amount of heat could be secured.

Hence, after a patient expenditure of money and time, "Polmaise" heating was abandoned; not because the principles which led to its contrivance were wrong, but because it was evidently insufficient to carry out those principles, the importance of which every succeeding year has rendered more and more apparent. To keep warm air in active motion in glass plant houses we have always maintained to be the great desideratum of modern gardening; there is not a practical man who does not endorse that opinion; and all which now remains is to show how it can be effected. To the method proposed by Mr. JONES we lately drew attention, and we have now to mention another plan.

Mr. ROBERT HAZARD, of 8, St. Martin's Place, London, proposes to effect all that Mr. MEEKE failed to accomplish, by what he calls a "heat extractor." This consists of numerous 2 inch or 3 inch cast-iron pipes, open at each end and secured there to iron plates; in other words it consists of a pair of cast-iron perpendicular plates held together by horizontal open pipes. These are so placed that all the smoke of the fire-place is compelled to travel through them, almost wholly giving its heat to them as it passes, before it reaches the chimney for escape. The "heat extractor" thus constructed, and built into brickwork so as to intercept the smoke, without permitting it to pass into the house, is fixed on the level of the floor, opposite an opening into the house to be heated; and the mouth of a cold air drain is at the same time brought into communication with the open bottom of the apparatus. The moment the pipes in the "extractor" become warm the air from the cold drain rises among them, and absorbing heat in its passage finally rushes into the house, and distributes itself as happened in

Polmaise, the only difference being that a very large area of heating surface comes into action upon Mr. Hazard's plan without any risk of heating, instead of a very small area, and the certainty of cracked fire plates. In order that the heated air, as it passes into the house, may acquire the degree of moisture which is necessary for preserving plants in full health, the incoming air is conducted over a cistern of water, from which it takes up as much as its own temperature will permit.

The great advantage presented by this system consists in the abundance of heat which it provides, and in the application of whatever heat the fuel may give out to the service of the house, instead of allowing it to pass away uselessly and wastefully by the chimney. The "extractor" may be used without hot water, or may be adapted to the fire-place of any existing apparatus.

How it works is thus described by Mr. Hazard in the case of its application to the forcing houses of Charles Eyre, Esq., of Welford, near Newbury :—

"I applied the extractor in January 1856, the weather being 10° below freezing; we therefore were obliged to finish before we left for the night, and it was 12 o'clock before we were able to light the fire under the boiler; at 7 o'clock on the following morning Mr. Davidson, Mr. Eyre's gardener, and myself tested the air from the extractor, when we found large volumes passing into the house at 140°; but the thermometer on the hot water flow-pipes nearest the boiler only indicated 95°. After several days' experimenting, the external thermometer being at 12° and 14° below freezing, the advantage was more evident in favour of the extractor, while the apparatus in the Fig house was working admirably and economically. The old Polmaise stove formerly consumed one barrow of coke in 24 hours; while my apparatus only required the same quantity to last four days! Thus saving three-fourths of the fuel formerly used. The advantages of my apparatus were so evident that I received an order for an extractor to be attached to the conservatory boiler; the consequence was an immediate economy of fuel, and another important result. The under-gardener, who could not before leave the conservatory during severe nights, was now enabled to leave the fire from 8 o'clock in the evening until 7 o'clock the following morning.

"In February, Mr. Eyre, in company with F. L. Popham, Esq., of Littlecot, near Hungerford, wished to prove the advantage of my system by actual tests. A thermometer was suspended 1 foot down the top of the chimney of a Pine pit, heated by hot water, where no extractor was attached, and it indicated 430°. The same thermometer was then suspended down the chimney, where the extractor intercepted the smoke, when it only stood at 160°; a marked difference of 270° in favour of the extractor. The thermometer was then placed in the same manner in the chimney of the Fig house, when it only stood at 105°.

"And as Mr. Davidson was trying the two systems fairly, one against the other, *Hot Air* v. *Hot Water*, by shutting off the circulation of hot water in one house, and allowing it to flow in the other; thermometers were placed in different parts of the house, heated by the hot air alone; one being placed in the front path, 1 foot from the floor, and another similarly placed in the back walk. Singular to relate, the one in the front indicated 62°, while the one in the back walk, and nearest the admission of hot air, only stood at 60°. To carry the experiment still farther, and show that there was nothing to fear from placing plants immediately above the ascending current of hot air, I suspended a thermometer 3 feet above the grating, when it only stood at 68°, although the hot air was streaming out of the gratings at 170°, proving the rapid manner the heated air mixed with the surrounding atmosphere."

This it will be observed is Mr. Hazard's own account, with a few curtailments.

For ourselves the only opportunity we have had of seeing the apparatus at work has been by favour of Messrs. Oetzmann & Plumb, who have used it for some months in their extensive pianoforte manufactory in Chenies Street, where it is employed for drying the timber. We understand that the action there is perfectly satisfactory; and from what we saw of it we should imagine it unlikely to get out of order.

Of course we refrain for the present from saying more than that the contrivance promises well. Further experience will show whether any unexpected inconvenience attends it. Should it continue to perform as it appears to have done, we can easily conceive that it will offer a means of heating cheaply the small greenhouses now so common everywhere, without having recourse to expensive hot-water apparatus, or the cumbrous and troublesome flue. A small "extractor" intercepting the waste heat of a chimney might perhaps in numerous instances convey through a grating into a greenhouse on the first floor of a London residence all the heat which would be required in such a place.

This is not the first time that the apparatus has been mentioned in our columns. On one occasion Messrs. Garraway & Co. recommended it for hot-house heating; on another it received a very good word from the Rev. Geo. Denison, of East Brent, who had applied it to his parish church; others are said to have gained experience in its use, and we are sure we only express the desire of our readers when we say that they will be grateful for further information upon the subject.

The interesting account which we last week published of the consumption of vegetables and fruit in the Paris markets, deserves to be considered in comparison with what we know of the consumption of London, as given in Dodd's Food of London (see antè p. 214), upon the authority of Mr. Braithwaite Poole. We shall thus learn something more than usual of the habits of the Paris population, and of the kind of cultivation that their wants demand.

M. Husson takes the population of Paris at 1,053,262; but this is exclusive of Saint-Denis and other densely populated faubourgs, and we presume the casual population is not included. Taking these into account, the amount may be estimated at 1,500,000. If that of London be regarded as amounting to 2,500,000, the comparison will be near enough for all practical purposes connected with the points into which we propose to inquire.

Adopting these numbers, and the statements of Mr. Braithwaite Poole and of M. Husson as the bases of calculation, we have drawn up the following table, showing the comparative annual consumption of certain vegetables and fruits in London and Paris, and the average consumption per head per annum :—

	Consumption per annum.		Annual consumption per head.			
	London.	Paris.	London.		Paris.	
	Tons.	Tons.	lbs.	oz.	lbs.	oz.
Potatoes ...	138,000	26,298	123	10	39	4
Cabbages ...	80,000	20,166	71	10	30	2
Carrots ...	8050	20,225	7	3½	30	3
Turnips ...	43,600	3810	39	1	5	11
Onions ...	37,500	2976	33	9½	4	7
Peas	3900	4012	3	8	5	15
Asparagus ...	260	3543	0	3¾	5	4½
Lettuces ...	2050	5934	1	13⅛	9	6⅓
Celery ...	800	1417	0	11½	2	2
Radishes ...	750	856	0	10¾	1	4½
Cucumbers & Gurkens ...	2200	297	1	15	0	7 1/10
Gourds and Vegetable Marrows	300	2598	0	4⅓	3	14
Apples ...	17,150	110,520	15	6	165	0
Pears ...	9325	147,847	8	5	190	13
Plums and Damsons	9800	115,946	8	12	173	2
Cherries ...	927	14,055	0	13	20	14
Strawberries ...	700	9212	0	10	13	12
Currants ...	3900	8513	3	8	12	11
Raspberries ...	16	1328	0	0¼	2	0
Filberts and Hazel-nuts	456	49	0	6½	0	1⅙

It will be observed from the above that some vegetables are consumed in much greater proportion in London than in Paris. These are Potatoes, Cabbages, Turnips, Onions, Cucumbers, and Gurkens. Of Potatoes, fully three times more per head are used in London than in Paris; Cabbages more than double; Turnips, in round numbers, seven times as many, but some doubts may be entertained as to whether the quantity of Turnips stated by Mr. Poole does not include those brought in for the London cow-keepers. Of Onions about seven times more are used in London than in Paris; of Leeks we have no account for London, but on referring to last week's paper it will be seen that these are largely used in Paris, their consumption being about four times greater than that of Onions.

Vegetables of which less proportions are used in London than in Paris are Carrots, Peas, Asparagus, Lettuces, as compared with what may be included in M. Husson's denomination of Salads, Celery, Radishes, Gourds, and Vegetable Marrows. In Paris the quantity of Carrots used is four times greater than in London. Of Peas the proportion is as 3½ to 6, or nearly twice the quantity more per head in Paris than in London. In the former, the quantity consumed of Asparagus is 20 times, Salad 5 times, Celery 3 times, and of Radishes twice that consumed per head in London; whilst of Gourds and Vegetable Marrows the quantity is 14 times greater.

With regard to fruits, it appears, so far as the comparison goes, that, with the exception of Filberts and Hazel Nuts the consumption in all cases averages very much less per head in London than in Paris. The supply of Raspberries for the London market is very limited; and there can be no doubt that if the supply of this as well as that of various other fruits were increased, so would be the demand. The quantity of Apples, Pears and Plums which enter into the diet of the Parisian is almost incredible. Of the three kinds taken together, while only 32 lbs. 7 ounces per head are annually consumed in London each inhabitant of Paris requires 529 lbs.

Among esculents two articles also appear which plainly point to the habits of the people, and about whose uses the English care little. The French table mentions as many as 438,000 kilos of Black Winter Radishes, an article unknown in our own markets, and of Sorrel, an unimportant London vegetable, the consumption in Paris is greater than that of Salads in London of all kinds put together.

But since M. Husson's book is likely to appear very shortly we shall take a future opportunity of returning to this matter.

We understand that a further small supply of Mexican seeds received from Mr. Botteri is ready for distribution to the Fellows of the Horticultural Society.

New Plants.

172. Galanthus plicatus. *Marsch Bieb. Fl. Taur. Cauc.* III. 255.

(The Crimean Snowdrop.)

When the warm breath of Asia Minor was first felt in 1855 by our winter-beaten troops at Sebastopol, nothing welcomed them earlier than a beautiful white flower which all recognized as a Snowdrop, the messenger always sent forward to announce the approach of spring. Not however the same as was wont to cheer them in their English homes, but a taller and a stouter sort. Trowels and spades were set to work, and in a few short weeks the bulbs of the stranger were transferred to our gardens here as so many precious souvenirs of our gallant distant friends. Nursed as such treasures are sure to be nursed, the Crimean Snowdrop has now reared its graceful head in all directions, and there are few who have not looked upon the stranger. It is stouter than our own Snowdrop, forms great tufts of plaited leaves, and carries more green colour in the petals. Botanists call it for the second reason *Galanthus plicatus*. Introduced in abundance as it now has been, we may hope it will remain a living garden monument to the memory of those bold hearts whose blood has been poured out for the honour of their country among its native hills.

VEGETABLE PATHOLOGY.—No. CXXI.

481. Vulnera (*Wounds*).—Vegetables are subject to a variety of external injuries, arising from very different causes. As in the human frame, these may be of more or less importance according to their extent, or the organs which are affected. Vegetables, from their peculiar organisation, bear partial injuries much better than animals, because there is no common nervous centre which can be paralysed by the affection of any particular part. The more, however, the energies of the plant are directed towards the nutriment of a single bud, the more any serious external injury is felt. Half a great Oak, for instance, might be removed with far less hazard than

the stem of a Crown Imperial could be cut off soon after its appearance above the surface of the ground.

482. By one of the most important laws of nature the animal world derives its support either mediately or immediately from the vegetable kingdom. Every part, therefore, of plants in its turn is subject to the attacks of animals. The Grass which forms so great a portion of the food of ruminant and other animals seems within certain bounds to grow the better for being cropped, and this is the case with many other plants, while others are stunted by the constant effort of producing new buds. The leaves of different plants are developed in different ways. In some increase takes place at the base, in others at the apex. When Grass is mowed, the leaves in twenty-four hours have increased visibly in length, but many leaves when eaten by insects make little or no effort at increase. In the latter case the injury for a time is considerable, and the evil is remedied only by the pushing of the young axillary buds. The process, however, is exhausting, and the quantity of wood deposited and of nutritive matter stored up is greatly diminished. Other injuries are produced by insects, but these will come under another head.

483. If the destruction of leaves is formidable as preventing the due elaboration of the juices, the evaporation of redundant moisture, and the aëration of the tissues, the destruction of the blossoms by animals is equally mischievous in another direction. The grand end of vegetation is the production of fruit, and if the blossoms or their more important organs are destroyed no fruit can be produced. The injury in this case is, however, merely temporary. All the energies of the plant are directed in another quarter, the consequence of which is that abundant wood is produced, and a copious supply of those matters on which the production of fruit depends. The tree, in fact, may be more fertile the following year for the present injury.

484. The young shoots of most exogenous plants are filled with a mass of cells, which are of immense importance in the perfection of the nascent wood and the formation of buds on which the future growth of the tree depends. This body is called the pith, and as it is surrounded by bundles of spiral tissue, all the axillary buds* and leaves are in close communication with it. According to varying circumstances the pith retains its energy for a greater or less length of time, though at last it dries up and becomes entirely inactive. In this condition any injury to it may be altogether harmless, but few injuries are so fatal as those which happen to the pith while the plant is young. Death is certain if the main stem is concerned, as may be seen constantly in such plants as Lettuces, which seem to fail suddenly without any apparent cause. Examination, however, shows that some grub has eaten into the pith, and the powers of the plant have been immediately paralysed.

485. The roots of plants are liable to many injuries. Where the green parts depend mainly upon matter stored up in them, injury may be serious, but unless the lesion is extensive, the plant in general suffers but little. The roots of trees may be divided very extensively without much injury. New fibres will soon be thrown out, if those which remain are not sufficient to supply the requisite nourishment. Root pruning, in fact, is often practised to check the luxuriance of foliage and to induce the tree to throw out fruit buds. For this purpose trees are sometimes taken up and replanted, and if this is done at once, the spongelets will retain their moisture and be able to act, but where there is needless delay root pruning may be attended with injury. Indeed, it is a practice which must be exercised with caution, and with some reference to the condition of the soil. In some instances where division of the roots may be useful, a complete transplantation, might be very injurious. This is one of the cases in which gardeners should not act upon mere theory; indeed, in all, theory should be merely the handmaid of practice. *M. J. B.*

HOW TO DESTROY MEALY BUG, &c.

MEALY bug, when once thoroughly established in our glass houses, has been found by most gardeners to be a most destructive and pertinacious pest, so much so that many well qualified men have hesitated to take charge of a collection of plants where it was known to exist to any great extent. Having had to encounter such difficulties as those just stated, and at the same time having had the good fortune to completely overcome them, I have been led to believe that some account of the modus operandi by which such a result was arrived at might be useful. Let us however commence by describing the general condition of the stock when I first took charge of it, and then pursue in the form of a journal step by step the way in which the work of extermination was conducted, and the restoration of the plants to health effected.

Orchid House and Stove, April 13, 1854.—Here I found a miscellaneous collection of plants, several of which would have been better accommodated in the greenhouse. Tacsonia mollissima, in a pot trained along the back wall, was well covered with mealy bug; Stephanotis floribunda, Petrea volubilis, Combretum purpureum, Allamanda cathartica, Jasminum Sambac, were the permanent climbers; these, with the exception of the Allamanda, were very badly affected with insects. The Stephanotis occupying a considerable space had been sponged frequently, the leaves were generally clean, but at their axils there existed as healthy a brood of scale and bug as could possibly be desired. This remark also applies to the greater part of the plants all over the establishment; in short, the general appearance was such as to convince an experienced person that fire-heat had been used unsparingly, and that a high temperature and a close atmosphere had been the guiding rule. The leaves were pale in colour, and many of the plants had made premature growth. Saccolabium guttatum, in a large basket, and Aerides odoratum in a similar position, were the two best plants in the collection, and had they not been closely connected with bad neighbours I might have stated that they were clean. Dendrobium speciosum, Cattleya crispa, and many others were covered with white scale and mealy bug; Oncidium Papilio, carthaginense, and two or three others were dead, or so far gone that there was little hopes of their recovery.

Early Vinery.—In this house the Grapes were setting an abundant crop, the leaves were large and flabby, an excessive quantity of water had been used and they had the appearance of being clean. Camellias were growing beneath the Vines, and they also looked clean. The person who showed me round informed me that the year previous "the bug" got amongst the ripe fruit and caused great trouble. I observed that the Vines had not had any winter dressing, consequently I looked forward to the future with anxiety.

Second House of Grapes.—The Vines here were coming into bloom, the outside border had been tampered with the previous summer, and the growth they had made and were making was weak. On examining the foliage I found bug, and here also the Vines had not got any winter dressing. This house was full of plants, chiefly such as will grow well in any intermediate house, with the exception of a few Begonias, which were all in a dirty state; black scale, mealy bug, and red spider were the principal insects. Adjoining this house was a small division, consisting of four lights, which had been taken from the above house at some former period for the purpose of preserving Pine Apples in when ripe, or for a small division of early Grapes. In the pit of this house were plunged two or three Francisceas, an Ixora, and a large Euphorbia splendens. On the back wall was trained Cereus grandiflorus profusely intermixed with a trailing Solanum. Vines were planted in the outside border, and had grown the full length of the rafters; they had not been pruned back, and were now making laterals. I had not seen anything so weak, and bug and red spider were plentiful throughout the house.

Greenhouse or Conservatory.—A deep back wall, together with a mass of stone in front, gave little hopes of growing anything with advantage here. The house was literally full of plants. Vines were also trained to the roof, and exhibited better health than anything I had yet met with. As they had attained a good age, and as a gravel walk was their only border, I came to the conclusion that the subsoil must be good, and that the natural soil of the garden agreed with them. Amongst the plants there was nothing remarkable.

Late Vinery.—The Vines in this house were just breaking, the wood had been well rubbed over with sulphur, large quantities of which were still adhering to the stems. The buds were numerous and weak, and not so far advanced as to indicate with certainty whether there would be fruit or not. This house also contained a great number of plants, such as Azaleas, Camellias, &c.

Peach House.—A Peach and Nectarine tree were the principal features here; a Stanwick Nectarine had been recently planted; Figs covered the back wall, Vines were planted at each end and partially trained along the roof; a shelf along the back wall contained Strawberries. The Peach trees were in good health, growing very luxuriantly, but without fruit. I was informed that every year they produced abundance of bloom, but always cast their fruit, and never bore anything like a crop. In front of this house are five divisions of pits, three of which were occupied with stove and greenhouse plants, one with small Pine plants, and one with Cucumbers. The plants were in the same state as regards insects as those in the Orchid-house. The Pines were not clean, but being small and not very badly affected I experienced little difficulty with them. Such was the condition of the stock I had engaged to take charge of. I have not said anything about the state of the houses, but I may just mention that although painted the previous year, the crevices of the woodwork were tenanted in many parts by small balls of the mealy bug, and in some instances there was a line of this substance reaching a considerable distance. It is not my intention to advert to the out-door department. Therefore permit me now to give a monthly account of house work, the remedies I applied, and the success which attended their employment.

Orchid House and Stove during May.—Having procured a bottle of turpentine, 2 lbs. soft soap, 1 lb. common soap, several lbs. of sulphur, a couple of painters' sash brushes, half a dozen camel-hair pencils, and a few gallons of tobacco liquor, I untied the plants, and after rubbing the trellis and all suspicious parts of the woodwork with turpentine, I carefully commenced cleaning the plants. Every part was first examined with a pencil dipped in turpentine; on portions of the two year old wood where insects were plentiful the pencil was worked freely, a split in the wood or a crevice in the bark was not allowed to escape; parts of the leaf least susceptible of injury were also operated on freely, but towards their axils and around the buds great care was taken to touch the insects only. This requires a steady and practised hand, and ought to be well done; the pencil when fresh dipped should not be applied immediately; draw it once or twice across a small piece of wood kept for the purpose; after doing this I have generally found sufficient strength remaining to destroy the bug, and there is less danger of the turpentine spreading and injuring the leaf or buds. The second process consisted in washing the plant well with soap and water. In doing this common soap was used plentifully; a common painter's sash brush was first put into water, then rubbed on the soap, then applied to the plant and so on alternately, according to the good sense of the workman, from the root up to the tender points of the young shoots, which were carefully hand picked. When the soap and water process was finished, the plant was well washed with clean water applied with force from a syringe. The young shoots mentioned as being handpicked were then dipped in tobacco liquor, and the plant trained or placed in its former position. Ventilation from the roof was afforded at all times, and very freely from the windows and door, when the thermometer stood at or above 75°. Fires were kept very low, and the night temperature at from 50 to 60°.

Early Vinery during May.—When thinning the Grapes, the pencil and turpentine were constantly at hand, and applied to the ripe wood or parts of the leaves, as before described, wherever bug was observed. The Grapes were thinned extremely, so that when the bunch was tied out every berry hung separately, and the interior of the bunch could be examined with facility. This I found to be of the utmost importance. The Vines were syringed once a day in clear weather; air was admitted more freely as the Vines were able to bear it, and by the end of the month the utmost freedom was used in this respect. Camellias having set their flower buds were moved outside under shelter, and the house was rendered as open as possible.

Second Division of Grapes during May.—As the Vines were coming into flower water was withdrawn for a short time, during which insects of different kinds made rapid progress. The pipes were well painted with sulphur, turpentine was sprinkled freely on the floors, and the house was shut close during the night. Tobacco smoke was also employed. These measures in some degree were doubtless effective in stopping the increase of my tormentors, but all would have been of little avail had there been no syringing for a length of time. On the evenings of fine days water dashed freely amongst the Vines and plants, and on the roof and walls of the house, together with a free circulation of air and moderate fires, was my best resource. Some plants I thinned out, and others were pruned hard in, while repotting and washing with soap and water was a daily business. The pencil and turpentine were hanging at all times in the house ready for use. In the small division adjoining this house the plants were repotted and cleaned, and the Vines were encouraged to make laterals, there being no help for them but cutting down in the autumn.

Greenhouse or Conservatory during May.—Many of the plants here were removed, and the house was thoroughly cleaned. In rearranging a few of the more hardy stove plants were brought into this house.

Late Vinery during May.—The Vines here were disbudded at once, and as it was evident there would be no fruit, only such shoots were left as were intended to produce fruit the following year. Liquid manure from a farm-yard tank was applied to the border, and by the end of the month the foliage was changed to a dark green. It was in this house that the mealy bug first made its appearance 16 years previous to this present time. A climbing plant, the name of which I could not learn, was bought at a London nursery, and sent down with instructions to be planted and trained on the trellis on the back wall. It was planted there, grew rapidly, and got intermingled with the Vines, the insects spread over the fruit, and the then gardener said, "I syringed with glue-water, and made use of all manner of things, but to no purpose; the pest overran the whole house and spoiled the Grapes, and it has now got into the wood and no one has been or ever will be able to get the better of it." The plants in this house went through the same process of cleaning as the others, the large Azaleas were syringed with tobacco-water to destroy thrips. Fires were not lighted; the house was syringed two or three times weekly, according to the state of the weather, and ventilation was well attended to.

Peach House during June.—There being no fruit I had the roof removed from this house and the trees fully exposed; it will not be necessary during the summer months to notice this house, training and occasional syringing were all that it required. In the pit divisions two were set apart for Pine Apples, one for the worst of the plants and one for miscellaneous things; the Cucumbers I allowed to remain.

Orchid House and Stove during June.—This month found the general health of the plants improved. In the case of Hoyas, Russellias, Stephanotis, and others making their young wood the bug seemed to grow with it; no sooner did a bud break than this pest made its appearance. Where it came from it was not easy to say; the circumstance reminded one more of a constitutional disease than the attack of an enemy. To find the source of the evil was difficult. One thing was always observable, viz, that after a close heat of 90° or 95° the insects increased in numbers; many of the plants required this temperature. A large Musa Cavendishi planted out in the centre of the house had to be washed, the worst of the others were also washed, and many of the young

* Adventitious buds do not necessarily arise from the pith, and as these sometimes form large branches, it is not to be expected that every branch shall be traceable to the common axis. A good deal of misconception has prevailed on this subject.

shoots pinched off. A low temperature, careful syringing, and good ventilation were still my best remedy.

Early Vinery during June.—Here many of the Grapes were beginning to change colour, consequently water was not so freely administered; the partial change was much to be feared. It was soon apparent that the crop would be lost if a remedy was not found. To continue the syringe would destroy the bloom only, the Grapes would still be clean and good. Thus I argued and acted: I had seen bruised Laurel leaves recommended, so I had armfuls of the young shoots with their leaves placed along the floors of the house, and with a beater, something like a plumber's dresser, they were well bruised on the spot and strewed wherever there was space for them to lie. The house was shut close and left about 5 o'clock in the evening; on going again at 9 o'clock I felt satisfied. The following morning it was observed that the bug when touched was not able to retain its hold, but dropped to the ground. I therefore resolved to place Common Laurel shoots in all the houses, bruise them in the same manner, and to continue them for a time. This occurred about the last fortnight in June. As the leaves became withered turpentine was sprinkled over them; the effect of all this upon the foliage was very remarkable, it assumed the most healthy appearance, so that while Common Laurel leaves were my best remedy for destroying insects, they were also an excellent assistant to the plant.

Second Division of Grapes during June.—The Grapes here were thinned and the bunches tied out, as in the case of the early Vinery. No more of the young wood was allowed to remain than was necessary for the health of the Vine. All false ties and whatever would in any way harbour insects were removed, and every freedom possible given to the full play of the syringe; the pencil dipped in turpentine was constantly ready for use. This house being much larger than the early Vinery, I had doubts whether the Laurel shoots would have so good an effect; the quantity was therefore increased, and the pest if not absolutely eradicated was at least entirely subdued. I felt myself once more at ease with respect to my work of extermination, knowing as I then did that with a little extra exertion success would be the certain result.

Greenhouse or Conservatory during June.—A constant exchange of plants was carried on here. Greenhouse kinds were removed outside, and their places occupied by others from the warmer plant houses.

Late Vinery during June.—Azaleas and Camellias were taken out, and Begonias, Achimenes, &c., introduced in their room. The Vines, on which was scarcely any fruit, were making good wood, and a perceptible improvement was evidently taking place all over the house. Liquid manure was administered freely to all the borders every two or three weeks throughout the growing season.

Pits.—The Pines having grown so as to require a shift, I took one of the divisions, and having cleaned it properly prepared it for planting out a portion of the best plants. In the previous description I omitted to state that these pits were heated with hot water, and that a bottom-heat of 60° to 75° could be obtained. In the preparation a bottom 2 feet deep of stones was laid down upon which was put the soil for the plants, consisting of chopped turf quite fresh and without any mixture. During summer these plants made rapid progress, and 14 months after planting I cut several fruit weighing 5 lbs. and 6 lbs. each. Twenty months after planting all the original plants had produced fruit; the remainder were potted and placed in their old quarters. The Cucumbers having yielded quantities of fruit were pulled up and the division appropriated to late Melons. The plants having got into a growing state were distributed throughout the houses. Two of the divisions were now devoted to Melons, and two to Pines, and there was also a miscellaneous division, and as this arrangement will continue for the next three months, it will not be necessary to advert to it further.

July, August, and September.—A few general remarks will be all that are necessary during this period of the year. Every plant was examined at least once a week; the Vines still more frequently; not a leaf was allowed to grow but such as was of paramount importance. The bunches, which are more liable to be attacked than the leaves, required most attention, and a suspicious bunch was managed in this way:—A light tin dish was so strung with wire as to hang immediately under the bunch, the bottom of the dish was then covered with turpentine; this brought the bunch into close contact with the vapour of the turpentine. Again, in a bunch where the bug was to be seen, a berry was cut out and the pencil dipped in turpentine very carefully introduced; the Common Laurel leaves used as formerly stated had brought the insects under manageable control, and all that was now wanted was attention to details to complete the work of destruction. Thunbergia grandiflora, on a back wall, showed a great liking for bug; the old leaves and wood were to all appearance quite clean, but no sooner did a young shoot make signs of growth than this pest appeared in clusters on its point. The only remedy I applied to such free growing subjects was to pinch the shoot off, curtailing the growth until it became clean, with an occasional dip in tobacco liquor. Ixoras, although previously cleaned, were about this time cut down level with the pot; the plants were old and had not been accustomed to this treatment; they all pushed well, and made good plants the following summer. Gardenias, from some cause, were the most troublesome of any; they were pale in colour and sickly to commence with, and looked as if I should lose two or three out of some seven or eight of florida and Fortuni. The plants were from 1 to 3 feet in height, the least touch of turpentine inflicted the greatest injury, and the bug seemed to congregate on the smooth part of the bark. In this state they continued through the months just noticed.

October, November, and December.—To find a bug was now a rare occurrence, the temperature of the houses was considerably reduced, and the use of turpentine entirely dispensed with. I considered the whole clean and the general health of the plants established; I was assured however that I should have a return of the old enemy in full force the ensuing spring. That another season would prove whether my work was effectual or not I was well aware, but I had observed too many efforts of my tormentor to return prove fruitless to have any fears regarding it. In the early part of the period now under notice the early Vines were pruned, the loose bark rubbed off, and they were dressed over with the following mixture, viz.: 1 lb. soft soap and 2 lbs. sulphur mixed together in the form of dough. Should there be any difficulty in uniting the sulphur with the soap the application of a little heat will overcome it. A portion of this was taken as required, diluted with warm water, and well rubbed over all parts of the wood with a painter's brush. There may be some who would recommend an addition to this mixture, others who may think it too strong, especially when applied to the young wood. I have, however, found it efficacious for all the purposes required, and I have never known it to do any injury; it has no unsightly appearance, nor does the syringe act upon it disadvantageously. About this time a few of the Orchids were shifted, many of them were placed on hard blocks, using very little moss, and taking care to leave a clear descent for the water falling from the syringe, which at this season was seldom used, but when required was applied with considerable force.

January and February.—Orchid House and Stove.—During these two months a complete overhaul was effected in this department, in which no insect, certainly no bug, was to be found. Saccolabium guttatum and Aerides odoratum were removed from flat baskets and placed upon large blocks, standing nearly upright. In this position the syringe had full play, and during the blooming season their flowers were seen to advantage. Lapageria rosea and other plants showing symptoms of growth were encouraged to do so. In the early Vinery the Vines pushed into leaf in a healthy manner, although at this period there was severe frost, and from this time forward I saw no more bug.

In order to accomplish the work just recorded no extra hands were employed, nor did I want them; a little extra exertion for the first three or four months on the part of the regular workmen was all that was required; afterwards the work became lighter, and of course the need for extra labour diminished. I may add that in my attempts to destroy insects I have at different times made experiments with other substances besides those I have pointed out, but I have found that caution united with energy in the use of such remedies as we do possess a knowledge of, is much more beneficial than tampering with things of which we may have but an imperfect acquaintance. *H., Blyth Hall Gardens.*

Home Correspondence.

Can Flowers be Grown in a City?—This question has often been asked by the admirers of those fragrant gifts of nature. As a lover of a garden and being doomed to pass the greater part of the year in a city, I determined to try if I could not have a few of my favourite companions around me. I erected a small greenhouse (against a western wall) and have now as good a show of plants in blossom as I ever saw in the county Wicklow, where our country place is situated. I have had some fine Cineraria plants, several remarkably good Cytisus, and several fine forced Roses. I think from my observation of a town garden that the best growing plants are Roses, next Cinerarias and Cytisus. Sweet scented Geraniums thrive very well also. To any one determined to pay a little attention to flowers they can have as good a bloom of the above as if they lived 100 miles from the smoke of a city. I hope to fill my greenhouse with some Pelargoniums I have kept back in a small frame; and if you consider that my notice of rearing plants in the midst of chimneys, &c., is worthy a place in your columns I shall be happy to give you the result of my experience. *Flora.* [Pray do.]

Amphicome Emodi.—You say that this plant has been and may be still in this country; but is very rare. Some six years ago (1849) I sent seeds of it from India to my father. He succeeded in raising numerous plants, which he freely distributed in this neighbourhood. It flowers annually with us and perfects its seeds, from which I have raised young plants; and I have no doubt others to whom I gave seed have been equally successful. On my return from India in 1852 I gave a considerable quantity of the seed to Sir W. J. Hooker, from which doubtless numerous plants have been raised and distributed. Rollisson & Sons advertise it for sale as a plant from Northern India. Nepaul is its habitat. It is very rarely found in the north-western Himalaya, as I found it in one place only; viz., on the Bojh mountain, within 5 miles of Subathoo, growing out of fissures and clefts of rocks. Decayed vegetable matter was the only soil in contact with the rocks. I use peat, rotten leaves and sand for its cultivation in pots. It is a pretty thing; but our cultivated plants are much inferior in beauty to the wild ones in their native climate. *Nat. Vicary, Wexford.*

German Stocks.—About a fortnight ago I sowed on a very gentle bottom heat 26 varieties of German Stocks; they came up well, but they are now damping off to such an extent that I am afraid they will nearly all go off. Can you tell me how to treat them to put a stop to this? For the last three years they have gone off more or less, and I imagined that the light soil in which they were sown was the cause of the evil; this year I sowed them in a strong loamy soil mixed with a little leaf mould, and they are worse than I ever saw them before. *R. T.* [Light soil suits them best, but it is not the soil that is at fault. Damp and insufficient ventilation have doubtless caused the mischief. You would have been more successful if you had sown them in pans well drained and filled with light soil, in a tolerably warm situation but at the same time airy, as for instance on the flue of a Vinery just commenced to be forced. After the plants are up we need scarcely say that great care has to be observed in watering them. Some seldom or never water them overhead at all; but when dry place the pans or pots they are in in saucers filled with water, until it is found the soil has absorbed sufficient moisture, when they are removed. By this plan much of the shanking or fogging off of which you complain is obviated. They should also be pricked off into pots or pans as soon as ever they are strong enough to bear the operation, and placed in a cool pit to harden preparatory to their being planted out. This is a point which should on no account be neglected.]

Pinus Tchugatskoy.—I observed in your paper a few weeks ago a question relating to this Conifer. As the answer was somewhat unsatisfactory, perhaps the required information may still be acceptable. A plant has been sent out by French nurserymen under the name of Pinus Tchugatskoy; its real name is Thujopsis borealis. It is a hardy tree of great beauty, allied to Thuja dolabrata, and the name is derived from Tchugatsken, a promontory of Russian America, whence it comes. The name is so peculiar that I have no doubt that this is the plant referred to by your correspondent. *Wentworth W. Buller, Strete Ralegh, Exeter.*

Notices of Books.

Adamson's Cottage Garden (12mo, Black), having reached a second edition may be assumed to have found favour with Scotch cottagers, for whose use it was written; no better recommendation of it can be needed. The greater part of the little volume is occupied by a monthly calendar of operations.

A third edition of *Colonel Hutchinson's* capital book on *Dog-breaking* (small 8vo, Murray, pp. 328) is before us. It is superfluous to say that no sportsman can possibly dispense with this book, in which is contained more genuine information, the result of practical knowledge, than will be found in all similar books put together. The present edition contains new matter concerning setters and pointers, Spanish retrievers and bloodhounds, and conveys some useful hints about game. The woodcuts, of which there is a profusion, are worthy of the letterpress, which is saying a great deal.

Marvels and Mysteries of Instinct, or *Curiosities of Animal Life* (12mo, Longmans) by G. Garratt, is a closely printed volume of 248 pages explaining the author's views of the nature of instinct, illustrated by the usual assemblage of anecdotes, true, doubtful, and incredible. Mr. Garratt is so familiar with his subject that he begins with Adam, with whom he would appear to have had a personal acquaintance. "Adam stood," he says, "as he was intended to stand, the noblest creature of all creation. The world has not seen his beauty since. His face, too, what an illustration of fine physiognomy! Who among men has ever seen its like? No internal evil had traced lines of external deformity down his calm symmetrical features. It was an index, not of vice within, but of the purest and heavenly-like virtue. He was pure, too, in every part of his structure from the crown of his head to the soles of his feet. Such was the peculiarity of his physical constitution, and it was also equally characteristic of his mental one. The brain of his head was not destined to laborious exercise in order to acquire the first principles of knowledge. As appeared his body, so appeared the knowledge and the reasoning faculties of his mind, both ready for mutual action; and at his command, too, was the language, of which he could make immediate use. (This particular has had a resemblance in the day of Pentecost.) We cannot suppose that Adam began to learn at his A, B, C. Of such infant toil he knew nothing, and if ever he was a child at all, it must have been at those times only when it is said that the man is once a man and twice a child, and in that sense merely."

This is one of the first paragraphs in our author's work; among the last are the two following:—

"Instinct is the perfection or the essence of Reason, or Reason put forth in fullest maturity.

"Reason, as given to man, is superior and more exalted than Instinct, which is given to govern the animal."

We hope our readers are able to understand how instinct is the perfection of reason, though reason is superior to instinct. To us it seems very like saying that reason is superior to itself.

A new contribution to the anecdotes of the late war is furnished by Major Porter's *Life in the Trenches* (12mo, Longmans, pp. 195). The gallant author holds it as a military dogma that all criticism, whether favourable or reverse, of the conduct of those officers

who had the management of the war, is unbecoming and unsoldier-like when it proceeds from inferior officers; a maxim which fortunately is not universally received or we should never have seen Napier's Peninsular War. With this proviso Major Porter has produced an amusing, gentlemanly, and occasionally graphic picture of one part of those operations of which civilians must otherwise know nothing. Nobody would imagine, after rising from its perusal, that trench work was such very bad work after all. We hear nothing of starvation, or nakedness, and not much of excessive overwork. And yet it seems to us that the endurance of the troops under sufferings which may indeed have been paralleled on other occasions in all respects except their duration, which is everything, deserves a record from some soldier who knows what misery was when it became necessary to prick men up with the bayonet before they could be roused to a renewal of labour which they knew could only be their death. When they marched to their graves with perfect resignation they showed qualities that should never be forgotten, and which can never be too loudly proclaimed. However, Major Porter did not reach Sebastopol till the worst was over, and probably saw nothing of that worst. We doubt not that general readers will prefer his pages as they are; for they are full of life and anecdote, told with the easy grace of a man in whose profession imperturbability is a quality of the highest order. His description of the characteristics of Russian projectiles is the best we have seen.

"First there comes the round shot, rushing through the air with a sharp, shrill shriek, very startling to the nerves of the young soldier; then a volley of grape, buzzing along with a sound not unlike that of a covey of birds very strong on the wing; next we have the gun shell, similar in its movements to the round shot, but having in addition the unpleasant peculiarity, that when it reaches its destination it bursts into pieces, scattering small fragments of iron, in the most undesirable profusion, in every direction. These are varied, every now and then, by a mortar shell, rising proudly and grandly in the air, easily to be discerned in the night by the fiery train of its burning fuse, tracing a majestic curve high in mid air, until, having attained its extreme altitude, it commences to descend, falling faster and faster, till down it swoops on to the devoted spot against which it had been directed, making a sound in its passage through the air like the chirping of a pee-wit, or other small bird. This missile was always considered by the knowing hands to be the most formidable enemy that we had to contend against, owing to the impossibility of forming an accurate judgment as to the spot where it would ultimately fall, and the difficulty which consequently ensued of protecting oneself from its splinters. In the case of a gun shell, the impetus given by its onward course communicates itself to the fragments when the shell bursts, which continue, therefore, to travel in a forward direction, merely spreading out laterally. In the case of a mortar shell, however, there is no such onward impetus: the shell drops almost perpendicularly downwards towards the ground, and when it bursts, the pieces shower themselves with the utmost impartiality in all directions.

"In addition to these pleasant little varieties, the Russians were often fond of giving us a pyrotechnic display, in the form of what is called a 'bouquet.' This consists of a shower of hand grenades, or small shells, of about the size of a man's closed fist, discharged to the number of from 20 to 30 at a time out of a mortar. The effect of such a discharge in a dark night was really magnificent; and when the bouquet was not directed towards the beholder, and he was enabled to contemplate its effect in an unperturbed frame of mind, it really became a most beautiful sight. Imagine the sudden rise of five-and-twenty fiery meteors into the air, each leaving a long curved trail of light in its track, and, as they reach their destination, lighting up the atmosphere with short, fitful flashes, as they burst in succession. But though thus pretty to look at, they were most awkward customers to deal with; for among so many, the impossibility of dodging them must be apparent. There was nothing for it, therefore, but to lie quietly down on your face, and wait patiently till the storm had burst, and the iron hail had ceased to fall."

A camp dinner furnishes another clever sketch.

"I found D——— in rude health, and in high spirits. He had invited a couple of his brother officers to join our repast; moreover, he had not failed to pay a visit that morning to a vivacious and fascinating vivandière, well known to the Second Division as Madame Henri, from whom he had procured a plentiful supply of some very decent champagne. Is it to be wondered at, then, that we were all exceedingly merry, or that I should mark the day in my calendar as one not to be forgotten? At the close of a very pleasant evening, we were taken by one of the party to his tent, there to partake of supper, prior to retiring to rest for the night. This meal consisted of a very extensive and in every way admirable game pie—one of a large number sent by his Grace the Duke of Portland to the Crimean army—together with a gallon jar of potent old ale, proceeding from the same source. Both these articles were labelled as coming from Welbeck Abbey, and might justly have been the subject of no little pride to their respective concoctors. Had his Grace's cook, who I presume superintended the preparation of that most admirable pie, witnessed the rapidity of its demolition, and the pertinacity with which, time after time, we returned to the charge, he (or she, as the case might be) must have been deeply gratified at the tribute thus honestly paid to his culinary skill. Long live the noble Duke of Portland! say I; and this was the toast drunk that evening with the utmost enthusiasm. * * * Truly, that was altogether a wonderful evening for me—a bright oasis in the dreary desert of salt beef through which I was wearily plodding—a roast quarter of mutton and champagne in abundance for dinner; game pie and ale for supper; draught ale, mind you, as precious in mine eyes, from its rarity, as so much liquid gold—can it be wondered at that my mind fondly dwells on such unwonted luxuries? Gentle reader, do not consider because I speak thus enthusiastically I am therefore necessarily a glutton, or even a gastronome: such is far from being the case; but if you had lived, as I had, for the previous month on an unvarying round of salt beef or pork, you would have felt quite as much enthusiasm at such a sudden and unlooked-for change."

One story more, and we must close this enjoyable volume.

"As I was riding down into the trenches yesterday, I passed a group of sailors in the Valley of the Shadow of Death. They were employed carrying ammunition into the batteries, and had stopped to rest at a point which we have denominated the Half-way House. One of them, a fine weather-beaten, sunburnt specimen of a genuine British Jack Tar, was grumbling in no measured terms at the burden he had been carrying, interspersing his remarks with those oaths without which a sailor can rarely express his ideas. 'Hullo Jack!' said I, reining in my steed; 'why this is the first time I have heard a sailor grumble since I have been out here.' 'No, nor you don't hear no sailor a grumbling now, Sir,' was the reply. 'I be'ant no sailor.' 'You not a sailor?' I returned, gazing on the man's unmistakably nautical appearance in amazement. 'If you are not a sailor, tell me in the name of goodness what you call yourself.' 'No, Sir; I be'ant no sailor,' the man returned, with a sly twinkle in his eye, as he slowly shook his head; then suddenly looking up, he exclaimed, 'I'll tell ye what I be. Do you see this shell as I'm a carrying into the batteries?' and as he spoke, he pointed contemptuously with his foot to the projectile in question, which, after the manner of naval shells, was snugly packed in its own little wooden box: 'Well, Sir,' he continued, 'I'll tell ye what I be; why I be nothing in the world but a broken down owld Commissariat mule.'"

Tenby, a Sea-side Holiday. By P. H. Gosse. 8vo, Van Voorst. Pp. 400.

This is a natural history guide book, and a remarkably good one, as might have been expected from the name of the author. We doubt not it will decide the whereabouts of many a summer tourist looking out for a station, and we hope it will bring many a recruit to the ranks of the lovers of natural science. It is just one of those gossiping books which are demanded at a watering place.

Mr. Gosse tells us how he got to Tenby, talks of the places there, the caverns, Monkstone, North Cove, Hean Castle, Hoyle's Mouth, Tenbyhead, and other places to be visited, shows where the marine animals, his well-known favourites, most abound, teaches how to get at them, when to catch them in a visible condition, how to keep them, how to study them, and what their points of interest are. Of such matters is the book made up, and to us it seems to be perfect in its way. We only fear that the microscopic mollusks, of which the volume contains so many pictures, will disappoint the unscientific observer when he finds that a gaudy yellow or orange coloured creature represented as 3 or 4 inches long is to be found in a drop of water, and only to be seen through an achromatic microscope.

It is announced that Mr. Gosse desires to form at Tenby a Marine Natural History class; we advise all visitors to join it who are desirous of finding something to occupy their minds about.

Garden Memoranda.

Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood.—Among many plants now in flower in the show houses here was a number of pretty little specimens of Eriostemons, and conspicuous among them was one named pulchellum, a kind peculiarly well adapted for amateurs, for it has a neat dwarf habit and blossoms most profusely in a very small state, desirable qualities for persons who have but a limited amount of house room; Boronia Drummondi, quantities of which we noticed covered with little pink star-shaped flowers, also possesses the same good properties, and for similar purposes is well worth attention.

As has been formerly stated, a kind of winter garden has been made here by removing the partition between two houses, and thus throwing them into one, taking away the stage, and arranging the plants in groups on the floor, which is traversed by a 3 feet wide gravel walk that winds in a zig-zag manner from one end of the house to the other. Camellias form the bulk of the plants in the clumps, which when in full bloom must have a brilliant appearance, and here and there where they can be seen to most advantage, some very fine standard and pyramidal Bays, Palm trees, and variegated Yuccas have been introduced, as well as a few remarkable Conifers, among which we noticed a beautiful specimen of Libocedrus Doniana. Among plants at present in flower here was a charming white Camellia slightly streaked with carmine. This was named De la Reine. The same collection also contained another light kind called Jenny Lind, which is likewise reported to be very fine; but unfortunately we did not see it in flower. Standard Azaleas and Rhododendrons are now beautifully in blossom in this house, the latter comprising many of Smith's yellow hybrids of various shades, some of which were very pretty; also standard Deutzias, common Laburnum, Cytisus filipes, and other plants of a highly decorative character. In the centre is a small aquarium surrounded by a little rockwork, on which are placed numbers of the pretty Grass-like Isolepis gracilis, the bright green foliage of which falling down towards the surface of the water has a very good effect. The walks are edged with pieces of white flint intermixed with Lycopodium denticulatum, which is extensively used here for such purposes, for which it is found to be very suitable. The above arrangement has had many admirers, and may be taken as a fair example of what may be done in this way even in common lean-to houses.

Of Bhotan Rhododendrons we noticed a whole houseful of Nuttalli, which is said to be one of the finest species of the genus yet introduced. Among other remarkable plants may be mentioned Aralia japonica, a species with very handsome foliage; Ardisia crispa, a free flowering kind, and stated to produce brilliant scarlet berries very plentifully even in small plants; Begonia xanthina argentea, a variety with large variegated leaves; Gonocalyx pulcher, a greenhouse shrub with red tubular blossoms tipped with white; Locheria (Achimenes) magnifica, reported to be a most beautiful plant with large brilliant red flowers, spotted and streaked with violet; a Petunia with large sized double white flowers, and a charming little Verbena, violet purple striped with white. For planting in small baskets to be suspended from the roofs of greenhouses nothing could possibly look prettier or answer better than this last named plant. In addition to the foregoing we remarked an example of the handsome Eucharis amazonica in blossom. The flowers of this plant, which are of snowy whiteness, are stout and wax-like in appearance, large, and showy.

Out-of-doors early Tulips are now in full bloom, and planted as they are in large masses and somewhat closely together nothing could be more striking or showy. It may be worth stating that these are always found here to have done flowering, and the bulbs to have sufficiently ripened to bear taking up before it is safe to fill the space they occupy with bedding plants. Thus there is the advantage of an early display of flowers of the gayest colours, and that before the room is wanted for the ordinary bedding plants. This fact may therefore be worth the attention of those who wish to have their gardens dressy early in the season.

Miscellaneous.

Composition of the Ground Nut.—This singular nut (Arachis hypogæa), becoming now of so much importance in connection with the industry and civilisation of the western coast of Africa, not only abounds in oil, to which it owes principally its commercial value, but also contains a considerable quantity of starch—rather an unusual alliance—and in addition a large proportion of albuminous matter. The starch particles are about $\frac{1}{1000}$ of an inch in diameter. In no other instance have I seen so much starch associated with oil. *Dr. Davy in the Edin. New Philosophical Journal.*

The Ammabroma, or Sand Food of Sonora.—This new plant has recently been brought to notice by Mr. H. B. Gray, who was attached to one of the recent explorations across the continent for the purpose of ascertaining the practicability of constructing a railway to the Pacific. It is a parasitic plant, with a large and fleshy root: a parasite which Professor Torrey, of New York, to whom Mr. Gray submitted it for examination, finds to constitute "a new genus of the small group or family represented by the little-known anomalous Corallophyllum of Kunth, and the Pholisma of Nuttall; in the floral structure and the scales more like the latter, from which it is distinguished by its woolly, plumose calyx, and its singular cyathiform inflorescence." It was found in abundance through a range of naked sand-hills skirting "Adair Bay," near the Gulf of California, furnishing an isolated band of Papigo Indians with an important article of food. The fresh plant is cooked by roasting upon hot coals, and resembles the sweet Potato in taste, having much saccharine matter about it. It is likewise dried and mixed with less palatable kinds of food, such as Musquit, Beans, &c. It is represented to be a very delicious vegetable; and could it be transplanted, Mr. Gray believes that it would constitute an important acquisition to the table, probably not second in demand to the sweet Potato or Asparagus. In the opinion of Professor Torrey it cannot be grown elsewhere, unless the root of the shrub, which is entirely under ground, &c., to which it attaches itself, can be transplanted. The name given to this root is the Ammabroma Sonoræ, which signifies the sand food of Sonora. *The Year-Book of Agriculture.*

Brazilian Stimulating Narcotics. — We find the following curious statement in a catalogue of botanical objects, collected for the Kew Museum, and published in "Hooker's Journal of Botany:"—Portions of the stems of a Malpighiaceous twiner, apparently an undescribed Banisteria (2712 to Benth.), called by the Indians Caápí, and of the roots and leaves of a Hæmadictyon, called Caapí-pinima (*i. e.* painted Caapí), the leaves being veined with red. From these ingredients (the Banisteria entering much more largely than the Hæmadictyon) is prepared an intoxicating drink known

to all the nations on the Uaupés by the name of Caapí. In the Dabocuris (or festas) of the Uaupé Indians, the young men who figure in the dances drink of the Caapí five or six times during the night, the dose being a small cuya, the size of a very small teacup, twice filled. In two minutes after drinking it its effects begin to be apparent; the Indian turns deadly pale, trembles in every limb, and horror is in his aspect; suddenly contrary symptoms succeed: he bursts into a perspiration, and seems possessed with reckless fury, seizes whatever arms are at hand—his murucú, cutlass, or bow and arrows—and rushes to the doorway, where he inflicts deadly wounds on the ground or doorposts, calling out "Thus would I do to such a one (naming some one against whom he has a grudge) were he within my reach." In the space of ten minutes the effects pass off, and the Indian becomes calm, but appears much exhausted.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As New Holland plants go out of bloom their seed pods should be picked off, and the shoots out back and arranged in the form most favourable for rendering them compact and bushy, placing them in an airy part of the greenhouse until they shall have fairly started into growth. The proper time for shifting such as require more pot room will be when the buds have fairly broken, as they can then be kept somewhat close for a fortnight to encourage a free root action without incurring the risk of the buds breaking irregularly. Look well to the stock of plants for summer and autumn decoration, and do not allow them to sustain any check for want of pot room, or carelessness in watering. Fuchsias for late blooming must not be kept too warm; on the contrary they should be placed in a moist, cool, shady house, where they will grow much more freely than in a high temperature. STOVE.—The plants here will now be pushing freely, and will require frequent attention in the way of stopping, training, &c. Keep them properly furnished with pot room, and afford them all the sunshine they will bear without scorching, with a mild atmosphere, admitting air freely on fine days. Also give them sufficient space for the perfect development of their foliage. Pay strict attention to the destruction of insects and to keeping everything clean and neat. Go over creepers frequently so as to direct their growth and prevent them from getting too much entangled, which without attention would soon be the case. Syringe and shut up early on the afternoons of bright days, and be as sparing as possible in the use of artificial heat. ORCHIDS.—Afford those that are pushing a moist growing atmosphere, giving them a good steaming every bright afternoon by syringing and shutting up early. Admit air in moderate quantities on mild soft days; but carefully avoid currents of drying wind. Examine the plants individually as often as can be done and water such as require it; but be careful not to give too much to those starting into growth, and a cool atmosphere will greatly prolong the beauty of those in bloom.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit should be divested of all suckers, except as many as may be wanted for stock, directly they make their appearance. This will throw more of the energies of the plant into the fruit, and will also secure stronger suckers than if too many were left. Our more valuable sorts of Pines are not, however, very apt to produce any excess of suckers, but some varieties of Queen still in cultivation produce so many that the fruit never attains any size unless the suckers are thinned early. Guard against any decline of the bottom-heat, and where this is obtained from fermenting materials, a little fresh tan should be added before the heat gets too low; and it will be much safer to add a few inches occasionally as it may be wanted than to follow the old practice of renewing the bed only once or twice in the year. See to keeping the soil about the roots, where the plants are in pots or planted in the open bed, in a nice healthy state as to moisture, and give manure-water regularly to fruiters and stock in free growth. VINERIES.—Go over the Vines in succession houses, frequently removing laterals, &c., before they shade or interfere with the principal foliage. Where plants must be grown under the Vines the latter should be kept sufficiently thin to allow of a moderate share of light reaching the plants, and neither laterals nor any useless wood should be allowed to obstruct the light. See that none of the plants are infested with red spider or thrips, especially the latter, which if once allowed to get upon the Vines is very difficult to eradicate, and is most destructive to the foliage. Azaleas are very subject to this pest, and if these are grown under the Vines they must be closely watched, and kept clean at any expense. See that Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. FIGS.—Attend to stopping and thinning the shoots, and aim at securing short-jointed strong growth, by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist. Where the fruit is ripening, syringing must, of course, be dispensed with, and the atmosphere kept drier, therefore be careful to have the foliage perfectly clear of insects up to the time the fruit begins to ripen. MELONS.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil, for it is generally somewhat difficult to secure a crop from wood of this sort. Give air as freely as the state of the weather will admit, in order to secure firm short-jointed wood, and where the crop is setting, as the young fruit is very apt to damp off unless the atmosphere is kept moderately dry. Endeavour to secure a steady bottom-heat of about 80° to 85° for plants in all stages, and also to keep the soil in a proper state as to moisture; avoid having to water while the crop is setting, by well soaking the soil before the principal blossoms begin to expand. Keep a careful look out for insects, and use every precaution to prevent these getting established upon the foliage, for there is hardly any chance of a crop of fruit unless the leaves can be preserved in health.

FLOWER GARDEN AND SHRUBBERIES.

Recently transplanted shrubs and trees must be carefully attended to with water until they shall have got fairly established. It is frequently the case, however, that too much water is given at the root, thereby souring the soil and rendering it uncongenial to the young rootlets and the after-growth of the plants. Let it be remembered that the soil should be kept constantly moist but not over-saturated; large plants which may appear to be suffering should be sprinkled over-head with the engine on the evenings of fine days. This will in some measure tend to repair the loss they sustain by evaporation. If the planting of any tender Roses still remains to be done this should be seen to immediately, taking care to have the soil made deep and very rich, which is the great point towards obtaining a fine display of bloom in autumn. Keep a sharp look out for "the grub," and do not allow this pest to destroy the plants; and if green-fly makes its appearance on the young shoots syringe the affected plants lightly with a mixture of tobacco-water and soap-suds, and give the plants a good washing with clean water from the engine next morning. See that shrubbery borders, &c., are cleared of weeds, decayed leaves, &c., and rendered neat and clean. The weather is still anything but tempting for commencing bedding out. But as the season is so far advanced it is to be hoped that we may soon experience a favourable change, and be proceeding with the planting out of all properly prepared stock under favourable auspices before long. Meantime we would recommend keeping the plants under shelter, giving them every attention to watering, &c., so as to prevent their sustaining any check.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere with the destruction of insects if any on fruit trees, in order to afford the young shoots a fair chance of making healthy growth; also proceed with disbudding and stopping gross shoots. Look after Gooseberry caterpillar, and do not allow the foliage to be injured before adopting means to eradicate it. Perhaps the readiest way of destroying this pest is to give the trees a good washing with a powerful engine, directing the water against the under sides of the leaves as much as possible, which will wash off the caterpillars, and they are then easily destroyed on the ground by means of an iron rake. The little red grub which is so destructive about some places to the young shoots of the Raspberries is more difficult to exterminate; we know no means of destroying this pest except searching carefully for it, catching and killing it, and this is tedious work at this busy season. Get trenches prepared for Cucumbers, and filled with stable manure and leaves, or any other materials which will ferment slowly, and afford a gentle heat to assist in starting the plants; and get the latter prepared for planting out by exposing them rather freely to light and air on every favourable opportunity. Attend to putting in succession crops of Peas, Beans, Turnips, Spinach, &c., and secure an unceasing supply of Lettuce and other salads by sowing frequently. Where ground can be spared, and labour is scarce, Lettuce should be sown at this season where they are to stand, sowing in lines about a foot apart, and thinning out the plants when strong enough to proper distances in the lines. This is some saving of labour, and avoids checking the plants by removal. Do not allow Cauliflower plants to suffer through dryness at the root; an occasional soaking of manure water will be useful to these and Cabbages. Use the hoe among growing crops, and get weeds destroyed wherever they make their appearance. Get manure wheeled upon quarters where it will soon be wanted, and see that there is a good supply being prepared for the Celery crop, for without plenty of old rich manure large crisp Celery can hardly be obtained. Directly the weather becomes more favourable get spring-raised Cauliflowers planted out, if not yet done, selecting for them a sheltered situation and light rich soil. A few branches of evergreens stuck amongst such things at planting time so as to screen them from the sun, are a kind of protection, and prevent their being dried up before their roots get hold of the ground. This is a matter which will well repay a little attention.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending May 15, 1856, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind.	Rain.
Friday 9	5	30.151	30.099	54	43	48.5	47	46	N.E.	.00
Satur. 10	6	30.115	29.898	68	44	56.0	52	46	N.E.	.00
Sunday 11	7	29.870	29.777	71	43	57.0	49	47	N.	.00
Mon. 12	8	29.719	29.637	64	52	58.0	53	48	N.E.	.30
Tues. 13	9	29.628	29.606	65	40	52.5	55	49	S.W.	.14
Wed. 14	10	29.543	29.521	58	40	49.0	52	49	S.W.	.19
Thurs. 15	11	29.492	29.394	62	40	51.0	53	49.5	S.W.	.20
Average .		29.774	29.704	63.1	43.1	53.1	51.5	47.8		1.23

May 9—Uniformly overcast; heavy clouds; overcast.
— 10—Overcast; fine; cloudy at night.
— 11—Light haze; fine; warm; cloudy.
— 12—Uniform haze; very heavy rain at night.
— 13—Rain; cloudy; rain.
— 14—Rain; heavy showers; cloudy and fine.
— 15—Fine; masses of low white and dusky clouds; heavy showers, with some hail.

Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending May 24, 1856.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	64.7	43.2	54.0	13	0.17 in.	1	6	5	3	2	8	4	1
Mon. 19	65.6	44.0	54.8	11	0.50	2	6	6	3	3	7	3	—
Tues. 20	65.4	43.9	54.6	15	0.64	1	5	7	3	4	5	1	4
Wed. 21	65.4	45.1	55.2	12	0.36	3	5	9	2	4	3	2	2
Thurs. 22	65.6	43.8	54.7	14	0.30	6	6	3	3	3	6	2	1
Friday 23	67.5	45.7	56.6	8	0.53	1	5	5	4	1	5	4	5
Satur. 24	68.1	45.4	56.7	10	0.54	2	6	7	1	5	5	3	1

The highest temperature during the above period occurred on the 23d, 1847—therm. 89 deg.; and the lowest on the 18th and 19th, 1854, 20th, 1853, 23d, 1837, and 24th, 1840 and 1854—therm. 30 deg.

Notices to Correspondents.

ALPINE PINE: *H G.* It is impossible to say what you mean by this name. You have on the Alps commonly Pinus sylvestris, P. pumilio, and P. Cembra. All are Alpine Pines.

APHIDES: *X Y Z.* Gas-water (caustic ammonia dissolved in water) will kill them. So will home-grown or other tobacco reduced to fine powder.

AMPHICOME EMODI: *R F.* Since our last we see that this plant is offered for sale by a London firm. See also a letter from Col. Vicary in another column.

BOOKS: *Martha.* Neill's Fruit, Flower, and Kitchen Garden, and M'Intosh's Practical Gardener.—*R M.* Hooker's Flora of Tasmania, now publishing by Reeve & Co. in 4to parts. It is the only book.

COLOURED GLASS: *A Novice.* Mr. Hunt's experiments to which you refer are given at p. 559 of our volume for 1845. They were curious but had no practical application. The Almighty has caused the globe to be illuminated with white light; and to our apprehension this is sufficient to show that white light is best for us.

CARROT GROWING: *Veritas.* We are perfectly unable to understand the statements in your letter.

GARDEN ENGINES: *W D.* We really cannot recommend tradesmen. Both are good ones we have no doubt. You must judge for yourself.

INSECTS: *H M.* Your Peas are attacked by the small lined Pea weevil (Sitona lineata) which annually does much mischief in the manner you mention. Repeated dusting the plants with soot or unslacked powdered lime would be serviceable.—*R. W.* Your Larch wood is suffering from a most unusual visitation of the caterpillars of a little moth (Porrectaria laricella) which have now done all the mischief they can for this season and are going into the chrysalis state. As they pass this state among the injured sprigs, the latter should be picked off and burnt.—*G A.* The insects on the twigs sent are females of a large species of Coccus. They will shortly deposit their eggs, and the trees will be swarming with young if not carefully destroyed. They are so plain and large that they may be best killed with a squeeze by the nail.—*Inquisitor.* The insects which roll themselves up in a spiral coil are not wireworms. They are snake millepedes (Julus pulcher), very destructive in ill-kept ground, and may be caught in great numbers by burying slices of Potato stuck on a stick, which should be examined every two or three hours. The smaller flat species is Cryptops hortensis, and the larger ones Geophilus subterraneus.—*Inquisitor.* You will find that the edition of Kirby and Spence's "Entomology," just published, price 5s., will quite answer your purpose.—*Weardale.* The little insects which form the burrows beneath the bark of the young Oak trees are the caterpillars of a small species of moth which we will endeavour to rear. Please to send some more twigs immediately to Mr. Westwood, Hammersmith. *W.*

LILY OF THE NILE: *E A M.* Surely this cannot be Arum Dracunculus, a dark purple fœtid plant. Is it not Calla æthiopica? In either case, since your plant is some Arad, the double "blossom" must be a double spathe, which we never before heard of except in fancy architecture. Possibly the portion of the root which produced it now may do so again, in which case you should preserve the stem and the spathes carefully for scientific examination.

MANURE: *Beta.* 3 cwt. of guano per acre, and an equal quantity of common salt, mixed with a cart-load of black turf ashes, is a good dressing for Mangel Wurzel; and 2 cwt of guano, 1 cwt. of nitrate of soda sown broadcast in wet weather will do for Grass land.

NAMES OF FRUITS: *W W S.* 1, Easter Pippin, or French Crab; 3, Cockle Pippin; 4, a sort of Golden Pippin, but not the true old one.—*Inquirer.* Your Pear is the Beurré Romaine; it is the nature of it to shrivel without becoming perfectly melting. It is very sweet, and can be dried like a Fig.—*W T.* 1, Brown Turkey; 2, Brunswick. The Grape is very unripe, but appears to be Wilmot's Black Hamburgh.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*R S. Yates.* Crushed to pieces. *Seems* to have been the common eatable Morel.—*T L.* Reseda lutea.

THE HORTICULTURAL SOCIETY: *Sir XX.* You are under an entire misapprehension. Dr. Lindley is not one of the Council. While he can claim no credit for what the Council may do well, on the other hand he is not in the slightest degree answerable for what may be done ill.—*S W.* Your liberal contribution towards the experiment for maintaining the Garden will we doubt not be gratefully received by the Council if it should be required. As you do not give your address we are unable to communicate with you in any other manner than this.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

TOTTENHAM SEWAGE GUANO (HIGGS' PATENT) ready for delivery at 4*l.* 4*s.* from the Works.—Apply to Mr. HIGGS, Sewage Works, Page Green, Tottenham, Middlesex.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—
Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).
NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.
Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.
Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—
SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.
SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.
N.B. Manures specially prepared for Grass and Flax.
The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.
Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

SUPERPHOSPHATE OF LIME.

FREDERICK ALLEN, Bow Common, London, (established 17 years), begs to call the attention of Farmers and Agriculturists to his SUPERPHOSPHATE OF LIME, which has given such general satisfaction for the above period, and only requires a trial to prove its valuable properties for Turnips, Mangel Wurzel, and all bulbous roots. Early orders requested to prevent disappointment. Reference can be given to gentlemen of high standing who have used it a number of years.
Respectable Agents wanted.

TO AGRICULTURISTS.

PONTEY, ROWE, AND CO., MANURE MERCHANTS, Drake's Place, Plymouth, are now supplying their MURIO-PHOSPHATE (fit for the drill), at 7*l.* 10*s.* per ton, strength as guaranteed from analysis by Nisbet, Herapath, and Way.
Agriculturists wishing to prepare (for the Drill) themselves, can be supplied with pure dissolved Bone or Bone Ash, at 8*l.* 10*s.* to 9*l.* per ton. The Muriophosphate as prepared by P., R., & Co. has been found superior to all other artificial manures, in the continued support it yields to Turnips, Mangel Wurzel, and the succeeding crops.
BONE MANURE of their own manufacture.
BEST PERUVIAN GUANO, from Gibbs & Co. only.
MANURE, SALT, GYPSUM, &c., constantly on sale.
PONTEY, ROWE, & Co. are the authorised Agents for Odams's Patent Nitro-phosphate or Blood Manures for Corn, Turnips, Mangel Wurzel, &c., which have produced extraordinary results throughout the country Prices on application.—May 17.

ALDERSHOTT AND SHORNCLIFF PATENT DEODORISING AND MANURE COMPANY.—Chief Office, 37, Charing Cross, London.
Contracts have been entered into with the Government by this Company for the Deodorisation of the Cesspits, Latrines, &c., at the Camps at Aldershott and Shorncliff, and for the removal of their contents, as also for the Bones, Blood, and Offal of the Animals slaughtered on the spot for the use of the Troops.
Establishments have been formed, and the requisite buildings erected by this Company (in the immediate vicinity of the respective Camps), for the manufacture of Manures by the combination of the above with other recognised elements of fertilisation.
Turnip Manure for the present season, 6*l.* 10*s.* per ton; bags included.
Delivered free to the Railway Stations and Wharfs of the Metropolis, and at Ash, Farnborough, and Folkstone, or from the Company's Works at Ash (on the Basingstoke Canal), as also at Cheriton, near Shorncliff.—Orders addressed to the Secretary 37, Charing Cross, London, will receive prompt attention.
Wheat and other Manures will be duly advertised.

LONDON MANURE COMPANY and the "Bath and West of England Agricultural Journal."—A statement of the comparative value of different sorts of Superphosphate of Lime having appeared in the above publication, from analysis by Dr. Voelcker, in which that said to be manufactured by the London Manure Company is put down as almost worthless, on investigating the matter at Lord Portman's, it is found the Superphosphate was never procured from the London Manure Company or their agents, but has been altogether a mistake of Lord Portman's bailiff. Lord Portman wishes the annexed Letter to be a full explanation of the error.
"The Manure mentioned in the 'Journal of the Bath and West of England Agricultural Society,' published in 1856, p. 314, &c., under the name of 'London Manure Company's Superphosphate for Turnips,' was bought by Mr. E. Pester, my bailiff, of Mr. Phillips, of Anstey, and was called by Mr. Pester, 'The London Manure.' It appears that the Manure delivered by Mr. Phillips was sent in bags marked 'Superphosphate Compost Company, London,' and that Mr. Phillips is not the agent of the London Manure Company of Mr. Edward Purser. All the remarks of Professor Voelcker are, therefore, wholly inapplicable to the Manure sold by the London Manure Company. I therefore certify, that having been misled by my bailiff, I have, most unwittingly and quite unconsciously, permitted the publication in that Journal of the analysis of manures under a wrong name, as it was not purchased from the London Manure Company or their agents. I authorise Mr. Purser to publish this statement as he may think proper. "PORTMAN.
"Bryanston, May 8th, 1856."
The London Manure Company send out all their Manures in Bags stamped with their Name, and they wish their friends will carefully examine all they purchase.
40, Bridge Street, Blackfriars. EDWARD PURSER, Secretary.

LONDON MANURE COMPANY
(Established 1840).
The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*: Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

PHŒNIX CHEMICAL WORKS, PLYMOUTH.

BURNARD LACK AND CO. are ready to deliver in London or at any convenient Railway Station or Seaport, BIPHOSPHATE OF LIME considered as neutral soluble phosphate, at PROFESSOR WAY'S standard price, viz., 6*s.* 6*d.* per cent. per ton.
B. L. & Co.'s No. 1 Concentrated Superphosphate contains 40 per cent. of neutral soluble phosphate delivered as above (bags included) at 13*l.* per ton, four months acceptance, or less 2½ per cent. discount for cash. A considerable reduction made for quantities.
Guaranteed analyses and opinions by PROFESSORS WAY and VOELCKER sent on application.—Apply as above.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

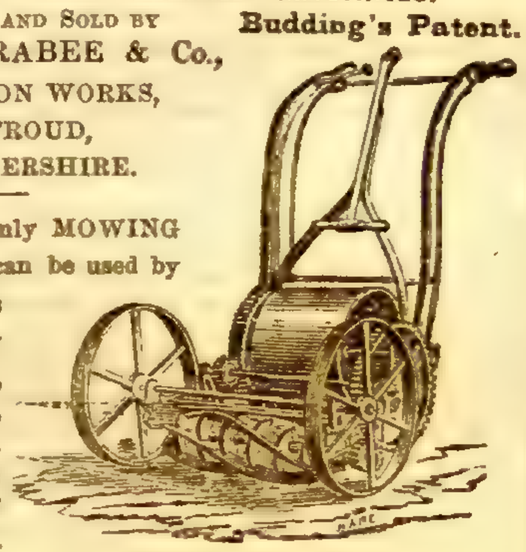
Price of Pump and Union, 50*s.*
1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.
1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

IMPROVED LAWN MOWING MACHINES.
MANUFACTURED AND SOLD BY
JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.
Budding's Patent.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.
Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

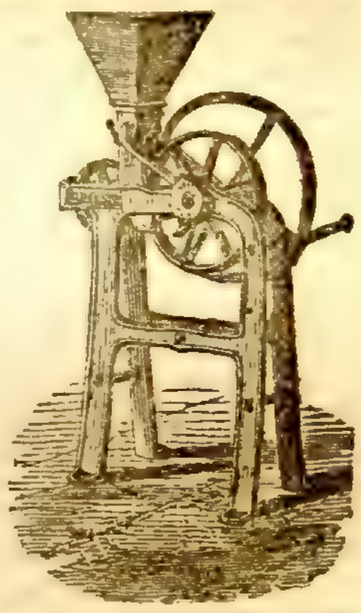
London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

FIRST PRIZE REAPING MACHINE.
NOTICE.

MESSRS BURGESS AND KEY beg respectfully to inform the public, and particularly the noblemen and gentlemen whose orders they were obliged to decline for this season on account of the manufacture not being fully arranged, that the Royal Agricultural Society's First Prize of 30*l.* was awarded to them for M'Cormick's Reaper, with their patent screw platform, at the trial at Leigh Court, near Bristol, upon the 29th of August last. Amongst the competing machines were Bell's, by Crosskill; Forbush's exhibited by Mr. Palmer; and Hussey's, with tilting platform, by Wm. Dray & Co. The reports of farmers who have worked the machines during this present harvest, show that the average quantity of Wheat, Barley, and Oats which they cut was from 1¼ to 1½ acre per hour. Two horses work the machine with ease, and the only attendant required is a man or a boy to drive. Further particulars and prices sent free on application.—BURGESS & KEY, 103, Newgate Street; and 52, Little Britain, London.

FOWLER AND FRY, AGRICULTURAL IMPLEMENT MANUFACTURERS, Temple Gate, Bristol, beg to call attention to the under-mentioned articles:—
One-row Seed and Manure Drill, a most complete thing, 6*l.* 10*s.*
One-row Drill, for seed only, 4*l.*
Prize Grass Seed Distributor, 12 feet long, 3*l.* 10*s.*
Patterson's Patent Clod-crusher, which is so constructed that it is capable of working where the ground is in a sticky state from wet.
Corne's Patent Chaff-cutters.
Oat and Bean Mills.
Gardner's Turnip Cutters.
Bushe's Root Graters.
Cozen's celebrated Press Ploughs, &c.
FOWLER & FRY are Agents for all the principal makers of Agricultural Implements, and always keep a large assortment on hand in their Show-room.
Catalogues, &c., sent free on application.

OAT-CRUSHING AND BEAN-SPLITTING MILL
(TURNER'S No. 5).
This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15*s.* 6*d.*
Made and Sold by
E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The GENERAL HALF-YEARLY MEETING of the Society will be held on THURSDAY, May 22, at 12 o'clock. By order of the Council,
May 17. JAMES HUDSON, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The Royal Agricultural Society of England desires to receive TENDERS from Innkeepers or others to contract for the supply of a COLD DINNER at Chelmsford on THURSDAY, the 17th of July next, in the Society's Pavilion, constructed to accommodate 1000 persons. Printed forms of Tenders may be obtained on application to the Secretary, 12, Hanover Square, London, and must be returned to him filled up on or before Thursday the 5th of June. The Society not binding itself to take the lowest Tender.
By order of the Council,
London, May 17. JAMES HUDSON, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 17, 1856.

As that useful farm implement, the hoe, is now in constant action throughout all parts of the country, a few words upon its use, and notes on the nature of some of the enemies against which it is levelled may at least excite to thought upon a subject which is now beginning to attract a great amount of attention.

If we examine into the action of the hoe in spring, say in the Wheat crop, we shall soon see that the operation is productive of great benefit to the growth of the plant. Soon after hoeing it starts into fresh and vigorous leafage, tillers anew, and indeed generally improves so much as in most cases to satisfy the farmer that he has lost nothing by the expense of hoeing.

The mechanical stirring of the soil, the breaking the pellicle which is formed in some instances by the rains of early spring, and thus letting the air into the ground, and stirring up new matter to be acted upon and dissolved for the increasing growth and consequent increased requirements of the plant, each and all contribute to the effect produced; whilst at the same time the removal of interlopers in the shape of weeds tends to confine the food so eliminated to the rightful and

legitimate family. It is doubtless the knowledge of the good resulting from hoeing that has confirmed the old-fashioned farmer in the opinion that weeds are a necessity, as we were told the other day they (weeds) "were sent on purpose to make us work, and land is always grateful for labour." Now without attempting to combat such a notion as that proper mechanical appliances would not be used if we wanted the incitement thereunto which weeds undoubtedly present, we shall offer a few remarks tending to show in what manner the hoe is made subservient to *weed propagation and continuance.*

If we examine into the natural history of many of our common annual weeds, we shall see reason to believe that in their wild state they have each an appointed time of growth and flowering, but that, as weeds, many of them have accommodated themselves to agrarian conditions; and indeed they have been so long cultivated that they are as much changed as the plants of our crops, and hence can accommodate themselves to all seasons. We see that we have as much a spring and autumn growth of Groundsel, Chickweed, and Speedwell as we have a winter and summer Cabbage; so that with each of these weeds, though we shall have them come up with the root crops now sown or sowing, yet, in the Wheat fields at this moment, or even weeks earlier, are innumerable plants of this kind in perfect seed. Weeds for the most part differ from crops in a very important particular of growth: in grain, for example, all the seeds are ripe at nearly the same time; but with weeds, and especially the kinds just mentioned, the plants may appear in vigorous growth, and still flowering and starting new flowers at the ends of the branches long after the first formed flowers have ripened their seeds. It was a knowledge of this fact which made us curious to inquire into the extent to which some of our annual plants ripen their seeds early in the spring, and the following table will give an approximation to the number of seeds six of our common weeds may ripen before they die; and also the amount of ripe seeds which they may produce as early as the month of April, these being all gathered in one field on the 15th April in the present year when the estimate was taken.

Table of the Ripening of Weed Seeds.

	No. of flowers to each plant.		No. of seeds to each flower.		Total of seeds.	Of these were ripe in April.
Veronica polita, Grey Speedwell	150	×	3	=	450	150
Veronica hederifolia, Ivy-leaved Speedwell ...	250	×	3	=	750	300
Capsella bursa-pastoris, Shepherd's Purse ...	150	×	30	=	4500	1200
Cardamine hirsuta, Hairy Bitter Cress	150	×	25	=	3750	1375
Stellaria media, Chickweed	500	×	10	=	5000	500
Senecio vulgaris, Groundsel	150	×	50	=	7500	2500
					21,950	6025

Now, if we reason upon the facts presented by this table we shall see that although spring hoeing cuts up an immense quantity of weeds *it assists in sowing an enormous increase*, one plant of each of the above making up the aggregate of 6025 seeds which may be sown by hoeing, whilst if not hoed as many as 21,950 seeds may result.

Now, it is not pretended that all these seeds must arrive at maturity, or if they did that the many accidents to which they would be liable would not greatly diminish their numbers; but we must not forget that in the case of the spring ripened ones the very process of hoeing ensures their being duly sown and thus put out of harm's way in a much surer manner than though they had been left to themselves.

The table, moreover, will show us that if we would cope with weeds we must become acquainted with their habits and modes of growth, and so learn when and how to attack them. There cannot be a greater mistake than to suppose that we can do weeding at our convenience, nor can we on the other hand, appoint a set time, but we must be up and doing according as our enemy presents himself, bearing in mind this, that although we call plants weeds whenever they are inconvenient to us, yet that they are no exception to the great law of nature, which provides for the continuance of the species of all its objects, and consequently however humble the weed the beautiful contrivances of means to this end may well excite our wonder and admiration, whilst at the same time the trouble expended in the attainment of such knowledge would much shorten our labour in dealing with them agriculturally.

Among the many agricultural estimates to whose failure attention has been called, we have been struck with the near approach to accuracy of that by Mr. CAIRD, in 1851, on the quantity of land in tillage in England and the distribution of it among the crops cultivated. In the following figures the first column gives the returns sanctioned by the Board of Trade—being the result of a rule of three sum in which the whole area of England, as compared with that of 11 counties examined, is made to yield so much land under every crop, according to the proportion of each which those 11 counties have returned. This first column, then, is taken to be accurate, and probably is so very nearly. Its figures very wonderfully agree with those of Mr. CAIRD in column No. 2, derived from data obtained when he was reporting on the agriculture of this country as the *Times* Commissioner.

Land under Tillage in England. (1) *According to the Return by official authority of Board of Trade in* 1854; *and* (2) *According to the Estimate by Mr. Caird in* 1851.

	Official Return 1854.*	Mr. Caird's Estimate, 1851.
Acres under Wheat	3,427,062	3,416,750
Do. Spring Corn, viz. Barley, Oats, and Rye	3,639,861	3,416,750
Do. Clover and Seeds	2,538,000	2,277,750
Do. Beans, Peas, and Vetches ...	825,066	1,139,000
Do. Turnip, Mangel, and Potatoes ...	2,384,450	2,116,750
Do. fallow, Rape, &c.	920,973	1,309,000
Total	13,735,412	13,667,000

* One-tenth is deducted from this Return for Wales, which was not included in Mr. Caird's Estimate.

REPORT TO A LANDLORD.

I HAVE enclosed a transparent map of that part of your estate which is to form the farm; each of the fields is numbered in black ink with the same numbers as the plan you gave me. The arable part of it I have divided into 8 fields, and numbered them with red ink; but to get 8 fields I have taken the arable part of No. 15 as one, and I propose to grub up the fence between the Nos. 21 and 36c on your map, and form these two into 3 fields, which I call Nos. 5, 6, and 7, and by this arrangement the arable land will be divided into 8 fields of nearly equal dimensions, and a regular system of cultivation may then be easily adopted.

This farm will consist of 87 acres of arable and 129 of pasture, besides your garden plot of 5½ acres:—

	Name of field and present crop.	Pasture. ac.	r.	p.	Arable. ac.	r.	p.
14	Farm offices	2	2	16			
15	Home ground (pasture)	10	3	17			
15	Home ground (arable)	—			10	1	0
16	Eaven Pig ground (in Wheat and Clover)	—			10	0	16
17	Long Little Ash ground (in Beans)	—			10	3	31
18	" " " (pasture)	4	3	11			
19	Short Little Ash ground (pasture)	11	1	19			
20	" " (in Peas, Beans, and fallow)	—			10	2	13
21	Stone Late ground (Wheat) ...	—			16	0	32
22	" " " (meadow) ..	13	1	39			
36c	Farington (Wheat, Barley, Vetches, Turnips)	—			18	1	22
37c	Lower do. (Wheat, Turnips) ...	—			11	0	0
38c	Lower Brook Meadow	10	1	0			
30c	Pasture	17	3	2			
31c	Pasture	15	3	26			
32	The arable part of this field to be sown down to seeds	12	1	11			
18	Pasture	10	1	17			
19	"	12	1	10			
20	"	1	2	3			
21	"	6	1	0			
	Pasture	129	3	11	87	1	34
	Arable	87	1	34			
		217	1	5			
	Experimental garden	5	2	35			
	In all, acres	223	0	0			

I propose the following arrangement of the arable land:—

						Acres.		
The arable part of No. 15 I call No. 1, and it should be						10	0	0
" " 16 " " 2, " "						10	0	16
" " 17 " " 3, " "						10	3	31
" " 20 " " 4, " "						10	2	13
Part of ... ... 21 " " 5, " "						10	3	14
" 21 & 36 " " 6, " "						12	0	0
" " 36 " " 7, " "						12	0	0
" 37 " " 8, " "						11	0	0
					Acres...	87	1	34

The arable land being thus divided into 8 fields, a rotation of 8 years, if properly arranged and adhered to, will place each of the various kinds of root crops 8 years apart, so that neither Turnips, Mangel, Swedes, Carrots, nor Clover will be planted on the same field oftener than once in 8 years. It is of the utmost importance to adhere to this principle, as most soils get sick of producing good crops of roots and Clover when they are often repeated on the same ground (Turnips grow to fingers and toes when planted every 5 or 6 years, and Clover fails), but this is not the case with grain, which may be repeated every 2 years if after a fallow crop.

As there is this year in every one of those 8 fields several kinds of crops, it will be necessary next year, in some instances, to plant roots where they are produced this year, and also to sow grain on the same ground which produced a crop of grain this year, but it is better to establish your plan at the commencement than to get into it by degrees. I would advise you, therefore, to adopt and continue the following plan without the least deviation:—No. 1. To be scarified this autumn, the weeds burnt, and the land ploughed before winter, and prepared in the spring for Barley and Oats. No. 2. To be planted part to winter and part to spring Vetches as food for horses in summer; that part of it which is in Clover may be planted to Beans, but should be ploughed before January. No. 3. To be planted to Wheat. No. 4. To be Mangel. No. 5. To be Oats or Barley. No. 6. Potatoes and Turnips. No. 7. To be Wheat. No. 8. To be Swedes. This is the alternate system of root crops followed by a grain crop, and this course over your 8 fields each year will also be the course over each of the fields during 8 years.

I would only make one observation. In following this system it is absolutely necessary that the land be made perfectly clean and kept free from weeds, and that the land be all drained and subsoil ploughed at least 14 inches deep, and that all the root crops be well manured either with stable-yard dung or guano and superphosphate of lime. By attending to this there is no difficulty in producing good crops of Wheat every two years, if you apply a good dose of dung to the previous crops of roots, and get a larger crop. Horse-hoeing the land between the drills deeply five or six times during their growth, and carting the crop all off the land by November, you have time to plant Wheat after all your root crops.

Under this system there must be an application of manure every year to each of the root crops, so that there must be provided manure for 44 acres per annum; and if you give to each acre 25 cart loads, there must be a yearly supply of 1000 cart loads. To manufacture this quantity of manure, it will be necessary for all the 44 acres of roots and the Clover to be consumed in the farm-yard, feeding-house, or boxes. Boxes are the best and most economical mode, not only for feeding the beasts, but of manufacturing the manure. The 33 acres will produce 800 tons of roots, and the straw of 44 acres of Wheat consumed by stock during winter, with the 30 acres of hay from the permanent pasture land, and the 10 acres of Clover consumed during summer, and the leaves of the roots carried home, will produce the quantity of manure you require; but as you cannot begin at once with this quantity of manure, it will be necessary for you the first two years to apply guano and superphosphate of lime, in addition to the dung you have. You may have to apply 1 cwt. of guano and 1 cwt. of superphosphate of lime per acre to all the root crops the first two years.

Yearly Value of this Farm.—With respect to the rent of these 217 acres of arable and pasture land, the relative price of the produce of arable and pasture land is as follows:—Where the average price of Wheat per quarter is 56*s.* or 7*s.* per bushel, the average price of beef and mutton has been 6½*d.* per lb., or 7*s.* 6*d.* per stone of 14 lbs. The produce, then, of this farm of 217 acres I value at 180 quarters of Wheat, including the poor-rates, church and road rates. If we therefore take the average price of Wheat for the previous year to get the money value of the produce rent for the present year, this will be a correct estimate for both arable and pasture land.

The following is an estimate of the horse-power, live stock, implements, and expense of cultivating this farm.

Horse Power.—Under this system of cultivation there will be 33 acres of roots, 11 acres of Clover, 44 acres of Wheat to cultivate yearly. There will be 1000 loads of manure to cart from the buildings to the fields, 800 tons of roots to cart from the fields to the buildings, 300 tons of the leaves of the root crop to fetch from the field to the yard for the stock to consume and trample into manure, besides the carting home at harvest the Wheat from 44 acres, and carting to market the Wheat as it is threshed out. As your arable land is at a distance from the farm buildings and your roads not good, you will require more horse power than if the buildings were in the middle of the farm and the roads good. You may require for the first two years, till you have got all the land into good order, drained, and subsoil ploughed, six horses; but afterwards four horses will be sufficient to do all the work of the farm, and all the carting required for your house establishment.

The Agricultural Implements required for this Farm— 136 *Pasture*, 87 *Arable*:—

- 2 ploughs with draft trees
- 4 one-horse carts
- 4 long harvest frames to fit the wheels and axles of the dung carts
- 1 subsoil plough
- 1 cultivator
- 2 pairs of heavy iron rhomboidal harrows with draft trees
- 1 pair of light iron rhomboidal harrows with draft trees
- 1 roller
- 1 corn drill 6 feet wide
- 1 seed drill
- 1 Turnip drill
- 2 horse hoes
- 4 sets of plough and cart harness for four horses.

Also,—barn implements, a threshing machine with shaker, winnowing machine and corn separator, small steam engine, chaff cutter, corn and Linseed bruiser, sacks, bushels, sieves, shovels, sack-barrow, &c.

The implements for the yards are ladders, forks, wheelbarrows, dung forks and shovels, spades, pickaxes, baskets, &c.; for the beasts and sheep, Turnip cutters, feeding troughs, hurdles, and troughs for the pigs.

Stock.—In estimating the quantity of stock which may be kept on the farm we must ascertain the quantity of food which the pasture land will produce during the summer months, and what the hay and roots will produce during the winter months. Of the 129 acres of pasture land, say 30 acres are made into hay yearly, there will, therefore, be 100 acres of pasture. I would propose that 10 dairy cows be kept and to breed 10 calves. The beast stock would be

10 cows,
10 year-olds,
10 two-year-olds, to be sold fat.

By the time they become three years old there would be

40 head of beasts; they may require 50 acres of the pasture land during the summer months. For the remaining 50 acres of pasture I propose a breeding flock of 100 ewes, 25 of their lambs to be reserved yearly to keep up the ewe stock, the remainder with the cast-off ewes to be sold either for breeding stock, or, when fat, to the butcher. Your roots during the winter months will enable you to keep more than your 40 head of beasts and the sheep you may have to fatten, and therefore you may have to buy from 16 to 20 beasts in autumn to fatten by consuming the surplus roots and oil-cake.

The skim milk of the dairy and the light grain and refuse roots will enable you to keep and dispose of from 60 to 80 pigs yearly. The consumption of this crop of roots with cake or Linseed and meal, with the Wheat straw for litter, will enable you to manufacture the quantity of manure you will require for your root crop.

The number of hands you may require as yearly labourers will be a shepherd, who must also be cowman, two ploughmen to work the four horses, but for the two first years you will require three ploughmen. To do all the other work which will be required on the farm, such as repairing roads, hedging, ditching, hoeing, weeding, &c., three men will be sufficient, but besides these there will be additional hands required during Turnip time, hay and corn, and root harvest.

ESTIMATE OF STOCK AND IMPLEMENTS REQUIRED.

4 horses at 40*l.* each	£160	0	0						
2 do. at 20*l.* each	40	0	0						
				£200	0	0			
Plough and cart harness for 4 horses at 6*l.* each ..	£24	0	0						
Plough harness for 2 horses at 4*l.* each	8	0	0						
				32	0	0			
4 one-horse carts 11*l.* ...	44	0	0						
4 long harvest carts 6*l.* ...	24	0	0						
				68	0	0			
2 ploughs with draft trees 6*l.*	12	0	0						
1 subsoil plough with trees ...	7	0	0						
1 cultivator	10	0	0						
2 strong iron rhomboidal harrows	7	0	0						
1 pair iron light do.	3	0	0						
1 roller	10	0	0						
1 corn drill	25	0	0						
1 corn horse hoe	15	0	0						
1 seed drill	5	0	0						
1 Turnip ridge drill for manure	10	0	0						
2 horse hoes	8	0	0						
				112	0	0			
4 dung forks 4*s.*	0	16	0						
2 shovels, 4*s.*	0	8	0						
2 spades, 4*s.*	0	8	0						
1 pickaxe, 4*s.*	0	4	0						
				1	16	0			
8 hay forks, 3*s.*	1	4	0						
12 do. rakes, 1*s.* 6*d.*	0	18	0						
3 ladders, 20*s.*	3	0	0						
Hay-making machine ...	14	0	0						
				19	2	0			
Threshing machine	60	0	0						
Shaking and winnowing machine	35	0	0						
Corn separator	18	0	0						
Horse-power	35	0	0						
				148	0	0			
Bushel, peck, and quarter ...	1	10	0						
Weighing machine	6	10	0						
Sack barrow	1	10	0						
100 sacks	10	0	0						
				19	10	0			
A chaff-cutter	15	0	0						
2 Turnip-cutters and basket ...	12	0	0						
1 corn and Linseed bruiser ...	10	0	0						
3 wheelbarrows	3	0	0						
3 tubs for pigs	1	0	0						
6 pig troughs	4	0	0						
Steaming apparatus for steaming food for pigs and beasts	15	0	0						
				60	0	0	460	0	0
Live stock:—10 dairy cows in calf at 14*l.*	140	0	0						
10 year-olds say at 5*l.*	50	0	0						
10 two-year-olds, at 9*l.*	90	0	0						
During summer or in autumn, say 15 3-year-old heifers, at 14*l.* each	210	0	0						
				490	0	0			
100 ewes in lamb, say 36*s.* each	380	0	0						
				380	0	0			
Pigs, four Berkshire sows, at 6*l.* each...	24	0	0						
Say 10 store pigs, at 30*s.* ...	15	0	0						
				39	0	0	909	0	0
Seed corn, say 20 acres in Wheat, 40 bushels, 6*s.* ...	12	0	0						
Seed corn, say 10 acres in Oats, 20 bushels, 3*s.*	3	0	0						
Seed corn, say 10 do. in Barley, 20 bushels, 4*s.*	4	0	0						
10 acres of Clover seed, say 20 lb. per acre, 200 lb. at 6*d.*	5	0	0						
10 acres Swedes, 4 lb. per acre, 40 lb.	3	0	0						
10 do. Mangel, 8 lb. per acre, 80 lb. at 9*d.*	3	0	0						
5 do. Potatoes, 8 sacks per acre, 40 sacks at 6*s.*	12	0	0						
5 do. Carrots, 8 lb. per acre, 40 lb. at 1*s.* 6*d.*	3	0	0						
							45	0	0
Horse corn, say 100 bushels per annum for cart-horses, 6 horses will consume 600 bus. at 2*s.* 6*d.*	75	0	0						
							75	0	0
Shepherd and cowman, say 12*s.* per week	30	0	0						
3 ploughmen, do. 11*s.* per week	75	16	0						
3 other men, do, 9*s.* do. ...	70	4	0						
To hoeing four times 33 acres of Turnips and Potatoes, 16*s.* p. ac.	50	8	0						
To harvesting 44 ac. of Wheat harvested to yard, 11*s.* ...	24	4	0						
To harvesting and storing 33 acres of roots at 10*s.* per acre	16	10	0						
To making 30 acres of hay, say 10*s.* per acre	15	0	0						
Dairy maid and food &c. p. an.	30	0	0						
							312	2	0
If a steam engine							156	10	0
							£2160	0	0

This sum will be sufficient to purchase the live and dead stock required and pay for one year's expense of the cultivation of your farm. The expense of draining may be about 6*l.* per acre, and if you drain 20 acres yearly this will cost you about 120*l.* per annum, and I think you may erect the additional buildings required for the accommodation of your stock during winter for about 200*l.*; but this expense will permanently improve the value of the estate, and must be paid by the landlord. The tenant or occupier has only to pay interest on the sum at the rate of say 4 per cent. in addition to his rent.

CONVERSION OF LAND IN COPSE WOOD.

[We add the following report on this subject as a pendant to the remarks by our correspondent "M. D." It is by Mr. Huskinson, of Epperstone, Notts, and was written at the request of J. E. Denison, Esq., M.P., by whom it has been published in a paper on the Grubbing up of Woods in the last Number of the *English Agricultural Journal*.]

Agreeably to your request, I beg to hand you the following statement of the result of converting wood lands into tillage, and in order to make it clear and definite I shall give you the actual result of a particular example, that of Brockwood Hills Wood in this parish. This wood comprised 136 acres, and consisted chiefly of Oak timber, and Ash and Hazel underwood. It had been wood for a long period; certainly for 500 years, and probably much longer.

The stock of Oak timber averaged 38 trees per acre, and the average size of the trees was 15 feet each. The underwood was of excellent quality; it had been cut at intervals of 18 years, and being in the vicinity of a good market, realised higher prices than the average of woodlands.

The soil was a strong red loam of considerable depth, and of good natural fertility. Although the stock of timber was not so great in number of trees, or so large in respect of size, as many of the ancient woods in Notts; yet altogether this wood was, I think, as fine and as profitable a specimen of woodlands as any in the county, and certainly much above the average. In 1840 it was proposed to the owner to stub this wood, and convert it into arable land, and in support of that proposition a careful inquiry was made as to the following points:—

1. What was the annual value to be expected in perpetuity from the wood, if continued as a wood?

2. What was the present net market value of the stock of timber and underwood, producing such annual value, supposing it to be stubbed and sold?

3. What would be the total expense of stubbing, burning, draining, fencing, and preparing for tillage?

4. What would be the annual value of the land for agricultural purposes, when prepared for cultivation, as arable land?

The first point, though essential to be known, is ordinarily very difficult to estimate, because in addition to the underwood, which recurring at regular intervals may be exactly valued, there is the question, whether the occasional falls of timber exactly represent the annual growth and increase of timber, or whether they fall short or are in excess of that increase, and trench upon the permanent stock? It is the want of accurate information on this point, which has led to the false and exaggerated notions of the value of woodlands which have hitherto prevailed.

In the case of Brockwood Hills a fair test existed on this point. The wood was purchased of Lord Howe in 1816, and the whole of the timber was then numbered and measured.

The timber was again measured in 1840, when it was proposed to stub it, and these two admeasurements gave the means of determining whether the timber felled between 1816 and 1840 fairly represented the growth of that period. It was found that the net annual income derived from the wood in the 24 years, from 1816 to 1840, averaged 70*l.*, being equal to an annual rent of nearly 10*s.* per acre. I may say here that my experience of other woods leads me to the conclusion that 10*s.* per acre per annum is above the net income derived from the average of woodlands in the midland districts of the county.

The second Question.—The present net value of the stock of timber and underwood was found by admeasurement and valuation to be 7344*l.*, or 54*l.* per acre, and this sum was slightly exceeded by the subsequent sale.

The third Question.—The expenses of stubbing and preparing for cultivation were for each acre as follows:

	£	s.	d.
Stubbing the roots of 38 Oak trees at 1*s.* each, being the extra cost above the ordinary price of axe felling	1	18	0
Trenching the ground 10 inches deep in the winter after felling, and stubbing all the roots of underwood, at 2*s.* 9*d.* per 100 square yards, or per acre	5	13	0
Burning all the Oak and underwood roots... ...	0	18	0
Spreading ashes after burning, per acre	0	3	0
Draining land 3 feet deep at intervals of 8 yards with pipe tiles	4	4	0
Fencing with double posts and rails and Quick, to divide the land into inclosures of 20 acres each, gates and posts to each field, average per acre...	1	17	0
Total cost	15	13	0
Credit—			
After stubbing and preparing at the cost here stated, the owner let the land for one year in allotments for Potato planting, at 3*l.* per acre, which being double the agricultural value, one half to be set off in deduction of the cost of preparation	1	10	0
Nett cost of preparation per acre ...	£14	3	0

The fourth Question.—After the first year of Potato planting the land was let as agricultural land to the tenant of the adjoining farm at 30*s.* per acre, and so continues, which is the answer to the fourth question proposed. The result to the owner was therefore as follows:—

	£	s.	d.
Annual value of woodland, during 24 years, as before stated	70	0	0
Annual value when cleared and cultivated thus:—			
Amount realised by sale of stock of timber and bark, as per statement	£7344	0	0
From which deduct expenses of conversion, as per preceding statement, 14*l.* 8*s.* per acre, and for 136 acres	1924	8	0
Surplus capital for reinvestment ...	5419	12	0
Assuming surplus capital to produce 3½ per cent. in perpetuity, the annual increase from such investment is	198	14	0
Add the rent of woodland for agricultural purposes at 30*s.* per acre, for 136 acres gives an income of	204	0	0
	£393	14	0

This result gives an annual income after stubbing of 393*l.* 14*s.*, against the income accruing from wood of 70*l.*

Gain of income to the owner by the operation of, per annum, 323*l.* 14*s.*

Although the case here stated, from the value of the timber and the high quality of the land, is somewhat exceptional, yet I believe there are few cases in the country where a pecuniary gain would not result from converting woodland into tillage; and I think it may be laid down as an axiom, that where the stock of wood is sufficient to pay the expenses of clearing, and the lands sufficiently fertile to be worth 20*s.* per acre for agricultural purposes, there the growth of wood is a loss to the owner.

The notion of woodlands being profitable, assumes that the annual growth of wood is equal to the interest of the capital stock plus the rent of the land. But I do not believe that a single instance can be shown of any Oak wood, which produces 3 per cent. interest in perpetuity upon the capital stock, and so there is the loss of rent during the entire period of its growth.

Home Correspondence.

Manure Water in Drains.—As many of your readers seem to doubt the accuracy of a statement put forward by Mr. Mechi, to the effect that manure water will retain its dark colour after passing through a clay soil to the depth of 4 to 5 feet, I beg to say, in corroboration of Mr. Mechi's assertion, that I observed a similar result in the autumn of 1852, when having dressed a field of some 9 or 10 acres with rich farm-yard manure, I was prevented from ploughing it in by a break in the weather, which lasted for nearly a fortnight, during the whole of which time the drains discharged a highly coloured fluid, which I tasted and found anything but agreeable, the manure lying all this time spread upon the surface. From the moment however that we got it turned under ground the water from the drains resumed its usual pellucid appearance. At first I confess I was both surprised and disappointed, but on reflection the cause appeared to be obvious and simple. The heavy rains splashing on the dung washed and rinsed it thoroughly, and passed at once to the drains through the cracks and fissures to be found in all well-drained land, without giving time for any chemical action of the soil; but once covered in by the plough the rain could reach the dung only by slow percolation through the upper soil, and no longer rinsed the dung as before, consequently the soil had sufficient time to absorb and appropriate what before passed through the cracks and fissures without doing any good. Any one, however, who chooses to take the trouble of pumping a few thousand gallons of liquid manure on a meadow even in wet weather will soon be satisfied of the leaky condition of a well and deeply drained field, and this I think is one of the many objections to the liquid manuring system on strong soils, for no doubt some portion of its manurial properties must be retained in water which had so strong a taste as that passed through my 4 and 5 feet drains. I wish, however, merely to state the fact to which I have alluded above, and let others more competent to the task draw conclusions. *J. C. Sherrard, Kinnersley Manor, Reigate.*

The Keythorpe System.—I am much obliged to Mr. Sherrard for the notice with which he has honoured my letter on the Keythorpe drainage in your paper of the 26th of April; but as I have already two opponents on my hands, in Mr. Bailey Denton and Mr. Hewett Davis, I must beg leave to decline the invitation or challenge, or bet, whichever it may be. The two gentlemen I have mentioned agree in denouncing the Keythorpe system, but for different reasons, and they cannot both be right. Mr. Denton approves of its irregular intervals, in contradistinction to what he has named "gridiron" systems; but he charges it, rather unfairly, with being a system of shallow drains, seeing that it has drains 7, 6, 5, 4, and 3 feet deep. Unfortunately, however, there happened to be a few only 2 feet deep, which Lord Berners has explained to be virtually 3 feet deep. Mr. Davis, on the other hand, is satisfied with the depth of the drains, but complains of the irregular intervals. Again, while Mr. Denton places his drains at irregular intervals, he rejects the principle of test-holes, by which the distances and depth of the Keythorpe drains are regulated, while he has not told us by what principle he regulates the distances of his own. Both Mr. Denton and Mr. Davis deny the existence of the subterranean furrows of which the Keythorpe

system takes advantage. I wish, also, Mr. Denton would make up his mind whether he will be the opponent or the inventor of the Keythorpe system, for since the publication of the paper by M. de la Trehonnais in the *Journal Pratique d'Agriculture*, which has caused so much sensation in France, he seems to wish to act in both capacities, which is clearly impossible. However, as M. de la Trehonnais is now in the field, and has taken up the discussion in a most temperate and conciliatory spirit, and as I am confident he will do full justice to the system which he has so ably explained to the French Agriculturists, I am quite satisfied to leave the discussion, for the present, to him, reserving myself for another pamphlet, when Mr. Denton shall have published one which I rather think he has in contemplation, or until the discussion shall have reached that point that I think "my battle" is come. *J. Trimmer.* [This unfortunately did not reach us in time for last week's paper.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *May* 14:—Mr. Raymond Barker V.P., in the Chair.

Prof. Way delivered a lecture on the Composition of Drainage Water, for which, on the motion of Mr. Raymond Barker, seconded by Mr. Fisher Hobbs, he received the best thanks of the meeting.

Lord Portman made the following communication:—

"The manure mentioned in the Journal of the Bath and West of England Agricultural Society, pubished in 1856, page 314, under the name of the London Manure Company's Superphosphate for Turnips, was bought by Mr. E. Pester, my bailiff, of Mr. J. U. Phillips, of Dorsetshire, and was called and labelled by Mr. Pester—'The London Manure Company's Manure.' It appears on investigation to-day that the manure delivered by Mr. Phillips was sent in bags marked 'Superphosphate Compost Company, London,' and that Mr. Phillips is not the agent of the London Manure Company of Mr. Edward Purser.

"All the remarks of Professor Voelcker are therefore wholly inapplicable to the manure sold by the London Manure Company.

"I therefore certify that having been misled by my bailiff I have most unwillingly and quite unconsciously permitted the publication in the Journal of the analysis of manure under a wrong name, as it was not purchased from the London Manure Company or their agents.

"I authorise Mr. Purser to publish this statement in any way he thinks fit.

"Bryanston, May 8. (Signed) "Portman."

Farmers' Clubs.

London.—*On the Application of Geology and Hydraulics to the Drainage of Land.*—Mr. Robert Baker, of Writtle, referred to the various depositions of the earth's strata in their regular order and succession, in relation to each other, and explained by the geological map the respective positions assigned them upon the surface of this kingdom, passing by proceeding from the south-east in a north-westerly direction the diluvium of Norfolk, consisting of beds of sand and gravel, to the crag, clay, chalk, gravel, loam, and other deposits of Suffolk and Essex, passing over the London clay to the chalk clay, and thence to the chalk of Cambridgeshire, the green sand of Huntingdonshire, to the oolite of Somersetshire, &c. He then explained that these strata were of an alternating character, a porous soil usually resting upon a tenacious or impervious soil beneath, the water percolating freely through the former until it reached the latter; and there, meeting with resistance to its further descent, flowing underground until reaching some point where the obstruction was least, it flowed out and formed springs. Were it not for the retentive character of the clay, by which the water was prevented sinking beyond our reach, it would not be available for our use, thus almost disproving the opinions advanced by a certain class of drainers, that water percolates freely through compact homogeneous clay. Mr. Baker next proceeded to explain the nature of Artesian borings for water. The ordinary springs he had referred to were produced by water escaping from reservoirs beneath. The description of land lying above was called springy land, and it required a mode of drainage entirely different from land of more usual description, which obtained an overcharge from above, from which it could not be relieved except by evaporation, or by slowly percolating through the subjacent soil. Water by its own gravity would descend into a soil more or less porous, until from becoming fully surcharged it would flow over the surface at the lowest point of inclination, or it proceeded laterally and horizontally to an adjacent drain, and thus, by gradually discharging itself through the soil, left it dry and fit for cultivation, and the production of agricultural crops of grain or roots. Upon the majority of strong clay soils the largest portion of the water that became absorbed effected its passage into drains a little below the point where the cultivable soil united with the tenacious subsoil below, or if the upper stratum happened to be porous it sunk deeper, until at length it found its way into the drain in the manner before described. By way of experiment this winter he had a trench cut exactly one yard from a new pipe drain, 3½ feet deep, the drain being also of the same depth, and parallel thereto. This trench was filled with water, which during the first night was discharged to the depth of 18 inches, but the remaining portion of the water remained in the trench, to the depth of about 2 feet, for several days afterwards; proving that it could not escape through the clay, or if it did so, only by percolating very slowly. Water sinks by its own gravity, and if it meets but little resistance exerts a pressure in accordance; but if a soil of close texture intervenes it percolates only, and that slowly, and is partly upheld by it; but as the resistance is always least nearest the drain, the water escapes at once rather than by sinking in the soil downwards, where a greater resistance exists than is found in the direction of the drain. The space of soil nearest the drain being the first that becomes discharged of water, the next portion of the soil also discharges itself, and so in succession to half the distance betwixt the nearest drains, and continues so to discharge itself until the whole of the upper soil becomes released of its superabundant supply; but if the distance is too great betwixt drain and drain, the water does not escape freely from those points furthest distant therefrom. It will thence become apparent that in draining soils of a retentive character at the surface, the depth of drain is no longer an object than is absolutely necessary to carry off the water freely. It should be so deeply placed below the surface as not to be liable to derangement by external interference, and for this a drain 3 feet in depth would be amply sufficient. But if, on the other hand, the upper soil is kept in a wet state by the upward action of water from below, then the drains will need to be made deeper, to enable them to carry it off sufficiently, and not to allow it to rise by the pressure produced from below, by its flowing from a higher level, aided by the capillary action going on in the soil above. Mr. Baker stated that undoubtedly the line down the hill was the best (provided it was not too sudden); and explained that a drain of 3 feet in depth would drain a porous soil, even deeper than the drain itself, as water lying above any point of exit would be drained to the depth of the point in question, in a direction up the level of the drain; but that a drain diagonally would drain the soil lying above it a further distance than the soil below. Mr. Baker then adverted to the effects that had been produced at a later geological period upon the surface soils of this kingdom, by water converting the clay subsoils into ridges, almost similar to the ridge and furrow system pursued above; and afterwards by subsidence filling the interstices so excavated with porous soils, through which water percolates freely. Hence the system pursued upon the Keythorpe estate of Lord Berners, in Leicestershire, and which had been drained by taking advantage of this circumstance, by first digging trial holes at various distances, from point to point, and afterwards by observing how far distant the drains operated upon them, cutting other drains to secure a perfect system. Mr. Baker said that this question had been gravely discussed, with little advantage; the fact was, that every drainer set up a theory of his own, which he would not resign, however convincing any other theory might appear, or however much practice confuted it altogether. As much discussion had probably taken place respecting pipes in clay as had taken place over pipes of clay, and probably with as little satisfactory result. Mr. Baker then referred to those indications of the character of soils afforded by their natural vegetation as indices to the need of drainage.

Mr. Bailey Denton said that Mr. Baker had stated that drains at 4 feet depth would not draw water, and that clay was impervious. It was his intention to publish the result of some experiments which went to show the facility with which water would penetrate clays, the water running from the outlet answering to the rainfall. At Haiskworth, in Bedfordshire, the soil was proclaimed to be undrainable, but it had been drained nevertheless, and that with such accuracy that it responded most minutely to the rainfall. That fact was an incontrovertible answer to all that might be said to the contrary. He had been challenged to give an opinion with regard to the Keythorpe drainage. He had only recently seen it. The quality of the soil at Keythorpe was various. There were clays and there were sands, there were gravels and there was rock. The gravels and sand were drained perfectly in some places; but it appeared as if, where it was perfectly drained, it was done by accident and not by system. As to the clays, some portion of them was not drained at all, another portion was drained shallow, and again another portion was drained deep and drained well. But, upon the whole, there seemed to be a total want of anything like system or premeditation. Several fields were undoubtedly well drained, but the majority were defective. Mr. Trimmer left the impression by his paper that the estate consisted of clays, whereas a large portion of it was gravel and sand. Lord Berners had, no doubt, made use of those variations in the soil to drain the clays, but he had not made use of them to empty the ridges and furrows described by Mr. Trimmer, and the effect was very small indeed.

Mr. Trimmer understood Mr. Denton to say that the Keythorpe estate was not effectually drained, and also that the subterraneous furrows (the corrugated surface to the subsoil), which he (Mr. Trimmer) had described, did not exist. The Keythorpe drainage in fact depended very much upon the presence of those furrows, and M. de la Trehonnais had written a letter in the *Mark Lane Express*, in which he spoke of those furrows, controverted the statement of Mr. H. Davies that they did not exist, asserted that they were at Keythorpe, and that the Keythorpe system depended upon them. With regard to the observations of Mr. Baker, as to the percolation of water down to a retentive bed of clay, there stopping, he was lately over an estate in Suffolk on which he expected to find these furrows and ridges, and to which he thought the Keythorpe system would be applicable; but although there was the same boulder clay on which he relied for the applicability of the Keythorpe drainage, the surface was level, and not a drop of water came in, unless at the junction of the boulder clay with the brick-earth clay. Trial holes were sunk to a depth of 20 feet, and still no water came in. On the level surface which Mr. Baker had described, therefore, there was a porous soil resting on a stiff clay, yet not a drop of water came in except at the junction of the two clays; and on that kind of soil and surface he certainly did not see what was to be gained by carrying the drains below the junction.

Mr. B. Webster gave a short history of drainage. Elkington began by cutting off the springs. He attempted the same system by deep drains on the strong clays of the country, and it was found not to succeed. Mr. Smith, of Deanstone, then introduced a system of uniform drains, which answered well, and was adopte throughout the country. Later still Parkes recommended a system of deep pipes in strong clays, and this had decidedly not answered. Mr. Denton would bear him out in saying that at any rate wide intervals and small pipes had decidedly failed. And if they examined the drainage in any county in England they would find that deep drainage at wide intervals was not only objectionable, on the ground of expense, but had likewise most completely failed. So that the question still remained to be decided, whether upon those strong retentive soils there was any advantage in going beyond the depth of 3 feet. According to the report contained in the Highland Sceiety's Journal, it appeared that Mr. Hope, of Fentonbarns, had proved that on his farm in East Lothian the land, which was shallow-drained at moderate distances, produced heavier and better crops than where it was drained deeper. The experiment was first tried in 1842, and this very day he (Mr. Webster) had received a letter from Mr. George Hope, in which that gentleman stated that he had been thoroughly convinced, from that time to this, that on the retentive soils there was no advantage in going deeper than 3 feet, and that the crops grown on land drained at that depth were decidedly superior to those grown where it was drained at a greater depth. Of course then, if there were no advantages to be derived from carrying out deep drainage, it would be wise to save the expense of going beyond 3 feet. At a discussion in the Society of Arts a month or two ago, Mr. Chitton, a most experienced man, stated that where clay land was drained the action of the air and water passing through it so altered the very nature of the strong yellow clays, that in a few months they would become a deep rich loam. Now that, he took leave to say, appeared to be a perfect absurdity, because they might expose the strongest clays to the action of the sun and air for years, and yet they never altered. As to the system of drainage pursued at Keythorpe, he had been there, and was of opinion that the greater portion of the land was most effectually drained. He believed that that system would prove most advantageous if carried out where it was perfectly applicable.

Mr. Sidney defended the system advocated by Mr. Parkes and his practice as illustrating it.

Mr. Thomas having had 30 years' experience as a farmer, and 20 years' experience as a drainer, wished to say one or two words. As regarded stiff retentive clays, his present mode of proceeding was to drain them with parallel drains, generally at a depth of 3 feet; and he thought that if they could get the water off by going that depth, it was folly to incur the expense of going lower. In the case of other descriptions of land he had gone 6 or 7 feet deep; but then he had made one drain suffice for 30 acres. He would defy any man to lay down any rule which could be applied universally; they must always be guided to a great extent by the peculiar circumstances of the case, and the nature of the soil.

The Chairman said they must know the nature of the soil to be drained before they could tell what the depth should be: they must cut the drains in such a direction that they would most effectually cut the strata of the soil diagonally, so as to carry off the water. He saw no objection himself to draining 4 feet deep, or even more, provided the drains were not put too far apart, though the cost would perhaps prevent him from going more than 3 feet. The draught of the water through the soil, as affected by the air admitted into the pipes, formed the great ground of debate between the deep and the shallow drainers. As regarded stiff clays, having observed fissures in all directions towards the drains, he was himself strongly of opinion that water did penetrate into the subsoil to the depth of 4 feet. Being one of the party who recently had the pleasure of visiting the Keythorpe estate, he must confess that he did not consider the system of drainage there perfect. He observed, in some cases, holes full of water within 2 or 3 feet of the drain; and he thought he was justified, therefore, in assuming that the land was not thoroughly drained. He thought the estate would have been more effectually drained by means of a few deep drains, constructed on the gridiron system, than by means of drains running through the land in various directions without any regularity.

Mr. Baker proposed the following resolution, which was carried:—"That the principles of draining are so far dependent upon a knowledge of geology and hydraulics, so as to render information upon these subjects essential to its utmost development."

Miscellaneous.

The Paris Show.—The *Moniteur* contains the following:—"The Universal Prize Cattle and Agricultural Show of 1856, which will open on the 23d instant at the Exhibition Palace, will be the most complete, both as regards animals, agricultural productions, and implements of husbandry, that has ever been presented to the attention of the public and to the study of agriculturists. All the declarations from foreign countries have not yet reached the Minister of Agriculture; notwithstanding, the inscriptions already amount for the bovine race to 1314, both bulls and cows. In the above number France stands for 488 head; England, 132; Scotland, 174; Ireland, 54; Austria, 100; Switzerland, 184; Belgium, 53; and Holland, 35. Denmark, Saxony, Bavaria, Wurtemberg, the Grand Duchies of Baden and of Luxembourg, supply the rest of the contingent. The exhibition of the ovine race will not include less than 1268 rams and ewes, and by adding to the above figures 174 pigs which have been already inscribed, it makes up a total of 2756 animals. There are also 503 lots of poultry. As to implements of husbandry and agricultural productions, the number of declarations which have already reached the Minister amount to about 2000 of the former, and more than 4000 of the latter."

Application of Lime in Cheshire.—Is there a farmer present who can use lime with advantage? (Cries of "No.") Mr. Woolf says it is not worth the carriage, and Mr. Jackson too says the same. It quite proves to me that the gentlemen who have addressed us from other counties are not conversant with the soil or the peculiar character of our Cheshire farming. Lime is one of those things we must do without, because we have found by experience that it won't pay us. I could take them to two fields that I have treated in the same way; one half of each field was beautiful, and the other was abominable, and the reason was, that one half had never seen lime and that was much the better one. Wherever lime is put you must not put bones. If you do, you cannot obtain any advantage. *Mr. Dutton at Chester.*

Calendar of Operations.

MAY.

Border of the Fens, *May* 12.—Generally speaking the Wheat plant is remarkably strong and healthy, but there are some exceptions, particularly on fenny or light soils where insects or frosts have thinned and weakened it so much as to cause some persons to plough it up and sow spring Wheat or Oats. We have 10 acres of Wheat thus injured, but instead of resowing the piece with corn we propose to try half a bushel of Rye-grass per acre, with a sprinkling of Clover; we regard this as a kind of forced application of a plan adopted by several farmers where the land is clean instead of paring or scuffling Wheat stubbles in the autumn; their object is to feed it off with sheep in the autumn or early in the spring, when if not worth retaining as seeds they take a crop of Oats or Coleseed. To procure this additional "sheep keep," some who grow Clover seed use up

their tail seed, and perhaps add a little Rye-grass, or even throw a few hay seeds on to make their stubbles worth stocking; but the latter practice cannot be commended, nor indeed do we altogether approve of letting the land remain so long untilled, but our friends say in its favour that they are more certain of having good Turnips on high land by ploughing thus late. It is right to add that no one could profitably adopt this practice but those who had their farms in good condition and very clean. Potatoes have gone in well, but the very early planted have suffered greatly from the frost by the shoots being completely blackened and nipped off. Mangels want a little moisture to start them, so does late sown spring corn; the early Oats and Barley with Beans and Peas all look forward and healthy, always except some pieces in the fen where a high wind in dry weather carries off the top soil, and occasionally a portion of the seed also. Most of the beasts have been turned out of the yards, and where the pastures are not overstocked there is now a tolerable bite for them, but in many instances they have literally had "short commons," consequently markets have been crowded with lean cattle sadly out of condition, entailing a sacrifice on the vendor. Ewes and lambs are entitled to a good piece of Grass land, but the growth has been materially checked by frosts and cutting easterly winds, yet sheep seem to have done well, and the lamb hoggs have been selling at very high prices, as indeed have fat sheep also, not less than 7*d.* per lb. having been obtained all the last winter and spring. We are now busy carting manure from the yards just vacated by beasts. We prefer when practicable to make the heap in the field where it will be wanted, and in tidy square lots 2 yards high; it will then soon settle down as well as if carted on and over, and with considerably less vociferation and twisting and straining carts and animals to make a so-called solid heap. Bones are dear; so are many of the artistically manufactured and worded artificial manures, no matter what the nominal cost of the latter; and it is something wonderful to see the eagerness and simplicity with which the complying and trusting farmer resigns his hopes of green crops and his money into the hands of agents, whose business it is to supply the ever increasing demand for something stimulating as a manure. Alas! in how many disguises mother earth is invested to appear better than she is, and how precious ought the ha'porth of sack to be that flavours such a heap of rubbish. Guano — real Peruvian guano, is the thing — no (so-called) damaged stuff; bones, and no mistake, should be bought, although at a high figure; nitrate of soda, salt, soot, chalk, anything that can be recognised, and answer to the sample; but as for chemical mixtures and quack compounds that promise so much and realise so little, we cannot recommend too much caution to those who buy them. *J. W. Peterborough.*

Notices to Correspondents.

ALDERNEY COWS: *John Charlton* says:—"By leaving out the word 'milk' in one of the paragraphs of my late communication respecting Alderney cows, you have perfectly stultified my meaning. In the 20th line of Home Correspondence you have it: 'The butter is in great request by the country people as an article of food, and is pretty palatable.' In reading the above, any one would suppose the butter (which is most excellent, and will keep good for weeks without salt being added to it) was very indifferent—being only 'pretty palatable.' It should have been rendered—'The buttermilk is in great request by the country people,' &c. It is the practice here, as in Ireland, to allow the milk and cream to turn sour together before being poured into the churn. I should also have added, as a caution to British purchasers, that many small cows from Brittany (France) have been smuggled, as it were, into England, and there sold as Alderneys, which they only resemble in size. As milkers they are vastly inferior. By your note of admiration thus placed—'The pure Guernsey cows are infinitely (!) larger,' &c., I am led to suppose I may have fallen into some mistake in regard to the difference in size of the Guernsey and Jersey cows. This is very probable, never having visited the latter island, and having only my own local observations to trust to, with information obtained from some respectable agriculturists I have conversed with in this island, combined with the well written 'History of Guernsey' (large 8vo, 1841), by Jonathan Duncan, Esq., B.A." [The letter was printed as received with the exception of the note of admiration, which was intended as a good humoured smile at a very pardonable extravagance].

BOYD'S SCYTHE: *X.* The connection of blade and snaith is ingeniously effected by a short piece jointed to them at either end respectively. The one joint, that of the blade, is nearly horizontal when the tool is held at work, thus enabling the plane of the blade itself to be altered so that its cutting edge shall be higher or lower in relation to the back of the blade; and the other joint is nearly vertical, or rather at right angles to the plane in which the handle and the blade lie, so as to enable the widening or otherwise of the angular distance between the two. These are the two adjustments which the blade of a scythe requires—the one to fit it for work of different kinds, as for lawn or field—and the other to fit it for workmen of different height. The means for these adjustments furnished by rings and wedges in ordinary implements are exceedingly imperfect—those which Mr. Boyd has thus substituted are both simple and efficient. A little consideration will show that when at work a much greater strain will come upon the latter of these joints than upon the former, and accordingly while a single screw bolt and nut is all that holds the scythe to *its* end of the jointed connecting piece, Mr. Boyd has provided in the hinge which holds the handle that the cutting cheeks shall be radially grooved, so as to insure the fixity of their relative portions when they are once screwed up to one another.

BUTTER ADULTERATION: *X.* It is said to have been discovered as you say. Flint will, under certain circumstances, assume a gelatinous form, and in this form is capable of being incorporated with butter.

FOXES: *J H* asks if there is any way of scaring them from yards by rags dipped in something they dislike, and what are the ingredients used?

FRENCH AGRICULTURE: *F R S.* Mr. Caird's letter in the *Times* of Thursday, for some of which we may find room next week, is an answer to your question. France has more than half its extent of cultivable land in corn, which yields (of Wheat) 12 4-5ths bushels per acre, while England has only a quarter of its extent in corn, and Wheat yields 26½ bushels per acre. These are to be regarded as effects of climate, so far as relative extents are considered, and as effects in spite of climate, so far as relative produce per acre is concerned. The greater produce of Wheat in England under a less favourable climate is attributed by Mr. Caird, and no doubt justly, to the quantity of manure available from the greater proportional extent of feeding ground which England furnishes to manure-producing stock. And the remedy for France, as he points out, is less in the more liberal use of artificial manure, of which indeed there is no sufficient supply, than in the gradual extension of cattle and sheep culture in that country. The more extended cultivation of Mangel Wurzel and other root and forage crops must be the preliminary step, and this carried on along with that improvement in quality which the national cattle shows are so likely to foster, will result ultimately in such an extension of the acreable produce of the Wheat and other corn crops as will immensely increase the agricultural wealth of France.

SELF-ACTING RAILWAY: *W C M.* Apply to Mr. Boydell at his foundry, Camden Town. He will no doubt furnish you with all the information that a short experience of it hitherto enables.

ROYAL AGRICULTURAL SHOW AT CHELMSFORD: *T Barker.* The entries close on the first day of June. This has been advertised in our columns. Send to J. Hudson, Esq., Secretary to the Royal Agricultural Society of England, 12, Hanover Square, London.

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Fairy Queen (Paul's), glossy pink	1	6
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James Veitch, large deep rose	2	6
Jeanne d'Arc, superb blush, rosy centre	1	6
Jules Margotten, bright cherry, large	1	6
Lord Raglan, lively red, bordered with violet purple ...	5	0
Louise Odier, bright pink, perfect form	1	6
Leon des Combats, splendid large crimson	2	0
Madame Désiré Giraud, carnation striped flowers of the form and size of Baron Prevost; white, striped with rose and crimson	5	0

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Madame Harriet Stow, delicate rosy pink	2s.	6d.
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Madame Masson, vivid crimson red changing to violet	5	0
Madame Manoel, large blush rose, crimson shaded ...	2	6
Madame Place, fine lively rose, most perfect	5	0
Madame Theodore Martel, superb pale flesh	3	6
Madame Rivers, pale flesh, nearly white	1	6
Monsieur Piggerou, very bright rosy carmine	5	0
President Menoux, large and very double pink	2	6
Prince Leon, very rich crimson, fine and distinct ...	2	6

BOURBONS, ETC.

	s.	d.
Etoile du Nord (Bourbon) lively red, purple shaded ...	5	0
Gen. Druot (Perpet. Moss) deep crimson, violet shaded	2	6
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Margaret Dubourg (Bourbon) very large lively rose ...	3	6
Prince Albert (Bourbon) rich vivid crimson	2	6
Salet (Perpet. Moss) fine expanded pale pink	3	6

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Mademoiselle Rinz, crimson with lemon centre.
Monsieur Rovier, a very fine scarlet.
Moussa Pasha, large dark blue, with white centre.
Nelly, very fine lilac,
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Priced Lists of Plant Tubs and Boxes forwarded on application.

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SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

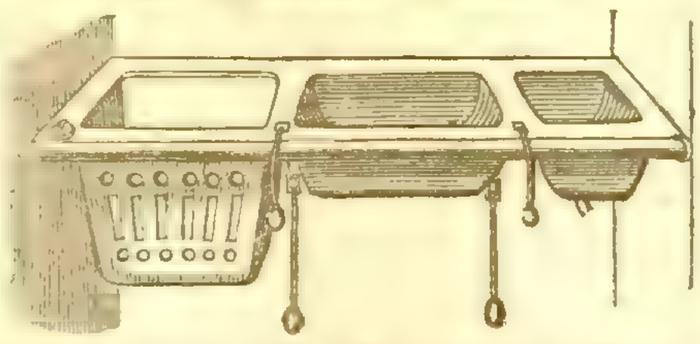
W. F. Roe (late Freeman Roe), Hydraulic Engineer, 70, Strand, London.

JOHN WARNER AND SONS' Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2*l* 19*s*., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s*. upwards. Metallic String from 5*d*. to 1*s*. 3*d*. per lb.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.

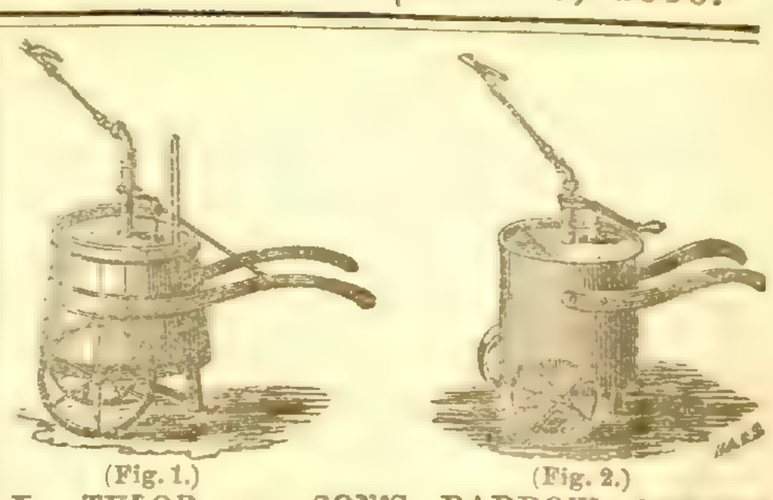


THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps. James Barton, Iron Founder, &c., 370, Oxford Street, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, Warranted Good by the Makers.

JOSEPH MAPPIN AND BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London. Drawings forwarded by post.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high		...	£4	10
No. 2	„ 15	„	„ 45	„	...	5	10
No. 3	„ 28	„	„ 45	„	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high		...	£2	15
No. 13	„ 12	„	„ 30	„	...	3	5
No. 11	„ 16	„	„ 40	„	...	4	0
No. 12	„ 24	„	„ 45	„	...	5	0
No. 14	„ 30	„	„ 45	„	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s*. 3*d*.; No. 2, do., diameter of barrel, 1⅝ inch, 12*s*.; No. 3, do., diameter of barrel, 1⅜ inch, 10*s*. 6*d*.

Read's Syringe, with two roses and one jet, 19*s*.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s*.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. Lawes, 1, Adelaide Place, London Bridge.

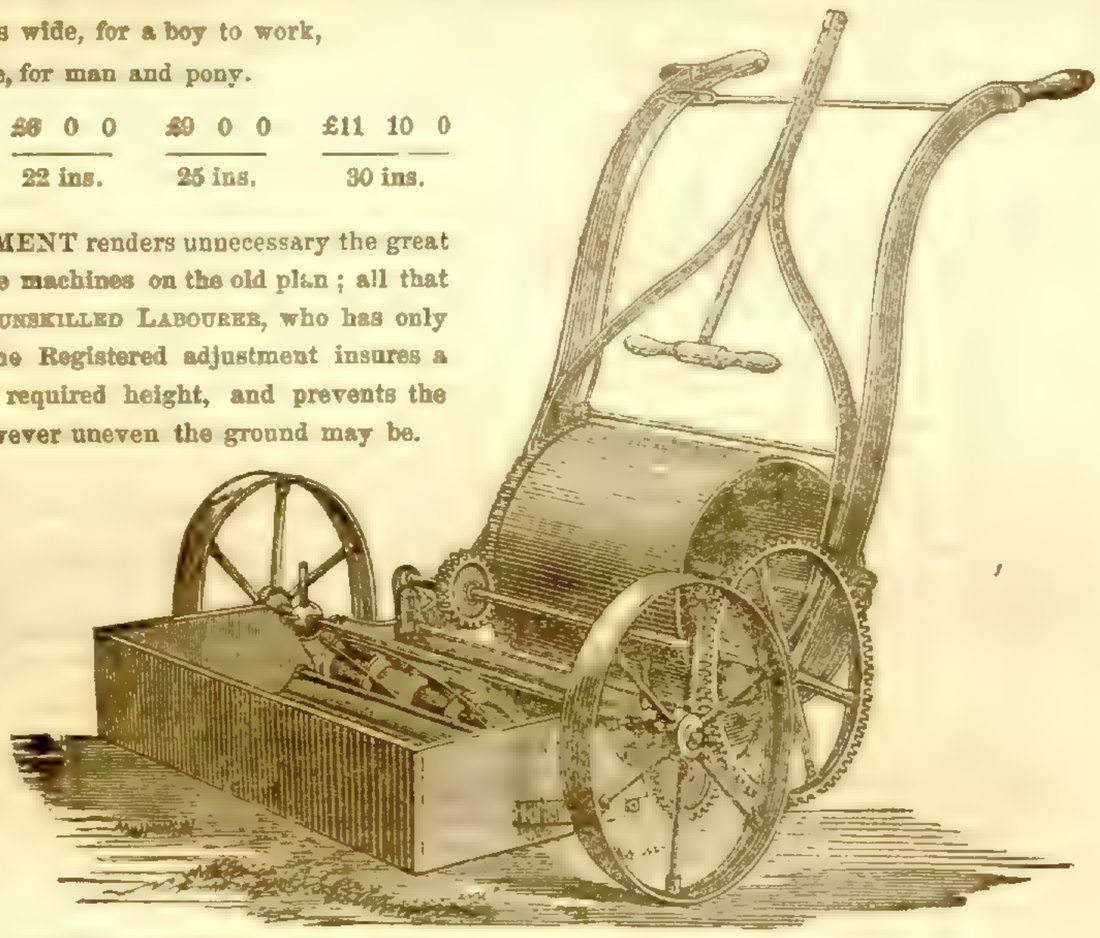
This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d*. Stop-ends and outlets 6*d*. each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d*. per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Glo'ster, Bridgewater, and Rugby.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 19 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled Labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

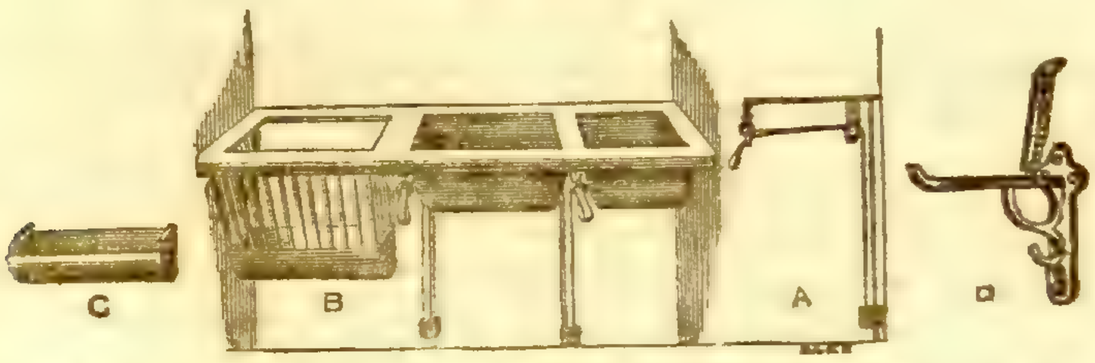


Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.
Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 38 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

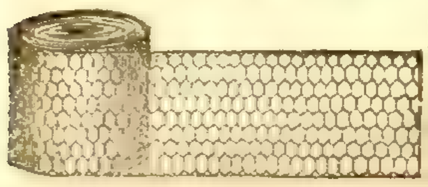
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



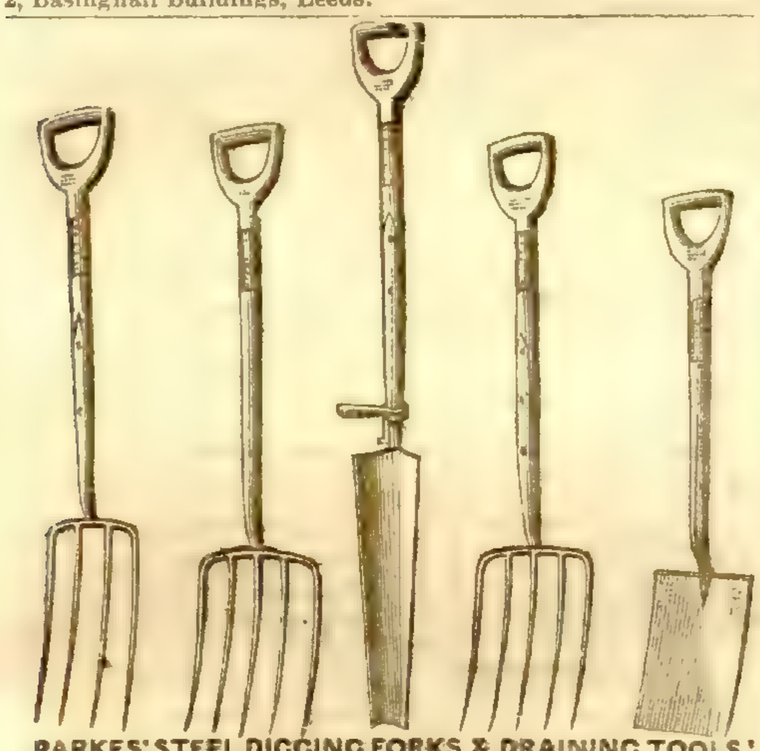
Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.



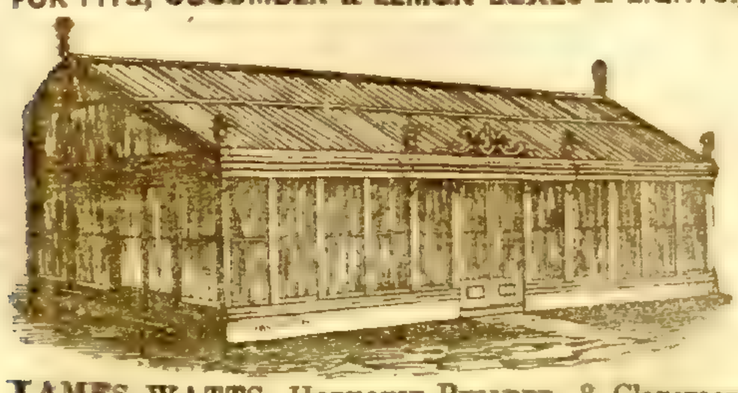
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or Estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HEATING BY HOT WATER.

J. WEEKS AND CO.'S BOILERS.—At the beautiful seat of W. Leaf, Esq., Streatham Park, Streatham, Surrey, can now be seen additional proofs of the efficiency of WEEKS'S BOILER. One is there fixed, effectually heating an incredible number of Forcing houses, Pine stoves, and extensive ranges of forcing pits. This exquisite establishment has long been celebrated for growing the finest Pines, Grapes, &c., &c., under the able management of Mr. Page, the Gardener, who will kindly show and explain the hot-water apparatus, &c.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea, London.

Plans, Estimates, and Illustrated Catalogues, comprising Horticulture in all its branches.

PUBLIC INVITATION.

HEATING EXTENSIVELY BY ONE BOILER.

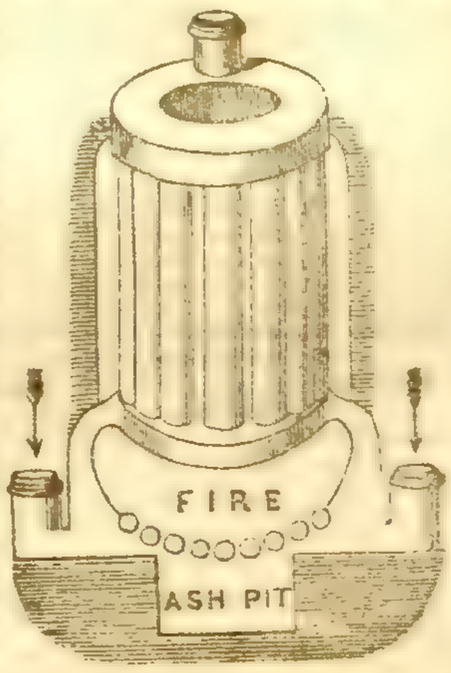
JOHN WEEKS & Co., King's Road, Chelsea,

HAVE this Season the pleasure of being able to refer to several other extensive Establishments where they have fixed ONE BOILER to do the same work which hitherto has taken from six to twelve boilers.

All the world knows the highly respectable firm of Messrs. Edward Henderson & Co., of the Wellington Nursery, Wellington Road, St. John's Wood, and as that Establishment is open to the public Messrs. JOHN WEEKS & Co.'s Hot-water Apparatus will now have a chance of being fairly tested and impartially represented during this winter. Messrs. Edward Henderson & Co. have now adopted what is called the "ONE BOILER System." At their extensive Nursery any gentleman or horticulturist can see the Hot-water Apparatus of several extensive ranges of Hothouses, all connected to ONE BOILER. We will here quote Mr. Edward Henderson's own words, showing how he approves of Messrs. J. WEEKS & Co.'s system of heating by hot water. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than two sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 800 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to several extensive private establishments, where their Hot-water Apparatus can be seen in operation, and in every case with the same favourable results. J. W. & Co. also adhere strictly to all their former statements relating to their ONE BOILER system, and most respectfully solicit a visit to their Garden Establishment at Chelsea, which consists of Hothouses, Greenhouses, Conservatories, Pits, &c., the whole measuring 1000 feet in length, exposing to the atmosphere upwards of 16,000 superficial feet of glass, the whole heated by ONE BOILER, 5 feet high by 3 feet 6 inches in diameter, the water in the various houses circulating through 5000 feet of Hot-water Pipe.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of such extraordinary power.

JOHN WEEKS & Co., King's Road, Chelsea,
Horticultural Builders and Hot Water Apparatus Manufacturers.

At our two establishments horticultural science is fully carried out in all its branches, combining all the improvements of the day. We have always in stock ready for immediate use a very extensive variety of horticultural erections; also Forcing Pits and Frames of all sizes. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water; also of all the best Stove and Greenhouse Plants; also of the best Vines, Pines, Peaches, and other Fruit trees.

JOHN WEEKS & Co., King's Road, Chelsea.

MAPPIN'S CUTLERY AND ELECTRO-PLATE WAREHOUSE is Removed from Moorgate Street, London, to the extensive Premises, No. 67 and 68, King William Street, London.

JOSEPH MAPPIN & BROTHERS, Queen's Cutlery Works, Sheffield.

TO FLORISTS, ETC.

TO BE LET on Lease for 7, 14, or 21 years, three miles west of London, a NURSERY, with Dwelling House, Show House, Growing Houses, and Pits. Ground well stocked with Shrubs, &c., and every convenience for business.—Apply to Mr. AMBROSE, the Raven Inn, Battersea, Surrey.

SILKWORMS.

JOSEPH FRYER, JUNR., can supply any quantity of SILKWORMS at 1*s.* per 100, and the Eggs at 2*s.* 6*d.* per 1000, free by post.—Clarendon Nurseries, Camberwell.

JAMES WARD can supply EGGS from first-class Birds of the best Strains in the country. Dorking, Brahma, Aylesbury Duck, and Rouen Duck, at 15*s.* per dozen, including case.—Address, Holme, Stilton, Hunts.

TO BE SOLD, EGGS from Pure White-faced Spanish Fowls of extraordinary beauty, great size, and with immense combs. They are bred from the Birds which took the Liverpool Silver Cup of 1855 and 1856. Orders will be attended to according to priority. Price 12*s.* per doz.; box, 1*s.* extra.—Address Mr. WM. PLUMMER, The Grove, Catton, Norfolk.

EAST INDIAN ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on MONDAY, May 26, at 1 o'Clock precisely, an importation of ORCHIDS from India, containing the magnificent Vanda gigantea, a plant now introduced for the first time, Saccolabium guttatum, Blumei major and curvifolium, Cypripedium villosum; Dendrobiums Dalhousieanum, chrysotoxum, albo-sanguineum, aggregatum and tortile; Calanthe vestita, and other popular East Indian species in capital order.—May be viewed on the morning of Sale and Catalogues had.

ORCHIDS, SEEDS, &C., JUST RECEIVED FROM INDIA.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, May 20, at 1 o'Clock precisely, a Consignment of Orchids from the East Indies which has just arrived per Overland route in excellent order. In it will be found the finest specimens ever imported of Saccolabium retusum and Aerides roseum, also good Plants of Aerides Fox Brush, odoratum and affine, Vanda Cathcarti, several Dendrobiums described as new, &c.; to which is added a few Established Plants and a Collection of Indian Seeds.—May be viewed on the morning of Sale, and Catalogues had.

THE LODDIGES COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the second portion of this Collection will be Sold by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, 30th, and SATURDAY, 31st inst. In this part will be included some of the Gems of this most valuable assemblage of Exotic Orchids.—May be viewed on the day prior and morning of Sale, and Catalogues had at Mr. J. C. STEVENS' Offices, 38, King Street, Covent Garden.

TO TULIP FANCIERS.

MR. J. WILLMER will submit to Public Auction, on the Premises, Sunbury Nursery, on MONDAY, May 19, at 12 o'clock, a choice and valuable collection of TULIPS, the property of Mr. Willmer, Sen.—May be viewed one week prior to the Sale, and Catalogues had at the Auction Mart, City; on the Premises; or by enclosing a postage stamp to Mr. J. WILLMER, Auctioneer, Surveyor, and Valuer, Sunbury, Middlesex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, May 22, at 12 o'Clock, a first class collection of Fuchsias, Verbenas, Petunias, Dahlias, Climbing and other Roses, Calceolarias, &c., also Geraniums and other Plants in bloom, with a fine assortment of Ornamental Plants for bedding.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

GREENHOUSE AND BEDDING PLANTS.

MESSRS. PROTHEROE AND MORRIS are directed by R. Dover, Esq., of Merton, to Sell by Auction at the Swan Inn, Stockwell (a Sale not being allowed on the premises), on FRIDAY, May 23, at 11 o'Clock, the whole of his Greenhouse and Bedding Plants, including Fancy and Scarlet Geraniums, Azalea indica, and other plants in bloom; with a large assortment of Fuchsias, Verbenas, Calceolarias, Petunias, Heliotropes, Salvias, &c.—On view the morning of Sale. Catalogues had on the Premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Goldham to submit to public competition by Auction, without reserve, upon MONDAY, May 26, on the Premises, Merton Lane, Mitcham, Surrey, a further portion of his costly and unrivalled collection of TULIPS: comment on this magnificent stock is superfluous.—Catalogues may be obtained on and after the first week in May by application on the premises; or of the Auctioneers, American Nursery, Leytonstone, Essex.

CHOICE TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction on the Premises, 1, Alpha Place, Coburg Road, Old Kent Road, on SATURDAY, May 31, at 3 o'Clock, a well selected collection of TULIPS, the property of Messrs. Clark and Howe, comprising flowers from the stocks of Messrs. Goldham, Saunders, Delaforce, Groom, Laurence, May, and other growers of celebrity; also sundry New Flowers and Breeders raised by Mr. Clark. A capital Tulip Stage with Top and Side Cloths, Rollers, &c., complete. A Cabinet for 168 rows, Shades, and sundry effects.—May be viewed one week prior to and on the morning of Sale. Catalogues may be obtained on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CROYDON.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the premises, Sion Nursery, Croydon, on MONDAY, June 2 and following day, at 11 o'Clock each day (by order of the proprietor), the whole of the valuable GREENHOUSE and BEDDING PLANTS, consisting of about 2000 Show, Fancy and Scarlet Geraniums, Azalea indica, Camellias, Epacris, Cinerarias, Acacias, Chrysanthemums, Passifloras, Herbaceous and Rock Plants; choice Dahlias, Fuchsias, Verbenas, Petunias, Heliotropes, &c.—May be viewed prior to the Sale. Catalogues had on the premises; of the principal seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

TWELVE THOUSAND BEDDING AND OTHER GREENHOUSE PLANTS, IN CONVENIENT LOTS FOR ALL PURCHASERS.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the Premises, Mile End Nursery, Bow Road, Middlesex, on TUESDAY and WEDNESDAY, May 20 and 21, at 12 o'Clock each day, 12 000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Genista, Cactus, Azalea Indica, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias sorts, Petunias, Mimulus, Nierembergia, Lobelia crinus, Phlox Drummondi, Cuphea, Ageratum, Gaillardias, &c.; also an assortment of Dahlias, comprising all the leading kinds, Chrysanthemums, Intermediate Stocks, Maurandias, Tropæolum canariensis, Cobœa, Lophospermum, Eccremocarpus, &c.—May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO EXHIBITORS, GENTLEMEN, FLORISTS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction on the Premises, Warwick House, Warwick Road, Maida Vale, Paddington, on MONDAY, May 19, at 11 o'Clock (by order of C. P. Lochner, Esq., leaving the neighbourhood), the whole of the valuable Collection of GREENHOUSE AND BEDDING PLANTS, consisting of fine Specimen Azalea Indica of the choicest sorts; Scarlet, Variegated and Hybrid Geraniums; Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Mimulus, Petunias, Phloxes; Antirrhinum Hendersoni, Pompone Chrysanthemums; Cinerarias, Eccremocarpus, Maurandias, &c. Also fine Lilium giganteum, Lilium lancifolium rubrum, punctatum, album, &c.; together with two Greenhouses, eight Two and One-light Boxes, Propagating Glasses, a capital Iron Roller, Wire Trellis work, Turning Lathe, Show Boxes, Carnation Sticks, and sundry effects.—May be viewed one week prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MESSRS. J. AND H. BROWN offer the following Choice Plants, which they will forward to any part :—
12 Orchidea Plants, fine species, one of a sort, 40*s.* to 60*s.*
50 Greenhouse Plants, hardwooded, one of a sort, 45*s.*
24 Ericas, choice varieties, small plants, do., 16*s.*
Greenhouse Azaleas, fine new sorts, 12*s.* to 18*s.* per dozen.
12 Rhododendrons, hardy scarlet, white, and rose, 12*s.*
12 New Phloxes, continental perennial varieties, 10*s.*
Bedding-out Plants of all kinds, 3*s.* to 6*s.* per dozen.
Including the new Verbenas, Petunias, Fuchsias, Pinks, Calceolarias, Lobelias, Geraniums, &c.
Albion Nursery, Stoke Newington, London.—May 17.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.
J. G. WAITE, Seed Merchant, 181, High Holborn, London.

BEDDING PLANTS.

WILLIAM F. SMITH has for sale thousands of choice BEDDING PLANTS in great variety, at 4*s.* per dozen, 25*s.* per 100.
Geranium Beauty of Chipstead, strong plants, 18*s.* per dozen; G. Flower of the Day, strong, 4*s.*, 6*s.*, 9*s.* per dozen; G. Lady Holmesdale Improved, fine pink, 9*s.* per dozen.
Catalogues may be had on application by enclosing a postage stamp. Post-office orders payable at Sevenoaks.
Riverhead Nurseries, Sevenoaks, Kent.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.
F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

BEDDING PLANTS.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset, offers one of the most complete collections in the country, at 2*s.* 6*d.* per dozen, containing Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Salvias, Petunias, Geraniums, Cupheas, Ageratums, Anagallis, Mimulus, &c.
The new white corolla'd Fuchsias at 4*s.* per dozen; Dahlias at 4*s.* per dozen; the beautiful new double white Petunia imperialis, 4*s.* per dozen, forms half a globe, and sweet-scented; the curious and beautiful Pelargonium triangulare, 2*s.* 6*d.* each.
Catalogues sent on application, inclosing a stamp. Plants put in to help to pay Carriage.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.
Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

PLANTS
SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

CHUSAN PALM.

R. GLENDINNING begs to inform the public that this most beautiful PALM (the Hemp Palm of China) has been growing in the open ground during the last four years at Chiswick, Kew, Osborne, and in Devonshire. It is unquestionably quite hardy, and is now offered for the first time at a moderate price, so that every garden may be decorated with Palm trees, thereby producing a novel feature of an oriental character in the climate of Great Britain. Plants in pots 21*s.* each; where three are taken in the Trade one will be added.
Chiswick Nursery, London.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye: an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson. Price 10*s.* 6*d.* each, with the usual allowance to the trade when three are ordered.
Huntingdon Nurseries, May 17.

ROBERT PARKER begs to invite the attention of his friends and the public to his large and select Stock of EXOTIC ORCHIDS, STOVE, GREENHOUSE and HARDY FERNS, SHOW, FANCY and BEDDING GERANIUMS, ROSES, DAHLIAS, VERBENAS, CHRYSANTHEMUMS, MISCELLANEOUS BEDDING PLANTS, &c. &c., all of which are in the best possible health, and are offered at the lowest prices. His new descriptive and priced Catalogue is now ready, and will be forwarded post free on application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.
J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

DILLISTONE AND CO. beg to offer strong well-hardened PLANTS for Bedding purposes, viz.:—Ageratums, Anagallis, Cupheas, Calceolarias, Dahlias, Fuchsias, Geraniums, Heliotropes, Lobelias, Petunias, Phloxes, Salvias, Verbenas, &c. A box or hamper containing 100 from the above of the best quality for 30*s.* Carriage paid to London. Best kinds of Roses on the Mannetti Stock, 18*s.* to 30*s.* per dozen: Hardy Climbers, 20 kinds, 6*s.* to 9*s.* per dozen; do. Roses, 6*s.* to 9*s.* per dozen. Hollyhocks, Pansies, with every article connected with the nursery business. Post-office Orders payable at either Halstead or Haverhill will oblige.
The Nurseries, Sturmer, near Halstead.—May 17.

MESSRS. JOHN WEEKS AND CO. have the satisfaction of acquainting their patrons and the public generally, that their new HELIOTROPIUM GIGAS will be sent out in good well established plants on the 1st of June this year.
The leaves of a well-cultivated plant are 1 foot in length, and 6 inches wide; the flower, of a pale and dark violet in colour, is of enormous size. Specimens can daily be viewed at the nursery. Price 10*s.* 6*d.* cash. A select list of novelties in the exclusive possession of their firm will shortly be published.
Horticultural Establishment, King's Road, Chelsea.—May 17.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.
Priced Catalogues will be sent free by post on application.
27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.
27, Great George Street, Westminster.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following select Plants, post free.

	s.	d.
12 fine distinct varieties FUCHSIAS, for	4	0
12 extra superb choice varieties FUCHSIAS	12	0
12 fine distinct varieties VERBENAS	2	6
12 extra superb choice varieties VERBENAS	6	0
12 fine varieties large-flowered CHRYSANTHEMUMS ...	3	6
12 fine varieties distinct Pompone CHRYSANTHEMUMS	3	6

Descriptive Catalogues may be obtained on application, inclosing a postage stamp, at 67, High Street, Battle, Sussex.

HARDY FERNS.

HUGH LOW AND CO. have to offer as follows:—

	each—s.	d.		each—s.	d.
Adiantum pedatum ...	2	6	Osmunda interrupta, large and fine	15	0
Aspidium molle	3	6	Pycnopteris Sieboldi ...	3	6
Asplenium acrostichoides	2	6	Struthiopteris germanica	7	6
" Fontanum ...	2	6	Woodwardia onocleoides	7	6
Lastræa filix fœm., var. Cristata	5	0	" augustifolia	3	6
			&c.	&c.	

Having a large number of choice hardy vars., when ordered by the doz., selection left to us, the price will be 30*s.*
Clayton Nursery, London, May 17.

HUGH LOW AND CO. have to offer the following hardy North American herbaceous plants:—

	Each—s.	d.		Each—s.	d.
Cypripedium spectabile...	2	6	Pinus Benthamiana, 1 ft.	7	6
" pubescens...	3	6	" Sabiniana, 6 in. ...	3	6
" arietinum ...	3	6	" Beardsleyi, 2 yrs.	3	6
Trillium grandiflorum ...	1	6	" tuberculata, 2 yrs.	3	6
" atropurpureum	2	6	" Jeffreyi, 2 yrs. ...	3	6
Parnassia Caroliniana ...	2	6	Picea Nordmanniana, 6 in., from seed	7	6
Mitchellia repens... ...	1	6	Picea Pinsapo, 9 in., seed	3	6
NEW HARDY CLIMBERS.			Thuja aurea, 9 in., bushy	5	0
Clematis Amalia	3	6	" gigantea, original plants from seed, 1 foot high ...	21	0
" Helena	3	6	MISCELLANEOUS (HARDY).		
" Louise	3	6	Prunus pinensis, fl. pl. ...	3	6
" Sophia	3	6	Spiræa Reevesi, fl. pl. ...	2	6
Wistaria sinensis alba ...	3	6	Hydrangea hortensis, fl. pl.	2	6
" brachybotrys ...	3	6	Berberis Neuberti ...	5	0
Akebia quinata	2	6	Quercus Cerris variegata	5	0
CONIFERÆ.			Pampas Grass 2*s.* 6*d.* to	10	6
Abies orientalis	2	6			
Podocarpus Andina ...	10	6			
Pinus contorta ? new sp., 9 inches... ...	5	0			

The above are all in pots, and may be safely moved.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen—s.
Exotic Orchids ... ... from	42
Stove and greenhouse Ferns ... ... "	18
Hardy do. ... ... "	9
Selaginella or Lycopodium ... ... "	18
Geraniums, show and fancy varieties ... "	9
Do. variegated and bedding do. ... ... "	6
Do. scarlets in variety ... ... "	3
Cinerarias ... ... "	9
Calceolarias, bedding varieties ... ... "	3
Verbenas ... ... "	3
Dahlias ... ... "	4
Ageratums, Cupheas, Petunias, Salvias, &c. "	4
Gynerium argenteum (Pampas Grass) ... "	18

The above prices are for distinct and fine species, and varieties only, all of which are warranted true to their names; if ordered by the hundred, or in larger quantities, a considerable reduction will be made. A priced and descriptive Catalogue is published, and will be forwarded post free upon application.—Paradise Nursery, Hornsey, and Seven Sisters' Roads, Holloway.

MESSRS. MASTERS AND SON, Canterbury and Maidstone, are prepared to supply the following Plants:—

	Per plant—s.	d.
MYENIA ERECTA	21	0
AZALEA INDICA BEALI	5	0
" " CRISPIFLORA		
SKIMMIA JAPONICA	5	0
GYNERIUM ARGENTUM, PAMPAS GRASS	2	6

EDMONDS' NEW VERBENAS.—Standard Bearer, Victory, King of Sardinia, Duke of Cambridge, Blue Bonnet, Loveliness, Charles Dickens, Crimson Perfection, Dr. Maclean, Field Marshal, 2*s.* 6*d.* each; the set of 10 for 21*s.*
ROUGIER AND CHAUVIERE'S NEW VERBENAS.—Claire, Edouard, Jacquarita, Medirio, Rosati, Noel, Marshall, Marietta, La Gondolier, Marco, Inesille, La Tchernaia, Auguste Maquet, Alphonsine, Belle Gabrielle, Diogone, 1*s.* 6*d.* each: the set of 16 for 21*s*; Petunia Imperialis, new double, 6*s.* per dozen. Also a fine stock of Bedding Plants from 3*s.* per dozen, and 20*s.* per 100.
Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, Seedsmen to ELEVEN of the principal AGRI-HORTICULTURAL SOCIETIES of the BRITISH and CONTINENTAL EMPIRES, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, the *Twenty-first Annual Issue*, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application to JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

BEDDING PLANTS.

JOSEPH FRYER begs to offer his general collection of Scarlet and other Geraniums, Verbenas, Petunias, Calceolarias, Heliotropes, Salvias, Fuchsias, Dahlias, and all the approved varieties of Bedding Plants, at 3*s.* to 4*s.* per dozen.
Clarendon Nurseries, Camberwell.

THOMAS VEITCH AND CO., WHOLESALE AND RETAIL AGRICULTURAL SEED MERCHANTS, Western Counties Seed Depôt, 195, High Street, Exeter, opposite Broadgate, beg to draw the attention of purchasers to their Stock of TURNIPS, MANGEL, CARROTS, GRASSES, &c., which are now open, of beautiful sample, and in excellent condition, and as every variety has been proved, T. V. & Co. declare them genuine, and with no adulteration whatever, consequently purchasers will not be liable to the annoyance, vexation, and loss of a mixed and uncertain crop.
SEED POTATOES and all articles connected with the Seed Business.
Twelve varieties of pretty FLOWER SEEDS, 1*s.*; 12 do. do., 2*s.*; 12 do., do. 3*s.*; and upwards according to quality and quantity.
Agricultural, Vegetable and Flower Seed List forwarded on application, postage free.
N.B. A Registry kept for Bailiffs and Gardeners.

NEW ROSES IN POTS.

BENJAMIN R. CANT begs to offer the following, a descriptive Catalogue of which may be had post free on application; the plants are exceedingly healthy and robust, with shoots 18 inches to 2 feet long.

HYBRID PERPETUAL.

Arthur de Sansal ...	5*s.* 0*d.*	Pauline Lansezeur ...	5*s.* 0*d.*
Docteur Hénon	5 0	Prince Noir	5 0
Duc d'Elchingen ...	5 0	Souvenir de la Reine d'Angleterre ...	7 6
General Pelissier ...	5 0	Triomphe de l'Exposition	7 6
General Simpson ...	5 0	Triomphe d'Avranches	5 0
Joseph Ledechaux ...	5 0	Bourbon, Empress Eugénie	7 6
Madame Knorr ...	3 6		
Marquise de Murat ...	5 0		
Mathurin Regnier ...	5 0		

PERPETUAL MOSS.

Alfred de Dalmas ...	5 0	Gloire d'Orient... ...	5 0

12 of my own selection from above for 60*s.*, or 1 of each for 4*l.*
The following at the prices attached, or purchaser's selection 40*s.* per dozen; my own choice 30*s.* per dozen.

MOSS.

Baron de Wassenaer	3*s.* 6*d.*	Comtesse Doriat ...	3*s.* 6*d.*
Capitaine Ingraam ...	3 0	Frédéric Soulié ...	3 6

PERPETUAL MOSS.

Madame Edouard Ory	5 0	Salet	3 6

HYBRID PERPETUAL.

L'Etendard des Amateurs	3 6	Madame de Trotter ...	3 0
Lord Raglan	5 0	Madame Lacour Jurie	3 6
Louise de Chateaubourg	3 6	Madame Theodore Martel	3 6
Baron Larray	3 0	Madame Vidot ...	3 6
Belle Lyonnaise	3 6	Marguérite Lecureux	3 6
Comtesse de Turenne	3 6	Maxime	3 6
Emperor Napoleon ...	5 0	Monsieur Pigeron ...	3 0
Evêque de Meaux ...	3 6	Mrs. Standish... ...	3 0
Gloire de Vitry	3 6	President Menoux ...	3 6
Julie Guinoisseau ...	3 6	Raphaël	3 0

BOURBON.

Frilet	3 6	Marguérite Dubourg...	3 6
Isabelle II.	3 6		

NOISETTE. CHINA.

Polonie Bourdin ...	3 6	Lucullus	3 0

TEA.

Auguste Vacher ...	3 0	Blanche de Solleville...	3 0

The following at 20*s.* per dozen:—

MOSS.

D'Arcet...	2 0	Princess Alice... ...	2 0
Jeanne de Montfort	2 0	Vandael	2 0

HYBRID PERPETUAL.

Alphonse de Lamartine	2 0	Gloire de Parthenay ...	2 0
Auguste Guinoisseau	2 0	Jules Margottin ...	1 6
Cicero	2 0	Panachée d'Orleans ...	2 6
Duchess of Norfolk ...	2 6	Souvenir des Braves ...	2 6
General Jacqueminot	2 6		

BOURBON.

François Herincq ... ... 2*s.* 6*d.*

TEA.

Gloire de Dijon ...	2 6	Williams' everg. climber	1 6

Also in Pots a select assortment of the best older kinds of Hybrid Perpetual, Bourbon, Noisette, China, and Tea-scented Roses from 12*s.* to 15*s.* per dozen.
Carriage paid to any station on the Eastern Counties Railway.
St. John's Street Nursery, Colchester.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 4*d.*; fine Households, recommended for Bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat-meal, for Brown Bread, 11*s.* 0*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND (sharp grit and free from iron) 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered five miles or to any London wharf or railway, (sacks cost price, or on hire 6*d.* each). Kentish and other Peats and Loam in large or small quantities. Terms cash.
JOHN KENNARD, Swan Place, Old Kent Road.

ROLL TOBACCO CORD,

THE Cheapest and most Effectual Article for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post Office Order payable at Kennington Cross.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 17, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1856.] SATURDAY, MAY 24. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will be held on TUESDAY, May 27. The Chair will be taken at 3 P.M.

ROYAL BOTANIC SOCIETY, Regent's Park.—The FIRST EXHIBITION this Season of PLANTS and FLOWERS will take place in the Gardens of the Society on WEDNESDAY next, May 28.

Tickets to be obtained at the Gardens only by orders from Fellows of the Society, price 5s.; or on the day of Exhibition, 7s. 6d. each. The Gardens open at 2 o'clock.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—THE SECOND EXHIBITION for this season will take place at the Horns Tavern, Kennington, on MONDAY, June 2, when Prizes will be awarded for the following productions, viz.:—Tulips, Heartsease, Pelargoniums, and fancy varieties, seedlings, &c. In addition to the Prizes offered by the Society, Mr. R. J. Lawrence, of Hampton, offers 5l. value in Tulips to Amateur Members only.—Admission to Non-Members from 3 to 7 o'clock, at 6d. each. List of Prizes and the Rules of the Society may be obtained from

Lower Kennington Lane. John Bushell, Hon. Sec. *pro tem.*

LEYTON AND WALTHAMSTOW FLORICULTURAL SOCIETY.—The First FLOWER SHOW of the above Society will be held at the School Rooms, Leyton, on WEDNESDAY, July 16. Admission from 2 to 4, 1s.; from 4 to 8, 6d.

E. Goad, Hon. Secretary,
At J. & J. Fraser's, Leyton, Essex.

UNDER THE PATRONAGE OF H.R.H. PRINCE ALBERT.

A GRAND FLORAL AND HORTICULTURAL EXHIBITION, open to the United Kingdom, will take place at CHELMSFORD on WEDNESDAY and THURSDAY, July 16 and 17, during the Show of the Royal Agricultural Society in that town. The Schedule of Prizes, which will amount to nearly 250l., may be obtained on application to Mr. W. W. Duffield or Mr. Fred. Chancellor, at Chelmsford, the Honorary Secretaries. The greatest care will be bestowed upon specimens sent from a distance.—All Plants and Flowers will be conveyed to and from the Show, on the Eastern Counties Line, *free of charge.*

ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The FIRST EXHIBITION (open to all competitors) of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held at the Society's Gardens, Old Trafford, on WEDNESDAY, June 4th, when Two Hundred Pounds will be given in Prizes.

Schedules are now ready, and may be obtained on application to the Secretary. By order, John Shaw, Secretary.
Council Room, Princess Street, Manchester, May 24.

GARDENERS' BENEVOLENT INSTITUTION.—Ann Arnold, Widow, earnestly solicits the consideration and support of the subscribers to the above Institution at the election in June next She is so severely afflicted with rheumatism as to be wholly unable to obtain her own living. Her husband was a subscriber to the Institution for many years. Proxies will be received by A. Paul & Son, Nurseries, Cheshunt, Herts.

TO COMMITTEES.—Mr. Glenny will attend as Judge, according to the standards laid down in "Glenny's Properties of Flowers and Plants" (13 stamps free by post). Terms on early application, Dungannon House, Fulham.

MESSRS. MASTERS AND SON, LANDSCAPE GARDENERS, Canterbury and Maidstone.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

WANTED, in Liverpool Market, GRAPES and PINES. Forward immediately to George Taylor, Jun., Choice Fruit and Vegetable Salesman, St. John's Market, Liverpool. Terms Cash.

NEW SWEDE AND TURNIP SEEDS.

SUTTON'S DESCRIPTIVE CATALOGUE, *with prices, may be had gratis, Post free.*
Royal Berks Seed Establishment, Reading.—May 24.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

J. DOBSON AND SON'S New Descriptive Catalogue of choice PANSIES, CINERARIAS, FUCHSIAS, VERBENAS, &c., is now ready, and may be had on application.
Woodlands Nursery, Isleworth.

CHOICE CINERARIA SEED.

J. DOBSON AND SON are now sending out Seed secured from a very choice collection of this popular flower, in packets at 1s. and 2s. each, post free.
Woodlands Nursery, Isleworth.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS offers his usual extensive Stock of BEDDING PLANTS consisting of all the leading kinds of Geraniums, Verbenas, &c., strong and vigorous at 3s., 4s., and 6s. per dozen; carriage paid to London.

NEW PLANTS.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, begs to offer his following New Plants:—

Tydæa ocellata picta (vera)	£0 10s. 6d.
Abutilon marmoratum	0 12 0
Camellia Auguste Delfosse	1 0 0

AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhamstead, beg to inform their patrons that the above are now in full bloom. They can also recommend them to the trade. The Nurseries are within five minutes' walk of the station on the London and North Western Railway.

ROSES FOR MASSES.

A. PAUL AND SON have now ready for immediate planting out some thousands of DWARF ROSES of the best kinds for planting in masses, 10s. to 15s. per dozen. Also all the new Roses at the lowest advertised prices. Carriage free to London.—Nurseries, Cheshunt, Herts, May 24.

BEDDING PLANTS!—BEDDING PLANTS!!

JAMES HOLDER, Florist, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20s. cash, or three dozen for 10s. 6d., consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Petunias, Gaillardias, Cupheas, Dahlias, &c. &c.

BEDDING PLANTS.

A. PAUL AND SON have now ready for immediate planting out some thousands of strong healthy Geraniums, Verbenas, Calceolarias, Salvias, dwarf Lobelias, and other bedding plants. Price 4s. to 6s. per dozen, carriage free to London.—Nurseries, Cheshunt, Herts, May 24.

WHITE BEDDING PLANT.

DOUBLE WHITE PETUNIA "IMPERIAL."—This charming plant has now flowered, and fully maintains the high character previously given of it, being quite double, very fragrant, and of excellent habit; it is now offered as a white flower for bedding at 5l. per 100, or 25l. per 1000.—Messrs. William Rollison & Sons, the Nurseries, Tooting, London.

BEDDING PLANTS.

WILLIAM HUSSEY begs to offer the undernamed collection of fine healthy Plants, well established in small pots, for 25s., package included, viz.:—6 choice Fuchsias, 12 Scarlet Geraniums, 6 Petunias, 12 Calceolarias, 18 Verbenas, 12 Heliotropes, 12 Pinks, 12 Picotees, 12 Show Geraniums, 6 Dahlias.—Horticultural Gardens, Norwich.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection, fine healthy plants, package included, for 16s., viz., Empress, Queen of May, Carlos, Seraskier, Virginia, Zeno, Serena, Petruchio, Phaeton, Cordelia, Jessica, Inez, Mary, Rhodo.—Horticultural Gardens, Norwich.

FANCY PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection for 14s., package included, fine healthy plants, viz., Captivation, Celestial, Lady H. Campbell, Gypsey Queen, Richard Cobden, Alboni, Barbette, Cassandra, Othello, Advancer, Caliban, Prima Donna, Conspicuum, Jenny Lind, Mirandum, Odoratum, Punctatum, Odette, Magnum Bonum.
Horticultural Gardens, Norwich.

PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection from fine bushy Plants for 20s., packages included:—Constance, Rowena, Virgin Queen, Rosamond, Conspicua, Chloe, Ganymede, Narcissus, Magnificent, Lord Mayor, Ajax, Emily, Cassandra, Generalissimo, Belle of the Village, Loveliness, Centurion, Alonzo, Optimum, Elise, Nectar Cup, Symmetry, Gulielma, Pearl, Rubens, Lavinia, Chieftain, Enchantress, Prince Arthur, Pulchra, Mochanna, Queen of May, Beatrice, May Queen, Christine, Eurydice, Cuyp, Little Neil, Magnet, Ariadne, Colonel of the Buffs, Major Domo.
Horticultural Gardens, Norwich.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.

Wm. Cullingford 1, Edmund Terrace, Ball's Pond, Islington.

GRAND EXHIBITION OF RHODODENDRONS.

JOHN WATERER begs to announce that his unrivalled collection of HARDY SCARLET RHODODENDRONS will be this Spring Exhibited (as usual) in the Garden of the Royal Botanic Society, Regent's Park, London.

☞ The site usually occupied by the Society for the display of American Plants has been considerably enlarged, and extensive improvements made in the arrangements.

Notice will be given when the plants can be seen in bloom.
The American Nursery, Bagshot, Surrey.—May 24.

EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to intimate that his collection of the above plants is now coming finely into bloom, and will continue in perfection throughout the month of June, and may be inspected daily (gratis).—American Nursery, Bagshot, Surrey, near the Farnborough Station, South Western Railway; and Blackwater Station, South Eastern Railway, from whence conveyances are always to be obtained.

GRAND EXHIBITION OF AMERICAN PLANTS.

MESSRS. WATERER AND GODFREY, of the Knap Hill Nursery, Woking, Surrey, have the honour to announce that they have made arrangements with Mr. T. B. Simpson for an Exhibition of their American Plants in the newly erected Pavilion in Ashburnham Park, adjoining Cremorne Gardens. Particulars in future advertisements.
Knap Hill Nursery, Woking, Surrey.

BALSAMS FOR EXHIBITION.—A few packets only of GLENNY'S IMPROVED remain. Six varieties, 37 stamps; mixed, 13. Pyramidal, Bouquet, and quilled Asters, 7 stamps each; Phlox Drummondi, Heliotrope, Verbena, Brompton and 10-week Stocks, same price.—G. Glenny, Horticultural Agent, Fulham.

IPSWICH HORTICULTURAL SOCIETY, May 15.—IPSWICH STANDARD CUCUMBER won first prize, beating 20 brace of Stars, Heroes, Models, Hybrids, Symmetries, Perfections, &c., &c.

ORION MELON, a fine ripe 5 lb. specimen, made its first appearance alone, and was much admired.—Thos. Wild, Ipswich.

PERPETUAL ROSES IN POTS AND BEDDING PLANTS.—For Bass and Brown's Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A Large Surplus Stock at Reduced Prices.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to Bass & Brown, Sudbury, Suffolk.

WILLIAM KNIGHT, Florist, &c., begs to offer first-class FUCHSIAS at 4s. per doz.; fine large Flowered and Pompone CHRYSANTHEMUMS, good plants at 3s. 6d. per doz. Descriptive Catalogues sent on application.
67, High Street, Battle, Sussex.

ARAUCARIA CUNNINGHAMI AND EXCELSA, Morton Bay and Norfolk Island Pines.

WM. MAULE AND SONS have to dispose of one of the former and three of the latter, fine trees from 10 to 20 feet high, all of which are in pots and would travel safely any distance. Price for the four plants, 40l.—The Nursery, Bristol.

CHOICE FUCHSIAS, PANSIES, ETC.

HART AND NICKLIN, Florists, Guildford, beg to offer the following choice FUCHSIAS and PANSIES:—FUCHSIAS.—Prince Albert, Climax, Beauty of the Bower, Grand Sultan (all of Banks' raising), Queen Victoria, Empress Eugenie (Story's), white coloured varieties, and other kinds equally new, to the number of 12, with 18 choice and first-rate PANSIES, for 1l., package included.

NEW DOUBLE WHITE PETUNIA "IMPERIAL."

JAMES DICKSON AND SONS can supply strong plants of the above new and desirable plant at 1s. each, or 9s. per dozen; also strong and healthy plants of the new Scarlet Delphinium, D. cardinale, at 10s. 6d. each, and Meyenia erecta 21s. each.—The Newton Nurseries, near Chester.—May 24.

TRUE CATTLE CABBAGE PLANTS.

THOMAS WELLAND, Surrey Gardens, Godalming, Surrey, offers the above, safely packed and delivered at Godalming Station, at 3s. 9d. per 1000.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of Wm. Barratt, Nurseries, Wakefield.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.
Nursery and Seed Establishment, Sleaford, May 24.

NURSERY & SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., respectfully invite the attention of the Trade to their Turnip, Mangel Wurzel, and Carrot Seeds, the stock of which has been carefully selected and grown by themselves from transplanted roots.
Catalogues with prices can be had on application.

TO THE TRADE.

SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, at the following prices:—

16s. per 100 | 72s. 6d. per 500 | 120s. per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—May 24.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J. Perry, and C. M. Atkinson.

"This is by far the best variety we have seen for early work, the habit is so good; a very free grower as well as flowerer, and of a much better form than those hitherto grown for forcing." *Florist* for May, Report of National Floricultural Society's Show.

Strong flowering plants 10*s.* 6*d.* each, and a few spring struck plants established in pots 5*s.* each. The usual allowance to the trade when three are ordered.—Huntingdon Nurseries.

NEW FUCHSIA, VERBENA, AND HELIOTROPE.

T. TURVILL begs to offer strong Plants of his first-rate Seedlings, which he can with confidence recommend.

FUCHSIA ALMA.—Large bold flower, with scarlet tube, from 6 to 7 inches long, well reflexed, with bright purple corolla striped and shaded with bright vermilion to the edge, which is often edged with white; excellent habit Plants 10*s.* 6*d.* each.

VERBENA BRIDE.—Beautiful light blue, very fine truss, with large smooth petal, excellent habit, very free flowering, makes a beautiful bed. Plants 5*s.* each.

HELIOTROPE ELEGANCE.—This is a beautiful scented, and very free in flowering, with a large blue flower; a great improvement on "Gem," being very close in habit, with good foliage, well adapted for beds or for pots. Plants 7*s.* 6*d.*

Chelmsford, Essex, May 24.

MESSRS. E. G. HENDERSON & SON

ARE now prepared to forward their NEW SPRING CATALOGUE, and parties who have not hitherto favoured them with orders can have the same sent free on application. This useful book has been compiled with the utmost attention, and while it notices the latest novelties, gives only such varieties of each class as can with safety be recommended. It should be in the possession of every Amateur and practical Gardener, either for reference or perusal, the simplicity and correctness of its arrangement being a decided improvement on anything of the kind hitherto brought before the public. In addition to the above-mentioned novelties, &c., it contains descriptions and colours of 500 Stove, 700 Greenhouse, and 1000 other Plants of Miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c., with short and select Lists of those varieties best adapted for the various purposes connected with the Stove, Greenhouse, and Garden, full descriptions of the following and many other novelties are given in it.

With the above will also be published a Coloured Plate, representing a group of Nine new Plants, and can be had post free for 12 stamps.

Messrs. E. G. H. & SON *beg to state that in consequence of the great influx of business, they find difficulty in sending out Plants with their usual despatch. They beg to assure parties whose favours are still unexecuted that in the course of the next few days all orders now on hand will be despatched, and trust the delay will be kindly overlooked.*

CRYSTAL PALACE SCARLET BEDDING DAHLIA, 5*s.*
HENDERSON'S FAVOURITE VERBENA, GEANT DES BATAILLES, 2*s.* 6*d.*
HENDERSON'S FAVOURITE PETUNIA, COUNTESS OF ELLESMERE, 3*s.* 6*d.*
VERBENA IMPERATRICE ELIZABETH (pulchella Maonetti), 1*s.* 6*d.*

Wellington Nursery, St. John's Wood, London.

CHOICE BEDDING PLANTS

YOUELL & CO.

BEG respectfully to submit the following, and to invite particular attention to their List of SHRUBBY CALCEOLARIAS, which they confidently recommend; it comprises all the most beautiful and brilliant varieties in cultivation, viz.:—

	Per dozen—*s.*	*d.*
Ajax, a fine large rich-coloured flower, of crimson and yellow	9	0
Beauty of Montreal, bright crimson, small flower, an effective and very excellent bedding variety	6	0
Correggio, orange buff, shaded, free, large, and very showy, a first-rate bedding variety	9	0
Crimson King, rich plum crimson	6	0
Empress Eugénie (Youell's), a fine golden yellow, the flower stems stout, as they need be, to support the very large trusses of flowers produced by this variety; the habit is robust, flowers large, and well formed ... ... Each	1	6
Golden Chain, fine golden yellow ... ... per dozen	6	0
Gold Cap, rich dark maroon, deep yellow cap	6	0
Integrifolia, an old but favourite variety of erect habit, producing clusters of small yellow flowers	5	0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety ...	9	0
Masterpiece, deep maroon...	6	0
Matchless, dark brown red	6	0
Model, brown shading off to orange yellow at the edges, extra	9	0
Mr. White, rich shining bronze red	6	0
Purity, colour pure white, the best exhibited last season, fine habit, with large trusses of flowers, strongly recommended for bedding	9	0
Red Rover, bright crimson shaded with orange, large and free flowerer, fine habit	9	0
Sultan, fine large crimson	6	0
Superba (Turner), fine dwarf, dark crimson, extra fine ...	6	0
——— (Constantine), dwarf crimson	6	0
Surprise, bright orange crimson, extra	9	0
Vezzosa, flowers large and fine formed, of a bright orange and crimson, shaded with large trusses, flowering abundantly, and a splendid habit, extra	9	0
Viscosissima, deep yellow	6	0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra	9	0

Fine selections, left to YOUELL & Co., 6*s.* per dozen.

Geraniums, scarlets, such as Trentham, Tom Thumb, &c., per 100, 30*s.*, or	4	0
" Flower of the Day	6	0
" Boule de Neige, fine white	9	0
" Kingsbury Pet, salmon	9	0
" Golden Chain	12	0
" Mountain of Light	12	0
" Ardens major	9	0
" Ivy leaf, large white	9	0
" " crimson	9	0
" " silver variegated	12	0

With many other fine varieties.

Verbenas (white), Mrs. Foster and Mrs. Holford.—These are, without exception, the finest in this class yet offered, and prove to white Verbenas what "Defiance" was to the scarlet varieties that preceded it	6	0
Verbenas, scarlet, red, crimson, claret, rose, pink, blush, lavender, blue, purple, plum, striped and variegated of the newest and handsomest vars. in cultivation, 25*s.* per 100	4	0
Lobelia compacta alba. dwarf white	4	0
" Lindleyana, lilac	4	0
" lucida, light blue	4	0
" lutea, fine yellow (new)	6	0
" ramosoides, dark blue	4	0
" speciosa, large blue, each flower nearly 1 inch across, the finest of its class	6	0
Heliotropes of the best kinds ... ... 4*s.* and	6	0
Petunia Imperial (true).—This very beautiful variety is as double as an Oleander, and fragrant	6	0
Petunias, including the handsomest of the new kinds, 6*s.* and	9	0
Anagallis Breweri, large blue'	5	0
" rubra grandiflora, large red	5	0
" andomariensis, claret	6	0
Ageratum cœlestinum, blue	6	0
Antirrhinums of finest sorts by name	6	0

	Per dozen.—*s.*	*d.*
Belgian Daisies in 30 best kinds by name	3	0
Calystegia pubescens, rose coloured double flowering Convolvulus, a good hardy climber	6	0
Cheiranthus Marshalli, golden yellow, very fragrant ...	6	0
Carnations, finest sorts by name, per dozen pairs	18	0
" " mixed border " "	9	0
" Tree or perpetual flowering, per dozen... ...	18	0
" true old Clove, per dozen pairs	12	0
Chrysanthemum regalium plenum, yellow, per dozen ...	6	0
Chrysanthemums, the handsomest of the new large flowering and Pompone kinds	6	0
Cobæa scandens	9	0
Cuphea platycentra	6	0
" strigulosa sanguinea	6	0
Dahlias, fine show varieties ... ... 6*s.* and	9	0
Delphinium Barlowi, dark blue	6	0
" Hendersoni, large rich blue	18	0
" Mooreanum, deep blue, distinct and fine ...	6	0
Dielytra spectabilis, strong flowering plants	9	0
Fuchsias, finest bedding varieties	6	0
Gazania rigens, large orange, dark centre	6	0
Genista tinctoria, double, deep orange	6	0
Koniga variegata, pretty for edging	6	0
Lantanas, of sorts	6	0
Lophospermums, of sorts	9	0
Lychnis dioica alba pleno, fine double white	9	0
Mimulus, in 12 handsome varieties	6	0
Nasturtium, double dark...	9	0
" " yellow	9	0
Nierembergia filicaulis, white; lavender eye, very pretty for bedding	6	0
Oxalis floribunda and rosea, quite hardy, producing a fine bed of rich rose colour	6	0
Pansies, finest 1st class show varieties	9	0
" " mixed	4	0
Pentstemons, a choice collection of the handsomest kinds...	6	0
Phloxes, a fine collection of 60 of the most beautiful and distinct varieties, selected with great care from upwards of 200 kinds, including that fine new Phlox "Countess of Home"	9	0
Phlox Nelsoni, pure white, rosy edge, of dwarf trailing habit, a profuse bloomer, and best adapted for rockwork or edging...	9	0
Picotees, finest sorts by name per doz. pairs	18	0
" " mixed border ... " "	9	0
" " yellow by name ... " "	20	0
Pinks " 1st class show flowers by name " "	9	0
" " mixed for borders ... ... " "	6	0
Potentillas, of the finest kinds ... ... per dozen	6	0
Salvia porphyrantha, an extremely pretty species, of dwarf habit, bearing a profusion of scarlet flowers	12	0
Salvias, of sorts	6	0
Saponaria ocymoides	6	0
Sedum Sieboldi	6	0
Statice latifolia	6	0
" maritima rosea and pseudo-armeria. Strong plants of these two beautiful and hardy species, producing throughout the year a profusion of lake-coloured flowers	3	0
Statice sinuata, large blue ... ... each	1	0
Trachelium cærulenum ... ... per dozen	6	0
Wallflower, double yellow	6	0
" " dark	6	0

N.B.—Less quantities than per dozen will be charged at same rate.

Herbaceous Plants, of which we possess an extensive collection of the most showy kinds, 6*s.* per doz., 30*s.* per 100.

FUCHSIAS.

The following new and beautiful varieties at 12*s.* per dozen, viz., Queen Victoria, Prince Albert, Lady of the Lake, Empress Eugenie, Raffaelle, Omar Pasha, Climax, Thalia, Princess of Prussia, Fairy Queen, Clio, Grand Sultan, Beauty of the Bower, Violæflora pleno, &c.

A Catalogue of Bedding Plants is just published, and may be had on application.

All orders of £2 and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery. It is respectfully requested that all Post-office Orders be made payable to YOUELL & Co., *Yarmouth, Norfolk. Communications by Steamers and Railway to all parts of England, Ireland, and Scotland, as well as to the Continent.*

YOUELL & CO., Royal Nursery, Great Yarmouth, Norfolk.

ROBERT PARKER begs to invite the attention of his friends and the public to his large and select Stock of EXOTIC ORCHIDS, STOVE, GREENHOUSE and HARDY FERNS, SHOW, FANCY and BEDDING GERANIUMS, ROSES, DAHLIAS, VERBENAS, CHRYSANTHEMUMS, MISCELLANEOUS BEDDING PLANTS, &c. &c., all of which are in the best possible health, and are offered at the lowest prices. His new descriptive and priced Catalogue is now ready, and will be forwarded post free on application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

JOHN CATTELL, in addition to his usual fine stock of general BEDDING PLANTS, has the following first-rate newer kinds to offer in good plants at the low prices annexed.

VARIEGATED GERANIUMS.	Each. 1*s.* 0*d.*	Dozen *s.* *d.*
Attraction (Gaines)		
Attraction (Kinghorn); habit like "Flower of the Day," with a beautiful deep pink horse-shoe mark	2 0	21 0
Admiration	7 6	
Brilliant	...	5 0
Flower of the Day	...	5 0
Golden Chain ... ... 6*s.* to		9 0
Golden Admiration	2 6	
Mountain of Light	1 0	9 0
Mrs. Lennox ... ... 3*s.* 6*d.* to	7 6	
Silver King	1 6	15 0
Silver Queen ... ... 2*s.* 6*d.* to	5 0	
Variegated Queen ... ... 5*s.* to	7 6	
GERANIUMS (VARIOUS).		
Virginium, a most superb bedding variety of the florist habit, having a very large truss of the purest white flowers; it is also a valuable variety for pot culture	2 6	24 0
Momus, a capital bedding variety, colour and habit of the old Daveyana	...	12 0
Beauty of Chipstead, intense bright scarlet, the best of the cerise class ... ... 18*s.* to		24 0
Trentham Scarlet Gem, the best of the large scarlets	1 0	
Verbena Mrs. Woodroffe, and other extra fine varieties .. .. 3*s.* to		4 0
Dahlia Zelinda, dwarf purple, 12 to 18 inches, and flowers very freely	...	6 0
Hydrangea japonica variegata ... ... 1*s.* to	1 6	9 0
Oxalis Bowi, rosy pink; this makes a fine bed ..	...	6 0
Phlox Drummondi Radetzki, beautiful rosy purple, striped white	1 0	10 6
Phlox, first-rate hardy perennial varieties ... 6*s.* to		18 0
Salvia porphyrantha, dwarf dark red	...	6 0
Calceolaria, unbloomed seedlings in single pots, from J. C.'s superior varieties	...	6 0

A Priced Catalogue of the above, and a general Collection of Bedding Plants, &c., for the present season, may be had on application. Packages are charged at wholesale prices.

A remittance or reference must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA, and within the last week they have supplied some RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing, Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

CHOICE PLANTS.

W. STURDY, FLORIST and SEEDSMAN, begs to offer strong healthy plants of the following:—

GLOXINIAS.—Field Marshal, Wilsoni, Carminata splendens, Hendersoni, Godfroi Bouillon, Maria Van Houtte, maxima, alba sanguinea, rosea alba, Princess de Lamballe, annulata, spectabilis, Tuchleri, Wortleyana 1*s.* each, 9*s.* per dozen.

ACHIMENES.—Dr. Hopf, Edmond Boissier, Hendersoni, Chirita, Carl Wolworth, Louis Van Houtte, M. de Parpart, Madame Rendatler, Escheriana, Minilliana, longiflora major, Margaretta, patens major, Tugwelliana, Montfordi. 1*s.* each, 6*s.* per dozen.

FUCHSIAS.—Alpha, Autocrat, Beauty of the Bower, Bride, Climax, Glory, Duchess of Lancaster, Duke of Wellington, Empress Eugenie, Grand Sultan, Lady of the Lake, Mrs. Story, Omar Pasha, Prince Albert, Vanguard, Queen of Hanover. 1*s.* each, 6*s.* per dozen.

Geraniums, variegated and bedding, 3*s.* to 6*s.* per dozen; Cinerarias, 6*s.* per dozen; Calceolarias, bedding varieties, 3*s.* per dozen; Verbenas, 3*s.* per dozen; Dahlias, 4*s.* to 6*s.* per dozen; Ageratums, Cupheas, Petunias, Salvias, Heliotropes, Lobelias, Mimulus, 3*s.* per dozen; Hollyhocks, good named sorts, 9*s.* per dozen; Pansies, good sorts, 4*s.* per dozen, or 20 for 5*s.*

Post-office orders are respectfully requested. All orders above 20*s.* carriage and basket free.

Hill Street, Rugby, Warwickshire.—May 24.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 4*d.*; fine Households, recommended for Bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat-meal, for Brown Bread, 11*s.* 0*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed* ... ... 1*s.* per packet.
Calceolaria, *choicest varieties* ... ... 1*s.* „
Cineraria „ „ ... ... 1*s.* „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1*s.* per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, May 24.

SKIRVING'S IMPROVED AND EAST LOTHIAN PURPLE-TOP SWEDES.—A Grower has on hand a few sacks of the above Seed, warranted growth of 1855 and true to name, all raised from selected and transplanted bulbs, and guaranteed to GROW OVER NINETY PER CENT.

Also for disposal some WHITE GLOBE TURNIP SEED, growth of 1855, a genuine and carefully selected stock. Terms cash, at grower's prices.

Apply to Mr. WM. TAYLOR, Nashenden Farm, Rochester, Kent.

TURNIP SEED.

JOSLING'S GOLDEN-FLESH COPPER-TOP SWEDE.—R. J. begs to offer the above distinct and excellent variety of Swede as one of the HARDIEST and best in cultivation; LARGE SIZE, FLESHY, RICH, JUICY, and KEEPS WELL. Price 1*s.* 6*d.* per lb.

SKIRVING'S and other varieties of PURPLE-TOP SWEDE (genuine stock), own growth of 1855. Price 1*s.* per lb.

Carriage free (not under 30*s.*) to all the London Termini and all Stations on the main trunk lines. A remittance or reference from an unknown correspondent is respectfully requested to accompany orders.

R. JOSLING, Agricultural and Garden Seed Warehouse, St. Alban's, Herts.—Established upwards of 25 years.

AZALEA INDICA.

J. IVERY AND SON, NURSERYMEN, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.

J. I. & SON also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season.—Dorking, May 24.

DILLISTONE AND CO. beg to offer strong well-hardened PLANTS for Bedding purposes, viz.:—Ageratums, Anagallis, Cupheas, Calceolarias, Dahlias, Fuchsias, Geraniums, Heliotropes, Lobelias, Petunias, Phloxes, Salvias, Verbenas, &c. A box or hamper containing 100 from the above of the best quality for 30*s.* Carriage paid to London. Best kinds of Roses on the Mannetti Stock, 18*s.* to 30*s.* per dozen; Hardy Climbers, 20 kinds, 6*s.* to 9*s.* per dozen; do. Roses, 6*s.* to 9*s.* per dozen. Hollyhocks, Pansies, with every article connected with the nursery business. Post-office Orders payable at either Halstead or Haverhill will oblige.

The Nurseries, Sturmer, near Halstead.—May 24.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen—*s.*
Exotic Orchids ... ... from	42
Stove and greenhouse Ferns ... ... „	18
Hardy do. ... ... „	9
Selaginella or Lycopodium ... ... „	18
Geraniums, show and fancy varieties ... „	9
Do. variegated and bedding do. ... ... „	6
Do. scarlets in variety ... ... „	3
Cinerarias ... ... „	9
Calceolarias, bedding varieties ... ... „	3
Verbenas ... ... „	3
Dahlias ... ... „	4
Ageratums, Cupheas, Petunias, Salvias, &c. „	4
Gynerium argenteum (Pampas Grass) ... „	18

The above prices are for distinct and fine species, and varieties only, all of which are warranted true to their names; if ordered by the hundred, or in larger quantities, a considerable reduction will be made. A priced and descriptive Catalogue is published, and will be forwarded post free upon application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

MESSRS. MASTERS AND SON, Canterbury and Maidstone, are prepared to supply the following Plants:—

	Per plant—*s.*	*d.*
MEYENIA ERECTA	21	0
AZALEA INDICA BEALI ... ... } „ „ CRISPIFLORA ... ... }	5	0
SKIMMIA JAPONICA	5	0
GYNERIUM ARGENTEUM, PAMPAS GRASS	2	6

EDMONDS' NEW VERBENAS.—Standard Bearer, Victory, King of Sardinia, Duke of Cambridge, Blue Bonnet, Loveliness, Charles Dickens, Crimson Perfection, Dr. Maclean, Field Marshal, 2*s.* 6*d.* each; the set of 10 for 21*s.*

ROUGIER AND CHAUVIERE'S NEW VERBENAS.—Claire, Edouard, Jacquarita, Medirio, Rosati, Noel, Marshall, Marietta, La Gondolier, Marco, Inesille, La Tchernaia, Auguste Maquet, Alphonsine, Belle Gabrielle, Diogone, 1*s.* 6*d.* each; the set of 16 for 21*s*; Petunia Imperialis, new double, 6*s.* per dozen. Also a fine stock of Bedding Plants from 3*s.* p. doz., and 20*s.* p. 100.

Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collection of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede
Tweeddale purple-top Yellow Bullock Turnip
Improved Green Round do.
„ Red Round do.
Improved Pomerarian White Globe Turnip
„ Red Globe do.
„ Long Red and Orange Globe Mangel

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

FINE SHOW DAHLIAS.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, offers the following DAHLIAS, which are recommended in EDWARDS'S "National Garden Almanack for 1856":—

Amazon	Miss Frampton	Topsy
Duchess of Kent	Rachel Rawlings	Mr. Seldon
Imperatrice Eugenie	Sir F. Thesiger	Triomphe de Roubaix
Primrose Perfection	Louisa Glenny	Jonas
Robert Bruce	Port Royal	Richard Cobden
King of Yellows	Indispensable	Essex Triumph
Rose of England	Magnificent	Empereur de Maroc
Mrs. Seldon	Red Gauntlet	
Annie Rawlings	Comet	

Others can be supplied to parties having duplicates.

J. H. will forward the above Dahlias, hamper, package, &c., included for 12*s.*; 25 fine show Pansies, 12*s.*; 25 Belgian Daisies, 8*s.*; 25 Phloxes, including "Countess of Home," 16*s.*; finest Pansy Seeds, 1*s.* and 2*s.* packets.

Post-office orders payable at Middleton, Lancashire.

ORCHIDS.

WM. MAULE AND SONS beg to state that the season of the year having now arrived that Orchidaceous plants may be transmitted with safety to any distance, they can supply a few of the most favourite kinds of which they have a stock, in thoroughly established plants.

	s.	*d.*
Aerides odorata	10	6
„ affine, the true and best var., (not roseum)	42	0
Aerides Foxbrush, strong flowering plants ...	105	0
Calanthe veratrifolia ...	7	6
Cœlogyne Wallichi and maculata, pots with from 3 to 5 bulbs in, each bulb	2	0
Cattleya crispa major .	21	0
„ Harrisoni violacea	15	0
„ intermedia ...	15	0
Dendrobium Devonianum, the major variety ...	10	6
Dendrobium densiflorum	10	6
Dendrobium Farmeri, 10*s.* 6*d.*, 15*s.*,	21	0
Dendrobium chrysanthum major...	7	6
„ Gibsoni, very strong	10	6
„ Cambridginianum, 10*s.* 6*d.*	15	0
„ Pierardi	7	6
„ moschatum... ...	7	6
Vanda cœrulea, 42*s.*, 63*s.*, 84*s.*,	105	0
„ Roxburghi	42	0
„ teres	10	6
Saccolabium ampullaceum, new beautiful...	105	0

Stapleton Road Nurseries, Bristol.

TURNIP SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to inform their friends and Agriculturists generally that they have still on hand a good supply of various TURNIP SEEDS from selected stocks.

SWEDES—Purple-top, Skirving's, and other kinds.
HYBRIDS—Green-top Yellow, Purple-top Yellow.
GLOBES OR ROUNDS—White, Red, and Green.
TANKARDS—White, Red, and Green.
EARLY STUBBLE OR STONE—Hertfordshire White and other kinds.
KOHL RABI, or Hungarian Turnip.
MANGEL WURZELS—Yellow Globe, Long Red, Red Globe, and Long Yellow.

Mixtures of Grass Seeds for permanent Pasture and Meadow, for Cemeteries and Churchyards, for Parks and Field Lawns, for Garden Lawns and Grass Plots. Renovating Mixtures for old Pastures.

Italian and other Rye-grasses, and all other Seeds for the Farm, Kitchen Garden, and Flower Garden.

Detail Catalogues will be sent, post free, on application to THOMAS GIBBS & CO., the Seedsmen to the "Royal Agricultural Society of England," corner of **Half-Moon Street,** Piccadilly, London.

BEDDING PLANTS.

WILLIAM F. SMITH has for sale thousands of choice BEDDING PLANTS in great variety, at 4*s.* per dozen, 25*s.* per 100.

Geranium Beauty of Chipstead, strong plants, 18*s.* per dozen; G. Flower of the Day, strong, 4*s.*, 6*s.*, 9*s.* per dozen; G. Lady Holmesdale Improved, fine pink, 9*s.* per dozen.

Catalogues may be had on application by enclosing a postage stamp. Post-office orders payable at Sevenoaks.

Riverhead Nurseries, Sevenoaks, Kent.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

BEDDING PLANTS.

WM. COLE begs to offer plants of the undermentioned, which are this season extra strong, from 3*s.* per dozen; Calceolarias, all the best kinds; Geraniums in great variety, Heliotropes, Lobelias, Mimulus, Pentstemons, Petunias, Pansies, Roses, Salvias, Verbenas in great variety, Fuchsias, (Story's and other new varieties); Petunia imperialis, Sonerila margaritacea, Meyenia erecta, Delphinium cardinale, &c.—Catalogues may be had free on application. Plants given to compensate for carriage.

Nurseries, Withington, near Manchester.

BEDDING PLANTS.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset, offers one of the most complete collections in the country, at 2*s.* 6*d.* per dozen, containing Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Salvias, Petunias, Geraniums, Cupheas, Ageratums, Anagallis, Mimulus, &c.

The new white corolla'd Fuchsias at 4*s.* per dozen; Dahlias at 4*s.* per dozen; the beautiful new double white Petunia imperialis, 4*s.* per dozen, forms half a globe, and sweet-scented; the curious and beautiful Pelargonium triangulare, 2*s.* 6*d.* each.

Catalogues sent on application, inclosing a stamp. Plants put in to help to pay carriage.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.

Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

PLANTS
SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

CHOICE CINERARIA
AND
CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.—Packets of each sealed and warranted by them, at 2*s.* 6*d.* free by post.

EXPERIENCED GARDENERS.—L., P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.

Exeter Nursery, Exeter. Established 1720.

The Gardeners' Chronicle.

SATURDAY, MAY 24, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, May 27—Horticultural ..... 3 P.M.
WEDNESDAY, — 28—Royal Botanic .....2 P.M.

HOW OUGHT OAK BARK TO BE CURED? One would have thought that so simple a question must by this time have received a satisfactory answer; and yet, if the reader will turn to p. 659 of our volume for 1854, he will find that foresters have by no means made up their minds upon the subject. Considering that the crop of bark forms a very considerable part of the revenue derivable from Oak woods, and that the value of the bark is most seriously affected by the way in which it is cured, it is not much to the credit of English foresters that so important a part of their practice should still be unsettled. We therefore see with pleasure that Mr. W. THOMSON, the Crown Deputy Surveyor in Chopwell Woods, has endeavoured to show by an appeal both to evidence and reason that there is only one method which ought to be employed, and that "no local circumstances whatever are sufficiently important to warrant its rejection." We

think so too, and for that reason proceed to give a condensed account of the Chopwell system as described in the first part of the first volume of the *Transactions of the Scottish Arboricultural Society.*

We need not follow Mr. Thomson in his description of the miserable plight in which Chopwell Woods had been brought by a long period of neglect and mismanagement; for a full account of the place will be found in our volume for 1853, p. 419. We therefore proceed at once to the management now in operation, premising that wages are as follows:—Men, 2*s.* 6*d.* to 3*s.* a day; women, 1*s.*; boys and girls, 8*d.* to 1*s.*; the first working nine hours, the others only eight hours a day.

First of all, the most expert labourers proceed with felling, keeping in a body, and passing from tree to tree as rapidly as possible under the leadership of a workman of known excellence. A second class, generally of an inferior quality, and paid lower wages, follow, pruning the trees of all the branches, rendering them perfectly smooth and clean; they also attend to the removal from the larger boughs of all the branchlets which may be considered worth stripping; in doing which particular instructions are given to them to form as many *clefts* as possible (*i. e.* branches about 3½ or 4 feet long, 2 inches in diameter, and formed at one end like a fork), the use of which is indispensable in curing the bark; thus a double portion of the work is executed at one and the same time. As soon as the trees are pruned, they are carried out to the several roads which intersect the woods, laid neatly side by side, and handed over to those who are stripping. There are thus three classes of labourers engaged in preparing the trees for stripping, namely, fellers, pruners, and carriers (the last two may be alike in qualifications and wages). Some recommend that trees should be stripped where they are felled, alleging that, after they are peeled and allowed to remain until the stripping season is ended, they will become lighter, so that the expense of conveying them to the roads will be a mere trifle. Mr. Thomson, who has tried both ways, is convinced that his own plan is infinitely preferable in all respects; inasmuch as if trees are stripped where they are felled, a very considerable portion of bark will be lost in its transmission to the drying stages; and the additional number of trees carried to the roads when dried will not compensate for the bark lost or otherwise destroyed.

The next process, stripping, is of sufficient importance to command the constant attendance and superintendence of the principal officer in charge. The trees should be neatly sorted along the margin of the plantation roads; they should, if possible, be laid in heaps containing from six to twelve, and to each of these heaps two of the women should be sent to strip. It will invariably be found the better plan to have the strippers employed two and two together, in order that the one may assist the other in lifting the ends of the trees upon their *horses*, and to cast them aside when peeled. These "horses" are forked pieces of small trees or branches about 4½ feet long, placed diagonally on the ground, at about 5 feet apart at the bottom, but allowed to meet at the top, into the clefts of both which the end of the tree is permitted to rest. Thus placed, the tree is made perfectly firm and secure, and being raised to a considerable height from the ground at one end, every facility is given for removing the bark with care. This is done by the use of a "peeling-iron." Care should be taken to see that the bark is removed in pieces as large as possible, and always by the iron; it should never be torn off in shreds by the hand, as is often done by careless labourers, for it is thus rendered much more difficult to deal with in the future stages of its manufacture; and if in the least degree damp when stored, it will become so firmly consolidated into a mass that it will be almost certain to be affected with mildew or rot. While peeling the trees is proceeded with, the boughs which may have been considered worth stripping and prepared for the purpose, should also be dealt with in the same manner. Chopwell Woods are exceedingly unhealthy, and the consequence is that many trees, and still more branches, even in the most favourable season, cannot be stripped at all. Mr. Thomson directs all such to be thrown aside, finding it a waste of time to operate upon them; and, considering the very low price now obtained for bark, it is unprofitable to strip boughs under 1 inch diameter at the small end; *moreover he never allows a mallet to be employed.*

Large timber trees will, of course, have to be stripped where they fall, their removal being impossible without materially lessening the quantity and injuring the quality of the bark.

While stripping is going on, curing is actively proceeded with. Neglect at any time, especially in wet seasons, entails an incalculable amount of loss, for when injury is once inflicted on this description of produce, the effects are irremediable. Buyers are able and willing enough to detect the slightest damage; and unless there is a very close competition for its purchase, it is certain that producers will have to submit to a reduction in price more than equivalent to the actual amount of damage.

After describing the Scotch and English modes of curing, Mr. Thomson thus describes his own:—The reader will recollect that instructions were to be given to the labourers who pruned the trees to prepare a number of fork-like pieces of wood, called *clefts;* these, when stripped, are all pointed at the thick end, and driven into the ground along the margin of the roads, two abreast, at about 18 inches apart, and from 6 to 9 feet from each other lengthwise. Into the clefts of these a number of rails (the smallest of the trees) are horizontally placed, the end of each resting upon its fellow, until the whole presents the appearance of a double row of paling. One of the sides of this stage should be made 2 or 3 inches higher than the other, so that if rainy weather sets in it may be impossible for any quantity of water to lodge upon or amongst the bark; but in no case should the *lowest* rail come nearer to the ground than 30 inches, so that the Grass which grows around may not have any injurious effect upon the bark, and that a free current of air may at all times be secured beneath and amongst it. The bark is placed across these rails, and sorted as neatly as possible, care being taken to see that a sufficient number of large pieces is laid at the bottom to prevent the smaller portions from falling through, and the largest pieces of all are reserved to act as covers; these should be neatly laid on, with the *fleshy* side downwards, and maintained in their position during rainy or damp weather, but in fine days they may be removed, which is an undoubted advantage both to themselves and to that which they are designed to protect. Having it thus laid on the stages, little more is required to cure it, except in extremely wet seasons, when it will have to be turned over occasionally; and it is at such times as these that the absolute necessity of careful stripping is felt, and its advantages enjoyed. If the sap is good, and if the work of stripping is neatly performed, it will be found that the bark is taken off all round the tree without breakage, and in pieces of not less than 2 feet in length; in which case, it assumes its original shape as soon as it begins to dry, and being thus formed like a tube, it becomes nearly impervious to water. Stripped as above described, and laid carefully upon the drying stages to a moderate thickness, without being closely compressed, it will be found that, in ordinary seasons, very little loss will be experienced from mildew; but if any of the operations are negligently performed, it is probable that even one-half of the quantity prepared may be more or less injured.

Mr. Thomson finds storing bark in stacks to be under every circumstance preferable to housing. On the day previous to that on which the bark is to be stacked, a man is sent to prepare a suitable site for it, and to clear away rubbish around the place. The bottom of the stack is prepared by collecting a sufficient number of peeled branches and rough boughs of trees, so that the heap may be raised to a height of at least 18 inches from the ground, in order that a full current of air may have access at all times, and to prevent water from stagnating beneath it. The bottom should be made perfectly circular, from 12 to 14 feet in diameter, and altogether similar to that of a corn-stack. Twelve feet will generally be found high enough to build the body of the stack, which should be allowed gradually to swell in its proportions as it advances in height, until it attains an extreme diameter of from 15 to 17 feet at the eaves; this is done, as in the case of corn-stacks, to throw all the water which may fall upon and run down the roof right off the eaves on to the ground. The roof is constructed in a conical form, and is drawn to a point as sharp as possible. A stack of these dimensions will be found to contain from 14 to 15 tons of timber bark, and from 12 to 13 of sapling.

The necessary preliminaries being made, if the bark has to be carted from an average distance of 300 yards, two single-horse carts will lead in one day as much as will constitute a stack of the above dimensions. It is important that each stack should be completed on the same day in which it is begun, lest rainy weather should set in, and spoil the bark. A man is wanted to assist the carter in loading, and two or three lads will be required to pick up any small pieces which may fall off the stages or out of the man's arms. During the erection of the stack, the labourers must throw aside all the large pieces until it is built to the eaves; these are then placed on as the stack progresses, exactly in the same manner as slates are put on a house. If this is neatly done, no portion of the bark will receive the least injury from weather, even though subjected to a year's exposure. Mr. Thomson particularly objects to thatching with straw or reeds.

The last point to explain is the most important of all, namely the cost at which the work can be performed, and the market value of the produce. In showing this Mr. Thomson furnishes the particulars of the operations of one year, in which he prepared for sale rather more than 133 tons, the season being considered to be a good average one. He however begs the reader to call to mind the unhealthy state of his woods and the high rate of wages in the neighbourhood. He does not give an account of the expense of felling trees, because this item should be charged against the timber, for the trees may have to be cut down at any rate, whether they are afterwards stripped or not.

Expense incurred in Stripping 133 *tons of Oak bark in the manner above described:—*

2311½	days of a woman,	at 1*s.*	per diem		£115	11	6
306¼	do.	do.	10*d.*	„	12	15	2½
523¼	do.	do.	8*d.*	„	17	8	10
76	do.	do.	7*d.*	„	2	4	4
170½	do.	do.	6*d.*	„	4	5	3
					£152	5	1¼

This shows the expense of stripping to be only 1*l.* 2*s.* 10¾*d.* per ton.

Expense of Curing 133 *tons of bark, as above described:—*

10½	days of a lad erecting stages,		at 1*s.*	per diem,	£0	10	6
132¼	days of a boy or girl setting up		10*d.*	„	5	10	2½
112¾	do.	do.	8*d.*	„	3	15	2
39¼	do.	do.	7*d.*	„	1	3	2¼
93	do.	do.	6*d.*	„	2	6	6
6½	do.	do.	4*d.*	„	0	2	2
					£13	7	8¾

Or 2*s.* a ton.

Expense of Stacking 133 *tons of bark, including cartage:—*

29	days of a man and horse		at 6*s.*	per diem,	£8	14	0
50	days of a labourer,		3*s.*	„	7	10	0
33¾	do.	do.	2*s.* 6*d.*	„	4	4	4½
49¼	days of a woman,		1*s.*	„	2	9	3
90	do.	do.	10*d.*	„	3	15	0
8¾	do.	do.	8*d.*	„	0	5	10
1¾	do.	do.	7*d.*	„	0	1	0¼
100¾	do.	do.	6*d.*	„	2	10	4½
					£29	9	10¼

Or something less than 4*s.* 6*d.* per ton.

Hence it appears that the whole expense incurred in stripping, curing, and storing Oak bark, in a district of country where the highest rate of wages in Britain is paid to labourers, amounts to only 1*l.* 9*s.* 4*d.* per ton; and Mr. Thomson adds, in proof of the satisfactory manner in which the bark was prepared, that not a single complaint was made against its quality, and that he received *rather more than the highest rate* paid for bark in the same neighbourhood during the year to which these calculations refer.

In a postscript he further states that his experience during the present year (1855) corroborates all the foregoing remarks, especially as regards expenditure. There is on hand an estimated quantity of 118 tons of bark, stripped off very unhealthy trees, cured in the usual manner, and stacked in most excellent condition at an aggregate expense of 166*l.* 1*s.* 5*d.*, or 1*l.* 8*s.* 2*d.* per ton, while labourers' wages continue at the rate quoted in the preceding tables.

We venture to think that this statement merits the attentive consideration of country gentlemen, now that the bark season is at hand.

Few phenomena in the vegetable world are more surprising than the rapidity with which a tree that produces thousands of blossoms is relieved of all, except those which not only have been fully fertilised, but which in consequence of superior strength take the lead at the expense of their neighbours, and are destined to produce perfect fruit. We have lately been watching with much interest in the hope of throwing some light on the matter, the formation and fall of the young fruit in a vigorous Pear tree. The fruit in the first instance set admirably, insomuch that it was impossible for the tree to support such a crop as was promised. A portion, therefore, must of necessity have given way, had not some weeks of inclement weather come in aid of the requisite failure. The cold was not, however, such as to do more than depress the vitality of the fruit, in consequence of which the tissues ceased to swell, the chlorophyll lost its green tint and its separation became needful in order to the healthy and vigorous growth of its more favoured companions. As failing tissues are very apt to communicate a fatal taint to healthy parts with which they are in contact, it is requisite that this separation should take place as soon as possible after the vital energies have ceased.

The question then is, how is the fruit to be thrown off? or in other words, how is its stalk to separate from the mother branchlet? It is well known that in animals where a portion of a member becomes dead, a formative process takes place in the sound portion attended by many of the symptoms of ordinary inflammation; a multitude of new cells are in consequence generated, which gradually press forward and the diseased portion falls away. In the

vegetable kingdom, where there are so few indications of vital heat, a process precisely similar in its phases cannot be expected, but if we mistake not, something closely analogous takes place, by means of which the dead part is pushed off. When the young fruit is just ready to fall, if a slight degree of violence is used, the union is easily broken. If then the disc by which the fruit and branchlet were united be examined, it will be found to exhibit a granular appearance, from the presence of a number of almost free cells, which are often as white as snow, and are either thinly dusted over the surface, or form a rather thick stratum. These cells are generated at the point of demarcation between the dead and living tissues, and as they increase have a tendency to throw off the dead or dying fruit stalk exactly as the new animal growth does the putrid slough. They are dissolved instantly in strong sulphuric acid; on the contrary, they do not yield to caustic potash, and with iodine and sulphuric acid the outer coat becomes blue, while the nitrogenous matter within remains yellow. They are then nothing more than ordinary parenchymatous cells, very similar to those which occur on the walls of accidental cavities in Phænogams, but unlike them, instead of being studded with little raised points they are perfectly smooth. While this action is in progress in the young shoots, the old axile portions from which the peduncles of last year's fruit were separated in autumn are undergoing a somewhat similar process, though a more gradual one. Wherever a bract or leaf was situated on the new effete axis separation takes place, descending step by step till the whole is removed. Four or five irregular fissures are formed in this way before final separation is accomplished, and at every step the disc is powdered with the same glistening cells, which are often so abundant as to be easily removed with the point of a penknife.

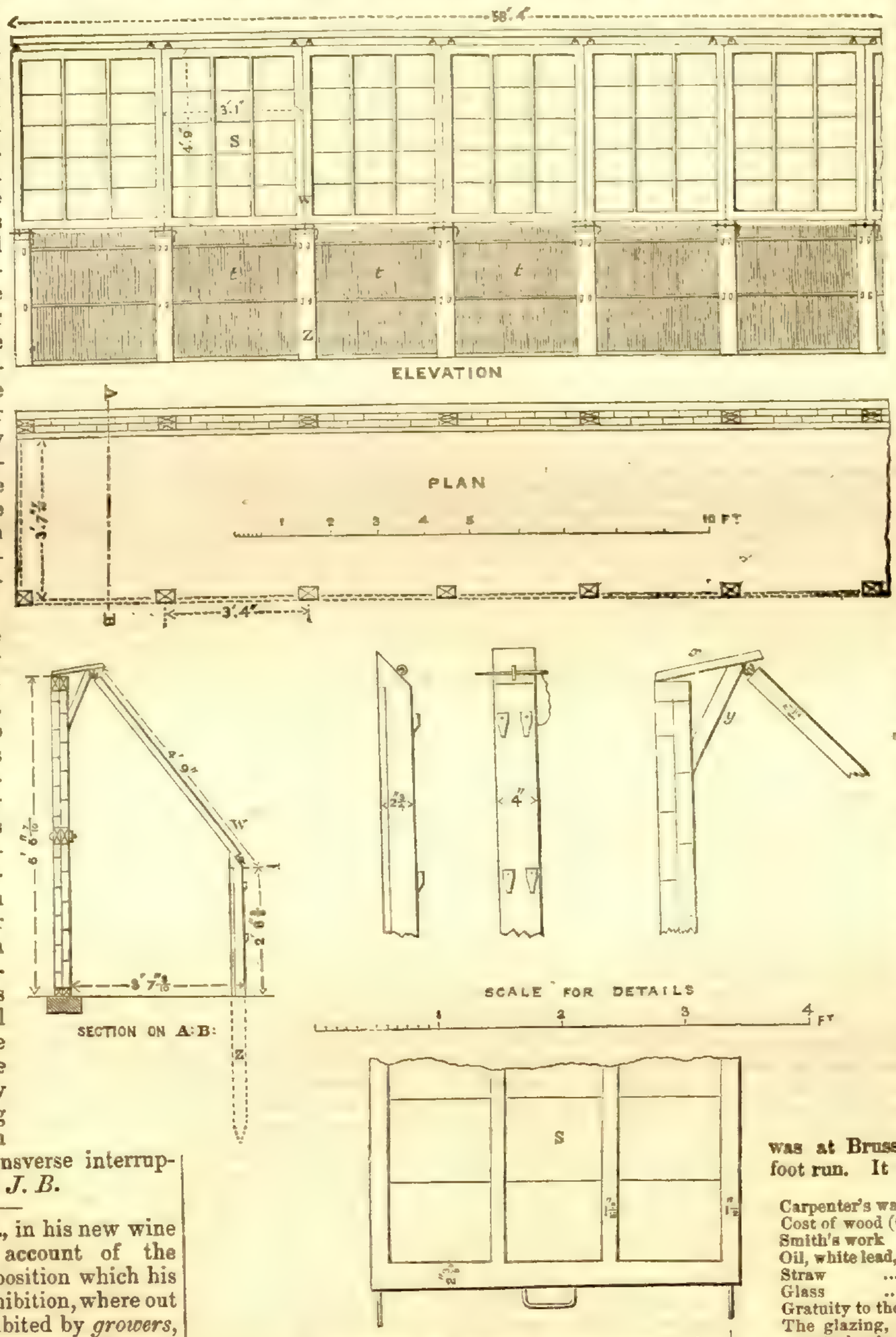
The chemical reaction of these cells is just the same as in the other case, and there is nothing to confirm the notion of SCHACHT that the fall of dead organisms is due to the formation of cork cells. It is very possible that after long exposure to the air they may alter their chemical characters, but this is a different matter to the production of cork cells in such a position before separation, and we can ourselves bear witness that after they have become perfectly brown from exposure, their chemical reaction remains just the same as before. A similar process in all probability takes place in those cases where branches of some thickness separate spontaneously by a circular fissure, and something of the same kind may exist even where there is at each bud a transverse interruption of continuity in the pith. *M. J. B.*

WE observe that Mr. FORRESTER, in his new wine circular, gives a very gloomy account of the Portuguese vineyards. The high position which his growths obtained in the French Exhibition, where out of 24 samples of Port wine exhibited by *growers*, and approved of by the jury, *fourteen* were those of his firm, entitles his statements to particular attention. It appears that the stock of wines in Oporto does not now amount to more than 5000 pipes of 1853, 30,000 pipes of 1854, and 20,000 pipes of 1855 of all qualities. Choice old wines in the hands of native holders for sale to exporters, cannot be estimated at more than 7000 pipes—for which fabulous prices are demanded; and it now appears, not only that the proprietors, anticipating a renewal of the blight, have dibbled Indian Corn into the rugged grounds amongst their Vines, but that a new disease caused by an insect has made its appearance, and threatens the Vines of Portugal with the fate of those in Madeira and Teneriffe.

ON THE CULTURE OF PEACHES, APRICOTS, AND VINES UNDER A MOVEABLE GLAZED STRUCTURE.

ALL cultivators of fruit trees know that the Peach, Apricot, and Vine are natives of much warmer climates than those of England and Belgium. We have not yet succeeded in obtaining in our latitudes, by means of seed, varieties hardy enough to bear, in the open ground, fruits as delicious as those obtained with due precautions from a wall with a good aspect.

When we examine the gardens of the ancient religious establishments of the country, we find there are still many vestiges to attract the attention of the observer. These gardens are divided into several compartments by walls of 7, 8, 10, or 15 feet high, furnished with copings which project from 12 to 18 inches according to the height of the wall, and at the bottom of these walls are raised sloping borders, 6 to 8 feet wide. For the best aspect, facing the south-east, south, or south-west, the protection of a still higher wall is afforded. It was on these, according to the testimony of the old friars, that fruit trees which would not succeed elsewhere in gardens were cultivated. The riches of these institutions permitted the erection of these costly but durable and useful structures. At the present day all these precautions are not taken, even in the gardens of the wealthy; yet the injuries to fruit trees in spring, and consequent losses of crops, are such that it is high time to adopt remedial means. Recourse is had to copings, which shelter the blossoms from snow and late frosts. Some employ mats of rushes, straw, or Russia mats. Others again have



moveable glass structures, which appear to me to be preferable to all other modes of protection. By means of these we have seen produced Peaches, Apricots, and Grapes, perfectly formed, and of a delicacy and flavour beyond which nothing could be desired. We have seen one of these structures in the garden of Mr. Charles Van der Straeten, at Texelles lèz Bruxelles. This garden is situated on the highest part of the environs of the city. The ground is cold and stiff during winter, but the layer of vegetable soil is very deep.

The moveable structure represented in the foregoing plan is placed against a wall, facing the south-west, composed of tiles 9 inches square. All details respecting the wall and moveable structure are given in the explanation to the plans; some remarks as to the fruit-trees, and the period when the structure is put up, may however, be given.

The wall being constructed of tiles, and the joints being perfectly filled up with plaster, no refuge is afforded on its surface for insects. This is a circumstance worthy of note. Against the wall is placed a trellis work of round rods attached to the uprights of the Oak framework at the distance where the reflection of heat is greatest. This is another point to be noted.

After the Vines have been three years planted and trained horizontally, for by that mode they occupy least space, they are pruned at the fall of the leaf in November and properly cleaned. With regard to the Peach and Apricot trees they are not pruned, but merely cleaned, and the branches trained and nailed in their natural direction from the centre of the tree. Towards the end of February the moveable structure is placed against the wall.

As soon as the fruit is set, and in a fine day in April or May the moveable structure is taken off from the Peaches and Apricots, in order to perform the operations of disbudding, pinching, and the removal of old exhausted branchlets. The fruits are thinned at the same time by cutting them through the middle, and the leading shoots are nailed in. If insects appear they are killed by sprinkling with tobacco water, which no insect can withstand; afterwards the trees are syringed with clean water. The wall is left uncovered for a day or two if the weather is favourable; but if not, these operations are performed without taking down the structure. It remains up till the Peaches and Apricots have nearly arrived at maturity, which is about three weeks or a month before ripe fruits can be obtained from unprotected walls. The period of ripening depends, of course, upon the season being more or less favourable. The sashes when taken off are laid aside till the following spring, whilst the trees exposed to the influences of the atmosphere regain their vegetation and productive vigour for the following year.—*J. De Jonghe.*

Explanation of the Figures.—The frame shown in the drawing was placed against a wall of a new construction, and which has existed for more than 25 years. The wall is formed of a framework of Oak, forming squares, in which are set on edge two courses thick of blue paving tiles, 9 inches square, so as to break joint This wall is 6½ feet high, and is covered by a board, *x*, which serves for a coping, and is supported from sash to sash by pieces of wood, *y*. In the coping boards are fixed hooks which hook into two eyes on each sash. The sashes rest upon Oak posts, *z*, fixed in the ground to the depth of 3 feet 3 inches. Each post supports the ends of two sashes, which rest partly on the one and partly on the other, as at *w*. The sashes *S* are made of Pine, and are framed and glazed in the ordinary way. The intervals between the posts are closed up in severe frosts by straw mats, *t, t, t*, which can be removed at pleasure. They are kept from blowing in or out by being tied to laths nailed to the posts.

This is so easily moved that the whole of it, though 58 feet 4 inches in length, can be removed by two men in 8 minutes, and again replaced in 12 minutes. When the moveable part of the structure has been taken down, there only remain the posts, the use of which no one would suspect. Besides effecting its principal object—the protection of fruit trees, such as the Peach, Apricot, and Vine, &c.—the structure serves at the same time for the production of early vegetable crops, for which purpose a border 3½ feet wide is available.

The expense of the entire structure was at Brussels 7*l.* 0*s.* 9*d.*, or about 2*s.* 5*d.* per foot run. It is composed of the following items:—

	£.	s.	d.
Carpenter's wages	1	2	11
Cost of wood (Oak and Pine)	2	1	5
Smith's work	0	9	5
Oil, white lead, and putty	0	13	7
Straw	0	2	4
Glass	2	5	6
Gratuity to the gardener	0	5	7
The glazing, painting, and making the straw mats, having been done by the gardener at spare times in winter, are not taken into account.			
Total expense	£7	0	9

—*Charles Van der Straeten.*

VEGETABLE PATHOLOGY.—No. CXXII.

484. VULNERA (*Wounds*).—The most conspicuous and indeed often the most serious wounds, are those which affect the branches and trunk or their investing bark. It is well known that the bark of a tree cannot be removed to any great extent without the probability of very serious injury. A principal part of the ascending sap passes through the young wood, and if the surface of it dries up in consequence of exposure, a portion of the supply is cut off from the upper branches. Life may be supported feebly for a year or two, inasmuch as a small quantity of sap is conveyed by older layers of wood, but except in rare cases the supply is not sufficient for the exigency, and death at length ensues. The Lime tree at Fontainbleau is a case of long sustained vitality where the bark and subjacent wood-rings had been decayed to some depth, and it is related by Prosper Alpinus that in the sixteenth century there was a Sycomore Fig at Memphis of very ancient date, under which there was a tradition that the infant

Saviour had rested with his parents, and of which the wood was in consequence much sought for relics. In spite, however, of the constant destruction of the outer layers, life was still carried on.* In some cases of accidental or wilful removal of the bark, fresh tissue will be thrown out from the medullary rays, provided the surface is moist and protected from the air. This happens occasionally without any protection, but the safer course where it is desirable to insure recovery is to protect the surface by some covering, taking care however that the air is not so confined as to encourage the growth of mould to the destruction of the infant tissue. Bruises are sometimes more fatal than actual decortication, where the affected surface is not large, because the tissues are apt to decompose and an ulcerated condition to ensue. The mere loss of sap is seldom of any material consequence. In such cases the best treatment is undoubtedly to remove the injured bark, and the exposed surface will after a time be covered with bark, if no granulations appear upon its surface. Serious decay will very rarely take place upon a surface thus exposed.

485. The wood, however, as well as the bark may be involved in injury, whether intentional or accidental. In one of the most indispensable operations of horticulture, pruning, wounds are constantly made, without affecting ultimately the health of the plant. The exposed portion either is covered in a year or two with new growth, or the wood dies down to the next bud, withers up, and all trace is lost as the new bud increases. A little caution, however, is necessary in trees which produce stone fruit, as gumming may ensue from injudicious or careless treatment. Where the branches are large it is a question whether it is better to cut them off as close to the trunk as possible or not. There is, however, no doubt that in the first case the wound will heal up more completely, and with less danger of decay. The removal of large branches indeed can seldom be necessary, except where the cultivator has been too tardy in the removal of superfluous wood. The great art of pruning is to provide, not only for the present and following year, but for future contingencies. Where it is requisite to head down a tree, large wounds cannot be avoided, but even in these cases horizontal sections should be as infrequent as possible, or there will be danger of decay from moisture resting on the surface and penetrating the tissues.

486. In some cases, however, it may be needful to remove considerable branches which have been injured by wind or other causes. Where this is the case it is still advisable to cut as close to the trunk as possible, for if not there will certainly be a decayed place in it which will greatly injure the value of the wood. Several plans have been proposed of protecting the cut surface, and these are just as applicable to the cases mentioned in the foregoing paragraph. The object is to apply some varnish or cement, which shall not be so thick as to impede growth at the edge, or shall not be of such an irritating nature as to affect the neighbouring living tissues, but which shall effectually prevent the admission of moisture and the growth of those fungi which are so injurious to timber. The best of these is that given in Lindley's "Guide to the Orchard and Kitchen Garden," pp. 507, 508, and which is commonly called Forsyth's. One bushel of fresh cow-dung is intimately mixed with half a bushel of lime rubbish, as from ceilings, the same quantity of wood ashes, and 1-16th of a bushel of river sand, all finely sifted. The edges of the wound and surface being made perfectly smooth, the composition is laid on about one-eighth of an inch in thickness, care being taken to thin it gradually off at the edges. A powder of wood ashes, and one-sixth of the same quantity of burnt bones is then applied with a dredger till the whole is covered, allowing it to remain half an hour to absorb the moisture. More powder is then rubbed on with the hand till the whole acquires a dry smooth surface. The composition is best applied in a liquid state, and may be made of the proper consistence by mixture with urine or soap-suds and laid on with a brush. The surface will want occasional examination to see that the plaster is not removed by the growth of the young bark. *M. J. B.*

NYMPHÆAS.

There are at present in the stove tank at the Oxford Botanical Gardens some Nymphæas, which, if they do not contribute to the unravelling of the complicated synonymy of the genus to which they belong, at least add another instance of the great powers of variation possessed by these beautiful plants. For the last five years, a plant in all respects like that figured in the "Botanical Magazine," tab. 4535, under the name of Nymphæa micrantha, has been cultivated here by Mr. Baxter. That most successful cultivator has drawn my attention to what he thinks a variety of that plant or possibly a hybrid. It is three or four times larger than the N. micrantha of gardens. The sepals are marked on the outside with small linear blackish spots, the petals are of a pale blue colour, and the flowers have the same scent as those of N. cœrulea. In form, in the remarkable bulbiferous character of the leaves, and in all other respects there appears to be little or no difference between it and the so-called N. micrantha. For purposes of cultivation the large scented blue form will, doubtless, be preferred, and it is equally readily propagated by its bulbills.

During the last year, too, we received from Mr. Moore, of Glasnevin, a Nymphæa sent to him by Dr. Lehmann, of Hamburgh, under the name of N. Guineensis. This is undoubtedly the same as the plant cultivated here and elsewhere, and figured in the "Botanical Magazine" as N. micrantha. I mention this, as Lehmann himself refers the N. micrantha of the "Botanical Magazine" to N. vivipara, Lehm., the description of which latter corresponds in many respects with that of the large blue form of the so-called N. micrantha before mentioned. Dr. Planchon, in his "Etudes sur les Nymphéacées," refers the N. micrantha of the "Botanical Magazine" to N. Guineensis of Schumacher; the original N. micrantha of Guillemin and Perrottet is supposed by him to be a form of N. cœrulea, and is not, as far as I know, in cultivation.

From the same source also we have received a Nymphæa called by Dr. Lehmann N. pœcila. With us this plant is perfectly undistinguishable from that form of Nymphæa cœrulea known in cultivation as N. cyanea. Perhaps it may be as well to remark that the plant often grown in this country as N. cyanea, is the true blue Water Lily of the Nile, as an inspection of specimens in the herbarium, as well as of the figures in Delile's Egypt and Ventenat's Jardin de la Malmaison shows. The South African N. scutifolia is also generally cultivated under the name of N. cœrulea, from which it differs in the absence of purple spots on the under side of the leaves, and on the sepals, in the obtuse form of the latter, which are also somewhat "hooded" at the points, and in the elliptic form of the unexpanded flower bud, &c. In the true N. cœrulea the acute sepals are flat at the apex, not blotched, and the flower bud is pyramidal and acutely pointed.

Dr. Hooker, in his recently published and invaluable "Flora Indica," p. 240, cites Professor Henslow as failing to find any character whereby to distinguish Nymphæa alba from N. odorata, when growing together in the same pond. There is, however, a difference in the number and arrangement of the intercellular canals in the flower and leaf stalks of the two plants. In N. odorata there are four large central canals, surrounded by a few of very much smaller calibre. The same arrangement exists in N. odorata minor, and in N. pygmea. In N. alba there are also four central canals, but these are surrounded by a great number of tubes of nearly the same size as the central ones. The other species of Nymphæa that I have examined differ, not only in the arrangement of the canals, but also in the fact that there is a different disposition of the tubes in the leaf and flower stalks, instead of the arrangement being the same in both organs as in the species referred to. *Maxwell Masters.*

* J. H. Urani, Arboretum Biblicum Nor. 1699.

Home Correspondence.

The Highland Pine.—Is there any real distinction between the Highland Pine and the Scotch Fir? and if there is, which is the best? I see in many nurserymen's catalogues they are offered as two distinct kinds. [There is much difference of opinion on this subject. Both are Pinus sylvestris—but they are probably distinct varieties.]

Easy and effectual mode of fumigating Conservatories.—Take some coarse brown paper, cut it into squares of about 16 inches. Soak them in a strong solution of nitre; put them by to dry. Spread them out flat, and cover the surface thinly over with tobacco; then begin at one of the corners, and roll it up as the cook does a roll pudding; tie the middle with a thread and also the two ends. Having shut up the house and made all ready, place two or three pieces of lath across an empty flower pot, and upon these lay three or four of these paper rolls—light them at both ends, and leave them to do their work, which they will do most effectually. In half an hour you will find the green-fly, &c., destroyed. Give a slight syringing next day and your plants will be found to be perfectly clean. If the conservatory is very large, it will be necessary to remove the plants affected to some smaller compartment. These rolls should not be made up till wanted, as the paper will contract moisture, and so will not burn freely. Dry the papers at the fire previously to making the rolls. The above may be nothing new, but I have found the greatest benefit from it. *G. Leapingwell, Cambridge.*

Charcoal.—"The wood charcoal may be burnt in a room without a chimney, as Mr. Ladlin has deprived it of all noxious effluvia."—The above is copied from an advertisement in the *Gardeners' Chronicle* for last week, p. 325, and I venture to call your attention to it; for although you are of course not responsible for any statement thus made, yet I think you would not willingly be the means of diffusing a falsehood which might cause the most fatal consequences. Pray therefore inform those of your readers who are liable to be deceived by it, that it is charcoal itself, and not any extraneous matter which when burnt produces the deadly gas, carbonic acid, and that if used without a chimney it is all the more dangerous for being pure, from the absence of any unpleasant smell which might serve to give warning to those inhaling the gas. *P. W. J., Guildford.* [Undoubtedly. It is a very dangerous statement; and if Mr. Ladlin's assertion should lead to fatal consequences he is likely to find himself in the presence of a coroner.]

Heating and Ventilating.—I imagine my simple plan for commanding a free and continuous ventilation with warm and moist air will answer very well in most instances, from the trials I have made. My new house now in progress is about 40 feet by 12 feet inside, with a sunk walk a foot deep in the centre; through its whole length brickwork is carried up from the bottom of the walk to 18 inches above the surface on either side. Prepared 4-inch earthen pipes (carefully luted) are laid on the ground, and the ends of these are fixed into small brick and cement tanks (one tank at each end of the house and one in the centre), in lengths of about 19 feet each; there are four pipes lying parallel to each other, and a fifth below, from the bottom of the tank furthermost from the boiler, as a return pipe; the whole are enclosed in a chamber 9 inches in height by 4 feet wide; slates are laid over it, and on this is about 9 inches of a free sandy earth, for a hot bottom for plunging, propagating, &c. In the front wall on a level with the ground are apertures 9 inches high and 2 feet long, leading directly into the heated chamber; these openings are commanded by sliding doors of slate, and in the interior of the house, in the side brickwork next the front of the centre sunk walk, are also openings from the chamber 9 inches high by 3 feet long, with sliding slate doors, four in number; both within and without these doors will be kept open more or less night and day. In the back at the top of the house are openings with shutters and regulators. Thus all the air admitted into the house must pass by the openings in front, through the heated chamber, into the house, and ascending makes its escape through the apertures in the back wall, the tank supplying the necessary degree of moisture to the air. The tanks can be opened at pleasure, and one or more of the pipes plugged at each end to regulate the heat. The plan is economical and simple. It may not answer all the requirements desired by many, but I believe that it will be found to answer very well. I have had in a small greenhouse, from which I could not keep out the frost, a few Dendrobes, Stanhopeas, Lælias, Odontoglossum, a Peristeria, Platycerium grande, Eschynanths, Hoya bella, Renanthera, Cattleya, and other things generally coddled through the winter; they look rather sulky, but they have survived, and some or all show evidences of returning vigour. *Thomas Ingle, M.D.*

Peat Plants.—Pray recommend everybody in the south of England with peat soil to grow Arbutus mollis and tomentosa, Andromeda formosa, and all the Illiciums—they are all beautiful with me. I think some plants resist frost better in peat than other soil; but this is theory. *S.*

The Mustard Tree of Scripture.—In Stanley's "Sinai and Palestine," p. 419, allusion is made to this quasi tree, and in a note Professor Royle is said to nearly identify it with the Salvadora persica, which "is reported to grow in the neighbourhood of Damascus, in the valley of the Jordan, and on the shores of the lake of Gennesareth." Can you tell us what this Salvadora is? It ought to be half hardy and of easy culture here. It is strange that it should never have been introduced. I cannot find the name either in Paxton or Loudon. I at one time thought the Broussonetia papyrifera to be the scriptural Mustard tree; I suppose merely because its seeds are so like Mustard in form, size, and colour, only not of so bright a yellow. *T. R., Herts.* [The Salvadoras are Persian and Indian trees of no beauty, and only fit for Botanic Gardens.]

Horticultural Society.—The fate of the gardens of this Society at Chiswick appears to me to be quite a national question. Considering the vast influence which the Society, through its gardens, has had upon horticulture not only in England but throughout the world, which is especially testified to by Mr. Behrens' noble offer, and as I attribute to this the great improvement in the cultivation of plants (though hardly enough recognised) and the increased interest in and love for gardening, it would seem a sin to break up the very valuable establishment at Chiswick. The question is now whether the gardens are to be given up or whether the sum of 5000*l.* can be raised by the 24th of June, with which an experiment and a bold push may be made to restore them to their pristine glory and usefulness. This is really a very trifling sum, and it does behove all lovers of gardens to come forward and add their mite to so good an object. I believe—independently of the numbers of rare trees that are to be found at Chiswick and which are too large to be removed—that the collection of fruit trees is the most perfect in the world, and the value of such a store as an authority and for the supply of varieties throughout the kingdom is incalculable. For this alone the public ought not to allow the garden to be destroyed. I will only add that the more I think of it the more persuaded I feel that the experiment of two exhibitions at Chiswick this year (I say two lest one day should be unpropitious) ought to be tried, and I could pretty well guarantee that they would prove highly successful. There are numbers whom I know who think the same. There have been abundant causes for the failing funds derived from them during the last two years, but this season of peace and rejoicing can hardly be supplied with too much amusement, so that rival exhibitions must not be thought of. I have made inquiry among some of the leading nurserymen, and they are most willing to exhibit at Chiswick, although there are of course the exhibitions in Regent's Park and at the Crystal Palace. As to the latter I am by no means inclined to consider it so formidable a rival as some people. The prizes are certainly high and the place attractive; but for the fashionable world it is far less accessible than Chiswick; and provided the weather be fine the promenade through those delightful gardens, along the broad turf and under the shade of the trees, is to most people more agreeable than the thronged

nave and galleries of the Crystal Palace, beautiful though they be. The drive is far more easily and conveniently made from the West End to Chiswick, than by the different broken routes to Sydenham Hill. I would therefore urge on the authorities to prepare immediately for two exhibitions at Chiswick; and I feel confident, out of love and gratitude to the old place, such will be the interest in the public mind, that the memory of old times will revive; and as has always (with the exception of the last two years) been the case, the result would recur again, viz., a handsome surplus over expenditure would be handed over to the funds of the Society. *An Oldish F.H.S., May* 21.

Societies.

LINNEAN, *May* 6.—The President in the chair. Mr. Gaskoin exhibited some of the jumping seeds, described by Sir W. J. Hooker and Mr. Westwood in the Kew Journal of Botany, the motion of which is due to the larva of a small moth enclosed in the seed. The following papers were read:—1. On the Action of Sea Water on the Germination of Seeds, by C. Darwin, Esq. The seeds experimented on were placed in bottles filled with salt water artificially prepared to resemble sea water, and were submitted to different degrees of temperature, without however any apparent influence resulting from the latter conditions. Other seeds were also experimented on by the Rev. M. J. Berkeley, these having been immersed in sea water at Ramsgate for about a month. The results of both series of experiments were embodied in this paper. The total number of kinds of seeds experimented on amounted to 87, and of these 23, or more than one-fourth, did not endure 28 days' immersion. The seeds of Capsicum were affected in the least degree, for 30 out of 56 seeds planted germinated well after 137 days' immersion. Of Celery seed, immersed for the same period, only six out of several hundreds germinated. Those most affected were the dwarf Kidney Beans and Hibiscus Manihot, both of which were killed by 11 days' and common Peas by 14 days' immersion. Tussilago Farfara germinated under water after nine days; but the young plants kept alive for some time. Those affected in the next degree were found to be Phlox Drummondi, Trifolium incarnatum, Linum usitatissimum, and Sinapis nigra, very few of which survived 15 days' immersion. As general results, three out of 17 endogens and 20 out of 70 exogens were killed by 28 days' immersion. This fact, together with the marked powers of endurance in the Atriplex, Beta, Spinacia, and Rheum—lower organised exogens, Mr. Darwin thought accorded and was perhaps connected with the fact, so much insisted on by M. de Candolle, of the wider range of the endogens, and of the lower organised exogens, than of the higher exogens. Four Solanaceæ and two Umbelliferæ endured the salt water very well, and each of these groups furnished one of the longest survivors of all the species tried. Of 10 Compositæ only one was killed by a month's immersion. Of eight Cruciferæ, all withstood the influence well excepting Sinapis nigra, which was killed by 25 days' immersion, and three of them survived 85 days. This power of endurance in the seeds of this family was alluded to as perhaps surprising, considering the oil in their seeds. Of nine Leguminosæ, all resisted the salt water badly, with the exception of the hard thin seeds of Mimosa sensitiva, which germinated pretty well after 50 days; three species of Lupine seemed just able occasionally to withstand about 36 days' immersion, the seeds of the other Leguminosæ having all been killed in much shorter periods. Mr. Darwin suspects, however, that it is the water and not the salt which kills the Leguminosæ: for he found fresh "Reliance" Peas all killed by 13 days' immersion in pure water, and had been assured that Kidney Beans were killed by immersion for a much shorter period. The author stated in conclusion his conviction that of very few species, as far as we yet know, are the seeds all killed by 10 days' immersion; that some seeds would float for this period; and that under favourable conditions some plants might thus be transported over arms of the sea 300 miles or more in breadth. The paper was accompanied by an enumeration of all the kinds experimented on, with a statement of the results. 2. On the Vitality of Seeds after Prolonged Submersion in the Sea, by James Salter, Esq. The object of this paper was to record that in 1843, on the occasion of Poole Harbour being deepened, the mud then brought up from the bottom of the harbour was deposited several feet in thickness over a considerable area by the shore, and in the following year was covered by an abundant vegetation totally different from that of the neighbouring shore, and consisting of Oats and Barley in abundance, Epilobium hirsutum in profusion, a few plants of Lysimachia vulgaris and Centaurea calcitrapa, and many others which had not been noted. None of these plants grew naturally in the vicinity, and on the other hand none of the ordinary shore plants of the neighbourhood appeared on this new made ground. At the head of the harbour it appears that the river Frome and the river Piddle discharge their waters into it, and Mr. Salter asks:—"Is it too much to suppose that the seeds from which these plants sprung had fallen into the rivers in various parts of their course, had gone with their waters into the harbour, and ultimately reached the position from which the mud and they had been collected?" This explanation seemed probable; but whether received or not, Mr. Salter thought it was an important fact not to be disputed that a variety of seeds had been for a period, probably considerable, at the bottom of Poole Harbour, soaking in water as salt as that of the ocean, and had retained their vitality until in this way brought under influences which resulted in their healthy vegetation. 3. On the Homopterous Insects of Singapore, Malacca, &c., by F. Walker, Esq.

Notices of Books.

An Inquiry into the Nature of the Simple Bodies of Chemistry. By D. Low, Esq., F.R.S.E. 3d ed. 8vo, pp. 386. A. & C. Black.

IN this new edition of a work noticed by us in 1844 at p. 103 of that year, Mr. Low endeavours to show by new arguments that all the simple bodies of Chemistry are compounds of hydrogen and carbon, with the exception of hydrogen and carbon themselves. We can in no degree alter the opinion expressed in 1844. The matter may be as Mr. Low believes it to be, but he does not prove it to be so. Neither can any train of argument however ingenious, or line of speculation however probable, have weight in the absence of chemical demonstration. If chemists are to admit that oxygen is a compound body Mr. Low must decompose it into hydrogen and carbon. Then indeed he will have established his case so far as oxygen is concerned—but not till then. Nor does it give us confidence in the justness of his views to find him dwelling so much upon rare substances like Cerium, Lantanum, and Didymium; for if he could decompose such bodies he would not be entitled to infer from such a circumstance that other bodies which he cannot decompose are nevertheless decomposable.

Beyond these remarks we have nothing to say. The work is undoubtedly one of great talent, and we have no doubt that chemists will candidly admit that the author has conducted his cause logically, learnedly, and skilfully, although, since they cannot apply to their science the doctrines of probability, they may be unable to admit that he has made out his case. It *may* be true that sulphur is a compound of hydrogen and nitrogen, it also *may* be true that gold is a mere condition of sulphur combined with something else, and hence that gold is reducible to hydrogen and nitrogen, but until it has been so reduced men of science must be pardoned for withholding their implicit assent to the theory. The learned author's concluding remarks upon gold illustrate perfectly the manner in which he deals with his subject:—

"From the enumeration given of the characters of gold, it will be seen that it is not very closely associated with any of the other single or undecomposed metals. But it has various characters in common with sulphurets of the metals, conducting us to the conclusion that it contains sulphur; and its external characters are those of a sulphuret. It resembles so closely bisulphuret of tin in certain states, that the two substances can scarcely be distinguished by the eye, and it has an almost equal resemblance to sulphurets of titanium and cerium. It resembles likewise iron-pyrites in the bright golden-yellow colour which distinguishes the latter substance. It resists the action of nitric and muriatic acids separately, while it is rapidly acted upon by aqua regia, which is likewise the case with other sulphurets of metals, as cinnabar and bisulphuret of tin. Further, when lightning has struck gilded ornaments they have become blackened; and it has been found, on analysing the blackened matter, that the presence of sulphur was distinctly indicated. But whence comes the sulphur? The hypothesis has been proposed that it accompanies the thunder; but it is more reasonable to believe that it exists in the gold, and has been evolved by the action of the lightning. Gold, then, we may fairly assume, contains sulphur, or the elements of sulphur; and further, this is no anomaly in the case of gold, since other metals, we have seen, may be believed to contain sulphur, or the elements of sulphur. The powder of projection of the alchymists was probably in many cases sulphur, or a compound of sulphur, and the resemblance to gold which its action produced on tin and other metals, was calculated to confirm these early chemists in their visionary hopes. Yet we are not entitled to ridicule the alchymists. They were misled by a theory, as we perchance may be misled by theories, and we must remember how many ages of experiment have passed away ere we have arrived at the knowledge, such as it is, which we now possess of the fundamental truths of chemistry. Not only did these early chemists believe that sulphur existed in gold, but some of them supposed that gold was their principle of sulphur converted into a metal. Nor was there anything very extravagant or absurd in such a notion. Sulphur passes into selenium, which may be termed a semi-metal, and into antimony, which is a true metal; and why, it may be asked, may it not be supposed to pass into gold, which is likewise a metal? Gold, then, for anything we know to the contrary, may be a sulphuret, or even, founding on the notion of the alchymists, sulphur itself, but brought to the state of the most beautiful of the metals, by agencies which we cannot command, and by means of that which cannot enter into our experiments, a vast period of time. Gold is manifestly the production of the earliest periods in the geological history of the globe, and has been produced under conditions which we can never imitate. We cannot hope, like the alchymists, to form gold by any agents at our command, but it is not beyond the limits of a reasonable expectation that we may be able to prove its compound nature by the agents which we possess, and by means of which other bodies, before held to be simple, have been proved to be resolvable into simpler elements."

June is a duodecimo volume by Mr. Stainton (Longmans), intended to point out the charms of that month, which is the first of our English summer. The author is an enthusiastic naturalist, who finds beauty in every hedge, and objects to admire beneath every stone. He describes the June of Scotland, of the Lakes, of Devonshire, of Sussex, and of London, each of which has its peculiarities. In some respects his volume is written too much in the *ex cathedrâ* style, which does not improve the sparkling passages; but upon the whole it is likely to interest the young who are naturalists either *in esse* or *in posse*. His attack upon the boarding-school system of exercising young ladies by marching them in columns along a dusty road up to a certain point, and "then right about face—and back again"—a method of progression which he compares to that "of an ordinary 16-legged caterpillar," is amusing and true. But we fear there is little chance of the gentle damsels being permitted to exchange their formal march for a wild run after insects and flowers. Before they abandon Mangnall's Questions for natural history their teachers must understand a little of the latter; and where are such teachers to be found in ladies' boarding schools?

Garden Memoranda.

MESSRS. VEITCH'S NURSERY, KING'S ROAD, CHELSEA.—We need scarcely state that the spirit of improvement is still active here. Since our last visit many important alterations have been effected and others are in hand. The square at the end of the principal show house has recently been remodelled, laid out and planted with much care. The design selected for it exhibits both taste and judgment, and the walks being of different colours, some white with Derbyshire spar and others surfaced with a beautiful warm yellow gravel, have the effect of setting off the Rhododendrons with which the beds are filled to much advantage. But this is not all; it will be remembered that three sides of this square consisted of glass houses containing Orchids and Pitcher plants, and that on the fourth side there was only a bare wall. For the latter has now been substituted two neat span-roofed houses, one of which is wholly occupied with Ferns, chiefly from Madeira, and the other with Orchids in flower, intermixed with the better varieties of Fern, while between them, forming an entrance to the conservatory, has been put up a neat and useful portico, thus completing in a convenient and skilful manner the whole of the alterations in this portion of the grounds. At the end of one of the new houses just noticed has been formed in a suitable corner out of doors a hardy Fernery in the shape of terraces raised one above the other with vitrified bricks for a centre piece, around which is a walk, and beyond that similar terraces, which slope back on all sides against the walls with which the place is enclosed. The plants which are all in pots are plunged in their places in coal ashes and peat, and over the whole is to be thrown an awning of canvas. In this cool and shady retreat are to be tried Madeira and other Ferns, with a view to ascertain how far such varieties will succeed under this kind of treatment. In the winter time it is we believe however intended to give them some additional protection. In a long strip of ground contiguous to this Fernery is kept an extensive collection of herbaceous plants, among which we noticed the new Delphinium cardinale. This is reported to be a plant of rare beauty and to possess a colour new to the genus to which it belongs. If the coloured plates which we have seen of it can be trusted (and we have no reason to doubt their correctness), it is as rich a scarlet as could well be desired, prettily relieved in the centre with yellow. It is a hardy perennial, and when it shall have become known it cannot fail to be a great favourite.

In the conservatory we observed two handsome specimens of Chamærops humilis, and in the glass-covered promenade leading into it were various plants, chiefly remarkable for fine foliage, but intermixed here and there with Azaleas, Rhododendrons, and other things in flower, so as to give the whole a dressy appearance. Prominent among the latter may be mentioned Deutzia gracilis in the form of tall standards and Wistarias of similar shape. The latter were, however, past their best; but it was stated that when they were in full blossom they looked extremely well, and with the Deutzias formed an agreeable contrast. In this house we remarked one of the best specimens of Thujopsis borealis perhaps in the country. It measured quite 4 feet in height from the top of the pot, was close and bushy, and altogether must be set down as one of the handsomest of Conifers.

In the different Orchid houses several Phalænopsis, Cattleyas, Aerides, Dendrobes, and Oncids were in flower, and a visit just now to the house in which the Pitcher plants are kept is indeed a treat. The centre bed is an open tank with inverted pots in it for the plants to stand on, and thus situated, with a nice warm steam continually rising among them, they grow with such vigour, and form pitchers in such profusion as to rival, nay even probably excel, their wild beauty and luxuriance. Tastefully intermixed with these plants were numerous wide glass pans in which have been placed examples of the Madagascar Water Yam (Ouvirandra fenestralis). This wonderful plant, whose skeleton leaves resemble beautiful network, is planted in the bottom of these pans the soil in which is covered

with Derbyshire spar, whose white appearance permits the lattice-like foliage to be seen and examined with facility, while above it the water (which is filtered) is as clear as crystal. These plants of themselves—for they are numerous, Mr. Veitch having the whole stock of it—would form objects of great interest, but when we state that they are surrounded and backed up with noble specimens of Nepenthes of every shape and kind, from the rare and valuable N. lanata to the great N. Rafflesiana itself—of which Messrs. Veitch have succeeded in raising a considerable number of fine seedling plants, which are already pitchering freely—while in front are some splendid pots of variegated Orchids, need it be wondered at that this house is considered by all who frequent it to be one of the most attractive features of the place? Next in point of interest is probably the aquarium, in which are some magnificent variegated and other plants raised on pedestals above the water, while in the latter Nymphæas of different kinds grow luxuriantly and blossom most abundantly. Nor must we omit to notice a house wholly devoted to plants remarkable for fine foliage. The great merit belonging to plants of this description is that they are equally interesting in midwinter as in the height of summer, and that, visit them when one will, if well grown and in good order they always afford a source of gratification and delight. The arrangement in this house, with the view of producing the best effect, we need not say is most complete, and it may therefore be taken as a model of what all such houses ought to be. The very fine specimen of Stephanotis floribunda which covers the roof of one of the small stoves is already one mass of bloom, a condition in which it will continue for weeks to come.

Concerning the new plants now on sale in this establishment, we have nothing to add to what is given in our advertising columns at p. 338, where all the more important of them are fully described, and their respective merits carefully pointed out. In the different orchard houses we observed a good stock of young fruit trees in pots, and in the houses devoted to the raising of Vines from eyes was an excellent supply, including the new and on all hands acknowledged excellent sort the Stockwood Golden Hamburgh. Associated with them were also numbers of young plants of the Singleton Fig.

Along the sides of the main walk were arranged several pairs of magnificent standard Bay trees, which rose up from among small Conifers and other plants in pots. The walks were in first-rate order, and everything was neat and trim. In short, neatness both indoors and out is scrupulously observed here, a lesson which it is to be hoped young men employed in this establishment will not forget when they shall have been transferred elsewhere to situations of trust on their own account.

Miscellaneous.

Sale of Messrs. Loddiges' Orchids.—As was announced at page 320 the first portion of this extensive collection of Orchids was brought to the hammer by Mr. Stevens on Thursday and Friday, the 15th and 16th inst. The following prices were obtained for some of the more important lots:—A noble specimen of Vanda Batemanni fetched 43*l.* 1*s.*; V. suavis, 10*l.* 10*s.*; V. teres, 10*l.*; Aerides nobile, a very fine plant allied to A. suavissimum, 21*l.*; A. Schröderi, 19*l.* 19*s.*; A. quinquevulnera, 10*l.*; A. odoratum maximum, 9*l.* 10*s.*; A. Larpentæ, 9*l.*; Saccolabium ampullaceum, 15*l.*; S. guttatum, 7*l.*; Cœlogyne Lowi *aliàs* asperata, 14*l.*; C. pandurata, a fine plant allied to the last named species, 14*l.*; Oncidium Harrisoni, 9*l.* 10*s.*; O. Lanceanum, 9*l.*; O. purpuratum, a species in the way of Lanceanum, 8*l.*; Dendrobium densiflorum, 8*l.*; D. Farmeri, 8*l.* 5*s.*; D. speciosum, 5*l.* 5*s.*; D. chrysotoxum, 5*l.* 10*s.*; D. Kingianum, 3*l.* 5*s.*; Lælia autumnalis, 6*l.* 15*s.*; L. cinnabarina, 5*l.* 5*s.*; L. Perrini, 4*l.*; L. superbiens, 4*l.* 15*s.*; Epidendrum Stamfordianum, 4*l.* 5*s.*; Cattleya bicolor, 4*l.*; C. lobata, 5*l.*; C. candida, 5*l.* 10*s.*; C. crispa, 5*l.*; Lycaste Skinneri, 5*l.*; Cypripedium barbatum, 5*l.* 5*s.*; Angræcum caudatum, 5*l.* 5*s.*: A. eburneum, 4*l.* 15*s.*; Brassia gigantea, 3*l.* 10*s.*; Eriopsis biloba, 3*l.* 5*s.* Other lots, of which there were in all 380, fetched from 7*s.* to 2*l.* 10*s.* each. The days fixed for the sale of the second portion of this collection are Friday and Saturday, the 30th and 31st of this month.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Now that cold pits and frames will be getting cleared of the bedding stock, they will form excellent places during summer for the growth of many things for the autumn and winter decoration of the conservatory. Indeed many of our most useful plants for this purpose will do better for the next three months in cold frames than in larger houses, where the regulating of the atmosphere is not so much under control, nor the plants so readily examined, as in these smaller structures. Roses are perhaps more generally admired than any other class of plants, and they bloom freely in the conservatory in autumn and early winter if properly attended to at the right time. Young plants of the perpetual flowering kinds as Teas, Bourbons, Hybrid and Damask Perpetuals, if placed in a cold frame and properly attended to with pot room and liberally supplied with manure-water, will soon form nice sized specimens. But in order to secure their blooming freely in autumn and early winter, the flowers must be picked off as they make their appearance, and strong stocky growth secured by giving abundance of air, exposing the plants to the night dews, and keeping the shoots stopped and tied out as may be required, and otherwise attending to the habit of the variety.

FORCING DEPARTMENT.

Pineries.—Where the quality of the fruit is the first consideration, which it is or should be in every instance, care must be observed to have the soil about the roots in a rather dry state during the ripening period, and where it can be done without injuring the rest of the stock the atmosphere should be kept rather dry, admitting air more freely while the fruit is colouring: for there is no chance of fruit of prime quality if the soil is very wet about the roots, and the atmosphere kept close and saturated with moisture during the ripening period. In the case of plants growing in pots the trouble of collecting and placing together those approaching ripeness, so as to be able to treat them properly, would be well repaid. Now that we have something like summer weather give air freely to the growing stock, particularly in the case of plants that may have been making rather weakly growth, but shut up early in the afternoon, dewing the plants lightly with the syringe, and sprinkling every available surface, so as to secure a thoroughly moist atmosphere. Use fire heat as sparingly as may consist with maintaing the proper degree of temperature. Be very careful to keep the plants properly supplied with water at the root, and give plenty of manure water to those in vigorous growth, and also to plants swelling their fruit. Vineries.—Where Muscats are grown for a late crop the night temperature of the house must not be allowed to fall too low after the bunches begin to appear, and a temperature of from 65° to 70° must be maintained while the fruit is setting to ensure good sized, close bunches. Keep a sharp look out for red spider in houses where the fruit is colouring, and if this pest makes its appearance lose no time in coating the hot-water pipes with sulphur. If not already done get the litter removed from the outside borders, but if it is found that the roots have crept up into it, which will probably be the case where the Vines were started early in the season, the decayed portion at the bottom should be left, and every caution used not to disturb the young roots. And if many roots are found at the surface it will be necessary, after removing the litter, to top-dress the border to prevent these getting dried up; a slight coat of turfy loam, leaf soil, and horse-droppings will answer very well for this purpose. See that the borders of houses, where the fruit is swelling, are not allowed to get too dry.

FLOWER GARDEN AND SHRUBBERIES.

In order that the proper keeping of the garden may be as little interfered with as possible through the litter and confusion consequent on "turning out," use every despatch to bring this work to a finish. But if any portion of the stock is not sufficiently prepared, allow it to remain under glass as much longer as may be necessary, and plant out nothing but strong plants that have been carefully inured to the sun and air, for weakly ill-prepared stuff is so much at the mercy of the weather, that it is folly to depend upon its covering the ground in any reasonable time. Give sufficient water to settle the soil about the balls of the plants the first warm morning after planting, and give no more until the soil becomes dry, unless warm drying weather should set in, and then a gentle sprinkling every morning will greatly benefit the plants.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus beds will be greatly benefited by liberal waterings with manure water from the stable or farmyard tank, especially where the plants are weakly. Attend to recently planted beds, and water as frequently as may be necessary to keep the soil moist. Get in a good breadth of Champion of England, or Knight's Dwarf Green Marrow Pea, or some other suitable variety for late crops. Situation has doubtless much to do with the proper selection of a variety for late bearing, but we have found nothing among the many new varieties which we have tried equal to these for resisting the attacks of mildew, and very few surpass them in quality. Get Tomatoes planted out against the walls, and Vegetable Marrows and ridge Cucumbers under the shelter of hand-glasses, also French Beans that have been raised under glass. Sow Cauliflowers for late use, and attend to keeping up a regular succession of Spinach, Turnips, &c., and such things as are preferred in a young state, and do not overlook Lettuce, &c., for Salad. Where Gooseberry trees are badly infested with caterpillar, use every possible means to effectually destroy it. If a decoction of Foxglove leaves is employed for that purpose, as it is by some, the fruit must not be used until after the trees have been well washed with rain. Attend to regulating the growth of trees designed to be trained in any particular form, stopping useless shoots to throw more strength into those that are wanted.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending May 22, 1856, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Of the Air. Min.	Of the Air. Mean	Of the Earth. 1 foot deep.	Of the Earth. 2 feet deep.	Wind	Rain.
Friday 16	12	29.610	29.447	64	41	52.5	52	49½	S.W.	.00
Satur. 17	13	29.651	29.472	62	40	51.0	55	50	S.W.	.34
Sunday 18	14	29.518	29.440	60	40	50.0	53	50	S.W.	.13
Mon. 19	○	29.996	29.702	70	30	50.0	52	50	S.W.	00
Tues. 20	16	30.058	30.019	71	30	50.5	52	50½	S.W.	.0
Wed. 21	17	29.937	29.746	73	50	61.5	51	51	E.	.24
Thurs. 22	18	29.634	29.586	64	36	50.0	55	52	S.W.	.16
Average		29.772	29.630	66.3	38.1	52.2	52.8	50.4		0.87

May 16—Cloudy; fine throughout.
— 17—Cloudy and fine; rain at night.
— 18—Boisterous with rain, and some hail; lightning in the evening.
— 19—Windy; very fine throughout; slight frost at night.
— 20—Very fine throughout; slight frost.
— 21—Very fine; rain at night, and very mild.
— 22—Densely overcast; rain; clear at night.

Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending May 31, 1856.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	66.5	45.1	55.8	11	0.64 in.	1	11	2	2	1	7	5	1
Mon. 26	66.7	43.7	55.2	13	0.48	2	10	4	1	2	6	3	2
Tues. 27	68.0	45.5	56.7	16	0.44	2	9	6	2	1	6	2	2
Wed. 28	66.9	44.8	55.8	13	0.97	—	9	7	1	5	6	2	—
Thurs. 29	65.8	44.8	55.3	12	0.97	3	10	1	2	5	5	4	—
Friday 30	67.4	45.0	56.2	11	0.34	3	5	6	—	3	7	3	3
Satur. 31	69.0	45.4	57.2	10	0.46	1	7	5	—	3	8	4	2

The highest temperature during the above period occurred on the 29th, 1847; and the lowest on the 25th, 1839—therm. 29 deg.

Notices to Correspondents.

Anemones: *J C.* We really cannot recommend dealers. Watch the reports of the flower shows, see who gets the first prizes, and judge accordingly.

Books: *R L.* We don't think much of Main. Mawe by Abercromby is useful for common purposes, though out of date. It is impossible to say what will answer your purpose without knowing what your experience amounts to, and what you have to do.

Diseases: *Feramory.* The two Vine leaves you have sent appear not to have suffered precisely in the same way. The one has a single pale but well-defined patch contrasting with the healthy green of the rest of the leaf, the other is discoloured in various parts. In the first case you have probably a mere sunburn; in the other an unhealthy condition from the leaves being overcrowded and the temperature too variable. The first leaf at least appears to have been well exposed to the light as far as may be judged from its colour, whereas the other does not exhibit the same healthy green. If we are wrong in presuming that the leaves were overcrowded, we should rather suspect something wrong about the root, than attribute the affection wholly to the difficulty of keeping up the temperature, as the other Vines are all healthy. It is, however, as impossible to speak with confidence in such a case, as it is for a physician to prescribe for a patient without an interview.—*R H S.* Your Vine leaf is very badly affected with the wart, a malady which certainly arises from an unhealthy state of the roots, or a want of due proportion between the supply from below and the evaporation above. The affection is dependent on the condition of your Vines, and cannot be remedied by tobacco water, sulphur, or any other external application. We did not find any berry inclosed. The spots on the other leaf are evidently due to the sun, but not to the quality of the glass. The cellular tissue was too weak to resist the heat without shade. You may not be able to improve the conditions under which your Vines grow, but at any rate you will do no good by such plans as you have hitherto adopted.—*Sub.* The two truncheons of Vine are covered with two common moulds, *Penicillium glaucum* and *Cladosporium herbarum.* The one is quite dead, and appears to have been so for some time, and is therefore most affected; the other is partially dead down to the pith, as appears on a clean transverse section, and it is the dead part which is mouldy. The other portions of the wood, however, have several discoloured specks which indicate further mischief. There are threads of mycelium in the dead tissues, but these are probably due to the external moulds. If the whole Vine is in the same condition, it is, we fear, past cure. You say nothing about the leaves. The disease evidently commences externally and extends to the centre. Have you been applying too strong a dressing to the denuded branches, or can you imagine any other external cause which can have produced mischief, as a stream of hot air from a flue? We are more inclined to think that the evil has arisen from some such cause than from the nature of the soil; though, from the production of roots from the surface of the stem, there has evidently not always been a proper supply by means of the roots from the soil. *M. J. B.*

Earwig-trap: *Messrs. Edwards & Co.* have sent us one of these contrivances, advertised in another column, and we are able to say that it is a very ingenious apparatus, apparently well adapted to the purpose for which it is intended.

Fish: *Piscator.* We are making inquiry.

Grapes: *B A.* It would be very difficult to say in what respect several Grapes, said to be new, differ from the Black Hamburgh. Taking it all in all, we do not think the old Black Hamburgh has been surpassed by any Grape in its way. We cannot give any opinion on the sort called the Champion. From your description we apprehend you have not got the sort called Oldaker's St. Peter's. It is to be preferred to the Black Lombardy or West's St. Peter's, because it is well adapted for affording a late supply; for if not forced early it will hang till March.

Insects: *T S R.* We found no insect in your dried and shrivelled up Plum leaf, but from its appearance the leaf had probably been rolled up by the caterpillar of some small moth belonging to the family Tortricidæ. Squeezing the buds sharply is the only means we know of for destroying such depredators. *G W Sully.* Your Quince leaves and blooms are devoured by the caterpillars of the December moth (Cheimalobia brumata). Shaking the branches violently over a table cloth will cause them to fall, when they must be destroyed. *W.*

Lily of the Nile: *E N M.* Thanks; it is an interesting case. The plant is Calla (aliàs Richardia) æthiopica. Potato seed ripens every year in this country, and so it does in Ireland. Otherwise how can the numerous varieties of the plant have been produced there? Mr. Anderson of Fermoy raises annually thousands of seedlings.

Mealy Bug: *J H G.* If you send a bottle of your preparation, with directions for its use, we will have it tried and reported on.

Mowing Machines: *E P.* There is much difference of opinio respecting their merits. As we have no personal experience we could not advise you. Probably all are good, though one may do one kind of work best, and another another.

Names of Fruits: *J C X.* The name of your long-keeping Pear is not known. It is one of the many seedlings raised by Mr. Knight, and which he sent out at one time as the Dunmore, but it is not that sort.

Names of Plants: *Didiam.* 1, indeterminable; 2, Coleus Blumei. We do not know what the seeds are. You should grow them, and send the plants to us when in flower.—*A. Cramb.* Fritillaria nigra.

Rough Plate Glass: *W T.* Plants will born under any kind of glass unless there is an abundant ventilation. From what you say we conclude that you either do not or cannot give air enough. Remember that the better the glazing and the larger the squares the greater the necessity for keeping air in active motion.

Tecoma velutina: *J P.* It is a very handsome free flowering stove plant. Put it in a mixture of peat, loam and sand, equal parts.

Vines: *H C.* The rootlets are of no consequence; they are produced because the border is too cold in comparison with the interior of the house. Nature makes an effort, in producing them, to obtain from the warm damp atmosphere the food which the cold soil cannot furnish. Bones are a good manure. East is a bad aspect for the border of a vinery; for the interior it does not so much matter. Any agricultural implement maker will furnish you with the kind of mill you want, and give you its price beforehand.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

LONDON MANURE COMPANY (Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE PATENT SANITARY MANURE COMPANY'S NITRO-BIPHOSPHATE, OR BLOOD MANURES.—For Corn or Hops, for Roots or Grass, 1350 lbs. of Blood in each ton, and a large percentage of Phosphates. These Manures compete successfully with Guano at much less cost.—For price, testimonials, analysis, and local information, apply to the Offices, 21, Cullum Street, City, London.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

SUPERPHOSPHATE OF LIME.

FREDERICK ALLEN, Bow Common, London, (established 17 years), begs to call the attention of Farmers and Agriculturists to his SUPERPHOSPHATE OF LIME, which has given such general satisfaction for the above period, and only requires a trial to prove its valuable properties for Turnips, Mangel Wurzel, and all bulbous roots. Early orders requested to prevent disappointment. Reference can be given to gentlemen of high standing who have used it a number of years.

Respectable Agents wanted.

MANURES.

HODGSON AND SIMPSON, Wakefield, and MATTHEWS AND CO., Manufacturing Agricultural Chemists, Driffield, manufacture the following Manures:—

SIMPSON'S AMMONIA PHOSPHATE, a valuable Top-dressing for Wheat, Barley, and Oats.

SIMPSON'S NITRO-PHOSPHATE for Turnips, Potatoes, and other bulbous root crops. Price 8*l.* per ton.

N.B. Manures specially prepared for Grass and Flax.

The above have been successfully tested for eight years by the leading Farmers in Yorkshire, Lincolnshire, and other Counties, and were applied last season to upwards of 20,000 acres, with the most beneficial results.

Testimonials and other particulars forwarded by post on application. ☞ Superphosphate of Lime, equal to any, 7*l.* per ton.

ALDERSHOTT AND SHORNCLIFF PATENT DEODORISING AND MANURE COMPANY.—Chief Office, 37, Charing Cross, London.

Contracts have been entered into with the Government by this Company for the Deodorisation of the Cesspits, Latrines, &c., at the Camps at Aldershott and Shorncliff, and for the removal of their contents, as also for the Bones, Blood, and Offal of the Animals slaughtered on the spot for the use of the Troops.

Establishments have been formed, and the requisite buildings erected by this Company (in the immediate vicinity of the respective Camps), for the manufacture of Manures by the combination of the above with other recognised elements of fertilisation.

Turnip Manure for the present season, 6*l.* 10*s.* per ton; bags included.

Delivered free to the Railway Stations and Wharfs of the Metropolis, and at Ash, Farnborough, and Folkstone, or from the Company's Works at Ash (on the Basingstoke Canal), as also at Cheriton, near Shorncliff.—Orders addressed to the Secretary 37, Charing Cross, London, will receive prompt attention.

Wheat and other Manures will be duly advertised.

LONDON MANURE COMPANY and the "Bath and West of England Agricultural Journal."—A statement of the comparative value of different sorts of Superphosphate of Lime having appeared in the above publication, from analysis by Dr. Voelcker, in which that said to be manufactured by the London Manure Company is put down as almost worthless, on investigating the matter at Lord Portman's, it is found the Superphosphate was never procured from the London Manure Company or their agents, but has been altogether a mistake of Lord Portman's bailiff. Lord Portman wishes the annexed Letter to be a full explanation of the error.

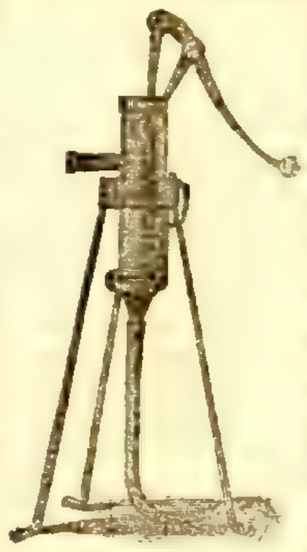
"The Manure mentioned in the 'Journal of the Bath and West of England Agricultural Society,' published in 1856, p. 314, &c., under the name of 'London Manure Company's Superphosphate for Turnips,' was bought by Mr. E. Pester, my bailiff, of Mr. Phillips, of Anstey, and was called by Mr. Pester, 'The London Manure.' It appears that the Manure delivered by Mr. Phillips was sent in bags marked 'Superphosphate Compost Company, London,' and that Mr. Phillips is not the agent of the London Manure Company of Mr. Edward Purser. All the remarks of Professor Voelcker are, therefore, wholly inapplicable to the Manure sold by the London Manure Company. I therefore certify, that having been misled by my bailiff, I have, most unwittingly and quite unconsciously, permitted the publication in that Journal of the analysis of manures under a wrong name, as it was not purchased from the London Manure Company or their agents. I authorise Mr. Purser to publish this statement as he may think proper. "PORTMAN.

"Bryanston, May 8th, 1856."

The London Manure Company send out all their Manures in Bags stamped with their Name, and they wish their friends will carefully examine all they purchase.

40, Bridge Street, Blackfriars. EDWARD PURSER, Secretary.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

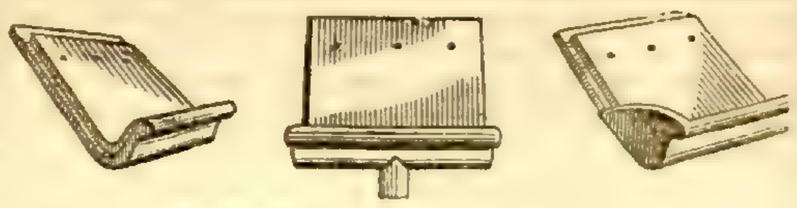
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.



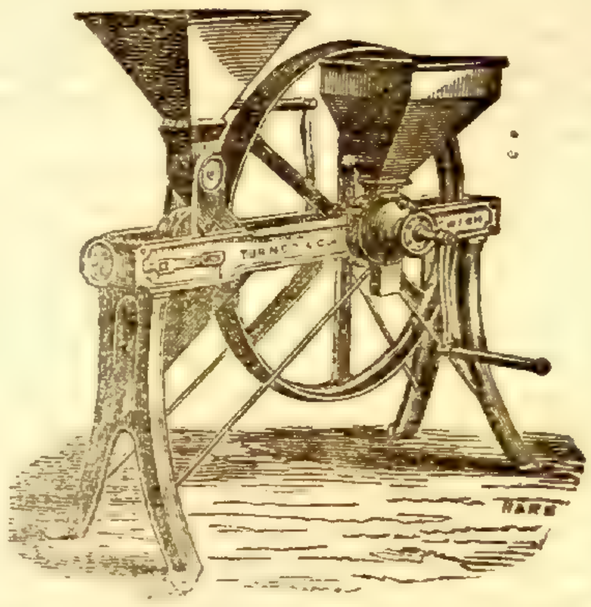
BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Glo'ster, Bridgewater, and Rugby.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

OILCAKE BREAKERS, made entirely of iron, with case-hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852–53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW AT ROTHERHAM, AUGUST 6 and 7.—For prize Sheets apply to the Secretary, Mr. JOHN HANNAM, Land Agent, Wetherby.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD MEETING, 1856.

SPECIAL PRIZES offered by the Local Committee at Chelmsford, and to be competed for under the Conditions and Regulations of the General Live Stock Prize-Sheet of the Society for the Chelmsford Meeting:—

To the owner of the best Thorough-bred Stallion ..	30	Sovs.
To the owner of the best weight-carrying Hunter Stallion	30	„
To the owner of the best Coaching Stallion	25	„
To the owner of the best Hackney Stallion	25	„
To the owner of the best weight-carrying Hunter Mare .	20	„
To the owner of the best Hackney Mare	20	„
To the owner of the best Gelding of any age for Hunting purposes	15	„
To the owner of the best Gelding under 4 years old for Hunting purposes	10	„
To the owner of the best Hackney Gelding of any age	15	„
To the owner of the best Hackney Gelding under 4 years old	10	„

No Horses being allowed to compete in two Classes.

The entries will close by the 1st of June. Certificates to be obtained on application to the Secretary at No. 12, Hanover Square, London. By order of the Council,

London, May 24. JAMES HUDSON, Secretary.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The Royal Agricultural Society of England desires to receive TENDERS from Innkeepers or others to contract for the supply of a COLD DINNER at Chelmsford on THURSDAY, the 17th of July next, in the Society's Pavilion, constructed to accommodate 1000 persons. Printed forms of Tenders may be obtained on application to the Secretary, 12, Hanover Square, London, and must be returned to him filled up on or before Thursday the 5th of June. The Society not binding itself to take the lowest Tender.

By order of the Council,

London, May 24. JAMES HUDSON, Secretary.

The Agricultural Gazette.

SATURDAY, MAY 24, 1856.

OUR readers may perhaps not be aware that the Association in Edinburgh for Promoting Improvement in the Dwellings and Domestic Condition of Agricultural Labourers* is the only one now in operation with that object in view throughout the country. There used to be an institution having a similar object in the county of Northumberland, and the Labourers' Friend Society, of whose doings we have lately heard nothing, had their eye on this among other methods of improving the social condition of the labouring classes; but the Scottish society, which necessarily confines its direct operations to Scotland, is we believe the only institution now which confines its attention to the improvement of agricultural labourers through the improvement of cottage architecture. There is in many localities quite as much need of such an institution

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in the south as there is beyond the Tweed. The publications of the Scottish Society, however, render it available here as well as there, and we therefore call the attention of our readers to them.

An annual statement is issued by the directors, to which a report by their architect is appended, containing information on plans and on details of cottage structures. The second of these reports is now before us :—

"The Directors have ascertained from many sources that the general issue of their First Annual Report last spring, amounting to nearly 1300 copies, has been productive of a very beneficial effect on cottage improvement. They have been informed that several of the plans appended to that report have been executed in different parts of the country, according to advice given by their architect, and are giving satisfaction in every way : that others have been only partially followed, and that all have served the chief design of their publication, which was to stimulate subscribers to consult with their architect for further assistance."

On the plans for cottages here referred to, the report goes on to say that the directors—

"Consider three separate sleeping or living apartments as the very least accommodation that ought to be afforded for a proper division of the sexes in a labourer's family, a matter so absolutely necessary to be provided for in promoting any social improvement among the peasantry; and therefore they cannot but regard with the deepest regard the erection of new cottages having only two such rooms for labourers who have wives and children"

The improvements suggested, it is said, cannot be carried out at such a cost as to render the investment immediately profitable as a commercial speculation; but as to the ultimate advantage to a landowner by the erection of commodious buildings, in the improved character of the labouring population on his estate, there can be no doubt whatever.

"The Directors find that they cannot profess to give plans for cottages having all the requisites for comfort and social decency at a commercial remunerating per centage on the outlay of their erection ; and they are confident that, where such is insisted on, these humane provisions must to a great degree be sacrificed ; but the directors do profess to afford directions for building cottages where a plain style is adopted, which shall embrace all these, and yet yield such a per centage on the outlay as, with a corresponding increase in the efficiency of their occupants as labourers, will prove highly remunerating to both landlord and farmer."

The report by the architect contains references to a number of cottage fittings on view at the Society's rooms. A fire-box by Mr. Mushet, of Dalkeith ; a scullery sink entirely of fire clay ; plan of farm "bothies ;" drain tubes, with spigot and faucet joints ; syphon traps ; hollow tiles for facing the interior of walls ; perforated bricks ; methods of lathing and plastering between rafters in attic rooms; fire-clay hearths ; and many other matters of importance in detail are described and illustrated by drawings : and schedules of measurement and specifications for the erection of the plans for cottages, recommended by the architect, are given. This series of reports will be a very valuable collection of all that the landowner can desire in the way of information and suggestion on the improvement of the dwellings for his labourers.

At the annual meeting of the society the report for the current year was adopted on the motion of Sir John S. Forbes, who said :—

"The report read was of a general character, the former report being so fully detailed that it was unnecessary on this occasion to bring forward much more of the same kind of matter. The plans given in that report he believed had been found very generally satisfactory, and the estimates that were given by the architect had assisted those who were wishing to build to decide on the plan they should adopt. It was now proposed to publish detailed tabular measurements to enable parties to place them immediately in the hands of workmen, without farther communication with this office or any other party. It was proposed also to lithograph a few plans on a large scale of three or four of the principal designs furnished in the report. Whenever any gentleman proposed to them to build they had sent tracings of the plans he required, with any additional information necessary, and they believed that with these designs and tabular measurements they could put the plans into the hands of any competent country tradesman, and have them executed. They also propose to issue with this year's report a considerable number of woodcut illustrations, several of which, with letterpress observations, were inserted at the end of last year's report. These would comprise several additional fittings which had been presented to the Association. One of these was the hollow brick instead of lathing, which had been suggested by Mr. Stuart, and which was now in use in the new cottages that had been built. They had found by calculations that this brick could be supplied as cheaply as lath and plaster, and was much less liable to be damaged. It also secured entire dryness, having the property of becoming of the same temperature with that of the room ; while it presented a smooth uniform surface, that could easily be papered over. In some rooms in old cottages requiring repair, these hollow bricks had been introduced in lieu of lath and plaster, and they had been the means of quite protecting these apartments against damp. This he himself had tried with the most complete success, and he thought it one of the most valuable improvements made by the association. Their architect (Mr. Fowler) had visited various parts of the country on the invitation of landlords, to inspect their cottages, and had been enabled to render valuable assistance to them in carrying out plans for their improvement. Lord Kinnaird had recently employed him in this way, and they were happy to find that he had satisfied his lordship's expectations in regard to the cottages he had built or improved. The very large number of cottages Lord Kinnaird had improved, was an excellent opportunity for the architect to see how their plans looked in execution, and observing the various modifications in arrangements thus detail it was necessary to keep in view. He might remark that the Association were firmly impressed with the conviction that there was no detail, however minute, that ought to escape their notice. The comforts of social life, as they believed, depended on trifles, and these constituted often the thin wall of partition that separated domestic happiness from domestic misery, and a little well-adjusted outlay would make all the difference between these two extremes."

Mr. Caird's letter, to which we last week referred, gives some interesting particulars of the condition of French agriculture, the differences between it and that of England, the improvement of which the former is capable, and the mode in which that admits of the most economical accomplishment, as proved by the history of the latter.

We are unable to find room for the whole of the paper on this subject, and must therefore be content with such quotations as shall give the views expressed on these several points. Mr. Caird says :—

"The main distinction between the agriculture of the two countries is shown by the different proportions in which the cultivated land is appropriated to the leading crops of both. While France has 53 per cent of its cultivated land under corn, England has but 25 per cent ; but in Grass and meadow, the natural food of live stock, England has 50 per cent., and France only 22. Though the proportions under corn in the two countries are altogether different, as well as the actual extent of land under corn, and the numbers of the population of each, the supply afforded by the agriculture of both countries to each individual of the population is very nearly the same, as is shown by the following table :—

—	Population.	Acres in Wheat.	Bushels per Acre.	Total produce in Quarters.	Bushels to each person.
France ...	34,000,000	15,000,000	12 4-5	24,000,000	5½
England	18,000,000	3,500,000	26½	11,500,000	5 1-9

"To obtain necessary food for the people, French agriculture thus employs twice the extent of Wheat land which would be needed in England. And though the means differ so greatly, the similarity of results does not end here ; for while the English import 5,000,000 quarters of Wheat annually, which, added to their own growth, gives 7½ bushels of bread corn for each individual of the population, France grows 3,000,000 acres of Rye, which is used for bread, and will add about two bushels to the 5½ of Wheat, thus giving likewise 7½ bushels of bread corn for each individual of the French people. So marvellously do the results correspond with the necessities of the case, though the means are totally different."

The most important part of the letter to English readers is that in which the cause and the remedy for this extraordinary difference in the agriculture of the two countries are stated. The cause does not exist in the soil or in the climate of France, both being superior, according to the best authorities, for the growth of corn to those of England. It exists in the greater sources of manure which the English system affords :—

"Every acre of corn land in England receives on the average the manure produced from 3 acres of Grass (such are the relative proportions of the land in Grass and corn), while in France the manure from each acre of Grass must be spread over two and a half acres of corn land. Or, to give a more definite view of the different systems, while that of England affords from its Grass lands the equivalent of nine loads of manure to enrich each acre of corn, that of France yields little more than one load to each acre."

The remedy then for the backward state of France, as regards its produce of corn, must be one which shall increase its supply of manure :—

"The soil of that country is in its natural state of 12 or 13 bushels an acre, and it is a simple question of the cheapest source of manure by which to raise that produce to 20 bushels."

"In England that increase has frequently been accomplished by the application of guano or nitrate of soda. To a very great degree the same resource is also open to the immediate adoption of France. But over an extent of 15,000,000 acres it is, of course, impracticable. The supply of these manures would fail were it even possible or advisable (which it is not) to excite such an immediate demand.

"The increasing demand for and price of meat in France points to a more permanent and better remedy. In England an increasing demand for animal food seems constantly to follow an increase of prosperity among the people. It shows itself in the details of household expenses, where the expenditure of the lowest class of labourers is for bread in the proportion of 9 to 1 laid out in meat, butter, and milk, while that of the wealthy class is exactly reversed, being in the proportion of 1 to 9. The increasing wealth of the people is thus constantly enlarging the demand for meat and dairy produce, the average price of which has doubled within the last 80 years, while that of corn has made little or no advance. This, as I pointed out in 1851, is the chief cause of the great attention which is paid in England to the rearing and feeding of live stock and to the management of pastures and green crops. The same process seems now to have begun in France. The supply of meat is not equal to the demand. A necessity has arisen for enlarging the supply, and in proportion as this branch of husbandry becomes more remunerative so will it extend over the country, and gradually readjust the balance by providing more ample sources of manure to the exhausted corn lands.

"Then will begin a steady advance in the average produce of the corn land. From 12 or 13 bushels an acre the rise will soon reach to 16 or 18, and, small though the figure may appear, even that increase would be a prodigious addition to the agricultural wealth of France. It would amount to nearly 10,000,000 quarters of Wheat, equal to twice the annual importation of foreign Wheat into England.

"The first step in the change will be the cultivation more extensively of roots and forage, as the food of live stock. According to M. Lavergne, there is in France a somewhat larger extent of land under fallow and roots than under Wheat. Let a part of this, as in England, be made the preparatory crop for Wheat. If manured with artificial manure, and cropped with a root such as Mangel Wurzel, which is peculiarly adapted to the soil and climate of France, this, with forage crops, would supply food for more than all the sheep and cattle that now exist in France. Abundance of food at all seasons would lead to early maturity, and, instead of sheep being kept till they are four or five years old, as was formerly the case in England, and is still the case in France, they would be fattened in the first or second year. A rapid increase of numbers would follow, and the prosperity of the French farmers would imperceptibly augment with a change of system which enabled them to send every year to market one half of their sheep stock, instead of one-fifth. Within the last few years this change has been taking place with great profit in the richer parts of Ireland. There seems no reason to doubt that it might be followed with equal success in France. It is more of an artificial system than the ancient one, and depends for its success on an ample provision of winter and summer food. But that is precisely what is contemplated by the change proposed, as the consumption of this winter food forms the great source of manure for improving the Wheat crop."

The encouragement which, as Mr. Caird shows, exists to the improvement of French agriculture is even greater than that which English farmers find, just in proportion as the first increase of produce is more easily gained than any subsequent increase.

"There is more profit to be had by a good farmer in entering upon a good soil which has been badly farmed and comparatively unproductive than in following a good farmer who has already raised the produce and value of the land to its highest pitch of productiveness. That seems precisely the present position of France as compared with England. And, accordingly, the prospect of agricultural profit by improved farming is extremely favourable in France, and the steps necessary to realise this improvement are direct and simple. No agricultural refinements are needed here, such as a first-rate farmer in England must use to get a profit by adopting a practice in agricultural art which his predecessor had omitted."

And again :—

"The margin for increase in France is so much greater than in England that a rise of 20 bushels an acre seems easily within reach, and, when attained, would still fall greatly short of the present average of England. Yet this average is by the whole amount of the average produce of France (12 to 13 bushels an acre) below the regular crops of the best cultivated English farms. While the average of France is to the average of England as 12½ to 26½, the average of England is to the average of the best English farms as 26½ to 40."

Mr. Caird's letter will no doubt be widely circulated in the sister country, as we may now call her. It is exceedingly well timed, and will be a useful guide to the conclusions which many an agricultural tourist will form from actual inspection during the next few weeks.

AGRICULTURAL STATISTICS OF EUROPE.

(By Mr. H. Reader Lack, Board of Trade.)

(*Continued from p. 288.*)

Division 2.—Austria, Holland and Belgium.

It is evident from Mr. Denison's report to the Board of Trade on the Paris Exhibition that many of the farmers on the continent are not far behind those of this country in the use of good implements and machines, and we may be quite sure that as soon as the results of their use become generally known, the

continental farmers as a body will readily adopt them, in preference to going on in old-fashioned ways.

When this comes to pass many of those now uncultivated acres in central Europe will be reclaimed and forced into production to meet the wants of the age. It behoves English farmers, then, to be upon their guard, lest the foreign producer by adopting the use of English machinery drive them, if not out of the market, at least so hard as to leave but a small profit on their produce.

The increasing means of transport throughout the world, and especially in Europe, will bring the countries whose productive forces we are reviewing within a few days' journey of Great Britain, and thus increase the competition in the disposal of Wheat, &c., in the British markets.

But let us proceed with the enumeration of the statistics of the production of those states comprised in this division.

Austria.—The soil of the Austrian empire in the year 1850 was distributed under the following heads :—

	English acres.
Arable land	51,573,321
Meadows and gardens	16,234,843
Pastures	17,340,547
Vineyards	2,462,840
Olive, Laurel, and Chesnut plantations	160,235
Rice fields	158,824
Woods and forests	48,922,706
Uncultivated and waste land, &c.	25,448,964
Total	162,302,280

It will be noticed that the extent of uncultivated land in the above-mentioned year was less than one-sixth, and that of the land under cultivation (exclusive of woods, &c.) less than one-half of the area of the empire.

The last returns of the crops produced in the Austrian empire are for the year 1846, and some allowance must therefore be made for progress since that period. The above figures and those relating to live stock given below are taken from Hübner's "Jahrbuch für Statistik," published at Leipzig in 1852.

The amounts of the various crops, according to the statements for the year 1846, were:—

	Imp. Qrs.
Wheat	10,125,437
Rye	13,359,718
Barley	10,917,597
Oats	17,968,344
Maize	6,889,968
Millet and Buckwheat	1,425,375
Pulse	623,437
Potatoes	11,683,437
	Cwts.
Rice	101,129

The quantity of wine produced during the same year was 599,393,500 gallons, and the amount of wood and timber culled 2,849,644,000 cubic feet.

The number of each kind of live stock in the Austrian empire, exclusive of Siebenbürgen and Militärgrenze, in the year 1851 was:—

Horses	3,229,884
Oxen	3,239,365
Cows	5,910,886
Sheep	13,583,254
Mules and asses	112,820

Holland.—The area of land under cultivation of the principal cereal and other crops in the kingdom of Holland in the year 1853 was :—

	English acres.
Wheat	72,654
Rye	181,556
Buckwheat	63,732
Barley	43,832
Oats	85,745
Peas	10,333
Beans	38,862
Potatoes	87,440
Turnips	1,798
Chicory	1,150
Madder	1,726
Mangel Wurzel	838
Hemp	4,066
Flax	13,855
Cabbages (for seed)	21 473
Hemp ditto	1 332
Linseed ditto	7 015
Clover ditto	1,967

These figures bear ample testimony to the industrious and persevering character of the people. The amount of the undermentioned kinds of grain, &c., raised in the same year was :—

	Imperial bushels.
Wheat	3,632,988
Rye	7,061,208
Buckwheat	3,790,790
Barley	3,485,405
Oats	6,841,259
Peas	629,962
Beans	2,719,877
Potatoes	20,830,543

The quantity of Hemp and Flax produced was :—

Hemp	lbs.	2,711,128
	bushels	2,555
Flax	lbs.	14,204,669
	bushels	13,917

The number of each kind of live stock in Holland in 1853 was :—

Horses	236,562
Oxen	59,874
Cows	938,285
Calves	237,994
Asses	3,096
Sheep	826,061
Swine	233,900
Bucks	63,131
Goats	36,894

The above returns have been extracted from the "Statistisch Jaarboekje," published by the Dutch Government in 1855.

Belgium.—The distribution of the soil in the kingdom of Belgium in the year 1846 is stated in the "Bulletin de la Commission de Statisque," 1851, as follows :—

	English acres.
Under cultivation of cereals	2,195,257
" " plants for manufacturing uses	164,135
" " green crops	171,692
" " root "	329,655
" " fodder "	389,365
" " meadows and pastures	905,767
" " fallow land	202,270
" " gardens, vineyards, &c.	124,747
" " woods and forests	1,214,165
Uncultivated and waste land	810,537
Total	6,507,590

The amounts of the principal crops raised in the year 1849 were :—

	Imperial Quarters.
Wheat	1,668,645
Rye	1,920,427
Barley	989,649
Oats	2,319,478
	Bushels.
Potatoes	61,899,107

The area of land under cultivation of Hemp and Flax in 1846—was Hemp 4280 acres, and Flax 74,697 acres. The amount of each of these crops produced—

Hemp, raw	2,643,355 lbs.
Flax	38,292,606 "

The farm-holdings in Belgium are mostly small, four-fifths of the whole being under 12 English acres in extent. The per centage proportion according to the various sizes will be found in the table below :—

Size of holdings.—Acres.	Proportion per cent.
1¼ or less	48.24
1¼ to 2½	12.30
2½ " 11½	28.99
11½ " 25	7.47
25 " 37½	3.04
37½ " 50	1.59
50 " 61½	0.98
61½ " 120	1.64
120 " 240	0.58
240 and upwards	0.17
	100.0

The number of each kind of live stock in Belgium in 1846 was :—

Horses	294,537
Cattle	1,203,891
Sheep	662,508
Swine	496,565
Goats	110,060

(*To be continued.*)

Home Correspondence.

Quantity of Iron used annually on a Farm.—Including my pumps, machinery, steam engine, &c., I have about 12 tons of iron on my farm, and 55 tons of iron pipe for irrigation. Allowing the whole to wear out in 33 years or 3 per cent. per annum, the weight of iron consumed per acre per annum on my farm of 170 acres would be 28 lbs. per acre. In France on the best managed farms the estimate is 16 lbs. per acre. I annex, by permission, Messrs. Garrett and Sons' estimate.

Implements containing iron in use on a farm consisting of 200 acres of mixed soil; land of average quality, farmed on progressive principles.

	Quantity of iron contained.			Quantity of iron worn out per annum.		
	cwt.	qrs.	lbs.	cwt.	qrs.	lbs.
4 four-wheeled waggons	22	0	0	1	0	0
6 carts	12	0	0			
1 light market cart	3	0	0			
1 wheelbarrow	0	1	8			
5 ploughs	7½	0	0	3	0	0
5 carriages for do.	0	1	12			
1 set heavy harrows	3½	0	0	0	2	0
1 do. medium do.	3	0	0			
1 do. light do.	1½	0	0			
1 do. very light do.	¾	0	0			
2 carriages for do.	0	1	0			
1 drag harrow	7	0	0	0	0	14
1 scarifier	10	0	0	0	1	0
3 iron rolls	26	0	0	0	1	0
1 corn drill	6	0	0	0	2	0
1 seed and manure drill	6	0	0			
1 harrow for small seeds	0	1	0			
1 Chambers' distributor	7	0	0			
1 patent horse hoe	5	0	0			
1 Hussey's reaping machine	5	0	0	0	1	0
1 six-horse pr. portable steam-engine	50	0	0	2	0	0
1 six-horse pr. do. threshing machine	25	0	0	4	0	0
1 dressing machine	0	1	12	0	0	7
1 smut machine	0	1	0	0	0	4
1 haymaking machine	8	0	0	0	1	0
1 drag rake	5	0	0			
1 weighing machine with weights	3	0	0	0	0	7
1 Barley drilling machine	0	1	12	0	0	4
1 chaff cutter	4½	0	0	0	0	14
1 Turnip cutter	1	0	0	0	0	7
1 hand-power root pulper	1	2	0	0	0	7
1 cake crusher	1	0	0	0	0	4
1 mill for crushing food for stock	4	0	0	0	0	4
8 rick stands	64	0	0	0	0	14
60 iron hurdles	120	0	0	2	2	0
3 round iron bins	5	0	0	0	0	7
6 pig troughs	5	0	0			
Sundries						
25 forks (various)						
6 scappitts						
20 pair traces						
4 hand hoes						
3 corn shovels	6	2	0	0	2	0
6 Turnip-cleaning knives						
Mattock, pike, crowbar, 3 scythes, hook, pair shears, axe and hook, iron fork, peel, fire fork						
Bolts, nails, screws, sheet iron, shoeing clinks, burr, and including all miscellaneous iron used on the farm	...			5	0	0
	430	2	16	20	3	9

Being 2333 lbs. or 11½ lbs. per acre actual wear, independent of the original supply. *J. J. Mechi, May* 10.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *May* 21: Mr. MILES, M.P., Vice-President, in the chair.

VETERINARY COLLEGE.—The following report was received from the Governors of the Royal Veterinary College :—

Royal Veterinary College, *April*, 1856.

THE Governors of the Royal Veterinary College in presenting their annual report to the Council of the Royal Agricultural Society, have again the pleasure of congratulating them on the undisturbed harmony which has continued to exist between the two institutions. In a union such as this the Governors find an assurance that Veterinary Science cannot fail in her continuous efforts of investigation into the nature and causes of the diseases affecting the flocks and herds of the agriculturist, and thereby, while contributing to the support of one of the fundamental principles of the Royal Agricultural Society, to lend her not altogether unimportant aid in the conservation of an essential portion of the national wealth. The means which the Governors have given effect to, during the past year, have differed in no important particular from those originally laid down for their guidance and approved of by the Society.

LECTURES.—Under this head they would observe that an average number of four a week were delivered by the Professor of Cattle Pathology during the session commencing in October, 1854, and ending in May, 1855, and that a similar course of lectures is now being delivered, which will be brought to a close at the usual period. These lectures have for their exclusive object the inculcation of the principles of pathology founded upon a knowledge of the anatomy and physiology of the ox, sheep, and pig, and they therefore embrace the nature and causes, as well as the preventive and curative treatment of the several affections of these animals. These lectures have have been regularly attended by all the pupils of the college. The Governors have also called the special attention of the class to their code of laws which provide that the students before presenting themselves for examination for the diploma of the Royal College of Veterinary Surgeons, shall pass a preliminary examination to the satisfaction of the Professor of each department of their studies. Provision is thus made, as the Council will perceive, for the more perfect education of the pupils in the several divisions of their studies, and from this much general good must result; for the Governors would remark that very valuable assistance to the advancement of cattle pathology is given by the other professors of the College whose instructions are extended to the anatomy, physiology, and pathology of the horse, to chemistry, materia medica, and pharmacy. Since the last annual report to the Council 50 students have entered at the College, and as the time of their pupillage extends over two sessional years, an average number of 80 has been in daily attendance.

PRACTICE OF THE COLLEGE.—Many interesting and instructive cases of disease have been admitted, and each of these has been made available to the general information of the pupils. The governors, however, would be glad to see a more uniform occupancy of the sheds and boxes which they originally erected at considerable expense for the reception of cattle and sheep when the subjects of disease; and they had hoped that after the pointed manner in which they drew the attention of the agricultural body to this subject in their last report, they should now have been enabled to congratulate the Council on the large increase of patients of this class which had taken place. Every member of the Society being entitled to all the privileges of a subscriber to the College, in as far as the admission of cattle, sheep, and pigs is concerned, removes all ground of objection on the score of expense; and the Governors believe that the sole cause of the fewness in number of these patients depends rather on the forgetfulness of the members of these privileges than anything else.

CONSULTATIONS AND COMMUNICATIONS.—If the admission of diseased cattle to the infirmary has not materially differed from former years, the consultations by letter and otherwise have, on the contrary, greatly increased. From all parts of the country communications have been forwarded to the College, detailing the particulars of special cases, and asking advice as to the treatment of the affected animals. Much of the Professor's time has been occupied in replying to these letters, and he has often had the satisfaction of learning that great good had resulted from the instructions which were given relative to the hygienic as well as the medical treatment of the animals in question.

VETERINARY INSPECTION.—During the past year, and probably arising in part from the increased number of communications, the members of the Society have not asked for the personal inspection by Professor Simonds of the animals suffering from disease on their respective farms so frequently as on former occasions. The Governors desire to see this bond of connection between the two institutions extended and strengthened by a more frequent use; and they would suggest to the Council whether a modification of its rules relating to these inspections might not be advantageously adopted. Next to the admission of patients, these inspections afford the surest means of practically advancing cattle pathology. At the annual meeting of the Society at Carlisle the general inspection of the animals was made as heretofore, and with much benefit to the interests of the Society, as several cases of illness and accident also occurred during the days of the meeting. Besides these circumstances, some of the animals had to be disqualified from wrong entries with regard to their age, and others from the existence of hereditary diseases and defects.

EPIZOOTICS.—The chief of these maladies have been pleuro-pneumonia and eczema, both of which have prevailed in several parts of the country, the first named with its usual severity. As stated in a former report pleuro-pneumonia belongs to a class of diseases which can be far more easily prevented than cured, and the Governors would remark that the measures they recommended for adoption as prophylactics have stood the test of further experience, and been of essential service in numerous instances of outbreaks of the malady. Inoculation as a preventive has had but few advocates, nor can the Governors believe that those who have refrained from adopting it are acting otherwise that on right principles of science, and consequently they have not suffered greater losses than those persons who have not had recourse to the operation. The diminution in the number of cases which in a few isolated have seemingly accompanied the introduction of inoculation have but singular coincidents, and are altogether due to the ordinary causes which regulate the outbreak, extension, and departure of this class of diseases.

PARASITIC AFFECTIONS.—These maladies, which are more or less the cause of heavy losses to the agriculturist, have been remarkably rife, and during the last summer many hundreds of lambs have fallen victims to the presence of worms in the respiratory organs. These losses have also been continued up to this time, but in somewhat diminished numbers. In too many instances nothing was done by the flock-masters to arrest the progress of the disease, nor, indeed, was its true cause often ascertained by them. The most marked symptoms of the affection are a cough (which becomes increased by exertion, and also by changes of temperature), hurried breathing, fastidious appetite, and a falling away in condition, the animals being in very many instances ultimately carried off by diarrhœa, which supervenes upon the other symptoms. In some cases death takes place more suddenly, arising from active congestion of the lungs. The exhibition of a few doses of oil of turpentine and Linseed oil as an anthelmintic, followed up by chalybeate tonics, and the occasional inhalation of diluted chlorine gas were found to be very effective remedies. To these were added, and with much advantage, the supplying the

animals with a generous and varied diet, and protection against the more common changes of the weather by folding them with hurdles stuffed with straw. The Governors have to thank a member of your Council, Mr. Fisher Hobbs, for sending to the infirmary some lambs the subjects of this disease, which enabled the Professor of Cattle Pathology to direct the attention of the pupils to the malady in a far more practical way than he could otherwise have done. Besides lambs, young cattle have likewise suffered to a great extent from the same cause, and the like principles of treatment, but somewhat modified to suit the altered state of things, were found equally efficient with them. The worms which inhabit this part of the organism belong to the class Filaria. They exhaust the strength of the animal they attack by drawing largely upon the secretions furnished by the mucous membrane of the respiratory organs, in which also they soon produce diseased action. Besides this they cause a mechanical impediment to the free entrance of air into the lungs, and thus frequently destroy the animal from asphyxia, or in less numbers interfere with necessary changes of the blood in its passage through these organs. They are both oviparous and viviparous, as many of the young are hatched within the body of the parent worm, while others are only brought to perfection after the ejection of the ova. Further investigations of their development, and the changes which their ova may undergo when expelled from the windpipe by the coughing of the affected animal, may probably lead hereafter to the adoption of means to prevent the frequency of their attack.

Calcareous Concretions.—So many instances of the loss of rams in particulars have occurred from calcareous deposits in the urinary organs as to deserve a separate notice in this report. Experience has shown that when sheep are kept too much on a nitrogenised diet, and allowed but a limited range, a perverted state of the digestive and assimilative functions ensues, which leads to the deposit of earthy salts in the urinary system. These deposits take place in all sheep without reference to sex, but they are of more consequence in the male animal, arising from the fact that the urethral canal, much diminished in size, passes through the vermiform appendage of the intromittant generative organ, and the deposit accumulating therein blocks up the passage and leads to inflammation and often rupture of the bladder from a retention of the urine. Preventive means are the most to be advocated, and these should consist in the adoption of a less forcing system to bring the animals into condition in so short a space of time; the repeated exhibition of some mild aperient medicine, and also the use of mineral acids in a diluted form, chemistry having demonstrated that these urinary deposits in herbivorous animals are mostly composed of the earthy carbonates with some traces of the phosphates.

Concluding Remarks.—In bringing this report to a close the Governors would express a hope that agriculturists as a body are beginning to find that through the efforts which have been put forth by the College in common with the Council of the Society, many young men whose scientific education is based upon the fundamental principles of anatomy and physiology of cattle are being located in their several districts, and that in carrying out these principles they are no less practical in their every-day proceedings than those individuals who profess to possess hereditary knowledge, and who put forth this figment as a claim for their being consulted in cases of disease affecting our flocks and herds in particular. Such the College labours to attain, and such it hopes it has in a great measure succeeded in accomplishing.

(Signed) Thomas Cator, Chairman.

Lord Berners remarked, that in all cases of disease among the farmer's live stock, means of prevention would be found better than subsequent attempts at cure. He referred to several districts where disease prevailed to a great extent. In his own neighbourhood the remedies prescribed by Prof. Simonds, and received from the Veterinary College, had been attended with almost uniform success.—Mr. Slaney objected to the growing tendency among professional men to use technical words in describing symptoms and remedies. He thought that in addressing farmers plain English should at least be given as well as words heterogeneously compounded from the Greek and Latin.—Mr. Miles remarked that his Devon flock lambs, as well as the flock of his brother, had suffered loss to the amount of 20 per cent. from a sort of consumption. It commenced about the latter end of September by the animal's sneezing and wasting away, but invariably disappeared, even in the worst cases, as soon as the warm weather came. The heads of the sheep were found after death to contain two grubs in the upper part of the nostrils.—Lord Berners had lost some of his best lambs by worms.

The Council adjourned over the Derby-day to their monthly meeting on the 4th of June.

On Thursday the half-yearly general meeting of the Society was held. The report, which we shall give in full next week, stated that the Society consists at the present time of 85 life governors, 139 annual governors, 839 life members, 3896 annual, and 20 honorary members, forming a total of 4979 members, or 97 more than the number at the previous anniversary. The finances of the Society have on no former occasion been in so favourable a condition. The funded property consists of 9264*l.* in the New Three per Cent. Stock, and the current cash balance in the hands of the bankers is 3657*l.* Professor Way, the consulting chemist of the Society, has devised a mode by which the amount of nitric acid and ammonia in the atmosphere may be ascertained with approximate exactness, a discovery which will at once give interest and importance to the prosecution of agricultural meteorology. The chemical investigation of the water flowing over the surface of cultivated land, and through its substance into drains, will eventually prove of great importance, as showing the excess of manuring matter which has been applied to it. The controversial publications of Baron Liebig and Mr. Lawes have had the effect of calling the attention of scientific men to the chemical principles of agriculture, and of practical men to the application of those principles in a farming and economical point of view. The Council strongly advise the members of the Society to take advantage of their privileges relating to analyses of the artificial manures, as they can only thus obtain security against fraud and adulteration. The Council have decided that at the end of the current year the offer of the 1000*l.* prize for a substitute for Peruvian guano shall be withdrawn. The Chelmsford meeting, to be held in the middle of July, promises to be equal in every respect to the most successful of former country meetings of the Society in other parts of the kingdom. The entry of agricultural implements and machinery is large beyond precedent; and as a great number of these, instead of lying inactive, as hitherto, in the yard, will be at ordinary work during certain hours of the show, they will present a new and instructive feature in the exhibition. The Council have been induced, on the representation of a very large proportion of the implement manufacturers who exhibited last year at Carlisle, to apportion their prizes and trials in the implement department over three years instead of including them all in single successive years. The implements for prizes and trials have accordingly been divided into classes for this three years' rotation under the following heads:—1. Implements and machinery for the tillage and drainage of land. 2. Implements and machinery for the cultivation and harvesting of crops. 3. Implements and machinery for the preparation of crops for market and cattle food. Those under the first of these heads will form the prize and trial implements for the Chelmsford meeting, in addition to the special prizes of 500*l.* for the best steam cultivator, prizes for reaping machines, and prizes for new and miscellaneous implements. The live stock portion of the exhibition will include foreign cattle and sheep belonging to foreigners, and bred abroad. For the purpose of making entries for foreign animals during the approaching Great International Show at Paris, in the first week of June, the Council have extended the date of entry in their case from the 1st to the 12th of that month.

The report was unanimously adopted.

Farmers' Clubs.

Wirral.—*Weights and Measures.*—At a meeting of this society it was referred to a sub-committee to consider what steps can now be taken towards the introduction of uniformity in the weights and measures in use in the United Kingdom for the sale of agricultural produce; and, to this end, to communicate with, and ascertain the opinions of, other agricultural associations, and of individuals possessing influence in the markets for such produce.

The committee having met and considered the subject referred to them, and, in particular, having reviewed the various measures adopted by the legislature, during the last half century, for introducing imperial weights and measures throughout the kingdom—and having given their earnest attention to the report of the committee appointed by the House of Commons in 1833, "To inquire into the present practices of selling corn in the United Kingdom"—and having inquired into the practices now prevailing, and their effects—find that the principal evils of the want of uniformity in this respect are as follows:—1. That in almost all cases in which a seller or buyer of agricultural produce has occasion to resort to more than one market, he is compelled to deal with more than one mode of ascertaining the quantity sold; and that, while such differences answer no good purpose whatever, they check the freedom of commercial intercourse, afford facilities for the commission of fraud, often cause mistakes and disputes, and always involve trouble and loss of time. That the quotations by which producers, dealers, and the public seek to inform themselves of the variations of the price of the same commodity at the same time in different parts of the kingdom (in order to their equalisation by the legitimate action of trade) are deprived of a great part of their proper utility, in consequence of the weights or measures quoted for each locality being very commonly unintelligible in most others. 3. That the inconveniences thus arising are increased precisely in proportion as the commercial intercourse of each locality with every other in the kingdom is promoted, by the improvement of road and postal communication; and, hence, are now much greater than they were when reported on by the parliamentary committee of 1833, and are growing greater year by year. The committee, however, observing the obstacles which have more or less frustrated every attempt hitherto made to enforce, by law, an uniformity of practice in this respect, are disposed, even now, to doubt the propriety of urging the matter on the attention of the legislature until public opinion shall appear to be decisively in favour of a change. And, conceiving that the most direct and certain method of promoting the formation of such opinion will be to excite discussion of the well-known facts referred to, they have determined, in performance of the duty imposed upon them, to submit to you the following questions:—1. Is it not, in your opinion, desirable, and especially so in view of the more ready and rapid communication and greater facility of transit of late years effected between different parts of the country, that renewed efforts should now be made, by those most nearly concerned, to procure uniformity in the weights and measures used for the sale of agricultural produce in the United Kingdom? 2. Is weight, or is measure, where both are practicable, deemed by you the more accurate indicator of quantity as regards agricultural produce, particularly corn?

Reviews.

A Plea for our Highland and other Agricultural Labourers; or the Bothy and Bondage System in East Lothian and Neighbouring Counties. Blackwood and Son, Edinburgh.

This is the manifesto of a committee in Edinburgh for the improvement of the condition of the Highlanders. The particular object of their appointment was the well being of the Highland immigrants, who at harvest time leave their homes for work in the south, and whose proper accommodation and comfort while in the southern counties having been thus inquired into, the evils here complained of became apparent. Indeed, as the pamphlet states, the evils of "bothies," or houses in which unmarried farm-servants are lodged together, and left to shift for themselves in the preparation of their food, and other necessary domestic operations, have been already well exposed in various parts of the country.

The manner in which the subject forced itself upon the attention of those whose immediate object was of another kind is more fully related in the following paragraph:—

"A number of gentlemen in Edinburgh, interested in the welfare of the Highland labourers who are now annually induced by offers of work to immigrate, chiefly for the summer season, into certain Lowland counties, have had their attention forcibly directed to the kind of accommodation provided for these labourers on the farms where they have their temporary residence. It has been found that, generally speaking, that accommodation has been of an inferior, sometimes of a wretched description. In many instances, doubtless, the farmers have made praiseworthy efforts to lodge these poor Highlanders as comfortably as possible; but still they have, for the most part, only bothies to offer them—bothies, too, of a very bad description—consisting of old neglected out-houses, fitted up in a very rude manner, containing little furniture, and few or no means of ordinary comfort. Generally four, five, or six—sometimes even so many as 10 or 12—Highland girls are found crowded at night into one poor hovel or comfortless apartment. And if, as is too often the case, there be no elderly woman among them to perform the office of a matron or superintendent, these young women are much exposed to the influence of evil company, and the formation of improper habits. It is but just to say that these girls, as a class, have hitherto conducted themselves with exemplary propriety; but by constant exposure to demoralising influences, their character may be rapidly deteriorated and their value as labourers greatly diminished."

We quote further to show how the other evil of which the pamphlet complains is connected with the same causes as have produced the bothy system:—

"It may be asked by those not well acquainted with our richer agricultural districts, why it is necessary to crowd these imported labourers into bothies, and why there is in many Lowland districts such a want of house accommodation. A variety of causes have gradually produced a scarcity of houses in the purely rural parts of the country. The system of throwing many small farms into one, which began about a century ago, has led to the demolition of numerous farm-steadings and hamlets that once contained a considerable agricultural population. The policy of landlords in keeping the number of houses on their estates at the minimum, from an exaggerated dread of pauperism, poaching, and other evils, has also tended to reduce the rural population below its just and natural limits. The consequence is, that in many thriving agricultural districts, as in parts of East Lothian, there is a want of native hands to cultivate the soil; there is a confessed scarcity of house accommodation; and the farmers are compelled to resort to all manner of shifts, first to procure labourers in sufficient numbers, and then to furnish them with some sort of shelter. Some of the richest agricultural districts of the country are actually under-peopled; and the glaring anomaly is seen of a land teeming with abundance inhabited by a scanty and diminishing population.

"One great evil resulting directly from this state of things—a grievance bitterly felt by the hinds in several of our most important counties—must here be mentioned; and surely it has only to be described in order to be condemned by all who take an intelligent interest in the welfare of our agricultural labourers. In very many districts of East Lothian, Berwickshire, Roxburghshire, and it is believed of some other counties, chiefly in those districts where there are no villages, and the population is forcibly kept down below its natural level, the hinds on a farm are bound by the farmer to furnish each a stout, full-grown field-worker all the year round, or at least during the summer season. This is popularly and appropriately called the 'bondage-system.' When the hind has a son or a daughter of his own who can work the 'bondage work,' he may sometimes feel the arrangement to be an advantage; but it often happens that his children dislike field-work, feel it to be a great drudgery, and prefer some other employment. Yet one or other of them is bound and obliged to turn out to a hated kind of work. It frequently happens that the hind who has no family, or whose children are all young, has to hire a stranger into his house as his 'bondager.' This inmate, generally a person of but an inferior grade, is often felt to be a burden, a spy, or a moral plague in his small house and among his young family. And further, what he receives from the farmer as the wages of his 'bondager,' frequently does not pay the expenses to which he is put. He has often to give between 5*l.* and 7*l.* a half-year for such a substitute, who only earns for him 10*d.* or 1*s.* a-day, while, from wet weather and other causes, there is not a little broken time. Now, when to the wages he has to give the 'bondager' is added the expense of board, lodging, and washing, it is no wonder that the poor hind can often say, in bitterness of spirit, that besides all the annoyance to which he is put, he is a pound or two in the half year out of pocket."

The results of this system are stated to be—a feeling of hardship and injustice generated in the minds of the hinds who are thus bound—a system of constant removals among farm servants who seldom remain long where the system prevails—and the tendency to extensive emigration, which in the same way is produced.

"The bondage-system may be regarded as a type or sign of the depressing influences to which the hinds, and the agricultural population generally, have in many districts long been exposed. By means of that system their families are injured or kept down in various ways. Bondagers hired into their houses are, as has been shown, infringements upon their domestic comfort and liberty. Their sons and daughters, sent out to field-work often against their inclination, or brought home from good situations to undertake that heavy drudgery, are kept at or reduced to a low level of intelligence and

comfort. Thus, through the interference with his natural freedom and his family arrangements implied in the bondage-system, the condition of the hind is depressed, and he is apt to sink rather than to rise in the scale of society."

"In many parts of Scotland, as in Dumfriesshire, Ayrshire, and the contiguous counties, a considerable number of the sons of ploughmen, cottars, and small farmers, receive a liberal education, and enter one or other of the learned professions. But in those counties where agriculture is most flourishing, and where it might have been expected that the labouring classes would be in a peculiarly thriving condition, very few sons of hinds or farm labourers rise above their native level, or achieve for themselves a college education."

The pamphlet then discusses the remedy.

"Landlords of late have done much to improve the dwellings of the farm-servants, but they have done little or nothing to increase the number of these dwellings. They have in general forgotten to inquire if, while improved modes of culture call for more field labourers, these labourers can be got by their tenants in a proper and natural way; if they are suitably and decently lodged; and if any hardships are endured, both by tenants and their labourers, from want of sufficient house accommodation. Let it be conceded that the large-farm system in the richer agricultural districts is the most profitable and productive, and also that a surplus rural population ought always, if possible, to be avoided; still it must be borne in mind that proprietors are very apt not to build houses enough on their large farms, and that the evils of under-population are neither few nor small. In East Lothian and in Berwickshire the large-farm system exists in perfection, and the agricultural produce of these counties has for many years been greatly increasing in quantity and value; but the population of both, during these past 20 years, has been nearly stationary. In 1831 the population of East Lothian was 36,145, and in 1851 it was only 36,386; in 1831 the population of Berwickshire was 34,040, and in 1851 it was only 36,297. The agricultural statistics of these counties during that period would show an immense increase of produce; but the population, in a moral point of view the most important item of all, has been little more than stationary in amount, and, it is greatly to be feared, deteriorating in comfort and in character. From the condition of similar Lowland counties, nearly similar conclusions might be drawn. But enough has been said to draw the attention of benevolent and patriotic Lowland proprietors to a subject so closely connected with their highest duties and truest interests, while in its general bearings it has even a national importance."

In case this subject should excite interest in the minds of any of our readers, we reprint the concluding sentence of this pamphlet.

"Communications on the subject, for the information of the committee 'for the Improvement of the Condition of the Highlanders,' may be forwarded to Henry Callender, Esq., C.A., 32, St. Andrew Square."

Notices to Correspondents.

BEET SUGAR: *Anon.* The roots are washed, rasped, and pressed. The juice is boiled and quick lime is added. Sulphuric acid is put in to neutralise the lime. The syrup is concentrated and clarified; and when further reduced by evaporation sugar will be deposited on cooling. (Loudon.)

FLOUR MILLS: *Malvern.* Except for emigrants, or people as far from corn-mills, the hand machines are not desirable. Any of the commission agents, as Burgess & Key, Deane, Dray, & Co., &c., can obtain what you desire for you, and give you testimonials enabling you to choose. There are small hand stone mills.

GAPES: *G J B.* Prevention by proper food in dry places where not many poultry are kept is the best way. A feather dipped in turpentine or opium inserted in the windpipe, fumigation under a flower pot with tobacco, and repeated dosings with Epsom salts have been recommended.

GRASS SEEDS: *Young Farmer.* To renovate old pasture spread 30 or 40 cubic yards of compost per acre in autumn, bush-harrow it in, and sow over it some 6 or 8 lbs. of mixed Clover seeds, containing 2 or 3 lbs. of Trifolium incarnatum, and 20 lbs. of mixed Grass seeds, consisting of 4 lbs. each of Lolium perenne, L. italicum, Festuca pratense, and 2 lbs. each of Poa pratense, P. nemoralis, Alopecurus pratensis, and Phleum pratense.

REFUSE BARK: *E Durrant.* We should greatly prefer a ton of guano to 12 tons of the ash of refuse bark. Nevertheless such ash may be worth 20*s.* a ton.

ROTATION: *Young Farmer.* For a rich loamy soil:—Wheat, Beans, Wheat, Swedes and Potatoes, Wheat, Clover, Wheat, Mangel Wurzel.

STABLE ARCHITECTURE.—*W B H* says: "I am going to build cart-horse stables, and except I see a better plan, I think of doing it thus: say for 5, 10, or 15 horses, each to have a loose box, which I think very important, and every five boxes to open into one kind of passage in which can be placed corn, cut hay, and harness for the five horses that are under the care of one man; the water from roof to fill cistern, and the manure to rise as for bullocks in boxes, or be cleared away behind or at front of stable, as case may require. The other division may be brick below and wood or clay above, and not higher than required."

THE DRAIN PLOUGH: *Thos. Ingle.* Mr. Fowler's address is at Messrs. Fowler & Fry, Bristol. We do not suppose that he would contract for the draining of so small an extent as you propose, unless it were in the neighbourhood of some larger contract.

WHEAT IN SUCCESSION: *W B.* We believe that Mr. J. D. Piper, Colne Engaine, Essex, is a sufficient address. Mr. Goodiff's address is Serabley, Co. Cavan, Ireland.

YORKSHIRE AGRICULTURAL SOCIETY: *Beta.* The Earl of Carlisle was last year's President, and among the Vice-Presidents are Earls of Ripon, De Grey, and Fitzwilliam; Lords Hotham, Londesborough, and Wenlock. The list of Council contain the names of Sir J. V. B. Johnstone, Bart., J. W. Childers, R. Denison, J. Outhwaite, H. S. Thompson, Esqs., and 27 others. The Secretary is J. Hannam, Esq., Kirk Deighton, Wetherby. We do not know what other names upon its staff you require.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use. Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle.*

For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

Pamphlets, with instructions for use, free by post on application to

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To cut from 16 inches wide, for a boy to work,
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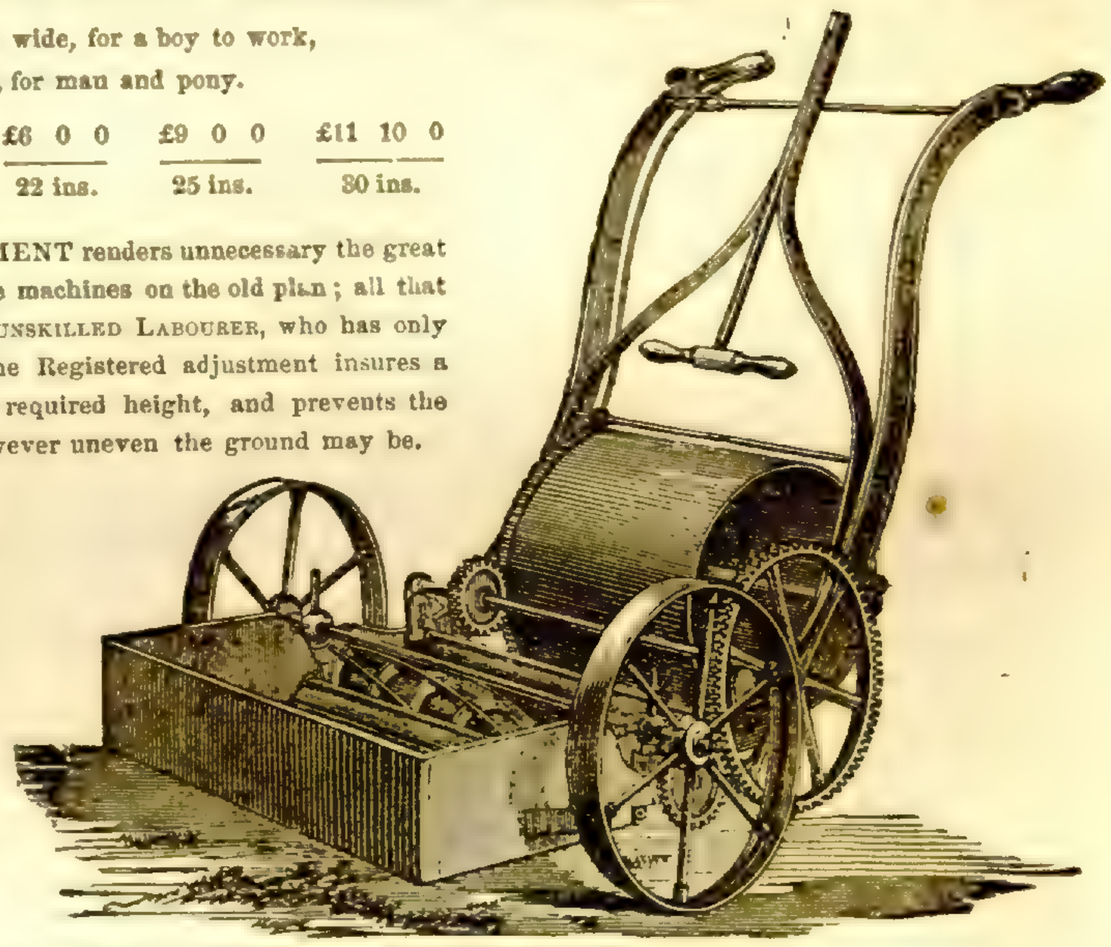
Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

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The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

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IMPROVED LAWN MOWING MACHINES.
MANUFACTURED AND SOLD BY **Budding's Patent.**
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These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	" 22 ditto	... 6	0	0
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London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

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Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

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Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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AT THE LOWEST PRICES CONSISTENT WITH

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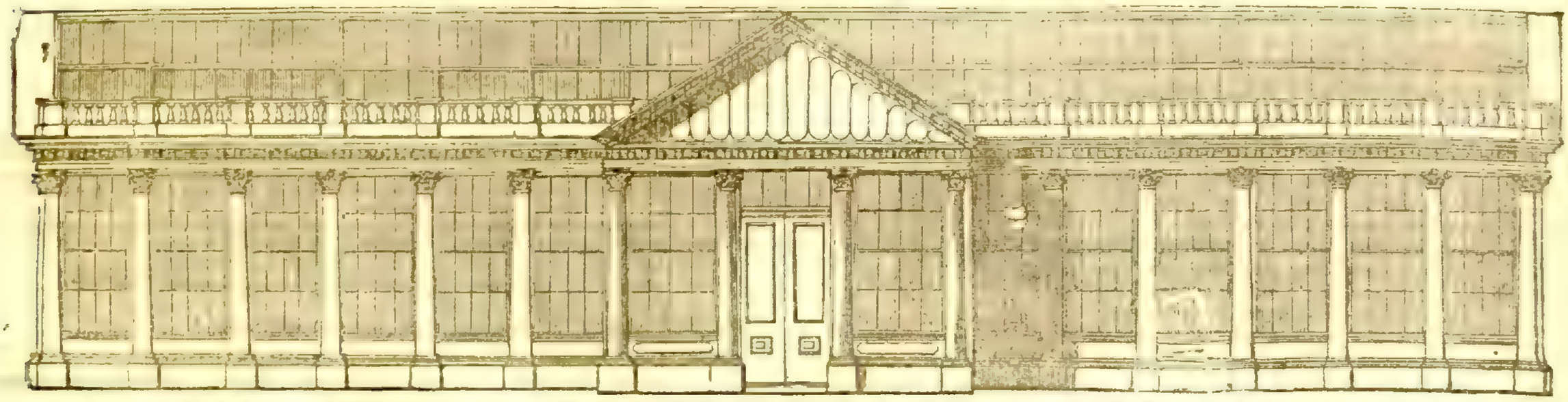

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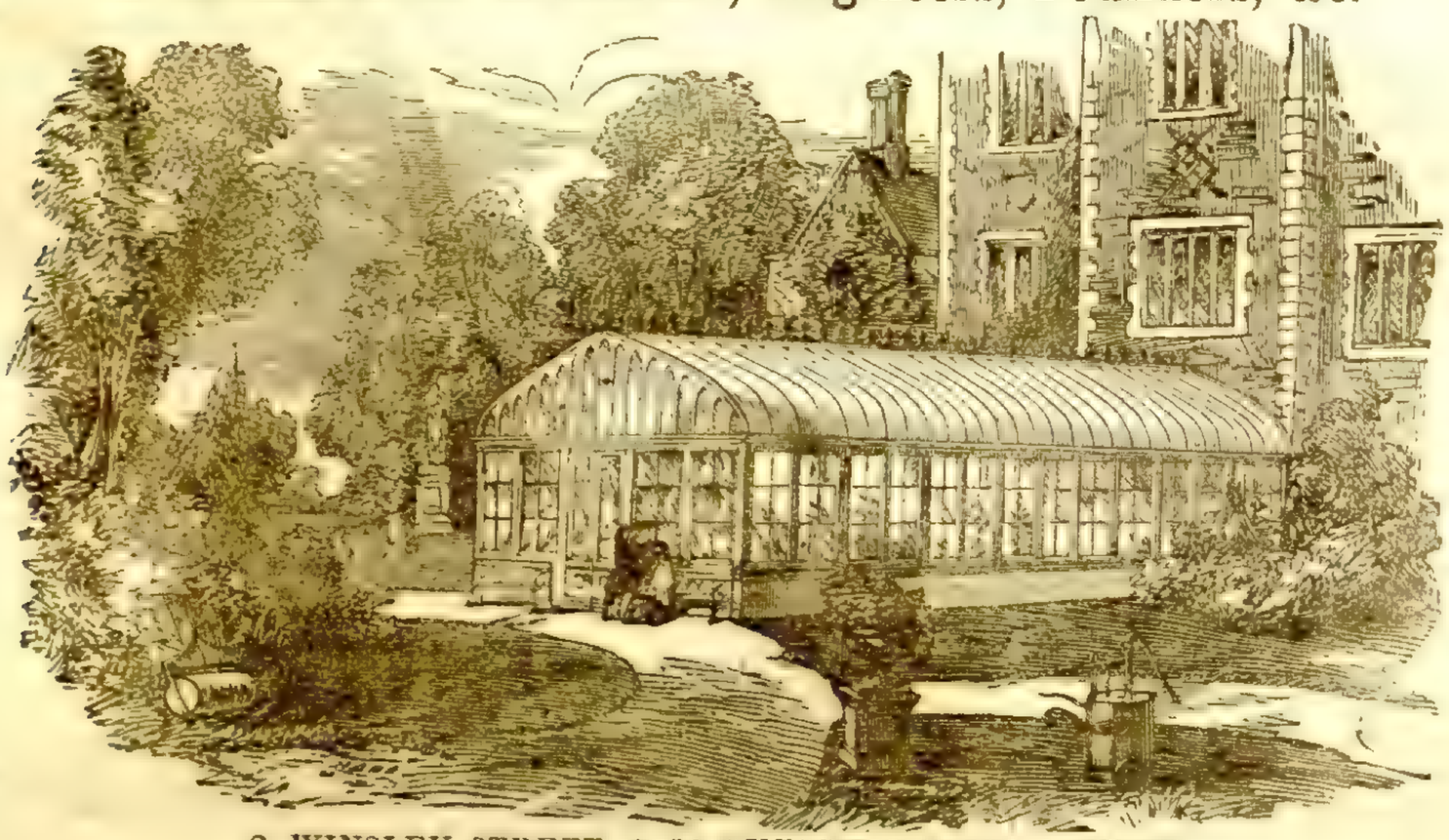
COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,

WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67 and 68, King William Street, London Drawings forwarded by post.

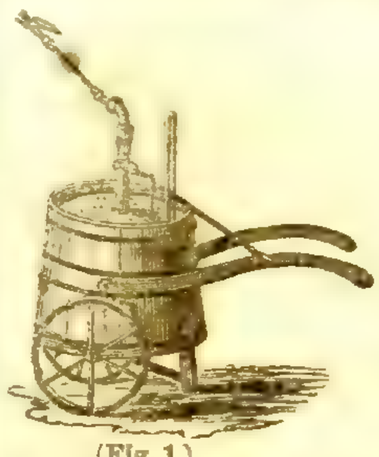
THE BEST CURE FOR SMOKY CHIMNEYS.

PATRONISED BY HER MOST GRACIOUS MAJESTY.

KITE'S PATENT VENTILATING AND SMOKE-CURING CHIMNEY CAPS.—Two Hundred on Buckingham Palace, in use also on St. James's Palace, Claremont, Windsor Castle, Government Buildings, &c. Wrought Iron, 25*s.*; Galvanised do., 30*s.*; Cast Iron, 35*s.* each, the latter as durable as the building itself. The merits of this invention are proved by practical experiments daily at the Royal Polytechnic, the Crystal Palace, and at the Manufactory. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt—BARTON's Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers.

Address, JAMES BARTON, 370 Oxford Street London.



(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high			...	£4 10
No. 2	„ 15	„	„ 45	„		...	5 10
No. 3	„ 28	„	„ 45	„		...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high			...	£2 15
No. 13	„ 12	„	„ 30	„		...	3 5
No. 11	„ 16	„	„ 40	„		...	4 0
No. 12	„ 24	„	„ 45	„		...	5 0
No. 14	„ 30	„	„ 45	„		...	5 18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, $1\frac{1}{2}$ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, $1\frac{3}{4}$ inch, 12*s.*; No. 3, do., diameter of barrel, $1\frac{5}{8}$ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

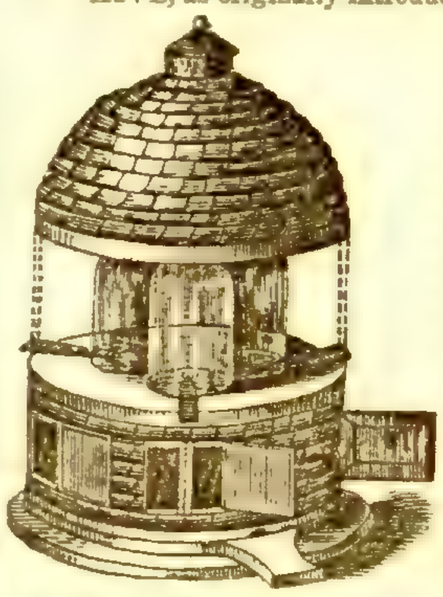
N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.



This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

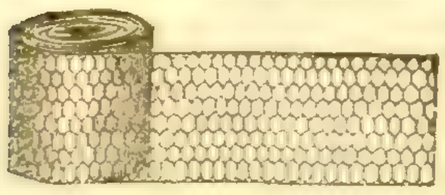
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

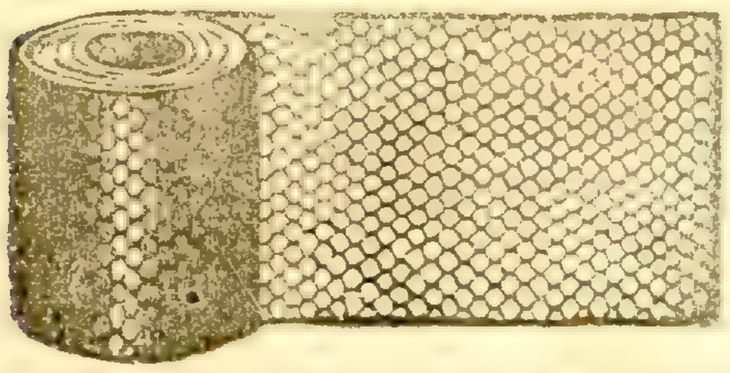
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5¼ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

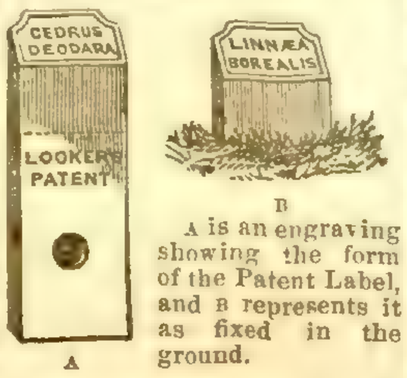
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles &c.

Illustrated Catalogues and Patterns forwarded by post.

LOOKER'S PATENT IMPERISHABLE GARDEN LABELS.—These Improved Garden Labels are made hollow, in well-burnt red or other earthenware, with a thick sloping top, on which are impressed any names of Trees, Plants, &c., that may be required. The lower part of the Label has openings, which give it a firm hold in the ground. These Labels will stand for years unaffected by damp or change of atmosphere; and the letters, &c., being impressed, are as durable as the Label itself. Their appearance is extremely neat; and they occupy but little space, while a broad view is presented of the impression on the top. Each Label can be impressed with any Name that may be desired.—Further particulars and prices may be obtained on application to BENJAMIN LOOKER, Jun., Inventor, Patentee, and Manufacturer, Kingston-on-Thames.



A B

A is an engraving showing the form of the Patent Label, and B represents it as fixed in the ground.

*** A limited number of Licenses will be granted to respectable Manufacturers.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by	4 in.	and 6 in.	by 4½ in.	...	...	12*s.*	0*d.*
6½ „	4½	„ 7	„ 5	...	...	12	6
7½ „	5½	„ 8	„ 6	...	...	13	0
8½ „	6½	„ 9	„ 7	...	...	13	6
9½ „	7½	„ 10	„ 8	...	...	13	6
10½ „	8½	„ 11	„ 9	...	...	14	0
12 „	9	„ 13	„ 9	...	...	14	0
10 „	10	„ 10½	„ 10½	...	...	14	0
11 „	10	„ 11½	„ 10½	...	...	14	0
11 „	11	„ 11½	„ 11½	...	...	14	0
12 „	11	„ 12½	„ 11½	...	...	14	0
13 „	11	„ 13½	„ 11½	...	...	14	0
13 „	12	„ 13½	„ 12½	...	...	16	0
13½ „	13½	„ 14½	„ 13½	...	...	16	0
15½ „	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12*s.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ...	13*s.*	9 by 7, and 10 by 8 ...	13*s.* 6*d.*

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ...	10*s.* 6*d.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ...	12 0	9 by 7, and 10 by 8 ...	15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25*s.* each.

AQUARIUMS, with French polished stands, from 10*s.* each. Vase-shaped ditto, on glass stand, 20*s.*

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

ROLL TOBACCO CORD,

THE Cheapest and most Effectual Article for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

TO PARENTS AND GUARDIANS.—A Member of the Royal College of Veterinary Surgeons in extensive practice in the suburbs of London, is desirous of receiving an IN-DOOR PUPIL for three years. A small premium will be required.—Address W. M., care of Messrs. Hodge & Co., Wholesale Druggists, Blackman Street, Borough.

BOARD AND LODGING REQUIRED AT A FARM HOUSE.—A private Sitting Room and two Bedrooms, with separate Board, for a Gentleman and Lady, and six Children under 9 years of age.—Address (post paid) C. H. H., Messrs. Richardson Brothers, 23, Cornhill.

WANTED, on Lease, 3 or 4 acres of LAND suitable for a Florist, within an easy distance west (preferred) of Covent Garden.—T. W., Mr. Young, Stationer, Shacklewell Green, near Kingsland.

TO FLORISTS AND GARDENERS.

TO BE LET, a Piece of GROUND, near London, with Greenhouses, Pits, and Heating Apparatus, &c.—For particulars apply to Mr. GODDARD, 14, Great Portland Street.

CROWN LANDS, SUSSEX.

TO BE LET, by Tender, by order of the Hon. Charles A. Gore, Commissioner in charge of her Majesty's Land Revenue, on Lease for a term of 21 years, from October 10, 1856, the following Farms, viz.:—NEWHOUSE FARM, situate in the parish of Poynings, in the county of Sussex, about seven miles from Brighton, and five miles from the Hassocks Gate Station on the Brighton Railway, comprising 349 acres of Arable, Grass, and Coppice Lands, with a good Farm House, and convenient Farm Buildings; also PERCHING FARM, in the parish of Edburton, in the same county, near the last mentioned Farm, comprising 730 acres of Arable Pasture, Meadow, Coppice, and Down Lands, with a good Farm House, and convenient Farm Buildings. For forms of tender and conditions of letting, apply to the Hon. CHARLES A. GORE, 1, Whitehall Place, Westminster, or to Mr. JOHN CLUTTON, 9, Whitehall Place, Westminster. To view the farms, apply to the tenants, Mr BOTTING, Newhouse Farm, near Hurstpierpoint; and Mr. N. BLAKER, Perching Farm, near Hurstpierpoint. Tenders addressed to the Hon. CHARLES A. GORE, to be sent to the Office of Woods, &c., 1, Whitehall Place, Westminster, on or before Saturday, the 15th day of June, 1856, endorsed "Tender for Newhouse Farm," or "Tender for Perching Farm."

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on, entry at Martinmas, 1856, the FARM of MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr and one from Maybole, where there is a railway station. It extends to 298 acres, 1 rood, 8 poles Imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the Farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oil-cake Crushers, Millstones for Grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and Pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted, without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, Manager at Myremill, will show the Farm, *and offers to be lodged with Mr. Brown, Royal Bank Office, Maybole, on or before the 30th June next.*—May 24.

TO BE SOLD, with immediate possession, a first class NURSERY and SEED BUSINESS, which has been successfully carried on at Bath upwards of 60 years, and is to be disposed of in consequence of the Proprietor leaving England. The grounds extend over 1½ acre, and are situated in one of the leading thoroughfares. They contain a good Dwelling House, six spacious Green and Hothouses in good condition well stocked with Plants and with Vines in full bearing, besides several Pits, Frames, &c. The Stock to be taken at a valuation.—Further particulars may be known on application to Mr. LOWE, Nurseryman, Upper Clapton; or to Mr. HENDERSON, Pine-apple Place, Edgware Road, London.

POULTRY.

TO BE SOLD, EGGS from the finest strains of the following named Poultry:—Shanghae, Black Spanish, Hambro', Golden Polanders, Sebrights, Silky Fowls.—Address to Z. Z., Northleigh, near Oxford.

TO BE SOLD, 100 WHITE-FACED SPANISH FOWLS, last year's birds, bred from those which took the Liverpool Silver Cup 1855 and 1856. The Advertiser requiring their walks, parts with them reluctantly, as they are of great beauty and first blood. The whole will be sold cheap.—Address Mr. Wm. PLUMMER, the Grove, Catton, Norfolk.

Sales by Auction.

THE LODDICES' COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the second portion of this Collection will be Sold by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, May 30, at 1 o'Clock precisely. In this part will be included some of the Gems of this most valuable assemblage of Exotic Orchids.—May be viewed on the morning of Sale; and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

EAST INDIAN ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on MONDAY, May 26, at 1 o'Clock precisely, an importation of ORCHIDS from India, containing the magnificent Vanda gigantea, a plant now introduced for the first time, Saccolabium guttatum, Blumei major and curvifolium, Cypripedium villosum; Dendrobiums Dalhousieanum, chrysotoxum, albo-sanguineum, aggregatum and tortile; Calanthe vestita, and other popular East Indian species in capital order.—May be viewed on the morning of Sale and Catalogues had.

BEDDING AND ORNAMENTAL PLANTS, AND ROSES IN POTS.

MR. HASLAM will Sell as above, at the Mart, on TUESDAY, May 27.—N.B. Packing baskets will be provided.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on WEDNESDAY, May 28, and FRIDAY, May 30, at 12 o'Clock, a first-class Collection of Fuchsias, Verbenas, Petunias, Dahlias, Climbing and other Roses, Calceolarias, &c., also Geraniums and other Plants in bloom, with a fine assortment of Ornamental Plants for bedding.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Goldham to submit to public competition by Auction, without reserve, upon MONDAY, May 26, on the Premises, Merton Lane, Mitcham, Surrey, a further portion of his costly and unrivalled collection of TULIPS; comment on this magnificent stock is superfluous.—Catalogues may be obtained on and after the first week in May by application on the premises; or of the Auctioneers, American Nursery, Leytonstone, Essex.

CHOICE TULIPS IN BLOOM.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction on the Premises, 1, Alpha Place, Coburg Road, Old Kent Road, on SATURDAY, May 31, at 3 o'Clock, a well selected collection of TULIPS, the property of Messrs. Clark and Howe, comprising flowers from the stocks of Messrs. Goldham, Saunders, Delaforce, Groom, Laurence, May, and other growers of celebrity; also sundry New Flowers and Breeders raised by Mr. Clark. A capital Tulip Stage with Top and Side Cloths, Rollers, &c., complete. A Cabinet for 168 rows, Shades, and sundry effects.—May be viewed one week prior to and on the morning of Sale. Catalogues may be obtained on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CROYDON.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the premises, Sion Nursery, Croydon, on MONDAY, June 2 and following day, at 11 o'Clock each day (by order of the proprietor), the whole of the valuable GREENHOUSE and BEDDING PLANTS, consisting of about 2000 Show, Fancy and Scarlet Geraniums, Azalea indica, Camellias, Epacris, Cinerarias, Acacias, Chrysanthemums, Passifloras, Herbaceous and Rock Plants; choice Dahlias, Fuchsias, Verbenas, Petunias, Heliotropes, &c.—May be viewed prior to the Sale. Catalogues had on the premises; of the principal seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

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STANDING ON THE SITE OF THE WATFORD AND ST. ALBAN'S BRANCH RAILWAY, WHICH IS TO BE IMMEDIATELY COMMENCED.

MR. HUMBERT is instructed by the London and North-Western Railway Company to Sell by Auction, at the Rose and Crown Inn, Watford, on WEDNESDAY, May 28, at 2 o'Clock, all the TIMBER standing on the Land purchased for the above Line which passes through the well-known woods of the Earl of Essex, Nathaniel Hibbert, Esq., and the Rev. D. Morrice. The Timber comprises about 900 Oak Trees and Saplings, many of them of large dimensions, 150 Larch and Scotch Fir, and others.—May be viewed; Catalogues may be had at the Inns in the neighbourhood, and free by post of Mr. HUMBERT, Land Agent, Watford, Herts.

REDHILL, REIGATE.

TO NURSERYMEN AND FLORISTS.

MR. WM. THORNTON will sell by Auction, at the Auction Mart, on SATURDAY, May 31, at 12 o'Clock, that well-situate and highly valuable Property, constituting the MONSON NURSERY GROUND, with the newly erected residence and range of conservatories, in length 76 feet, under a span roof; together with the Goodwill of the profitable and increasing Trade, now carried on by the owner, in a rapidly improving neighbourhood. The tenure is leasehold for an unexpired term of 94 years, direct from the freeholder, at the exceedingly low ground rent of 7*l.* The purchaser will be required to take the stock at a customary valuation.—Particulars, with conditions of sale, may be obtained 10 days previously at the Auction Mart; office of the *Gardeners' Chronicle*; or they will be forwarded on application to Mr. Wm. THORNTON, Land Agent and Surveyor, Old Bank, Reigate.

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 22.—1856.] SATURDAY, MAY 31. { Price Fivepence. Stamped Edition, 6d.

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ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
EDWARD CARPENTER, Sec., Lavender Street, Brighton.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The FIRST EXHIBITION (open to all competitors) of PLANTS, FLOWERS, FRUITS, and VEGETABLES, will be held at the Society's Gardens, Old Trafford, on WEDNESDAY, June 4th, when TWO HUNDRED POUNDS will be given in Prizes.

Schedules are now ready, and may be obtained on application to the Secretary. By order, JOHN SHAW, Secretary.
Council Room, Princess Street, Manchester, May 31.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The THIRTEENTH ANNIVERSARY DINNER of this Society will take place on WEDNESDAY the 11th June next, at the London Tavern, Bishopsgate Street.

SIR JOSEPH PAXTON, M.P., in the Chair.

Tickets 21s., to be had at the Tavern, and of the Secretary. Dinner to be upon table at 6 o'Clock.

E. R. CUTLER, Secretary,
14, Tavistock Row, Covent Garden.

GARDENERS' BENEVOLENT INSTITUTION.—ANN ARNOLD, Widow, earnestly solicits the consideration and support of the subscribers to the above Institution at the election in June next She is so severely afflicted with rheumatism as to be wholly unable to obtain her own living. Her husband was a subscriber to the Institution for many years. Proxies will be received by A. PAUL & SON, Nurseries, Cheshunt, Herts.

EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to intimate that his collection of the above plants is now coming finely into bloom, and will continue in perfection throughout the month of June, and may be inspected daily (gratis).—American Nursery, Bagshot, Surrey, near the Farnborough Station, South Western Railway; and Blackwater Station, South Eastern Railway, from whence conveyances are always to be obtained.

GRAND EXHIBITION OF RHODODENDRONS.

JOHN WATERER begs to announce that his unrivalled collection of HARDY SCARLET RHODODENDRONS will be this Spring Exhibited (as usual) in the Garden of the Royal Botanic Society, Regent's Park, London.

☞ The site usually occupied by the Society for the display of American Plants has been considerably enlarged, and extensive improvements made in the arrangements.

Notice will be given when the plants can be seen in bloom.
The American Nursery, Bagshot, Surrey.—May 31.

GRAND EXHIBITION OF AMERICAN PLANTS.

MESSRS. WATERER AND GODFREY beg to announce the arrangements for Exhibiting their well-known collection of AMERICAN PLANTS, in Ashburnham Park, adjoining Cremorne Gardens, are now complete. The plants will be in bloom in the course of a few days, of which due notice will be given. In soliciting the patronage of all admirers of this beautiful tribe, they feel confident in stating this exhibition, as a display of flowers, will far exceed anything of the kind before attempted, and is covered in by certainly the finest pavilion ever erected in this country.—Knap Hill Nursery, Woking, Surrey.

AN EXTENSIVE COLLECTION OF AMERICAN PLANTS, in bloom during June, may be seen in high perfection at GEORGE BAKER'S, Windlesham Nursery, Bagshot, Surrey, 1¼ mile from Bloom Hall and Sunningdale Station, 26 miles from Waterloo Station, on South-Western Railway; and on and after 11th June at the Royal Botanic Gardens, Regent's Park.

MESSRS. MASTERS AND SON,
LANDSCAPE GARDENERS,
CANTERBURY AND MAIDSTONE.

WILLIAM BARRATT,
LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

MR. DAVIDSON, who is extensively engaged in LANDSCAPE GARDENING and GARDEN ARCHITECTURE, respectfully offers his services to Noblemen, Gentlemen, and the Public, in Designing and Directing New Works and Improvements in Parks, Gardens, Cemeteries, &c.
Offices, 36, Great Russell Street, Bedford Square, London.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

BEDDING PLANTS.

A. PAUL AND SON have now ready for immediate planting out some thousands of strong healthy Geraniums, Verbenas, Calceolarias, Salvias, dwarf Lobelias, and other bedding plants. Price 4s. to 6s. per dozen, carriage free to London.—Nurseries, Cheshunt, Herts, May 31.

ROSES FOR MASSES.

A. PAUL AND SON have now ready for immediate planting out some thousands of DWARF ROSES of the best kinds for planting in masses, 10s. to 15s. per dozen. Also all the new Roses at the lowest advertised prices. Carriage free to London.—Nurseries, Cheshunt, Herts, May 31.

WILLIAM KNIGHT, FLORIST, &c., begs to offer first-class FUCHSIAS at 4s. per doz.; fine large Flowered and Pompone CHRYSANTHEMUMS, good plants at 3s. 6d. per doz. Descriptive Catalogues sent on application.
67, High Street, Battle, Sussex.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, begs to offer his following New Plants:—

Tydæa ocellata picta (vera)	£0	10s.	6d.
Abutilon marmoratum	0	12	0
Camellia Auguste Delfosse	1	0	0

WANTED, IN LIVERPOOL MARKET,
GRAPES AND PINES.
Forward immediately to
GEORGE TAYLOR, JUN.,
Choice Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
Terms "CASH."

HARDY FERNS.

WILLIAM HUSSEY begs to offer the undernamed Collection of FERNS for 14s., package included, viz.:—

Adiantum capillus Veneris	Blechnum boreale	Polystichum aculeatum
Allosorus crispus	Botrichium lunaria	„ angulare
Asplenium viride	Ceterach officinarum	Osmunda regalis
„ trichomanes	Crystopteris fragilis	Polypodium vulgare
„ adiantum nigrum	Lastrea cristata	„ dryopteris
Athyrium filix-femina	„ spinulosa	„ phagopteris
	„ dilatata	„ calcareum
	„ Thelypteris	Scolopendrum officinarum.

Horticultural Gardens, Norwich.

PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed Collection from fine flowering Plants for 20s., package included:—Constance, Rowena, Virgin Queen, Rosamond, Conspicua, Chloe, Ganymede, Narcissus, Magnificent, Lord Mayor, Ajax, Emily, Cassandra, Generalissimo, Belle of the Village, Loveliness, Centurion, Alonzo, Optimum, Elise, Nectar Cup, Symmetry, Gulielma, Pearl, Rubens, Lavinia, Chieftain, Enchantress, Prince Arthur, Pulchra, Mochanna, Queen of May, Beatrice, May Queen, Christine, Eurydice, Cuyp, Little Nell, Magnet, Ariadne, Colonel of the Buffs, Major Domo.
Horticultural Gardens, Norwich.

AZALEA INDICA.

J. IVERY AND SON, NURSERYMEN, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.

J. I. & SON also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season.—Dorking, May 31.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.

WM. CULLINGFORD 1, Edmund Terrace, Ball's Pond, Islington.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. WHEELER & SON,
Nurserymen and Seed Growers, Gloucester.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3s. per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2s. 6d. per packet assorted colours.—Dulwich, Surrey.

PERPETUAL ROSES IN POTS AND BEDDING PLANTS.—For BASS and BROWN'S Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A LARGE SURPLUS STOCK AT REDUCED PRICES.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to BASS & BROWN, Sudbury, Suffolk.

MISS NIGHTINGALE.—Strong Plants of this beautiful Heliotrope are now ready, 3s. 6d. each. The usual allowance to the Trade when three are ordered. A Certificate of Merit was awarded by the Royal Botanic Society of London on May, 28th, 1856:—Good habit, leaves dark green truss 7 inches across, flowers half an inch, colour dark lavender, strong scented. Post-office Orders made payable at Paddington.—WILLIAM FIELD, Florist, Kensal New Town, Chelsea.

ORION MELON made its First appearance this season at Ipswich Show, the only one exhibited on the 15th inst.; won both the First Prizes at the Crystal Palace for weight and flavour on Saturday last; and is likely to become as celebrated as the Ipswich Standard Cucumber, which won First Prizes when not grown in a pot.
THOMAS WILD, Handford Road, Ipswich.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS offers his usual extensive Stock of BEDDING PLANTS consisting of all the leading kinds of Geraniums, Verbenas, &c., strong and vigorous at 3s., 4s., and 6s. per dozen; carriage paid to London.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, May 31.

BEDDING PLANTS.—Fuchsias of last year (including white Corolla) 9s. to 12s. per dozen; older varieties 6s. Geraniums, Calceolarias, &c., 4s. Verbenas, 3s. 6d. Dahlias, best show varieties, 3s. 6d. to 6s. All other plants equally cheap. Catalogues on application.
W. C. H. PENYON, Rock Nursery, Walham Green, Middlesex.

ARAUCARIA CUNNINGHAMI AND EXCELSA,
MORTON BAY AND NORFOLK ISLAND PINES.

WM. MAULE AND SONS have to dispose of one of the former and three of the latter, fine trees from 10 to 20 feet high, all of which are in pots and would travel safely any distance. Price for the four plants, 40l.—The Nursery, Bristol.

ORNAMENTAL TREES AND SHRUBS.

OSBORN AND SON respectfully inform their patrons and the public that their new priced Catalogue of the above may now be had on application. It contains upwards of 1500 species and varieties, all of which may be seen growing at their establishment. They also invite an inspection of their Stove and Greenhouse Plants; and of their extensive collection of Fruit Trees, Grape Vines, &c.
Fulham Nursery, near London.

GRASS SEEDS FOR PERMANENT PASTURE, FINEST LAWN GRASSES, TURNIPS, of sorts, and other AGRICULTURAL SEEDS.—Lists of prices may be had gratis of WM. BARRATT, Nurseries, Wakefield.

NEW DAHLIAS, ETC.

CHARLES TURNER begs to state that his DESCRIPTIVE CATALOGUE of New Dahlias, Geraniums, Cinerarias, Verbenas, Fuchsias, Chrysanthemums, Carnations, Pinks, Shrubby Calceolarias, Petunias, &c., &c., is now ready, and contains many new varieties offered for the first time. Sent post free on application.—Royal Nursery, Slough.

TO THE TRADE.
SEEDLING CRYPTOMERIA JAPONICA.

GEORGE JACKMAN begs to announce he has been fortunate to ripen from his specimen plant a quantity of SEEDS of the above well-known Hardy and Ornamental Tree. Seedlings can be supplied in pans, at the following prices:—
16s. per 100 | 72s. 6d. per 500 | 120s. per 1000.

N.B. Cash or satisfactory reference from unknown correspondents. Woking Nursery, Woking.—May 31.

SKIRVING'S IMPROVED AND EAST LOTHIAN PURPLE-TOP SWEDES.—A Grower has on hand a few sacks of the above Seed, warranted growth of 1855 and true to name, all raised from selected and transplanted bulbs, and guaranteed to GROW OVER NINETY PER CENT.

Also for disposal some WHITE GLOBE TURNIP SEED, growth of 1855, a genuine and carefully selected stock. Terms cash, at grower's prices.

Apply to Mr. WM. TAYLOR, Nashenden Farm, Rochester, Kent.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1s. per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate rates, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, May 31.

ROBERT PARKER begs to invite the attention of his friends and the public to his large and select Stock of EXOTIC ORCHIDS, STOVE, GREENHOUSE and HARDY FERNS, SHOW, FANCY and BEDDING GERANIUMS, ROSES, DAHLIAS, VERBENAS, CHRYSANTHEMUMS, MISCELLANEOUS BEDDING PLANTS, &c. &c., all of which are in the best possible health, and are offered at the lowest prices. His new descriptive and priced Catalogue is now ready, and will be forwarded post free on application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

GLENNY'S OPINION ON FLOWERS, PLANTS, FRUITS, IMPLEMENTS, &c.—All packets must be addressed Mr. GLENNY, Dungannon House, Fulham, and come free, by post, or, if by other conveyance, six stamps must be enclosed for postage, and a directed envelope for answer. A few Balsam Seeds left, six classes 37 stamps, mixed 13.

CRYSTAL PALACE.

GRAND HORTICULTURAL EXHIBITION,

Saturday, May 24, 1856.

AWARD OF THE JUDGES.

PLANTS.

PRIZES OF 30*l.* EACH TO

Mr. James May, Gardener to H. Colyer, Esq., Dartford, Kent, for 20 Stove and Greenhouse Plants in flower.

Mr. H. Gedney, Gr. to Mrs. Ellis, Hoddesdon, Herts, for 20 Exotic Orchids.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 20 Exotic Orchids.

PRIZES OF 25*l.* EACH TO

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 25 Stove or Greenhouse Plants in or out of flower.

PRIZES OF 20*l.* EACH TO

Mr. George Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 20 Stove and Greenhouse Plants in flower.

Mr. J. Mylam, Gr. to G. Reed, Esq., Burnham, Somerset, for 20 Exotic Orchids.

PRIZES OF 18*l.* EACH TO

Mr. G. Dods, Gr. to Sir John Cathcart, Bart., Englefield Green, for 12 Stove and Greenhouse Plants in flower.

Mr. John Green, Gr. to Sir E. Antrobus, Bart., Cheam, for 12 Greenhouse Azaleas.

PRIZES OF 15*l.* EACH TO

Mr. George Young, Gr. to W. Stone, Esq., Dulwich Hill, for 25 Stove and Greenhouse Plants, in or out of flower.

Mr. S. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, for 20 Exotic Orchids.

PRIZES OF 12*l.* EACH TO

Mr. S. W. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, Surrey, for 12 Stove and Greenhouse Plants in flower.

Mr. Gaines, Nurseryman, Battersea, for 12 Greenhouse Azaleas.

PRIZES OF 10*l.* EACH TO

Mr. James Morris, Gr. to Coles Child, Esq., The Palace, Bromley, Kent, for 25 Stove Greenhouse Plants, in or out of flower.

Mr. John Green, Gr. to Sir Edmund Antrobus, Bart., Cheam, for 20 Stove and Greenhouse Plants, in flower.

Mr. W. Cutbush, Nurseryman, Barnet, for 6 Stove and Greenhouse Plants, in flower.

Mr. M. Clarke, Hoddesdon, Herts, for 12 Exotic Orchids.

Mr. S. W. Carson, Gr. to W. F. G. Farmer, Esq., of Nonsuch Park, Surrey, for 6 Exotic Orchids.

Mr. R. Roser, Gr. to J. Bradbury, Esq., Streatham, for 12 Greenhouse Azaleas of new kinds.

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for 12 Roses in pots.

Mr. Charles Turner, Nurseryman, Slough, for 12 Pelargoniums in 8-inch pots.

Mr. Charles Turner, Nursery, Slough, for 12 Fancy Pelargoniums in 8-inch pots.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 6 plants of Nepenthes, with pitchers.

PRIZES OF 8*l.* EACH TO

Mr. S. W. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, for 6 Greenhouse Azaleas.

Mr. Thomas Williams, Gr., Hayes, Kent, for 10 Cape Heaths.

PRIZES OF 7*l.* EACH TO

Mr. Osman Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 20 Stove and Greenhouse Plants in flower.

Mr. John Green, Gr. to Sir E. Antrobus, Bart., Cheam, for 12 Greenhouse Azaleas of new kinds.

Mr. John Green, Gr. to Sir E. Antrobus, Bart., Cheam, for 6 Tall Cacti, in flower.

Messrs. Dobson & Sons, Nurserymen, Isleworth, for 12 Pelargoniums, in 8-inch pots.

Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, for 12 Fancy Pelargoniums, in 8-inch pots.

Messrs. Paul & Son, Cheshunt, for 12 Roses, in pots.

PRIZES OF 6*l.* EACH TO

Mr. R. Roser, Gr. to J. Bradbury, Esq., Bedford House, Streatham, for 12 Stove and Greenhouse Plants in flower.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 Stove and Greenhouse Plants in flower.

Mr. B. Peed, Gr. to T. Tredwell, Esq., Norwood, for 12 Greenhouse Azaleas.

Mr. R. Roser, Gr. to J. Bradbury, Esq., Streatham, for 6 Greenhouse Azaleas.

Mr. R. Roser, Gr. to J. Bradbury, Esq., Streatham, for 10 Cape Heaths.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 Cape Heaths.

PRIZES OF 6*l.* EACH TO

Mr. W. Keele, Gardener to J. Butler, Esq., Rectory Place, Woolwich, for 6 Exotic Orchids.

PRIZES OF 5*l.* EACH TO

Mr. James May, Gr. to H. Colyer, Esq., Dartford, for 10 Cape Heaths.

Mr. R. Grix, Gr. to A. Palmer, Esq., Cheam, for 6 Tall Cacti in flower.

Mr. E. P. Francis, Hertford, for 12 Roses in pots.

Mr. M. Busby, Gr. to S. Crawley, Esq., Luton Park, Beds, for 6 Roses in pots.

Messrs. J & J. Fraser, Nurserymen, Lea Bridge Road, for 12 Pelargoniums in 8-inch pots.

Mr. H. Nye, Gr. to E. Foster, Esq., Clewer Manor, Berks, for 6 Pelargoniums in 8-inch pots.

Messrs. Cutbush & Son, Nurserymen, Highgate, for 12 Fancy Pelargoniums.

Mr. Thomas Windsor, Gr. to A. Blyth, Esq., Hampstead, for 6 Fancy Pelargoniums.

PRIZES OF 4*l.* EACH TO

Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 12 Stove and Greenhouse Plants in flower.

Mr. O. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 12 Greenhouse Azaleas.

Mr. R. Grix, Gr. to A. Palmer, Esq., Cheam, for 6 Greenhouse Azaleas.

Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, for 12 Greenhouse Azaleas of new kinds.

Mr. B. Peed, Gr. to T. Tredwell, Esq., Norwood, for 10 Cape Heaths.

Mr. W. Cutbush, Nurseryman, Barnet, for 6 Cape Heaths.

Messrs. Lane & Son, Nurserymen, Berkhampstead, for 6 distinct kinds of Rhododendrons.

A. Rowland, Esq., Rosenthal, Lewisham, for 6 Roses in pots.

Mr. A. Bousie, Gr. to the Right Hon. H. Labouchere, M.P., Stoke Park, Slough, for 6 Fuchsias in pots.

Mr. Gaines, Nurseryman, Battersea, for 12 Pelargoniums in pots.

Messrs. Dobson & Sons, Nurserymen, Isleworth, for 12 Fancy Pelargoniums.

PRIZES OF 3*l.* EACH TO

Mr. Charles Smith, Gr. to Arthur Anderson, Esq., the Grove, Norwood, for 12 Stove and Greenhouse Plants in flower

Mr. James Morris, Gr. to Coles Child, Esq., the Palace, Bromley, for 12 Stove and Greenhouse Plants in flower.

Mr. Wm. Laybank, Gr. to J. Maudslay, Esq., Knight's Hill, Norwood, for 6 Stove and Greenhouse Plants in flower

Mr. John Green, Gr. to Sir E. Antrobus, Bart., Cheam, Surrey, for 6 Exotic Orchids.

Mr. James May, Gr. to H. Colyer, Esq., Dartford, for 6 Greenhouse Azaleas.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 12 Greenhouse Azaleas of new kinds.

Mr. W. Laybank, Gr. to J. Maudslay, Esq., Norwood, for 6 Cape Heaths.

Messrs. Standish and Noble, Nurserymen, Bagshot, for 6 distinct kinds of Rhododendrons.

Mr. W. Mortimore, Crouch End, Hornsey, for 6 Roses in pots.

Mr. George Lambert, Oakwood, Chichester, for 6 distinct Calceolarias.

Mr. O. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 6 Fuchsias in pots.

Mr. John Wiggins, Gr. to E. Beck, Esq., Isleworth, for 6 Pelargoniums in 8-inch pots.

Mr. A. Bousie, Gr. to the Right Hon. H. Labouchere, M.P., Stoke Park, Bucks, for 6 Fancy Pelargoniums.

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants in flower (Correa cardinalis).

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants not in flower (Drosera dichotoma).

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for Plants of Anæctochilus and Physurus.

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for Rhododendron caucasicum.

PRIZES OF 2*l.* 10*s.* EACH TO

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 Greenhouse Azaleas.

Messrs. Ivery & Son, Nurserymen, Dorking, for 6 Greenhouse Azaleas of new kinds.

Mr. O. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 10 Cape Heaths.

PRIZES OF 2*l.* 10*s.* EACH TO

Mr. G. Young, Gardener to W. Stone, Esq., Dulwich Hill, for 6 Cape-Heaths.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for Embothrium coccineum.

PRIZES OF 2*l.* EACH TO

Mr. Thomas Williams, Gr., Hayes, Kent, for 6 Stove and Greenhouse Plants in flower.

Mr. G. T. Brush, Gr. to T. Tritton, Esq., Norwood, for 6 Greenhouse Azaleas.

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for 12 Greenhouse Azaleas of new kinds.

Mr. G. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 6 Cape Heaths.

Mr. Gaines, Nurseryman, Battersea, for 6 distinct kinds of Rhododendrons.

Mr. John Cole, St. Albans, for 6 varieties of Calceolarias.

Mr. Chilman, Gr. to Mrs. Smith, Ashstead House, Epsom, for 6 Fuchsias in pots.

Mr. Thomas Windsor, Gr. to A. Blyth, Esq., Hampstead, for 6 Pelargoniums in 8-inch pots.

Mr. James Weir, Gr. to John Hodgson, Esq., Hampstead, for 6 Fancy Pelargoniums.

Mr. W. J. Epps, Nurseryman, Maidstone, for New or Rare Plants in flower (Genetyllis tulipifera).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants not in flower (Gleichenia microphylla).

Mr. Charles Turner, Nurseryman, Slough, for Cinerarias and Pelargoniums.

Mr. T. Dall, Gr. to James Renny, Esq., Grace's Cottages, Pimlico, for Gloxinias.

Mr. G. Young, Gr. to W. Stone, Esq., Dulwich Hill, for Gloxinias.

Mr. E. A. Hamp, Gr. to James Thorne, Esq., South Lambeth, for a collection of Amaryllis.

PRIZES OF 1*l.* 10*s.* EACH TO

Mr. Thomas Page, Gr., Park Hill, Streatham, for 6 Stove and Greenhouse Plants in flower.

Mr. G. T. Brush, Gr. to T. Tritton, Esq., Bloomfield Hall, Norwood, for 6 Stove and Greenhouse Plants in flower.

Mr. C. Girdler, Gr., Snaresbrook, Essex, for 6 Stove and Greenhouse Plants in flower.

Mr. James Morris, Gr. to Coles Child, Esq., Bromley, for 6 Greenhouse Azaleas.

Mr. J. Harlock, Gr. to R. W. Nutter, Esq., Wanstead, for 6 Cape Heaths.

Mr. W. Forsyth, Gr. to Baron Rothschild, Gunnersbury Park, Acton, for Seedling Calceolarias.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 varieties of Aphelexis.

PRIZES OF 1*l.* EACH TO

Mr. H. Smith, Gr. to A. W. Roberts, Esq., Roehampton, for 6 Greenhouse Azaleas.

Messrs. Dobson & Sons, Nurserymen, Isleworth, for 6 distinct Calceolarias.

Mr. T. Carrigan, Clapham Common, for 6 Pelargoniums, in 8-inch pots.

Mr. James Weir, Gr. to John Hodgson, Esq., Hampstead, for 6 Pelargoniums, in 8-inch pots.

Mr. W. Mockett, Gr. to J. Allnutt, Esq., Clapham, for 6 Fancy Pelargoniums.

Mr. T. Carrigan, Clapham Common, for 6 Fancy Pelargoniums.

Mr. George Keeble, Gr. to H. W. Davis, Esq., Hounslow, for 6 Fancy Pelargoniums.

Mr. James Morris, Gr. to Coles Child, Esq., Bromley, for 6 Fancy Pelargoniums.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plant, in flower (Nidularia picta).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plant, not in flower (Ouvirandra fenestralis, or Madagascar Lattice plant).

Mr. H. Lavey, Gr. to E. A. De Grave, Esq., Fetcham, Leatherhead, for a collection of Ferns.

Mr. C. G. Wilkinson, for cut Roses.

Mr. A. Ingram, for 12 trusses of Rhododendrons.

Messrs. Cutbush & Son, for a collection of Ferns.

Messrs. Dobson & Sons, for a collection of Pansies.

PRIZES OF 15*s.* EACH TO

Mr. W. Keele, Gr. to J. Butler, Esq., Woolwich, for 6 Greenhouse Azaleas.

Mr. Lambert, Oakwood, Chichester, for Eutaxia myrtifolia.

PRIZE OF 10*s.* EACH TO

Messrs. Paul & Son, Nurserymen, Cheshunt, for New or Rare Plant, in flower (Bourbon Rose, "Bacchus").

FRUIT.

A PRIZE OF 8*l.* TO

Mr. G. Fleming, Gr. to the Duke of Sutherland, Trentham, for a collection of 8 dishes of Fruit.

A PRIZE OF 6*l.* TO

Mr. John Davis, Nurseryman, East Barnet, for a collection of 3 Pine Apples.

PRIZES OF 5*l.* EACH TO

Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for 8 dishes of distinct kinds of Grapes.

Mr. W. Forsyth, Gr. to Baron Rothschild, Gunnersbury Park, Acton, for Vines with ripe fruit, in pots.

PRIZES OF 4*l.* EACH TO

Mr. James Nichol, Gr. to General Stadd, Oxton House, Devon, for a collection of 3 Pine Apples.

Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for a single dish of Muscat Grapes.

Mr. G. Fleming, Gr. to the Duke of Sutherland, Trentham, for a collection of three kinds of Cherries.

Mr. C. Ewing, Gr. to O. F. Meyrick, Esq., Bodorgan, Anglesea, for a collection of three distinct kinds of Strawberries.

Mr. John Davis, Nurseryman, East Barnet, for 12 lbs. of Grapes.

PRIZES OF 3*l.* EACH TO

Mr. John Davis, Nurseryman, East Barnet, for a Providence Pine Apple.

Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for a Queen Pine Apple.

Mr. John Davis, Nurseryman, East Barnet, for a Pine Apple.

Mr. John Munro, Gr. to Mrs. Oddie, Colney House, St. Albans, for a collection of three distinct kinds of Grapes.

PRIZES OF 3*l.* EACH TO

Mr. John Davis, Nurseryman, East Barnet, for a single dish of Black Hamburgh Grapes.

Mr. M. Henderson, Gr. to Sir G. Beaumont, Bart., Ashby de la Zouch, for a single dish of Frontignan or Chasselas Musqué Grapes.

Mr. John Davis, Nurseryman, East Barnet, for Sweetwater or Muscadine Grapes.

Mr. W. Gardiner, Gr. to Sir G. Philips, Bart., Weston House, Warwickshire, for a single dish of Peaches.

Mr. G. Fleming, Gr. to the Duke of Sutherland, Trentham, for a single dish of Nectarines.

Mr. S. Evans, Gr. to C. N. Newdegate, Esq., M.P., Arbury, Warwickshire, for a collection of 3 kinds of Cherries.

Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for a collection of 3 kinds of Strawberries.

PRIZES OF 2*l.* EACH TO

Mr. E. Robinson, Gr. to Lord Boston, Hedsor, Maidenhead, for a collection of 3 kinds of Pine Apples.

Mr. E. Robinson, Gr. to Lord Boston, Hedsor, for a single Providence Pine Apple.

Mr. John Davis, Nurseryman, East Barnet, for a single Queen Pine Apple.

Mr. Roger Jones, Gr. to the Dowlais Iron Company, Dowlais, for a Pine Apple.

Mr. James Tegg, Gr. to Baron Hambro, Roehampton, for a collection of three distinct kinds of Grapes.

Mr. M. Clarke, Nurseryman, Hoddesdon, for a single dish of Black Hamburgh Grapes.

Mr. Walter Reid, Gr. to J. Hunt, Esq., Sydenham Hill, for a single dish of Frontignan or Chasselas Musqué Grapes.

PRIZES OF 2*l.* EACH TO

Mr. Henry Jackson, Gr. to G. Beaufoy, Esq., South Lambeth, for Sweetwater or Muscadine Grapes.

Mr. G. Fleming, Gr. to the Duke of Sutherland, Trentham, for a single dish of Peaches.

Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for a single dish of Nectarines.

Mr. Peter Boreham, Gr. to Sir Fitzroy Kelly, Chantrey, Ipswich, for the Heaviest Melon—Persian or Hybrids from it.

Mr. Peter Boreham, Gr. to Sir Fitzroy Kelly, Chantrey, Ipswich, for a Green-fleshed Melon.

Mr. C. Ewing, Gr. to O. F. Meyrick, Esq., M.P., Bodorgan, Anglesea, for a Scarlet-fleshed Melon.

Mr. M. Busby, Gr. to G. Crawley, Esq., Luton Park, Beds., for a single dish of Figs.

Mr. John Richards, of ——, for a single dish of Figs.

Mr. E. Shuter, Gr. to the Earl of Wilton, Heaton Park, Manchester, for a single dish of Black Cherries.

Mr. G. Fleming, Gr. to the Duke of Sutherland, Trentham, for a single dish of Pluma.

Mr. W. Dunsford, Market Gardener, Chingford, Essex, for a single dish of Strawberries.

Mr. E. Spary, Queen's Graperies, Brighton, for 12 lbs. of Grapes.

PRIZE OF 1*l.* 10*s.* TO

Mr. James Allport, Gr. to — Akroyd, Esq., Doddington Park, for Black Frontignan Grapes.

PRIZES OF 1*l.* 5*s.* EACH TO

Mr. S. Evans, Gr. to C. N. Newdegate, Esq., M.P., Arbury, Warwickshire, for a single dish of Black Cherries.

Mr. Joseph Gillham, Market Gardener, Isleworth, for a single dish of Strawberries.

Further List of Prizes awarded at this great Horticultural Exhibition continued on next page.

CRYSTAL PALACE LIST OF PRIZES—*Continued.*

PRIZES OF 1*l.* EACH TO

Mr. Thomas Bailey, Shardiloes, Amersham, for a Providence Pine Apple.
Mr. Roger Jones, Gardener to the Dowlais Iron Company, Dowlais, for a Queen Pine Apple.
Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for a Pine Apple.
Mr. E. Bundle, Gr. to G. Soanes, Esq., Streatham, for a single dish of Black Hamburgh Grapes.
Mr. John Smith, Gr. to S. Ricardo, Esq., M.P., Sunning Hill, for Sweetwater or Muscadine Grapes.
Mr. S. Evans, Gr. to C. N. Newdegate, Esq., M.P., Arbury, Warwickshire, for a single dish of Peaches.
Mr. S. Evans, Gr. to C. N. Newdegate, Esq., M.P., Arbury, Warwickshire, for a single dish of Nectarines.
Mr. James Nichol, Gr. to General Stadd, Oxton House, Devon, for the Heaviest Melon, Persian or Hybrids from it.
Mr. James Nichol, Gr. to General Stadd, Oxton House, Devon, for a Green-fleshed Melon.
Mr. W. Tegg, Gr. to A. Pryor, Esq., Roehampton, for a single dish of Figs.
Mr. William Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for Black Prince Grapes.
Mr. G. Tillyard, Gr. to the Rt. Hon. the Speaker, Heckfield, Hants, for Pears.

PRIZES OF 15*s.* EACH TO

Mr. John Monro, Gardener to Mrs. Oddie, St. Albans, for a single dish of Black Cherries.
Mr. A. Ingram, Gr. to J. J. Blandy, Esq., Reading, for a single dish of Strawberries.
Mr. B Peed, Gr. to T. Tredwell, Esq., Norwood, for a Queen Pine Apple.
Mr. E. Spary, Queen's Graperies, Brighton, for a single dish of Black Hamburgh Grapes.
Mr. T. Williams, Gr. to C. B. Warner, Esq., Hoddesdon, Herts, for a dish of Sweetwater or Muscadine Grapes.
Mr. W. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for a dish of Peaches.

PRIZES OF 10*s.* EACH TO

Mr. R. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for a Pine Apple.
Mr. Walter Bain, Gr. to A. Perkins, Esq., Hanworth Park, for a dish of Figs.
Mr. G. Fleming, Gr, to the Duke of Sutherland, Trentham, for a dish of Black Cherries.
Mr. T. Williams, Gr. to C. B. Warner, Esq., Hoddesdon, Herts, for Oranges, Lemons, &c.
Mr. M. Clarke, Hoddesdon, Herts, for Citrons, new kind.

Crystal Palace, May 31, 1856. (By Order.) G. GROVE, Secretary.

LIST OF THE PRIZES AWARDED MAY 28th,

AT THE

ROYAL BOTANIC SOCIETY'S GARDENS,

REGENT'S PARK.

EXTRA GOLD MEDAL.

Mr. May, Gr. to H. Collyer, Esq., Dartford, for 16 Stove and Greenhouse Plants.
Mr. Mylam, Gr. to G. Read, Esq., Burnham, Somerset, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

Mr. Dodds, Gr. to Sir J. Cathcart, Englefield Green, for 16 Stove and Greenhouse Plants.
Mr. Woolley, Gr. to H. B. Ker, Cheshunt, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
Mr. Cutbush, Nurseryman, Barnet, for 12 Stove and Greenhouse Plants.
Mr. Carson, for 10 Stove and Greenhouse Plants.
Messrs. Lane, Nurserymen, Berkhampstead, for 10 Greenhouse Azaleas.
Mr. Green, Gr. to Sir F. Antrobus, for 8 Greenhouse Azaleas.
Mr. Carson, for 12 Exotic Orchids.
Messrs. Lane, for 10 Roses in pots.

GOLD MEDAL.

Messrs. Fraser, Nurserymen, Leyton, for 12 Stove and Greenhouse Plants.
Mr. Taylor, Gr. to J. Coster, Esq., Streatham, for 10 Stove and Greenhouse Plants.
Mr. Williams, Gr. to Miss Frail, Bromley, for 8 Cape Heaths.
Messrs. Fraser, for 10 Greenhouse Azaleas.
Mr. Barter, Gr. to A. Bassett, Esq., for 8 Greenhouse Azaleas.
Mr. Clarke, for 12 Exotic Orchids.
Messrs. Paul, Nurserymen, Cheshunt, for 10 Roses in pots.
Mr. Turner, for 12 Pelargoniums.
Mr Wiggans, Gr. to E. Beck, Esq., Isleworth, for 10 Pelargoniums.

LARGE SILVER GILT MEDAL.

Mr. Clarke, Gr. to C. Webb, Esq., High Grounds, Hoddesdon, for 10 Stove and Greenhouse Plants.
Mr. Roser, Gr. to J. Bradbury, Esq., Streatham, for 6 Stove and Greenhouse Plants.
Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam, Surrey, for 6 Tall Cacti.
Mr. Gaines, Nurseryman, Battersea, for 10 Greenhouse Azaleas.
Mr. Roser, for 8 Greenhouse Azaleas.
Mr. Carson, Gr. to W. H. B Farmer, Esq., Nonsuch Park, Cheam, for 6 Greenhouse Azaleas.
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 12 Exotic Orchids.
Mr. Dodds, Gr. to Sir J. Cathcart, Cooper's Hill, for 6 Exotic Orchids.
Mr. Francis, Nurseryman, Hertford, for 10 Roses in pots.
Mr. Busby, Gr. to J. Crawley, Esq., Stockwood Park, for 6 Roses in pots.
Messrs. Dobson, Nurserymen, Isleworth, for 12 Pelargoniums.
Mr. Nye, Gr. to E. Foster, Esq., Clewer Manor, Windsor, for 10 Pelargoniums.
Mr. Peed, Gr. to T. Tredwell, Esq., Norwood, for 16 Stove and Greenhouse plants.

LARGE SILVER MEDAL.

Mr. Williams, for 6 Stove and Greenhouse Plants.
Mr. Cutbush, Barnet, for 10 Cape Heaths.
Mr. Roser, for 8 Cape Heaths.
Mr. May, for 6 Cape Heaths.
Mr. Taylor, for 6 Greenhouse Azaleas.
Mr. Green, for 6 Exotic Orchids.
Mr. Turner, Nurseryman, Slough, for 6 Fancy Pelargoniums.
Mr. Windsor, Gr. to A Blyth, Esq., Hampstead, for 6 Fancy Pelargoniums.

SILVER GILT MEDAL.

Mr. Morris, Gr. to C. Childe, Esq., Bromley, for 10 Stove and Greenhouse Plants.
Mr. Green, for 6 Stove and Greenhouse Plants.
Mr. Grix, Gr. to A. Palmer, Esq., Cheam, Surrey, for 6 Tall Cacti.
Messrs. Fraser, for 10 Cape Heaths.
Mr. Peed, for 8 Cape Heaths.
Mr. Taylor, for 6 Cape Heaths.
Mr. Peed, for 8 Greenhouse Azaleas.
Messrs. Ivery, Nursery, Dorking, Reigate, for 6 Greenhouse Azaleas.
Mr. Morris, for 6 Exotic Orchids.
A. E. Rowland, Esq., Lewisham, for 6 Roses in pots.
Mr. Turner, for 6 Cinerarias.

SILVER GILT MEDAL.

Messrs. Fraser, for 12 Pelargoniums.
Mr. Windsor, for 10 ditto.
Messrs. Dobson, for 6 Fancy Pelargoniums.
Mr. Weir, The Elms, Hampstead, for 6 Fancy Pelargoniums.
Mr. Bragg, Nurseryman, Slough, for 12 Pansies in pots.

SILVER MEDAL.

Mr. Rhodes, for 10 Stove and Greenhouse Plants.
Mr. Rhodes, for 6 Stove and Greenhouse Plants.
Mr. Mortimer, J. R. Scott, Esq., Hornsey, for 6 Tall Cacti.
Mr. Rhodes, for 6 Cape Heaths.
Messrs. Lane, for a collection of Indian Rhododendrons.
Mr. Carson, for 12 Exotic Ferns.
Messrs. Henderson, for 21 Miscellaneous Plants.
Mr. Turner, for Cut Tulips.
Mr. Roser, for 6 Greenhouse Azaleas.
Mr. Wheeler, Victoria Nursery, Uxbridge, for Broughtonia lilacina.
Mr. Wheeler, for Epidendrum, species nova.
Messrs. Veitch, Nurserymen, Exeter and Chelsea, for Correa cardinalis (as New Plant).
Mr. Terry, Gr. to Lady Pullen, Youngsbury, Ware, for 6 Roses in pots.
Mr. Harlock, Gr. to R. W. Nutter, Esq., Wanstead, for 6 Cinerarias.
Mr. Gaines, for 12 Pelargoniums.
Messrs. Fraser, for 6 Fancy Pelargoniums.

SMALL SILVER MEDAL.

Mr. Hamp, Gr. to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
Mr. Girdler, Gr. to Miss Wilson, Snaresbrook, for 6 Stove and Greenhouse Plants.
Mr. Cutbush, Barnet, for 6 Plants of Aphelexis.
Messrs. Lane, for a collection of Standard Azaleas.
Mr. Hamp, for a collection of Amaryllis.
Mr. Barker, for 6 Cape Heaths.
Mr. Cutbush, Highgate, for 12 Ferns.
Messrs. Standish and Noble, Nurserymen, Bagshot, for a collection of Hardy Rhododendrons.
Mr. Lawrence, Gr. to the Bishop of Winchester, Farnham Castle, for Peristeria fuscata.
Mr. Bray, Gr. to Baron Goldsmidt, Regent's Park, for 6 Greenhouse Azaleas
Messrs. Henderson, Nurserymen, Pine Apple Place, Edgeware Road, for a Plant of Gastrolobium calycinum; ditto, for Gastrolobium spectabile; do., for Gastrolobium Sinkeanum.
Messrs. Standish & Noble, for Azalea lateritia hybrida.
Do. for Rhododendron cinnabarinum.
Messrs. Veitch, for Rhododendron caucasicum pictum (as a seedling).
Mr. Miellez, of Esquernes, France, for Gesnera Miellezi.
Mr. Taylor, for Correct Labels.
Mr. Cole, Nurseryman, St. Albans, for 6 Calceolarias.
Mr. Cutbush, Highgate, for 6 Fancy.
Messrs. Dobson, Isleworth, for 26 Pansies.
Mr. James, Gr. to W. F. Watson, Isleworth, for 24 Pansies.
Mr. Mortimer, for 6 Roses in pots.

BRONZE MEDAL.

Mr Harlock, for 6 Cape Heaths.
Mr. Carson, for a Plant of Aerides, sp. nova.
Mr. Morris, for 6 Greenhouse Azaleas.
Messrs. Henderson, Pine Apple Place, for Pleurandra Reedi.
Messrs. Veitch, for Eurybia alpina.
Mr. Roser, for Correct Labels.
Mr. Gaines, for 6 Fancy Pelargoniums.
Mr. Bragg, for 36 Pansies.
Mr. August, of Bedington, for 36 Pansies.
Mr. James, for 12 Pansies, in pots.

CERTIFICATE OF MERIT.

Mr. Field, Florist, Kensal Town, for a Seedling Heliotrope "Miss Nightingale."
Mr. Gaines, for 6 Calceolarias.
Messrs. Paul, for Bourbon Rose "Bacchus."
Mr. Turner, for Seedling Cineraria "Brilliant."
Messrs. Veitch, for Leptodactylon californicum.
Mr. Taylor, for Correct Labels.
Mr. Holder, Eton College, for 24 Pansies.
Mr. Turner, for Seedling Pelargonium "Hoyle."
Do., for Pelargonium "Conspicuum."
Do., for Pelargonium "Carminatum."
Mr. Hoyle, of Reading, for Seedling Pelargonium "Matilda."
Messrs. Dobson, for 12 Pansies in pots.

SUPERB NEW FORCING AND BEDDING GERANIUM "CRIMSON KING."

WOOD AND INGRAM beg to offer fine blooming plants of the above indispensable variety, the flower of which is large and well formed, colour a beautiful rosy crimson with pencilled eye; an immense bloomer, and has the very desirable property of continuing to flower throughout the summer. It received a Certificate at the last meeting of the National Floricultural Society on the 27th ult., the censors being Messrs. C. Turner, C. J Perry, and C. M. Atkinson.

"This is by far the best variety we have seen for early work, the habit is so good; a very free grower as well as flowerer, and of a much better form than those hitherto grown for forcing." *Florist* for May, Report of National Floricultural Society's Show.

Strong flowering plants 10*s.* 6*d.* each, and a few spring struck plants established in pots 5*s.* each. The usual allowance to the trade when three are ordered.—Huntingdon Nurseries.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence—Packets of each sealed and warranted by them, at 2*s.* 6*d.* free by post.

EXPERIENCED GARDENERS—L., P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.

Exeter Nursery, Exeter. Established 1720.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed*	... ...	1*s.* per packet.
Calceolaria, *choicest varieties*	... ...	1*s.* "
Cineraria " "	... ...	1*s.* "

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

GRAND EXHIBITION OF RHODODENDRONS, ON VIEW AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK, LONDON.

JOHN WATERER begs to announce that his matchless collection of New HARDY SCARLET and other leading kinds of RHODODENDRONS is now coming finely into bloom, and will continue in great perfection throughout the month of June.

☞ The Society have entirely re-arranged and greatly enlarged the site annually occupied with the American Exhibition, whereby the forthcoming display will far exceed in magnificence any floral exhibition hitherto attempted in this country.

Orders of admission may be had (gratis) from Fellows of the Society, or on application to the advertiser.

The American Nursery, Bagshot, Surrey, and Royal Botanic Gardens, Regent's Park.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE. CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

TURNIP SEED.

JOSLING'S GOLDEN-FLESH COPPER-TOP SWEDE.—R. J. begs to offer the above distinct and excellent variety of Swede as one of the HARDIEST and best in cultivation; LARGE SIZE, FLESHY, RICH, JUICY, and KEEPS WELL. Price 1*s.* 6*d.* per lb.

SKIRVING'S and other varieties of PURPLE-TOP SWEDE (genuine stock), own growth of 1855. Price 1*s.* per lb.

Carriage free (not under 30*s*) to all the London Termini and all Stations on the main trunk lines. A remittance or reference from an unknown correspondent is respectfully requested to accompany orders.

R. JOSLING, Agricultural and Garden Seed Warehouse, St. Alban's, Herts.—Established upwards of 25 years.

BEDDING PLANTS.

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset, offers one of the most complete collections in the country, at 2*s.* 6*d.* per dozen, containing Calceolarias, Fuchsias, Verbenas, Heliotropes, Lobelias, Salvias, Petunias, Geraniums, Cupheas, Ageratums, Anagallis, Mimulus, &c.

The new white corolla'd Fuchsias at 4*s.* per dozen; Dahlias at 4*s.* per dozen; the beautiful new double white Petunia imperialis, 4*s.* per dozen, forms half a globe, and sweet-scented; the curious and beautiful Pelargonium triangulare, 2*s.* 6*d.* each.

Catalogues sent on application, inclosing a stamp. Plants put in to help to pay carriage.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, MAY 31, 1856.

THE London season for HORTICULTURAL EXHIBITIONS has commenced in earnest. Last Saturday was the first great gathering at Sydenham, and Wednesday saw another floral display in the Regent's Park. Thousands flocked to both, and nobody seemed weary of the enjoyment. Undoubtedly the love of flowers is undying; and if anything can strengthen it our wonderful specimens of horticultural skill will do so. It is also certain that by accustoming the eyes of thousands, annually, to all that is perfect in cultivation bad gardening every day becomes so much more distasteful, even to the humblest amateur, that we may hope to see in a few years its total disappearance except in the grounds of the sluggard.

The reports of these meetings given in another column will furnish the enquirer with ample information respecting details, to which we need not further advert. In a general point of view there

was little or no difference between Sydenham and the Regent's Park; the specimens in one were as good as those in the other, most of them having in fact been transferred from the Crystal Palace to the Botanic Garden. In each there was also the same want of novelty; as far as we could discover, the only plants shown at Sydenham for the first time were a very curious Californian "hardy" bulb from Messrs. Veitch, and a singular hybrid Azalea from Messrs. Standish & Noble. The former was not particularly handsome, but possessed considerable botanical interest, forming what seems to be a new genus allied to Brodiæa. The second was a very nice thing obtained as a cross between A. amœna and lateritia; as usual in colour and foliage it was half-way between its two parents; but in addition it presented a new instance of a mere monstrosity being preserved by the act of hybridism. A. amœna is remarkable for having what is called a "hose in hose" flower; that is to say a corolla and calyx exactly alike in colour and size, one standing within the other, the calyx in this case having developed in the usual form of the corolla. Crossing has in no degree interfered with this peculiarity, and the hose in hose A. amœna has assisted in the production of a hose in hose hybrid. We should like to see the effect of crossing A. amœna with indica alba, or indica phœnicea; for the colour of lateritia is a fault. Messrs. Veitch also produced what are almost as new to the world as the two plants already mentioned, namely, Embothrium coccineum, a noble half hardy evergreen shrub with deep red blossoms, and Correa cardinalis, a handsome species resembling C. speciosa but regarded as distinct by Sir William Hooker, who has published a figure of it in the Botanical Magazine. In the Regent's Park there was a very noble plant from the Bishop of Winchester, the Peristeria fuscata of Warczewitz, and an Odontoglossum Phalænopsis from Mr. Linden, concerning which we shall have something to say hereafter.

Those who watched the crowd inspecting these vast arrays of plants cannot have failed to observe how it lingered among the Orchids and Roses, clung to the fruit, admired the Azaleas, Ferns, and plants with fine foliage, and with what indifference it passed by the Heaths. So it always is; not because one sort of plant is more fashionable than another, but because the eye of taste dwells with more pleasure upon graceful forms and glowing colours than upon trim and dumpy bushes; just as a regiment of cavalry is more admired than a line of infantry, and either than a row of neatly dressed shopkeepers' assistants. As to the fruit it always secures an abundance of admirers, who compare what is exhibited with what can be bought in the market, and love to gratify their senses with its fragrance and luscious aspect.

The way of exhibiting is totally different at Sydenham and in the Regent's Park. In the Crystal Palace the method employed by the Horticultural Society is followed; long lines of narrow tables with a screen behind are covered with plants, while here and there a break is effected by throwing out a cross table or by some similar contrivance. It is not easy to employ this mode with more skill than was shown on Saturday. Its great advantage consists in presenting every plant distinctly to the eye; and for those who go to study Horticulture no better way of showing can be found. Its fault consists in the absence of any great general effect, except when tents are empty, or from one or two favourable points of view.

In the Royal Botanic Garden a totally different plan is followed; as much ground as four or five large tents can cover is excavated and laid out like an irregular flower garden, with beds and banks of turf, upon and among which plants are disposed. The middle of the area being the lowest, the spectator as he enters the exhibition sees at a glance the entire scene, here glowing with the bright colours of Azaleas, there gay with pyramids of Roses, and in another place festooned and carpeted with fantastic fragrant Orchids, while the recesses are filled with the graceful forms of Ferns or other plants not in flower. Undoubtedly the scene, when it first meets the eye, is one of the most beautiful that can be conceived.

Nevertheless, we cannot but feel that in both exhibitions the effect is seriously impaired by an unexpected circumstance. At Sydenham the beauty of the plants is terribly diminished by the surrounding objects. The rich colours of the interior, the gilding, the painted work, and the lofty columns contrast badly with the diminutive plants, which are completely overpowered. To look well in such a place they should be almost as high as the galleries, and be seen thence. In the Regent's Park the plants cannot perhaps be said to kill each other, though even there it is so to some extent. But, which is nearly as bad, the eye soon becomes weary of the gaudy scene. As in a huge picture with finely painted details but with no repose, there is nothing on which the eye can rest. Wherever it turns it meets gay colours and little else. To the right is red yellow orange and blue, to the left orange yellow and blue and dazzling white; in front scarlet prevails over red, behind crimson and yellow struggle with rose colour and blue. Such a scene is a garden kaleidoscope, exquisitely beautiful, but soon becoming wearisome.

No one knows better than the writer of this how great are the difficulties to be encountered by the managers of such meetings. If therefore he offers these remarks it is in the hope that defects which strike the bystander more than those concerned may be gradually removed. Every year has witnessed some improvement since the first Chiswick flower show in 1833; and it is not to be doubted that the skill and good taste which have already effected so much will by degrees succeed in correcting what is still defective.

We ought to add that the Garden itself in the Regent's Park was looking better than usual. It is evident that time is rapidly concealing there what once offended the eye. Ugly mounds are becoming covered with thickets, trees are breaking the monotonous diversity of the ground work, and living screens have already put out of conspicuous view much that should never have been seen. The turf was in beautiful condition, and Wednesday would have been a very enjoyable day had it not been for deluges of rain which threatened to wash away visitors, bands, plants, tents, and everything else. The Crystal Palace, which was also in admirable order, was not exposed to such a danger; the weather was, however, uncertain enough to keep most of the visitors under glass during the afternoon. Let us hope that the sightseers of June will have better fortune.

Dr. Robert Caspary, of Berlin, has inserted in the Ratisbon "Flora" a long paper on the daily periods of growth of the leaf of Victoria Regia, the result of his own observations made in the botanic garden at Schöneberg, near Berlin, and of a comparison with the few observations published by others on the daily growth of plants. For this purpose he, in the month of August, 1854, made careful measurements of three different leaves of Victoria every hour, day and night, starting from the moment when they first opened out horizontally on the water, and continued in one instance for 56 successive hours. Again in October, 1855, he repeated the hourly measurements for 24 successive hours in the case of three more leaves, and measured others four times a day only. These measurements were accompanied by thermometrical, hygrometrical, and other meteorological observations; and in several instances he modified artificially the warmth of the water or of the air, the light, and the moisture of the air, in order to ascertain their respective influence on the growth of the leaf. He also examined anatomically the leaves at various periods of their growth, from their first appearance as a slight protuberance enclosed within the stipules, to that of their perfect development. These measurements and observations are detailed in a series of tables, and discussed with great minuteness, and Dr. Caspary finally deduces the following conclusions:—

After the Victoria leaf has once expanded horizontally on the surface of the water, no further formation of cells takes place. From that period the growth of the leaf is solely an expansion of the cells without any division or other increase in their numbers.

The respiratory system, the thin parenchymatous chlorophyll-containing portion of the leaf, is at the time of the first expansion of the leaf much farther advanced in growth than the vascular ribs and veins. This difference gradually disappears, as from that period the chlorophyll-holding parenchyma grows slower than the vascular veins in the proportion of 1 to 2.2.

The leaf grows day and night without interruption, but not regularly. After a period of very rapid growth there follows usually a slow one, and after a slow period often a very rapid one.

Notwithstanding this irregularity certain daily periods are clearly perceptible. The most rapid period of growth is between 12 and 1 P.M.; later in the afternoon it is at its minimum; it reaches a second though smaller maximum of growth in the night between 12 and 1, A.M., sinks to a second minimum in the morning and then rises again towards mid-day. The afternoon minimum is smaller than the morning one.

The daily periodical growth of the Victoria leaf is in all its three directions, towards the apex, sideways, and towards the base (measured always from the central protuberance corresponding with the petiole); but it is greatest towards the apex, smaller to the side, and least towards the base. In the first three days the mean hourly growth is 5.13 millimetres towards the apex, 5.06 millimetres to the side, and 3.54 millimetres towards the base.

The growth is most rapid on the day of the first expansion of the leaf, when the mean hourly extension of the radius is 4.8 millimetres. The mean hourly extension of the radius in the first three days is 4.59 millimetres.

As to the absolute amount of growth, the maximum growth of the leaf in an hour is from 22 to 25 millimetres in longitudinal diameter and from 26 to 27 millimetres in latitudinal diameter. In 24 hours the maximum was 308.3 millimetres in longitudinal, 367 millimetres in latitudinal diameter. The surface, according to the calculation of Dr. Caspary's friend Dr. Borchardt, increased from 4 to 5 per cent. in an hour or from 75 to 123 in 24 hours, or in measurement, it increased by from 0.2556 to 0.2872 square Prussian feet in an hour, or by 4.1720 to 5 0832 in the 24 hours. One plant, in a period of from 21½ to 25½ weeks produced from 613.6 to 727.6 square feet of leaf surface.

Evaporation had no perceptible influence on the growth of the Victoria leaf, in a plant-house where the atmosphere was always near the point of saturation. When even the leaf could not evaporate at all by the complete saturation of the atmosphere it continued to grow undisturbed.

The daily periods of relative moisture, from which one might have inferred an indirect influence on the growth of the leaf, as affecting its evaporation, had however no perceptible effect on its daily periods of growth.

The daily periods of atmospheric pressure, which might also have been supposed to influence the evaporation, and by that means the growth of the leaf, had also no such perceptible effect.

The daily periods of light have no perceptible influence on the periods of growth of the leaf, for by artificially altering the daily periods of temperature the leaf can be made to grow least towards mid-day, when the light is the strongest, and the maximum of growth can be made to fall at pleasure upon any hour of the night in total darkness. Light causes no enlargement of the cells, but only effects changes in the matter they contain.

The maximum period of growth of the leaf depends on the maximum period of warmth, and especially that of the water.* By heating, the maximum period of growth can be made to fall on any hour of the day or night. Warmth acts immediately on the expansion of the cells, not indirectly by influencing evaporation.

The ordinary rise in the rate of growth in the night cannot, however, be deduced from any periodical change in temperature, or from any other known agent, but its cause must be sought for in the vital principle of the plant itself.

Clear warm water promotes the growth of the leaf. An overcast sky, an alternation of sun and shade from passing clouds or cold rain, even if they do not directly act on the plant itself, reduce nevertheless the rate of growth by lowering the temperature.

New Plants.

173. Pholidota suaveolens.

P. pseudobulbis conicis obtusè angulatis diphyllis, foliis oblongis; racemo erecto flexuoso 10-floro floribus distantibus, bracteis linearibus convolutis pedicellis longioribus citò deciduis, sepalis ovatis subcarinatis petalisq. conformibus angustioribus ecarinatis erectis, labello basi concavo oblongo laminâ acutâ deflexâ crispâ lineis 5 elevatis flexuosis.

This charming plant may be almost described as an Orchid in the disguise of a Lily of the Valley, so alike are leaves, flowers, colour, stature, and fragrance. It is however a genuine Pholidota, approaching *P. chinensis*, but larger in all its parts, and bearing 5 elevated wavy lines on the surface of the lip. The pure white of the flowers changes by degrees to clear cinnamon brown.

For our knowledge of the species we are indebted to the Lord Bishop of Winchester, who forwarded a beautifully grown specimen from the garden at Farnham Castle, where its origin is unknown. It has been cultivated there many years, but flowered for the first time last year. It has much the appearance of a small Cœlogyne, from which the pedicellate pollen masses and bilabiate dehiscence of the anther remove it.

174. Dendrobium lituiflorum.

D. (Eudendrobium *labello indiviso*) caule debili arundinaceo, floribus binis (nunc 3-4). sepalis patentissimis lanceolatis venosis acuminatis, petalis duplò latioribus acutis, labelli ungue convoluto elongato incurvo lituiformi laminâ subrotundâ acuminulatâ.

A fine species with the habit of *D. transparens*, but with spreading veiny pale lilac flowers between 4 and 5 inches across, and a cornet-shaped lip deep violet everywhere except a broad border round the expanded part. It looks like some large flowered state of *D. transparens*, or perhaps a reedy form of *D. nobile*; it is however not

* Many of the details given by Dr. Caspary further confirm previous observations as to the much greater importance of heat in the water than in the air.

only much handsomer but the lip is longer, and the sepals and petals are very acute. We have received it from R. Hanbury, Esq., and also from Mr. John Edwards. It is a fine thing. Native country unknown.

VEGETABLE PATHOLOGY.—No. CXXIII.

487. Vulnera (*Wounds*).—The bark of trees is sometimes injured or destroyed to a serious extent by various quadrupeds, either in consequence of their gnawing it away for food, or by rubbing with their tusks, horns, or bodies. Goats are perhaps the most mischievous of all, and should never be encouraged where there are young plantations. In some parts of Scotland, as in the Isle of Mull, where they once abounded, it was found impossible to obtain flourishing woods so long as the breed of goats was encouraged, and they have accordingly been destroyed. The most bountiful supply of food will not prevent their ravages, as they prefer the bark of some kinds of trees to any other food. Deer, on the contrary, are only destructive where there is scarcity of food. They will indeed always browse on the young shoots of Thorns and other trees as far as they can reach, but they do not actually strip off the bark except in case of necessity. I have under such circumstances witnessed very serious injury.

488. The worst enemies of all however are mice and rabbits, but especially the latter. Where the former abound very much, they are capable of doing great mischief, but there is happily no motive for their encouragement; it is far otherwise with rabbits; the landlord and keeper both encourage them in their turn, partly from pecuniary motives, partly to make up for a deficiency of other game. Wherever the landlord encourages them with the first view, he is sure to suffer in the end. A large stock of rabbits will impoverish any tenantry, and if the tenants are without skill or capital their ruin sooner or later is a matter of certainty, and under such circumstances the landlord suffers partly from loss of rent, and much more permanently from bad cultivation; on the other hand, the damage done to his woods will far outweigh any gain which may arise from their sale. It is true that the trees which have been barked by rabbits do not always die; the destruction is either not so complete as to stop the flow of sap through the young wood completely, or the wounds are covered during the following spring; but in either case the growth of young shoots is stunted, and no useful poles or underwood are produced. A heavy fall of snow about three years after the underwood has been cleared is almost certain destruction, where a heavy stock of rabbits is kept up, and the injury is not confined to the existent underwood; the stools are themselves affected, and the wood ultimately destroyed.* I can speak of this from my own experience, and am therefore urgent on a point which may seem to many of little importance.

489. Trees sometimes suffer injury again from animals where they are not sought for food. It is the habit of several to rub their horns, teeth, or claws against the trunks, and they seldom do so without slightly abrading the surface. No permanent mischief, however, would accrue if they used all trees indiscriminately for this purpose, but so far is this from being the case that they choose particular individuals for the purpose, repeating the process till the bark is often entirely destroyed. These trees are well known to German foresters, and are known by the name of Mahlbäume (trees which have been marked) and we are not without examples in our own country. In connection with this habit a very curious fact is related by Hartig (as quoted by Meyen) which is worth reproduction on account of its physiological interest. It frequently happens that fir trees are barked to the extent of two feet or more by game. Such trees are not, however, destroyed; the exposed portions of wood become saturated with resin, in consequence of which all escape or evaporation of the ascending sap is prevented, and vegetation is carried on as before.

490. The trunks of trees are sometimes injured by fire, and the bark in consequence destroyed to a greater or less extent. Such trees seldom recover where the injury is extensive, but where it is confined to one side they may not ultimately suffer more than from any other cause which destroys the bark.

491. The natural effect of age is to cause the older portions to decay, and if these are exposed by accident adverse influences of weather increase the tendency. Trees in consequence become hollow, retaining merely a very thin portion of living wood. In Elm trees where there was no external lesion, and which were apparently healthy, I have found the whole of the wood decayed with the exception of the last seven rings. Where there is free admission to rain decay may become even more extensive, and where it is desirable to prevent complete destruction some means must be taken to exclude external aggravating causes. The cavity may for instance be closed with sheet lead or zinc, after the whole of the decayed matter has been carefully removed. If this is well managed the new wood will gradually grow over the edge, and effectually prevent the removal of the metal, and the tree may be preserved in health and vigour for many years. Such trees in fact sometimes appear to be peculiarly productive, where the injury has not been sufficient to affect the general health. *M. J. B.*

* It has before been mentioned in this Journal that on an estate, the value of which depended greatly on the timber, a proprietor two hundred years ago left on record a strict injunction to his successors, as they valued their own interests, to destroy the rabbits. The advice was neglected; flourishing woods became worthless, and many hundreds of acres have now been grubbed up.

THE APRICOT.

It is a general complaint that Apricot trees bear but little as standards, and therefore an opinion is generally entertained that in our latitude this fruit tree can only be properly cultivated against a wall with a good aspect, or under glass. In the present state of its cultivation this opinion appears to be well founded. On examining into the causes of this bad result, they cannot be found in the constitution of the tree which our predecessors have transmitted to us, but in the stock on which it is worked. In fact, when Apricot trees are raised from the stones of the most hardy varieties, healthy trees, of a fine habit of growth and abundant bearers in the open ground, are obtained in a few years. Plant beside these seedlings trees budded at standard height on the Mirabelle Plums or on the Damas, on purple or on white fruited varieties of the Plum; and every spring you will see the trees so worked produce fine blossoms like those of the seedlings. But after flowering the seedling trees set as many fruits as they ought to bear, whilst the budded trees drop their flowers without setting their fruits, except perhaps a small number compared to the strength of the trees. This we have proved to be the case in our own cultures for five years; and our experience leads us to conclude, that, for the Apricot in the open ground, there is no stock known as yet on which it succeeds so well as on its own; and that a seedling Apricot of a good kind is in our climate as hardy in the open ground as a Pear or Cherry tree.

To obtain this desirable result, it is necessary that a seedling Apricot should be treated the first three years with certain precautions, and that it should afterwards be planted in a suitable soil. For the benefit of amateurs we shall state, in a few words, the modes of culture which we have pursued, and which we continue to practise. In the months of July and August the stones of such varieties as appear the most vigorous and hardy are collected and placed upon the dry floor of a dark room, where the kernels acquire the necessary degree of firmness and maturity. In the month of December the stones are planted in wooden tubs, containing leaf-mould. Each stone is placed on its back or grooved side, the thin edge being uppermost. There should be about 4 inches thick of leaf-mould mixed with one-third of silver sand below the layer of stones, and these should be covered with leaf-mould to the depth of 2 inches. A copious watering is then given, and the tubs are placed near the glass of an Orangery or greenhouse. About the middle or end of March, on inspecting the stones they will be seen to be split, and a radicle and plumule developed; and some stones with double kernels will exhibit the rudiments of two plants. The tubs are carefully unhooped, and the plants are pricked out 6 inches apart in rows 2 feet asunder, in a light deep soil, rather dry than moist.

On inspecting the seedlings in the following July all laterals which are likely to acquire considerable strength should be immediately cut off; and this operation should be continued during the month of August. The stem should not be divested of leaves or small leafy spurs. This summer pruning when the seedlings are in a growing state scarcely leaves the traces of scars, as the wounds made at that time quickly heal over. This is an essential point, and one on which the future welfare of the plant depends. If the summer pruning of the shoots is neglected the first year, it must be done the second, and then the wounds heal with difficulty, canker is apt to ensue, and frequently the result is the loss of the seedlings so attacked.

After the fall of the leaves, the seedlings are taken up, three-fourths of the tap roots cut off, and the plants laid in for the winter in the driest part of the garden. About the end of the following March the seedlings are quartered out at a foot apart, in rows three feet asunder. The second year, continue to disbud the stem up to the height of five, six, or seven feet from the ground, according as the plants incline to form a head. They are left the third year in the same place. Superfluous and badly placed shoots are removed by summer pruning. At the end of the third year, about the fall of the leaf, the seedling trees are finally transplanted to where they are intended to remain for bearing. Fruit is produced in the second, or at latest in the third year after the second transplantation. Does it not require an equal number of years to rear a stock intended to be worked for a standard in the open ground? Nevertheless, what a difference between a budded Apricot tree and one raised from seed! It is said that an Apricot tree raised from seed is apt to canker, and that it is but short-lived. This is an error. Cankers are the result of unseasonable pruning, and of the too long delayed removal of useless shoots. By judiciously removing useless shoots in the month of July, trees with a smooth bark, and perfectly healthy, are obtained; and as to what age they would attain it is impossible to say. Examples are on record of such having reached the age of between 70 and 80 years.

It may be asked, will a seedling yield good fruit like that of its parents? Whence have arisen the good varieties of Apricots which already exist? is it not by seed that they have been obtained? It cannot be denied that among seedlings a number will be found with slender wood, forming trees of low stature; but such may be easily recognised after the second year of their growth in the nursery rows. They are only fit to be budded with the better sorts.

The following is the criterion by which we can recognise with certainty an Apricot tree which will produce good fruit:—Well-conditioned wood, purplish brown next the sun, and pale green on the opposite side. Buds large and heart-shaped. Leaves large, shining, dentate, with large veins tinged with red. The tree, in short, pushing strong shoots up to the time of its first bearing fruit. When in the third year these characters are discerned in a seedling it may be allowed a place in the garden, and may with confidence be expected to yield an abundance of excellent fruit during a long series of years. The only subsequent culture which the tree requires, consists in removing superfluous shoots in July, and in shortening by one third the leading shoots in the end of March as a means of renovation, and in order to obtain fruit-bearing wood along the principal branches, and in the interior of the tree. It is thus that we have obtained from seed 30 fine trees which bear abundantly excellent fruits, of various forms, round, oval, or oblong, and superior in flavour to those grown on walls or under glass, although indeed not so large.

If amateurs knew the beauty of these kinds of trees, their great productiveness, and long duration, they would plant no others in the open ground. It is in a light deep gravelly soil, rather dry than moist, where the roots of the seedling Apricot trees can penetrate in all directions that the tree succeeds best; but we have seen them succeed everywhere except in soil that is too compact and cold, and where there is stagnant water during winter. *J. De Jonghe, Brussels.*

NEW MODE OF BREAD MAKING.

It occurs to me that Wheat mainly, and secondarily Rice, Barley, Indian Corn, Guinea Corn, Rye, is fittest for use when, after being cleared of husks and extraneous envelopes, no portion of the grain itself is rejected. Clean, sound, whole Wheat, then, with all its bran and all its flour, is to be crushed or ground to a desirable fineness, with no after bolting or screening of any kind. The meal or flour is now to be mingled in a long trough of wood, or stone, or iron, in the proportion of half-a-pint of water, or so, saturated with carbonic acid gas, to a pound of flour or meal. The commingling may be effected by means of a long shaft or axle, set round with cogs in a spiral fashion, and moved by steam or other power. The gas-impregnated water may be kept in suitable reservoirs, the water being gas-impregnated in the manner usual in making what is erroneously termed soda-water. When the gas-water and meal are thoroughly commingled, the dough is to be placed in a machine the counterpart of the common brick and tile machines, which will deliver the loaves as fast as they can be placed in the permanently-heated ovens. The loaves ought to be so arranged in these ovens as to become crusted all over, in the manner of French bread. The temperature of the oven should be regulated by a thermometer, and the stay of the bread in the oven up to the period of its delivery, must also be exactly regulated.

I desire to promulgate this system of baking, because I believe it to be the best and cheapest that has been hitherto devised, and properly carried out; absolutely precludes all additions and adulterations—even that of salt—whatsoever. Its advantages are—first, the general cleanliness, quickness, and economy of the process, the saving in the bran amounting to some 20 per cent; next, the saving of material in making the carbonic acid gas out of chalk, instead of out of flour. How much this last item may amount to I am not at the moment prepared to say, but the saving would be considerable, and, in the aggregate, prove very great. The carbonic acid gas is derived from the alchoholic fermentation induced in the glucose or Grape sugar and the dextrin, of course, at the expense of the flour. If all the sugar and dextrin undergo transformation, the loss from this source may be roughly estimated, I would say, at from 8 to 10 per cent. Regnault, Chemie, Tome iv., p. 501. Lastly, there is the greater certainty, economy, and salubrity of the kneading and baking processes themselves.

The bread thus made, by commingling flour with water saturated with carbonic acid gas, in the proportion I have mentioned, is light and exceedingly palatable. If preferred, the bread can be seasoned with salt, or flavoured with sugar. I would invite bakers generally, capitalists, governors of charitable establishments, and even the Government, to the adoption of this mode of saving food for human beings, producing, as I find on trial and experiment, a most wholesome and palatable nutriment, and calculated in effect to realise, approximatively speaking, as great a saving in the proportion of food as the introduction of steam has effected in general mechanism. *Henry M'Cormac, M.D., Consulting Physician to the Belfast Hospital, &c.*

Home Correspondence.

Curing of Bark.—I have read with much interest your observations on this important subject. I wish, however, to observe that I live in a neighbourhood where it is quite useless to pay any attention to the curing of bark. The purchase of bark is (if I may be allowed so incorrect an expression) a complete monopoly. Two or three persons buy all the bark in the district. There is none of the usual bargaining between seller and buyer. These parties fix the price, which is alike for all bark, good and bad. I should be glad to hear whether other districts are similarly situated. *A Country Gentleman.*

Ilex dipyrena.—This beautiful Holly is a native of

Nepal and Chinese Tartary. It is also found among the mountains of the Himalaya, and is not only an exceedingly ornamental but a highly interesting species. It is stated in Loudon's large work, the Arb. and Fruticetum, to be among the "species of Ilex which may probably be found half hardy in England." This was the state of our information in 1838, the date of the publication of that gigantic work. It is found to be perfectly hardy in the gardens here at an elevation of 400 feet above the sea. An article appeared in the *Gardeners' Chronicle* lately on Paraguay Tea (Ilex Paraguariensis) from the pen of one who had not only drank decoctions of the genuine herb, but had tasted some drink made from other species of Ilex, &c., used as substitutes for the real Paraguay Tea, which he remarked was costly from the long distance it had to be carried as well as from its first cost; for which reason, and as the natives must have Tea of some sort, they made it from an infusion of the next best herbs which the locality afforded. This accords with the accounts of other travellers, who not only say the same thing, but what is of infinitely more service, they give us the botanical names of the plants really used for the making of this beverage. Conspicuous among these are Ilex Dahoon, I. cassine, I. vomitoria, and I. dipyrena. Some of these have been used by American Indians far beyond the reach of Paraguay Tea, so that we have whole tribes using all these species of Holly which I have named as Tea; and with our ideas of these plants being tender, or, in other words, only half hardy, it seemed as if we had either to buy Chinese Tea for ever, or else to take to our own Ground Ivy (Glechoma hederacea), or some other harmless herb as a substitute for Tea. Dr. Royle states that Ilex dipyrena bears a close resemblance to the common Holly, which it does, but when I have compared both plants growing here side by side, I find that the I. dipyrena puts forth its young leaves at least a month before the common Holly; still it is perfectly hardy in this part of Devonshire, and this is well known, for I have seen young plants in stock out of doors in the Exeter Nurseries. It is therefore now in the power of any one to try to prepare home-grown Tea, and to carry us thus one stage nearer to the making Tea from our own Holly, which, according to Dr. Royle, as well as from my own observations on the living plants in the gardens here, I. dipyrena so much resembles. The season of the year is now coming when the tender leaves can be gathered, dried, and parched, to make Tea from the common Holly, and surely it is worth while to begin the manufacture of an article of such vast national importance as cheap Tea would be. It is only a few years since Chinese Tea was as great a curiosity in this country as Paraguay or South Sea Tea is now, and when we recollect that the French botanists had hard work to get poor people to eat Potatoes when first introduced into France, our children may yet be surprised to find that we have been so long in believing that our beautiful native Hollies were sent us in mercy by a kind Providence as an article of maintenance, producing a drink to cheer but not demoralise. I have somewhere read that the learned botanist Bonpland, who accompanied Humboldt in his travels in South America, actually planted a Tea plantation in Paraguay with the view of sending it to Europe; but the authorities interfered, and not only prevented him from carrying out his views, but actually made him prisoner. Had there been no virtues in the Holly leaf is it likely that Bonpland, a native of France and well versed in the economy of plants, as well as thoroughly acquainted with the luxuries and necessities of the most highly civilised nation in Europe; is it likely, I say, that he should have embarked in Paraguay Tea culture if it had not held out prospects of importance, and he did that on the spot where Holly Tea was the beverage of himself and all around him? *Alex. Forsyth, Torquay.*

Bees.—I have just lost a hive of bees under such peculiar circumstances that I send you the particulars in the hope that some of your apiarian correspondents may be able to explain a phenomenon which I have not seen mentioned in any book, nor witnessed during many years of bee-keeping. A healthy hive (one of Neighbour's) was observed by my gardener in full activity. Two days afterwards, seeing no bees coming out, he thought they had deserted the hive, but, on examining it, he found all dead lying around the queen, and the majority with their thighs loaded as they had returned from their day's labour. There was no appearance of disease in the hive, which was a swarm of last year, and the comb is not discoloured more than is usual at that age. *Dornden.*

Grapes with Vinegar Berries.—We have some Grape Vines which do not succeed. They are no thicker in the main stem than some I saw the other day which have been planted 5 years; ours have been in 15 or 16 years, and regularly produce many shanked or vinegar berries and large flimsy foliage. The house being glazed with little squares of glass 5 inches by 3 inches, admits at all times a large amount of fresh air, but they, the Grapes, never colour. The subsoil is sand and sand and clay of a soft light nature; the top soil is not heavy, but is apt to run together and form a compact mass. It was top soil from a pasture originally; the great depth of sand below must drain the bed. The plants have clean healthy foliage, but it is apt to flag in a hot sun. Can any of your readers suggest anything for us? We reside in an elevated part of Lancashire, with a great rain-fall. *A 12 Years' Subscriber, May 27.*

Gloriosa Planti.—Having a specimen of this under my care, and not succeeding with it according to my wish, I have been induced to ask "Alpha" or some other of your correspondents to detail in your columns the way in which it should be treated. *S. V.*

Societies.

Crystal Palace Exhibition, *May* 24.—The first of the three great horticultural *fêtes* to be held this season under the auspices of this Company took place on Saturday last. The morning was gloomy, and frequent heavy showers fell during the forenoon; in the afternoon however the weather cleared up, and a very numerous company availed itself of the opportunity of inspecting the rich collections of flowers and fruits brought together on the occasion. The great fault belonging to last year's exhibition, it will be remembered, was that it was scattered all over the building, and that for want of unity of expression, much of the grandeur of effect which it would otherwise have had was lost. This season's display was wholly confined to the transept and nave, and thus arranged in a uniform and connected manner the appearance of the whole would have been at once grand and imposing, had it not been for the magnificence of the Palace itself, whose splended ornamentation, it must be admitted, is too much for plants to contend against successfully. A light canvas covering suspended above the plants served to screen them from the direct rays of the sun.

As regards the exhibition itself it was certainly in every respect an improvement on that of last year. True, the number of plants was perhaps not so great; but they were altogether more select, and examples of indifferent cultivation may be said to have been comparatively rare.

One of the main features of the show was the collection of plants remarkable for fine foliage and grouped for effect, exhibited by Messrs. Veitch. Independently of their individual beauty they were arranged with a taste and skill which does credit to the firm from which they came. In the centre was a noble example of Dracæna indivisa, with a clean stem some 5 feet in height and a famous head of Yucca-like leaves; on either side of this was a magnificent Palm tree (Chamærops humilis) and in front of these such bushes of Pandanus variegatus argenteus as one seldom has the good fortune to see; the dense drooping silvery striped leaves of these plants struck all who could get near enough to inspect them with admiration. Other portions of this remarkable exhibition were made up of Norfolk Island Pines, Dammara obtusa, Cycas revoluta, Aralia pulchra, the Dragon tree (Dracæna Draco), two beautiful specimens of the tree Fern Dicksonia antarctica, the Stag's Horn Platycerium, Philodendron pinnatifidum, two plants of Livistonia borbonica, one or two Orchids and other plants, all of them handsome and well-grown. Other groups of plants with fine foliage were less striking. Among them we noticed Coleus Blumei, the handsome Cissus discolor, Caladiums and Marantas of different kinds, Norfolk Island Pines, and dense flowerless tussocks of Maxillaria tenuifolia.

In the class of stove and greenhouse plants, always a numerous one, there was no lack of fine specimens, and many an old acquaintance did we recognise among them. Of large groups the best was that furnished by Mr. May, gr. to H. Collyer, Esq., of Dartford. It contained a beautiful Pimelea spectabilis, several Azaleas, Dipladenia crassinoda, some Epacrises, a very fine specimen of the sweet-scented Stephanotis floribunda, Gompholobium polymorphum in the form of a bush and nicely bloomed, the best variety of Everlasting called Aphelexis macrantha purpurea, some Cape Heaths and Chorozemas, and a very badly flowered specimen of Hedaroma tulipiferum. The next group remarkable for superior cultivation was that from Mr. Dods, gr. to Sir John Cathcart, Bart. Some of the plants produced by this grower were matchless in point of beauty, and all of them well merited the high mark of distinction which the judges thought proper to confer on them. The specimens more particularly deserving of remark were Gompholobium polymorphum, Boronia pinnata and serrulata, Eriostemon buxifolium, Adenandra speciosa, a double red Azalea, and A. Gledstanesi splendidly flowered, Aphelexis macrantha purpurea, Erica Cavendishi, Pimelea spectabilis, Chorozema Henchmanni, and Epacris miniata. Among other collections were many plants skilfully grown and well bloomed, but none in all respects so good as those we have just described.

Orchids were supplied in their usual profusion and beauty, and judging from the eager and patient attempts of many to get a glance at them over the shoulders of the crowd which continually surrounded them, we should say that they have lost none of their interest. A very fine collection was furnished by Messrs. Veitch. It contained Calanthe veratrifolia, a noble plant; Cattleya Mossiæ, covered with showy flowers of extraordinary size; C. intermedia, the large variety of Oncidium ampliatum, Trichopilia suavis, the charming Dendrobium Farmeri, the purple variety of Aerides odoratum, a handsome variety of Saccolabium Blumei, two beautiful plants of Phalænopsis, the rich orange scarlet Lælia cinnabarina, the rare Cypripedium villosum, and other Lady's Slippers; Vanda suavis, and the greatly prized Epidendrum vitellinum. Another excellent collection came from Mr. Gedney, gr. to Mrs. Ellis. In this we observed beautiful examples of Oncidium ampliatum, Cattleya Mossiæ, Saccolabium guttatum, Dendrobium nobile, D. densiflorum, a magnificent plant beautifully in bloom; the Rhubarb-scented D. macrophyllum, extremely well flowered; Calanthe veratrifolia, with many spikes of snow-white blossoms; Phalænopsis grandiflora, finely bloomed; Phaius Wallichi and Lycaste Skinneri, both, but more especially the latter, literally covered with flowers. Mr. Mylam, gr. to G. Reed, Esq., also furnished a very fine group. In this was the stately Phaius Wallichi, one of the best bloomed plants of Vandas teres that has perhaps ever been shown; the sweet-smelling V. suavis, Epidendrum alatum, Dendrobium densiflorum, with some 12 bunches of yellow flowers; D. Farmeri, the rare Cattleya Aclandiæ; Barkeria spectabilis, beautifully bloomed; Cattleya Mossiæ, nearly 3 feet high and as much through, and covered with flowers; the charming Saccolabium præmorsum; Odontoglossum hastilabium; Lælia purpurata, a comparatively little known species of rare beauty; and Odontoglossum citrosmum, with much more colour in it than is usually found in flowers of this plant. Mr. Woolley, gr. to H. B. Ker, Esq., and others, also showed Orchids; but the above formed what may be termed the cream of the collections.

Variegated Orchids, extremely well grown and beautiful plants, came from Messrs. Veitch. The sorts were Anæctochilus cordatus, intermedius, setaceus, xanthophyllus, and Physurus argenteus and pictus.

Roses were present in all the beauty and grandeur of which the Queen of flowers is susceptible. The health of the foliage was a matter of surprise to many, considering the unfavourable spring through which we have just passed. Messrs. Lane's collection was, as in fact it always is, particularly fine. It contained beautifully bloomed plants of Baronne Prevost, Lion des Combats, Duchess of Sutherland, Lamarque, Paul Perras, Souvenir d'un Ami, which is one of the handsomest of Roses; Comtesse Molé, Adam, and Coupe de Hebe. In Messrs. Paul's group was a magnificent example of the yellow Vicomtesse Decazes, also finely bloomed plants of Chenédolé, Madam Laffay, Jules Margotin, Blairi, the glorious Géant des Batailles, Mansais, and Paul Récaut, a variety of great beauty, and not yet so well known as it should be. Mr. Francis of Hertford sent among others Lamarque, Elise Sauvage, and Coupe de Hebe. Among amateurs, Mr. Busby, gr. to J. Crawley, Esq., Stockwood Park, Luton, Beds, had the best plants. Conspicuous among them were Chenédolé, Paul Perras, Madeline, General Jacqueminot, Auguste Mie, and William Jesse. A. Rowland, Esq., of Lewisham, and others also showed Roses in pots, all of which were beautifully flowered and well grown. Mr. Wilkinson of Ealing likewise contributed a few small plants of choice kinds on Celine stocks. A new and promising Bourbon Rose was shown by Messrs. Paul & Son. It was named Bacchus.

Azaleas formed, as might have been expected, one of the most striking features of the show. They were contributed in great variety and abundance. Of old kinds by far the best were those furnished by Mr. Green, gr. to Sir E. Antrobus, Bt. Many of them were literally pyramids of flowers with scarcely a green leaf to be seen on them. The more remarkable plants among them were Perryana, which we need scarcely say is one of the best Azaleas in cultivation; Gledstanesi, triumphans, Iveryana, a white kind streaked with pink; and coronata, variegata, rosea punctata and Rawsoni. Mr. Gaines, and we believe others, exhibited in this class. Among amateurs, Mr. Carson, gr. to W. F. G. Farmer, Esq., furnished the best collection. It consisted of Broughtoni, a very fine specimen of the old Chinese yellow; speciosissima, double red, and splendid plants of lateritia and variegata. Mr. Roser had a large and striking specimen of optima, a kind with red flowers of the most brilliant description. In the class of new kinds the last-named exhibitor produced Marie, a good orange scarlet; delicatissima, white with crimson stripe; Glory of Sunning Hill; and magnifica, the latter a good white. Other varieties worthy of especial notice, chiefly from Messrs. Ivery, of Dorking, were crispiflora, a purple kind the edges of whose petals had a peculiarly crisped border; Admiration white, striped with pink; Beauty of Europe, a white suffused and richly spotted with salmon; Trotteriana, a dazzling purplish crimson; Lord Raglan, distinct in colour, large, but not striking; Criterion in the way of exquisita, but apparently an improvement on that variety; General Williams, a good rosy salmon; and Barclayana, white with a greenish centre.

Rhododendrons were contributed by Messrs. Lane & Gaines. Messrs. Lane's group consisted of aureum, Sabinianum, sulphureum, decorum majus, primulinum elegans, and delicatum. These, it will be observed, are chiefly yellow sorts. Mr. Gaines' varieties have been so fully described by us on former occasions that we need not further advert to them here. Messrs. Veitch sent R. caucasicum pictum, a pretty variety, to which the judges awarded a first prize.

Tall Cacti came from Messrs. Green & Grix, and were, as a matter of course, extremely showy. We, however, noticed nothing new among them.

Pitcher plants, a collection of which was shown by Messrs. Veitch, formed one of the most interesting portions of the show. They consisted of Nepenthes ampullacea, vittata, lævis, the rare and valuable lanata, and phyllamphora, the latter literally loaded with small pitchers.

For New Plants the exhibition on this occasion was chiefly indebted to the last named firm. Foremost among them was Correa cardinalis, a brilliant scarlet kind; next may be mentioned an example of Embothrinum coccineum, a half hardy shrub with bright scarlet

flowers; the white blossomed Ceanothus oregonus, a hardy dwarf bush; a Tropæolum in the way of the common Nasturtium; a genus near Brodiæa, a new hardy bulb from California; a New Zealand shrub in the shape of some species of Philippodendron and Nidularia picta. Of plants not in flower this firm sent the singular Ouvirandra fenestralis or Madagascar Water Yam, noticed at p. 359, the extremely handsome Fern Gleichenia microphylla, and a Sundew (Drosera dichotoma), a plant of no particular beauty, but of very curious structure. Of other novelties Mr. Epps had the handsome red leaved Begonia splendida from Java, and Hedaroma tulipiferum, a beautiful greenhouse shrub with drooping brown and white bell-shaped flowers; a handsome Gesnerwort came from M. Miellez of Lille; and Messrs. Standish and Noble sent an Azalea, a cross between the Chinese amœna and lateritia. To the value of this mule as an ornamental plant it added the curiosity of having "hose in hose" flowers, *i. e.*, a double corolla one within another, a circumstance due to the sepals of the calyx lengthening out and taking the size, form, and colour of petals. This, therefore, independent of its beauty will always render this singular hybrid one of much interest. From the conservatory at Trentham were cut flowers of Cantua dependens, charmingly coloured, and apparently produced in great abundance.

Among Gloxinias, some good plants of which were exhibited by Mr. Dall, of Pimlico, we noticed two fine varieties called erecta stellata and erecta Castelloni. These were extremely beautiful, and are well worth attention.

Of Pelargoniums there was a large and excellent display. Mr. Turner, of Slough, had as usual admirably grown plants, among which we observed National, Wonderful, Una, Sanspareil, Basilisk, Majestic, Governor General, Arethusa, Lucy, Petruchio, Carlos, and Magnificent. Messrs. Dobson and Son sent Harriet, Bouquet, Arethusa, Rosamond, delicatum, Ambassador, Conqueror, Gertrude, Lucy, purpureum, and roseum, the colour of Governor General but not so good. Messrs. Fraser and Gaines also had collections. In the Amateurs' class for 6 Pelargoniums, Mr. Nye, gr. to E. Foster, Esq., Clewer Manor, near Windsor, contributed very fine plants, covered with flowers of good quality, and so had Mr. Wiggins, gr. to E. Beck, Esq., of Isleworth. Fancy Pelargoniums: Mr. Turner sent Empress of France, Electra, Madame Sontag, delicatum, Celestial, Mary Howitt, Lady Hume Campbell, a superb plant of Jenny Lind, Queen of Roses, Cloth of Silver, conspicuum, and Richard Cobden. Messrs. J. & J. Fraser exhibited Advancer, delicatum, Madame Sontag, Princess Alice Maude, formosissimum, Princess Marie Galitzin, Miss Sheppard, Jenny Lind, Argus, floribundum, Celestial, and Gaiety. In the Amateurs' Class, Mr. Windsor, gr. at Kiddapore Hall, Hampstead, showed magnificum, Duchesse d'Aumale, Fairy Queen, Berrier, Electra, and Princess Alice Maude, all fine plants and well flowered. Mr. Bousie had well bloomed plants of delicatum, Perfection, Princess Marie Galitzin, Triumphant, a well flowered plant of formosissimum, and Richard Cobden.

Of Cinerarias Mr. Turner had a most excellent collection. It consisted of Emperor of the French, Admiral Dundas, Purple Standard, Viola, Orlando, Etoile de Vaise, Duchess of Wellington, a fine forward variety; Sir C. Napier, Lady Paxton, Magnum Bonum, Bousie's optima, and Brilliant, an extra fine light blue edged variety. Mr. Beck, of Isleworth, also sent 12 varieties; among them were excelsior, a good sort, and an improvement on Scottish Chieftain.

Messrs. Dobson & Son staged 12 Pansies in pots, the sorts being Queen Victoria, Omar Pasha, Father Gavazzi, Mary Taylor, Marian, Emperor, Aurora, Satisfaction, Nonpareil, Great Western, Constance, and Topaz.

Fuchsias were exhibited in tolerable profusion, but by far the best were six plants from Mr. Bousie, gr. to the Rt. Hon. H. Labouchere, M.P., Stoke Park, Bucks. These were fine pyramidal specimens about 7 feet high and upwards, densely clothed with foliage and flowers from the ground to the very top. The sorts were Queen of Hanover, Autocrat, Alpha, Macbeth, Glory, and Othello. In other groups were also some well grown plants, but the above were those to which general attention was deservedly directed.

The display of fruit considering the season was good. It consisted of some 40 Pine Apples, 20 dishes of white Grapes, and nearly 40 of black; 11 dishes of Peaches and Nectarines, and as many of Cherries, 5 dishes of Figs, some Plums, chiefly Prolific and Early Favourite, and great quantities of Strawberries.

Only one Miscellaneous Collection of Fruit was exhibited, and that came from Mr. Fleming, gr. to the Duke of Sutherland at Trentham. It contained a Moscow Queen Pine Apple, beautiful bunches of Black Hamburgh Grapes, Nectarines excellent for the season, good British Queen Strawberries, two hybrid Melons, two dishes of Plums of the kinds mentioned above, and well-ripened May Duke Cherries.

Of Pine Apples, Mr. Davis of Oak Hill exhibited a collection containing good fruit of Providence, Black Jamaica, a Blood Pine, and Enville, and several Queens. Mr. Nichols sent from Devonshire some good Envilles, Providences and other kinds. Mr. Robinson, gr. to Lord Boston, produced three extremely well grown Providences; but being shown wrongly they only obtained an extra prize. Mr. Davis had the best single specimen of Providence, and good fruit of that variety were also shown by Mr. Robinson, and Mr. Bailey, Shardeloes. Of specimen Queens, Mr. Turnbull, gr. to the Duke of Marlborough, had the best. Mr. Davis, and Mr. Jones, Dowlais House, produced two well grown Black Jamaicas; Mr. Taylor of Streatham had a smooth Cayenne, and the Prickly variety of that fruit, over ripe, was shown by Mr Turnbull.

Of Grapes, the last-named exhibitor furnished three good dishes consisting of Muscats, Black Hamburghs, and St. Peter's. Mr. Munro, gr. to Mrs. Oddie, had the next best exhibition of this kind; it contained Sweetwater, Grizzly Frontignan, and Black Hamburgh. Of single dishes of Black Hamburgh the best came from Mr. Davis, and the next in point of merit from Mr. Clarke, of Hoddesdon. Other exhibitions of this variety came from Mr. Bundle and Mr. Spary, of Brighton. The best examples of Frontignan came from Mr. Montgomery Henderson, who produced well-grown bunches of the Grizzly. Chasselas Musqué came from Mr. Reid, gr. to J. Hunt, Esq., of Sydenham. Muscats generally were so unripe as to be wholly unfit for exhibition. The best, though they were far from being perfect, came from Mr. Turnbull, gr. to the Duke of Marlborough. Of Sweetwater Mr. Davis had beautifully ripened bunches, and so had Mr. Jackson, gr. to H. Beaufoy, Esq. Muscadines were shown in good condition by Mr. Smith, gr. to S. Ricardo, Esq., and Mr. Williams, gr. to C. B. Warner, Esq. Mr. Davis and Mr. Spary each showed a basket of Black Hamburgh Grapes, and Mr. Hill had beautiful bunches of Black Prince well ripened and as black as jet.

Grapes in pots were exhibited by Mr. Forsyth, gr. to Baron Rothschild, at Gunnersbury Park. They were set up in pairs in the form of arches, one at each end of the table, and had a very pretty effect. On the four Vines (Black Hamburgh) we counted no fewer than 23 nice bunches of well coloured fruit.

Peaches and Nectarines were generally speaking well coloured and of good size. Mr. Gardiner, gr. to Sir G. Phillips, Bart., had a dish of handsome Royal George Peaches, and good fruit of the same variety was contributed by Mr. Fleming, of Trentham. Violette Hâtive came from Mr. Evans, gr. to C. D. Newdegate, Esq., and Royal George from Mr. Hill, gr. to R. Sneyde, Esq.; Violette Hâtive Nectarines, large and beautifully coloured, were contributed by Mr. Fleming. The same variety of fruit was also furnished by Mr. Hill and Mr. Evans.

The heaviest Melon, weighing 5 lbs., was communicated by Mr. Boreham. The variety, we believe, was named Orion, a green fleshed sort, which was also awarded a first prize for good flavour. "Marnal Patamn," from Mr. Nichols, was highly commended by the judges for its flavour. This is a small variety. A handsome scarlet fleshed Melon was exhibited by Mr. Ewing, of Bodorgan.

Of Figs, excellent fruit of the Brown Turkey kind came from Mr. Richards, of York, and Mr. Busby, of Stockwood Park. Mr. Tegg and Mr. Bain had also good dishes of the same kind of fruit.

Cherries in three dishes were exhibited by Mr. Fleming, who sent beautiful fruit of Elton, Black Eagle, and May Duke. Mr. Evans furnished Early Purple Griotte, Circassian, and May Duke. Of single dishes—May Duke—the best came from Mr. Shuter, gr. to Lord Wilton, at Heaton. Mr. Evans, Mr. Munro, and Mr. Fleming also showed good single dishes of Cherries.

Plums, early Prolific, were exhibited by Mr. Fleming.

Of Strawberries 3 dishes, the best, came from Mr. Ewing, of Bodorgan. The sorts were British Queen, Bicton Pine, a white variety, and Keens' Seedling. In single dishes Mr. Dunsford carried off the first prize, with extremely well grown British Queens. Keens' Seedling came from Mr. Gillham, and Alice Maude from Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. Strawberries in pots were shown by Mr. Rowe, of Watford.

Among Miscellaneous Fruit we noticed Oranges and Citrons from Mr. Williams and others; and Pears still in an excellent state of preservation from Mr. Tillyard, gr. to the Rt. Hon. the Speaker, at Heckfield; the varieties were Ne Plus Meuris, Knight's Monarch, Old Crassane, and Beurré Rance. Mr. Ayres, gr. to Lord Southampton, also showed fruit of the last-named Pear.

ROYAL BOTANIC, REGENT'S PARK, *May* 28.—This Society's first exhibition this season took place on Wednesday last. The morning was fine; but in the afternoon there was thunder and heavy rain which lasted till evening, and doubtless had the effect of greatly diminishing the attendance. The show itself was in all respects a good one. Falling as it did, however, so soon after that at the Crystal Palace, it was as might have been expected composed almost entirely of plants exhibited there. We have, therefore, now only to advert to a few new things that were not present on that occasion. Stove and Greenhouse plants were shown in abundance, and so were Azaleas, Cape Heaths, and Roses in pots. Orchids were not quite so plentiful as at Sydenham, but among them were some rare specimens of good cultivation. Pelargoniums were all that could be desired, and there was one or two nice collections of Ferns.

Among New Plants the most remarkable was a Peristeria of singular beauty from the Bishop of Winchester. For some reason unknown to us this was placed second by the judges, while a first prize was awarded to Broughtonia lilacina, which we need not say is one of the most common of Orchids. The latter and an Epidendrum were shown by Mr. Wheeler, of Uxbridge. M. Linden produced what was called Odontoglossum Phalænopsis from New Granada. Messrs. Veitch sent the Californian Leptodactylon which has been previously described by us; Eurybia alpina, a hardy New Zealand shrub with white Aster-like flowers; and Tropæolum Shumannianum. We also observed plants of the Sikkim Rhododendrons, Dalhousiæ and cinnabarinum, the former with nine large white blossoms on it and the latter with orange and yellow flowers of no particular beauty. Messrs. Standish and Noble sent a cut specimen of Spiræa grandiflora, a showy kind introduced some time ago by Mr. Fortune. Messrs. Henderson furnished some very pretty Gastrolobiums; and cut specimens of Bougainvillea spectabilis came from Mr. West, of Lymington. The latter we need not say is by no means a novelty; but it is seldom seen in flower. We also noticed some cones and catkins of Araucaria imbricata from Mr. Barnes, of Bicton.

Mr. Hamp contributed an interesting collection of Amaryllises, and we must not forget to notice Mr. Francis' charming group of Roses on Manetti stocks. These were as fine as anything in their way could well be; although only one year from the bud not one of them had failed to flower.

HORTICULTURAL, *May* 27.—Col. Challoner in the chair. Messrs. Standish and Noble again exhibited the same pretty hybrid Azalea which they showed at the Crystal Palace. Some seedling Pelargoniums were also contributed by Mr. Westwood, of Turnham Green. The rest of the plants came from the Society's garden. Among them were Acacia varians, a species raised from seeds presented to the Society by Sir Thomas Mitchell. It was stated that the ripe seeds of this plant are extremely poisonous, and that numbers of cattle have perished from eating them. So deadly, in short, are their effects that this variety of "Wattle" has received the name of the Australian Upas Tree. Along with it were Alonsoa Warczewiczi, a scarlet-flowered species, which was reported to make an effective bedding plant; Nemesia versicolor, a Cape plant of a beautiful pale blue colour, and represented as being also suitable for beds; Boronia Drummondi, which is one of the handsomest of the genus; the hardy Californian Ceanothus papillosus, from a cold pit, covered with blue blossoms; Aquilegia fragrans and californica, and a charming mule raised by crossing the former with the latter; this was exactly intermediate in appearance between the two parents, but in all respects handsomer than either of them, the flowers being neither white nor scarlet, but beautiful violet and yellow, large and showy. Fremontia calycina, a hardy shrub or small tree from California, was also shown, and is worthy of especial notice, being perhaps the only plant of the kind in Europe. A seed of it was presented to the Society by Messrs. Wrench & Sons, and it is now flowering for the first time. The blossoms are greenish yellow, stiff and waxy looking, saucer shaped and about an inch in diameter. It was stated to be related to the Hand plant of Mexico; but to be without the particular claw which that plant possesses. A species of Mappa from Simla was exhibited with leaves in the form of a kite, as were also the beautiful pink-flowered hardy evergreen Escallonia macrantha and a pretty plant of Calceolaria Kayi. The same establishment likewise furnished a collection of Strawberries finely fruited in what are called 48s or 5-inch pots, and it was stated that that size had been proved to be quite large enough for all purposes of Strawberry forcing. Among 10 sorts, all subjected to exactly the same treatment, Cuthill's Black Prince was the first to ripen; next in point of earliness was Hooper's Seedling, which some consider identical with Keens' Seedling. Of other sorts Vicomte Hericart de Thury, a French kind, has fruit of good size and quality, and Reine Hortense, a little known sort, was reported to be a great bearer. Two Cucumbers were also contributed from the garden, viz. Dancer's Long Black Spine and Stanley's Winter Prolific, both good kinds, together with the Lettuce called Romaine verte Maraichère, which has proved itself to be an excellent winter Cos, quick growing and hardy.

Notices of Books.

Under the title of *Where there's a Will there's a Way* (Longmans), a small 8vo volume has appeared, in which some Cambridge men describe the way in which they managed to scale Mont Blanc without guides. It seems that the party objected to two things in the Chamouni arrangements; firstly to the exorbitant sum charged by the guides, and secondly to the quality of the guides themselves, so they determined to dispense with the gentlemen's services and to guide themselves. Two attempts were made; the first, by way of Courmayeur to the Col du Géant and Mt. Blanc de Tacul, failed; the second from St. Gervais by way of the Aiguille de Gouté succeeded perfectly. How the travellers managed is well told, as will be found by those who take up their unpretending volume.

Count Streletsky in a pamphlet *on the Discovery of Gold and Silver in Australia* (Longmans) claims for himself the credit of it, and we believe with justice. Those who are interested in the question will find this distinguished traveller's case stated clearly and temperately in the pages before us.

Those who wish to imitate in a small way the marine aquaria which Mr. Mitchell provides on a grand scale for the visitors to the Zoological Gardens

should procure a little pamphlet called *Sea Anemones; or Tanks and their Inhabitants* (Hamilton, Adams, & Co.). The authoress, for we can scarcely doubt that the pages are from the hand of a lady, wished to have Sea Anemones and other beautiful inhabitants of the deep upon her table; so she set to work with knowledge and zeal, experienced the usual amount of disappointment and success, learned by degrees how to secure the last without the first, and here in a few simple pages tells her friends how to profit by her example. Let us quote her own diffident words:—

"I have now finished my task, and must only add that the whole of what I have stated is the result of my own experience and observation, in amateur collecting on a small scale; and as I myself found in my early beginnings the need of such simple descriptions and instructions as I have now endeavoured to give, I hope it may not prove a useless work, but may be made the means (slight and unscientific though it be) of helping some who are in need of help, yet find more scientific works beyond their reach."

These sentences are a key to the whole, but they must be taken to describe in a very quiet way what an indifferent person might honestly call a clear practical guide to the management of marine zoophytes and molluscs. We especially admire its plain English unpretending style, in which there is not a trace of pedantry or affectation. The purpose of the writer was to tell the unlearned three things; firstly, what Sea Anemones, Starfishes, Sea Urchins, &c. are; secondly, how to catch them, and lastly, how to keep them in health. That object she completely accomplishes; and we entertain no doubt that the beautiful as well as curious races of marine polypes and molluscs will, with her aid, soon become universal ornaments of the drawing-room, wherever there is easy access to fresh sea-water. "My aim," says the authoress, "is solely to aid small collectors in the management of those little glass vases and drawing-room arrangements which require to be kept in *very delicate order, with bright glasses, and free from all inelegancies.*" For such assistance every inexperienced collector should be grateful.

Garden Memoranda.

Messrs. Waterer and Godfrey's Exhibition of American Plants.—These extensive growers of this charming class of plants intend to open in a few days a magnificent exhibition of them at Ashburnham House, in connection with Cremorne Gardens. For this grand display an excellent tent has been erected, about 365 feet long and 95 feet wide. Provision has been made in the roof of it for ample ventilation, and on the ventilators, which are to be transparencies, have been painted representations of plants and birds, which when they shall have been put up and arranged in their places are expected to have a pretty effect. Magnificent Rhododendrons and hardy Azaleas in large numbers have already been brought from Knap Hill and planted under this canvas covering in borders and neatly designed clumps which are surrounded by gravel walks 6 and 8 feet wide now in course of formation, and edged with turf. At the entrance handsome specimen Conifers have been placed, among which we observed two capital plants of the beautiful Thuja aurea. Some of the Standard Rhododendrons planted here are of great age and size, such as are only to be found in old established nurseries like those in question. When the whole shall have been completed it cannot fail to form one of the finest floral sights in the neighbourhood of London. The only fault, if fault it may be called, at present observable is the want of a raised stage or platform, from which the whole of this mass of flower could be looked down upon and seen at once. This may however yet be supplied.

FLORICULTURE.

National Floricultural Society, *May* 8.—Mr. G. Smith in the chair. The censors on this occasion were Messrs. Ivery, Hamp, and Weatherall. Mr. Frost, gr. to Lady Grenville, at Dropmore, had a very good Azalea, named alba magna, and a free-flowering semi-double variety named Kestelli. Mr. Cutbush, of Barnet, also contributed an Azalea named rosea punctata superba. Of other Azaleas Mr. Cutbush had magnifica, rosea punctata, and Duke of Devonshire, all well-known kinds. Messrs. Henderson, Pine-apple Place, sent Mrs. Fry and Broughtoni; Mr. Lochner, coronata, Duke of Devonshire, and rosea elegans. Some good Cape Heaths were also exhibited. Mr. James, of Isleworth, sent a collection of Pansies, in which were Argo, Goldfinch, africanus, Emperor, Monarch, Miss Walker, Father Gavazzi, Pomona, Royal Visit, Jubilee, and Marion. Messrs. E. G. Henderson sent a group of plants in which were a seedling Heath, raised by the late Mr. Storey, and the new Verbenas Géant des Batailles, a deep crimson sort with a fine truss, and the charmingly striped variety noticed by us at p. 343. Messrs. Lee furnished a well-bloomed plant of their Azalea Leeana. Mr. Turner, of Slough, contributed Cinerarias and Auriculas; amongst the former we noticed a seedling named Lady Gertrude Vaughan, a particularly fine flower, white, with broad crimson purple margin. The Auriculas were Smiling Beauty, Walker's No. 1, Lancashire Hero, Ruth Headly, Regula, and Mary Ann. Mr. Lochner also sent some seedling Cinerarias. Mr. Schofield, of Knowstrop, Leeds, sent 6 blooms each of two seedling Pansies, large bold flowers, but not of first-class quality. In addition to the above we also noticed the double-flowered Petunia imperialis, and some yellow Rhododendrons.

Miscellaneous.

The Cornelian Cherry Tree (Cornus mascula).—This tree is not particular about soil. It will grow in any light stony land. Its wood is very hard, white, tinged with red, and in request among turners. The fruit is not ripe till it begins to drop. Its taste is acid and agreeable enough. We preserve it and prepare with it a refreshing syrup. Some people like to eat the fruit. Were the Cornelian Cherry properly pruned in pyramid its fruit would be much larger. *Loroy.* [The French grow five varieties, viz., red fruited, yellow fruited, violet fruited, large fruited, and variegated. How does it happen that this hardy tree, whose little yellow flowers are the stars of spring, is so rarely cultivated here? The French sell it for 5*d.* a plant.]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Many New Holland and other greenhouse plants will soon be getting past their best, and some foresight and care will be necessary to avoid being short of specimens in bloom with which to supply their places. If former directions have been attended to many things in the stove (as Allamandas, Clerodendrons, Croweas, Achimenes, Gloxinias, &c.) should now be in a forward state; but these must be carefully prepared for removal to the cooler and drier atmosphere of the conservatory, otherwise there will be great risk of injuring the foliage, &c. Where circumstances will admit, plants that have been grown in a warm moist atmosphere should be removed to an intermediate house about a fortnight previous to their being taken to the conservatory and gradually inured to a free circulation of air, &c. By attention to this and placing the plants in the warmest corners in the conservatory, the Clerodendrons, Allamandas, Achimenes, &c., will continue growing slowly and blooming for some three months, whereas if this is neglected their beauty may be very short-lived. Aim at maintaining an even temperature in the conservatory after removing thence plants that have been grown in the stove, and avoid allowing the atmosphere to become very bright on warm days. Also see that every plant is perfectly clean before placing it in this house, and that the creepers, &c., are not infested with insects. Go over the house every morning and remove decaying flowers and leaves as they make their appearance. Until we experience more settled weather valuable specimens of greenhouse plants should not be placed out of doors unless where it cannot be avoided, and everything in a growing state should be shaded from the forenoon sun for some weeks after removal to the open air. Young stock in pits and frames will now be making rapid growth, and must be carefully attended to as to watering, stopping, training, &c. Examine Heaths frequently for mildew and apply sulphur the moment it is perceived, some of the soft foliaged varieties being very liable to be attacked by this pest at this season. The best preventive is keeping the plants in vigorous health and affording them a free circulation of air. Attend to supplying healthy vigorous plants with pot-room as they may require it, and avoid allowing them to sustain any check at this season.

FORCING DEPARTMENT.

Pinery.—Where the quality of the fruit is of first importance, care must be observed to have the soil in a healthy rather dry state during the period of ripening, for as there is no reasonable hope of obtaining high flavoured fruit from plants growing in pots, the trouble necessary to collect and place together those approaching ripeness, so as to be able to afford them a rather dry atmosphere, and avoid touching them with the syringe after they begin to colour, will be well repaid. Suckers that are not very strong will be benefited by being left on the stool for a month after the fruit is cut, but this will seldom be necessary in the case of healthy vigorous plants. Any neglect in the way of watering and maintaining a moist atmosphere in the case of succession stock may lead to their fruiting prematurely, therefore let there be no lack of attention at present. Plants swelling their fruit should be encouraged with plenty of liquid manure and a moist high temperature, shutting up early in the afternoon after syringing. Vines.—If spider makes its appearance on the foliage after fruit has commenced colouring, no time should be lost in coating the hot-water pipes with sulphur. The sulphur should be mixed in water with about equal quantities of lime and soot, and applied with a brush. The lime serves to prevent the sulphur being washed or rubbed off, and the soot helps to prevent the disagreeable appearance. The temperature of late houses where the fruit is now showing must not be allowed to fall too low at night if good sized bunches are expected, and where Muscats are grown for a late supply, there will be but little chance of securing a good crop of these unless a temperature of 70° is maintained. Attend carefully to young Vines recently planted, keeping the borders in a healthy moist state, maintaining a moist atmosphere, and shading if necessary until the Vines get a fair start. Proceed diligently with thinning the berries, &c., immediately they are ready, for they progress rapidly at this season; stop all laterals in time, and allow no confusion. Melons.—Where the fruit is swelling the soil should be kept in a properly moist state, and every means should be used to preserve the foliage in perfect health, as there is no possibility of obtaining good flavoured fruit unless the foliage is kept in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves at once, as these when left only serve as a harbour for insects. There is yet plenty of time to secure a good crop in dung beds, and if any of the frames which have been used for getting up "bedding-out stuff" can be spared for this purpose the plants should be got out at once. Very little artificial heat will be necessary at present, but the beds should be made sufficiently high to allow of being able to apply a lining if necessary towards August. This will be best managed by making the bed some 2 feet high with any useless material which will not ferment, placing on this some 18 inches of well fermented stable manure, which will afford sufficient heat for the present.

FLOWER GARDEN AND SHRUBBERIES.

Examine recently transplanted trees, shrubs, &c., freequently to see that they are not suffering from want of water. Give a liberal soaking where necessary, and stir and mulch the surface afterwards. The half-hardy plants now consigned to their summer places after many months' shelter under glass, and much attention and care, must be duly attended to with water until they lay hold of the soil, and with the present favourable weather and proper attention they will speedily cover the beds, and will repay all the trouble and attention that have been bestowed upon them, but every effort must be used to prevent their sustaining any check, for if allowed to get into an unhealthy state at present, there will be much difficulty in getting them into free growth without much loss of time. Spare hand-glasses should now be used for the propagation of favourite spring blooming plants, as Pansies, Phloxes, &c. These do best on a shady border.

HARDY FRUIT AND KITCHEN GARDEN.

Strawberries may soon require attention as to watering, &c. After thoroughly cleaning the beds a thorough soaking should be given the first possible opportunity, and if manure water from the stable tank can be given when the ground has been well saturated with clear water, it will assist in securing large fruit. The beds should be mulched as soon after watering as convenient, in order to prevent evaporation and the fruit from being soiled. Next to slates or tiles clean straw is the best material for this purpose, and mowings of lawns the worst. The latter, besides forming an excellent harbour for slugs, soils the fruit, spoils its flavour, and in wet seasons hastens the decay of any over ripe fruit. Where clean straw cannot be afforded, the fresh litter from the stable-yard will form a very good substitute. Exposure to the air and a few showers will perfectly sweeten this, so that there need be no fears entertained of its injuring the flavour, but it should be applied immediately. Persevere in the destruction of insects on fruit trees as soon as they are perceived. Hoe and thin such crops as require it, and encourage the growth of Cauliflowers, &c., by frequent waterings with manure water.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending May 29, 1856, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Friday 23	19	29.576	29.482	66	42	54.0	55	52	S.	.04
Satur. 24	20	29.549	29.475	63	42	52.5	55	52	S.W.	.01
Sunday 25	21	29.807	29.491	64	44	54.0	55	52	S.W.	.14
Mon. 26	22	29.887	29.777	70	48	59.0	56	52½	S.W.	.02
Tues. 27	23	29.801	29.626	70	47	58.5	57	53	S.W.	.63
Wed. 28	24	29.708	29.583	69	40	54.5	59	54½	S.W.	.41
Thurs. 29	25	30.005	29.853	60	36	48.0	59	54	N.W.	.00
Average.		29.762	29.612	66.0	42.7	54.3	56.5	52.7		1.35

May 23—Fine; masses of white clouds; rain at night.
— 24—Fine; showers; cloudy and fine.
— 25—Cloudy; overcast; rain at night.
— 26—Cloudy and mild; fine; cloudy
— 27—Fine; very fine; heavy and constant rain at night.
— 28—Heavy masses of low white clouds; very fine; thunder and heavy rain in afternoon.
— 29—Hazy; cloudy; uniformly overcast; fine.
Mean temperature of the week .2 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending June 7, 1856.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	69.8	46.3	58.0	11	0.27 in.	1	9	2	—	5	9	2	2
Mon. 2	69.0	46.2	57.6	13	0.33	1	5	2	2	3	7	5	5
Tues. 3	70.4	45.5	57.9	12	0.91	—	3	4	1	5	10	3	4
Wed. 4	70.6	46.1	58.4	11	0.76	1	5	2	2	3	8	5	4
Thurs. 5	70.5	47.4	58.9	15	0.64	2	4	2	1	5	7	6	3
Friday 6	68.8	47.6	58.2	15	0.28	5	4	1	2	4	9	2	3
Satur. 7	68.1	47.5	57.8	11	0.53	3	6	—	3	4	7	3	4

The highest temperature during the above period occurred on the 7th, 1846—therm. 90 deg.; and the lowest on the 2d, 1855 and 3d, 1837—therm. 35 deg.

Notices to Correspondents.

Books: *W T E.* We should think Loudon's Villa Gardening likely to suit you. If it is too elementary there are the works of Repton and Uvedale Price. A very nice little book is Kemp on "How to lay out a Small Garden."

Climbers: *G W N.* You will find some difficulty in covering a north wall with evergreen climbers having good foliage and flowers. We would advise you to train over it Ivy or Common Laurels, and to intermix flowering plants with them, such as Pyracantha, Clematis Fammula, Lonicera flexuosa, China and other Roses.‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time. *Cavanensis* Carex digitata. We cannot say how you are to get rid of it since you do not say where it grows and what is the nature of the injury it inflicts. It is a wild plant.—*Mary.* 1, Saxifraga hirta; 2, S. hypnoides.—*C E F.* The flowers are so very young as to be unexaminable. If you will send it when in flower it will no doubt be easily determinable. We do not remember its face.—*W D.* Apparently Vicia sordida; but the pod and seeds are required for the purpose of certain identification.

Seeds: *F A P.* The grain found in a garden-house in the Crimea with several other seeds both of vegetables and flowers is that of Holcus Sorghum.

Strawberries: *Helluo.* Under your circumstances leave the runners on. You need not be afraid of their weakening the plants or damaging the crop of fruit.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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LONDON MANURE COMPANY and the "Bath and West of England Agricultural Journal."—A statement of the comparative value of different sorts of Superphosphate of Lime having appeared in the above publication, from analysis by Dr. Voelcker, in which that said to be manufactured by the London Manure Company is put down as almost worthless, on investigating the matter at Lord Portman's, it is found the Superphosphate was never procured from the London Manure Company or their agents, but has been altogether a mistake of Lord Portman's bailiff. Lord Portman wishes the annexed Letter to be a full explanation of the error.

"The Manure mentioned in the 'Journal of the Bath and West of England Agricultural Society,' published in 1856, p. 314, &c., under the name of 'London Manure Company's Superphosphate for Turnips,' was bought by Mr. E. Pester, my bailiff, of Mr. Phillips, of Austey, and was called by Mr. Pester, 'The London Manure.' It appears that the Manure delivered by Mr. Phillips was sent in bags marked 'Superphosphate Compost Company, London,' and that Mr. Phillips is not the agent of the London Manure Company of Mr. Edward Purser. All the remarks of Professor Voelcker are, therefore, wholly inapplicable to the Manure sold by the London Manure Company. I therefore certify, that having been misled by my bailiff, I have, most unwittingly and quite unconsciously, permitted the publication in that Journal of the analysis of manures under a wrong name, as it was not purchased from the London Manure Company or their agents. I authorise Mr. Purser to publish this statement as he may think proper. "PORTMAN.

"Bryanston, May 8th, 1856."

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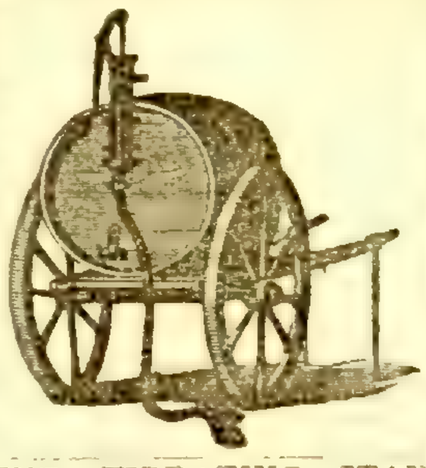

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2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
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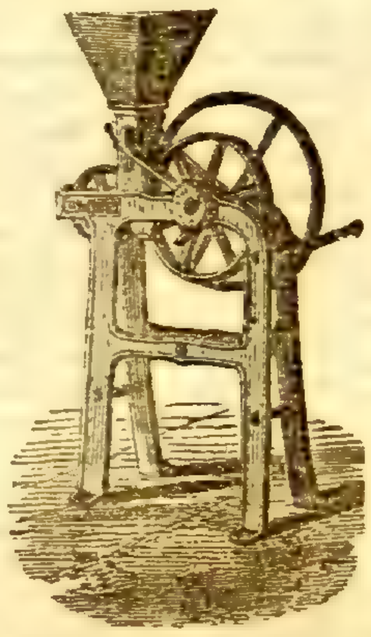

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4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD MEETING, 1856.

SPECIAL PRIZES offered by the Local Committee at Chelmsford, and to be competed for under the Conditions and Regulations of the General Live Stock Prize-Sheet of the Society for the Chelmsford Meeting:—

To the owner of the best Thorough-bred Stallion ..	30 Sovs.
To the owner of the best weight-carrying Hunter Stallion	30 „
To the owner of the best Coaching Stallion	25 „
To the owner of the best Hackney Stallion	25 „
To the owner of the best weight-carrying Hunter Mare .	20 „
To the owner of the best Hackney Mare	20 „
To the owner of the best Gelding of any age for Hunting purposes	15 „
To the owner of the best Gelding under 4 years old for Hunting purposes	10 „
To the owner of the best Hackney Gelding of any age	15
To the owner of the best Hackney Gelding under 4 years old	10

No Horses being allowed to compete in two Classes.

The entries will close by the 1st of June. Certificates to be obtained on application to the Secretary at No. 12, Hanover Square, London. By order of the Council,

London, May 31. JAMES HUDSON, Secretary.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW AT ROTHERHAM, AUGUST 6 and 7.—For prize Sheets apply to the Secretary, Mr. JOHN HANNAM, Land Agent, Wetherby.

The Agricultural Gazette.

SATURDAY, MAY 31, 1856.

June 2, and following days } GREAT INTERNATIONAL AGRICULTURAL MEETING AT PARIS.

As a notice of the Agriculture of Russia in that part of the empire most nearly resembling England in its climatic circumstances will be interesting at the present time, we take advantage of a correspondence which has fallen into our hands to state one or two particulars which throw light upon its present condition. Our correspondent is an English farmer resident near Mitau in the Riga district. That he is a man of energy and enterprise may be gathered from the fact that he is about to introduce the Lois Weedon system of Wheat cultivation, believing that there is a good chance of its making its way under all the unfavourable circumstances of an adverse climate and of a people altogether unaccustomed to fallow cropping, and certainly ill

prepared for so great an advance in scientific agriculture. The general system in operation there is naked fallow and two successive crops of grain, the first autumn sown and the other spring sown.

Our correspondent is to adopt the Lois Weedon system on a farm of 150 acres arable; and this is not a hastily adopted resolution, for he has evidently had it in contemplation for some time past, having written on the subject in January 1852, although he has been hitherto prevented pursuing it, with the exception of a small experiment, by some untoward circumstances. His soil is well fitted for it, being a good Wheat or loamy clay on a marly clay subsoil and very free from stones, but still there are difficulties, for the ground is frozen to the depth of 12 or 18 inches through the long winter of 220 days, and the early setting in of frost is against the winter forking of the ground, allowing little time before the ground is iron bound for that operation; and the rapidity of growth in the short summer will afford very little time for summer hoeings. This must render the fallowing process, the exposure and disintegration of the soil, very inefficient comparatively with what may be effected in a milder climate, still with some modifications the system may, we believe, be followed out with success, and the great principle, that of a crop and fallow, obtain a footing. It will require the mind of the cultivator to be active, to adapt the practice he will pursue to the conditions in which he finds himself, but since he has the spirited enterprise to undertake it, we may expect he will not break down in expediences, and that his returns will exceed those obtained under the system now prevalent in his neighbourhood, and probably the general average produce of Russia, which appears very low, the winter corn averaging 16 or 18 bushels, the summer a little more; while the profit derived from cows is the insignificant sum of 18*s.* a year.

The tillage system is, after the spring crops, to break up the stubble in June of the next year, give it one or two additional ploughings, none of them deeper than 3 inches; apply to the fallow what little dung the cows, fed on straw and a little bad hay, have made in the winter; Wheat and Rye are then sown the beginning of September, which are succeeded by spring-sown crops of Oats and Barley; this completes the course, which begins again with fallow. Thus they have but two light crops in the three years, and as the dung seems to be all aid on the fallow, they do not appear to raise any green crop for winter food. The possibility of such an application of his manure is, we believe, one great inducement to the adoption of the Lois Weedon system by our correspondent; in addition there is the possibility of obtaining each year a more remunerative crop of grain. In the summer the working horses and the cows are fed on coarse pasture; of which and of meadow—and they are contented to get half a ton to the acre of hay—about 50 acres rent-free are attached to every 100 acres of arable land; the only value attached to the Grass being in its affording manure to the arable land.

From the early setting in of winter the Wheat and Rye must be got into the ground before the middle of September (harvest commences about the middle of August). As the ground remains frozen till the end of April to the depth of 12 or 18 inches (it was so at the date of our correspondent's letter, the 28th of April,) the spring sowing must of course be late. At the date of his letter, as may be supposed in this state of the ground, there was no vegetation; indeed he says, "The Wheat has not begun to grow since winter, and exhibits but a few brown dead leaves; but, as soon as the thermometer rises to 55° it will be green in 24 hours, in ear in seven weeks, and fit for the sickle by the 10th of August." The Wheat is not considered liable to injury by frost without snow when the thermometer stands as low as 12° below zero;* when covered with snow, as it is when the winter advances (the thermometer at 25° below zero) it remains unhurt; but the cold winds in the spring are frequently fatal to it. Insects, worms, &c., suffer little by the frosts of Russia, for they are to the full as abundant as in England. Last harvest the grain crops only averaged 10 bushels to the acre, but this year the Wheat and Rye look well in stock, and give better expectations. The price of grain appears to be about as four to five of England, beef is 2½*d.* per pound, but necessarily very indifferent.

As not more rain falls in summer than is necessary for the crops, and as in winter, from the frozen state of the ground, the snow in dissolving does not sink into it but passes off by evaporation, draining is considered unnecessary, except where called for in some wet places: indeed, in such a state of agriculture it has never been thought of.

There is one remark our correspondent makes that we did not expect in a land of serfdom, "Hand hoeing will not do here, the people are too independent to make their backs ache;" he must, however, speak of free labour as he says, "as the wages are only a shilling a day, perhaps the pride might be overcome by the inducement of a few additional pence;" and if Lois Weedon practice is not worth that it will be worth nothing there. We should think they so much depend on horse labour, that hand labour is a novelty to them in the tillage of the land. This must be overcome.

Cow dung, contrary to our notions, is more highly appreciated than either that of sheep or pigs; in fact no more of these are kept than are necessary for the use of the house.

We are in error in supposing the country a great Flax one, "but as every one grows a little it makes it abundant, yet it is dreadfully coarse;" it fetches 37*l.* per ton. It is very probable Riga seed acquires its fame from this coarseness, as well as from the great quantity they are able to export.

* Probably zero of Reaumur's scale, which is 32° Fahr.

A very useful paper in a recent number of the "Veterinarian" draws attention to the importance of wholesome provender for cattle. There are few things, it says, standing more directly in the relation of cause to effect than bad food and disease. The surgeon too often traces disease and death to improper and often poisonous food.

The adulteration of oilcake and other feeding stuffs is the main source of the illustrations which the writer adduces. Rape-cake adulterated with Mustard seed and oilcake adulterated with refuse bitter almond-cake are among the instances he quotes—the former a case known almost ever since the use of the material—the latter recently published at, we believe, a meeting of the English Agricultural Society by Mr. Fisher Hobbs, who had known eight or ten bullocks poisoned by cake adulterated in that way.

The main point however in the paper to which we would draw attention as connected with field operations at the present season is referred to in the following paragraph:—

"In the present improved system of husbandry, a necessity is created for large quantities of stock to be kept on a farm, and this calls for the raising of heavy root crops from the land; thus the keeping of stock and the good cultivation of the farm act and re-act on each other, flourishing or declining as collateral circumstances operate beneficially or otherwise on these primary essentials. How important, then, is it that these root crops should be in a healthy state; and how much of this may depend on the kind of manure which has been employed as a dressing for the land, we at the present time are to a great extent ignorant of. Chemistry, botany, physiology, and practice must all unite to accomplish a satisfactory solution of this question. We regret to say that experience has confirmed our long-existing suspicions that there are artificial manures which produce a state of plethora, not to say disease, in plants, which renders them unfit for the food of animals when they are too freely partaken of. A very few weeks since we were consulted by one of our most celebrated breeders of sheep, in consequence of the losses he had sustained from a cause of this kind. As soon as the animals were put on a particular field of Turnips, several died somewhat suddenly. An early removal at once stayed the fatality; but this returned when the sheep again went on to these Turnips. This was repeated again and again, and always with the same result; no losses occurring in the intervals although the sheep were fed on other Turnips, grown on the same kind of soil, but without the same artificial manure. We could multiply these cases to a considerable extent."

Now, it may be true that cases of unhealthy vegetable growth and of consequent disease in the cattle fed have multiplied since the introduction of artificial manures; but we must think that a great deal more is made of the "rickety" growth consequent upon a *partial* feeding of the plant than it deserves. The case mentioned by Mr. Nesbit the other day, where a rider whose horse had been picking his way over a sound crop of Turnips grown with guano came so suddenly "smash" into a rotten crop which had been manured with superphosphate only must surely be considered altogether exceptional.

Anything inducing rapid growth lays the plant open to certain forms of disease, but rapid growth is a very desirable thing notwithstanding. The attempts to connect disease in the Edinburgh, Glasgow, and Ayrshire dairies with the succulent Italian Rye-grass on which the cows were fed has been an entire failure. We do not believe that diseased crops of Turnips after superphosphate are anything more than a case of rapid growth, at which every farmer aims, or that by the use of artificial manure anything more or worse has been attained than the raising of the ordinary experience of Turnip growers now-a-days to that of the best years in olden time. There is always more rottenness in a good Turnip year than in a bad one, but a good Turnip year is better than a bad one nevertheless; and we hope that the cases in illustration of the superphosphate theory which have been quoted will not deter any from its use with as much liberality as ever.

HOME FARM MANAGEMENT.—No. IV.

Success in home farming is to a very large extent dependent on the ability and exertions of the practical manager. In any case he has much in his power, and it is right he should have if he is fully qualified for his office. A person who is entrusted with the management of another's affairs, and has usually a considerable number of men employed under him, ought not to be looked upon as a mere servant that can only act when he is bidden. He is or ought to be a responsible agent left to a considerable extent to his own discretion. If he cannot be entrusted with the duties of his office he should at once be discharged to make room for a suitable successor. But if he is really qualified for his situation there can be no greater mistake on the part of an employer or his agent, than that of constant fault-finding and petty interference. An intelligent manager having a rightly constituted mind, will take a pride in doing his utmost to promote the interests of his master, if he sees that he is trusted and respected by him. A conscientious man will do what appears to him to be his duty in any case; but there are two ways of discharging the duties of an office. Treat a farm steward properly and give him that importance in the eyes of the workmen he employs, which is intispensable to the maintenance of his authority over them, and if he does not become a most devoted and valuable servant he is the wrong man for the place. The right man in his proper place treated and trusted as he deserves, will identify himself with the affairs managed by him in a way altogether peculiar to the case. Every hour of the night as well as of the day will attest his devotion to his employer's interests if these should call him to activity. He will ever be on the watch to turn things—which less zealous overseers would disregard—to a profitable account, and be even more anxious to make the most of everything than if he were acting on his own behalf.

How different from all this is the case of the manager who is at no time thanked for anything he does, however much it may be out of the way of his regular duties—who feels that he is just looked upon as a sort of living machine doing nothing without orders—and who knows that do what he may for his employer's benefit, confidence and gratitude shall at no time be his reward. Petty complaints, sour looks, and perhaps cutting reproofs before his workmen are the only recognitions of faithful service which he expects beyond his bare salary. Why the man in such a situation as this is perfectly miserable, life is a burden to him, and how to kill time becomes a question of importance; he goes through his duties, but neither activity nor zeal characterise his management; his only aim is to put in a term with as much comfort as possible in the circumstances—or keep hold of a livelihood till some other opening occurs. But who is to blame for all this? Is it not the superior of the farm manager, who will rather indulge in scolding for trifling errors than at once dismiss the cause of them? There is assuredly little hope of curing a man of his errors by fault-finding, for the very reverse of a cure is more generally the result. Where a fault is committed by a farm steward there is no more successful way of preventing its recurrence than for a superior to pass it over with a few good counsels; if that will not do, after a fair trial discharge the man by all means, for he is absolutely incurable.

It may be thought, however, that I am supposing too much when I assume that there really are either proprietors or agents of estates who would so far forget themselves as to become petty fault-finders with their farm bailiffs. But I have reason to know that there are a good many employers in the United Kingdom, to whom the charge may be brought home with the force of truth. These persons after having got a bad name in their respective districts labour under very great disadvantages. Superior men will scarcely enter their service, and with the employment of inferior persons the causes of weekly and daily "scenes" are immensely increased. As there can be no profit in perpetual interference and captious quarrelling, an effort ought surely to be put forth in quarters where the evil still prevails to bring it to a speedy termination. Not that an employer should abdicate in favour of a farm manager those rights which belong to ownership, but that having once selected a proper man to take care of his interests, he allow him that discretionary power which will enable him to discharge, with the greatest possible success, the details of the general course of management that may, either with or without his counsel, be laid out for his guidance. To give a home farm manager so much power as this implies, without his being in possession of abilities and acquirements to suit him for the charge, would be a very great mistake, and I purpose therefore to indicate the class of men and the sort of training they require to render them suitable for such an office.

In speaking of home farms I wish it to be understood that I have those in view which are of first-class size and quality, but with slight modifications according to circumstances, my remarks will be applicable to farms of any size, provided that each will afford to keep a

bailiff who does not require to work with his hands. But I would not say that the steward of a first-class farm ought never to have wrought with his own hands. Nay! the very reverse of this, for I would regard an applicant for such an appointment as disqualified for it in one very important aspect, if he had not practically executed every kind of farm work. How can an overseer judge of any kind of work if he cannot do it himself? How can he detect an unqualified or sham workman if he himself is ignorant of the manner in which work ought to be done? No! the bailiff of a home farm will have no certainty that he is getting his work rightly executed, neither will he have sufficient influence over his workmen, unless he has at one time been a worker, and can even yet take an implement in his hand and show the way in which it should be used. Unfortunately there is a sentimental and silly opinion, held even in the middle ranks of life, that a young man is disgraced if he has to perform manual labour. Loving mothers perfectly sensible that their sons must in one way or another live by their own exertions, will by no means consent to their learning either *practical* farming or *practical* engineering, because they must soil their fingers and sleep the sleep of a labouring man for some years to come. Forsooth that the gentility—imagined—of James or John is at stake, the said James or John must be kept from learning a healthful and promising business, and be sent to a counting house desk to drive quills as if that were the sublimation of manual labour and the sign manual of "gentility" falsely so called. Till once absurdities of this sort are entirely given up by those who can only afford their children a plain education, we are not likely to have that influx of new blood into the agricultural profession which it so urgently requires at the present time. Neither are we likely to have so many properly qualified home farm managers as the improved state of agriculture demands. Many of the young men, who not connected with agricultural pursuits by birth are yet desirous to prosecute them, receive so imperfect a training in the practice of the art, that their fortunes and prospects are often shipwrecked when they take to farming on their own account or on behalf of others. They are too liable to imagine that farming is a business requiring so little practical knowledge that with their school-taught theories alone they will be able to make a handsome livelihood from it; or if they have not capital to start farming for themselves, that they will succeed in giving satisfaction in farming for others. The sons of farmers, on the other hand, are liable to depend altogether on a practical course of training, and to despise theoretical acquirements. But from neither of these classes are the most successful farmers or the most highly qualified home farm managers likely to spring. So far as the latter are concerned, we may expect our first-rate men to spring not from any particular grade of the community, but to be themselves an educated class. Their education must not be confined to either practice or science exclusively, but should have for its objects—1. Practical agriculture, including working with the hands for several years on a farm. 2. A careful study of farming practices in different districts; and 3, an acquaintance practically with the mode of executing general agricultural improvements. Then in the scientific department they must acquire a well-grounded general knowledge of —1, chemistry; 2, geology; 3, botany and physiology; 4, natural philosophy—the latter including meteorology and mechanics; and 5, natural history and veterinary surgery. But it may be said that I am laying out a course of instruction for farm managers little less than that of some of the learned professions. Yes; I am perfectly aware of the fact, for what is farming in the highest sense but a profession requiring more skill and general acquirement than perhaps any other business? The cultivator of the soil is the connecting link between the great inorganic world and the world of business activity. He stands in a very intimate relation to Nature, for he is the agent that draws forth her resources and demonstrates her latent power. And can he do this in the most effective manner without a comprehensive knowledge of all the laws which his daily operations call into action? Surely not; and yet the farming of the United Kingdom is carried on with a comparatively small share of this comprehensive knowledge, and is considered superior to that of any other country in the world. Were our home farm managers and tenant farmers educated as they ought to be, this country would no longer require to import her millions of quarters of Wheat, for it would not only become self-supporting, but ultimately capable of exporting large quantities of grain. How desirable is it that this should be the case! and how important that all the home farms in the kingdom should be the exemplars of the general systems of management that are capable when universally adopted of bringing about this result!

In selecting a steward for a first-class farm, therefore, "practice with science" should be the guiding motto. The difficulty is to get men that are really of the right stamp, for theory run wild is ten times more dangerous than practice become hopelessly stale, and how to obtain a good hybrid of qualities is sometimes puzzling enough. Now, however, that the Society of Arts and the Highland and Agricultural Society of Scotland are instituting systems of examination for agricultural students, and purpose to grant diplomas to those who possess certain qualifications, the inducement to acquire both practical and theoretical knowledge is likely to be increased, and the difficulty referred to gradually overcome. But it would be a mistake to suppose that the mere possession of agricultural knowledge would fit a man for the office of farm manager. He must be of sterling probity, active, industrious, painstaking, civil, know human nature well, and above all he must have a good moral character, be sober and punctual in the discharge of all his duties. A man according to this model, and possessed of suitable scientific and practical knowledge, will speedily acquire the confidence of his employer, and develope the resources of the farm intrusted to his care in a most satisfactory manner. True, it will not be an easy matter to get men who are up to the mark in all these respects, but it is right at least to aim at a high standard, and to regard those who on the whole come nearest to it as most deserving of preferment. If the qualifications of a farm manager are of a high order his salary will require to be good, but then by his superior management he will far more than compensate for any extra payment he may receive as compared with the wages of a second-rate man.

I have already referred to the evils resulting from a fretful querulous interference with a farm steward on the part of his employer, and have now to notice also the bad effects which must result from any improper bearing of the former towards the latter. The farm bailiff is a responsible servant, but is still a servant notwithstanding. His duty is to study obedience to his master, and while a man in his position possessed of a strong and independent cast of mind will spurn to flatter a superior or creep in the dust before him for the sake of favour, yet duty, principle, and common civility require him to act towards an employer with deference and respect. If the situation is one in which he is tempted —nay, even compelled in self-defence to cast these amenities of deportment aside from time to time, it will be incomparably better for him to resign his charge at once than to continue to hold it. Should an overseer give way to temptation and act uncivilly towards his superior, his influence is gone, and if his imprudence lead him so to act without any real temptation he is very rightly served.

In the carrying out of the farming operations it may often be the case that a proprietor taking an interest in his home farm will hold very different opinions from his manager. The duty of the latter in that event is to state unreservedly his views and his reasons for them; show respectfully the objections he entertains on practical grounds to the opinions expressed by the former, and then if his suggestions are not adopted the responsibility does not rest on him. Landlords of active inquiring habits are often misled by their bailiffs consenting at once to any suggestion they may throw out on farm management. That reserve and timidity which keep the latter from speaking their minds on subjects they ought to be intimately acquainted with are wholly out of place, and may lead to very unsatisfactory consequences. The employer naturally looks to his steward for counsel in practical details of farming, and if the latter acquiesce in everything that is brought before him from that quarter, he is not the man for his place at all. No considerate landed proprietor or agent will object to a farm manager stating his objections to any proposal that may be made in respect to the farming of the land under his charge. Indeed in many cases the steward must give a practical bearing to the theoretical schemes introduced to his notice by those who are above him, or bear a share of the blame resulting from their failure when put into operation.

It is very frequently the case that in consequence of superior intelligence, and from travelling a good deal, proprietors are enabled to make very excellent suggestions to their stewards on the subject of farm management; and while the latter should at all times be careful to detect everything that is incapable of being carried into execution with any chance of success, they should at the same time be ever ready to carry out, as far as may be possible, those new agricultural systems that are thus suggested to them. Nothing can be more pitiable than to see a bailiff priding himself on his practical attainments as a farmer, and believing that no nobleman or gentleman, however comprehensive or well-informed his mind may be, can instruct him. It is thus that vapid practice sets itself against science, and bars its progress. The asseveration of "Talpa's" drainer—"I've been a-draining this forty year and more"—is the perpetual chatter of some agricultural incumbrances known as farm managers of the old school, that must speedily either be reformed or displaced altogether. *J. Lockhart Morton.*

Home Correspondence.

Thin Sowing.—The interesting phenomenon of vegetation drawing towards the light has often been exemplified amongst Potatoes stored in a dark cellar; a shoot from one of them will often make its way across a floor of many feet in breadth, and rise up the door towards the keyhole where a ray of sunshine appears. Roots will also travel long distances in search of food, and having discovered a spot where nourishment for the parent plant is deposited, they will multiply their fibres in hundreds. The attraction which induces this beautiful natural appearance is not fully understood, as the roots have frequently to pass through a comparatively barren portion of the soil previous to reaching the desired point. The study of physiology may in the course of time elucidate the mystery, but at present the knowledge of the fact must satisfy agriculturists and horticulturists, and will be sufficient for their guidance and instruction; proving the advantage of deep stirring in order to give full development to the root progress. It does not seem reasonable to suppose that because land is poor Wheat should be sown thickly to insure a crop. The more sensible course would be to limit the supply of seed to the capability of the land to support its growth in all stages. It being always understood that allowance must be made for casualties, viz., destruction by birds and insects, but not for careless farming. The wonderful paths of the tender roots through masses of soil, almost impenetrable to the steel fork, excite astonishment and raise the thoughts of man "to Him who maketh the grass to grow upon the mountains." Experiments have shown that the roots of the Wheat plants are great wanderers after food, and that the plants themselves "tiller out" in an extraordinary manner under favourable circumstances: these facts are in favour of giving the crop room enough to display its vigorous powers of production. It may therefore be fairly suggested to the farmer to use his discretion in sowing according to the quality of the land he cultivates, always remembering that two heads of Wheat will not come to perfection where the natural soil has only provided for one; and that if he requires to increase the yield he must bring draining, labour, manure, and intelligence to bear upon the question. Attempts to introduce improvements in agriculture will often meet with strenuous opposition from prejudice, strengthened by the habit of following in the jogtrot path of the "good old times," when farmers having a monopoly could afford to let weeds have a fair chance with their crops. The markets have lately been high, but the days are coming which will again call forth all the energies of agriculturists to enable them to compete with the foreigner. It will therefore never pay, either to smother weeds with Wheat, or Wheat with weeds. *Falcon.*

The Gapes in Poultry.—Amongst the various suggestions for the cure of "Gapes" in fowls, which have appeared in your valuable journal at different times, I have never observed any allusion to a very simple remedy, the efficacy of which I witnessed when residing some years since at a farm house in Devonshire where a number of white fowls were kept, a large proportion of every brood being always lost from this disease, and the white breed would have been relinquished, only that when reared they realised a higher price in the market (Barnstaple) than the darker kinds. I therefore copy the following extract from a paper which I believe first appeared in the Transactions of the Linnean Society:—

Account of a species of Fasciola which infests the Trachea of Poultry, with a Mode of Cure." By George Montagu, Esq., F.L.S. and M.W.S.—"Most persons in rural life, who have in the least attended to their poultry, know that young chickens are subject to a fatal distemper, usually termed the "gapes" from the principal symptom of the disorder; which is a frequent gaping attended with an extension of the neck, like suffocation, and sometimes an apparent phthisical affection or irritation of the lungs. This distemper, which generally attacks them at the age of a month or six weeks, is, I believe, found to obtain in high as well as low situations, and whether the nature of the soil or that of the water is the productive cause, remains to be discovered. This disease is produced by a species of fasciola lodging within the trachea, frequently extending from the pharynx to the trachea, but never, that I have observed, into the lungs. I have at this time (June 20, 1808) a brood of 16 chickens of about six weeks old, all of which,* one excepted, appear to be more or less affected with it. Upon laying open the trachea of one that died this morning, that part was found to be highly inflamed, and contained no less than 20 of these 'vermes' firmly adhering to its surface by their single arm. These had so completely choked up the passage, that the chick had undoubtedly died of strangulation. Although none of these worms had passed into the lungs, they were found to be much inflamed. In the year 1806, I first discovered the cause of the distemper; and the following year, on the first appearance of the attack, I administered a simple medicine, considered by some persons in this part of the kingdom to be infallible; and, to my astonishment, not only not one of a large brood, suffering from its influence, died, but, on the contrary, all speedily recovered. The recipe consists in mixing up their meal (Barley or oatmeal) with urine instead of water, and feeding them with it three or four times a day. Rue chopped small and mixed with their food, has been a favourite remedy; but it may be proper to remark that my chickens affected at this time have been under a course of that medicine since the first appearance of the distemper, and that so far from yielding to it the malady increased during its administration, and one chicken, as before mentioned, had died under this disadvantage; in the advanced state of the disorder the former prescription was given, and its good effects were visible in two or three days, and the whole brood is now in a state of convalescence. It may be proper to remark in this place that this vermicular distemper seems to be peculiar to the young of the common domestic fowl, since neither my turkeys nor ducks, all of which are reared together upon the same spot, have ever been attacked. Since the preceding was written I have been informed by my friend Lord Porchester that three parts of the young pheasants in his lordship's menagerie die of a similar complaint, but at a more advanced age, generally at the time the feathers begin to show the sexual distinction. This nobleman favoured me with a specimen for examination, in which the trachea was stuffed with the same species of 'fasciola.' I have also had some old partridges lately affected with the same complaint; one that died was evidently suffocated by these vermes; and what is remarkable, the posterior half of one of the worms had got through the membrane of the trachea, the only instance hitherto noticed of that part being perforated. Change of food and change of place, together with the infusion of Rue and Garlic instead of plain water to drink, and chiefly Hemp seed to eat, independent of the green vegetables which the Grass plot of the menagerie afforded, recovered the others in a short time.—Dec. 28, 1808. The 'fasciola' which occasions this fatal disease is, as far as I have been able to ascertain, a nondescript species, differing from all others hitherto described by the great extension of the peduncle or arm that supports the lower foramen. The following is a description of this animal:—*Cl. Vermes, Ord. Intestina, Fasciola Trachea.* Body round, acuminated at the posterior end, the lower aperture produced on a long stalk or arm, that extends rather beyond the anterior end of the body, where the other aperture is placed, and is not above half the size of that part: these openings spread a little or are subinfundibuliform; the larger appears to be the mouth, and is slightly sexpartite, that on the arm is

* "It is remarkable that the only chick which was never affected is black, and all the others white; and it will probably be found that the dark-coloured varieties are not so subject to the distemper."

used as a sucker, and is the part by which it adheres to the inside of the trachea; the divarication takes place at about one-fifth part of the length of the body: the colour is red, and the intestines, which are extremely numerous and tortuous, are white: the length is about an inch, and the breadth not above half a line."

"*Note.*—An animal similar to that here described has been observed by Dr. Wiesenthal, Professor of Anatomy at Baltimore, in North America, an account of which has been published in the 'Medical and Physical Journal' (1799), vol. ii., p. 204. Dr. W. observes that this disease is not confined to the common fowl, but that young turkeys are subject to a similar complaint." —*H. L. K.*

Fingers and Toes in Turnips.—In the *Gazette* of the 16th May, p. 331, is given an extract from Mr. Russell's paper in the "Quarterly Journal of Agriculture," on which he appears apprehensive that the not very ancient and probably not very erudite term of fingers and toes as applied to a disease in Turnips should be lost to posterity from want of discussion on the apathy of agriculturists to so lamentable an innovation in the olden nomenclature. As words are only intended to convey ideas, if people will understand fingers and toes to mean a disease, the term may as well answer the purpose as any other, whether anbury or not; but as words should convey definite ideas, to the end of being generally understood, and the better if without the liability of being mistaken, there lies a trifling objection to the use of the term which Mr. Russell himself very candidly offers to our observation, in Professor Buckman's, Mr. Berkeley's, and others' misconception of it, and in certain comical root vagaries. The pretty ladylike hand of Prof. Buckman with its healthy fingers does not give the digits of the gouty lumpy diseased hand which Mr. Russell describes; thus, though in Prof. Buckman's drawing we have as good and regular fingers as can be, "as like a hand with its five fingers as could be imagined, yet still in a botanical sense it cannot be said to be digitate or fingered." So that its form really signifies nothing, and fingers and toes to mean disease require something more than a well formed hand and fingers, that is to say, without the adjective diseased or some other equally distinctive, they convey no idea whatever. The fingers and toes must display in their formation all the lumps and bumps and excrescences of disease, for the fingers and toes of a mere forked or branched root will both in appearance and language indicate a disease they have not, and lead, as they have done Professor Buckman and others, to false conclusions. The term fingers and toes conveying then to one the idea of health and to another that of disease, being to one an indication of a corrupt state and to another one of regression (a regeneracy—not a degeneracy) to a normal state of purity and youth, is not sufficiently definite, and therefore does not deserve to be retained. But other plants show this formation of root which are not subject to the disease we are treating of, as Carrots and Parsnips; and again other plants are subject to it, which from the natural formation of their roots cannot when diseased be said to take on any form of fingers and toes, as Cabbages, &c. Surely then fingers and toes is not a term sufficiently distinctive to characterise a disease which exists independent of such a formation, nor does there appear any necessity for retaining a name so indefinite, given probably by ignorance and on a mere superficial observance of its appearance, since we have another, possibly more appropriate, and in its appearance certainly more generally applicable. Anbury applies to the disease wherever it appears, irrespective of the formation of fingers and toes, it is indicated alike in all by tumid or wart-like knobs, almost, I believe I may say always, containing maggots. It may be that we might by the aid of some Greek word have found a more decidedly characteristic term for the disease, and not have been obliged to go to the horse for it, for though some distant analogy may externally exist, in all its pathological characters it is, I believe, very distinct from the horse anbury, yet for want of a better, and a better than finger and toes it certainly is, we must retain it. The finger and toe formation does not invariably show itself even on the Turnip, at least it is necessary to draw very much upon our imagination to find it. In all I have examined it more frequently developes in an unsightly and huge excrescence on the body of the Turnip, swelling out on one side, seldom I think with any root-like process, when so attacked. The finger and toe formation certainly is not in this case such as to draw attention to it from the more obvious bulbs of the disease, and which I think ought to designate it. *J. M. Goodiff.*

Wheat in 2-feet Rows.—It gives us great pleasure to observe in your agricultural columns of the 9th inst. a paragraph headed "Rotation of Crops," by Mr. J. M. Goodiff, whose views are so coincident with our own. We cannot but think, however, that he ought to have given us some credit for the introduction of planting corn in rows 2 feet apart, as we claim to be the first who introduced it in a practical point of view. We have several acres this year on the same plan, worked well between with the fork on common stetched land during the winter months, which is now progressing favourably from a small quantity of seed. We have also one acre of Wheat thus treated, which is sown with Lucerne and doing well. Mr. Goodiff is unmistakably on the right scent, and (as he observes) "let but the work be done well" and success is certain. We have this season about 40 acres, on various fields and soils, at less than half the usual number of rows on a stetch, and some at less than a quarter the ordinary quantity of seed per acre, which is progressing favourably. An eminent agriculturist in noticing it observed, "Mr. Hardy, you ought, and will no doubt by this process ensure every plant to produce some 10 or a dozen fine ears, whilst we farmers of the old school, from our 2 or 3 bushels of seed, obtain at best but a produce of two weak ears from each grain, or about 50 fold." Our answer was that we very much doubted if they ever obtained even half that amount, viz., 50 bushels per acre from such a proceeding. We also observed that we should be well satisfied to reap two good ears from each plant of our own half bushel planted, say 100 fold or 50 bushels, though we expect more, and surprised him when we reminded him, and he himself became thoughtful, that were it possible to obtain half as much even as this from their 2 bushels (say no more, though many use it) it would amount to 200 bushels produce per acre, which clearly showed the error in sowing thus much seed. *Hardy and Son, Seed Growers, Maldon, Essex.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

AT the half-yearly meeting of the Society last week the following report was read and adopted:—

REPORT.

The Society consists at the present time of—
85 Life Governors,
139 Annual Governors,
839 Life-Members,
3,896 Annual Members, and
20 Honorary Members:

forming a total of 4979 Members, or 97 more names on the list than at the previous anniversary. Mr. Evelyn Denison, M.P., has been appointed a Trustee of the Society, in the place of the late Mr. Neeld, M.P.

His Imperial Majesty the Emperor of the French having been graciously pleased to permit his name to be placed on the list of Honorary Members of the Society, in compliance with a request made on the part of the Council, his Imperial Majesty has been unanimously elected accordingly, in grateful recognition of the deep interest which his Imperial Majesty has so effectively taken in the promotion of international agriculture.

The Council have also elected M. Léonce de Lavergne an Honorary Member of the Society, in testimony of the high estimation in which they hold his remarkable work on the Rural Economy of this country.

The Finances of this Society have on no former occasion been in so favourable a condition. The funded property consists of 9264*l.* in the New Three per Cents. Stock, and the current cash-balance in the hands of the bankers is 3657*l*

A complete analytical index to the volumes of the Journal already published is in the press, and a new catalogue of the Library is in preparation.

Prof. Way, the Consulting-Chemist of the Society, has read before the Members a report on the progress of Chemical Science both at home and abroad in reference to agriculture, and has delivered a lecture on the composition of Drainage-water. He has also devised a mode by which the amount of nitric acid and ammonia in the atmosphere may be ascertained with approximate exactness. This discovery will at once give interest and importance to the prosecution of agricultural meteorology, a branch of inquiry which has hitherto either entirely lain dormant, or been pursued only with results of an indefinite character. The chemical investigation of water flowing over the surface of cultivated land, through its substance into drains, will eventually prove of great importance, as showing the excess of manuring matter which may have been in any case applied; at present, however, the results obtained by Prof. Way are confined to a limited body of facts occurring under certain given conditions; but these are sufficient to indicate the great loss which is probably sustained by an injudicious manuring of particular soils. The controversial publication of Baron Liebig and Mr. Lawes have had the effect of calling the attention of scientific men to the chemical principle of agriculture, and of practical men to the application of those principles in a farming and economical point of view. The great questions however involved in this controversy have still to be dispassionately considered, when the controversial spirit shall have passed away, and the facts be made subservient only to the progress of philosophic inquiry. The Council strongly advise the members of the Society to take advantage of their privileges relating to the analysis of the artificial manures, as they can thus only obtain security against fraud from adulteration. The Council have decided that at the end of the current year the offer of the 1000*l.* Prize for a substitute for Peruvian guano shall be withdrawn. Prof. Simonds, the Veterinary Inspector of the Society, has delivered before the Members a lecture on the Skin Diseases of Domestic Animals, and the Royal Veterinary College have transmitted to the Council their annual report.

One of the original objects for which the Society was founded, the last in the order of enumeration, though by no means the least in importance, is that which proposes "to promote the comfort and welfare of labourers, and to encourage the improved management of their cottages and gardens." This great and humane object has been constantly the subject of consideration, both officially by the Council and individually by the members of the Society. Various ameliorating measures have been proposed, which as far as they have gone have been useful, but they fall far short of that extended system which the importance of the subject demands. The Society has distributed at less than prime cost upwards of 30,000 copies of cottage tracts, containing practical suggestions for the management of labourers' gardens, and for cottage economy and cookery; they have also published in their Journal Sir George Nichols's Prize Essay on the best means for improving the condition of the agricultural labourer, as well as Mr. Goddard's and Mr. Macvicar's Prize Essays on the construction of cottages. Last year the Prize for the best essay on labourers' cottages was renewed, and several essays on that subject are at the present moment under the consideration of the judges. The Council, however, regard all these efforts as too limited and temporary in their character. The intelligent mind of the labourer, who performs the operations on the farm, and the high moral principle within him, which is the surest guarantee to his employer, are best sustained and cultivated by making every effort to render the labourer happy and comfortable.

The Chelmsford Meeting, to be held in the middle of July, promises to be equal, in every respect, to the most successful of former Country Meetings of the Society in other parts of the kingdom. The entry of agricultural implements and machinery is large beyond precedent; and as a great number of these, instead of lying inactive, as hitherto, in the yard, will be at ordinary work during certain hours of the Show, they will present a new and instructive feature in the exhibition. The Council have been induced, on the representation of a very large proportion of the Implement Manufacturers who exhibited last year at Carlisle, to apportion the Society's prizes and trials in the implement department over three years, instead of including them in all single successive years. The implements for prizes and trials have, accordingly, been divided into classes for this three years' rotation under the following heads: (1.) Implements and machinery for the tillage and drainage of land. (2.) Implements and machinery for the cultivation and harvesting of crops. (3.) Implements and machinery for the preparation of crops for market and cattle food. Those under the first of these heads will form the Prize and Trial Implements for the Chelmsford Meeting, in addition to the Special Prizes of 500*l.* for the best Steam Cultivator, first and second Prizes for Reaping Machines, and Prizes for new and miscellaneous implements. The Consulting Engineer of the Society has constructed for the Chelmsford Meeting new Dynamometers, as the measures of forces required to overcome the resistance offered by the soil to the different classes of field implements. This amount of resistance, compared with the work actually done, will enable the judges more accurately to estimate the relative economic value of competing implements intended for the cultivation of the soil. The Live Stock portion of the exhibition will include foreign cattle and sheep belonging to foreigners and bred abroad. For the purpose of making entries for foreign animals during the approaching Great International Show at Paris, in the first week of June, the Council have extended the date of entry, in their case, from the 1st to the 12th of that month. The Local Chelmsford Committee have liberally placed at the disposal of the Council the sum of 200*l*, to be awarded as extra prizes for thorough-bred, hunting, and roadster horses. These prizes will, no doubt, attract a large amount of competition, and greatly increase the interest of the show.

Agreeably with a request from the French Government, the Council have appointed Mr. Evelyn Denison, M.P., Chairman of the International Implement Jury at the ensuing Paris Meeting, and ten English Jurors to represent this country in the different departments of live stock and implements on that occasion.

The Council, in conclusion, have again the satisfaction of congratulating the members on the gradual fulfilment of the objects for which the Society was originally established. If practice is slow in its development, the application of science for its improvement requires the greatest caution. In reviewing the active exertions of the Society from its commencement, it could hardly have been expected that so much real advantage, both indirectly and directly, could have been obtained in so brief a period. By means of scientific aid a clue is gradually being gained to the operations of the natural influences on the soil, and to the processes by which vegetable life is modified and maintained. The ordinary operations of farming will eventually derive full benefit from the discoveries of science, and become more economical in their accomplishment, and more certain in their results.

By order of the Council,
JAMES HUDSON, Secretary.

On the motion of Mr. H. Wilson, seconded by Mr. Thomas Scott, the thanks of the meeting were voted to Lord Portman, the President of the Society. In acknowledging the vote, Lord Portman said:—

With regard to the subject of drainage, which was introduced by Mr. Scott, he held that there was no uniform system, and he did not believe that there could be one. The quality of the soil and the nature of the water were such important elements in draining operations, that until these had been ascertained it was impossible to tell what system would answer best in any particular instance. None of them, he feared, would live long enough to see the difficulties of this question entirely removed. All that any of them could do was to obtain the best information they could, and apply it to the best of their ability in their several localities.

Farm Memoranda.

CRESLOW, PUTLOWES, AND BROUGHTON, BUCKS.—This farm has long been celebrated in the annals of grazing for the wonderful animals which have been fed on it. In the days of the great war the late occupier at different times sold 20 Christmas oxen for the enormous sum of 2,123*l.*, which is an average of 106*l.* 6*s.* for each bullock, a price probably never before or since realised by any one grazier. And the present worthy tenant, though he does not attain the notoriety which followed his late relative and predecessor, still furnishes a constant supply of useful animals, of which the splendid Cotswold ewes at the last great Christmas market were very fair specimens. Creslow is a farm of 860 acres, but with additions the occupation now amounts to 1,100. The common stock of this farm is 500 cattle, and in the winter 700 ewes: in grassy seasons, after the ewes are gone, sheep are bought, to come out at Christmas. The house and premises are situated on a hill, the top of which is formed of the Portland oolite, and the base of Kimmeridge clay. One grazing field, perhaps the largest inclosure of really good ground in the kingdom, contains by admeasurement no less than 323A. 3R. 2P., a pretty little farm in itself. This field consists of a series of hill and dale, and consequently the soil varies much in quality. Where the stone and clay join, the water, which filtered through the stone, is thrown out by the clay; and here draining is necessary, which is principally done with turf. The main drains, which have pipes, open at intervals into little stone cisterns for watering the cattle. The summer stock for this field is 220 bullocks, and 200 ewes with their lambs, generally here called "couples." It is very curious to observe the cattle and sheep over this large inclosure. Herds of cattle and flocks of ewes, which are purchased from different fairs, locate themselves in different parts of the field, retain their old companionship, and seldom trespass on their neighbours' domain, or stray away from their own part of the ground. The greater number of the oxen are Herefords, some Devons, and late in the year a few Highland Scots. In consequence of the protracted drought last summer, the grass at Creslow was unusually short, and the stock did not make anything like their usual progress. This farm possesses the advantage of having about 100 acres of it arable, which enables straw and roots to be grown for the winter's stock. In the fall of the year, before the cattle are tied up, they are supplied with hay in racks, which are placed round the ricks in the field. The sheds before Christmas were well filled with 50 Hereford oxen, which were receiving hay, a bushel of sliced Swedes, and three or four cakes (of three lbs. each) daily.

The grazing land at Putlowes, though of less extent than that of Creslow, is decidedly of superior quality, and presents that true feature of the feeding district—a rich, deep loam, resting on a strong clay. It is really wonderful to see the size and fatness of some of the cattle here. In last October there were in one field 20 splendid oxen, weighing 160 stone (8 lbs.) each, not one of which had received hay or oilcake. Now, in selecting these animals, care must be taken to choose those which show an aptitude to fatten and have sufficient age

to accumulate flesh quickly. This most successful grazier, in common with all those who are engaged in feeding cattle, is sadly puzzled to find oxen of a proper age to feed; for, while lots of fleshy steers are to be had everywhere, great good bullocks are not to be found, and the steers will not increase in weight and value in a given time, like the 4-year old oxen. Large grazing fields appear to be liked, if the land is really good and water plentiful. At Putlowes there is a ground of very excellent quality, containing 98 acres. The usual stock for such land is a bullock to an acre, but sheep are generally kept in addition, to the extent of one fat sheep, or one couple (ewe and lamb), to each ox. The cattle which are not disposed of from Grass are perhaps supplied with a little hay in the pastures before they are tied up. They are stalled for about two months, and fed on hay and oilcake. The quantity of cake given to these large cattle is really wonderful, 6 cakes or 18 lbs. per day being a common allowance, and some instances have occurred in which an ox has eaten 15 cakes per day. This is surely more than the stomach of any bullock can profitably assimilate. Putlowes has long been extensively known for its Christmas beef. This year a stall of 40 very superior Herefords and shorthorns realised on an average more than 40*l.* per head.

At Broughton House the stock has lately been confined exclusively to Devons. This farm lies about one mile south of Aylesbury, on the Tring road; and, as the Portland stone is clearly seen in the garden allotments by the toll-gate, it must of necessity follow that this superior grazing land is on the gault clay. This confirms the remark that was made in describing the geology, that the fertility of the land did not depend so much on what clay it rested, as on the quality and depth of the top soil. There are two or three fields at Broughton House as good as any in the county; but there are some, where the deposit of mould is not so deep, which are only of a second-rate description. The farm contains about 200 acres, 56 of which are mown. There is no ploughed land, so the litter for the stalled cattle is purchased. There were last autumn 36 very fine Devons, good fleshy animals, but not possessing the touch or fatness of those at Putlowes. These cattle had each half a truss of hay and 6 Linseed cakes in the day. *Journal of the Agricultural Society.*

Miscellaneous.

Fish Manure.—"The fish—either the refuse of the market or otherwise—is cut into pieces, and submitted to the action of high pressure steam (four or five atmospheres) for about an hour in suitable vessels. It is by that time sufficiently cooked, and is then ready for the presses, which expel a great proportion of the water, and leave the residue in the form of a cake. This cake is, by means of a coarse rasp or grating machine, broken up into a sort of pulp, which is spread out in thin layers on canvass, and dried by means of warm currents of air. It is sold either in this state, or more minutely divided by means of the ordinary grinding processes. It is stated in this condition to correspond to 22 per cent. of the crude weight of the fish, and to contain from 10 to 12 per cent. of nitrogen, and from 16 to 22 per cent. of phosphate. The price was 20 francs per 100 kilogrammes (about 8*l.* per ton) and the demand regularly increasing." *Professor Wilson on the Agriculture of the French Exhibition.*

Calendar of Operations.

MAY.

FARM NEAR HEXHAM, *May* 19.—Since the date of our last report we have had, till Friday last, bitterly cold east winds, which have cut up the Grass especially where stocked, and the corn has also suffered very much. Since the 12th inst. we have had fine growing weather, and the crops have rapidly changed from being withered and "blaed" to a fresh healthy green, and of Grass there is now a full bite. Previous to the 26th ult. the weather was very dry, which greatly furthered the cleaning of fallows, and we are now nearly ready to go right on with Turnip sowing as soon as weather will permit. Our first sown Mangel is just appearing above ground, and the remainder is well sprouted. We have sown a few acres of Swedes which are also just looking up, having been a week in the ground. Wheat on strong clay lands is not looking at all well, and has in some instances been ploughed up, and Oats sown. Oats and Barley are generally looking well. At Stagshawbank Fair on the 9th and 10th insts., there was but an indifferent show of sheep and cattle; hoggs nearly fit for the butcher, and strong fresh grazing cattle were good to sell, but for other kinds there was a very heavy market, owing to the scarcity of food. Horses were a shade cheaper, but really good draught horses still bring large prices.

Notices to Correspondents.

MR. JOHN DUNN, OF BISTERNE: *C W S.* We have not seen his essay, and should be glad of a copy. The Oxford Farmers' Club have just awarded a prize to him for it. The subject is most seasonable—the cultivation of roots. Mr. Dunn is the secretary of the Vale of Avon Farmers' Club, and has for some years had the management of an estate in that neighbourhood, where he is most favourably known.

PRIZE ANIMALS: *A Reader.* We have no record of the measurements of prize Bulls at the Royal Agricultural Society's shows in the Short-horn, Hereford, or any other classes, and we doubt if there be one. The official reports of the French shows go into most minute detail on such subjects.

SEED: *F R S.* From 2 to 4 lbs. of Swedish Turnip seed is enough for an acre. 2 lbs. are much more than enough if they would all grow, and if the fly would spare the plants. But 3 or 4 lbs. is a more prudent seeding under these two risks which you have to run.

THE WEATHER: *R Tom.* "He that regardeth the clouds shall not sow." You must just use present opportunities energetically. Keep the work as well forward as the weather will allow, and do not speculate on future opportunities of wiping off present neglect.

TOLL-BARS: *X.* A case has lately been decided at Gloucester, in which the lessee of tolls was fined for improperly taking toll for a waggon laden with coals to be used in the burning of clay for use, as an alterative of the soil.

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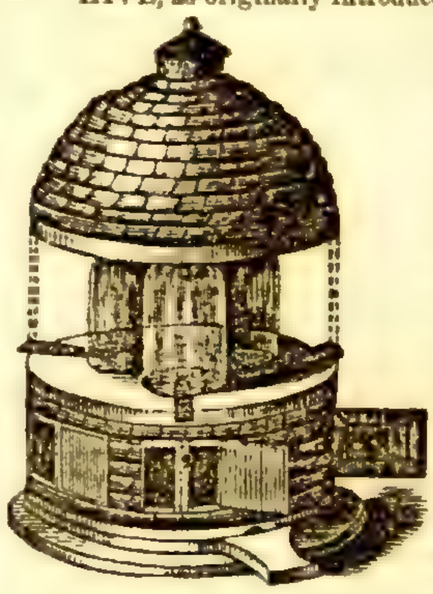

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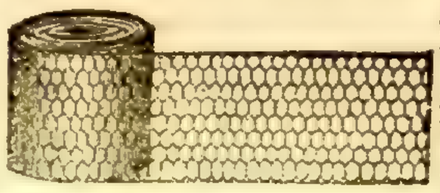
GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use
GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.
PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.
GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.
The Netting made any width, and with openings of any size.
GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.
For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,
SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

16 inches	20 inches	24 inches	28 inches	and 32 inches
£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.
TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.
Other Testimonials may be had on application to the Manufacturer.
The above Machines are warranted to answer the purpose as described, or may be returned.
LONDON AGENTS: Messrs. COTTAM & HALLEN, 76, Oxford Street; and Messrs. BURGESS & KEY, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

SUTTON'S
GRASS SEEDS FOR PERMANENT PASTURE,
(Carriage Free), price 24s. to 30s. per Acre.

From Professor Lindley.—"Messrs. SUTTON,—We have already made trial of your Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. "JOHN LINDLEY.
"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

Sutton's Renovating Grass Seeds for Improving Parks, Pastures, and Meadows.
Quantity of Seed required, 8 lbs. to 12 lbs. per acre. Price reduced to 9*d.* per lb., or 80*s.* per cwt.

SUTTON'S *Price List of Farm Seeds post free.*

Royal Berkshire Seed Establishment, Reading.

MESSRS. E. G. HENDERSON & SON

ARE now prepared to forward their NEW SPRING CATALOGUE, and parties who have not hitherto favoured them with orders can have the same sent free on application. This useful book has been compiled with the utmost attention, and while it notices the latest novelties, gives only such varieties of each class as can with safety be recommended. It should be in the possession of every Amateur and practical Gardener, either for reference or perusal, the simplicity and correctness of its arrangement being a decided improvement on anything of the kind hitherto brought before the public. In addition to the above-mentioned novelties, &c., it contains descriptions and colours of 500 Stove, 700 Greenhouse, and 1000 other Plants of Miscellaneous sorts, such as Azaleas, Geraniums, Fuchsias, Chrysanthemums, &c., with short and select Lists of those varieties best adapted for the various purposes connected with the Stove, Greenhouse, and Garden, full descriptions of many novelties are given in it. With the above will also be published a Coloured Plate, representing a group of Nine new Plants, and can be had post free for 12 stamps.

Wellington Nursery, St. John's Wood, London.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen—*s.*
Exotic Orchids	from 42
Stove and greenhouse Ferns	„ 18
Hardy do.	„ 9
Selaginella or Lycopodium	„ 18
Geraniums, show and fancy varieties ...	„ 9
Do. variegated and bedding do.	„ 6
Do. scarlets in variety	„ 3
Cinerarias	„ 9
Calceolarias, bedding varieties	„ 3
Verbenas	„ 3
Dahlias	„ 4
Ageratums, Cupheas, Petunias, Salvias, &c.	„ 4
Gynerium argenteum (Pampas Grass) ...	„ 18

The above prices are for distinct and fine species, and varieties only, all of which are warranted true to their names; if ordered by the hundred, or in larger quantities, a considerable reduction will be made. A priced and descriptive Catalogue is published, and will be forwarded post free upon application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

ORCHIDS.

WM. MAULE AND SONS beg to state that the season of the year having now arrived that Orchidaceous plants may be transmitted with safety to any distance, they can supply a few of the most favourite kinds of which they have a stock, in thoroughly established plants.

	s.	*d.*
Aerides odorata	10	6
„ affine, the true and best var., (not roseum)	42	0
Aerides Foxbrush, strong flowering plants ...	105	0
Calanthe veratrifolia ...	7	6
Cœlogyne Wallichi and maculata, pots with from 3 to 5 bulbs in, each bulb	2	0
Cattleya crispa major	21	0
„ Harrisoni violacea	15	0
„ intermedia ...	15	0
Dendrobium Devonianum, the major variety ...	10	6
Dendrobium densiflorum	10	6
Dendrobium Farmeri, 10*s.* 6*d.*, 16*s.*,	21	0
Dendrobium chrysanthum major...	7	6
„ Gibsoni, very strong	10	6
„ Cambridgianum, 10*s.* 6*d.*	15	0
„ Pierardi	7	6
„ moschatum... ...	7	6
Vanda cœrulea, 42*s.*, 63*s.*, 84*s.*,	105	0
„ Roxburghi	42	0
„ teres	10	6
Saccolabium ampullaceum, new beautiful...	105	0

Stapleton Road Nurseries, Bristol.

AMERICAN PLANT EXHIBITION,
AT THE PERRY BARR NURSERY, NEAR BIRMINGHAM, 1856.

JOHN MOORE AND SON beg respectfully to announce that their First Annual Exhibition of Rhododendrons, &c., will be open from the 3d to the end of June daily, from 10 to 8 o'clock (Sundays excepted). A circular containing full particulars will be forwarded on application.

Patronesses.

The Right Hon. the Countess of Dartmouth
The Right Honourable the Lady Calthorpe
The Right Honourable the Lady Hatherton
The Hon. Miss Calthorpe
Lady Scott
Mrs. Murray
Mrs. C. B. Snepp
Mrs. Baron D. Webster

Patrons.

The Right Hon. the Earl of Dartmouth
The Right Honourable the Lord Calthorpe
The Right Honourable the Lord Hatherton
The Hon. F. H. W. G. Calthorpe
The Hon. Augustus Calthorpe
Sir Francis E. Scott, Bart.
The Rev. G. W. Murray
The Rev. C. B. Snepp
The Rev. H. Bagnall
T. R. T. Hodgson, Esq., Mayor of Birmingham
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NEW ACHIMENES.

BASS AND BROWN are now supplying Plants of the following superb new ACHIMENES:—

ACHIMENES (MANDIROLA) ROEZLI.—Habit of Gesneria zebrina, with velvety striped foliage, marbled with black, flowers of a beautiful rose, shaded with lilac, 10*s.* 6*d.* each.

Also five other splendid new varieties, viz., C. Bouche, Chr. Dagen, Holgärtner Wendischuch, (Mandirola) lanata, and purpurea multiflora (for descriptions see Catalogue No. V). The six varieties together, including Mandirola Roezli, for 30*s.*

The following four very fine varieties may now be had for 10*s.*, viz., Dr. Hopf, Edmond Boissier, Edouard Otto, and Ambrose Verschaffelt.

Choice varieties 6*s.* and 10*s.* per dozen.

NEW GLOXINIAS.

The 20 new varieties (see Catalogue No. V.) may now be had for 45*s.* for this season flowering, or 10 of the erect flowering varieties for 25*s.*, or 25*s.* for the other 10. Plants from last autumn bulbs of 16 varieties of the same, which will produce abundant bloom, may still be had for 50*s.*; eight erect flowerings for 28*s.*; or the other eight for 24*s.* 12 choice varieties for 20*s.*

Carriage free of all plants not under 20*s.* to all the London termini.

BASS & BROWN, Sudbury, Suffolk.

CHOICE VERBENAS, PETUNIAS, ETC.

MITCHELL AND Co. are now sending out the following first-rate varieties of VERBENAS, 6*s.* the collection, good strong plants:—Géant des Batailles, Madame Reine, Madame Cambacères, Julia Pacquin, Wonderful, Mons. Richalet, Lord Raglan, Marchioness of Ellesmere, Mrs. Halford, Blue Beard, Tyrian Prince, Florence Nightingale.

New Double PETUNIA IMPERIALIS, strong plants, 6*s.* per dozen, or 45*s.* per 100.

TREE CARNATIONS, consisting of the very best varieties, 12*s.* per dozen.

DAHLIAS, one of the choicest collections ever offered, 6*s.* per dozen, or four dozen for 20*s.*

Post-office orders are respectfully requested from unknown correspondents, made payable to JOHN FAIRBROTHER.

All Orders over 25*s.* are delivered carriage free in London or any Station on the London and South Coast Railway.

Bristol Nurseries, Kemp Town, Brighton.

PRESENT PRICES OF SEEDS OFFERED BY
CLARKE AND CO., WHOLESALE SEEDSMEN, 86, High Street, Borough, London.

	Per lb.	Per bushel.
Skirving's Improved Purple-top Swede	0*s.* 9*d.*	32*s.* 0*d.*
Laing's Improved Purple-top Swede ...	0 9	32 0
Green-top Swede	0 9	32 0
Purple-top Swede	0 9	32 0
Tankard Swede	1 0	45 0
Fine White Globe Turnip	0 9	26 0
„ Round Norfolk	0 9	26 0
Fine Red Globe	0 9	30 0
„ Round	0 9	30 0
Fine Green Globe	0 9	28 0
„ Round	0 9	28 0
Purple-top Yellow Scotch Turnip ...	1 0	48 0
Skirving's Improved Purple-top Scotch	1 0	48 0
Green-top Yellow Scotch	1 0	48 0
White Tankard	0 9	30 0
Red „	0 9	30 0
Green „	0 9	30 0
Yellow „	1 0	45 0
Dale's Hybrid	1 0	48 0
Early Stone...	0 9	28 0
Chivas's Orange Jelly	84 0 p. cwt	1 0 per lb.
Carrot, Long Orange	60 0 „	0 9 „
„ True Altringham...	60 0 „	0 9 „
„ Fine Long Red Surrey	60 0 „	0 9 „
„ Early Scarlet Horn	84 0 „	1 0 „
„ Long White	40 0 „	0 6 „
„ James's Green-top	60 0 „	0 9 „
Lucerne, fine new	0 9 p. lb.	70 0 p. cwt.
Mangel Wurzel, Long Red	0 6 „	40 0 „
„ Globe Red	0 9 „	52 0 „
„ Long Yellow	0 9 „	50 0 „
„ Globe Yellow... ...	0 6 „	40 0 „

Post-office orders to be made payable to CLARKE & Co., at the Borough Post Office.

JOHN CATTELL, in addition to his usual fine stock of general BEDDING PLANTS, has the following first-rate newer kinds to offer in good plants at the low prices annexed.

VARIEGATED GERANIUMS.	Each.	Dozen
	1*s.* 0*d.*	*s.* *d.*
Attraction (Gaines)		
Attraction (Kinghorn); habit like "Flower of the Day," with a beautiful deep pink horse-shoe mark	2 0	21 0
Admiration	7 6	
Brilliant	...	5 0
Flower of the Day	...	5 0
Golden Chain ... ... 6*s.* to		9 0
Golden Admiration	2 6	
Mountain of Light	1 0	9 0
Mrs. Lennox ... ... 3*s.* 6*d.* to	7 6	
Silver King	1 6	15 0
Silver Queen ... ... 2*s.* 6*d.* to	5 0	
Variegated Queen ... ... 5*s.* to	7 6	
GERANIUMS (VARIOUS).		
Virginium, a most superb bedding variety of the florist habit, having a very large truss of the purest white flowers; it is also a valuable variety for pot culture	2 6	24 0
Momus, a capital bedding variety, colour and habit of the old Daveyana	...	12 0
Beauty of Chipstead, intense bright scarlet, the best of the cerise class ... ... 18*s.* to		24 0
Trentham Scarlet Gem, the best of the large scarlets	1 0	
Verbena Mrs. Woodroffe, and other extra fine varieties .. .. 8*s.* to		4 0
Dahlia Zelinda, dwarf purple, 12 to 18 inches, and flowers very freely	...	6 0
Hydrangea japonica variegata ... ... 1*s.* to	1 6	9 0
Oxalis Bowi, rosy pink; this makes a fine bed ...	...	6 0
Phlox Drummondi Radetzki, beautiful rosy purple, striped white	1 0	10 6
Phlox, first-rate hardy perennial varieties ... 6*s.* to		18 0
Salvia porphyrantha, dwarf dark red	...	6 0
Calceolaria, unbloomed seedlings in single pots, from J. C.'s superior varieties	...	6 0

A Priced Catalogue of the above, and a general Collection of Bedding Plants, &c., for the present season, may be had on application. Packages are charged at wholesale prices.

A remittance or reference must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collection of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

PLANTS
SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.

Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

FINE SHOW DAHLIAS.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, offers the following DAHLIAS, which are recommended in EDWARDS'S "National Garden Almanack for 1856":—

Amazon	Miss Frampton	Topsy
Duchess of Kent	Rachel Rawlings	Mr. Seldon
Imperatrice Eugenie	Sir F. Thesiger	Triomphe de Roubaix
Primrose Perfection	Louisa Glenny	Jonas
Robert Bruce	Port Royal	Richard Cobden
King of Yellows	Indispensable	Essex Triumph
Rose of England	Magnificent	Empereur de Maroc
Mrs. Seldon	Red Gauntlet	
Annie Rawlings	Comet	

Others can be supplied to parties having duplicates.

J. H. will forward the above Dahlias, hamper, package, &c., included for 12*s.*; 25 fine show Pansies, 12*s.*; 25 Belgian Daisies, 8*s.*; 25 Phloxes, including "Countess of Home," 16*s.*; finest Pansy Seeds, 1*s.* and 2*s.* packets.

Post-office orders payable at Middleton, Lancashire.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 4*d.*; fine Households, recommended for Bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat-meal, for Brown Bread, 11*s.* 0*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND (sharp grit and free from iron) 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered five miles or to any London wharf or railway, (sacks cost price, or on hire 6*d.* each). Kentish and other Peats and Loam in large or small quantities. Terms cash.

JOHN KENNARD, Swan Place, Old Kent Road.

SECOND-HAND AGRICULTURAL IMPLEMENTS FOR SALE, AND WANTED.—Apply to EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road, six doors west of Hampstead Road, London.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard; 200 yards, 14*s*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 9, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

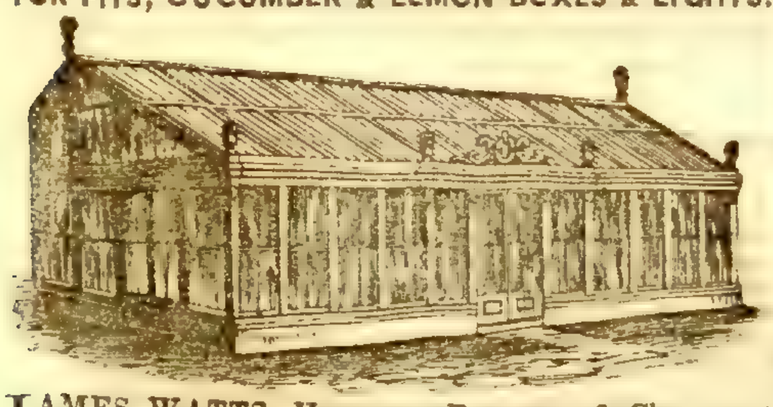
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

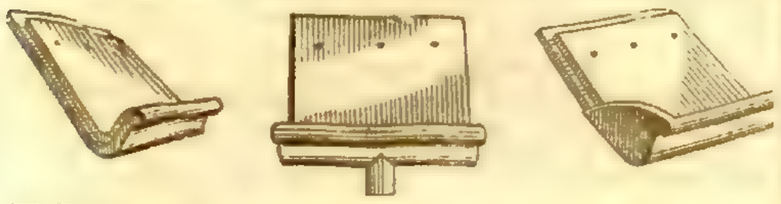
These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.



BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

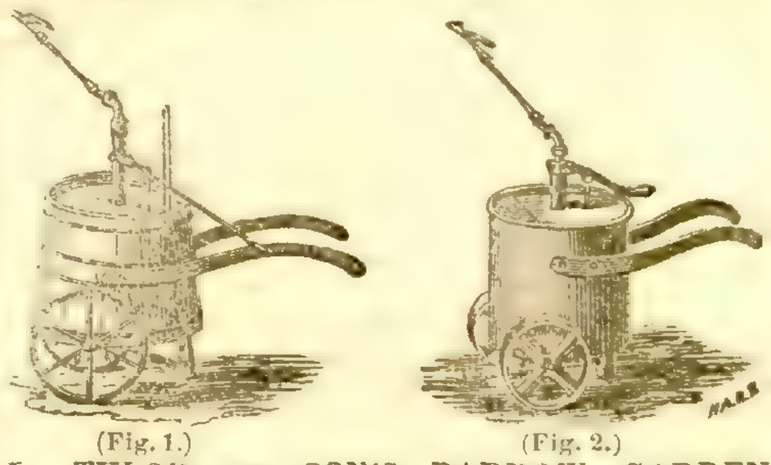
This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Gloster, Bridgewater, and Rugby.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted

Priced Lists of Plant Tubs and Boxes forwarded on application.

GARDEN VASES, WIRE WORK, AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory for aviaries, poultry houses, arbours, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to COTTAM & HALLEN, Iron Works, 2, Winsley Street, Oxford Street.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high	...	£4	10
No. 2	„ 15	„	„ 45	„	...	5	10
No. 3	„ 28	„	„ 45	„	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high	...	£2	15
No. 13	„ 12	„	„ 30	„	...	3	5
No. 11	„ 16	„	„ 40	„	...	4	0
No. 12	„ 24	„	„ 45	„	...	5	0
No. 14	„ 30	„	„ 45	„	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do, diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

WANTED TO RENT, at Michaelmas next, a FARM from 100 to 150 Acres, with Dwelling House and suitable Buildings.—M. N., Post Office, Worthing, Sussex.

FARM, WITH THE SHOOTING,

IN A BEAUTIFUL COUNTRY, FOUR MILES FROM HATFIELD, HERTS, AND ONLY 24 MILES FROM LONDON.

TO BE LET, on Lease, 231 acres of LAND, with commodious Residence and necessary Buildings, lying in a ring fence, and bounded on three sides by the high road. Arrangements will be made to drain the land. Permission will be given to break up pasture and grub fences, and every facility afforded to an enterprising and improving tenant,—Particulars, and orders to view, may be obtained of Messrs. DAVIS & VIGERS, Land Agents, 3, Frederick's Place, Old Jewry.

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on, entry at Martinmas, 1856, the FARM of MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr and one from Maybole, where there is a railway station. It extends to 298 acres, 1 rood, 8 poles imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the Farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oil-cake Crushers, Millstones for Grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and Pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted, without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, Manager at Myremill, will show the Farm, *and offers to be lodged with Mr. Brown, Royal Bank Office, Maybole, on or before the 30th June next.*—May 31.

CROWN LANDS, SUSSEX.

TO BE LET, by Tender, by order of the Hon. Charles A. Gore, Commissioner in charge of her Majesty's Land Revenue, on Lease for a term of 21 years, from October 10, 1856, the following Farms, viz.:—NEWHOUSE FARM, situate in the parish of Poynings, in the county of Sussex, about seven miles from Brighton, and five miles from the Hassocks Gate Station on the Brighton Railway, comprising 349 acres of Arable, Grass, and Coppice Lands, with a good Farm House, and convenient Farm Buildings; also PERCHING FARM, in the parish of Edburton, in the same county, near the last mentioned Farm, comprising 730 acres of Arable Pasture, Meadow, Coppice, and Down Lands, with a good Farm House, and convenient Farm Buildings. For forms of tender and conditions of letting, apply to the Hon. CHARLES A. GORE, 1, Whitehall Place, Westminster, or to Mr. JOHN CLUTTON, 9, Whitehall Place, Westminster. To view the farms, apply to the tenants, Mr. BOTTING, Newhouse Farm, near Hurstpierpoint; and Mr. N. BLAKER, Perching Farm, near Hurstpierpoint. Tenders addressed to the Hon. CHARLES A. GORE, to be sent to the Office of Woods, &c., 1, Whitehall Place, Westminster, on or before Saturday, the 15th day of June, 1856, endorsed "Tender for Newhouse Farm," or "Tender for Perching Farm."

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, June 3, at 12 o'Clock precisely, Spanish Fowls, from the yards of Mrs. L. Stow, of Bredon, very choice; also a selection from the yards of Lord de Blaquiere, J. Allisson, Esq., and several other first-class breeders, including Dorkings, Cochins, Polands, Hamburghs, Brahmas, &c.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORCHIDS.—IMPORTED AND ESTABLISHED.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on MONDAY, June 9, at 1 o'Clock precisely, an importation from Java of Phalænopsis grandiflora, Saccolabium Blumei, Aerides suavissima, &c. Also a small collection of established Plants of Aerides virens, Odoratum purpurascens, Larpentæ, Maculosum major, Saccolabium guttatum, Vanda cœrulea, Cattleya labiata, Quindos, Aclandiæ and elegans, Angræcum eburneum, &c.—May be viewed on the morning of Sale and Catalogues had.

ORCHIDS, AN IMPORTATION FROM BRAZIL.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, June 10, at one o'Clock precisely, the finest masses ever imported of Lælia purpurata and brysiana, Cattleyas tigrina, guttata, Leopoldi, Loddigesi, amethystina, and intermedia, Coryanthes eximia, speciosa, and maculata, Miltonia Morelli, and about 20 of the beautiful Palm Corypha cærifera.—May be viewed on the day prior and morning of Sale, and Catalogues had.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on WEDNESDAY, June 4, and THURSDAY, June 5, at 12 o'Clock, a first-class Collection of Fuchsias, Verbenas, Petunias, Dahlias, Climbing and other Roses, Calceolarias, &c.; also Geraniums and other Plants in bloom, with a fine assortment of Ornamental Plants for bedding.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CROYDON.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the premises, Sion Nursery, Croydon, on MONDAY, June 2, at 11 o'Clock (by order of the proprietor), the whole of the valuable GREENHOUSE and BEDDING PLANTS, consisting of about 2000 Show, Fancy and Scarlet Geraniums, Azalea indica, Camellias, Epacris, Cinerarias, Acacias, Chrysanthemums, Passifloras, Herbaceous and Rock Plants; choice Dahlias, Fuchsias, Verbenas, Petunias, Heliotropes, &c., together with 2 and 3-light Boxes, capital Iron Roller, Hand Glasses, Water Butt on wheels, &c.—May be viewed prior to the Sale. Catalogues had on the premises; of the principal seedsmen in London and of the Auctioneers, American Nursery, Leytonstone, Essex.

CHELSEA.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, Camera Square, King's Road, Chelsea, on FRIDAY, June 6, at 11 o'Clock (by order of Mr. M'Lean, leaving the premises), the whole of the GREENHOUSE and BEDDING PLANTS, comprising Scarlet and other Geraniums, Oleanders, Hydrangeas, Fuchsias, Verbenas, Calceolarias, Intermediate Stocks, Heliotropes, Myrtles, Tropæolum canariensis, choice Dahlias, &c.; together with two Greenhouses, one and two-light Boxes, range of Pits, capital Tumbril Cart, Fowls, and sundry effects.—May be viewed prior to the Sale; Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone.

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH AND SON,

OF THE

EXOTIC NURSERIES, EXETER AND CHELSEA,

HAVE much pleasure in now offering for sale, for the first time, the following novelties, of their own recent introduction, and in the selection of which they have been guided solely by the determination of submitting only such plants as are of general usefulness and sterling merit.

PLANTS WILL BE READY FOR DELIVERY ON AND AFTER THE 26th of MAY.

ÆSCHYNANTHUS FULGENS.

A very fine species, of a rich orange scarlet, shaded with yellow. Collected at Moulmein by Mr. Thomas Lobb, and figured in Curtis's "Botanical Magazine" for January, 1856, where Sir William Jackson Hooker says, "It blossoms very freely, and few plants can exceed it in beauty." It was exhibited at the Horticultural Society's Rooms, 21, Regent Street, in November, 1855, and deemed worthy of a First Class Certificate. Fine established plants, 10*s.* 6*d.* each.

CEANOTHUS FLORIBUNDUS.

Perhaps the finest species of Ceanothus yet introduced; raised from seeds sent home by Mr. William Lobb, and has proved to be perfectly hardy. It was figured by Sir William Hooker in Curtis's "Botanical Magazine" for September, 1854, and described as being "certainly the most beautiful of the several blue-flowered kinds yet known to us. The leaves are copious, compact, and glossy; and the flowers, though really growing in corymbs, are so dense as to be perfectly globose, and these heads, crowded at the extremity of numerous short branches, and of the richest mazarine blue that can be looked upon. It flowers in June." A few extra sized plants, 21*s.* each; smaller size ditto, 10*s.* 6*d.* each.

CLEMATIS GLANDULOSA.

This is a fine stove climber of free growth, and an abundant bloomer. Sent home from Mount Salak, in Java, by Mr. Thomas Lobb. The petals are dark purple or nearly black, with pure white anthera. The two distinct colours produce a fine contrast. Strong plants 10*s.* 6*d.* each.

CUPRESSUS M'NABIANA.

We have succeeded in raising plants of this beautiful Conifer from seeds gathered by Mr. W. Lobb, who found it on the Sierra Nevada of North California, where it forms a bush from eight to ten feet high. Dr. Lindley, in describing it as a new plant in the *Gardeners' Chronicle*, June 23, 1855, said, "The specimens gathered by Mr. W. Lobb, and from which Messrs. Veitch have raised young plants, presented a most striking appearance, with their green and glaucous scales associated with the deep rich brown of Tamarix gallica on their branches, and show that in youth and vigour the species must be exceedingly handsome." A few extra sized plants, 21*s.* each. One year seedlings, 10*s.* 6*d.* each.

DELPHINUM CARDINALE.

A new and rare introduction, of remarkable beauty, possessing a colour hitherto unknown in the genus to which it belongs. It was figured in the "Botanical Magazine" for December, 1855, and described by Sir Wm. J. Hooker in the following terms:—"We have now the pleasure of making known a species of Delphinium equalling, if not surpassing, any other in size and symmetry of the plant, and excelling in the brilliancy of colour of the flower, and that as rich a scarlet as can well be looked upon. It is one of the many novelties selected by Mr. William Lobb, in California, and introduced to our gardens by Messrs. Veitch and Son, of the Exeter and Chelsea Exotic Nurseries. Treated as a hardy perennial it cannot fail to be a great favourite with all overs of handsome flowers." Strong plants, 10*s.* 6*d.* each.

DODECATHEON INTEGRIFOLIUM.

A new and beautiful species from California, perfectly distinct from D. media, and being hardy and free blooming it is an important addition to our spring flowering plants. Established plants, 5*s.* each.

FUCHSIA MALAKHOFF.

A large and very showy double variety, raised at our Nursery. Broad crimson sepals, and purple corolla. Pronounced by the editor of the "Florist" to be "certainly the most striking and showy of the double varieties." It is of excellent habit, and Messrs. V. and Son have no hesitation in warranting it to give satisfaction. Good plants, 7*s.* 6*d.* each.

FUCHSIA PENDULINA.

A very distinct and beautiful hybrid raised between F. serratifolia and a pendulous Peruvian species, producing even on small plants fine corymbs of delicate carmine flowers 3 inches in length, and very glossy, deep pink corolla, foliage ornamental, and altogether it may be considered one of the most elegant of its tribe. It received a Certificate of Merit at the National Floricultural Meeting, October 4, 1855. Good plants, 7*s.* 6*d.* each.

JUNIPERUS PYRIFORMIS.

A very distinct and fine species, met with by Mr. W. Lobb on the mountains of St. Barnardino, in California, where it forms a low tree 10 to 12 feet high. The fruits are remarkable for being very like small Pears, when young, and the berries are deep purple with a glaucous bloom, and it is perfectly hardy. Price 10*s.* 6*d.* each.

LEPTODACTYLON CALIFORNICUM.

A lovely plant for the greenhouse or conservatory. It is from South California, and forms an exceedingly pretty low shrub, remarkable for the slender segments of its copious foliage, and for the great beauty of its Phlox-like flowers, which are produced from May to August in very great profusion, completely covering the plant. Colour of flowers rosy pink, most delicately shaded. It may be called a miniature tree Phlox. It was exhibited at Chiswick on the 20th June, 1855, and at the Royal Botanic Society's exhibition on the 4th July in the same season, and on both occasions was awarded a Large Silver Medal as a new plant of sterling merit and great beauty. It was very accurately figured in the "Florist" for October, 1855. This is unquestionably one of the finest and best plants Messrs. V. and Son have ever had the pleasure of offering to the public. Plants of two sizes—largest size, 21*s.* each; smaller ditto, 10*s.* 6*d.* each.

OUVIRANDRA FENESTRALIS.

It affords us much gratification to be the medium of offering for sale plants of this singularly beautiful aquatic, which, until a very recent period, was known in this country only by dried specimens and drawings. It is a native of Madagascar, from whence a considerable number of living plants were brought home last year by the Rev. Mr. Ellis, and transferred by that gentleman to us exclusively, with the exception of specimens presented by him to the gardens at Kew, Regent's Park, and Chiswick, and others retained only for his own private collection. It would be difficult by mere verbal description to convey an adequate idea of this interesting plant, which has been designated by Sir W. Hooker as "one of the most curious of Nature's vegetable productions." It consists solely of beautiful "network" or skeleton leaves, the appearance of which fully justify the popular name of "Lattice Plant" which has been applied to it. We have found it thrive successfully cultivated in glass or earthenware pans in water at a temperature from 70° to 80°; the skeleton leaves float gracefully just beneath the surface of the water, and the effect produced by a large plant, with leaves of various sizes and shades of green, is very striking. We invite all lovers of plants to an inspection of this remarkable and beautiful novelty.—Price 105*s.* each.

PHYGELIUS CAPENSIS.

A very desirable new and perfectly hardy perennial plant producing long crimson tubular blossoms very freely. It was exhibited at Chiswick, July 11, 1855, and awarded a First Class Certificate of Merit. Sir William Hooker figured it in the "Botanical Magazine" for November, 1855, and said, "This beautiful plant, only recently discovered in Caffreland, at Witbergen, reminds one singularly of the Pentstemons of North America. Our noble flowering specimen was sent us by Messrs. Veitch, of the Exeter and Chelsea nurseries, where it came to great perfection in the open border in the summer months." From its having proved perfectly hardy it will doubtless be a great acquisition as a bedding plant, growing from 18 inches to 2 feet high. It is likewise a handsome plant for pot culture. Price 10*s.* 6*d.* each.

RIBES SUBVESTITUM.

A very pretty flowering hardy shrub, sent from California by Mr. W. Lobb, and belonging to the same section as our R. speciosum. The flowers, however, are considerably larger than those of that species, and of a deep crimson colour. Strong plants, 7*s.* 6*d.* each.

RHODODENDRON MOULMEINENSE.

A white species from Moulmein, where it was discovered by Mr. Thomas Lobb, on the Gerai mountains, at an elevation of 5000 feet above the level of the sea. It is figured by Sir William Hooker in Curtis's "Botanical Magazine" for March 1856; and is quite distinct from all other Rhododendrons in flower, foliage, and habit. Price 10*s.* 6*d.* each.

RHODODENDRON PRINCESS ROYAL.

Our plants of this lovely hybrid greeenhouse Rhododendron are not yet ready in numbers equal to the very large demand for it, but we shall duly advertise the same when it will be sent out, and orders taken in the interval will be executed in the rotation received. It was exhibited at Chiswick June 20, 1855, and described by Dr. Lindley, in a leading article of the *Gardeners' Chronicle*, the same week in the following terms:—

"To turn to the real novelties there, it is impossible not to direct attention, in the first instance, to the very curious and singularly beautiful Princess Royal Rhododendron exhibited by Messrs. Veitch. This striking novelty was obtained from the white R. jasminiflorum by the palest variety of R. javanicum. In form it was intermediate between its parents, but its flowers were a clear pure rose colour." At this exhibition it was awarded a Large Silver Medal.

When ready, the plants will be of two sizes.

The large size..... 63*s.* each.
The smaller size..... 42*s.* each.

TECOMA FULVA.

A beautiful Bignoniaceous plant with tubular flowers of bright yellow shaded with crimson, figured in the "Botanical Magazine," February, 1856, and described by Sir William Hooker, who says, "There cannot be a question but that the handsome plant here figured is the Bignonia fulva of Cavanilles, till recently apparently only known to that author and to Louis Née, who is reported to have gathered it. Our flowering specimens were reared by Messrs. Veitch, of the Exeter and Chelsea Nurseries, and sent by them in November, 1855." Strong plants, 10*s.* 6*d.* each.

The usual allowance of one plant over will be made to the trade if three plants of a sort are ordered at one time.

MESSRS. VEITCH AND SON also offer the following choice selection of Plants, the majority of which are comparatively new, and all are of intrinsic excellence:—

ARALIA PAPYRIFERA; OR RICE PAPER PLANT.

In addition to the fine foliage of this beautiful Stove Plant, it possesses peculiar interest from the circumstance of its pith being the material from which the Chinese manufacture their beautiful Rice Paper. Plants in two sizes, 21*s.* and 42*s.* each.

DESFONTANIA SPINOSA.

This fine evergreen shrub, originally sent us by Mr. William Lobb, from Patagonia, where he discovered it in the region of snow, has proved, as we expected it would do, perfectly hardy in this country. Its glossy Holly-like foliage and rich scarlet tubular flowers, tipped with yellow, render it a very desirable acquisition. Extra-sized plants, 30*s.* each; second ditto, 21*s.* each; smaller plants, 10*s.* 6*d.* each.

HEDAROMA TULIPIFERUM.

Young plants of the best variety of this first-class Greenhouse novelty, 7*s.* 6*d.* and 10*s.* 6*d.* each.

LAPAGERIA ROSEA.

Confessedly the finest conservatory climber yet known, the flowers being of a rich bright rose, marbled with white inside, nearly 3 inches in length and 2 in diameter; of particularly waxy substance, and consequently the flowers remain a considerable time in perfection. Plants, 10*s.* 6*d.* and 21*s.* each.

LILIUM GIGANTEUM.

This noble Lily having been generally exhibited, is too well known to render any description of it necessary. Fine specimens from 21*s.* to 84*s.* each, according to strength o bulb. Small seedlings, 5*s.* each.

LOMATIA FERRUGINEA.

This fine evergreen shrub was found in Chiloe and Patagonia by our Mr. William Lobb. It attains a height of 6 or 8 feet, and is remarkable for its beautiful Fern-like foliage. As a fine leaved conservatory plant it is perhaps without a rival. Plants, 10*s.* 6*d.* and 21*s.* each.

NEPENTHES RAFFLESIANA.

Having been successful in raising seeds of this fine Nepenthes, we are able to offer beautiful seedling plants of it, forming an abundance of pitchers. 21*s.* each.

PINUS BENTHAMIANA (TRUE).

Having raised seedlings of this beautiful Pine (which is doubtless the finest of the long-leaved Californian kinds, and which has proved to be perfectly hardy), we are now enabled to offer established plants in pots as follows:—Single plants, 10*s.* 6*d.*; 6 plants, 50*s.*; 12 plants, 84*s.*

PHILESIA BUXIFOLIA.

A beautiful dwarf evergreen hardy shrub, with small dark foliage, discovered by Mr. William Lobb on the Andes of Patagonia beyond the snow line, producing freely its beautiful large bell-shaped deep rose-coloured flowers, the petals of which are of great substance. Plants, 7*s.* 6*d.*, 10*s.* 6*d.*, and 21*s.*

PODOCARPUS NUBIGENA.

A perfectly hardy and fine Taxaceous plant, sent from Patagonia by Mr. W. Lobb. Established plants. 21*s.* each.

PTERIS ASPERICAULIS.

A stove Fern from the East Indies, very distinct and of great beauty. Strong plants, 21*s.*, smaller ditto, 15*s.*

RHODODENDRON CALIFORNICUM.

A distinct species, sent from California by Mr. W. Lobb, having fine trusses of rose-coloured flowers. It is perfectly hardy, having survived the past two winters in the open border, without any protection whatever. The foliage is good, and it is an abundant and late bloomer, and will doubtless be a great acquisition to hybridisers. Good plants, 7*s.* 6*d.* each.

RHODODENDRON JASMINIFLORUM.

Few plants have excited so much admiration as this lovely Rhododendron, sent home by Mr. Lobb from Mount Ophir, and exhibited by us so often that any further description is unnecessary. Plants, 10*s.* 6*d.* to 21*s.* each.

RONDELETIA ANOMALA.

A beautiful hothouse shrub, raised from seeds sent to the Horticultural Society by its generous and indefatigable correspondent, G. U. Skinner, Esq. The Plant has something the appearance of a Bouvardia; the flowers are of a rich vermillion red and flowering in November, it must be regarded as one of the most brilliant species which even Mr. Skinner has been able to add to our gardens. Plants, 5*s.* to 7*s.* 6*d.* each.

SONERILA MARGARITACEA.

Perhaps the most chaste of all variegated plants, producing with dark glossy green leaves, dotted all over with silvery white spots, a profusion of beautiful crimson flowers with yellow stamens. It is a dwarf compact plant, of particularly neat habit, and requires the temperature of a cool stove or warm greenhouse. Good plants, 5*s.* and 7*s.* 6*d.*

TECOMA VELUTINA.

Found by Mr. Skinner in Guatemala growing in a temperature from 68° to 78°, and raised from seeds sent by that gentleman to the Horticultural Society, and described by Dr. Lindley as a plant of uncommon beauty. Established plants, 7*s.* 6*d.* and 10*s.* 6*d.*

TORREYA MYRISTICA.

This is a splendid hardy Taxaceous plant, sent from California by Mr. W. Lobb. It is from the Sierra Nevada, at a high elevation, and attains the height of from 100 to 150 feet. The stock of this plant is very limited. Strong seedling plants, 63*s.* each.

WELLINGTONIA GIGANTEA.

Ample description of this noble tree having appeared in former advertisements or circulars, it is only necessary now to say that it is a Coniferous tree of immense dimensions and great beauty, and perfectly hardy. A few of the first raised, extra sized plants, 42*s.* Smaller plants, 15*s.* and 21*s.*

All Wellingtonias sent out by us are Seedlings.

A general Retail Catalogue of Plants, now in course of publication, will be ready shortly, and may be had on application.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, May 31, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1856.] SATURDAY, JUNE 7. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, Regent's Park.—EXHIBITIONS of PLANTS, FLOWERS, and FRUIT, WEDNESDAYS June 18th and July 19th, and of AMERICAN PLANTS, SATURDAY, June 14th.

Tickets to be obtained at the Gardens only by orders from Fellows of the Society, price 5s.; or on the days of Exhibition, 7s. 6d. each. Gates open at 2 o'Clock. Carriages to set down and take up either at the North, South, or East Entrances to the Gardens. The North Gate opens directly into the covered Exhibition ground.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street, London.—Notice is hereby given, that at the Exhibition to be held on THURSDAY, the 12th instant, Prizes may be awarded to—

PELARGONIUMS, three distinct varieties.
Fancy ditto ditto ditto
AZALEAS ditto ditto
ERICAS ditto ditto
CALCEOLARIAS, four distinct ditto
MIMULUSES ditto ditto
RHODODENDRONS, six distinct trusses.
PANSIES, twenty-four distinct blooms
Ditto six distinct varieties in Pots.

Censors:—Mr. J. Keynes, Mr. T. Moore, Mr. A. Parsons, Mr. Cook.

No entrance fee. Everything intended for competition must be staged before 12 o'clock.

SEEDLINGS AS USUAL.

*** Tickets for free admission may be obtained on application.

John Edwards.

TROWBRIDGE HORTICULTURAL SOCIETY.—The SEVENTH GRAND EXHIBITION of the above Society, open to all England, will be held on WEDNESDAY, August 20. Schedules of the Prizes may be had of Mr. John Graham Foley, Honorary Secretary, the Parade, Trowbridge.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Second Grand Flower Show of the above Society will be held by permission of the Earl of Essex in Cassiobury Park, near Watford, on THURSDAY, July 3, open to all Exhibitors. An efficient Band will be in attendance. Schedules may be obtained on application to the Secretary.—By Order of the Committee,
High Street, Watford. Mr. John Pearce Taylor, Sec.

CAUNTON HORTICULTURAL SOCIETY.—The First EXHIBITION, open to all England, will take place at Caunton, near Newark, on TUESDAY, the 8th July, when a Silver Cup, value five guineas, and other Prizes to the amount of nearly 30l., will be awarded. Productions forwarded from a distance may be met and conveyed gratuitously from the railway stations at Newark, six days' notice having been given to the Secretary, Mr. William Fowle, Beesthorpe Hall, near Newark, from whom Schedules may be obtained.

ALTERATION OF DAYS OF SUMMER SHOW.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.—In consequence of the Crystal Palace Company having just announced a Flower Show to take place on the 25th and 26th June, the Brighton Summer Show will be held on WEDNESDAY and THURSDAY, the 11th and 12th of June, instead of the 25th and 26th as heretofore announced. Schedules can be obtained of the Secretary or of E. Spary, Superintendent of the Exhibition. Extra Prizes will be given for Azaleas, six varieties; Roses in Pots, six varieties.

By order of the Committee,
Edward Carpenter, Sec., Lavender Street, Brighton.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The THIRTEENTH ANNIVERSARY DINNER of this Society will take place on WEDNESDAY the 18th June next, at the London Tavern, Bishopsgate Street.
Sir Joseph Paxton, M.P., in the Chair.
Tickets 21s., to be had at the Tavern, and of the Secretary. Dinner to be upon table at 6 o'Clock.
E. R. Cutler, Secretary,
14, Tavistock Row, Covent Garden.

GARDENERS' BENEVOLENT INSTITUTION.—Ann Arnold, Widow, earnestly solicits the consideration and support of the subscribers to the above Institution at the election in June next. She is so severely afflicted with rheumatism as to be wholly unable to obtain her own living. Her husband was a subscriber to the Institution for many years. Proxies will be received by A. Paul & Son, Nurseries, Cheshunt, Herts.

SKIRVING'S IMPROVED SWEDE TURNIP.

WM. SKIRVING, Queen Square, Liverpool, begs to acquaint his friends and the public that he has fixed the price of his improved SWEDISH TURNIP SEED for the season at 1s. per lb. All other kinds of Turnip and Agricultural Seeds in general, of the most select description, at moderate prices, priced Catalogues of which may be had on application. A remittance or reference from unknown correspondents is respectfully requested to accompany orders.—Liverpool, June 7.

GRAND EXHIBITION OF RHODODENDRONS, ON VIEW At the Royal Botanic Gardens, Regent's Park, London.

JOHN WATERER begs to announce that his matchless collection of New HARDY SCARLET and other leading kinds of RHODODENDRONS is now coming finely into bloom, and will continue in great perfection throughout the month of June.

☞ The Society have entirely re-arranged and greatly enlarged the site annually occupied with the American Exhibition, whereby the forthcoming display will far exceed in magnificence any floral exhibition hitherto attempted in this country.

Orders of admission may be had (gratis) from Fellows of the Society, or on application to the advertiser.

The American Nursery, Bagshot, Surrey, and Royal Botanic Gardens, Regent's Park.

EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to intimate that his collection of the above plants is now finely in bloom, and will continue in perfection throughout the month of June, and may be inspected daily (gratis).—American Nursery, Bagshot, Surrey, near the Farnborough Station, South Western Railway; and Blackwater Station, South Eastern Railway, from whence conveyances are always to be obtained.

GRAND EXHIBITION OF AMERICAN PLANTS,
Ashburton Park, King's Road, Chelsea.

MESSRS. WATERER and GODFREY beg to announce their Exhibition of these beautiful Plants is now open daily, and affords the most magnificent display of flowers ever witnessed in the metropolis. Admission One Shilling.
Knap Hill Nursery, Woking, Surrey.—June 7.

EXHIBITION OF AMERICAN PLANTS,
Knap Hill Nursery, Woking, Surrey.

MESSRS. WATERER and GODFREY have great pleasure in stating that their Collection of American Plants at the Nursery is now finely in bloom, and may be seen daily gratis. The Nursery is readily reached by Train to Woking Station in 40 minutes; there are always plenty of conveyances at the Station.—June 7.

AN EXTENSIVE COLLECTION OF AMERICAN PLANTS, in bloom during June, may be seen in high perfection at George Baker's, Windlesham Nursery, Bagshot, Surrey, 1¼ mile from Bloom Hall and Sunningdale Station, 26 miles from Waterloo Station, on South-Western Railway; and on and after 11th June at the Royal Botanic Gardens, Regent's Park.

FINE FLOWERING PLANTS of SHOW and FANCY GERANIUMS, 6s. to 9s. per dozen. Catalogues with the names may be had.
Wood & Ingram, Nurseries, Huntingdon.

WANTED, IN LIVERPOOL MARKET,
GRAPES AND PINES.
Forward immediately to
GEORGE TAYLOR, Jun.,
Choice Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
Terms "Cash."

BEDDING PLANTS.

A. PAUL and SON have now ready for immediate planting out some thousands of strong healthy Geraniums, Verbenas, Calceolarias, Salvias, dwarf Lobelias, and other bedding plants. Price 4s. to 6s. per dozen, carriage free to London.—Nurseries, Cheshunt, Herts, June 7.

ROSES FOR MASSES.

A. PAUL and SON have now ready for immediate planting out some thousands of DWARF ROSES of the best kinds for planting in masses, 10s. to 15s. per dozen. Also all the new Roses at the lowest advertised prices. Carriage free to London.—Nurseries, Cheshunt, Herts, June 7.

PERPETUAL ROSES IN POTS AND BEDDING PLANTS.—For Bass and Brown's Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

ROSES IN POTS.

JOHN HARRISON having several thousands of fine healthy ROSES IN POTS, and this being a fine season for planting out in the open ground, begs to offer them.—Catalogues, with prices, to be had, gratis, on application.

DAHLIAS AND BEDDING PLANTS.

J. HARRISON is now selling off his stock of DAHLIAS AND BEDDING PLANTS at considerably reduced prices, to make room for better stock. Catalogues free on application.—Nursery, Darlington, June 7.

EXTRA STRONG BEDDING PLANTS AND DAHLIAS,
3s. PER DOZEN, PACKAGE INCLUDED.

WOOD AND INGRAM beg to offer the following in stout well established plants and perfectly hardened off:—Ageratums sorts, Gazanias, Salvia patens, and others; Fuchsias, Calceolarias, Petunias, Senecios, Nierembergias, Verbenas, Dahlias, fine show and fancy varieties, &c.
Huntingdon Nurseries.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, June 7.

HOLLYHOCKS.

F. BUTLER, Gardener to R. Hills, Esq., Colne Park, Halstead, Essex, begs to inform the Nobility, Gentry, and Trade that he has now ready to send out good strong named plants in pots that will bloom this year, from 6s. to 20s. per doz. Post-office orders payable at Halstead. The usual discount to the Trade.

TO THE TRADE.

WELLINGTONIAS.—The Undersigned has received a consignment of Wellingtonia gigantea from America, fine young plants raised from seed, now rising two years old. The price per 100 or per dozen will be given to the Trade on application.
Thomas Rivers, the Nurseries, Sawbridgeworth, Herts.

CARNATIONS AND PICOTEES.

MESSRS. YOUELL AND CO. beg to offer to the admirers of these elegant flowers a quantity in pots, part of the stock originally intended for their own blooming, at 21s. per dozen pairs.

They are fine strong plants, and may be either turned out into the borders immediately, or repotted without suffering the least check, a manifest advantage at this season.
Royal Nursery, Great Yarmouth.

GERANIUMS.—A Large Surplus Stock at Reduced Prices.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to Bass & Brown, Sudbury, Suffolk.

VERBENAS IN STORE POTS.—About 300 Store Pots, each pot containing from 15 to 18 plants, of the leading bedding kinds. The plants are bushy and have been standing in the open air for a fortnight. To be disposed of at 1s. each pot when not less than 50 pots are taken, or 1s. 6d. each for less quantities, or if the whole be taken a reduction will be made. A remittance must accompany the order.
Apply to C. Dimmeck, Nurseryman, Ryde, Isle of Wight.

MR. LOUIS VAN HOUTTE'S, Ghent, Belgium, New Catalogue of STOVE, GREENHOUSE, and some other Plants for the Summer months of 1856, may be had, on prepaid application, at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

Also the GIANT AUSTRALIAN WATER LILY (Nymphæa Gigantea, Hook.) 5s. each.

DAHLIAS.—The best time for Planting Dahlias having arrived, the undersigned are happy to announce they can still supply Plants of Annie, Admiral Dundas, Lord Bath, Goldsmith, Pre-eminent, Ruby Queen, Baron Alderson, and Miss Frampton, with every other variety of 1855, at 10s. per dozen. Also all varieties above two years old, 4s. per dozen.
Clarke & Company, Florists and Seedsmen, 86, High Street, near the Town Hall, Borough, London.

ORNAMENTAL TREES AND SHRUBS.

OSBORN AND SON respectfully inform their patrons and the public that their new priced Catalogue of the above may now be had on application. It contains upwards of 1500 species and varieties, all of which may be seen growing at their establishment. They also invite an inspection of their Stove and Greenhouse Plants; and of their extensive collection of Fruit Trees, Grape Vines, &c.
Fulham Nursery, near London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30s. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1s. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

AZALEA INDICA.

J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.

J. I. & Son also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season.—Dorking, June 7.

TO BE SOLD, a Private Collection of ORCHIDS, about 200 Plants, including some of the most approved species, in good healthy condition. Also Hill's Patent Flue Boiler in perfect order.—Inquire particulars of Mr. Robert Kennedy, Bedford Conservatory, Covent Garden.

TO BE SOLD, 10 Standard ORANGES, 4 feet in stem, with fine bushy heads—magnificent plants; four Dwarf do., large and well furnished; 30 Myrtles, 6 to 9 feet high, very effective; and three Camellias, double white, double striped, and double blush, from 3 to 5 feet, and 3 feet in diameter.—For further information apply to Henry J. Oldroyd, Nurseryman and Seedsman, Shrewsbury.

GLENNY'S OPINION ON FLOWERS, PLANTS, FRUITS, IMPLEMENTS, &c.—All packets must be addressed Mr. Glenny, Dungannon House, Fulham, and come free, by post, or, if by other conveyance, six stamps must be enclosed for postage, and a directed envelope for answer.
A few BALSAM SEEDS left, six classes 37 stamps, mixed 13.

WILLIAM BARRATT,
LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

SEED TRADE.—PARTNERSHIP DISSOLVED.—Richard B. Kempton, so many years with Mr. James Carter, of Holborn, deceased, and lately in partnership with Robert Kennedy, acquaints his numerous friends and the trade that this PARTNERSHIP IS DISSOLVED; and that the Seed Business will be now executed by him on his own account upon orders addressed to R. B. Kempton, 2, King Street, Covent Garden, with the greatest care and punctuality. Aquatic and other Plants supplied, Aquavivarium &c. A Catalogue of Dutch and Cape Bulbs will be published [illegible]

ROYAL BERKSHIRE SEED ESTABLISHMENT, READING,

(Under the Patronage of Her Most Gracious Majesty the Queen, His Royal Highness Prince Albert, and the Principal Members of the Royal Agricultural Society of England),

FOR SUPPLYING

SUTTON'S HOME-GROWN SEEDS TO ALL PARTS OF THE UNITED KINGDOM.

CARRIAGE FREE (WITH FEW EXCEPTIONS).

SEEDS *grown in Berkshire and the Home Counties having obtained great celebrity,* SUTTON AND SONS *have annually increased their Stocks of Seeds to meet the increasing demand.* The undermentioned articles are of superior quality, being all genuine Home-grown Seeds. Agriculturists residing in the most remote parts of the kingdom can now be supplied with *Seeds direct from the Growers,* which will be found the most effectual means of preventing disappointment.

A Descriptive Priced List may be had post free.

ITALIAN RYE-GRASS SEED	CATTLE PARSNIP	SWEDISH TURNIP SEEDS	PERENNIAL WHITE CLOVER
PERENNIAL RYE-GRASS	GARDEN SEEDS	YELLOW SCOTCH TURNIPS	COMMON WHITE CLOVER
MANGEL WURZEL	FLOWER SEEDS	HYBRID AND OTHER TURNIPS	PERENNIAL RED CLOVER
CARROT	COW CABBAGE	KOHL RABI	COMMON RED CLOVER
FURZE OR GORSE	FLAX OR LINSEED	ALSIKE HYBRID CLOVER	YELLOW TREFOIL
			LUCERNE.

SUTTON'S PERMANENT GRASS SEEDS.

GENTLEMEN intending to lay down Land to Permanent Pasture, or for one or two years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass Seeds most suitable. The Alsike, the Perennial White, and Perennial Red Clover are included in our mixtures.

OLD MEADOWS DEFICIENT OF THE MOST NUTRITIVE GRASSES AND CLOVERS may be greatly improved by sowing at this season "SUTTON'S Renovating Mixture" for Seeds, at the rate of 8 to 12 lbs. per acre, price 1*s.* per lb. Our finest LAWN GRASS SEEDS *are highly useful to improve Garden Lawns.*

We had a very extensive stock of Natural Grasses, Perennial Clovers, &c., in our Warehouses, a Priced List of which may be had on application, post free.

☞ *Sacks and Bags are charged at cost price only, and the full amount allowed, if they are returned.*

SUTTON & SONS have often been requested to appoint Agents, but they consider it best to supply the Seeds direct to the retail purchaser CARRIAGE FREE.

PRICED LISTS OF SEEDS MAY BE HAD POST FREE.

SUTTON & SONS, Seed Growers, Reading, Berks, Fellows of the Horticultural Society of London; Members of the Royal Agricultural Society of England; and the Bath and West of England Agricultural Society.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle.*

For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

Pamphlets, with instructions for use, free by post on application to

PAGE & CO., Seed Merchants, Southampton.

ROLL TOBACCO CORD,

THE Cheapest and most Effectual Article for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

GARDEN VASES, PEDESTALS, ETC.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has now ready a large Stock of Vases and Pedestals of exquisite designs, superior workmanship, and from the material of which they are made and mode of manufacture, are capable of resisting the most severe weather, and at little more than half the cost of any others possessing the same durable qualities. From their great strength they may be made available throughout the year by being filled with flowering plants during the summer months, and shrubs during the winter, and would thereby form a pleasing object in the pleasure grounds at all times. Samples of the above may be seen, and prices obtained at the grounds in the Garden Road as above.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

RICK CLOTHS 30 in. by 30 in.; price 5*l.*, suitable for 30 tons of hay. Larger or smaller in proportion. A large quantity of Garden Tents from 30*s.* each. Several second-hand Rick Cloths on Sale.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

NEW GARDEN NET, 1 inch mesh, 1½*d.*; half-inch mesh, 2½*d.* Tanned Fishing Nets, 6*s.* 3*d.* per 100 yards. Worsted Net for Shading, preserving Ripe Fruit on Walls, also Blossoms, 7*d.* per square yard. Fishing Nets of all kinds, Cricket Nets, &c.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

MARQUEES on Hire at prices to suit the times; also Entrance Awnings, Balcony Enclosures, &c.; Marquees are lofty and new.—R. RICHARDSON, 21, Tonbridge Place, New Road, London,

N.B. Garden Nets from 30*s.* each. Flags and Banners on Hire.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard: 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St Paul's Square, Birmingham.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

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No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

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A

B

A is an engraving showing the form of the Patent Label, and B represents it as fixed in the ground.

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Averuncators	Gidney's Hoe	Prussian Pickaxes
Axes	Grape Gatherers and [Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
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DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

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The Collection of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

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ARAUCARIA CUNNINGHAMI AND EXCELSA, MORTON BAY AND NORFOLK ISLAND PINES.

WM. MAULE AND SONS have to dispose of one of the former and three of the latter, fine trees from 10 to 20 feet high, all of which are in pots and would travel safely any distance. Price for the four plants, 40*l.*—The Nursery, Bristol.

DIDYMOCARPUS (STREPTOCARPUS) POLYANTHA.—This new and highly interesting Plant, with handsome Gloxinia-like foliage, produces from the base of its leaves numerous panicles of delicate pale blue flowers of considerable duration, rendering it a most desirable object for the stove or intermediate house. We are enabled to offer strong plants, 5*s.* each, 42*s.* per dozen, extra strong, 7*s.* 6*d.* each.

DELPHINIUM FORMOSUM, a most beautiful new variety, of the richest blue, with flowers larger and habit more dwarf than D. Hendersoni, 18*s.* per dozen.

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JAMES SYRED, FLORIST, Redhill, Reigate, has much pleasure in offering the following unequalled Verbenas, never before offered to the Floricultural Public, namely, Singularity, Conqueror, Pearl, Princess Royal, South Eastern, Conservative, Redhill Rival, Star of the Isles, Ellen, Othello, Cerise Unique, Omar Pacha, Eugenie, Prince of Wales, Christina, Marshal Pelissier, Tricolor, Beauty of Redhill, Jeanette, Orlando, and Minstrel Boy. Also Scarlet Geranium Red Rover, the best scarlet, without exception, that has ever been offered to the public, which will be shown at the Brighton Show on Wednesday and Thursday next. Prices and descriptions of the above on application.

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Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

CHOICE VERBENAS, PETUNIAS, ETC.

MITCHELL AND Co. are now sending out the following first-rate varieties of VERBENAS, 6*s.* the collection, good strong plants:—Géant des Batailles, Madame Reine, Madame Cambacères, Julia Pacquin, Wonderful, Mona, Richalet, Lord Raglan, Marchioness of Ellesmere, Mrs. Halford, Blue Beard, Tyrian Prince, Florence Nightingale.

New Double PETUNIA IMPERIALIS, strong plants, 6*s.* per dozen, or 45*s.* per 100.

TREE CARNATIONS, consisting of the very best varieties, 12*s.* per dozen.

DAHLIAS, one of the choicest collections ever offered, 6*s.* per dozen, or four dozen for 20*s.*

Post-office orders are respectfully requested from unknown correspondents, made payable to JOHN FAIRBROTHER.

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Bristol Nurseries, Kemp Town, Brighton.

NEW VERBENAS, PETUNIAS, &c.—VERBENA Duke of Cambridge, Tranby, Cedo Nulli, Criterion, Moonlight, Lady Camoys, King of Sardinia, Mrs. Hosier Williams, Crimson Perfection, Eugenia, Standard Bearer, Blue Bonnet, Sir Colin Campbell, Dr. M'Lean, General Simpson, Florence Nightingale, Countess of Oxford, Imperatrice Elizabeth, Imperialis, Dandy, King of Roses, Lady Kerrison, Nosegay, Mrs. Archer Clive, Viscountess Emelyn, La Stella, Pre-eminent, John Edwards, Purple Defiance, Admiral Lyons, Antagonist, Victory. Purchaser's selection from the above, 2*s.* 6*d.* each; own do., 1*s.* 6*d.* each.

PETUNIAS Imperial, Leon Lequay, Prothe, Madame Eugène Lemichez, Monsieur Loyre, Picturata, Marquise de St. Innocent, Hermione, Velasquez, Marquise de la Ferté, Countess of Ellesmere, Purpurea striata, Wilhelm Pflitzer, Prince Albert, Dryburgh Beauty. Purchaser's selection from the above, 2*s.* 6*d.* each; own do., 1*s.* 6*d.* each.

Phlox Countess of Home, 1*s.* 6*d.*; Cuphea eminens, 5*s.*; Achimenes magnifica, 10*s.* 6*d.*; Achimenes amabilis, 10*s.* 6*d.*; Meyenia erecta, 21*s.*; Achimenes Madam Hagnam, 2*s.* 6*d.*; Achimenes Dr. Hopf, 2*s.* 6*d.*; do. Edmund Boissier, 2*s.* 6*d.*

Address HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Drumhead or Cattle Cabbage, 4*s.* per 1000. A few thousands of bedded autumn early Cabbage, fine plants, yet to dispose of, at 6*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple top Yellow Bullock Turnip	" Red Globe do.
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JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, offers the following DAHLIAS, which are recommended in EDWARDS'S "National Garden Almanack for 1856":—

Amazon	Miss Frampton	Topsy
Duchess of Kent	Rachel Rawlings	Mr. Seldon
Imperatrice Eugenie	Sir F. Thesiger	Triomphe de Roubaix
Exquisite	Louisa Glenny	Jonas
Robert Bruce	Port Royal	Richard Cobden
King of Yellows	Indispensable	Triumphant
Rose of England	Magnificent	Empereur de Maroc
Mrs. Seldon	Red Gauntlet	
Morning Star	Comet	

Others can be supplied to parties having duplicates.

J. H. will forward the above Dahlias, hamper, package, &c., included for 12*s.*; 25 fine show Pansies, 12*s.*; 25 Belgian Daisies, 8*s.*; 25 Phloxes, including "Countess of Home," 16*s.*; finest Pansy Seeds, 1*s.* and 2*s.* packets.

Post-office orders payable at Middleton, Lancashire.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen—*s.*
Exotic Orchids ... ... from	42
Stove and greenhouse Ferns ... ... "	18
Hardy do. ... ... "	9
Selaginella or Lycopodium ... ... "	18
Geraniums, show and fancy varieties ... "	9
Do. variegated and bedding do. ... ... "	6
Do. scarlets in variety ... ... "	3
Cinerarias ... ... "	9
Calceolarias, bedding varieties ... ... "	3
Verbenas ... ... "	3
Dahlias ... ... "	4
Ageratums, Cupheas, Petunias, Salvias, &c. "	4
Gynerium argenteum (Pampas Grass) ... "	18

The above prices are for distinct and fine species, and varieties only, all of which are warranted true to their names; if ordered by the hundred, or in larger quantities, a considerable reduction will be made. A priced and descriptive Catalogue is published, and will be forwarded post free upon application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

PRESENT PRICES OF SEEDS OFFERED BY CLARKE AND CO., WHOLESALE SEEDSMEN, 86, High Street, Borough, London.

	Per lb.	Per bushel.
Skirving's Improved Purple-top Swede	0s. 9d.	32s. 0d.
Laing's Improved Purple-top Swede ..	0 9	32 0
Green-top Swede	0 9	32 0
Purple-top Swede	0 9	32 0
Tankard Swede	1 0	45 0
Fine White Globe Turnip	0 9	26 0
" Round Norfolk	0 9	26 0
Fine Red Globe	0 9	30 0
" Round	0 9	30 0
Fine Green Globe	0 9	28 0
" Round	0 9	28 0
Purple-top Yellow Scotch Turnip ..	1 0	48 0
Skirving's Improved Purple-top Scotch .	1 0	48 0
Green-top Yellow Scotch	1 0	48 0
White Tankard	0 9	30 0
Red "	0 9	30 0
Green "	0 9	30 0
Yellow "	1 0	45 0
Dale's Hybrid	1 0	48 0

Post-office orders to be made payable to CLARKE & Co., at the Borough Post Office.

ORCHIDS.

WM. MAULE AND SONS beg to state that the season of the year having now arrived that Orchidaceous plants may be transmitted with safety to any distance, they can supply a few of the most favourite kinds of which they have a stock, in thoroughly established plants.

	s.	*d.*
Aerides odoratum ...	10	6
" affine, the true and best var., (not roseum)	42	0
Aerides Foxbrush, strong flowering plants ...	105	0
Calanthe vestrifolia ...	7	6
Cœlogyne Wallichi and maculata, pots with from 3 to 5 bulbs in, each bulb	2	0
Cattleya crispa major	21	0
" Harrisoni violacea	15	0
" intermedia ...	15	0
Dendrobium Devonianum, the major variety ...	10	6
Dendrobium densiflorum	10	6
Dendrobium Farmeri, 10*s.* 6*d.*, 15*s.* ..	21	0
Dendrobium chrysanthum majus .	7	6
" Gibsoni, very strong	10	6
" Cambridginianum, 10*s.* 6*d.*	15	0
" Pierardi	7	6
" moschatum... ...	7	6
Vanda coerulea, 42*s.*, 63*s.*, 84*s.*,	105	0
" Roxburghi	42	0
" teres	10	6
Saccolabium ampullaceum, new beautiful...	105	0

Stapleton Road Nurseries, Bristol.

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JOSLING'S GOLDEN-FLESH COPPER-TOP SWEDE.—R. J. begs to offer the above distinct and excellent variety of Swede as one of the HARDIEST and best in cultivation; LARGE SIZE, FLESHY, RICH, JUICY, and KEEPS WELL. Price 1*s.* 6*d.* per lb.

SKIRVING'S and other varieties of PURPLE-TOP SWEDE (genuine stock), own growth of 1855. Price 1*s.* per lb.

Carriage free (not under 30*s.*) to all the London Termini and all Stations on the main trunk lines. A remittance or reference from an unknown correspondent is respectfully requested to accompany orders.

R. JOSLING, Agricultural and Garden Seed Warehouse, St. Alban's, Herts.—Established upwards of 25 years.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed*	1s. per packet.
Calceolaria, *choicest varieties*	1s. "
Cineraria " "	1s. "

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as Imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD 1, Edmund Terrace, Ball's Pond, Islington.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.

Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

PLANTS

SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following SUPERB FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—*s.*	*d.*
Antirrhinum, from 100 striped and spotted varieties	0	6
Calceolaria, from 50 best spotted varieties	1	0
Cineraria, from 50 best new varieties	1	0
Double Daisy, from 60 fine named varieties	0	6
Hollyhock, from 50 superb varieties	0	6
Sweet William, from 50 large double varieties... ...	1	0
Pansy, from 100 best show varieties	1	0

67, High Street, Battle, Sussex.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

MISS NIGHTINGALE.—Strong Plants of this beautiful Heliotrope are now ready, 3*s.* 6*d.* each. The usual allowance to the Trade when three are ordered. A Certificate of Merit was awarded by the Royal Botanic Society of London on May, 28th, 1856:—Good habit, leaves dark green, truss 7 inches across, flowers half an inch, colour dark lavender, strong scented. Post-office Orders made payable at Paddington.—WILLIAM FIELD, Florist, Kensal New Town, Chelsea.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of April 12th, page 243. Good established plants, 10*s.* 6*d.* each. The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post-office Orders on Richmond, Surrey.

St. Margaret's Gardens, Isleworth.—June 7.

BEDDING PLANTS.—Fuchsias of last year (including white Corolla) 9*s.* to 12*s.* per dozen; older varieties 6*s.* Geraniums, Calceolarias, &c., 4*s.* Verbenas, 3*s.* 6*d.* Dahlias, best show varieties, 3*s.* 6*d.* to 6*s.* All other plants equally cheap. Catalogues on application.

W. & H. PINYON, Rock Nursery, Walham Green, Middlesex.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

PAGE AND CO.'S BLIGHT COMPOSITION.

B. PAGE AND CO. beg the indulgence of one week from those whose orders remain unexecuted, the demand having been so excessive that the delay could not possibly be avoided.—Bedford Street, Southampton.

The Gardeners' Chronicle.

SATURDAY, JUNE 7, 1856.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY, June 14—Royal Botanic American Plant Show, 2 P.M.

THE world is assured by men of "much experience" that the STRAWBERRY GROWER must take care how he forces that fruit. "Strawberry plants intended for forcing should be two years old."—"Pot runners in August, pinch off all the flowers the next year, and force them in the second."—"Never use any but stools of two years' standing."—"Strong plants may be taken out of the ground and forced immediately."—"Root your early runners in small pots; after-

wards carefully shift them into larger." Such are the stereotyped directions of Practical gardeners. Care must also be taken that the pots are big enough. "Twenty-fours (8-inch) are what you *should* have; but for small sorts you may make shift with thirty-twos (6-inch)."—"Nine or 10-inch pots are indispensable."—"Take care that the pots are sufficiently large to hold three plants, for fear that one or two should go off."—"For small sorts 4½-inch pots will do; but for others they must be 5 inches or even 6½ inches in diameter." Thus we are told in gardening books must we treat the Strawberry if it is to be forced successfully. Neglect these precautions, and the blindness of some plants or the flowerless condition of others is explained.

Can it be really true that so much fuss is necessary in so very small a matter as getting a few Strawberries ripe in May? Will nothing less than two years' coddling, and pots as big as a hat crown, furnish this fruit a few weeks before its natural season? And are gardeners excusable for losing their crop because they have not been two years in their place, or because the pots are not of the regulation size? Let us see.

In the Garden of the Horticultural Society, in the year 1855, Mr. Gordon caused runners to be taken up from the ordinary plants in the open borders in the first week in August, and potted in 2½-inch pots (small 60s); the soil used was a mixture of rotten cow-dung and loam (quarter dung, three-quarters loam). When potted they were placed in a close frame until established, and when the roots had filled the little pots, which was in about four or five weeks, the plants were shifted in the same kind of soil as before into 4-inch fruiting pots (48s). They were afterwards transferred to a fully exposed situation in the open air, where they remained until the first week in December, at which time they were removed to a border in an unheated orchard-house, where they were kept rather dry during winter. On the 14th of March the pots were removed to the front shelf in a Curvilinear Vinery, kept at a temperature of 40° until the middle of April, when the temperature was raised to 55°. The plants were watered twice when the fruit was fairly set at an interval of three days, with a weak liquid manure, made with half-rotted cow-dung and water, allowed to stand a few days before using.

And what was the result of this simple common sense operation, unassisted by two years' preparation, big pots, and other etceteras of *practical* Strawberry growing? The result was a large, abundant crop of excellent fruit, much of which was as large as is usually produced in the open ground; the quality was as good as possible in good varieties: as for indifferent sorts, their bad quality was exactly what it always is—neither better nor worse.

Specimens of this mode of cultivation, just beginning to ripen, were shown in Regent Street on the 27th of May. The average number of perfect fruits, ripe and ripening, on each plant was as follows:—Keens' Seedling 26, Myatt's Eliza 24, Hericart de Thury 29, Princess Alice Maude 33, Cole's Prolific 37, Ingram's Prince of Wales 45, Hooper's Seedling 45, Royal Pine 49, Reine Hortense 56, Cuthill's Black Prince 79.

Thus it appears that it is possible in Strawberry forcing to save half the time, half the quantity of earth and manure, half the space occupied in the forcing house, and much of the cost of pots and labour, without in any way diminishing the quantity or quality of the fruit.

The Strawberry is not the only garden crop to which this principle is more or less applicable. Blind routine may be beaten in more ways than one.

Our attention has lately been called to some young Queen Pines, which, in company with several others in the same house, are affected with some disease which partially chlorotizes the leaves, while the fruit is contracted in the centre, and either entirely abortive or greatly deformed. In one specimen in which every flower has failed a whorl of leaf-buds is produced beneath the crown, and where the flowers have not so completely failed, the dead floral organs have carried a slight degree of decay into the core, exactly as the frozen pistils of a Pear do into fruit, when the petals have not been so affected as to prevent their expansion. There is indeed a slight tendency to decay also where the flowers proved entirely abortive. From the contracted portion, moreover, little globules of gum ooze out exactly like those which are so common in the Cucumber disease. The plants had been syringed with water of a lower temperature than the house; they were, moreover, raised from suckers of plants which fruited in the same way two years ago, both of them circumstances likely enough to have produced disease now. We should, however, have been content simply to answer the communication in our notices to correspondents, were it not that the condition of the plants seems to suggest some comparison with the symptoms so notorious in the Cucumber disease. Pines, indeed, are rarely raised from seed, and therefore there is less difficulty in understanding how a disease once generated may be handed down.

Our notion with respect to the Pines is that they had originally been treated with highly azotised manure, that they had then received some sudden check, which had induced such an organic change that the cells no longer produced healthy chlorophyll, and that the proper functions could not in consequence be carried on. To attempt to propagate from some plants is as sure a source of future mischief as to graft from a cankered tree, and any error in cultivation would be certain to aggravate the evil. In the Cucumber, propagation is carried on by seed only. Our theory is just the same in this case. We believe that the evil has risen, in the first instance, from unfavourable causes acting on highly manured plants, seriously affecting their constitution; and as strumous parents almost inevitably produce a strumous race, the seed of such plants is capable of handing down the disease. It is very easy to ascribe such evil to atmospheric influences, bad cultivation, or any other cause, which cannot admit of proof; but the fact is, that the Cucumber disease appears under every kind of cultivation, and in every variety of atmosphere. It is by no means confined to gardens where the cultivation is high, or where highly azotised manure is used. It was prevalent last year in plants grown in the open air upon the naked soil, where Cucumbers have been successfully grown for many generations, and in one parish where guano has never been used by market gardeners. We saw it in the West of England extremely virulent on Cucumbers in the open air again under the most ordinary cultivation. Every person with whom we have had communication complains more or less about it, and it is equally virulent in the present season. We remarked in Covent Garden, a few weeks since, that in one large establishment there was not a single Cucumber amidst a large number for the season which had not the most unequivocal marks of the disease. It is true the whole of the seed from the same fruit does not produce diseased plants, but this again is just what happens with children of strumous parents; all are not equally affected; and though disease may not break out in the first generation it often returns in the second or third. Supposing, then, the evil to have become very general from the injudicious use of forcing manures, does it follow that nothing can be done to check it? In some cases certainly the attempt is hopeless. The plants occasionally betray the evil almost as soon as they have germinated, and sometimes perish before they have flowered; but where the disease is not so inveterate a great deal will depend on cultivation. Where it has prevailed very much we have generally found either that the bottom-heat has been wholly disproportioned to that above, in consequence of which the leaves have been gorged with moisture, which they could not get rid of by the ordinary means, a condition extremely likely to produce or aggravate such symptom; or the bottom-heat has been insufficient, and in consequence there has been an insufficient supply. In either case, especially in the first, we have remarked disease very active. When the disease has been once set up, the fatal effects are so much the more speedy if the sun is allowed to burn the leaves.

The mixture of dark green and pale yellow on the fruit, a circumstance again which was remarkable in the Pine Apples, the oozing of gummy matter, the tendency to decay, and the distortion of the fruit accompanied often by a failure of the crown, are symptoms which ought not to be mistaken. But every failure of a crop is not to be attributed to a disease which has imputation enough of evil already. If plants are burnt or starved or suffocated or mildewed, the blame ought to rest upon the cultivator, though with all his precautions and with the most consummate skill the disease will sometimes baffle his exertions. *M. J. B.*

New Plants.

175. Peristeria fuscata; *aliàs* Lycomormium squalidum, *Rehb. f. in Bot. Zeit.* 1852, *p.* 833; *aliàs* Anguloa squalida, *Endl. and Pöpp. nov. gen. I. t.* 74.

P. racemo oblongo nigro-furfuraceo pendulo, labelli nudi galeati lobis lateralibus acutis subfalcatis intermedio minimo carnoso obsoletè 4-lobo carinulâ in medio, columnâ glabrâ apterâ, antherâ suberosâ subangulari valvis anticis corneis rostratis, glandulâ maximâ reniformi concavâ.

It is in the rich collection of the Lord Bishop of Winchester that this fine plant has at last flowered. Plants of it were sold by Stevens in May, 1853, along with others from M. Warczewitz, and thence transferred to the care of Mr. Lawrence, at Farnham Castle, who exhibited the specimen before us at the late exhibition of the Royal Botanic Society in the Regent's Park. The judges there, not seeming to know anything about the species, gave it a small silver medal, although it is certainly the best novelty of the present season, in either a Botanical or Horticultural point of view.

The flowers are thick, waxy, deliciously fragrant, and produced in pendulous racemes of 8 or 10 each. When closed they measure 1¼ inch in diameter; externally they are dull brownish purple; in the inside closely speckled with rich crimson; while the lip, which presses close against the column, is blood red except at the base, where it is spotted like a bird's egg. The sepals are united half-way, but readily tear asunder; the dorsal not much more than half as wide as the laterals, longer, and standing a little apart. The laterals are almost circular, but apiculate and unequal sided. The petals are about half as long as the dorsal sepal, oblong, with a pale callosity at the tip. The lip is smaller than the sepals and much concealed by them, and has no tendency to articulation anywhere; in form it may be compared to a helmet with a round head-piece, and a pair of long flaps (lateral lobes) falling down over the ears. Its middle lobe is small fleshy convex, obscurely four-lobed with a narrow ridge in the middle; in the interior it is perfectly destitute of all superficial processes.

Mr. Reichenbach, jun., who examined a wild specimen in the Imperial Herbarium of Vienna, ascertained it to be the *Anguloa squalida*, marvellously *mis*-represented in Endlicher and Pöppig's work above quoted, and regarded it as a new genus to which he gave the name of Lycomormium; to this he was principally led by discovering on the anther "a fleshy acute long double tooth." It appears, however, that this process represents in reality the two anterior valves of the anther in the form of a pair of sharp horny lobes. This is, doubtless, a striking character, and would naturally attract the attention of our acute friend, especially when coupled with the texture of the anther itself, which resembles a thick piece of cork. The plant is, however, in all other respects so entirely a Peristeria, that we can hardly attach much importance to this structure.

Why this species should have been named "squalid" we are unable to guess, for it might as well have been called scarlet; we, therefore, prefer the name of *fuscata*, under which the plant has existed in our gardens for the last three years.

176. Vriesia glutinosa.

V. foliis oblongis apiculatis inermibus virentibus basi purpureo-maculatis, scapo paniculato foliis elatiore vaginis acuminatis sanguineo-maculatis, ramis (6—7) lanceolatis glutinosis (ultra pedalibus), bracteis (coccineis) distichis arctè imbricatis.

This very noble Bromeliad was exhibited at the last meeting of the Horticultural Society from the Hon. James F. Stuart Wortley. It had been presented to the late Lord Wharncliffe when in the West Indies three years ago. Its native place was the Caraccas Waterfall in Trinidad. It is certainly a Vriesia, with which the whole structure of the flower, as well as the remarkable habit, corresponds. We have only seen flower-buds and therefore are unable to describe the flowers satisfactorily, but as they have a nearly superior ovary, long sepals, and a pair of dimidiate scales at the base of the petals, no doubt can exist about the genus. The leaves are 18 inches or more long; the flower scape nearly 4 feet from the base to the tip of the branches, closely covered up to the branches with pale green concave scales deeply stained with blood-red blotches. The branches of the flower stem are from 14 to 18 inches long, covered closely with glutinous bracts, the colour of a boiled lobster, but much brighter because of the natural varnish which is spread over them. There is scarcely a stove plant, certainly none of the same order, with a more noble aspect than this.

VEGETABLE PATHOLOGY.—No. CXXIV.

492. Parasitæ (*Parasites*).—Scarcely any part of the organised world is free from the attacks of parasites, a provision which is clearly one amongst many ordered by the Creator to maintain that balance amongst living beings, without which a few of the strongest only could preserve their station upon earth. These parasites may be either animal or vegetable, and each of these two grand classes may be subject to the ravages of beings belonging either to its own or to the other organic order. The whale has different *Cirripedes* burrowing into its flesh, the ox and other ruminants have the larvæ of various œstri occupying the intestines, skin, or frontal sinus. Insects have hosts of larvæ living at their expense and ultimately exhausting their energies, and the same may be said of multitudes of higher animals, whose muscles, glands, arteries, and even the brain itself are at times infested in a like manner, while all have animals of various kinds and affinities living on their surface, or occupying, to a greater or less extent, the digestive cavities. But no less are these animals, high as they may be in the scale of creation, including even man himself, subject to the attacks of vegetables. Minute moulds infest their tissues, producing cutaneous disorders or blocking up the passages of respiration, while in inferior animals they penetrate deeply into their substance, and ultimately convert the whole body on which they prey into a fungoid mass. Nor is a life spent in waters, where fungi in general will not flourish, exempt; even there a curious tribe of plants of doubtful affinity, oscillating as it were between fungi and Algæ, take their station upon the

integuments, and soon effect the destruction of the animals on which they grow.

493. If we turn to the vegetable world something of the same kind arrests our attention. There are, first, a number of plants which, though at first growing at their own expense, soon take possession of others, throwing out wart-like bodies or spongelets from their stems which suck out the sap from their victim, which is at once appropriated to their own uses. No sooner does this take place than the connection with the earth is entirely dissolved by the decay of the root. Other cases occur of plants called false parasites, as Ivy, Woodbine, Clematis, &c., which resemble these externally, but in which no nutriment is derived from the infested plant, which merely affords a proper support, detaining sufficient vegetable matter about its trunk for the purposes of growth, where such matter is requisite. Sometimes, however, the supplies of nutritious matter are derived from the air or from the moisture which it contains, in which case the trunk simply serves as a foundation on which the roots may run either to keep the false parasite in its place, or at the same time to act as purveyors of nutriment. In other cases the seeds of the parasite germinate on the matrix, their radicle penetrates through the bark till it reaches the albumen, and is thus able to profit by the elaborated juice. Such parasites may either be clothed with leaves, or furnished only with colourless scales.

494. These cases are, however, harmless in comparison with those in which the parasite makes its first growth entirely within the substance of the plant, and only makes its appearance externally after it has become deeply incorporated with its tissues. The more or less complete destruction at least of the part on which such parasites are developed is always consequent on their presence, and some of the most important diseases of vegetables depend upon their growth. These belong almost entirely to fungi, which are capable of growing on plants which were in perfect health previous to being attacked. This fact has frequently been denied, but there is not the slightest foundation for the notion that fungi cannot grow on healthy tissues. The presence of the spores may indeed at once produce disease, in consequence of which the fungi when developed may flourish the more vigorously; but if so, the disease is still produced in the first instance by the spores.

495. Amongst fungi there are false parasites as well as amongst Phænogams. It is not every fungus which grows upon a plant which is really parasitic. Where parts are already in a state of decomposition fungi may grow as upon any other putrescent matter, and the neighbouring tissues may decay the sooner in consequence of the presence of the fungi. Such cases are constantly occurring in timber, which it is well known soon runs to decay if fungi are once allowed to establish themselves on an unsound part. Other false parasites also infest the leaves and trunks of trees, as Mosses, Lichens, &c., which derive no nutriment from the matrix; and doubtless when these are very abundant they may be injurious by exclusion of light or air, or the harbouring of noxious insects.

496. As animals have their vegetable parasites, so in turn vegetables are infested by animals. The eggs of insects, for instance, are deposited in the young tissues, the growth of which is diverted from its normal course, and multitudes of excrescences of various forms are generated, which are known under the common name of galls. These are seldom injurious, except where they attack the reproductive organs. Other insects, as Vibrios, live within the tissues themselves, and as parasites are more destructive. Others again are attached to the tender bark under the form of scales, not only exhausting the sap, but dispersing their numerous progeny all over the plant, at the same time inducing the growth of soot-like fungi till the functions dependent on light and aeration are at length fatally impeded, while myriads of minute insects belonging to the genus Aphis, almost equally inseparable with the scale insects from the mother plant and even more proliferous, suck up the juices from the leaves just as they are elaborated, so that scarcely a drop descends for the formation of wood and the storing up of nutriment for future use in perennial plants, or for the carrying on of the less enduring functions of those to which a shorter existence is allotted. *M. J. B.*

NEW GARDEN FERNS.—No. XII.

23. GRAMMITIS AURITA, T. M. GYMNOGRAMMA AURITA, Hooker, Icon. Plant, t. 974.

Fronds ovate oblong or broadly-lanceolate, acuminate pinnato-pinnatifid; pinnæ remote, sessile, opposite, broad at the base, oblong-acuminate, deeply pinnatifid, the lobes oblong or ovate, the basal pair twice as long as the rest, crenato-lobate; veins simple or forked, the anterior venule bearing a short oblong sorus; stipes elongated, glossy brown, lateral, adherent to a creeping rhizome.

An ornamental deciduous hothouse Fern, native of Khasiya and Assam. It has a slender creeping rhizome about the size of a goose quill, to which the lateral fronds are adherent. They grow 2 to 3 feet high, and have a long brown glossy stipes, the brown colour being also continued up the rachis and forming a contrast with the light green of the frond. The pinnæ are remote, 4 or 5 inches long, and have a peculiar appearance, from their spreading position and the enlarged size of the basal pair of segments; these are deeply lobed or pinnatifid with roundish oblong lobes, the rest being slightly but usually more or less crenato-lobate; the margin is hairy. The sori are short oblong, forming two lines near the margin of the segments, usually distinct and borne by the anterior branch only of the forked veins, but sometimes the posterior branch of the lower veins is fertile also, and the two sori then lie close together side by side, but they are never, we believe, forked. The veins are sometimes simple,

and they always extend quite to the margin. Sir W. Hooker describes the rachis as slightly hairy; the hairs are probably very easily detached, as we do not find them on our specimens. The texture of the plant is membranaceous, becoming rigidly so when dry. The plant has a very distinct appearance, and has been cultivated for several years by Mr. Henderson, of Wentworth. Equally with the Grammitis Hewardii, this plant appears to us to belong to the genus Grammitis, its naked sori being always short, simple, oblong masses of spore-cases, not having any tendency to become forked, and therefore having none of the slight character of Gymnogramma. Its creeping rhizome is a feature at variance with both these genera; but we do not think such differences afford sufficient ground for separation. In allusion to this habit, the plant had been named Gymnogramma repens in a paper on cultivated Ferns not yet published, of which the earlier portion was printed some time since. Sir W. Hooker, at t. 989 of his "Icones Plantarum," has figured a bipinnate variety of this Fern. *T. M.*

WARDIAN CASE AND AQUARIUM COMBINED.

NOT being aware that a fresh-water aquarium has before been connected with a Wardian case, I beg to furnish you with a sketch of a contrivance combining the two, which I have had in operation for some time.

The apparatus consists of four parts made of flint glass, with a little cobalt to give it a tinge of blue. Contrivances of this kind are made of various sizes. In the one from which the sketch was taken, the tank which contains the water in which are the aquatic plants, fishes, mollusks, and insects is about 12 inches in diameter, and about 9 inches deep; near the top in the inside is a flange with a groove, into which runs the condensed water from the bell-glass, which forms the Wardian case for the Ferns, Lycopods, &c.; from this groove it descends to the tank below. Into the centre of this vessel I put the glass pedestal. I then cover the bottom with about 2½ inches of fresh, but not very rich, soil, in which I plant my aquatics: I use for this purpose Valisneria spiralis, Aponogeton distachyon, Nymphæa odorata minor, and N. macrantha. On the soil I put 1 inch of well washed flints, or sea gravel, which prevents the insects or mollusks from making the water foul. I then introduce the water through a fine rose to about 4 or 5 inches deep, into which I put gold fish (small) or sticklebacks, or any other small fish, mollusks, Succinea putris, Planorbis corneus, carinatus and marginalis, Cyclas rivicola and cornea; insects—any species of Colymbetes, Hygrotes, Hadaticus, Gyrinus, and several other aquatic genera; care must be taken not to introduce any of the large carnivorous larvæ. I then prepare for introducing the plants proper for a small Wardian case—I put the soil into a blue glass dish, with a rim at the bottom to keep it steady on the pedestal; this dish is 1½ inch deep by 7 in diameter, the soil is raised in the centre about 2 inches; in this I plant the tallest Ferns or Lycopods, and the smaller round the edge of the dish. The Ferns I plant are Adiantum Capillus Veneris, Lastræa dilatata Schofieldi, a beautiful small Yorkshire variety; Asplenium viride and trichomanes; Asplenium fontanum, &c.; Lycopods Willdenovi, umbrosum, stoloniferum, mutabile, densum, and lepidophyllum. When planted I cover the soil in imitation of rockwork with agates and pebbles of any sort. I then give the whole a good watering before placing the dish on the pedestal; the whole is then covered with the bell-glass. One before me at the present time has been standing in a window eight months, the water has never been changed, or any addition made except a small quantity once given to the Ferns, &c., in the dish. Should the water become green in the summer a small piece of gutta-percha pipe, with a small rose at the end, will draw off the water, which may be replaced. The bell-glass may likewise be removed with benefit to the plants, and a sprinkling of water given them. *Henry Baines, Museum, York.*

Home Correspondence.

How to Encourage Melon Plants to make Roots.—The advantage of covering the surface of the soil in Melon pits with boulder or other stones, pieces of tiles, slates, &c., in order to attract the roots of the plant to the surface is well known, and in practice the plan is pretty generally acted upon. If you plunge a pot in the soil of a Melon bed for some days, on taking it out the hole left in the soil will be found lined with a network of beautiful white roots. Acting on this idea I propose to introduce to the notice of cultivators a double cylinder made of the same material as garden pots are made of, and as porous as possible, the outer tube or cylinder to be say not less than 4 inches in the bore, and the inner one something more than 3 inches or so as to leave a cavity between the two of not less than a quarter of an inch. The tubes should be closed together at one end; the outer one I would have pretty freely pierced with small holes, large enough to admit the roots of the Melons, perhaps ¼ of an inch diameter. What I propose is to place a certain number of these tubes upright, of course on the surface of the stratum, be that what it may, on which the soil is placed (they should be long enough to reach quite through the body of soil) in the pit frame, or whatever structure is employed for the growth of these plants; I would allow 8 of these tubes to a plant or light, the first 4 being made to stand at right angles, and at the distance of 15 inches from the plants each way, the others at regular distances towards the front and back. The object in having a double tube is the having, as it were, three surfaces for the roots to ramble round; they would spread over the outer tubes and then introduce themselves into the interior surfaces through the small holes, and for their encouragement the inner tubes during the growing season should be kept filled with liquid manure, which by absorption through the sides would feed the roots collected in abundance round the three surfaces, as well as greatly benefit the plants generally by the ammoniacal vapours rising up amongst them. *W. H., Belper, May* 31.

New mode of Bread Making (*see p.* 373).—Living in the country, and out of the way of yeast dealers, the raising of bread with "carbonic acid gas" has quite delighted me; but Mr. M'Cormac gives no very precise directions. How is the gas to be got, and how is it to be kept? Any particulars would greatly oblige. *J. C., Northumberland.*——I have been much gratified at seeing Dr. M'Cormac's account of the "New mode of Baking." I have been in the practice of using bread made of unbolted Wheat-meal, and raised by effervescence, for some time past, and I am happy to give my testimony as to its efficacy in promoting easy digestion and complete nutrition. It is also more agreeable to the palate than the bread commonly used. It is to be regretted that this plan of baking is not brought into general use; it would be an incalculable boon to the community. *J. Burns, Hampton Court.*

Fumigation.—A notice in your paper (see p. 358)

about a method of fumigating conservatories, reminds me that I have long intended asking you a question on the subject; not however respecting the operation, or the apparatus that may be recommended. With these I am familiar, from the primitive flower pot and pair of bellows to the patent hurdy gurdy contrivances, so full of sound and fury, signifying nothing, and I may just slip in (by way of parenthesis) that a fine wire sieve is the simplest and most efficient machine that can be employed. But what I really want to know is whether it is a house full of smoke or the deleterious matter driven off in burning a given quantity of tobacco that destroys insect life, and whether that matter would not be equally, if not more destructive, driven off by perfect than inherent combustion. I am inclined to believe it would be more deadly, because my senses tell me that a sniff caught when the materials burst into flame is intensely pungent compared with that produced from the smoulder we take such pains to preserve. I need not say that an answer that would settle this satisfactorily is of some importance, as if it really depends upon the quantity of tobacco consumed, not upon the masses of its consumption, the fumigation process would be wonderfully shortened and simplified. It would be mere moonshine to speak about any danger to plants from doing the thing in a comfortable blaze, notwithstanding the strong recommendations that puff cool smoke. *J. M.* [We have no doubt some experienced correspondent will give an answer to this question.]

Flower Show at the Crystal Palace.—The late exhibition and the award of the prizes has given great dissatisfaction to many of the exhibitors particulary to those who contributed in the class Miscelanous to which the judges has given no prizes whatever. The least they could have done for their own honour saake would be to give the prizes offered. There where many who could not afford it has put themselves to many Pounds expenses exhibited in this Class and returned without any remuneration whatever, and with plants too, had they have been exhibited at Chiswick, would have gained a handsome reward, and there is a kind of shuffling in the manner the prizes have been advertised, why not have given them in their several Classes there is no one now can understand wither he has gained a first, second, or third prize except by refering to the schedule And such a Breakfast we had that would have disgraced the neighbourhood of Shoreditch or Smithfield would we believe it not a drop of milk for our coffee no butter and no waiters every one who did not choose to go without the miserable fare was obliged to fetch it himself. By inserting this I trust we may get better treatment next time. *An Exhibitor.* [Another correspondent complains of the judges who, he says, knew nothing about the subjects on which they adjudicated.]

Fruiterers' Names. Nespres.—As I passed through Covent Garden to admire the objects there, my eye caught a fruit new to me, and labelled Nespres japonica. I bought a 1*s.* worth to see what it could be, and was told it was an importation from the East Indies. When I got home I found I had some sort of Pome, and soon came to the conclusion that Nespres was only a marvellous misnomer for M(*esp*)ilu(*s*)! As four letters of the latter word agree, perhaps an etymologist would say an *N* is only an *M* which has lost one leg, an *i* is very like an *r*, a bad *l* is a good *e*; but how the *u* was got rid of I must leave the *u* or you to determine. These Pomes were neatly done up in separate wrappers of whitey-brown paper, and I suspect the region in the East Indies from whence they were imported must be situate within 50 miles of London—probably some gentleman's conservatory. *H. S. J.* [May not Nespres be Neflier ill written and ill read? The French call the plant the Neflier du Japon. The fruit in our markets is said to come from Madeira.]

Oak Plantations.—I inclose a few branches of young Oaks planted this year in old woodland, which had produced a crop of Scotch Fir, and which was cut down last year. These branches are attacked I fear by some insect. I find where the ground is naturally damp, or where I have found it necessary to drain it, that there is not a plant touched, but where the ground is naturally dry the whole Oak plants are attacked in the same way as these twigs. Would you be good enough to say what this insect is, or what has so destroyed the plants? *Quercus the 2d.* [As no insect accompanied the specimens we cannot say what it is that has done the mischief. Probably some night feeding Curculio—possibly C. Abietis—which hides in the ground by day, and breeds in the old stumps of the Scotch Fir. It is evident that the bark is gnawed off].

Cucumbers.—Having given the rival Cucumbers Ayres's Perpetual and Wild's Ipswich Standard, a fair trial, I can confirm Mr. McEwen's statement (see p. 302) as to the superiority of the first-named for general cultivation. As an exhibition Cucumber, for which purpose great length is one of the chief qualifications, the Ipswich Standard is no doubt the best; but for the regular supply of a gentleman's family, which after all is the true test of merit in a Cucumber, I can say without hesitation that Ayres's Perpetual is much to be preferred. *J. B. Whiting, The Deepdene Gardens.*

Gardeners' Benevolent Institution.—As the time approaches for an election of pensioners, perhaps you will allow me space for a few remarks. In the first place I must lament, in common with many other gardeners, the want of the names and assistance of many nurserymen and seedsmen throughout the United Kingdom. Surely if gardeners might seek sympathy with any particular class in society it would be that of the nurserymen and seedsmen. But to be fair in this matter, many of the trade stand forth in bold relief as the decayed gardener's friend in the list of subscribers; all honour to them! And here I would make an earnest appeal to all those who would do good, by inviting attention to the character of all real gardeners as a body; feeling assured that those who will give their case a fair and full consideration will come to a conclusion long since arrived at by thinking, feeling, and sensible men, that as a body they keep pace with the rest of society, whether in a professional, moral, or social sense; and that their labours have in many cases tended to throw light on agriculture itself. But there is yet another reason for soliciting sympathy in their behalf; they are in the main married men, and possessed of families. This, as all know, arises simply out of the character of their calling. Gardeners are not in the habit of changing so often as grooms and footmen; and indeed, if they be worthy the name, it is scarcely expedient they should do so. They do not "make money," to use a common phrase, like many classes of society whose level is not in reality much above them; hence few gardeners are enabled to make a purse for old age, unless it be the childless. I will say no more on this head, but leave it to a discerning and feeling public to remark how far I am right in these observations. One thing here I must name, and verily I fear it is the tap root of the evil. I spoke of nurserymen, but I well know that some of these gentlemen may turn on me and use the old saying, "God helps those who help themselves," or to paraphrase it a little—gardeners should help their own fraternity. I blush whilst I write this; for I believe that even thieves and robbers have a sympathy for their kind. I lament to think that hundreds of gardeners, who fancy themselves safe, do not care to place their names on our list. But so it is in all human affairs; and no person of charitable designs, who can afford it, will allow such spots and blemishes to damnify the whole picture. And now I must beg to express an earnest wish that I may not have to fight the good fight single-handed; but that others of our good British gardeners would say a few words on behalf of their less fortunate brethren. Much good may be done this way, and here I must confess to some noble appeals from time to time. Supineness is of no avail—"little strokes fell great Oaks." In concluding these off-hand remarks I invite every warm-hearted and respectable gardener to come to our help. Our worthy chairman at the forthcoming annual gathering on the 11th of June, Sir Joseph Paxton, has shown himself well qualified, as the prince of gardeners, to lead the van. How noble his assistance looks in the subscription list — 78*l.*! —*Robert Errington, Oulton Park, June* 4.

The Bark Trade.—In the last week's *Gardeners' Chronicle* of the 31st May, "A Country Gentleman" complains of the tyranny of the bark buyers; people in this neighbourhood also have been too long obliged to submit to this odious yoke. I have the honour to state that I shall be happy to communicate with your correspondent; I believe that arrangements may be made for putting the buying and selling of bark on a proper footing. *H. Clinton, Colonel, Royston, Herts.*

Diseased Grapes.—Will you please to examine the enclosed Grapes, and give me your opinion as to what is the cause of the berries becoming so rusty? There is something strange in it. The Vines are remarkably healthy, and bearing a good crop. I have a Muscat and a Hamburgh both growing side by side on one rafter, each yielding 16 bunches—the Muscat with seven bunches affected in the way you see the enclosed bunch, and the Hamburgh clean, or nearly so. The Hamburgh berries enclosed were taken from a bunch quite at the other end of the house. I should remark, that the change in the berries took place at, or about their first thinning, when they were the size of shot, and the change was extremely sudden; nothing could be seen in the evening, but next morning the evil was quite visible. *Orbro.* [The berries are affected by rust. When young the skin of the Grape is very delicate and tender, and if handled, or exposed to cold currents of air, or in any other way damaged, the part injured never recovers, but remains dead and rusty. Muscats are more delicate than Hamburghs.]

Result of not Protecting Wall Trees.—I have always covered my Apricot trees with canvas, netting, &c.; but six years out of seven I have failed in obtaining a good crop. I determined, however, this year not to use any covering whatever, and take my chance; a short time ago I looked over my trees, and I am glad to say that I have an excellent crop. I could count 50 in a square foot, not in the least hurt by the spring frost, or late cold winds; they are as fresh and green as any one could wish to see; I have never seen so good a crop before. My Peaches and Nectarines are apparently equally good; our wall is a very old stone one about 12 feet in height, with no projecting coping. I may add however that although I am no friend to protection, I nevertheless like Dr. Lisle's canopy, to which allusion has been several times made in your pages. *G. A., Leytonstone, Essex.*

Societies.

Botanical of Edinburgh, *April* 10.—The Chairman read a letter from Professor Allen Thomson, Glasgow, in which he remarks:—"I got the other day a curious specimen of a piece of Plane tree, with a portion of the metatarsal bone of a large ruminating animal imbedded in it. The bone was about 3 or 4 inches in diameter, and so completely imbedded that the turner had worked for some time upon it, and was about to finish the wood for a printing roller when his tool grated on the bone, and he broke up the wood. I have, from the rings of wood, made out its place to have been not far from the centre of a tree of not less than 16 or 18 inches in diameter." The following papers were read:—1. Remarks on the State of the Forests in Pegu, and other parts of India. Communicated by Professor Balfour. 2. Remarks on some Edible Sea Weeds. By Dr. Davy. In this paper a detail was given of some experiments on Chondrus crispus or Carrageen, Rhodymenia palmata or Dulse, Porphyra laciniata or Laver, Laminaria digitata or Tangle, and Fucus vesiculosus or Doughlagh-man. The author showed from the chemical composition of these sea weeds that they were valuable articles of food, containing more nitrogen than is present in the ordinary articles of vegetable food. 3. On Fibrous substances used in India, as communicated in the Report of the Jurors of the Madras Exhibition. By Professor Balfour. 4. Notice of the Flora of the Cumbrae Islands. By Professor Balfour. 5. Suggestions for Observations on the Influence of the Poison of Epidemic Cholera on Vegetation. By W. Lauder Lindsay, M.D., Perth. The author remarks that the historians of the great epidemics of the earlier and middle ages frequently record as a fact specially worthy of notice, that these national scourges were preceded or accompanied by the sudden and unaccountable appearance on articles of food and clothing, over large tracts of country, of various kinds of mould, or by an extensive failure of the crops. The sudden appearance of Fungi, of blood spots, and of other minute vegetable productions, was regarded with superstitious dread in early times. Some of these vegetable organisms have been supposed to be the cause of certain epidemics, more especially of blights. This view, however, is considered by the author as erroneous—the production of Fungi according to him being rather an indication of previously existing disease in the tissues. At the same time these Fungi when developed cause marked changes in the character and virulence of the disease. Various gaseous matters when diffused through the atmosphere cause injury to plants, and it is probable that an atmosphere which gives rise to epidemics in man and animals may also act prejudicially on vegetation. Meteorological observations are of great value as regards epidemics, and the establishment of societies and journals for advancing the science of meteorology is a matter of vast importance. The inquiry into the effects of cholera poizons on plants divides itself into two heads:—1. The natural influence on plants of the unknown poison floating in or conveyed by the atmosphere which produces cholera in man. 2. Experimentation on the artificial influence of the same poison applied to plants in different degrees of concentration or dilution, and under different circumstances of predisposition, &c. In regard to the etiology of epidemic diseases in plants, the following points are propounded for investigation:—1. Origin and mode of diffusion of epidemic diseases of plants. 2. Period of incubation, or what period elapses between the manifestation of the poisoned state of the atmosphere, and the exhibition of its results on vegetation. 3. Contagiousness. 4. Are the diseases of plants met with during the prevalence of epidemic cholera specific; or have they similar characters to those accruing under ordinary circumstances? 5. During epidemic cholera, or prior to its appearance, is there any marked prevalence of fungoid moulds, or tendency to the growth of parasitic fungi on vegetables? 6. What species and genera of plants have been noticed to be affected simultaneously or successively with epidemic disease? Co-existence of epizootic or sudden deaths, and a high mortality in animals. 8. Relation in date of epidemic diseases of plants, animals, and man, whether definite or accidental, as bearing on the question whether the poison of cholera is all pervading, all destructive, and how far, to what extent, or within what limits are all classes of organised beings affected by it. 9. Predisposition. As in human cholera only certain persons are attacked, so in epidemic diseases of plants only particular individuals are affected. The symptomatology and pathology of epidemic diseases should be carefully studied by the aid of the microscope and test-tube. As standards of comparison, we should be intimately acquainted with the characters of the tissues of the plant affected, in the healthy state, and in other and more usual diseased conditions. The disorganisation of the tissues under the influence of known chemical poisons ought also to be investigated. Attention should be directed to the development of parasitic Fungi, especially to the date of their appearance, the condition of the tissues of the plant at the time, and the species of Fungi present. In conclusion, the author alludes to various modes of performing experiments, and suggests the following:—Plants in pots or boxes might be introduced into cholera wards; or the atmosphere of such wards, or the concentrated effluvia from the skin and lungs of cholera patients could be introduced into bell-jars or Wardian cases containing plants of various kinds. The plants selected should be delicate cultivated ones, such as annuals, or species remarkable for the development of the phenomena of irritability, as the sensitive plant. Such plants are most susceptible of meteorological changes, and of the action of known chemical poisons. Marsh miasmata, the exhalations from chemical manufactures, of mines, or the effluvia of typhus and other contagious diseases might be substituted. The results of such experiments

could not fail to be interesting.—Mr. M'Nab laid on the table the following record of the flowering of spring plants at Annat Cottage, in 1856 and 1855, kept by the late Mr. David Gorrie :—

	1856.	1855.
Eranthis hyemalis	January 24	January 11
Garrya elliptica ...	February 6	Blasted by frost
Galanthus nivalis...	... 8	February 20
Leucojum vernum...	... 15	March 3
Hepatica triloba ...	... 21	... 29
Sisyrinchium grandiflorum	... 25	Blasted by frost
Helleborus viridis...	... 28	April 6
Salix purpurea ...	March 3	... 6

		Degs.
January 1856, mean temp.,	1st week,	40.05
...	2d week,	32.50
...	3d week,	35.50
...	4th week,	35 25
February 1856,	1st week,	38.21
...	2d week,	41.78
...	3d week,	38.93
...	4th week,	44.94
January 1855,	1st week,	45.30
...	2d week,	37.87
...	3d week,	34.81
...	4th week,	32.12
February 1855,	1st week,	34.78
...	2d week,	30.64
...	3d week,	29.85
...	4th week,	34.07

Sweet-scented Coltsfoot flowering in remarkable abundance in the open ground, in the latter part of February; and also sweet-scented Violet. Garrya elliptica more rich in blossom than usual, having brought none to perfection last year. Bees busy gathering honey and pollen before the end of February.

Notices of Books.

A Natural History of the Animal Kingdom, being a systematic and popular description of the Habits, Structure, and Classification of Animals from the lowest to the highest forms; arranged according to their organisation. By W. S. Dallas. 8vo., pp. 817 (Houlston), with numerous Woodcuts.

THIS is an attempt to popularise the study of Natural History by a systematic account of the various families of animated beings, and by a description of the more common or curious of their habits. In reality it consists of the *Animal Kingdom* of Orr's Circle of the Sciences, with new paging and some other slight changes. The mere production of books of this kind, and the numbers so produced, evince a fondness on the part of the public for natural history reading; we wish it were possible to add that they indicated a general desire to study natural history as a branch of scientific knowledge. On the contrary, we fear that the number of students bears no proportion to the number of readers, and that people possess no more real knowledge of natural history now than when books were scarce and not over good. And yet it might surely be otherwise, if the writers on systematical subjects were themselves more systematical, and if, in addition to pages of description and gossip, they would simplify classification, and show plainly and unmistakably by short but exact contrasts of characters in what the essential distinctions between one thing and another actually reside. Mr. Dallas has not done this; yet it would have added little to his labour, nothing to the price of the work, and a good example was set him by Mr. Gosse in his *Marine Zoology*. For ourselves we entertain no doubt that the greater part of elementary works on the animal kingdom are not elementary; and that the true business of beginning at the beginning in zoology remains to be performed. To such works books like that of Mr. Dallas will be valuable aids; but as matters now stand the latter do little more than create more smatterers and fewer experts. In the meanwhile we may recommend the volume before us as a useful work of reference, having a pretty good index, in the way of Paterson's Zoology and publications of a similar character. The woodcuts are better cut than printed, and are usually sufficient for their purpose, with the exception of what are called Portraits of Naturalists, which really are so many caricatures of the men who have been unfortunate enough to fall into the artist's hands.

A new (fourth) edition of *Babington's Manual of British Botany* has just appeared (Van Voorst). That this is one of the most popular of our systematical works on wild plants is proved by its steady sale; that it deserves its popularity the conscientious revision of each succeeding edition abundantly proves. It is in fact the text book of those who believe that small differences between one plant and another are tantamount to distinctions between one species and another. While we cannot concur in that opinion, we readily admit that much acuteness of observation is shown by those who regard the subject from the same point of view as Mr. Babington; and perhaps the very difficulty of applying the supposed distinctions on which modern species are grounded adds an interest to the botanical pursuits of those who have leisure in abundance at command. The present edition contains 12 pages more than the last. The species of Ranunculus are increased from 21 to 26, of Epilobium from 11 to 13, of Hieracium from 27 to 33; while on the other hand two species are struck off Rubus, and one off Salix. The *Lysimachia punctata* found by a correspondent of ours at Dulverton (see 1854, p. 614) is admitted with doubt, but the name of *westphalica* is given for it on our authority instead of that of Weihe, with whom it originated. We hope our learned friend will also excuse us for expressing some surprise that while he admits as distinct species Prunus Avium, and Cerasus, and creates or admits so many others of the most doubtful value, he should refuse to recognise a distinction between *Quercus sessiliflora* and *pedunculata*. We can only suppose him to be unacquainted with the former, as indeed would appear to be the case from the short character he assigns it as a variety, which character is wholly at variance with the species.

Social Delusions concerning Wealth and Want. By Richard Jennings, A.M. Longmans. Small 8vo, pp. 241.

What is meant by value? What is it that constitutes value? The author of the work before us believes that the great political economists of the day have given erroneous answers to these questions, and that the misery of the lower classes in this country is to a very great extent attributable to prevailing errors on the above points. That political economists have erred may be admitted; that they are now wholly free from error no one would be bold enough to assert; but that the misery which all deplore can be fairly laid to their account is what the author has certainly not proved. He has, however, endeavoured to lay bare some popular errors on political economy, and his work is worthy of perusal, for it is evidently written by a man accustomed to think and to examine for himself questions which are usually deemed concluded by authority.

Nomos: An Attempt to demonstrate a Central Physical Law in Nature. Longmans. Small 8vo, pp. 198.

In this work the author seeks to show "that the inorganic world is ruled by one single law, of whose operation the phenomena of electricity, magnetism, light, heat, chemical action, and motion are only so many signs—the law, that is to say, which was named provisionally the law of the laboratory—and that no secret in the world of inorganic nature can be fully understood except upon this assumption." Whether the author has succeeded in showing this is a question which, though affirmed by him, will probably be disputed by some at least of his readers.

Garden Memoranda.

MESSRS. WATERER & GODFREY'S EXHIBITION OF AMERICAN PLANTS.—This exhibition, to which we directed attention last week, was opened for private view on Wednesday last, and was inspected by a select company including her Royal Highness the Duchess of Cambridge and other members of the Royal family. Many of the scarlet and other high coloured Rhododendrons were in full blossom; so likewise were some of the Azaleas, and altogether the display was extremely striking, especially when viewed from a raised platform which has been erected at one end of the tent, and from which the whole mass of bloom can be looked down upon and seen at one glance. When we state that 100 yards in length and 33 yards in width have been wholly devoted to these gay flowering shrubs, and that wander where we will we are never beyond the sound of music, both vocal and instrumental, some idea of the kind of treat a visit to this exhibition will afford may be conceived. As already stated, the whole has been thrown into borders and beds of tasteful forms by good gravel walks 6 and 8 feet wide, edged with turf, and here and there, where there is room for them on the gravel turf mounds have been raised, on which have been placed noble standard Rhododendrons, a few of which are now in full flower, and thus placed they serve to break the sameness which would otherwise to some extent prevail and have a very imposing appearance. Among the more remarkable varieties now in blossom we observed roseum elegans, in the shape of a standard loaded with handsome trusses of brilliant rosy flowers; atro-sanguineum, deep crimson or rather scarlet, very striking and beautiful; ornatum, lighter in colour than the last but not less showy; Sir Isaac Newton, spotted purplish lilac with crimson buds, large and fine; Archimedes, brilliant rose; Vandyck, a kind equally showy; Nero, spotted rosy crimson, a fine trusser; Desdemona, rose with dark blotches on the upper petals; Prince Albert, said to be a fine kind, but flowering badly here; Lord John Russell, purple, with blotches in the upper petals; and Brayanum, one of the very best of all the rosy crimson kinds, being excellent both in shape of flower and truss and brilliant in colour. Currieanum, it may be added, is also a large beautifully spotted purplish crimson variety, and few in this way surpass Victoria, a spotted claret, with trusses of great size. Of lighter kinds, delicatissimum is well worth attention, and so is Catawbiense album. Of other varieties there are no want of examples of every tint and shade, but of the sorts at present in flower the above are the most striking. As regards Azaleas, little can be said, as they do not come true to colour under canvas. Among them are however some good yellows, which serve to relieve and vary the scarlet, purple and rose coloured hues of the Rhododendrons. Altogether the display is one of no ordinary kind, and we need not repeat is well worth inspection. On the gravel near the entrance have been placed some fine standard Bays which form good substitutes for Orange trees, and immediately inside the tent dotted over a little Grass plat are some handsome Conifers, including the singular little Abies olanbraziliana, and other very dwarf growing kinds.

Miscellaneous.

How our Ancestors lived in the Days of "Good Queen Bess."—In thinking of Elizabethan diet we must remember that Hops, carp, and turkeys were all novelties, having been introduced in Henry VIII's time. Before that, ale was drunk new, Artichokes were scarce, and Potatoes mere luxuries, looked upon with suspicion. The dinner itself had som thing almost religious in its ceremonial. The great salt-cellar was a barrier of classes, and divided the baron from his jester, his falconer, or his page. Feudality then shone in almost the full brightness of its coat-armour blazonry. The rolling-pin beating the dresser was the signal for the meal. The dishes entered, borne in procession and to the sound of music; the knight had his taster, his cupbearer, and his carver; there were crowds of blue-coated serving-men with silver badges on their arms, the steward with his chain, and the major-domo with his white staff; the pages and the serving-maidens had all their distinct places, hemmed in by grave chaplains and brawny huntsmen. All the ceremony of royalty was retained in some of these baronial halls; and no wonder the ruffs grew stiff, and the beard grave and solemn; no wonder there were Justice Shallows and pompous nobles inflated by their service, which Burleigh received with such dignity, which to old Sackville, the Nestor of the Court, lent only stateliness becoming his learning and his years, but which to parvenus was dangerous and intoxicating. The Elizabethan kitchen was a subterranean world, lit by infernal fires, and quite independent of the revelry and pomp and gravity above. There, omnipotent as Jove, ruled the red-nosed cook over a small army of martyrs with hot faces and white caps: his sceptre was a rolling-pin, a case of knives swung at his side, chests of spices were his crown jewels; all day in this torrid region went up a hissing sound of imprisoned stews and a bubbling of perturbed joints scalding in those large sarcophagi called on earth cauldrons. The pastry was not then a mere question of vulgar pie-crust but a work of art requiring much mythological study, when Actæon and his hounds in bas-relief or the siege of Troy were represented in raised paste. The sweetmeat rose in towers and battlements, and was gay with flags and gilded streamers; nor was the peacock with gold beak and expanded tail yet forgotten, or the white toothed boar with the Lemons in its mouth: oxen roasted whole were everyday things, and cooking was altogether a science, more epical and Titanic than even Soyer could now dream of. The Elizabethan cooking was subtle and full of art: local dishes were then more strictly retained and less widely known; Devonshire had its white pot and clouted cream, Cornwall its herring and pilchard pies, Hampshire was renowned for its honey, and Gloucestershire for its lampreys. The Spanish Oglio was, however, not uncommon, and we had French potages and many Dutch ways of dressing fish. There was stewed broth, wheaten flummery, smallage, gruel, hotchpot, barley potage, and spinage broth, for a commencement. The second course was say, lampreys, Poor John, and mullet, stewed oysters, stock fish, sturgeon, and buttered whitings with eggs. For the third, marrow puddings and black puddings, white puddings, bag puddings, and quaking puddings. For the fourth, supposing it a Lord Mayor's dinner, fricassees of veal, stewed beef, capons in white broth, humble pies, Scotch collops, chicken salad, veal toasts, shoulders of mutton cooked like venison, marrow pasties, Pancotto, roast partridges, and wild fowl. For the last, custards (the great city delicacy), cream and carraway cakes, whipped creams, cheese cakes, warden pies, hartshorn jellies, cherry marmalade, pear puddings, minced pies and white pots, syllabubs, suckets, and almond marchpanes. Some of the dishes are curious enough; there is one of the kernels of Tulip stalks cooked like Peas, and soused turkey, boiled in white wine and vinegar, and soaked for a month; the sauce Fennel and vinegar. There is picked goose with cloves and ginger, bran jelly, pickled capons, and horse-radish sauce. Those pear puddings contain no Pears, and are formed of cold chicken chopped up with sugar, currants, and spices, made up into a paste the shape of the fruit; there is pith pudding and oatmeal pudding, veal toast fried in butter and basted with currants, sugar and nutmeg. Beyond that is green goose pie and imitation red deer, and after the pastry white cheese and Tansy. Among the sweets we see pippins preserved whole in jelly, apple syrup, quince cheese, candied Apricots in slices, and currants preserved whole in jelly; there are also cordial tablets of pistachios and leaf gold, iced with orange water and flavoured with ambergris and musk, besides omelets of Mallow stalks, and rose juleps. For the liquids, besides ale and all sorts of beer small and strong, claret, and sack, there is Apple drink and stepony, and honey drink, and bragor, meath and metheglin, and hydromel and strawberry, and cherry wine, and sack, with gilly-flower syrup; the metheglin is full of sweet country perfumes. In white meath alone, so curious are these drinks, there was infused Rosemary and Thyme, Sweet Briar, Pennyroyal, Bays, Watercresses, Agrimony, Marshmallow, Liver Wort, Maiden Hair, Betony, Eye-bright, Scabious, Ash leaves, Eringo roots, wild Angelica, Rib Wort, Sennicle, Roman Wormwood, Tamarisk, Mother Thyme, Saxifrage, Philipendula; and besides all these, Strawberries and Violet leaves were often added. The durations of cooking in old cookery books are frequently indicated by "the time in which you would repeat a Miserere slowly, or the time of an Ave Maria;" but this was not

for the Puritans, who shunned mince pies and shivered at plum porridge. Baked wild ducks and pigeons delighted the *dura ilia* of our ancestors, who revelled in buttered eggs, marrow sops with wine, the *haut goûts* of garlic sauce more than in fricassees and hachys, which were not much known till after the Restoration. Elizabeth breakfasted on brawn and ale, because tea was not known, and chocolate was still confined to Spain. Asparagus and Lettuce were then rare delicacies; sibbolds, Rocket, and Tarragon served for salad, and Holland still retained the Endive and the Cress. Cock ale was one of the most singular beverages ever composed, and the receipt for its composition is too curious to bear abridgment. "Take 8 gallons of ale, take a cock and boil him well, then take 4 lbs. of raisins of the sun well stoned, two or three nutmegs, three or four flakes of mace, ½ lb. of dates; beat these all in a mortar and put to them 2 quarts of the best sack, and when the ale hath done working put these in and stop it close six or seven days, and then bottle it, and a month after you may drink it." The Queen's own breakfast consisted generally of wine, and bread and butter, and ale; at least it did so in 1576, not to forget mutton potage, chicken broth, beef, and mutton. Her Sunday's dinner on the 19th of November consisted of beef, mutton, veal, swan, goose, capons, conies, friants, custards, and fritters, for the first course. For the second, lamb, kid, herons, pheasant, fowls, goodwits, peacocks, larks, tarts, and fritters. Her average dinner was varied with plovers, veal pies, custards, boiled partridges, boiled beef, snipes, pheasants, chicken pies, and tarts, and cost on an average 4*l.* a dinner. As an exception she had baked chickens, sallets, tongues, teal and deer's dowsetts, bitterns and baked larks, and above all brewis. Her suppers were of the same kind on fast-days; the fish dinners were of great variety, but much less expensive; the first course included long pike, salmon, haddock, whiting, gurnet, tench, and brill; the second, sturgeon, conger, carp, eels, lamperns, chine of salmon, perch, lobster, tarts, and creams; the side dishes were sturgeon, porpoise, fish collops and eggs, dories, soles and lampern pies, cod, broiled conger, bream, and red fish; the second course sometimes included warden pie, smelts, boiled veal, boiled mutton, pullets, partridges, and panado. We rather shudder at such rich food as gulls and "great birds" (whatever short of a buzzard they may be), nor is porpoise inviting, let alone bream and tench. The powdered mutton reminds us of Shakspere. The lower tables do not differ in anything but the less number of dishes, and the more frequent occasions of ling, and stock fish, and the cheaper food. The whole charge of diet for the Court in 1576 amounted to 21,639*l.* 3*s.* 5¼*d.*; 127 sheep died of the murrain, or were stolen, at a loss of 127*l.*; 14 stock fish were eaten by cats and spoilt, at a cost of 14*s.*; the free messes and charities were 500*l.* The stock fish had to be prepared by beating, and is frequently alluded to in old plays. *Thornbury's Shakespere's England.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The beds of this house (if they have been properly made) will now require a large supply of water to keep them in a sufficiently moist state, and the soil should be occasionally examined, especially near strong growing plants, for the amount of moisture absorbed by these at this season is greater than many persons imagine. Whenever water is applied the beds should be thoroughly soaked to the bottom, and where it can be done without annoyance to the family, &c., manure-water should be given to such plants as are known to enjoy it. This should be furnished, however, in moderate quantities, and after well soaking the soil with clean water, for to give it in large quantities would probably cause it to reach and injure some adjacent plant. If red spider makes its appearance upon any of the specimens growing in the borders, the pot plants in flower should be moved as soon as possible, and the infested subjects given a thorough washing with the engine, and this should be repeated at short intervals until the enemy is thoroughly subdued. Stove.—See that the specimens here are afforded plenty of space, for there is nothing more injurious than huddling growing plants together. The inmates of this house are mostly plants of easy propagation and rapid growth, and in many cases advantage is taken of this to grow too many for the accommodation at command, and the result is that there is hardly a respectable specimen produced. There can be no doubt that a moderate quantity of well-managed specimens will be more valued than a larger number of half-starved miserable-looking plants. Keep a sharp look-out for insects, and apply the proper remedies in time to prevent their injuring the plants. Attend frequently to the regulation of the growth of twiners, and prevent their getting into a state of entanglement. Maintain a growing temperature with plenty of moisture in the atmosphere, and give plenty of clear weak manure-water to anything that is found to be benefited by it. Orchids.—The shading of this house during such weather as we have experienced of late requires considerable attention to avoid extremes. Now, however, that the plants are mostly in free growth and very susceptible of injury from bright sunshine, it will be safer to err in the way of using the shading too much than to allow the plants to suffer from the want of it. Aim at securing rapid growth by keeping the house warm and maintaining a regular humid atmosphere, sprinkling the paths, &c., often enough on bright days to keep them sufficiently moist; but be careful not to get the plants too wet at the roots by using the syringe too freely over the foliage. See that specimens in baskets or on blocks are kept sufficiently moist; these will endure a light dewing with the syringe morning and evening whilst in a growing state.

FORCING DEPARTMENT.

Pinery.—Where Pines are grown to any extent on the Hamiltonian system, a close watch must be kept upon the most likely plants for immediate fruiting, so as to keep them dry at the root or otherwise as circumstances may dictate, and those showing fruit must not be syringed over head to the extent of causing water to lodge in the centres of the plants, for this would probably cause the fruit to be deformed. Young stock growing in dung pits must be allowed plenty of air to prevent their making weakly growth, and must not be over watered, which through the greater amount of moisture in the atmosphere, is more apt to be the case here than in houses heated by any other means. Encourage recently potted stock with plenty of warmth and a corresponding degree of humidity in the atmosphere, but water carefully until the roots get hold of the fresh soil. The most certain method of obtaining a regular supply of fruit is by securing and potting a limited number of suckers at short intervals throughout the growing season; therefore attend to this, which will save much trouble and disappointment as compared with the old practice of doing this but once, or at the most but twice in the year. Vineries.—Where Grapes are intended to be kept until next January the berries should be thinned so that they will scarcely touch after they are fully swelled, for it is hardly possible to prevent their damping off during winter, when the berries are left as thick as is usually done for summer and autumn use. Muscats and St. Peter's will be benefited by a very little fire-heat at night. Spare no trouble to preserve the foliage of the early house in a healthy state for at least the next two months, and also that the border is not allowed to become too dry. Give air freely and early in the morning where the fruit is colouring, and avoid an undue amount of moisture in the house by removing plants, &c., at any inconvenience.

FLOWER GARDEN AND SHRUBBERIES.

The work of planting-out "bedding stuff," if not already done, should now be finished without delay. Get Verbenas, Petunias, and other things liable to be injured by wind pegged down as soon after planting as possible, placing the shoots so as to cover the soil equally; and let Dahlias be securely tied to sufficient stakes. No labour should be spared which may be necessary to properly care for the plants until they get fairly established, when, if the beds have been properly prepared, they will care for themselves during the rest of the season. See that plants in vases are properly supplied with water, as, if allowed to get too dry at the root but for a single day in bright weather, before they get well inured to exposure and fairly established, the foliage is sure to be injured and the appearance of the plants spoiled for some considerable time. And should the weather prove warm and dry the whole stock of bedded out things must be well attended to with water, and will be greatly benefited by a liberal sprinkling every evening, but to water a large stock every evening is next to impossible where the amount of labour is limited and water not within reach; those, therefore, who expect their flower-beds to be as well filled and covered with flower in July as any in the country must make up their minds to maintain a successful contest with dry weather at any necessary expense. And in most situations proper arrangement and a trifling outlay in laying down pipes fitted with union-joints would, with a hose, render any amount of watering which might be necessary in the dry season a very trifling affair. We would not be understood, however, as recommending frequent heavy waterings, but merely that the soil should be kept in a healthy moist state, and any labour bestowed in the way of moistening the surface of the beds on the evenings of bright days will be well repaid. Use every possible dispatch to bring up any arrears of work in this department which may have accumulated during the time the hands have been employed in planting out.

HARDY FRUIT AND KITCHEN GARDEN.

Now that we have nice growing weather, see that every shoot on the Peach and Nectarine trees is free from insects, and otherwise lose no time in getting them cleaned. If not yet done, disbudding should be completed at once, in order that the strength of the trees may be thrown into what is to be the bearing wood for next season. Where covering of any kind has been used, this should also be removed, if not previously done. See that Cherries are not allowed to suffer from their enemy the black fly, and endeavour to keep all fruit trees perfectly clear of insects. The early Celery should be planted out without loss of time, and this must be well supplied with water until it gets established, and indeed throughout the summer. If not planted between lines of Peas, or in a shady situation, the plants should be protected from bright sunshine for a week or so after planting, and see that there are plenty of plants coming on for the succession and late crops. Give all necessary attention to Tomatoes, ridge Cucumbers, &c., until they get fairly established. After well soaking the Strawberry beds with water the surface should be mulched in order to keep the ground cool and prevent evaporation. It is a very usual practice to use the mowings of the lawn for this purpose; but this is the very worst article that could be used, as it spoils the fruit by adhering to it, and in damp weather imparts to it an unpleasant flavour, and hastens decay. Next to tiles or slates clean straw is the best article for this purpose, and where this cannot be obtained the rankest portion of the litter from the stable-yard may be used instead, and there need be no fears entertained about this spoiling the flavour of the fruit for exposure to the air, and a few showers will perfectly sweeten it, and although more troublesome to apply it will be found to answer the purposes as well as clean straw. Give Asparagus beds a liberal supply of manure-water, and where there is plenty of this at command it may be given with advantage to such things as Cauliflowers, Lettuces, &c. Keep the surface soil frequently stirred among all growing crops, which will prevent the growth of weeds and strengthen the plants.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 5, 1856, as observed at the Horticultural Gardens.

May and June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 30	26	30.130	30.084	57	41	49.0	56	54	N.E.	.00
Satur. 31	27	29.88[illegible]	29.700	51	47	49.0	53	53½	N.	.22
Sunday 1	28	29.738	29.690	56	33	44.5	53	53	W.	.00
Mon. 2	●	29.891	29.798	73	36	54.5	55	53	S.W.	.00
Tues. 3	1	3[illegible].017	29.957	77	39	58.0	58	52	S.W.	.00
Wed. 4	2	30.1[illegible]8	30.046	75	45	60.0	59	54	W.	.00
Thurs. 5	3	30.143	30.1[illegible]3	63	33	48.0	59	54	N.E.	.00
Average		29.986	29.111	64.5	39.1	51.8	56.1	53.2		0.22

May 30—Cloudy and cold; fine.
— 31—Rain; cold damp haze; rain at night.
June 1—Hazy; cloudy; fine; cold at night
— 2—Clear and fine; very fine throughout.
— 3—Clear; very fine; cloudy; clear.
— 4—Very fine; cloudy; lightning at night.
— 5—Very fine; lightly and uniformly overcast; cold at night.
Mean temperature of the week 6 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending June 14, 1856.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	70.1	47.1	58.6	11	0.45 in	3	6	1	—	4	10	4	2
Mon. 9	70.2	48.0	59.1	14	1.18	1	5	1	2	3	12	3	3
Tues. 10	71.1	48.2	59.6	13	0.95	1	7	1	2	3	7	5	4
Wed. 11	71.9	49.3	60.6	10	0.47	—	7	3	1	3	7	9	—
Thurs. 12	71.3	50.4	60.8	13	0.78	—	6	3	1	5	9	3	3
Friday 13	72.0	49.4	60.7	14	0.77	1	5	4	1	2	8	7	2
Satur 14	72.5	49.8	61.1	14	0.36	1	2	4	1	5	9	7	1

The highest temperature during the above period occurred on the 12th and 13th, 1842—therm. 90 deg.; and the lowest on the 13th, 1849—therm. 34 deg.

Notices to Correspondents.

Currants: *J M'V.* They may be cleared of greenfly by dipping the branches infested with it in Tobacco water, and then giving the bushes a good washing with clean water applied with force from a garden engine. The operation must be repeated until no insects can be discovered. One pound of good Tobacco to eight gallons of water will answer the purpose.‡

Deodar Seed: *T T.* Sow it in shallow pans filled with yellow loam, and place them on a very gentle bottom heat until the plants begin to peep through the soil. Then remove them to a cold frame, giving them air gradually at first, but afterwards freely on all favourable occasions. When large enough they may be planted out into the open border ‡

Diseases: *Photographicus.* Your Cabbage-leaf is affected by a minute fungus *Depazea Brassicæ.* In the Geranium leaf there is no fungus except *Cladosporium herbarum*, which always grows on dead vegetable tissues. The affection on your plants does not appear to be the ordinary spot, at least if it is so, it is extremely aggravated. Surely your pots cannot be properly drained, or the house well ventilated, or the plants could not be in the condition which your specimen seems to indicate. Supposing, however, the affection to be really the spot, it will be necessary for you to consider whether your soil suits the Geranium, for it is certain that as in the cultivation of Melons a great deal depends upon this circumstance. *M J B.*

Insects: *C S & Co.* The brown beetle, which attacks the grafts of your Plums, Pears, and Apples, we suppose must be the sulcated Weevil, Otiorhynchus sulcatus. We know no other remedy than that of laying a sheet under the trees during the day and then visiting them some hours after dusk, when on shaking the trees the weevils will fall on the sheets, where they may be easily seen and must be destroyed.—*A R.* The insect on your China Rose stem is a full grown female Coccus. If you do not examine your trees carefully *at once* they will be swarming very soon with young active larvæ; the insects are so large and easy to be seen that it only requires attention to get rid of them.—*G P.* Your Mangel Wurzel is attacked by great numbers of two different kinds of wire-worms (or larvæ of Elateridæ). Your ground appears to be very foul, and should be turned up and well harrowed in order to expose the wire-worms to the rooks or ducks. You may also catch them in vast numbers by means of slices of Potato sunk in the ground as a decoy.—*Fragaria.* The grub which is injuring your Strawberry plants is the larva of a Weevil, most probably that of Otiorhynchus vastator. Watering the plants well with lime or tobacco water may probably be found useful, but the best plan is carefully to examine every root which appears to be in a suffering state and to pick out and destroy the grubs.—*W.* The flies you have sent, which are so common at this season in gardens (where they are quite harmless in the winged state), are the Bibio hortulanus. They have no connection with the smaller black fly you allude to. *W.*

Lilac: *W H B.* The specimen now sent fully confirms what we said of the variety in 1853. It is a handsome purple Lilac, closer in the bunch and firmer in the flower than any Lilac of the kind that has come under our notice.‡

Misfortunes: *Jessica.* Next week.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*J G, Clonmel.* Anagyris indica.

Walks: *R S B.* Excellent walks may be made by mixing well washed gravel, lime, and hot gas tar in such proportions as will form a black mortar. If laid on four inches thick it will last a very long time, always be dry, and no weeds will grow on it. If thicker and on a layer of chalk or gravel so much the better.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY (Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

SUPERPHOSPHATE OF LIME.

FREDERICK ALLEN, Bow Common, London, (established 17 years), begs to call the attention of Farmers and Agriculturists to his SUPERPHOSPHATE OF LIME, which has given such general satisfaction for the above period, and only requires a trial to prove its valuable properties for Turnips, Mangel Wurzel, and all bulbous roots. Early orders requested to prevent disappointment. Reference can be given to gentlemen of high standing who have used it a number of years.

Respectable Agents wanted.

ANALYTICAL REPORT (CORRECTED).

THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—

"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."

Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.

Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.

Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.

SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

THE LANDS IMPROVEMENT COMPANY.—Incorporated by Act of Parliament, 1852—53, for England and Scotland, and further empowered by Amendment Act, 1854—55. To Landowners, the Clergy, Solicitors, Estate Agents, Surveyors, &c., Tenants for Life, Trustees, Owners in Fee, Incumbents of Livings, Bodies Corporate; Lessees for Lives renewable, or for a term of more than 25 years; (and Lessees for Lives not renewable, or for a term less than 25 years, with consent of their Lessor), &c., are enabled, by way of Loan from the Company, or by their own funds, to execute and charge on the Lands improved, by way of rent-charge for a term of 25 years, repaying capital and interest, the cost of every landed improvement, especially of Drainage, Irrigation, Warping, Embanking from the Sea, from Lakes, Rivers, or Streams, Inclosing any Land, or improving Drains, Streams, or Water-courses, Reclamation, Farm Roads, Clearing, Erection of Farm-houses and other Buildings required for farm purposes, and the Improvement of and Additions to Farm Houses, and other Buildings for Farm purposes already erected; Planting for Shelter and for Periodical Cuttings, Jetties or Landing Places on the Sea Coast or on the banks of navigable Rivers or Lakes in the Highlands and Islands of Scotland; Engines and Machinery for Drainage, Engine-houses for Farm Steadings, &c., Water-wheels, Tanks, Pipes, Water-courses, Bridges, Sluices, &c. The Plans of Buildings, Specifications and estimates are prepared by the Applicant's own Agents and are submitted to the approval of the Inclosure Commissioners' Inspectors who are also the sole judges of the due execution of the works. Proprietors may apply jointly for the execution of Improvements mutually beneficial,—such as a common Outfall—Roads through the District—Water power, &c. The Directors wish it to be understood that the Company is of a strictly commercial character, and that the details of the plans and of the execution of the Works are not interfered with by them, but are controlled by the Landowner and by the Inclosure Commissioners. For further information and for Forms of Application, apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

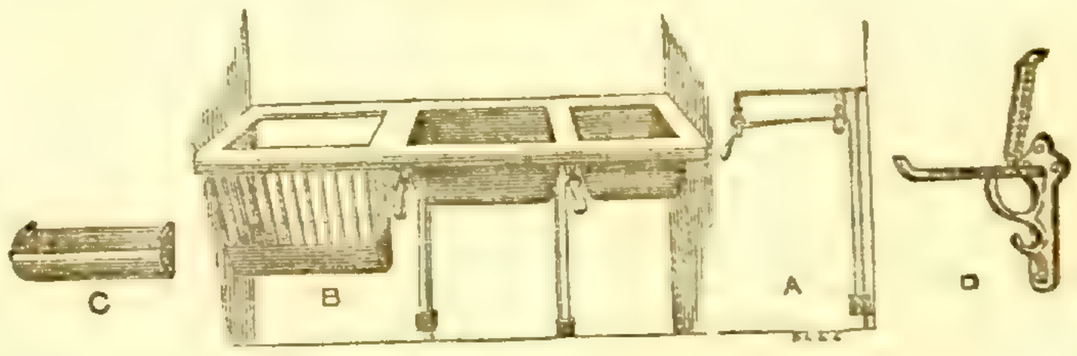
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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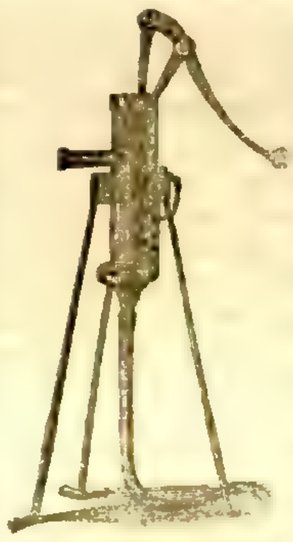
WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

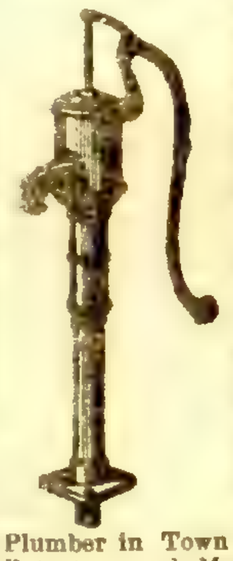
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.



Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent**

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10s.	0d.
Ditto for Man and Boy	„	22 ditto	... 6	0	0
Pony Machine (or Donkey)	„	26 ditto	... 8	0	0
Horse Machine	„	28 ditto	... 11	0	0
Ditto	„	36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

FOWLER AND FRY, AGRICULTURAL IMPLEMENT MANUFACTURERS, Temple Gate, Bristol, beg to call attention to the under-mentioned articles:—

One-row Seed and Manure Drill, a most complete thing, 6*l.* 10*s.*
One-row Drill, for seed only, 4*l.*
Prize Grass Seed Distributor, 12 feet long, 3*l.* 10*s.*
Patterson's Patent Clod-crusher, which is so constructed that it is capable of working where the ground is in a sticky state from wet.
Corne's Patent Chaff-cutters.
Oat and Bean Mills.
Gardner's Turnip Cutters.
Bushe's Root Graters.
Cozen's celebrated Press Ploughs, &c.

FOWLER & FRY are Agents for all the principal makers of Agricultural Implements, and always keep a large assortment on hand in their Show-room.

Catalogues, &c., sent upon application.

CORN CRUSHERS AND CHAFF CUTTERS.—The progress of mechanical inventions has of late years been distinguished by the advancement of science in the more judicious mode of feeding cattle, instead of the hitherto erroneous and wasteful system of using unprepared and indigestible food as an unvarying round of diet in the keeping of stock. The general practice of the country is so far behind, that apart from the value of the manure, a very large margin of profit is annually sacrificed. Under a proper management, kibbling corn, the cutting of hay and straw, are indispensable, effecting a saving of 50*l.* per cent., whether used in a raw state or steamed. Oat and Wheat Straw is recommended, when cut, to be mixed with Oats for "draught horses in particular," and the same extent of saving is effected, if given to carriage and riding horses. Bruised Corn is well known to be more nutritious, and far more economical than the grain in its natural state, while it puts the horse into finer condition for work, and imparts to the frame new energy, and unwonted power to resist fatigue. It is of vital importance to the Agricultural interest, to increase the productiveness of the soil, and it is of no less import to apply any method which may best economise his provender.

RICHMOND & CHANDLER'S unprecedented celebrity for their improved CHAFF MACHINES and CORN CRUSHERS, achievable only by intrinsic merit, has secured for them the highest character in the trade, together with the confidence of the public, whether as regards true economy or the unapproachable finish and sterling quality which characterise all their productions, and render them worthy of the reputation of a Manchester manufacturer. The most distinguished authorities in all civilised countries report their unqualified satisfaction with the highly beneficial effects resulting from the use of these justly celebrated Machines, and with the established fact of their not being subject to any of the contingencies inseparable from other machines, they are calculated to meet with general approval in the present advancing state of agriculture.

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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, JUNE 7, 1856.

A PAPER on the Breaking up of Grass Lands was read last Monday at the concluding meeting for this season of the London Farmers' Club. Mr. WOOD, the Chairman of the Club, who had drawn up this paper, came to the conclusion that it was not advisable to break up pasture lands, even under the abundant produce and paying prices on which his calculations were based. We certainly do not agree with him in the opinion thus expressed; and

we do not think that it followed logically from the premises he laid down. The paper itself we hope to give next week. The report from our correspondent at Paris has this week exhausted the space at our command.

ON Friday last a very interesting lecture was given at the Royal Institution by Dr. LYON PLAYFAIR, C.B., on the Chemical Principles involved in Agricultural Experiments. The subject included the theory of fertility and of its maintenance by the application of manures, and accordingly the controversy of LIEBIG with Messrs. LAWES and GILBERT came under review. The main points insisted on and illustrated with remarkable energy and cleverness were (1) the classification of the food of plants, according to the sources of supply, as air food, including oxygen, hydrogen, carbon, and nitrogen, and earth food, including all mineral matters: (2) that inasmuch as the composition of the air is alike for all localities, sterility or fertility must depend wholly on variation of the earth food: (3) that plants differ materially, not only in their requisitions for food, but in their means of procuring it: (4) that all the ingredients which they need are equally necessary: and (5) that of all the ingredients it was the one present in smallest quantity that determined the vigour of their growth.

But these points cannot all be taken either as absolutely true or absolutely complete; thus (1), the strict classification of food according to the source of its supply is not possible. Soil contains ammonia, carbonic acid, and water, and is thus, as well as air, a source of nitrogen, carbon, hydrogen, and oxygen; nitrogen thus becoming "a sort of earth food" too. Indeed in the opinion of some, and in reference to some crops, it is (2) according to the presence of these ingredients *there*, notwithstanding that they are present in invariable quantity in the air, that fertility is seen. But, further, the composition of the air as regards air food cannot be said to be invariable; it is sometimes moist and sometimes dry, a matter important as affecting the supply not only of the soluble parts of earth food to the plant, which are carried to the roots by rain, but of the ammonia of the air as well, which must be much less accessible in a dry season than in a showery one. (3). As to the differences of plants in their powers of procuring food, no doubt these do exist, and yet the illustrations given were imperfect. It is true that the Wheat plant presents but little surface of absorption to the air, and spreads a multitude of ramifications through the earth; and it is also true that the Turnip spreads a great extent of surface to the air for a longer time, too, than the Wheat; but it is not true that the rootlets of the Turnip plant are either actually or relatively to those of the Wheat crop inconsiderable either in quantity or extent. Dr. PLAYFAIR said that as to earth food, the Wheat is a perfect Zouave in its power of foraging, while the Turnip is an English soldier whose rations must be brought to his tent door; but the fact is that the Turnip goes just as far afield as the plant it is here contrasted with. The land between the rows of Turnips in a properly cultivated field is apparently much fuller of the fibres from the plants than the much narrower intervals are which lie between the rows of Wheat; and as to the depth the former reach, we have dug them out of the subsoil 4 feet below the surface. (4). The fourth point relating to the equal value of the ingredients making up the food of plants, whether they be present in large quantity or in small, is no doubt to be admitted generally, with, however, this exception, that for some of them substitutes would appear possible, as the alkalies for one another, while others seem altogether indispensable. It was, however, for the fifth point that the principal place in the lecture was reserved. The law of fertility was expressed thus, (5) "the body *in minimo* rules the crop;" that is to say, of all the ingredients needed by the plant, that which is present in the smallest quantity determines the vigour or the quantity of its growth. Now this of course is true only in relation to the demands of the plant in question: it is the body of which, *as compared with the quantity needed*, the supply is least, that will be the weakest link determining the strength of the whole chain, for the superabundance of other ingredients, the extra strength of the other links, is then of no avail. And this qualification was plainly to be inferred from Dr. PLAYFAIR's own commentary on the doctrine he was then enforcing with so much energy and enthusiasm. We were somewhat surprised, however, that this qualification of the law given in the terms just quoted did not strike him as an explanation of Mr. PUSEY's summing up of the theory of agriculture, which he criticised so severely.

That nitrogen is the food for Wheat, and that phosphorus was the food for Turnips, was held to be ridiculous. "The muscular Arab might thus be contrasted with the bony Highlander, and it might as well be said that nitrogen is the food for Arabs and phosphorus the food for Highlanders."

Mr. PUSEY's remark on superphosphate as almost the only suggestion for which practical men were indebted to scientific men, lay more properly open to the criticism of the lecturer, who said that it betrayed an entire misapprehension of the distinction be ween an art and a science. "LIEBIG thought no more of his suggestion for dissolving bones in acid than he would think of a recipe for WARREN's blacking." It is in the principles it has ascertained, out of which practical men must themselves obtain instruction as to means and methods, that the usefulness of science shows itself.

On the statement, however, that phosphorus is the food for Turnips, nitrogen the food for Wheat, we do not think that Dr. PLAYFAIR's criticism fell with equal force. This is just the practical version of his own law of fertility. It is but an instance given of the rule he has himself laid down that "the body *in minimo* rules the crop." No doubt Wheat needs other things than nitrogen and all these other things are equally important, and yet if generally nitrogen be the body *in minimo* as regards the Wheat crop, then it will be the quantity of nitrogen present in a useful form which will rule the Wheat crop; and we may say with Mr. PUSEY that "nitrogen is the food of Wheat." The rule applies similarly to the Turnip, and here, as in many other cases, it appears that controversies arise out of misinterpretations and misunderstandings which they generally aggravate instead of remove, rather than out of positive and inherent differences.

Dr. PLAYFAIR concluded with remarks on the general advantage which would arise out of the scientific education of all classes of the agricultural interest.

WE have one more paragraph to add upon the question of iron consumed per acre in English agriculture. Our correspondent who originally drew attention to this subject writes as follows:—

"The estimates in reference to the annual consumption of iron per acre on a farm furnished by Mr. MECHI and by Messrs. GARRETT—the one giving it at 28 lb., the other at 11½ lb.—not only exhibit a wide difference in themselves, but are very much in excess of those already given. If we omit, however, from the calculation the 55 tons of iron piping used for irrigation purposes by Mr. MECHI, his estimate will be reduced from 28 lb. to about 6½ lb. per acre. This would bring it nearer to that furnished by Mr. HOWARD, which from some reliable returns recently obtained in the north appears to be a pretty correct approximation. On three adjoining farms in Midlothian, consisting of 1264 imperial acres of mixed soils, farmed on the five-course system, the average annual consumption of iron has been 4256 lb., which would be at the rate of about 3⅜ lb. per acre."

It must be remembered in reference to this, that the extent named over which this consumption has taken place is wholly arable, and that therefore this, small as it is compared with the estimates already published, is probably above the truth as regards the country generally. The question is what *is* the actual waste per acre, not what would it be were every farm as fully stocked with implements as our implement makers would desire that they should be.

THE PARIS AGRICULTURAL EXHIBITION.

A FEW days since a great display of rejoicings took place in England, the blessings of peace were hailed by the English nation in a manner befitting their greatness, and the advent of that auspicious event was celebrated with hearty goodwill and sincere satisfaction. Here, in the city where the treaty was signed, in the metropolis of that nation which took so glorious a part in the eastern struggle, another display is taking place, another battle is being fought, and the re-establishment of peace is being appropriately celebrated. It was not the war cry of France that convened in her capital the nations of the world, although the mind of the French Emperor must have been naturally turned to more pressing and sterner anxieties, the appeal he made last year was one of peaceful import, and now, on the morrow of the conclusion of peace, that scheme has received its fulfilment.

A gorgeous palace, erected in one of the most enchanting spots of this marvellous city, has opened its gates to the robust yet peaceful and gentle spirit of agriculture, who has made of it his abode and sits in it as in a temple, and in his train, as in the ark of old, bleating flocks, lowing herds have entered, and filled the spacious aisles with their multitudes. All breeds of agricultural animals are there represented. Those that tread the boundless steppes of the east, the rich plains of the Danubian Principalities and of Hungary, that graze in the sunny pastures of Spain and Italy, that climb the steep and precipitous slopes of the Alps, that dwell in the marshy lands of Holland, the forest-clad country of Holstein and Denmark, the emerald pastures of Ireland, the park-like meadows of England, and the valleys of the Scotch Highlands are there assembled beneath the same roof.

But we may contemplate this exhibition from a higher point of view than as a mere competition among various breeds of animals and agricultural produce. It is suggestive of so many contrasts; the bleating of the flock, that but yesterday awoke the echoes of craggy mountains, to-day resounds under the crystal canopy of a gorgeous palace, in the midst of the gayest and most beautiful city in the world. Men belonging to different races and climates, and separated not more by distance than by habit, dress, and language, are brought together here, each displaying what he considered for want of terms of comparison as the best breed, the richest produce, the most effective implement in the world. What germs of progress and civilisation will be sown on this auspicious occasion! Who can form an idea of the extent to which agriculture and all the physical and moral blessings that flow from her prosperity will advance all over the world from the impressive lessons taught in this important gathering? How many prejudices will be crushed! how many jealousies soothed! how many fertile ideas awakened! how many improvements suggested! And yet, in the midst of this pleasing contemplation, it may possibly chill the minds of some of the many English spectators of the scene that in this gigantic lesson taught to European agriculture for them there is no reciprocity; they have everything to give, hardly anything to gain. It certainly appears to the Frenchman's eye that there is no hint the Englishman can receive, no idea he can adopt to modify his own; no blood he can infuse into that of his breeds, no seed he can entrust to his furrows, no implement he can substitute for his, no appliances he can extend to his husbandry—and this is no blind conceit, no effect of inordinate vanity, it is ungrudgingly admitted by all. England from her cold and unpropitious climate stands in a very disadvantageous position in comparison with other nations; in return for what she readily gives out of the superabundance of her excellent agricultural breeds, systems, and implements, out of her industry and science, she has a right to expect other nations more favourably situated as regards climate and natural fertility in the soil, to give her the seeds her cloudy sky fails in bringing to perfect maturity; to suggest from their ingenuity new implements to supply the want and dearth of agricultural manual labour drained by emigration and an immense development of manufacturing industry, or from their scientific lore to proffer new discoveries, new appliances to increase the fertility of the land, or to restore vitality to exhausted furrows.

But notwithstanding this drawback, it is far from our thought to say that no practical and material benefit will accrue to English agriculture from this great exhibition. One of the greatest and certainly the most indispensable element of prosperity for any industry is the market; the greater the demand the greater the value of the produce, and although stock breeding has of late years received in England very great encouragement both from home and abroad, there is no doubt but this exhibition will give a fresh impulse to that important branch of agricultural industry, and that English breeds will henceforth command in the European continent generally that attention which hitherto has been chiefly confined to America. But let it be understood, besides the empty gratification of self-love, this is the only advantage England will reap from this meeting, it is a merely commercial result; we confess we should have desired a greater one, although we hardly expected it.

Most of our readers are familiar with the beautiful structure erected last year in the Champs Elysées for the Universal Exhibition in imitation of that of Hyde Park in 1851; it is beneath the crystal roof of that palace and in numerous sheds distributed in its vicinity that the exhibition is held, and although we feel strongly impressed with the excellence and magnificence of the arrangements made, we humbly confess our inability to convey to the minds of our readers even a faint idea of the grandeur, beauty, and exquisite taste displayed by the French Government so as to give *éclat* and splendour to this great occasion.

The central nave of the palace has been, as if by magic, turned into an exquisitely beautiful garden, or rather lawn, intersected by meandering sanded walks, dotted with masses of flowers most artistically arranged, statues, fountains, with basins encircled in a frame of brilliant flowers and freshening the atmosphere with cooling showers. Tall trees of sombre green rise here and there from grassy knolls, and groups of evergreen shrubs relieve by their sober tints the gorgeous splendour of the flowers. There is, in fact, in the nave of the palace a flower and horticultural exhibition of the rarest merit; fruit and vegetables of truly astounding size and perfection being arrayed along the paths on the lawn, and at the foot of the groups of shrubs and flowers. But if the reception of the things exhibited is on a scale of magnificence never attempted before, we can assure our readers that it is nothing more than commensurate with the truly imposing array of agricultural riches gathered together in that fairy-like palace from all parts of Europe.

The immense aisles beneath the galleries are filled to repletion with cattle of all European breeds, and notwithstanding their large extent, such is the number of animals exhibited, that sheds had to be constructed outside the building to shelter those that could not find room

in the palace. Outside also are the sheds for the pigs and sheep, large implements, and the poultry, while in the galleries are exhibited the smaller implements, and agricultural produce of every kind imaginable, as well as those various contrivances and curious inventions, more ornamental than useful, which generally creep into the farmstead in the train of affluence and prosperity.

It would be impossible at this period to enter critically into anything like a description of this exhibition. This we reserve for a future article, and to give an idea of the importance of such a task, we will just give the general statistics of the various branches in which the show is divided.

In the cattle division there are altogether about 1300 head, comprising all breeds; of these the shorthorns alone, exhibited both by Englishmen and foreigners, number about 200, but the animals being the produce of a cross between the shorthorns and other breeds are also very numerous, plainly showing in what estimation he Durham breed is held by foreign agriculturists. In the pig class there are 171 animals; in the sheep there are 729 lots, many of three animals each. There are 174 lots of poultry, and about 81 lots of various domestic breeds, such as rabbits, goats, llamas, &c. In the implements there are no less than 2107 entered, comprising every variety of machinery from the ponderous steam-engine to the smallest tool used in husbandry. Of these 372 belong to the United Kingdom. This forms the second division, the live stock being the first. The third comprises all agricultural produce of any kind soever, and numbers no less than 4635 lots. There are besides 34 lots of books, engravings, plans, &c., connected with the subject of agriculture. From this *resumé* our readers will easily form an idea of the magnitude and importance of this great exhibition, and what utility must accrue to mankind from the contemplation of such a comprehensive museum of agriculture opened to so many whom the narrow range of comparison had hitherto kept in the ruts of ignorance and routine.

It would have been a delightful task for us to have continued our report in the same strain of commendation and praise as we have commenced it. There is however a reverse to this medallion, however beautiful the obverse may be, and it is really disheartening to find, that such a great idea, so generously and ungrudgingly carried out both by the Government that made the appeal and the exhibitors that responded to it, should be marred by the arbitrary proceedings of some who are entrusted with the care of carrying out the details and minor arrangements of the exhibition. Such demeanour towards exhibitors of respectability never disgraced to such a degree the hospitality of a country. Even, in some instances, the English judges were overruled with the most arbitrary obstinacy, without regard to their superior knowledge of their own breeds and implements. Indeed, if rumour be true, there have been exclusions made which we shall only be able fully to discuss in our next paper, for the same arbitrary administrative tyranny has withheld the publication of the award of prizes, contrary to all precedent. So on Sunday last the public were admitted, but looked in vain for the prize animals, and we are told that the award will not be known until Thursday. The inconvenience of this is especially felt by the English exhibitors, who might readily sell their animals, but dare not name any price before the award is known.

There is another point which proves a source of great annoyance to exhibitors; it is the extension of the time first named for the duration of the show. It was to last only a week, and now we are told that the animals generally are not to go before the 13th, and those which have gained prizes not until the 14th. This is a serious evil for many who are obliged to keep their servants and themselves in this expensive capital, when the presence of both is so much wanted at home. But there is still a more serious evil attending this delay; the foot disease is very prevalent in Paris, and several animals in the palace have been attacked, to the great danger of the others. It was only with the greatest difficulty that Mr. Maxwell of Edinburgh could prevail upon the authorities to move an animal attacked by the disease from the vicinity of the Scotch cattle. The reason alleged by M. St. Marie, the head official, being that the French veterinary surgeons had come to the conclusion that the disease was neither contagious nor infectious.

The surmises as to who are the winners are rife among exhibitors; but however well founded these surmises may be, we abstain from publishing anything speculative and unofficial, as the award will not be known until Thursday.

Great *fêtes* in connection with the exhibition are we understand in contemplation. On Thursday next the French jurors, together with the principal writers in the agricultural press of Paris, intend to give a banquet to which they have invited the foreign judges and other strangers of distinction. We shall give a full report of all interesting proceedings that may occur in our next article, as well as of the distribution of prizes which will take place on the 10th.

Last year when a similar show took place in the Champ de Mars, the French people, no doubt allured by the Industrial Exhibition, paid but very slight attention to the former, but on this occasion, whether they feel a greater interest for agricultural pursuits, or whether the palace being nearer and more attractive they merely select it as a place of fashionable resort, they certainly have flocked to it in very great numbers. On the first day nearly 20,000 visitors crowded the palace, and the interest excited seems to suffer no abatement; but on the contrary, to increase among all ranks of society. As to English visitors, they seem to have taken Paris by assault. We never recollect having seen so many here before. Within the palace, or in the streets and places of public resort, Englishmen are everywhere discernible by their unmistakeable countenance, or the sound of their language.

The French Emperor seems also to take a great interest in this show. On Saturday last he drove into the building; and shortly afterwards the Empress came in, and was wheeled about in a perambulator. She first paid a visit to the beautiful flowers, and at last hurriedly passed before the shorthorns, which she seemed to admire very much, especially the first prize bull Master Butterfly.

Several private and important sales have already taken place, many sovereigns of Europe being in the market, and the feeling seems to be prevalent that English stock will meet with a great demand, and at very high figures, if one may judge from the admiration with which our animals are gazed upon, and the numerous inquiries made about price, &c. We have therefore every reason to be proud and satisfied of this opportunity given to English agriculture to display her excellence and superiority; and notwithstanding the arbitrary proceedings to which we have alluded, we are convinced that this event will form an era in the history of agricultural progress; and that if England gains nothing for the advancement of her skill, she will at least open a new field for the demand of her stock and implements, and add fresh laurels to her fame.

We have to add to the above that, though the prize list had not been published when our correspondent wrote, yet the names of some of the prizeholders had transpired. Thus the first prize of 40*l.* for shorthorn bulls is taken by Mr. Towneley's Master Butterfly, the second by Mr. Sadler's bull, the third by Lord Clancarty's Pro Bono Publico.

Mr. Fisher Hobbs takes a prize in the Herefords, Mr. George Turner in the Devons, Mr. Hugh Kirkwood and Sir Michael Shaw Stewart in Ayrshires, Mr. Allan Pollok in West Highlanders, and Mr. M'Combie in polled Angus. Mr. Jonas Webb is, as usual, successful. In the Kerry breed, of which a number of specimens are shown, Lord Talbot and Mr. George Roe are distinguished.

As to the show of agricultural produce, its merits, especially as respects the French contributions, are illustrated by the following instance:—M. Raibaud l'Ange receives a gold medal for a suite of specimens the produce of one farm, including the following list:—Cereals, viz., Wheat, Barley, Oats, &c.; other crops, as Beans, Peas, Lupines, Beet, Carrots, Lucerne, Clover, Sainfoin, Vetches, Lentils, Flax, &c.; oils, wines, fruits, acorns, bark, Lavender, Thyme, wools, silks.

The following, again, is the contribution of the Agricultural Society of San Isidro, Catalonia:—103 varieties of wines; 39 varieties of Lentils and Beans, samples of Maize and Wheat; 14 sorts of Almonds, Walnuts, Nuts, Figs, Oranges, and Lemons; tobacco, liquorice, hemp, cork, sausages and cheese; various oils, and lastly the Algaroba or Carouh pods, a sweet food which has been to some extent imported as food for sheep and cattle into England, but which is used as horse food in the country of its growth. The credit of this admirable collection is due to the Condé de Forollar, Marquis de Palmerola, who is the president of the society which sent it.

We hope next week to give the prize list in full, so far as our own country is concerned, and to add further details on both divisions of the exhibition.

DIARY OF A DAIRY FARM.

JUNE.

THERE is so little variety in the business of the dairy at this season, that very few remarks can be made upon the management of it; the directions given for the month of May should be carried out as regards the making of cheese and butter. The principal thing to be attended to is to watch the alterations in the weather, the mode of treatment to be varied accordingly; when it becomes very warm and close, such as it will be when thunder is in the air, the milk will not then require any additional heat, and the same quantity of cold should be added to it as usual. Cheese lofts are generally placed over the dairy, and rooms near the roof are often appropriated for the use of the cheese, which is never proper in the summer when it requires to be kept as cool as possible, to prevent injury; and if convenient to use a room on the ground floor during the hot weather, it is an advantage to the cheese; and even if paved, if not damp and kept turned every day, and not let remain too long, it is better than a loft close to the tiles during the very hot weather. It sometimes occurs that a malt house is attached to farm buildings, and being out of use in the summer, it has been appropriated to the cheese with the greatest advantage; and a farmer possessing this accommodation for his cheese has been enabled to get it ready for the factor much earlier than where there are not these advantages. There is a kind of soft cheese known as the Bath cheese which is highly esteemed by many persons, and made at this season; the following is the recipe for making it. Take one gallon of new milk, and add three quarts of cold water, with about two or three tablespoonsful of rennet, and when turned into tender curd take it out gently with the skimming dish, and lay it on a sieve, but not break it small; the whey will drain sufficiently from it, before placing it on a cloth in a small vat made for the purpose, about an inch and a half thick, and about nine or 10 wide, to be made square. The above quantity of curd will be, as nearly as can be ascertained, the quantity for one cheese; it requires to have one or two dry cloths applied to it, and in two days it may be taken out of the vat and placed between two pewter plates and turned every day, the plates being wiped dry. It will generally be fit for use in a week or nine days; Vine leaves should be placed upon it, and it should be turned over upon them a few days before it is used, changing the leaves every day (or it may be kept between Nettle leaves) to get it ready a little sooner.

Care should be taken during the warm weather of this month that the cows should be in pastures with convenient shade, or their constant uneasiness from the teazing of flies hinders their feeding, and from their becoming so heated from running, has a very injurious effect on the milk, which is less in quantity, very soon becomes sour after being taken from the cows, and does not yield nearly so much produce, and hence considerable loss arises. If the herd be brought into yards to be milked they should have the shade of cool sheds, or the operation of milking is very tedious, from the cows not standing, and often much milk is spilt from the awkward moving of the cows, and the whole is not taken from them, which is sometimes, under these circumstances, almost impossible to do. A sufficient number of milkers should be provided to allow the cows to remain only one hour in the yard; eight is about a proper number for a good milker to do well within the hour. If a sufficient number are milked to employ a man to carry in the milk to the dairy, it has been found to save much labour. This man, with yoke and buckets, should go round to collect from each milker, as his pail becomes nearly full, and so lighten each one's load to carry from cow to cow, and prevent their individual journeys from the yard during the milking hour; by this means the milk is taken to the tub or vat in a much more equal temperature than if longer exposed to the heated atmosphere in the pails. Such a precaution has been found to act well on the cheese and butter produced from it. When the cows have to be pastured far from the homestead it is sometimes desirable to milk them in the field, for a drive along a hot road exposed to the sun does equal harm to their milk as the racing about the fields when exposed to the sun. A vessel is then taken on wheels, drawn by the milkers or a horse, according to convenience, and this should be left to stand in a cool spot and be taken home steadily with as little shaking as may be. The cows should get a change of Grass at least once a week, even if to no better pasture. They are found to feed better and keep more settled than if left longer in one field. A good supply of fresh good water for them is indispensable for their doing well and yielding a quantity of milk. The weaning calves may now be gradually, according to their age, doing without milk, meal, or Linseed, if good pasture is provided for them by day, and they are brought into yards at night, and get some Italian Rye-grass given to them, which they will very readily eat; and if a small quantity of dry hay or Clover is supplied before they go out in the morning, they will generally eat a little before they get any other food, and this is found very beneficial. The moisture from the Grass and Italian Rye-grass at night is found quite sufficient without water, from which they should be carefully guarded, or they drink to excess, and much harm is the result.

IMPROVEMENT OF SETTLED ESTATES.

A MEASURE of general importance and of peculiar interest to the owners of settled estates, designated the "Drainage (Private Advances) Act Amendment," has been introduced into the House of Lords by the Marquis of Salisbury; it has been read a second time, and it is now before a select committee.

It behoves every one interested in agricultural improvement to support this measure, as it has been prepared to remove one of the obstructions that have so long retarded the development of the resources of the cultivateable land of the kingdom. It is merely an extension of the "Private Money Drainage Act" of 1849. That act empowered owners to borrow or advance, and expend money in draining land, and in draining only, and to secure the repayment of the debt so incurred by an annual rentcharge upon the estate improved.

The principle was found to work well, and enterprising individuals formed private companies and obtained under private acts of Parliament powers not only to make charges upon land for money laid out upon it in draining, but also in the erection of farm buildings, the making of roads, &c. This principle has also been found to work well, and large tracts of land have been improved by its application.

But public legislation has not kept pace with private enterprise. Whilst private companies have obtained powers from Parliament to enable them, for their own profit, to charge land with money expended in effecting important and indeed essential works besides draining, the general public act has remained stationary, and owners have not been otherwise supplied with the means of executing with this mode of payment other works than drainage.

The matter therefore now stands thus; that any

owner may, under the sanction of the Inclosure Commissioners, borrow and lay out money in draining, and secure the payment of the sum expended by a rent charge on the land drained; but he cannot, under any circumstances, lay out money with the same mode of payment in any of the other works above named except by obtaining the services of one of the companies, who naturally charge him for the use of their act of Parliament.

It has been through eight years of experience found advisable to concede this power to the owners of limited estates, but why should they be fettered with the charges demanded by the companies? Why should they be constrained to accept their services when they might accomplish their object more readily and far more cheaply, directly through the Inclosure Commissioners? Of course the answer is clear! This state of things was never designed by our legislators. It was never intended to exact from those persons creating charges on account of money laid out in erecting buildings, &c., the fees they have hitherto been constrained to pay to the private companies. It was known when the first of these private acts was passed in 1848 that the Private Money Drainage Act should, in common justice to the public, be extended, and why this was not then done it is unnecessary now to inquire.

The bill I now wish to draw public attention to is the extension of that act which has at length been prepared by the Government; and the object of the bill is to enable landowners to act for themselves directly with the Inclosure Commissioners without the intervention of any private company, but leaving them free to seek the assistance of the companies if they think it to their interest so to do. *Charles P. Humbert, Land Agent, Watford, Herts.*

Home Correspondence.

Agricultural Meteorology.—I was interested in seeing from the report of the Royal Agricultural Society that Professor Way has "devised a mode by which the amount of nitric acid and ammonia in the atmosphere may be ascertained with approximate exactness." The methods he has employed are not hinted at nor the results given. I shall look forward, however, with much interest to his experimental researches on this subject. This is an exceedingly important department of theoretical agriculture. The specific action of certain manures for certain crops evidently depends a good deal upon the variations in the amount of ammonia in the air, and the attendant circumstances. I suggested a mode several years ago which was forced upon me from practical consideration, and which may give a close approximation to the truth. The grounds upon which I rest these opinions are very simple. It is now universally admitted that rain water contains ammonia in quantities that vary a good deal. Liebig also discovered it in sea water, but so far as I am aware no analyses have been made that ascertain the exact quantity. Now the immense quantity of ammonia that is constantly carried into the ocean by our rivers can only be returned to the atmosphere by evaporation. The circulation of water that goes on betwixt the sea and the land must establish an equality in the amount of ammonia in rain water and in sea water. In fact, then, the ocean must be regarded as the great reservoir of ammonia; as rain falls the quantity of this substance must be diminished in the atmosphere; dry air must contain less than moist; evaporation from the ocean must also be the means of keeping up the normal quantity which is constantly being precipitated along with the rains. The amount of moisture may then be a pretty accurate idea of the amount of ammonia. The number of grains of the vapour of water in a cubic foot is easily ascertained, and the percentage of ammonia in rain water might form the basis for an approximate estimate of the quantity of ammonia in a cubic foot of air. M. Ville's experiments in increasing the vigour of plants in houses by increasing the quantity of gaseous ammonia have imparted additional interest on this subject. The leaves of all plants I have long urged can absorb a much larger quantity of ammonia from the air, or what is the same thing, plants require less manure when the air contains alarger quantity of watery vapour than when it contains little. If plants have the power of absorbing ammonia directly from the atmosphere by their leaves, as there are the best reasons for supposing that they do, their facilities for doing so must be vastly increased as the vapour is increased. The increased vitality of plants as the moisture is increased has no doubt much to do with the matter, but it is worthy of remark that the quantity of the vapour of water, and probably of ammonia, is doubled for every 20 additional degrees in the constituent temperature of the vapour. When the dew-point is 50°, the air would only contain half the quantity as that in the air when the dew-point is 70°. Now there are a vast number of agricultural facts which seem to indicate that as the amount of moisture is increased in the atmosphere, the greater facilities have all plants of absorbing ammonia directly from the atmosphere. *R. Russell, Kilwhiss, May* 31.

Stabling of Horses.—From an observation in the *Agricultural Gazette* of the 24th ult. it appears that "W. B. H." contemplates providing boxes for cart-horses. However useful the plan may be for riding horses, we cannot think it judicious to separate the working horses of a farm while feeding or resting; horses are naturally gregarious, they love society, and although they invariably test the strength of a stranger and may therefore be thought pugnacious in their habits, yet when once accustomed to associate with their own kind, they are reluctant to be parted from their companions, and always welcome their approach or return. They are also very sensible to much confinement, so that in all cases, whether of the nag or cart description, they should have a roomy berth accessible to fresh air as much as is compatible with the employment they are intended for. A nag horse coming off a journey, often in a state of profuse perspiration, should be sufficiently protected from the external air, so that no chilliness is induced or draughts admitted to occasion cold, but with cart-horses less precaution is needed, and the only care required is that they be well rubbed down until their coats are dry and they may then be permitted after a feed to range a yard only sheltered from a northerly wind. This arrangement implies that a covered building is provided, with a manger long in proportion to the number of occupants, each horse requiring about 4 feet of manger. The open part of such building should if possible face the south; when it tends either to the east or west it will be necessary that the opening should not extend the whole length of such building, a passage or doorway being left large enough to admit free egress or ingress for the horses to or from the yard. In the yard may be introduced one or more cribs for fodder, and on one side should be a trough well supplied with water, for of all animals domesticated by man, none retain more unmistakeably an ardent love of freedom and independence if well treated and properly managed. The well-known proverb of "taking a horse to water, but you cannot make him drink," exemplifies in some measure his resolute tendency to consult his own inclinations, and yet how grateful for good usage, how tractable to skilful handling, how emulous of surpassing his rivals, whether hunting or racing, whether spanking on the road in a dog cart, or trembling with energy at a dead pull! Let cart-horses which work together by all means eat together in a roomy sheltered yard, and if they are not overworked how amusing is it to notice, and how necessary it is to guard against their attempts to lift the latch and escape to a wider range. This fondness for liberty or frolic or mischief, according to the natural bent or idiosyncracy of the animal sometimes is more serious than amusing, for a sharp-nosed and keen-witted rascal will by such tricks lead his congeners to the pound or into a field of cropping or other expensive scrape. A large yard with a covered shed will keep them in health; they will rest better, have a roll frequently, and often prefer lying in the yard exposed to wind and rain if the lair of straw is plentifully renewed rather than lie under cover; note the condition of horses so kept as compared with the solitary rogues having equal measures of food, and it will be found that the social party will do far more credit to the farmer than those isolated; they will be less susceptible of inclement weather, have fewer ailments, and do more work. These jottings are open to criticism; let others narrate their experience; we are ready for correction if wrong, and promise to weigh well a contrary practice when other modes have been successfully pursued. There is indeed great room for discussion on matters pertaining to this subject, so many different plans exist of feeding horses, some with bruised food, some with all fodder cut into chaff, some without hay, some without Clover, some with much green food, some with scarcely any. Millers give bran and pollards, brewers give grains, foreigners give Barley, and small farmers tail Wheat; a good deal depending upon the soil and situation of the farm and the circumstances of the owners. When horses go wrong the farmer is not willing to confess to any defect of information or negligent treatment, and when there is no complaint, the master wonders that such a simple affair is thought deserving any notice. *J. W., Peterborough.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *June* 4.—Lord Portman, President, in the Chair. Thirty-seven new members were elected.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, laid before the Council the monthly report on the accounts of the Society, from which it appeared that the current cash balance in the hands of the bankers was 3660*l.*

Country Meeting of 1857.—Mr. Raymond Barker and Mr. Fisher Hobbs, as the Inspection of Sites' Committee for the district of the country meeting of next year, reported in detail to the Council the results of their personal visit to Bath, Dorchester, Salisbury, Taunton, and Winchester, and the respective accommodation offered by those localities for the holding of the Country Meeting of the Society.

Deputations were then received consisting of the following gentlemen, who favoured the Council with statements of their personal knowledge of the several localities proposed, and received the best acknowledgments of the Council for their attendance; namely, Marquis of Salisbury, Marquis of Bath, Marquis of Aylesbury, Earl of Shelburne, Lord Ernest Bruce, Bishop of Salisbury, Right Hon. Sidney Herbert, M.P.; Right Hon. Henry Labouchere, M.P.; Sir John William Ramsden, Bart.; Sir Frederick H. H. Bathurst, Bart.; the Mayors of Bath, Dorchester, Salisbury, and Winchester; the bailiff of Taunton, Mr. Antrobus, M.P.; Mr. Beaden, Mr. W. J. Brown, General Buckley, M.P.; Mr. C. Bush, Mr. J. D. Bush, Mr. Chaplin, M.P.; Mr. Cotterall, Mr. Dowding, Mr. Estcourt, M.P.; Mr. Gale, Mr. E. W. Gillett, Mr. Hitchcock, Mr. G. W. Johnson, Mr. Knatchbull, M.P.; Mr. Stephen Mills, Mr. Thomas Pain, Mr. Edward Pope, Mr. G. J. Robertson, Captain Scobell, M.P.; Mr. Sheridan, M.P.; Mr. Sturt, M.P.; Mr. W. Thompson, Mr. Tite, M.P.; Mr. Turll, Colonel Rawdon Ward, Mr. Thomas Wegg, Mr. Wyndham, M.P.

The Council decided that the Country Meeting of the Royal Agricultural Society of England for the year 1857 should be held at Salisbury, provided that the Andover and Salisbury and the Warminster and Salisbury Railways should be open for the conveyance of passengers, live-stock, and implements, by the 25th of March, 1857; but that if such railways should not be open for such conveyance by that date, that the Country Meeting of 1857 should be held at Bath.

Prize Essays.—Mr. Thompson, Chairman of the Journal Committee, reported the following awards from the Judges of Essays:—

I. James Buckman, Professor of Geology in the Royal Agricultural College, Cirencester: the prize of Twenty Sovereigns, for the best Essay on the roots of the Wheat plant, describing their growth and development.

II. Robert Smith, of Emmett's Grange, Southmolton, Devonshire: the prize of Twenty Sovereigns for the best account of the different modes of bringing moorland into cultivation.

Mr. Thompson then submitted to the Council, from the Journal Committee, the following schedule of the subjects and amounts of prize for the essays to be sent in for competition to the Secretary by the 1st of March next, which the Council adopted:—

1. The results of microscopic observation applied to the vegetable physiology of agriculture, 50*l.*
2. The best mode of levelling ridge and furrow pasture land after drainage, 20*l.*
3. On the permanent amelioration of soils by admixture with others, 20*l.*
4. Destruction of vermin infesting the homestead and stackyard, 10*l.*
5. On the comparative advantages of entering upon farms in spring and autumn; together with instructions to the young farmer on his entry at either season, 20*l.*
6. On the results of drilling Wheat or Barley at different distances with the same quantities of seed; and also with varied quantities of seed per acre, 10*l.*
7. Any other agricultural subject, 10*l.*
8. On the comparative advantages of sowing Beans in spring and autumn, 10*l.*
9. On the early or late sowing of root crops, 10*l.*

Agricultural Chemistry.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported the following recommendations:—

1. The adoption of the new schedule of charges to be made by the consulting-chemist to members of the Society for analyses and professional opinions on different topics.
2. The reading of the consulting-chemist's annual report to the chemical committee, at the next weekly meeting of the Council.
3. The repetition, on the 18th of June, of Prof. Way's Lecture on the Composition of Drainage Waters (delivered in Whitsun-week, when many of the members were absent from town), with the addition of such matter as has been since derived from Prof. Way's further researches on that interesting and important inquiry.

These recommendations were adopted by the Council.

Veterinary Grant.—Mr. Raymond Barker, Chairman of the Veterinary Committee, laid before the Council the following recommendation, which, on the motion of Mr. Thompson, was unanimously adopted:—

That the 200*l.* per annum voted by the Society to the Veterinary College shall in future be appropriated as follows: viz., 100*l.* per annum for the Lectures given in Hanover Square by the Professors of that institution; and 100*l.* for the general objects contemplated by that grant; and that the 100*l.* per annum for the Lectures be subject to the usual rules applying to papers intended for publication in the Journal.

Chelmsford Meeting.—Mr. Miles, M.P., reported the favourable progress of the arrangements for the Society's ensuing Country Meeting, to be held at Chelmsford in the middle of July next.

Implements at Work.—Colonel Challoner, Chairman of the Implement Committee, reported recommendations in reference to the implements to be shown in active operation at the Chelmsford Meeting. These recommendations were adopted.

Member of Council.—On the motion of Mr. Raymond Barker, seconded by Mr. Miles, M.P., the Earl of Powis was unanimously elected a member of the Council, in the place of Mr. Evelyn Denison, M.P., transferred to the class of Trustees.

Steward of Cattle.—On the motion of Mr. Fisher Hobbs, Mr. Jonas was unanimously appointed one of the Stewards of Cattle at the Country Meetings of the Society, in the place of Mr. Simpson, who retires this year by rotation.

Judges of Live Stock.—The Council appointed Judges for the several classes of Live Stock at the Chelmsford Meeting.

Disease among Cattle.—The Council were favoured by the Earl of Clarendon with the following communications from the Foreign Office:—

"Foreign Office, May 31, 1856.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Council of the Royal Agricultural Society, the accompanying copy of a despatch from Colonel Hodges, Her Majesty's Consul General at Hamburg, enclosing a copy of a despatch from the British Vice-Consul at Lübeck, reporting the sanitary regulations of that Government with respect to the pulmonary disease which has broken out among the cattle in Mecklenburg.—I am, Sir, your most obedient humble servant, "E. Hammond.

"James Hudson, Esq."

'Hamburg, May 24, 1856.

'My Lord,—I have the honour to transmit herewith to your lordship copy of a despatch I received from Her Majesty's Vice Consul at Lübeck of the 17th inst. The disease, which Mr. Blackwell alludes to, has been for some time prevalent in distant parts of the continent, and I have called upon him to procure

more specific information as regards the subject, which when I receive I shall transmit to your lordship. I have reason to believe that this disease has assumed a very formidable character in Mecklenburg, and that the losses are 90 per cent.—I have, &c.,

'G. L. HODGES.

'The Earl of Clarendon.'

'Lübeck, 17th May, 1856.

'Sir,—I have the honour to report that in consequence of a contagious pulmonary disease having broken out among the horned cattle of Mecklenburg, the same disease, I believe, which has caused such ravages among the cattle in Poland, the Lübeck Government have issued sanitary regulations to be adopted in case the disease should appear within the Lübeck territory, and have moreover enjoined, as a precautionary measure, that no horned cattle shall enter the Lübeck territory from the Duchies of Mecklenburg Schwerin and Mecklenburg Strelitz, except such as are certified by the proper authorities to be perfectly free from the disease.—I have, &c.,

(Signed) 'F. A. BLACKWELL.'"

'Colonel Hodges, C.B.'"

The Council adjourned to their Weekly Meeting on Wednesday the 11th of June.

Miscellaneous.

Aylesbury Ducks.—These ducks are perfectly white, and are kept in immense numbers in the neighbourhood of that town. When highly fed, they begin to lay about Christmas, and as all the eggs are hatched under hens, the old ducks are not permitted to sit, but continue laying during the season. The ducklings are taken from their foster-mother the moment they leave the shell, and the poor hen continues her period of incubation till she can endure it no longer, and then leaves the nest a perfect skeleton, without the satisfaction o rearing a brood. The ducklings are kept in lots, warmly housed, and allowed but a limited access to water. They are fed, in addition to corn, with greaves, liver, flesh, and almost every description of animal garbage. In eight or ten weeks the ducks are killed, and forwarded to London, where, in the early season, prices sometimes range as high as 14*s.* per couple. Of the numbers thus produced it is impossible to speak with certainty; but to illustrate the quantity, it may be stated that a little farmer at Bierton had at one time last season nearly 2000. *Mr. Read in Journal of the Royal Agricultural Society.*

Calendar of Operations.

MAY.

SOUTH LANCASHIRE, *June* 2.—During the past week we have had abundance of rain, with occasional sunshine. Vegetation in all crops has been astounding. The upland meadows are very thick, and likely to be a good crop. Clover is also very heavy in most localities; at Speke (the garden of Lancashire) it is extremely high, thick, and is now fit for the scythe, and will be commenced with so soon as the weather takes up. In many parts the Wheat crop has proved a perfect failure by the ravages of the wireworm and the severity of the winter; many fields have been ploughed up and resown with Barley and Oats, and some places with spring Beans; there are, nevertheless, many excellent looking and promising "broods" where sheep have been turned in to check the Wheat. We have equal if not more Wheat sown than last year, farmers not expecting so sudden a cessation of the late war. There is a large breadth of early and winter Potatoes sown, and with God's blessing we hope to have a bountiful crop free from disease. There are many "hogs" or heaps in the stack-yards yet unsold, which in this part has a tendency to keep the price of Wheat down. Oats and Barley appear to wear a rich and verdant colour, are generally speaking thick on the land, and promise to be a good crop. The fruit trees in bloom looked both gorgeous and plentiful, but of late they are not showing that prolific appearance they did some weeks ago: indeed, I doubt that we shall have a short crop of fruit, except in occasional instances. We have only a short breadth of Beans sown, and they look remarkably well. Milch cows and young stock are very dear. Pigs are extravagantly high, and if they keep so a great many will I am sure die in debt. Good horses, too, are in great demand at high prices. The recent shows of entire horses at Warrington, Wigan, and Liverpool have created a spirit of rivalry amongst breeders which of late has been carried too far. Hay and straw have fallen 2*d.* to 4*d.* per stone, and stack yards are beginning to look bare and empty. The rent days are mostly over, and farmers have now not much Wheat left on hand, having disposed of it before that great day arrived. Town-made manure has been for some time past very high, so much so that farmers would rather buy artificial fertilisers. Messrs. Gibbs & Co. will not retail less than 30 tons at once, sadly too much for any middle class farmer to buy, considering its present terrific high price, viz., 12*l.* per ton. The cottagers' gardens do them infinite credit for taste, produce, and cleanliness; indeed, contentment seems to prevail everywhere, particularly when we consider the expense and cost of recent decorations to celebrate peace in most of our little towns. *J. A.*

Notices to Correspondents.

BOYD'S SCYTHE: *G S.* A known correspondent speaks in disparagement of it. He cannot make the nut and screw hold the blade in working position. The joint on which the heaviest strain exists when the tool is at work now, has its rubbing cheeks radially grooved, so as to hold them fixed together when once screwed up. Is this so in the tool of which our correspondent complains?

BREWING: *Country Parson.* Under the circumstances you name it will be advisable to brew at home, and supposing you brew 50 gallons at a time, you will want a copper to hold as much, a mashing-tub with false bottom of the same contents, and three shallow tubs as coolers to hold the same quantity, with a cask to hold the liquor. Three milk buckets and a filler are what you need, and you should obtain the day's services of a man to brew for you.

DANDELION: *S G.* We shall have a Leading article shortly on the subject, but we must warn you that nothing short of laborious spudding before the flowers ripen will effectually destroy them.

DEVONSHIRE FARMING: *X.* The paragraph in the *Times* in reference to Mr. Fowler, of Prince Hall is as follows:—"Mr. George Fowler, a gentleman who has successfully reclaimed a number of acres of waste land at Prince Hall, Dartmoor, is about to leave his farm. He says that he has carried out entirely the course of improvements on which he originally entered, and has shown to the world what may be done on Dartmoor. Fields which in 1847 were worth no more than from 1*s.* 6*d.* to 2*s.* per acre fetched on the 12th of May nearly 60*s.* per acre."

ESTIMATES OF WASTE OF IRON: *M G.* There is further information in another column; those of Messrs. Mechi and Garrett appear. both of them, to be excessive.

PRESERVING EGGS: *A Lady.* There are a variety of recipes. Here is one:—Mix quicklime with water to the consistency of cream or thereabouts, and keep the eggs in it till they are wanted.

SECOND-HAND AGRICULTURAL IMPLEMENTS FOR SALE, AND WANTED.—Apply to EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road, six doors west of Hampstead Road, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67 and 68, King William Street, London. Drawings forwarded by post.

BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10*s.* 6*d.*
BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6
BOYD'S PATENT VULCAN BLADES 4 6
May be had of all Ironmongers and Seedsmen; and Wholesale of WM. DRAY & Co., Swan Lane, London.

RICK CLOTHS AT GREATLY REDUCED PRICES; also in consequence of the termination of the war, a quantity of TARPAULING, 9 yards by 6 yards, made expressly for the Crimea, to be sold cheap at DAVIS's, 64, West Smithfield, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

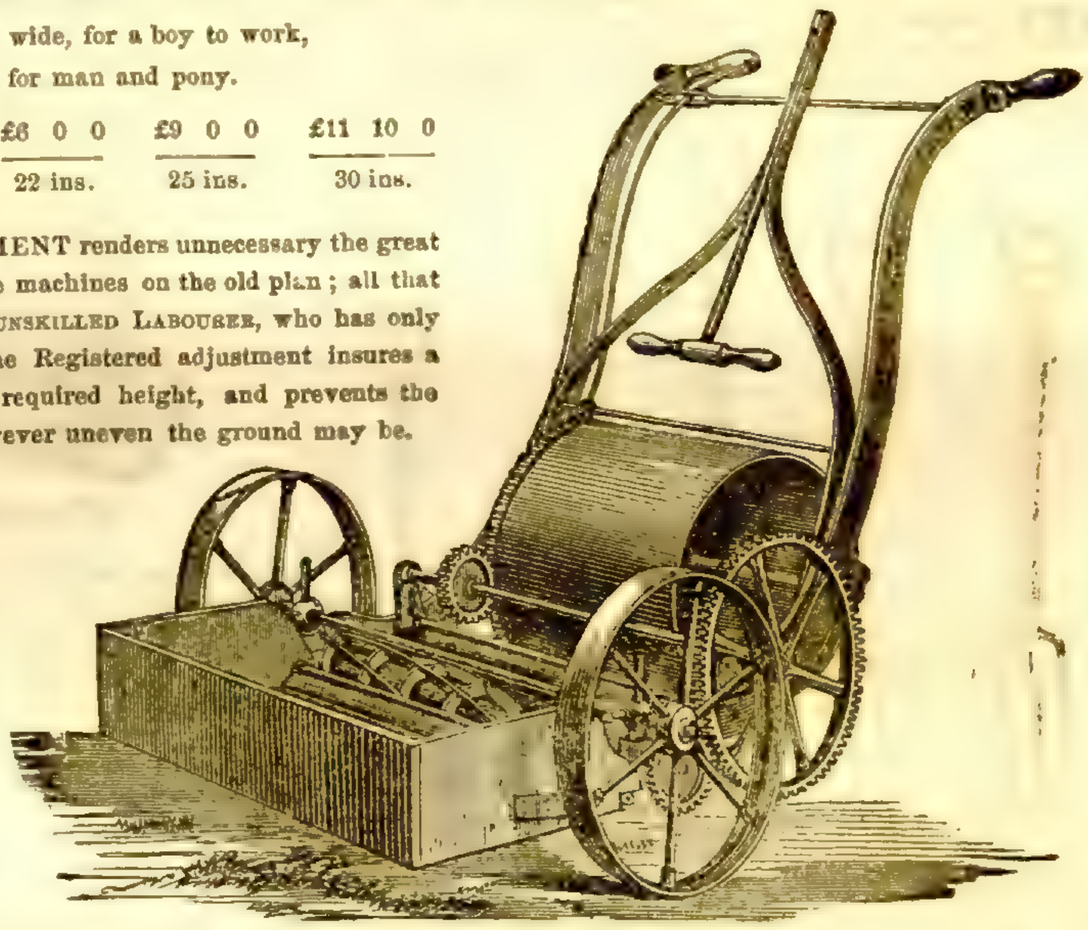
FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.



Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

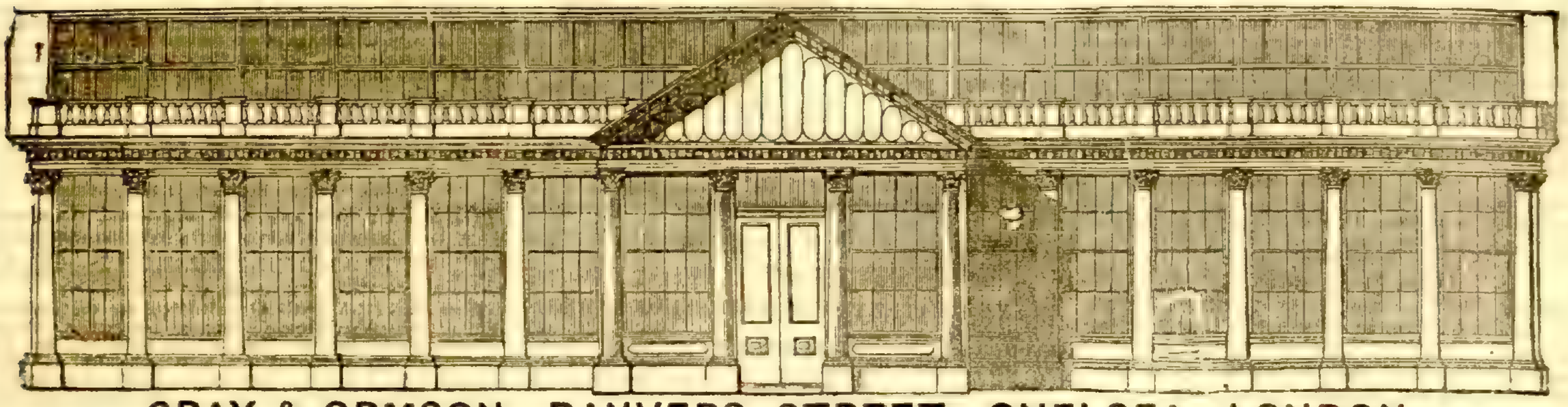
The above Machines are warranted to answer the purpose as described, or may be returned.

LONDON AGENTS: Messrs. COTTAM & HALLEN, 76, Oxford Street; and Messrs. BURGESS & KEY, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



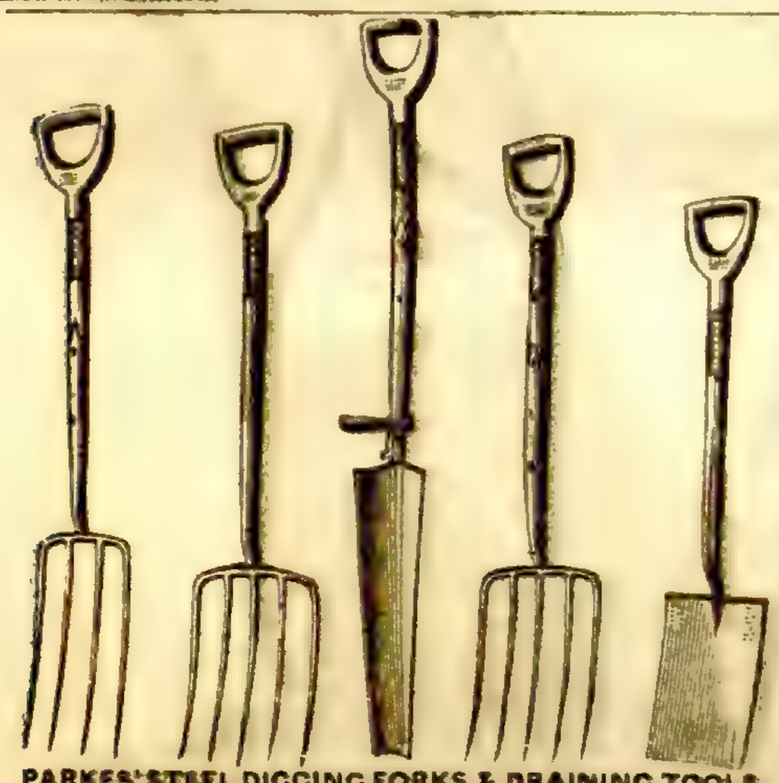
GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

GARDEN LIGHTS.

WANTED TO PURCHASE about Five Dozen Second-hand FORCING LIGHTS at a moderate price.—Address stating size, &c., to J. P., at Mr. Bell's, Coal Office, Hounslow Station.



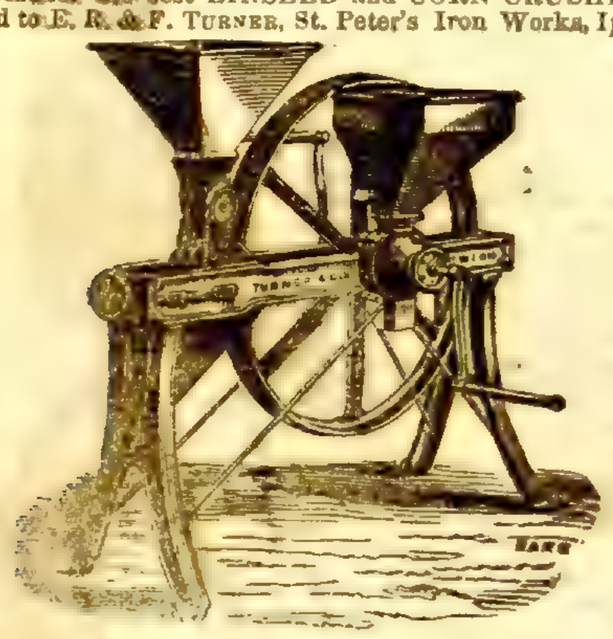
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street, London.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

OILCAKE BREAKERS, made entirely of iron, with case, hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

WARNERS' SWING WATER-BARROW

(To HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanatorium, 46, Leicester Square.

MAPPIN'S CUTLERY AND ELECTRO-PLATE WAREHOUSE is Removed from Moorgate Street, London, to the extensive Premises, No. 67 and 68, King William Street, London.

JOSEPH MAPPIN & BROTHERS, Queen's Cutlery Works, Sheffield.

BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Gloster, Bridgewater, and Rugby.

H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—

Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

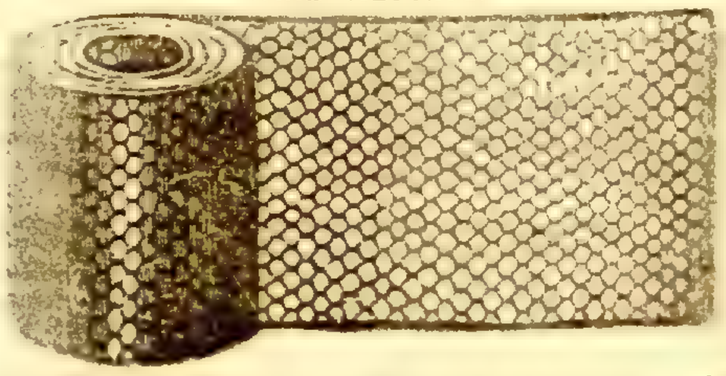
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide		5*d.* per yd.	4*d.* per yd.
2-inch	,, strong, do.	6 ,,	4½ ,,
2-inch	,, intermediate, do.	7 ,,	5½ ,,
2-inch	,, extra strong, do.	9½ ,,	7½ ,,
1⅝-inch	,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch	,, strong, do.	6½ ,,	5½ ,,
1⅝-inch	,, intermediate, do.	7½ ,,	6 ,,
1⅝-inch	,, extra strong, do.	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5s. 3d. each.

GUTTA PERCHA! GUTTA PERCHA.—The Improved Flexible Tubing, made expressly for Watering Gardens, at 4d. and 6d. per foot; to be had only of Messrs. THORN, 98, New Bond Street. Gutta Percha Speaking Tubes at 3d. and 4d. per foot.

KENT'S PATENT WEATHER-PROOF GLAZING for Horticultural Buildings and Glass Roofs in general. Exhibited at the Great Exhibition, 1851. Honourably mentioned. Illustrated Price Books on the receipt of four stamps, or estimates sent.

Horticultural Building Works, Chichester.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12s.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	13s.	9 by 7, and 10 by 8 ...	13s. 6d.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz. from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

Foreign Sheet Glass, in cases of 200 feet 34s., 38s., 40s., and 42s. per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ...	10s. 6d.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	12 0	9 by 7, and 10 by 8 ...	15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25s. each.

AQUARIUMS, with French polished stands, from 10s. each. Vase-shaped ditto, on glass stand, 20s.

Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under	6 by 4	at 1½d.	is	£0 12 6
From 6 by 4	„	7 „ 5	„ 2d.	„	0 16 8
7 „ 5	„	8 „ 6	„ 2¼d.	„	0 18 9
8 „ 6	„	10 „ 8	„ 2½d.	„	1 0 10
10 „ 8	„	12 „ 9	„ 2¾d.	„	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. „ 3½d. to 5d. „ „ „
26 oz. „ 3½d. to 7½d. „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in.	and 6 in.	by 4½ in.	...	...	12s.	0d.
6½ „	4½	„ 7	„ 5	...	...	12	6
7½ „	5½	„ 8	„ 6	...	...	13	0
8½ „	6½	„ 9	„ 7	...	...	13	6
9½ „	7½	„ 10	„ 8	...	...	13	6
10½ „	8½	„ 11	„ 9	...	...	14	0
12 „	9	„ 13	„ 9	...	...	14	0
10 „	10	„ 10½	„ 10½	...	...	14	0
11 „	10	„ 11½	„ 10½	...	...	14	0
11 „	11	„ 11½	„ 11½	...	...	14	0
12 „	11	„ 12½	„ 11½	...	...	14	0
13 „	11	„ 13½	„ 11½	...	...	14	0
13 „	12	„ 13½	„ 12½	...	...	16	0
13½ „	13½	„ 14½	„ 13½	...	...	16	0
15½ „	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ „
Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

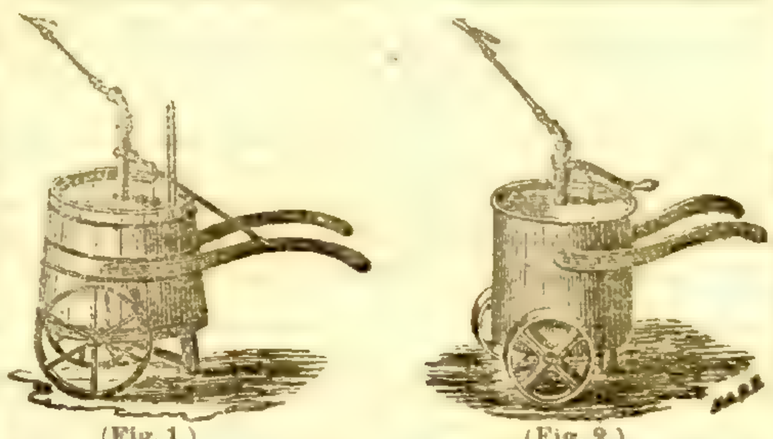
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4 10
No. 2 „ 15	„ „ 45	„	...	5 10
No. 3 „ 28	„ „ 45	„	...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2 15
No. 13 „ 12	„ „ 30	„	...	3 5
No. 11 „ 16	„ „ 40	„	...	4 0
No. 12 „ 24	„ „ 45	„	...	5 0
No. 14 „ 30	„ „ 45	„	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each; of METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

MARKING LINEN MADE EASY.—The Pen Superseded.—The most easy, permanent, and best method of Marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, &c., so as to prevent the Ink blotting, or the possibility of its washing out, is with CULLETON'S PATENT ELECTRO-SILVER PLATES. Any person can use them. Initial plate, 1s.; name plate, 2s.; set of numbers, 2s; crest plate, 5s., with directions. Sent post free to any part of the kingdom, by the Inventor and Sole Patentee, T. CULLETON, 2, Long Acre (exactly one door from St. Martin's Lane).—N.B. To prevent imposition it is necessary to write down the address.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing thirteen penny post stamps, to Miss Coupelle, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, &c., of the writer, with many other things hitherto unsuspected.

HEADACHES, INDIGESTION, GOUT, & PROSTRATION.

PARR'S LIFE PILLS are known to have a specific effect both on the prevention and cure of these disorders. PARR'S PILLS correct and neutralise the acrid and vicious humours, which, if left without control, engender pain and disease. They should be taken at the appearance of the slightest symptom of listlessness, languor, or inertness of any of the bodily functions, as they not only arrest such symptoms, but diffuse a healthful and cheerful feeling.

*** Ask for PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country.—In Boxes, price 1s. 1½d., 2s. 9d.; and in Family Packets, 11s. each. Protected and guaranteed in every country by the English Government stamp, which is affixed to each box of the Genuine Medicine.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12s. 4d.; fine Households, recommended for Bread-making, 11s. 8d.; Seconds, 11s.; Wheat-meal, for Brown Bread, 11s. 0d.; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

BOARD AND LODGING REQUIRED AT A FARM HOUSE.—A private Sitting Room and two Bedrooms, with separate Board, for a Gentleman and Lady, and six Children under 9 years of age.—Address (post paid) C. H. H., Messrs Richardson Brothers, 23, Cornhill.

WANTED TO RENT, at Michaelmas next, a FARM from 100 to 150 Acres, with Dwelling House and suitable Buildings.—M. N., Post Office, Worthing, Sussex.

VALUABLE FARM.

TO BE LET, for such number of years as may be agreed on, entry at Martinmas, 1856, the FARM of MYREMILL, in the parish of Maybole, as presently in the occupancy of the proprietor. This Farm is situated within eight miles of the market town of Ayr and one from Maybole, where there is a railway station. It extends to 298 acres, 1 rood, 8 poles imperial; has been recently drained, and is in the highest state of cultivation. It is intersected by good public roads, and portions of the Farm roads are laid with iron tramways. The steading is complete in accommodation, comprising comfortable Dwelling House, extensive Feeding Byres, Sheep Houses, Stables, Barns, Granaries, &c. There is a powerful Steam Engine, to which is attached a Threshing Machine, Turnip and Straw Cutters, Oil-cake Crushers, Millstones for Grinding, and Liquid Manure Pumps. The Tanks are capable of storing about 300,000 gallons of liquid manure, and Pipes are laid for its distribution over the whole lands. As regards management and cultivation, liberal terms will be granted, without taking two white crops in succession, but with a fixed rotation at the close of the lease. Mr. Smith, Manager at Myremill, will show the Farm, *and offers to be lodged with Mr. Brown, Royal Bank Office, Maybole, on or before the 30th June next.*—June 7.

Sales by Auction.

ORCHIDS.—IMPORTED AND ESTABLISHED.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on MONDAY, June 9, at 1 o'Clock precisely, an importation from Java of Phalænopsis grandiflora, Saccolabium Blumei, Aerides suavissima, &c. Also a small collection of established Plants of Aerides virens, Odoratum purpurascens, Larpentæ, Maculosum major, Saccolabium guttatum, Vanda cœrulea, Cattleya labiata, Quindos, Aclandiæ and elegans, Angræcum eburneum, &c.—May be viewed on the morning of Sale and Catalogues had.

ORCHIDS, AN IMPORTATION FROM BRAZIL

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, June 10, at one o'Clock precisely, the finest masses ever imported of Lælia purpurata and brysiana, Cattleyas tigrina, guttata, Leopoldi, Loddigesi, amethystina, and intermedia, Coryanthes eximia, speciosa, and maculata, Miltonia Morelli, and about 20 of the beautiful Palm Corypha cœriulea.—May be viewed on the day prior and morning of Sale, and Catalogues had.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, June 12, at 12 o'Clock, a first-class collection of Dahlias, Verbenas, Fuchsias, Geraniums, and other Plants in bloom, with a large assortment of Ornamental Plants for Bedding, choice Roses in Pots, &c.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

COMPLETION OF
THE TRAVELLER'S LIBRARY.

In Twenty-five Volumes, price Five Guineas, in cloth.

THE TRAVELLER'S LIBRARY being now complete, the Publishers call attention to this collection as well adapted for Travellers and Emigrants, for School-room Libraries, the Libraries of Mechanics' Institutions, Young Men's Libraries, the Libraries of Ships, and similar purposes. The separate Volumes are suited for School Prizes, Presents to Young People, and for general instruction and entertainment.

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Amongst the works on Science and Natural Philosophy, a general view of Creation is embodied in Dr. Kemp's *Natural History of Creation;* and in his *Indications of Instinct* remarkable facts in natural history are collected. Dr. Wilson has contributed a popular description of the *Electric Telegraph*. In the volumes on the *Coal-Fields*, and on the Tin and other Mining Districts of *Cornwall*, is given an account of the mineral wealth of England, the habits and manners of the miners, and the scenery of the surrounding country.

It only remains to add, that among the Miscellaneous Works are a Selection of the best Writings of the Rev. Sydney Smith; Lord Carlisle's *Lectures and Addresses;* an account of *Mormonism*, by the Rev. W. J. Conybeare; an exposition of *Railway* management and mismanagement, by Mr. Herbert Spencer; an account of the Origin and Practice of *Printing*, by Mr. Stark; and an account of *London*, by Mr. M'Culloch.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1856.] SATURDAY, JUNE 14. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The SECOND EXHIBITION of PLANTS, FLOWERS, and FRUIT, will take place on WEDNESDAY next, June 18.

Tickets to be obtained at the Gardens only by orders from Fellows or Members of the Society, price 5s., on the day of Exhibition, 7*s*. 6*d*. each.

Gates open at 2 o'clock. Carriages to set down and take up either at the South, North, or East entrances to the Gardens; the North gate opens directly into the covered Exhibition Ground.

N.B. The plants in the American Garden will be in full bloom.

Erratum.—In the Royal Botanic Society's Advertisement last week, *for* "July 19," *read* "July 9."

CRYSTAL PALACE.—GRAND HORTICULTURAL FETE.—The Second Flower Show of the present Season will be held on WEDNESDAY and THURSDAY, the 25th and 26th instants. On WEDNESDAY, the 25th, the doors will be opened at 12 o'clock. Admission by Season Tickets or by payment of 7*s*. 6*d*. On THURSDAY, the 26th, the doors will be open at 10. Admission by Season Tickets or by payment of 2*s*. 6*d*. Gardeners producing satisfactory evidence of their employment will (on application to the Secretary of the Crystal Palace Company on or before Friday the 20th inst.) receive Tickets for admission, not transferable, available on the 25th by payment of 2*s*. 6*d*. Schedules of Prizes may be obtained on application to the Secretary of the Crystal Palace Company, and all Plants and Fruit for exhibition must be entered on or before FRIDAY, the 20th inst. Extra Prizes will be given for Azaleas if exhibited. For the accommodation of Gardeners a Special Train will leave London Bridge Station at 6 o'Clock, A.M., on WEDNESDAY the 25th. Trains will run from London Bridge at frequent intervals. Tickets of Admission, including conveyance by Railway, may be obtained previously at the London Bridge Terminus, at the several Agents of the Brighton Company, and at the Company's Offices, 43, Regent Circus, Piccadilly.—June 14.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Second Grand Flower Show of the above Society will be held by permission of the Earl of Essex in Cassiobury Park, near Watford, on THURSDAY, July 3, open to all Exhibitors. An efficient Band will be in attendance. Schedules may be obtained on application to the Secretary.—By Order of the Committee,

High Street, Watford. Mr. John Pearce Taylor, Sec.

MAIDSTONE HORTICULTURAL SOCIETY.—The following Prizes, open to all England, will be given at the First Exhibition for the present year of the above Society, which will be held on THURSDAY, June 26, in the field adjoining the Rocky Hill Terrace. For collections of Eight Stove or Greenhouse Plants—first prize, 5*l*.; second, 3*l*.; third, 1*l*. For Six Exotic Orchids:—first prize, 2*l*.; second, 1*l*. For collections of 36 Roses in single truss —first prize, 2*l*.; second 1*l*.; third, 10*s*. For collections of uits, to include Grapes, Pine Melon, Peaches, Nectarines, Strawberries:—first prize, 3*l*.; second, 2*l*. No exhibitor to re two prizes in the same class. For rules and further partic s apply to

John B. Monckton, Hc c., Maidstone.

CHEPSTOW FLOWER SHOW.—e First Show for this season will be held in Chepstow Castle, on THURSDAY, June 19. Doors open at 1.30 P.M. and close at 5 P.M. Admission at 1 30 P.M., 2*s*.; children under 12 years of age half price; admission at 3 30 p.m, 1*s*. A Military Band will be in attendance. The Wye Company's Steamers will leave the Hotwells this day at 8 A.M., and return from Chepstow at 6.30 P.M. Arrangements have been made with the South Wales Railway Company for the issue of Excursion Tickets from Carmarthen and all intermediate Stations to Chepstow by the Train leaving Carmarthen at 6.55 A.M., available for the Return Journey by the Train from Chepstow at 4 20 P.M.; also from Gloucester by the Train leaving Gloucester at 10.30 A.M., and returning from Chepstow at 7.13 P.M. The Great Western Railway Company will issue Return Tickets at Single Fares from Swindon and all intermediate Stations to Chepstow on the day of the Show, Express Trains excepted. These arrangements will enable Visitors to view the Tubular Bridge, Windcliff, and Tintern Abbey, and to return in time for the Show.

John Lewis Baldwyn, Honorary Secretary.

WILLIAM BARRATT,
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Offices, 36, Great Russell Street, Bedford Square, London.

HOLLYHOCKS.

F. BUTLER, Gardener to R. Hills, Esq., Colne Park, Halstead, Essex, begs to inform the Nobility, Gentry, and Trade that he has now ready to send out good strong named plants in pots that will bloom this year, from 6*s*. to 20*s*. per doz. Post-office orders payable at Halstead. The usual discount to the Trade.

GRAND EXHIBITION OF RHODODENDRONS, ON VIEW At the Royal Botanic Gardens, Regent's Park, London.

JOHN WATERER begs to announce that his matchless collection of New HARDY SCARLET and other leading kinds of RHODODENDRONS is now coming finely into bloom, and will continue in great perfection throughout the month of June.

☞ The Society have entirely re-arranged and greatly enlarged the site annually occupied with the American Exhibition, whereby the forthcoming display will far exceed in magnificence any floral exhibition hitherto attempted in this country.

Orders of admission may be had (gratis) from Fellows of the Society, or on application to the advertiser.

The American Nursery, Bagshot, Surrey, and Royal Botanic Gardens, Regent's Park.

EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to intimate that his collection of the above plants is now finely in bloom, and will continue in perfection throughout the month of June, and may be inspected daily (gratis).—American Nursery, Bagshot, Surrey, near the Farnborough Station, South Western Railway; and Blackwater Station, South Eastern Railway, from whence conveyances are always to be obtained.

EXHIBITION OF AMERICAN PLANTS,
Knap Hill Nursery, Woking, Surrey.

MESSRS. WATERER and GODFREY have great pleasure in stating that their Collection of American Plants at the Nursery is now finely in bloom, and may be seen daily gratis. The Nursery is readily reached by Train to Woking Station in 40 minutes; there are always plenty of conveyances at the Station.—June 14.

GRAND EXHIBITION OF AMERICAN PLANTS,
Ashburnham Park, adjoining Cremorne Gardens, King's Road, Chelsea.

MESSRS. WATERER and GODFREY beg to announce their Collection of these beautiful Plants is now open daily, and affords probably the finest display of flowers ever witnessed in this metropolis. Admission One Shilling.

The American Plants at the Nursery are also now in great beauty, and may be seen every day free.

Knap Hill Nursery, Woking, Surrey, near the Woking Station, South Western Railway.

THE NEAREST AMERICAN NURSERY TO ANY RAILWAY STATION.

AN EXTENSIVE COLLECTION, covering nearly 30 acres, of AMERICAN PLANTS, in bloom during June, may be seen in high perfection at GEORGE BAKER'S, WINDLESHAM NURSERY, BAGSHOT, SURREY, 1¼ mile from Sunningdale Station, on the Staines and Wokingham Railway; 26 miles from Waterloo Station; and at the Royal Botanic Gardens, Regent's Park.—Orders of Admission may be had (gratis) from Fellows of the Society, or on application to the Advertiser.

GEORGE TAYLOR, Junior,
Growers' Salesman
For Choice Garden Produce,
St. John's Market,
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Terms—"Cash."

PERPETUAL ROSES in POTS and BEDDING PLANTS.—For Bass and Brown's Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A Large Surplus Stock at Reduced Prices.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to Bass & Brown, Sudbury, Suffolk.

FINE FLOWERING PLANTS of SHOW and FANCY GERANIUMS, 6*s*. to 9*s*. per dozen. Catalogues with the names may be had.
Wood & Ingram, Nurseries, Huntingdon.

TRUE DWARF BOX FOR EDGINGS, to be had in any quantity, from James Dickson & Sons', the NEWTON Nurseries, Chester.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

TO THE TRADE.

CHARLES SHARPE and CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, June 14.

TRUE DRUMHEADS for Cattle, offered by Thomas Welland, Surrey Gardens, near Godalming, Surrey, safely crated and delivered at the Godalming Station, at 3*s*. 9*d*. per 1000.

EXTRA STRONG BEDDING PLANTS AND DAHLIAS, 3*s*. PER DOZEN, PACKAGE INCLUDED.

WOOD and INGRAM beg to offer the following in stout well established plants and perfectly hardened off:—Ageratums sorts, Gazanias, Salvia patens, and others; Fuchsias, Calceolarias, Petunias, Senecios, Nierembergias, Verbenas, Dahlias, fine show and fancy varieties, &c.
Huntingdon Nurseries.

NOVELTIES.

ISAAC DAVIES has now in bloom a most beautiful SEEDLING GERANIUM, a pure white, large flower with pink spot, truss from 8 to 11 flowers. Also some splendid SEEDLING SHRUBBY CALCEOLARIAS, of the most brilliant colours, crimson, scarlet, yellow, &c., to which he desires to call the attention of the trade; being so distant from London he cannot convey them there in a condition to be exhibited.—Larkfield Nursery, Wavertree, Liverpool.

CARNATIONS AND PICOTEES.

MESSRS. YOUELL and CO. beg to offer to the admirers of these elegant flowers a quantity in pots, part of the stock originally intended for their own blooming, at 21*s*. per dozen pairs.

They are fine strong plants, and may be either turned out into the borders immediately, or repotted without suffering the least check, a manifest advantage at this season.
Royal Nursery, Great Yarmouth.

DIDYMOCARPUS (STREPTOCARPUS) POLYANTHA.—This new and highly interesting Plant, with handsome Gloxinia-like foliage, produces from the base of its leaves numerous panicles of delicate pale blue flowers of considerable duration, rendering it a most desirable object for the stove or intermediate house. We are enabled to offer strong plants, 5*s*. each, 42*s* per dozen, extra strong, 7*s*. 6*d*. each.

DELPHINIUM FORMOSUM, a most beautiful new variety, of the richest blue, with flowers larger and habit more dwarf than D. Hendersoni, 18*s*. per dozen.

Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

EXTRA FINE SHOW DAHLIAS AT SIX SHILLINGS PER DOZEN.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, having an immense stock of the above, offers them at 6*s*. per dozen strong plants, and well assorted colours, to clear out for the season, including many varieties of 1855, such as Admiral Dundas, Mrs. Stowe, Comet, Surpriser, Rose Unique, Ruby Queen, Goldsmith, &c. &c. 25 plants extra fine varieties of Show Pansies, 12*s*.; 25 ditto ditto Phloxes, 16*s*.; 25 ditto Belgian Daisies, 8*s*. Selected Pansy Seed, 1*s*. and 2*s*. per packet.
Post-office Orders payable at Middleton, Lancashire.

AZALEA INDICA.

J. IVERY and SON, Nurserymen, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.

J. I. & Son also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season.—Dorking, June 14.

MISS NIGHTINGALE.—Strong Plants of this beautiful Heliotrope are now ready, 3*s*. 6*d*. each. One Plant given to the Trade when three are ordered. It received a Certificate of Merit from the Royal Botanic Society of London on May 28th, 1856; also a Certificate of Merit from the National Society of Florists, June 12, 1856:—Good habit, large truss, colour dark lavender, extra strong scent.—Post-office Orders payable at Paddington.
William Field, Florist, Kensal New Town, London.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of April 12th, page 243. Good established plants, 10*s*. 6*d*. each. The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post-office Orders on Richmond, Surrey.
St. Margaret's Gardens, Isleworth.—June 14.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*.; sent post free, 1*s*. 2*d*. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d*. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d*. per packet.

Wm. Cullingford 1, Edmund Terrace, Ball's Pond, Islington.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world, upon application.

Primula, *choicest fringed*	... ...	1*s*. per packet.
Calceolaria, *choicest varieties*	... ...	1*s*. "
Cineraria " "	... ...	1*s*. "

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.
James Carter & Co., Seedsmen, 238, High Holborn, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s*. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s*. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son,
Nurserymen and Seed Growers, Gloucester.

TO BE SOLD, some fine healthy PINE PLANTS.—Apply to Mr. W. Hudson, Gardener, East Hill, Wandsworth.

TO BE SOLD, a Private Collection of ORCHIDS, about 200 Plants, including some of the most approved species, in good healthy condition. Also Hill's Patent Flue Boiler in perfect order.—Inquire particulars of Mr. Robert Kennedy, Bedford Conservatory, Covent Garden.

TO BE SOLD, 10 Standard ORANGES, 4 feet in stem, with fine bushy heads—magnificent plants; four Dwarf do., large and well furnished; 30 Myrtles, 6 to 9 feet high, very effective; and three Camellias, double white, double striped, and double blush, from 3 to 5 feet, and 3 feet in diameter.—For further information apply to Henry J. Oldroyd, Nurseryman and Seedsman, Shrewsbury.

GROOM.

H. MATTHEWS, Son-in-law and Successor to the late HENRY GROOM, FLORIST, CLAPHAM RISE, SURREY, begs to inform the Nobility, Gentry, and Public generally, that the business will be carried on as usual, excepting the Tulips, and solicits a continuance of the favours so liberally bestowed for many years upon his predecessor.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

Hop, Roses, Wall-fruit Trees, Cucumbers, Melons, Vines, Stove and Greenhouse Plants.

Extra strong, 4s. per Gallon, sufficient to make four. Jars and barrels charged at cost price.

Ten Gallons and upwards carriage free to London.

TESTIMONIALS of 1855.—Those of 1851, 2, 3, and 4 having been previously published, and which are enumerated in a Pamphlet of 16 pages (procurable of the Undersigned and all their Agents), a perusal of which is respectfully solicited.

From S. Snow, Esq., Earl de Grey, Wrest Park.

As to the aphis and other insects which attack the trees, I consider your Composition cannot be *too highly recommended for it.* I have used it in my Peach houses this season with the greatest success. My trees were very much infested, and by two or three dressings they assumed quite a vigorous appearance.—April 6, 1855.

From Henry Bailey, Esq., Nuneham Park, Oxford.

I have found it most effectual in destroying the black fly on Cherries, but it requires to be used in a less diluted state than you recommend. It is, *however, a valuable boon.*—Dec. 10, 1855.

From Mr. J. Stephenson, Gr. to the Right Hon. the Earl of Durham, Lambton Castle.

The Composition arrived quite safely, and will, I believe, answer the purpose for which you recommend it.—May 28, 1855

From Mr. E. Sage, Gr. to the Right Hon. Earl Howe, Gopsall Hall.

I enclose an order for the amount of the Blight Composition, which I consider *excellent for the destruction* of all the aphis tribe.—Sept. 21, 1855.

From Mr. W. Challis, Gr. to the Right Hon. Earl Nelson, Trafalgar House.

I am anxious to forward you my opinion of your Blight Composition, which I have used during the last summer on my fruit trees with *great success*, and I hope for the future not to be without it.—Nov. 23, 1855.

From Mr. John Mitchell, Gr. to the Right Hon. Lord Wenlock.

I found it answer admirably, and in my opinion it is a *most valuable wash.*—Dec. 10, 1855.

From Mr. W. Poole, Gr. to the Right Hon. the Earl of Aylesford, Packington Hall Gardens.

Your Composition has again proved *very satisfactory*, so far as thrip, green-fly, and spider are concerned. Bug we do not patronise here, or I should have tried it upon them long ago; still, I cannot conceive why it should not prove fatal to bug as well as the other pests mentioned.—Sept. 3, 1855.

From Mr. W. Watt, Gr. to Sir Thomas Whichcote, Bart., Aswarby Park.

I am glad to say that after three applications of your Blight Composition to my Cucumbers and Melons, which are grown in pits heated by hot water, I have succeeded in most *effectually destroying* that greatest of all pests—thrip, and my plants, which, with all my syringing, were literally devoured piecemeal, are now extremely healthy and growing vigorously. I shall certainly continue a customer.—April 19, 1855.

From Mr. James Doat, Gr. to Sir Henry Halford, Bart., Wiston Hall.

I am happy to say that the Composition answers well for the destruction of green fly and other blight. I dipped several hundred plants in the Composition just as I received it without the least injury to the plants.—Sept. 20, 1855.

From Mr. M. Russ, Gr. to Sir P. Shelley, Bart., Boscombe Lodge.

I am pleased to give my testimony to the value of your Blight Composition, and can say it has answered my expectation in every way. I think those who have not made a trial of it should avail themselves of the earliest opportunity to do so.—Oct. 4, 1855.

From Mr. J. Chard, Gr. to Sir Frederick Bathurst, Bart., Clarendon Park

In answer to yours of this morning, I beg to say that I found the Composition answer very well.—Jan. 31, 1856.

From Mr. Thomas Bell, Gr. to E. L. Rudge, Esq, Abbey Manor, Evesham.

I quite approve of your Blight Composition.—Jan. 2, 1855.

From Mr. Leonard Hume, Gr. to R. Hanbury, Esq., Poles, near Ware.

I have used your Blight Composition upon Cherries, Plums, and Roses for the black and green aphis *with the most decided satisfaction.*—Nov. 27, 1855.

From Mrs. Warren, East Court.

Mrs. Warren begs to enclose Messrs. Page a Post-office order for the amount of her bill, and at the same time to inform them, according to their request, that the Composition certainly did both Roses and fruit trees good, and she can, therefore, recommend it.—Oct. 31, 1855.

From William Dickenson, Esq., New Park.

I am happy to testify to the usefulness of your Blight Composition so far as I have used it during the last summer to destroy insects upon the trees in the orchard house, where I found it perfectly effectual.—Nov. 23, 1855.

From Mr. Coleman, Gr. to Major Savage, Norton Lodge, Midsomer Norton.

I have given your Composition a fair trial upon some Stephanotis and Hoyas, infested with mealy-bug. Three times syringing with equal parts water perfectly cured them. I have also tried it upon Peaches and Nectarines, and I think it is the best remedy ever introduced for all kinds of blight.—Nov. 23, 1855.

From Mr. E. Seadall, Gr. to J. T. Mott, Esq., Burningham Hall.

I tried your Composition on a Royal George Peach very much affected with mildew, and it effectually cured it the first application; upon Peach trees very much infested with green-fly, and two applications killed every insect. I then tried it upon some young Vines for mildew. I syringed the Vines, kept the house shut till the temperature reached 100 degrees, *and it destroyed every spot of mildew.* I have tried it since with the same result, and think it is invaluable.—Nov 24, 1855.

From Mr. W. Percey, Gr. to the Rev. Thomas McCalmont, Highfield Rectory.

I am pleased to inform you that your Blight Composition has proved an effectual remedy for everything I have used it for. My Cucumbers were infested with spider and thrip, which it entirely destroyed with two applications, and the black aphis on my Cherries with one; but the most important was *its curing the Vine disease.* I dipped the bunches into the mixture twice, and not a trace of mildew was left.—Nov. 6, 1855.

From Mr. Walker, Gr. to W. H. P. Freeman, Esq., Pylewell House.

I have great pleasure in saying that after two applications of your Composition I have found it to destroy all the aphis, &c., on my Peach trees, and I have never seen them look better at this season of the year than they do at present.—May 15, 1855.

From Mr. J. Lucas, Gr. to W. C. D. Esdaile, Esq., Burley Manor House.

My Peach and Nectarine trees in the orchard house were getting very bad with the green fly, but your Composition entirely destroyed that pest without injuring the young fruit.—May 15, 1855.

From Mr. O. T. Wren, Gr. to G. H. Ackers, Esq., Moreton Hall.

I am happy to bear testimony to the *complete efficiency* of your Blight Composition for the destruction of aphides and the Cherry beetle. My Cherry trees were much infested. At the commencement of the season they were well syringed with the Composition, which has completely cleaned them for this year.—August 3, 1855.

From Mr. J. Hawes, Gr. to R. D. Mangles, Esq., M.P. Woodbridge Cottage.

It is with pleasure I inform you that the Composition you sent me has been *most effectual in killing* the green fly on Peaches, and also the black fly on Cherries—three parts water to one part Composition. I shall recommend it to all my friends, and continue to be a customer.—June 22, 1855.

From W. H. T. Hawley, Esq., West Green House.

I have great pleasure in bearing my testimony to the merits of your Blight Composition, which I have used with *the greatest success* during the last spring and summer. For a series of years my wall fruit trees have been destroyed by a gradual decay, which I supposed proceeded from causes affecting their roots, and I attributed it to the nature of the soil, to want of drainage, and in short every cause but the right one, which the use of your invaluable mixture proved to be the aphides attacking the leaves, which appeared as if scorched up, and the poisonous effects produced by these insects shortly extended themselves to the branches, which withered and died, and most of the trees have ultimately been quite destroyed by them. I have this year well saturated the trees with the blight mixture once—just before the blossoms made their appearance, and again when the trees were in full leaf, and the result has been that not an aphis has remained upon them; they have exhibited a thoroughly healthy appearance, and have made vigorous shoots, and have borne a plentiful crop of fruit—results which never happened previously. I may add the effects of the mixture on my Rose trees and other plants have been equally successful, and I shall be much obliged to you to send me another supply before the winter closes, in time to repeat the successful experiment next spring.—Nov. 24, 1855.

From Mr. James Egerton, Gr. to E. Turner, Esq., Manor House, Bishopstoke.

I am pleased to bear testimony to your Composition, which I have used with success. My Roses were infested with green fly, but after two washings they were perfectly cleansed. I also used it upon my Cucumbers for mildew with good effect.—Nov. 24, 1855.

From Mr. G. Clarenshaw, Somerford Hall.

I have received the Composition quite safe, and am glad to say that it is equal to the first lot that I had; it is very good indeed!—June 23, 1855.

From Mr. Thomas Dixon, Gr. to Mrs. Colt, Rownham's Park.

With pleasure I bear testimony to the efficacy of your Blight Composition, having used it according to your instructions on Wall trees and Roses, and found one application quite sufficient to destroy all kind of insects.—Dec. 27, 1855.

From Mr. Webb, Gr. to Colonel Mansell, Smedmore.

I used your Composition last summer and found it answer *remarkably well*, for it kills every insect where applied. I think it very valuable.—Feb. 9, 1856.

From R. G. Linzie, Esq, Jermyn's House.

In reply to your letter, requesting my opinion of your Blight Composition, I beg to say that I have found *it very effective* during the past season, and shall certainly continue to use it in future.—Sept. 14, 1855.

From Mr. C. Pratt, Gr. to Dr. Leeson, Bonchurch, Isle of Wight.

I have used your Composition on Peach and Nectarine trees, and found it of *great service.*—Sept. 19, 1855.

From the Rev. W. Bernard, Clatworthy.

In answer to your letter of the 12th inst, I beg to say that your Blight Composition has given me *great satisfaction.* The spring and early summer was very cold and ungenial, but notwithstanding, our Roses have been particularly good, and our wall trees are in high health.—Sept. 18, 1855.

Extract from the Gardeners' Chronicle, August 25, 1855, by Mr. Henry Burham, Springfield Nursery, Hastings.

In my experiments with this mixture I have found it to kill red spider with as much facility as it does aphides and mealy bug, as effectually as thrip and scale, and all with one syringing. I have tried it upon Hop-bines, and with one syringing it has completely cleared them from lice and fly. When better known it will doubtlessly be extensively used by Hop growers as well as by gardeners. For mealy bug and scale I take a large pan, lay the head of the plant in it, and play upon it with all the force I can with the syringe. The pan prevents waste, and I can use the same composition on the plants two or three times. This mode of applying it is, therefore, very economical.

From Mr. Pomeroy, Gr. to H. Hetley, Esq, Bitterne.

I have used your Composition two years on wall fruit trees, and am *quite satisfied with the result.* For the Gooseberry caterpillar it is instant death, applied with the syringe, and will be much appreciated over picking and other remedies for that pest.—Sept. 14, 1855.

From Mr. J. Peel, Cambridge House Gardens, Twickenham.

I have delayed answering your letter longer than I intended, with the idea of proving the composition. I am glad to say it has turned out well, and I am as much pleased with it as I was at first. Wherever I have used it it has answered the purpose.—July 14, 1855.

From W. F. Rose, Esq, Rock House, Coalport.

The last Composition is quite equal to the first, and is most *effectual* in destroying thrip, red spider, &c.—July 28.

From Alexander Rowland, Esq., Rosenthal.

I have great pleasure to add my testimony to the efficacy of your Blight Composition, which has been used with *great success* upon Gooseberry trees much affected with blight; also for the green-fly upon Roses. Being now quite out of the Composition must beg you to send me 10 gallons immediately.—May 21, 1855.

From Mr. G. Thomson, Gr. to F. Thistlewayte, Esq., Stanstead Park.

I have much pleasure in stating that I have found the Composition *very efficient* in the destruction of green-fly; three parts water to one of the mixture.—June 23, 1855.

From Messrs. Henderson & Co., Pine Apple Place Nurseries, London.

In reply to your letter, we beg to say that we have given your Blight Composition a prominent place in our catalogue, and we have no doubt that we shall be able to sell a quantity of it. Respecting testimonials we have only to say that those of our customers who have hitherto been supplied with the article have *expressed themselves in a highly satisfactory manner as to its result.*—Dec. 28, 1855.

From Mr. Whomes, Pelargonium Nursery, Windsor.

Your Blight Composition should certainly be in the hands of every gardener. I tried it on the Balsam, the tender foliage of which did not suffer in the least, but it entirely cleansed them of the pest—red spider.—Sept. 19, 1855.

From Messrs. Bass & Brown, Nurserymen, &c., Sudbury.

We have found it *very effective* in the destruction of the thrip, which is a difficult insect to conquer. We have used it among hard-wooded plants, and have found it a very serviceable Composition.—Sept 19, 1855.

From the Rev. Jos. Gedge, Bildeston Rectory.

I have now used Page's Blight Composition two or three years, and have reason to consider it an excellent application both for prevention and cure of blight.—Aug. 15, 1855.

Messrs. Bass & Brown, Sudbury.

From Geo. Courtauld, Esq., Booking.

Mr. George Courtauld begs to inform Messrs. Bass & Brown that his gardener has used the Blight Composition with *success upon* the green aphis.—Aug. 17, 1855.

Messrs. Bass & Brown.

From Mr. J. Jeffries, Nurseryman, Woodbridge.

I have great pleasure in informing you that I used the Composition on Cucumbers, and found it answer the purpose *extremely well*, without the least injury to the plants.—Aug. 30, 1855.

Messrs. Bass & Brown.

From Mr. W. J. Epps, Bower Nurseries, Maidstone.

I continue to use your Blight Composition, and find it *more useful* in destroying insects and blight on plants than any other means I have employed. Please send me a 10 gallon cask.—Nov. 26, 1855.

From Messrs. Wood & Ingram, Huntingdon Nurseries.

We used the principal part of your Blight Composition in our own nurseries, and as growers of several acres of fruit trees can truly say we found the Composition *the very best thing we ever tried.*—Jan. 4, 1856.

From Mr. R. Tyers, Ripton Hall Gardens.

My opinion of Page & Co.'s Blight Composition is that it is *highly invaluable*, destroying both aphides and red spider on Peach and Nectarine trees, restoring a healthy appearance to the wood and foliage. I have not tried it on Roses, but I hesitate not for a moment in saying it would answer perfectly well for them.—Sept. 27, 1855.

To Messrs. Wood & Ingram.

From Mr. G. Rackley, Gr. to F. Harford, Esq, Down Place, Maidenhead.

I used Page & Co.'s Composition on Peach and Nectarine trees to destroy green fly, and also for the black aphis upon Morello Cherries, and found it *effectual in both cases.*—Jan 21, 1856.

To Messrs. Sutton & Sons, Reading.

From Mr. S. Alford, Wokefield Park Gardens.

I used Page & Co.'s Composition on Peach and Nectarine trees, and found it valuable for the destruction of blight.—Oct. 29, 1855.

To Messrs. Sutton & Sons, Reading.

From Mr. E. Marshall, Gr. to the Rev. H. Houson, Brant, Broughton.

I tried Page & Co's Blight Composition and found it excellent for destroying the green fly on the young shoots of Roses; also for Geraniums and Calceolarias.—Dec. 28, 1855.

To Mr. W. H. Caparn, Newark.

From W. R. Brockton, Esq., Farnlon.

I *greatly recommend* Page & Co.'s Blight Composition as an effectual remedy for the prevention of the destroying effects occasioned by the ant; also honey-fall or filth on wall fruit trees. Mine have rapidly improved in growth since the frequent application of the same last summer.—Dec. 29, 1855.

To Mr. W. H. Caparn, Newark.

From Mr. Geo. Talbot, Gr. to Sir R. W. Bromley, Bart., Stoke Hall.

I much approve of Page & Co.'s Blight Composition. I have used it upon Cucumbers and Melons with perfect success. Please send me double the quantity.—Jan. 2, 1856.

To Mr. W. H. Caparn, Newark.

From Mr. H. Williams, Gr. to J. E. Denison, Esq., M.P., Ossington.

I have no hesitation in saying that Page & Co.'s Blight Composition is *the best of all the nostrums* that ever I applied to Peach trees.—Jan. 2, 1856.

To Mr. W. H. Caparn, Newark.

From Mr. Jno. Barton, Gr. to H. P. Sherbrooke, Esq.

I have tried Page & Co.'s Blight Composition for the destruction of aphis and mealy bug, and found it *very efficacious.* I used it very strong upon some worthless plants, but they did not appear to be at all injured by it.—Jan. 2, 1856.

To Mr. W. H. Caparn, Newark.

From Mr. W. F. Smith, Riverhead Nursery, Seven Oaks.

I am pleased to inform you that the Blight Composition answered admirably.—Jan. 25, 1855.

PAGE & CO.'S (Seed Merchants) LIST OF TESTIMONIALS of 1855 continued on next page.

PAGE & CO.'S LIST OF TESTIMONIALS—*Concluded.*

From Messrs. F. & A. Dickson & Co., 14, Corporation Street, Manchester.

In reply to your letter, we beg to state that last season we sent out a good quantity of your Blight Composition. We have great pleasure indeed in stating that so far as we have made inquiries, we find it has given the most entire satisfaction. We enclose you two testimonials in its favour. You will see they are both candid and satisfactory. We could get a hundred equally so, if we had time to write to the parties who have used the Composition. We hope to send you some large orders for it this year.—Feb. 6, 1856.

From Mr. John Kellett, Gr. to James McLaren, Esq., Whalley Villa.

I have much pleasure in giving my opinion of Page & Co.'s Blight Composition, which I found to be *very efficacious* in the destruction of mealy bug and green fly. On thrip and scale I have not tried it.—Jan. 25, 1856.

To Messrs. F. and A. Dickson & Co., 14, Corporation Street, Manchester.

From Mr. P. T. Johnson, Gr. to the Right Hon. and Right Rev. the Lord Bishop of Manchester.

As regards Page & Co.'s Composition, I can only say that I applied it to destroy the black fly on Cherries, which it did *effectively*. I believe it to be most useful for Roses, wall trees, &c. I have also applied it to destroy the scale on Pear trees, but I cannot tell what effect it will produce until next summer.—Jan. 24, 1856.

To Messrs. F. and A. Dickson & Co., 14, Corporation Street, Manchester.

From Mr. Baskerville, Park Street Nursery, Bristol.

For some time past I have used your Composition for all sorts of Blight, and find it *excels by far anything* ever before introduced, without the slightest injury in any way to plants, and am happy to state that it has given great satisfaction to whom I have sold it. I shall, therefore, be glad by your forwarding immediately another cask same as before and oblige.—Jan. 8, 1856.

From Mr. N. Lawrence, Chatteris.

My greenhouse plants were infested with green-fly; but one dressing of your Composition quite freed them from that insect.—Sept. 19, 1855.

From Mr. W. H. Mountford, Gr. to — Hughes, Esq., Kinmel Park, St. Asaph.

Page & Co.'s anti-Blight Composition *answered every purpose for which it was applied.* I had some Cucumber plants much infested with thrip and green-fly last summer in our two Cucumber houses. They received two or three dressings with the Composition; since that period they have continued to bear good crops, and I have supplied Mr. Hughes's table regularly. Last week I cut 12 fine fruit 9 to 12 inches in length, and have the same number ready for cutting now. There can be no question of its *destructive agency* as far as green-fly and thrip are concerned.—Feb. 16, 1856.

To Messrs. F. & A. Dickson & Sons, 106, Eastgate St., Chester.

From Mr. J. Priffet, Gr. to W. A. Midgely, Esq., Ercall Park.

I beg to say I have found Page and Co.'s Blight Composition, obtained from you, *very efficacious* in destroying the green-fly without injury to the plants.—Feb. 18, 1856.

To Messrs. F. & A. Dickson & Sons, 106, Eastgate St., Chester.

From R. Congreve, Esq., Burton.

Mr. Congreve begs to inform Messrs. F. & A. Dickson that having tried Page's Blight Composition for *two* years with much success for aphis and blight generally, he was on the point of writing to request them to send him three gallons of it when their letter arrived, which is the *best proof that he was satisfied with its efficacy.* Feb. 18, 1856.

To Messrs. F. & A. Dickson & Sons, 106, Eastgate St., Chester.

From Mr. W. Passay, Gr. to Mrs. Moilliet, Abberly Hall.

It is with pleasure that I state your Page & Co.'s Blight Composition has proved valuable to me in the destruction of green-fly, red spider, &c., during the past season.—Feb. 26, 1856.

To Messrs. F. & A. Dickson & Sons, 106, Eastgate St., Chester.

PAGE & CO., Seed Merchants, Oxford Street, Southampton (adjoining Radley's Hotel).

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

BEDDING PLANTS.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, has a fine stock of BEDDING PLANTS to offer, at very low prices; they consist of only the most distinct and brightest colours, suitable for creating a brilliant effect in the shortest time. Orders executed strictly in priority.

Rustic Baskets, Rustic Garden Seats, and Rustic Chairs of the most superior description supplied. Samples may be seen on the premises.

PLANTS

SUITABLE FOR VASES AND BASKETS OF EVERY DESCRIPTION.

THOMAS SOMMERVILLE, LANDSCAPE GARDENER, NURSERYMAN, SEEDSMAN, and FLORIST, Garden Road, St. John's Wood, London, having had the honour of supplying to the Crystal Palace Company the ORIGINAL PLANTS for the suspended Baskets in the Crystal Palace, which have given such great and general satisfaction, and having through that circumstance been much applied to for similar, has this season grown a large quantity, which can now be supplied at very reasonable prices.

NEW CHOICE VERBENA.

JAMES SYRED, FLORIST, Redhill, Reigate, has much pleasure in offering the following unequalled Verbenas, never before offered to the Floricultural Public, namely, Singularity, Conqueror, Pearl, Princess Royal, South Eastern, Conservative, Redhill Rival, Star of the Isles, Ellen, Othello, Cerise Unique, Omar Pacha, Eugenie, Prince of Wales, Christina, Marshal Pelissier, Tricolor, Beauty of Redhill, Jeanette, Orlando, and Minstrel Boy. Also Scarlet Geranium Red Rover, the best scarlet, without exception, that has ever been offered to the public, which will be shown at the Maidstone Show on Thursday the 26th inst. Prices and descriptions of the above on application.

NEW TURNIP.

WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

TURNIP SEED.

JOSLING'S GOLDEN-FLESH COPPER-TOP SWEDE.—R. J. begs to offer the above distinct and excellent variety of Swede as one of the HARDIEST and best in cultivation; LARGE SIZE, FLESHY, RICH, JUICY, and KEEPS WELL. Price 1*s.* 6*d.* per lb.

SKIRVING'S and other varieties of PURPLE-TOP SWEDE (genuine stock), own growth of 1855. Price 1*s.* per lb.

Carriage free (not under 30*s.*) to all the London Termini and all Stations on the main trunk lines. A remittance or reference from an unknown correspondent is respectfully requested to accompany orders.

R. JOSLING, Agricultural and Garden Seed Warehouse, St Alban's, Herts.—Established upwards of 25 years.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Drumhead or Cattle Cabbage, 4*s.* per 1000. A few thousands of bedded autumn early Cabbage, fine plants, yet to dispose of, at 6*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following SUPERB FLOWER SEEDS, saved from the best varieties, post free:—

	Per packet—*s.*	*d.*
Antirrhinum, from 100 striped and spotted varieties	0	6
Calceolaria, from 50 best spotted varieties	1	0
Cineraria, from 50 best new varieties	1	0
Double Daisy, from 60 fine named varieties	0	6
Hollyhock, from 50 superb varieties	0	6
Sweet William, from 50 large double varieties... ...	1	0
Pansy, from 100 best show varieties	1	0

67, High Street, Battle, Sussex.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen—*s.*
Exotic Orchids ... ... from	42
Stove and greenhouse Ferns ... ... „	18
Hardy do. ... ... „	9
Selaginella or Lycopodium ... ... „	18
Geraniums, show and fancy varieties ... „	9
Do. variegated and bedding do. ... ... „	6
Do. scarlets in variety ... ... „	3
Cinerarias ... ... „	9
Calceolarias, bedding varieties ... ... „	3
Verbenas ... ... „	3
Dahlias .. .. „	4
Ageratums, Cupheas, Petunias, Salvias, &c. „	4
Gynerium argenteum (Pampas Grass) ... „	18

The above prices are for distinct and fine species, and varieties only, all of which are warranted true to their names; if ordered by the hundred, or in larger quantities, a considerable reduction will be made. A priced and descriptive Catalogue is published, and will be forwarded post free upon application.—Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

SEEDS CHOICE AND USEFUL, FOR PRESENT SOWING.

Aquilegias, 6 distinct and beautiful colours	2*s.*	0*d.*
Hollyhocks from Chater's best flowers, 6 sorts ...	2	0
Lupinus, 6 imported varieties	2	0
Stocks, Emperor or Perpetual, 6 distinct colours ...	2	0
These will last and flower for several years.		
Wallflowers, double gigantic, 6 varieties	2	0
These may be depended on as coming double.		
Calceolaria, tigred and spotted, saved by an amateur from the finest show flowers, per paper	2	6
Cineraria, saved by a celebrated grower, per paper ...	1	0
Pansy, saved by Thomson from his best named show and prize flowers, per paper	2	6
Primula sinensis fimbriata, very choice, per paper ...	1	0
Sweet William, mixed, all colours, per paper	1	0
Saved by Chater from smooth edged petals.		
Cabbage, the Incomparable early, per paper	0	6
A most excellent sort, will not run to seed.		

The whole of the above, including postage, for 16*s.*, or each kind at the prices quoted, to be had of WM. DENYER, Seedsman and Florist, 82, Gracechurch Street, near the Spread Eagle, London.

NEW VERBENAS, PETUNIAS, &c.—VERBENA Duke of Cambridge, Tranby, Cedo Nulli, Criterion, Moonlight, Lady Camoys, King of Sardinia, Mrs. Hesier Williams, Crimson Perfection, Eugenia, Standard Bearer, Blue Bonnet, Sir Colin Campbell, Dr. M'Lean, General Simpson, Florence Nightingale, Countess of Oxford, Imperatrice Elizabeth, Imperialis, Dandy, King of Roses, Lady Kerrison, Nosegay, Mrs. Archer Clive, Viscountess Emelyn, La Stella, Pre-eminent, John Edwards, Purple Defiance, Admiral Lyons, Antagonist, Victory. Purchaser's selection from the above, 2*s.* 6*d.* each; own do., 1*s.* 6*d.* each.

PETUNIAS Imperial, Leon Lequay, Prothe, Madame Eugène Lemichez, Monsieur Loyre, Picturata, Marquise de St. Innocent, Hermione, Velasquez, Marquise de la Ferté, Countess of Ellesmere, Purpurea striata, Wilhelm Pfitzer, Prince Albert, Dryburgh Beauty. Purchaser's selection from the above, 2*s.* 6*d.* each; own do., 1*s.* 6*d.* each.

Phlox Countess of Home, 1*s.* 6*d.*; Cuphea eminens, 5*s.*; Achimenes magnifica, 10*s.* 6*d.*; Achimenes amabilis, 10*s.* 6*d.*; Meyenia erecta, 21*s.*; Achimenes Madam Hagnam, 2*s.* 6*d.*; Achimenes Dr. Hopf, 2*s.* 6*d.*; do. Edmund Boissier, 2*s.* 6*d.*

Address HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

HORTICULTURE.

NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collection of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

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The Gardeners' Chronicle.

SATURDAY, JUNE 14, 1856.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 18—Royal Botanic ..... 2 P.M.

SOME years ago a wooden glazed span-roofed house, upon a plan furnished by an experienced cultivator, was erected at Chiswick, for the purpose of growing TEA ROSES and similar tender varieties in the open border. A raised bed some 8 feet wide was constructed in the middle, and all round the sides were other raised beds, narrower but otherwise similar. All these beds were made to throw water off easily, that in the middle by being highest in the middle, those at the sides being highest at the sides. Wooden flaps in the wooden sides and a door at one of the wooden ends furnished lateral ventilation; sliding sashes admitted light and air by the roof. The borders were prepared with good mould, and planted with the best varieties supplied by some of the most celebrated Rose growers of England.

But somehow or other the Roses made a bad hand of growing; their leaves curled, mildew seized

them, and green fly, and other pests; sulphur was powerless, tobacco-smoke little better. Flowers came in small quantity, opened ill, or would not open at all. In vain was the house watered, and ventilated, and shut close up according to the most approved practice; the bushes were but ragged briars, and that which was expected to prove a verdant, fragrant, luxuriant Elysium was only a shabby, dried-up, half starved, mildewed thicket. Instead of "a garden of Gul in its bloom," as Byron would have called what was expected, nothing better came of the experiment than what might have been found in the dirty anteroom of a London Bazaar.

The house was evidently unsuited to such plants, and the borders were ill contrived. No light came through the sides, although the Rose is a child of light; little heat accumulated, although warmth is an essential condition of health in a tender Rose; the roots were ill supplied with the moisture which such plants delight in, for the sloping surface of the beds caused it to run away into the sunken paths as fast as it was brought to them; and finally the Roses could not breathe; imperfect ventilation at once stifled and starved plants which nature intends to be waved by every breeze, to be steeped in dew, and to feed greedily upon a rapidly shifting atmosphere.

So the house was emptied of its Roses and altered into an orchard house, for which it is perfectly well adapted. It now produces fruit successfully, although the flowers of the Rose refused to appear beneath its roof.

It chanced at this time that another wooden house stood empty near it, equally unwarmed artificially, but in other respects the reverse of the orchard house. It had tall glass sides as well as a glazed ridge and furrow roof; the transparent sides opened to the bottom; but the roof was fixed. It had been presented to the Society by Mr. Hartley, the eminent glass merchant of Sunderland, as a model of a cheap greenhouse; and a model Rose House it has proved itself to be.

Within this building, on a level with the floor, several flat brick-edged beds were made, and planted with Roses in 1854. As before, the sorts were supplied by Messrs. Lane, Paul, and Rivers; many of the plants were in fact transferred from their former place; and the old mode of management was repeated. But this time with very different result. No more blighting and ineradicable mildew; no more shrivelled leaves, no more dwindling spindling growth. Vigour was apparent from the first; strong wood, as clean as it came from the hand of nature; fine broad lucid leaves with the generous purple tinge of health in the beginning, succeeded by the richest and deepest green; and as for flowers the bushes were loaded with all they could bear. In short success was perfect, thanks to bright light, copious ventilation, accumulated sun heat, and a soil that parted with nothing which it received except to the plants for which what it received was intended. This was the firstfruit of growing Roses in a house and in soil adapted to them. But the success of the first year was nothing to that of the second.

The other day the house was piled up with gigantic Roses, sweeter than the sweetest of the Eastern world; men were wheeling away barrow loads of fallen petals. Devoniensis seemed to have borrowed the shape and size of a Cabbage, and as to Fortune's climbing yellow China, its rich Nankin colour was actually glowing with salmon. We caused some of the largest to be measured on the 3d of June. Here is the result:—

	Diameter of Flower.	Number of Flowers open.
	Inches.	
Vicomtesse des Cazes	5	70
Madame St. Joseph	5½	
Princess Marie	4½	
Devoniensis	6	
Goubault	4	80
Madam Guérin	4	30
Surabondante	5½	
Comte de Paris	4	
Belle Allemande	4	
Adam	5½	
Mansais	5	
Souvenir de la Malmaison	5	
Comte Brobinsky	3½	50
Cramoisie supérieure	3½	55
Abbé Moiland	3	55
Souvenir d'un Ami	4	
Marshal Bugeaud	4	
Georges Cuvier	3	

Lovers of Roses! only think of flowers in which the whole face may be buried in fragrance; of Devoniensis eighteen inches round, of Mansais, Madame St. Joseph, Adam and Surabondante almost as big; only conceive Madame des Cazes bursting forth into seventy such blossoms at the same time. Perhaps you may not recollect how much six inches are; cut, then, a paper circle as wide as half the length of one of our columns—carry it to your own Roses, place it by their side and see the difference.

Such is the result of substituting good treatment for bad. It is clear that Roses like to be well lodged, and well fed, and well attended—like their betters.

And now for the receipt to make such a house as this:—

1. Let the soil be Wimbledon loam, or any such soil, and old cowdung.
2. Prune hard back at Christmas.
3. Cut off the dead flower stalks as soon as flowering is over.
4. Water once a week in summer.
5. Give no water in winter, or at least never let the surface soil be wet at that season.
6. Let all the plants be on their own bottoms, and not worked.
7. If mildew appears, *immediately* dust sulphur on with a piece of gauze or coarse muslin. This is much better than "sulphurators."
8. Sulphur in the evening; and wash all off next morning. If the mildew does not go, repeat the dose as often as necessary.
9. Give tobacco smoke once a week when the Roses are growing.
10. Give air to the utmost of your power, always by day; and at night also if the weather is warm.
11. But shut up close at night if cold; and keep close the ventilators next a sharp east wind.
12. Never shade.

Such is the way to grow tender Roses well in England.

New Plants.

176. Lachenalia aurea.

L. foliis pluribus longis flaccidis obtusis recurvatis inæqualibus, racemo multifloro elongato apice abortiente, floribus pendulis cereis, sepalis ferè duplo brevioribus obtusis petalisque apice dilatatis subrecurvis concoloribus.

Of a beautiful Cape genus, far too little cultivated, although as manageable in a greenhouse as a Hyacinth

out of doors, this is by far the finest species yet known. It was purchased by the Horticultural Society of a collector who said he brought it from Natal, and flowered last spring at Chiswick. Its *numerous* broad flaccid bright green leaves, very little spotted, fall back upon the ground, while its stately purple-speckled scapes, sometimes 2 feet long, rise grandly upwards, loaded with magnificent flowers of the deepest golden hue and without a spot. These flowers are four times as large as in *L. tricolor* (the *two-leaved* common species to which it most nearly approaches), of a firm waxy consistence and almost wholly tubular, the very apex only of the petals widening enough just to produce something of a campanulate figure. The sepals are a little gibbous at the base, and sometimes the gibbosities produce a tooth or two on their surface. No Lachenalia with which we are acquainted remains in flower so long as this.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The thirteenth anniversary dinner of this charity took place at the London Tavern on Wednesday last, the 11th inst., Sir Joseph Paxton, M.P., in the chair, supported by Sir Charles Fox, A. Anderson, Esq., F. Crossley, Esq., M.P., Lieut. Paxton, J. J. Mechi, Esq., Mr. Wrench, and a large number of nurserymen and gardeners.

After the cloth was removed and the usual loyal toasts proposed and drunk, the chairman gave the "Army and Navy," which was responded to by Lieut. Paxton. A. Anderson, Esq., then gave "His Grace the Duke of Devonshire, President of the Institution." This was replied to by Sir C. Fox, who stated that he had known his Grace from a boy, and believed there was not a person in England who more completely supported the character of an old English gentleman. His great desire was to see all about him comfortable; as to the interest he takes in Horticulture it requires no comment. The Chairman said he would have much pleasure in communicating to his Grace the tribute of respect that had been paid him, and remarked that he had found him that morning carefully inspecting the list of subscriptions to the Institution, in the welfare of which he took a warm interest.

What was termed the toast of the evening, viz., "Success to the Gardeners' Royal Benevolent Institution and long may it prosper," was next given by the Chairman. He sought assistance from the meeting in its behalf, and stated that if each member present would endeavour, when he went home, to get at least one more to join it, its funds would soon become increased. A statement concerning the history and present position of the charity, furnished by the Secretary, was then read. From this it appeared that the average age of the males now deriving relief from the Institution was 80, and that of the females 79. Sir Joseph then went on to say that he thought the pension was too small; instead of 16*l.* a year for males, he would give them 20*l.*; and instead of 12*l.* as at present for females, it should be increased to 16*l.* a year. The subject of wages in general was then adverted to; he was convinced that gardeners were very much under paid, a circumstance which he attributed to the supply being greater than the demand. He compared the remuneration they received with that given by Sir Charles Fox to hundreds of his mechanics, and pointed out the difference which existed between them. He was sure that if gentlemen looked over the list of persons in their employment holding places of trust they would find that gardeners were the worst paid of all. This, coupled with often a large family and other difficulties, rendered them ill able to save money, and therefore late in life they were compelled to seek relief from this Institution, which had been established for the purpose, and on that account had a peculiar claim on all who took an interest in gardeners and gardening. He hoped, therefore, that much liberality would be exhibited that evening towards the good cause he was advocating, and that the funds of the Institution would thereby be materially augmented.

The health of the Chairman was then proposed by Mr. Mechi. He believed that not only now, but in days to come, his name would be honoured. He agreed with Lord Braybrooke, when he said that there was nothing to prevent the humblest individual from becoming what he was, a peer of the realm, and Sir J. Paxton was just a person who fully exemplified the assertion. Let any one go to Sydenham and see the vast structure erected there, and he will be at no loss how to estimate his genius. Architects, he said, were fond of masses of brick and mortar with small loopholes to look through; but the Crystal Palace was all window. In fact, Sir Joseph had let daylight in upon us. This was an age of steam and progress, and he hoped that Sir Joseph would be long spared to take an active part in our operations. Sir Joseph Paxton replied, and then proposed the health of Mr. Crossley, who, he said, had liberally presented the town of Halifax with a park which he was about to lay out.

A report on the state of the funds of the Institution was read by the Secretary; he stated that 262*l.*, the proceeds of the sale of the celebrated Stanwick Nectarine, had been liberally presented to the charity by his Grace the Duke of Northumberland, that donations announced on the present occasion amounted to nearly 270*l.*, and that the funded stock of the Institution was about 4000*l.* Among the names of those who thus liberally contributed we observed the following:—His Grace the Duke of Devonshire, 21*l.*; Sir Joseph Paxton, 26*l.* 5*s.*; Lieut. Paxton, 10*l.* 10*s.*; J. & C. Lee, 10*l.* 10*s.*; F. Crossley, Esq., M.P., 10*l.* 10*s.*; Messrs. Fox, Henderson, & Co., 5*l.* 5*s.* annually; R. Smith,

Esq., 10*l.* 10*s.*; A. Anderson, Esq., 10*l.* 10*s.*; Messrs. Lawson & Sons, 5*l.* 5*s.*; Mr. J. Veitch, 5*l.* 5*s.*; J. J. Mechi, Esq., 5*l.* 5*s.*; R. Woods, Esq., 5*l.* 5*s.*; J. Martineau, Esq., 10*l.* 10*s.*; Mr. J. Spencer, 10*l.* 10*s.*; and R. Hanbury, Esq, 5*l.* 5*s.*

After some healths had been drunk, the Chairman proposed "Success to Horticulture," and coupled with it the name of Mr. Spencer, of Bowood. Mr. Spencer, in a short but excellent speech, replied, that gardening was the pioneer of agriculture, and alluded to deep cultivation as a great means of increasing our national resources. Mr. Mechi, he said, was in fact only doing what the London market gardeners had done before him. They had long since discovered the benefits of deep tillage and manure applied in the best form for plants to avail themselves of it. In fact, he added, good farming was only good gardening on an extensive scale, and he entreated gentlemen who would farm profitably to follow the example so well set them by the London market gardeners.

After some other toasts were drank the meeting separated.

The room we should mention was beautifully decorated with plants, chiefly Geraniums in pots from Mr. Turner, and the dessert was amply supplied with fruit from Chatsworth, Trentham, Dalkeith, and other great places.

VEGETABLE PATHOLOGY.—No. CXXV.

497. PARASITÆ (1. *Phænogams. Dodder*).—The genus *Cuscuta*, and its cognate genera or subgenera, which contain many species, are amongst the most destructive of parasites. They are closely allied to the Bindweeds, and differ principally in the spiral embryo, the entire absence of seed leaves, and their parasitic habits. The seeds germinate readily when sown, sending out a root into the soil and the filiform leafless plumule upwards. This becomes in a short time too weak to support its own weight, and therefore either falls upon the soil or upon some neighbouring plant. In the former case it soon perishes; in the latter, the young plant begins to twine round its supporter, and to throw out little processes, adventitious roots, as it should seem, from the attached surface. According to Griffith these penetrate to the first completely formed wood. At any rate, they become so far incorporated with the matrix as to be able to profit by its elaborated juices and to be entirely independent of their own root which soon loses its connection with the stem, when the plumule is once fairly attached to any plant capable of giving it nourishment.

498. This matrix must bear some positive relation to the particular species of parasite. Some species indeed seem not to be nice as to the object on which they are to prey, but others require plants of a particular natural order or genus, and die if these are absent. This peculiar necessity is one of the principal causes which checks the distribution of these parasites, which would otherwise destroy vegetation altogether.

499. The Common Dodder flourishes upon a variety of plants, especially upon Beans, Hops, and Nettles, and sometimes, though rarely, attacks Cereals. Several real species have been confused under one common name, but after these have been eliminated, there still remains a species which affects plants of very different characters. Though Beans sometimes suffer from Dodder, the most formidable species against which the farmer has to contend is that which attacks Clover. This species was originally imported from Affghanistan mixed with seed of Lucerne and Trefoil, and it has since spread rapidly over the country. It occurs at first in little patches spreading on every side, till the Clover is to a great extent destroyed, as if fires had been lighted about the field. It is quite useless to attempt to pick it out, for this only increases the evil, as every broken piece is capable of growth. The only remedy is, whenever it appears, to dig the patch of Clover up. This will prevent its spreading from that spot, and will, if done sufficiently early, destroy the plant before seed is formed. If, however, unhappily, it should have been allowed to spread, or if seed is mixed with it, the surest way is to let the seed be screened with a sieve sufficiently fine to prevent the passage of the Clover or Lucerne seed while the Dodder seed passes through. As these seeds are twice as long as that of Dodder, and one-fourth broader, a sieve may be found capable of effecting the purpose. One of this character is known in the trade as No. 17.*

500. Flax, again, has its peculiar parasite. This, of course, is equally an imported species, and no Flax seed should be sowed without previous screening. There are often other seeds, as Gold of Pleasure, largely mixed with it, and if the latter occurs in any quantity the profit of the crop must be much diminished, as its stems are perfectly useless for the purpose of producing fibres, though its seeds yield oil. Meyen is of opinion that the Flax Dodder does not derive the whole of its nutriment by means of suckers from the parent plant. He thinks that they are often too delicate to penetrate, and that the nutriment consists principally of the moisture which evaporates from the matrix. The opinion is not, however, well supported, and is subject to many objections. It is almost inconceivable that the infinitesimal quantity of nutritive matter contained in the evaporated fluid could in great measure support the life of a plant belonging to a genus which in general demands fluids already elaborated.†

* See Dr. Lindley's article on Cuscuta in Morton's Cyclopædia of Agriculture.

† In the figure of the Flax Dodder in English botany, the suckers are represented as very numerous.

501. Brotero has figured amongst his Portuguese plants, tab. 165, a species under the name of Cuscuta Europæa barba Uvæ, which grows only on the bunches of the Vine. It does not appear to be very common, nor is it certain whether it is a distinct species. As it is confined to the bunches, it could only attack those which are very near to the soil. I am not aware that it has been noticed anywhere except in one or two places in the neighbourhood of Lisbon.

502. The species of Dodder are confined principally to the more temperate parts of the globe. They sometimes attain a much larger size than our own indigenous species. Dr. Griffith reports one which ascends trees 20 or 30 feet in height. In the Tropics another genus of similar and almost equally destructive habits is abundant. This has the same relation to Laurels that Cuscuta has to Bindweed, but with characters even less distinctive, the only difference consisting in the permanent succulent calyx. The suckers are produced in far smaller numbers, but there is no doubt that the nourishment is derived principally if not entirely from the plant on which it grows. At least such is the report of Jacquin, who raised it from seed, and therefore had ample opportunity of ascertaining its habits. *M. J. B.*

A WORD OR TWO ON WARDIAN CASES.

CAN any reader of this Paper recollect a Wardian case in which the imprisoned plants were in good health? I see a good many of what are popularly known as Wardian cases in the course of a year, yet I confess very few are such as I should care to possess. As a general rule the plants are sickly; in most cases rotting from a superfluity of confined moisture, and upon inquiry you will be certain to learn that the plants you are examining and about which your opinion is solicited, are but the representatives of many generations that have before occupied their places, and which, like them, have hopelessly languished. How is this to be accounted for? By the simple fact that the majority of those who attempt the cultivation of plants in Wardian cases are entirely ignorant of the true character and capabilities of such plant receptacles. And not only are the cultivators ignorant in that respect, but the makers and vendors are equally culpable. The great aim of the majority of makers would seem to be to render their cases as nearly air-tight as possible, in accordance with the popular notion that they should be hermetically sealed, and that, these conditions being secured, you have only to put a plant inside one to insure for it a miraculous growth and longevity, irrespective of treatment. Is not this the belief of nine-tenths of those who patronise Wardian cases?

Now these cases are in much request as ornaments to living rooms, and if of elegant design they are so in a superlative degree; but in this matter, as in every other to which the principle will apply, utility should not be sacrificed to appearances nor need it be. There is ample scope for elegance of design in combination with every facility for affording the necessary requirements for the healthful progress of any plant that may be placed in them. And it has been urged times out of number (but the almost total disregard of the advice is, I am sure, ample apology for my venturing to repeat it) that the interior of a Wardian case, having the welfare of its inmates in view, must *not* be wholly cut off from the external air. A Wardian case is to be considered merely as a small conservatory or greenhouse, to be conveniently placed in a living room, or other situation where the atmosphere is not in a condition to support a healthful vegetation, and in which certain plants may enjoy, to a considerable degree at least, the necessary aids to growth and health. Plants in a Wardian case will rarely succeed equally with others under more natural conditions; but with the aid of one, plant culture may be enjoyed in situations where the gratification would otherwise be denied. This is indeed a correct estimate of its value, but another and I am sorry to say a very different one has possession of the popular mind.

As regards the treatment of the inmates of a Wardian case close attention is necessary. First take into consideration the requisite conditions for healthful vegetation generally; then of the particular plants you intend to cultivate. This with a knowledge of the proper management of a greenhouse will enable you to succeed admirably. Throw away all ideas of any talismanic power existing in such a plant receptacle with respect to plant developments, and consider the total exclusion of the air as a popular fallacy.

I have mentioned design in reference to these cases. So far as the plants themselves are concerned, except indeed under the very best management, those in which a bell-glass is closely fitted down to a stand are to be avoided. True, plants may be grown in them, but the tendency of inexperienced persons to allow the glass to remain for long periods without being removed is fatal to the enclosed plants. But perhaps the worst possible kind is that in which a tall bell-glass to cover the head fits into another glass serving the double purpose of a receptacle for the roots and a stand. I have seen several of these in use. Avoid them by all means; they are plant sepulchres. Every Wardian case should be provided with facilities for ample ventilation; any one that does not possess such facilities is faulty in construction; and in the management of any such case, if ventilation is wholly disregarded, failure in a greater or less degree must result. *G. W. L.*

Home Correspondence.

British Oaks.—You blame me for not having distinguished the British Oaks, but you probably have forgotten that in a recent number I asked for information whereby to do so, and received an answer such as I could not adopt, although it is doubtless quite sufficient for a forester's use. I doubt the permanency of most of the characters given at page 134, and fear that Dr. Greville (Edin. Bot. Soc. Trans., i. 65, pl. 4 and 5) has shown that the same forms and proportions of parts are not constantly associated with one another. The shape of the leaves, the length of the petioles, the length of the common fruit stalks, and solitary or clustered acorns, are apparently so devoid of constancy as to be inapplicable in a scientific specific character. The direction of the branches and the size of the buds may be of more value. If there are two, are there not three species in this country? Martin long since gave plates of three (Flora Rustica, tab. 10, 11, and 12); and the late Professor D. Don described three (Leighton Fl. Shropshire, p. 478); but neither of those eminent botanists points out any permanent characters. Not residing in a county of Oaks, I am not well situated for attaining a practical knowledge of them; but I am certainly rather surprised, and not slightly sorry, to learn that my short characters of the trees are "wholly at variance with the species." Let me venture to hope that the editor of the *Chronicle* or some of his correspondents will kindly take compassion upon my ignorance and enlighten me upon the true botanical distinctions between Q. robur and Q. sessiliflora, and the proper position of Q. intermedia. *Charles C. Babington.* [There are only two wild species in this country; and they are perfectly distinct. It is evident that our learned friend has never seen *Q. sessiliflora*, which is not an eastern counties plant.]

Gardeners' Benevolent Institution.—I beg to offer a few thoughts which are suggested to my mind by Mr. Errington's remarks in your last week's Paper. I think that if gardeners were better paid it would be better both for themselves and their employers. Mr. E. says truly, they do not make money. Here I may say that I am not speaking of our first-rate gardeners' situations, and in passing, I make bold to aver that any young man, let his ability be ever so good, if he lacks what I may call a good connexion or interest, stands a very poor chance if he aspires to exercise his talents in a situation of that description. But in these remarks I refer to the great mass of gardeners, the middle classes of that community, if I may so speak. In too many instances the scale of remuneration is very low indeed. I need only refer to the advertisements in your Paper for conformation of my remarks. Very superior qualifications are required if the salary rises above the stereotyped 20*s.* per week. Those nondescripts who are wanted to take charge of a pony carriage, to drive, wait at table and so forth, I altogether ignore as not possessing any claim to the title of gardeners properly so called. Taking into account the constant attention, care, and forethought necessary in gardening matters, gardeners ought to be well paid. I do not for one moment wish to detract from the merits of the Gardeners' Benevolent Institution; far otherwise; still as Mr. E. seems to think that the lack of gardeners' subscriptions to that charity lies in their carelessness to the wants of their decayed brethren, I would beg leave to say from my own observation that many gardeners, especially if married and with families, find themselves ill able to subscribe even one guinea annually. If the gardener must keep pace with the times he must procure and study gardening periodicals, books on gardening, botany, and other kindred subjects, and standard works of the kind are not proverbial for cheapness. But let the scale of wages be generally raised. Let us see no more advertisements for gardeners with abilities of the highest order, and every other qualification, and the wages (I blush to say it) perhaps 1*l.* per week, or indeed perhaps less than that. Let, I say, these matters be adjusted on a more liberal basis, and gardeners would exert themselves more in the service of their employers; would be able and willing to assist their really unfortunate brethren, I say really unfortunate, for I have no sympathy for the hordes of broken-down gardeners who owe their misfortunes in old age to their own bad conduct. In fact it would be found, although misfortune will sometimes occur to the most industrious and praiseworthy, that the number of decayed gardeners would be greatly decreased. *Petit à petit l'oiseau fait son nid, June 10th.*

Cure for Insects.—If "J. M." has a dislike to fill his conservatory with tobacco smoke let him try the following, which I have found effective in the destruction of insect life. Procure a bushel of young Alder shoots; they may be found now; bruise them slightly and add three or four times the same quantity of cold rain water, macerate for two days, and apply the liquid with a syringe. If, however, he wishes to continue the tobacco, the sooner he can get the house filled with smoke and the longer he can retain it the sooner will he effect his purpose. According to my opinion the worst thing that could be done is to bring the whole to a blaze, although the nearer he can approach that without injury the more perfect I would consider the application. *H.*

Roses.—Having a fine plant of a Rose called La Reine in my garden which produced numerous very fine buds which, however, never came to perfection, I thought the situation might be too cold, and transplanted it last autumn into a conservatory against a pillar, where it continued to grow well, and has lately produced

many buds; but after a time they all become deformed, and the calyx splits and none appear likely to come to perfection any more than they did out of doors. Many of the buds are much larger than the one inclosed before they appear to suffer. Can anything be done to prevent this, or had the plant better be discarded? *Anon.* [It has received too much water and has too little bottom heat.]

A Correspondent's Misfortunes.—Having on more than one occasion experienced your polite attention, I must again presume to trespass on your kindness for a brief space to lay my complaints before you, which I think you will say are just, hoping to benefit much by your good advice. *Entre nous*, I may just whisper in your ear that my indulgent husband, who has a great contempt for growing anything but Wheat and Turnips, and such like crops, does nothing but laugh at my mismanagement, as he terms it, when really there has been no fault on my part whatever. By his permission I added about a quarter of an acre to my lawn last year, and had all the coarse Grass carefully peeled off, and the ground well dry and levelled. Now was that not quite right? Then I had some chalk put over it. Well, I looked into your Paper, and found where I could buy the best Grass mixture for lawns, and wrote to a horrid man in the West of England, and he sent me a bag of seed which my servant sowed carefully, and raked it all over, and rolled it well, and as the season last year with us was rather dry, the water-engine was occasionally used; surely this was all right, was it not? Oh! horror of horrors, my husband came in one morning, and tells me I shall have an excellent crop of Rye-grass and Clover, and offers to give me a shilling for it when I cut it. Provoking man! how I hate to be quizzed. True it is, a long coarse Grass grows in tufts, and looks just like my husband's Oats and Barley, and the Clover is an ugly, tall, large, leafed thing, such as the cows and sheep eat. Now, is not this a shameful trick? and don't you think the wretch who sent the seed should be made to pay all the additional expense [certainly] I shall be put to in going over the same process as before, which cost 5*l.*? I have met with so many vexations and disappointments from your advertising friends, that I am half inclined to be angry with you. I have wrong seeds, and sad rubbish, and wrong plants sent me often and again, and so many of my acquaintances have suffered similarly that in my own and their names I implore you to devise some means to protect us; I am sure we shall feel so grateful to you. I could mention many parties who are considered first and foremost in the flower and seed trade, who have sent very flippant replies to my notes regarding their mistakes, and without ever getting any redress. I really think if a number of us of the weaker sex, as you men please to term us, were to devise some means of intercommunication by which we could make each other acquainted with the names of those tradesmen who play us tricks, and those who treat us fairly, (a kind of protective association) we might put a check upon such atrocious proceedings. H. sent me a set of bluish Anemones this season, and I ordered double scarlets—he ought to be whipped. Pray tell me what to do in future. I have run down here to recruit my spirits and temper. Put something in your Paper (which I always read attentively; though it is in part very hard and difficult to understand,) to cheer me, or I can never put any confidence again in the nurserymen, who seem to advertise for the sole purpose of entrapping those who like myself live retired in the country, and who look greatly to their little gardens for pleasure and amusement. I am sure if we were dealt fairly with, and upon reasonable terms, it would greatly tend to encourage us, and be infinitely more advantageous to the tradesmen. *Jessica, Hastings.* [If our fair correspondent is in earnest about Grass seeds, which are often desperate rubbish, she should expose the name of the person in the West of England who swindled her. We cannot possibly take any responsibility on account of the doings of advertisers.]

Bread.—Combine the Wheaten meal with water saturated with carbonic acid gas, in the proportion, for small quantities of water so saturated, of half a pint to a pound of meal. A teaspoonful of sugar and a teaspoonful of salt may be mixed up with the meal, or the salt may be employed alone. For experimental use, a common oval bottle of soda water may be poured into a pound of meal, mixing the ingredients briskly together at the same time; but, for ordinary domestic use, I would advise one of those elegant apparatus invented of late years—for example, Gailard & Dubois' gazogene. Omitting the first expense of the gazogene, the fabrication of the carbonic acid gas thus costs literally next to nothing; and, for the cleanly and safe confection of unfermented bread, is vastly preferable to every form of acid and soda, baking and other powders, whatsoever. *H. McCormac.*——My experience in raising bread is as follows:—Various kinds of baking powders used for this purpose evolve large quantities of carbonic acid gas when they come in contact with water in the dough. Care must be taken in selecting these powders, as some contain unwholesome ingredients. I have mostly used "Borwick's German Baking Powder," which may be had at almost any chemist's or corn chandler's. It neither imparts a peculiar taste nor colour to the bread, nor does the dough require kneading. Full directions for use accompany each packet. *J. Burns, Hampton Court.*

The Crystal Palace Show.—We have received several complaints respecting the arrangements on the last occasion, but we think the complainants would do better to forward them to the Secretary of the Crystal Palace Company. We have also other communications before us, of which it is sufficient to print the following:—In justice to the Crystal Palace Company, we beg to contradict the statement made by your correspondent, at p. 390, respecting the prizes given to exhibitors in the 'Miscellaneous Class,' for we noticed particularly that every subject worthy of merit received an adequate prize; and amongst the successful competitors were ourselves with a collection of Exotic Ferns. If he will turn to the schedule, it will be found to contain six prizes only in Class XXVII., and we are certain that double that number were awarded by the censors, who were well selected for each department, and the exhibitors generally expressed their full satisfaction with everything that had been done. The style in which the awards have been advertised is simple and comprehensive; so much so, indeed, that no 'Exhibitor' need complain. *Wm. Cutbush and Son, Highgate Nurseries, June 11th.*

Hybridising Pelargoniums.—I am working the rough leaved Geraniums, Unique, &c., and have got a promising thing or two. I am just now trying to get a rise out of Rising Sun by fulgidum. The importance of cross-breeding cannot be over-rated. I believe that Geraniums rarely produce improved seedlings by their own pollen. They are generally reproductive of themselves or of their lightest coloured parent. Three self-bred generations have brought back Unique to a *weed* not far from capitatum, yet the high colour which does not always descend will strongly affect the produce of another sort. Much observation and registry of phenomena are yet needed on this subject. *R. T. C.*]

A Few Things which Everybody ought to know.—A quart of Peas sown in a shallow box, 15 inches wide by 18 inches long, at any time of the year, and cut off when about 4 or 5 inches high, and boiled like Spinach, with a little salt, makes a most delicious dish. The tops of Jerusalem Artichokes cut off about 6 inches long, and boiled like other greens, make a capital dish, which partakes in some degree of the flavour of the root. Boiled Watercress also makes a wholesome and delicious dish. It must not, however, be overboiled; for impaired constitutions it is invaluable. In April and May late Potatoes should always be peeled some 10 or 12 hours and steeped in cold spring water before they are cooked. This is a great improvement; it makes the Potato nearly as good as those dug in October. The proper way to make a cup of good tea is a matter of some importance. The plan which I have practised for these 12 months is this. The teapot is at once filled up with boiling water, then the tea is put into the pot, and is allowed to stand for five minutes before it is used; the leaves gradually absorb the water and as gradually sink to the bottom; the result is that the tea leaves are not scalded, as they are when boiling water is poured over them, and you get all the true flavour of the tea. In truth, much less tea is required in this way than under the old and common practice. *James Cuthill, Camberwell, London.*

Societies.

Caledonian Horticultural, *May* 24.—On this occasion prizes were awarded as follows, viz.:—Silver Medal to Messrs. J. Dickson & Sons, for Azalea semiduplex, præstantissima, Calceolaria violacea, and Struthiola stricta; second, Messrs. Dicksons & Co., with Azaleas indica alba and Halfordi, Boronia tetrandra and Tropæolum tricolorum. Stove and Greenhouse Plants, first, Mr. Fowler, Glenesk, with Cattleya Mossiæ and Leschenaultia formosa; second, Mr. Lockhart, Arniston, with Azalea Murrayana and Conway's Giant Cactus. Rhododendrons, first, Mr. Cameron, Trinity Cottage, with R. Queen Victoria; second, Mr. Fowler, with Miranda. Cape Heaths, first, Mr. Lockhart, with Linnæoides superba and ventricosa grandiflora superba. Best trained Climbing Plant, first, Mr. Blair, Mavisbank, with Tropæolum tricolorum; second, Mr. Douglas, Falcon Hall, with the same. Azaleas, first, Mr. Cameron, with A. lateritia alba and præstantissima. Cinerarias, first, Mr. Reid, Broomfield, with Scottish Chieftain, Esther, picturata, and optima; second, Mr. M'Farlane, Barnton, with Barsina, Bessy, Lady Gertrude, and Queen of Beauties. Pansy blooms, first, Mr. Henderson, Cargilfield, with Sir C. Napier, Mary Taylor, Monarch, Beauty, Sir J. Cathcart, Nonpareil, Memnon, Minerva, Pandora, Sir R. Napier, Flower of the Day, and Bride; second, Mr. Reid, with William, Minerva, Royal Standard, Mary Taylor, Jeanie, Miss Walker, Lord Raglan, A. B. Gough, Royal White, Lord Dunfermline, Louisa, and Miss Talbot. Pelargoniums, first, Mr. Cameron, with Glowworm and Forget-me-not. Fancy Pelargoniums, first, Mr. Forrest, Glentarkie, with Countess of Ross and Annete. Herbaceous plant, first, Mr. Crombie, Cramond, with Dielytra spectabilis; second, Mr. Smith, Clermiston, with Anthericum liliago. Alpine plants, first, Mr. Falconer, Canonmills Cottage, with Maianthemum bifolium, Ramonda pyrenaica, Houstonia cærulea, and Androsa villosa; second, Mr. M'Farlane, with Dianthus cæsius, Sedum ternatum, Linaria alpina, and Ajuga alpina. Messrs. Dickson & Co's. prize for the four newest and best Azaleas was gained by Mr. Cameron, with Gledstanesi, Prince Albert, magnifica purpurea, and Melbourni. On this occasion, the following prizes were offered by the office-bearers of the Society, viz.:—Two Sovereigns for the best Stove and Greenhouse plants, which was gained by Mr. Lockhart, with Aphelexis humilis, Azalea grandis, Cereus Austini, Tetratheca verticillata, Erica Beaumontia, and E. intermedia; second, Mr. Blair, who produced Erica ventricosa and elegans, Torenia asiatica, Gardenia radicans, Ardisia crenulata, Aphelexis macrantha purpurea, Tropæolum tricolorum, Maxillaria Dieppii, Æschynanthus speciosus, Pimelea spectabilis, Gesnera splendens, and Russellia juncea. The best collection of Ferns was sent by Mr. Falconer, the kinds being as follows:—Allosorus crispus, Asplenium Adiantum-nigrum, fontanum, marinum, Ruta muraria, septentrionale, Trichomanes, and viride; Athyrium Filix-fœmina and vars. crispa and monstrosa; Blechnum boreale; Cystopteris montana and fragilis; Lastrea dilatata and var.; Filix-mas and var. cristata, rigida, Thelypteris; Onoclea sensibilis, Osmunda regalis, Polypodium vulgare, calcareum, Dryopteris, Phegopteris and alpestre; Polystichum Lonchitis, aculeatum, lobatum, angulare, vars. angustatum and proliferum; Scolopendrium vulgare and var. undulatum; Adiantum pubescens and pedatum; Lomaria Patersoni, Woodsia obtusa; Acrostichum alcicorne; Niphobolus sinensis; Pteris tremula, hastata, chinense, serrulata and rotundifolia; and Struthiopteris Pennsylvanica; second, Mr. Blair, who produced Adiantum affine, pubescens, assimile, formosum, tenerum and hispidulum, Polystichum proliferum, Asplenium viviparum, Polypodium crassifolium and angustifolium, Cyrtomium falcatum, Pteris longifolia and rotundifolia, and Aspidium exaltatum. Numerous productions were placed on the tables for exhibition only. From Messrs. P. Lawson & Son were Pimeleas, variegated leaved Vine, and a collection of Coniferæ, including Cupressus Lawsoniana, and several new species of Cupressus from North America; from Messrs. Dickson & Co. Rhododendron formosum, and Heaths; from Messrs. J. Dickson & Sons, Rhododendron Dalhousiæ in flower, blooms of a hybrid Rhododendron named Countess, Erica australis rosea, and Daviesia latifolia; from Mr. Handasyde, Thuja gigantea and other Coniferæ; from Mr. R. M. Stark, Cinerarias, Alpine Plants, and rare Ferns; Mr. Methven, Rhododendrons, including a superior variety named Stamvellianum album; from Messrs. Downie & Laird, Cinerarias, Mimuli, and Pansy blooms; also a seedling Pansy named Duchess of Wellington—a yellow ground with broad dark belting of superior size and quality, for which a Certificate of Merit was awarded; from Messrs. Cunninghame, Fraser, & Co., Viburnum macrocephalum; from Mr. T. H. Douglas, Cinerarias; from Mr. Forrester, Auriculas, and a promising seedling, of neat habit, stated to have been raised from seed of an Alpine Auricula fertilised with Primula ciliata purpurata; from Messrs. W. Ballantyne & Sons, Pansy blooms and Cinerarias; and from Mr. Black, Pansy blooms, including several seedlings. From the garden of Sir W. Gibson-Craig, Bart., were flowering branches of Ribes Hookerianum and the Himalayan Apricot; from C. K. Sivewright, Esq., a plant of Azalea lateritia superba (in six-inch pot), covered with large and fine flowers; from Mr. Pender, a dish of Strawberries and early Ann Peaches; from Mr. Melville, a basket of varieties of Tropæolum Schuurmanianum and Collinsia bicolor alba; also specimens of Melville's Incomparable and May Cauliflower Broccoli; from Mr. Stirling, Anemone Poppiana and other rare Alpines; from Mrs. Carstairs, 25 heads of Asparagus, weighing 43 oz.; from Mr. J. H. Porterfield, 14 stalks of Rhubarb, weighing 40 lbs.

Notices of Books.

Shakspere's England; or Sketches of our Social History in the Reign of Elizabeth. By G. W. Thornbury. 2 vols. 8vo. Longmans.

It was a good idea to take a point in the History of England, and to work out minutely our social condition at that time. Nor could a better period have been chosen than that selected in the volumes before us. It is not everybody who cares about court intrigues, or political schemes, or the history of trade, or even military and naval glory; but all desire to know how their forefathers lived, ate, drank, dressed, and employed themselves, what sort of houses and gardens they occupied, how they were furnished, how people amused themselves, and all the other little details which make up the round of man's existence in society. Of all this and much more Mr. Thornbury undertakes to tell us, and in our opinion he has executed his task in an agreeable as well as satisfactory manner. Antiquarians will, doubtless, find errors in his narrative, and discover faults beyond the reach of ordinary eyes; but it cannot be denied that his picture of the Elizabethan world is essentially true, if not so in every minute particular. The long extract from the author's pages which we gave last week will have prepared the reader to expect much entertainment from the volumes themselves, nor will he be disappointed.

Of the gardening of the 16th century no very exalted opinion has been formed from the fragmentary accounts that have reached us. Its worst features are probably those selected by an anonymous writer on Elizabethan Gardening in the third volume of the Journal of the Horticultural Society. Its better points are described by Mr. Thornbury in his account of Hawstead House in Suffolk, the seat of Sir Wm. Drury. It appears that the Pyracantha was employed then, as now, to cover the walls of houses. Of the garden we have the following account: "The privy garden was surrounded by a brick wall. In the middle it contained a round knot divided into

four quarters, with a Yew in the centre, and 62 fruit trees on the wall. The great orchard was cut into one great square and one small triangle flanked with 283 Cherry and other trees. The privy orchard contained 39 fruit trees. In the housekeeper's yard stood a pigeon house; in the great orchard an aviary, where doves were kept." But the principal account of them is taken from Lord Bacon, from whose description we borrow a few passages.

"The borders were bright in all seasons, though half our present flowers were then unknown. In December and January there were fragrant herbs and evergreen trees; the Holly, Ivy, Bay, Juniper, Cypress, Yew, Pine, Fir, Rosemary, and Lavender, white and blue Periwinkle, Sweet Marjoram in warm places, and in stoves, Germander, Flag, Orange trees, and Lemons, and Myrtles. At the end of January and February came the flowering Mezereon tree, the yellow and blue Crocus, Primroses, Anemones, the early Tulip, the Hyacinth, the Fritillaria. In March before the first swallow, the Violets, the Daffodil, the Daisy, the Almond and Peach trees, the Cornelian tree, and the Sweetbriar. When Winter melted into tears and died while April wept, there rose from the tears of that holy and repentant sorrow the Wallflower, the Stock Gilliflower, the Cowslip, Flower-de-Luce, Lilies of all natures, Rosemary flowers, the Tulip, the double Pæony, the Jonquil, the French Honeysuckle, the Cherry blossom, the Damascene Plum tree, the Whitethorn in leaf, and the Lilac tree. In May and June the Blush Pink, Roses of all kinds but the Musk, Honeysuckles, Strawberries, Bugloss, Columbine, the French Marigold, Flos Africanus, Cherry in fruit, Ribes, Figs in fruit, Rasps, Vine flowers, Lavender flower, Sweet Satyrian, Herba muscaria, Lilium convallium, and Apple blossom. In July Gilliflowers, Musk Roses, Lime blossoms, early Pears and Plums, Genittings, and Codlins. In August rich coloured fruits, Pears, Apricots, Barberries, Filberts, Musk Melons; and in flowers, Monkshood. In September, Poppies; in fruits, Grapes, Apples, Peaches, Melocotones, Nectarines, Cornelians, Wardens, and Quinces. In October and November, Services, Medlars, Bullace; and in flowers, late Roses and Hollyhocks."

"For a princely garden about 30 acres of ground was required, the whole being divided into three parts, of which one was the main plot with side alleys, another a green, and the third a heath. The green at the entrance required 4 acres of ground, 6 to the heath, 12 to the main garden, and 4 each to its two wings. The green was to be of Grass finely shorn, with a covered walk about 12 feet in height of carpenters' work on either side, by which you might enter the garden on hot days. Borders of coloured earth in various shapes were not unfrequent, and were generally between the garden and the house. Bacon's model garden, with its recurrent flowers and '*ver perpetuum*,' was a square, and encompassed on four sides with a stately arched hedge—the arches reared on wooden pillars 10 feet high and 6 broad; over these arches were hedges 4 feet high, supported by wooden frames, and over every arch a turret hollowed so as to receive a bird-cage, and above this a figure with broad plates of round coloured glass gilt, for the sun to play on: and this hedge was raised on a gently sloping bank, 6 feet high, set with flowers. On either side of the garden square were to be side walks, but no hedge on either end, lest the green or the heath should not be seen through the arches. Within were figures cut in Juniper, although Bacon liked not such children's play; in some places were fair columns upon wooden frames, and little low ledges and pyramids. In the very middle stood a mount with three winding ascents to alleys wide enough for four to walk abreast. The hills were 30 feet high, and crowned by a banqueting house with chimneys. Nor were fountains, the beauty and refreshment of a garden, ever forgotten. They were of two sorts, the jet and the basin; the latter were often 30 or 40 feet square, and were sometimes used as bathing pools. They were always paved, and had, like the others, marble or gilt images; they were embellished with coloured glass, and encompassed with low rails. The water was kept in perpetual motion, and the basin was cleaned daily, lest it should grow muddy or discoloured. In some places the water was ingeniously made to rise in forms of feathers, drinking glasses, and canopies; 'pretty things to look on,' says Bacon."

"The gardens at Theobald's (Lord Burleigh's) were entered through a gallery painted with a genealogy of the kings of England. They were encompassed by a moat, hedged with shrubs. They abounded with labyrinths, jet-d'eaus, white marble fountain-bowls, and wooden columns and pyramids. The summer-house in the lower semicircle contained statues of the 12 Cæsars, and a touchstone table. The upper part of the house was set round with leaden cisterns, in which, although fish were kept, were used in summer for bathing. A little bridge joined this to another arbour, which contained an oval table of red marble. In the Hampton Court Gardens the Rosemary was trained to cover the wall, a practice that surprised foreign visitors"

It seems that the Paradise of Paradises was in those days to be found at Kenilworth. Laneham, a "gossiping" writer who saw the place, says:—

"It was an acre or more in extent, and lay to the north of the stately castle: a pleasant terrace, 10 feet high and 12 feet broad, ever under foot and fresh with trim Grass, ran beside it along the castle wall. It was set with a goodly show of obelisks and spheres, and white bears of stone, raised upon goodly bases. At each end was a fine arbour, redolent with sweet trees and flowers. The garden-plot near had fair alleys of turf, and others paved with smooth sand, pleasant to walk on as the sea shore when the wave has just retired. The enclosure was divided into four even quarters: in the midst of each, upon a base of 2 feet square, rose a porphyry square pilaster, with a pyramidal pinnacle 15 feet high, pierced and hollowed and crowned with an orb. All around was covered with redolent herbs and flowers, varied in form, colour, and quantity, and mixed with fruit trees."

It must be confessed that these arrangements are not to modern taste; and yet we are much mistaken if there was not something stately and grand in the best Elizabethan gardens, which harmonised better with the manners of the time than the picturesque style of the present day. Everything, indeed, was rectangular or circular, but right angles, circles, and segments of circles skilfully combined, are less likely to offend the eye of taste than the crooked, writhing, twisting, long-tailed, short-tailed, frightful designs that are to be found in even this enlightened age.

To country life a long chapter is devoted; and it is one of Mr. Thornbury's best. The days of "good Queen Bess" were not days of universal content, as some imagine. On the contrary, grumbling had already established itself as a part of an honest Englishman's character.

"In the country the farmers and labourers chafed at the frequent new inclosures, which they said made land dearer, and turned tillage into pasture so fast that one man only lived where threescore had once obtained subsistence, and one plough worked where a dozen had been seen stirring; labourers' food rose in price, and mechanics' wages were reduced to starvation pitch. Less 'prentices were in consequence kept, and many cities fell into poverty and desolation; the paupers increased, and the idle and the discontented grew daily more numerous. The merchants complained that only London was thriving. The country gentlemen, on the other hand, declared that inclosures increased the number of cattle, and kept corn cheap, but yet lamented and confessed the dearth of food. Craftsmen replied to all this by declaring that it was never a merry world since gentlemen turned graziers; that tradesmen in their time seldom died rich, or left bequests to charities, and could scarcely find meat and drink for their 'prentices and servants. To make up for this rise in prices, landlords demanded higher fines and higher rents; many were driven to give up their households and to take chambers in London, with a lacquey and a page in the place of some 10 stout serving-men, and 20 or more other helps. In 1581, people complained that 200*l.* a year did not go so far as 200 marks had done 16 years before."

"With all these complaints the nation grew every day greater, wiser, and richer; there can be no doubt that these evils did exist, but their effects were less universal and less permanent than these Jeremiahs could foresee, and were produced by transitory and inevitable causes which indicated progression. There were, however, constant riots about the new inclosures. Plays were written against them. Ben Jonson himself pressed forward to grapple with the evil that seemed so dangerous and hurtful. Old men almost wept to see arable land which had given many poor men a living, fallen suddenly into one man's hand; where corn and cattle had been reared, there was now only sheep; and instead of 200 cottagers, half a dozen shepherd's people who dreaded 30 years' more inclosure and the increase of discontented paupers. In spite of this, however, the far-seeing could not help observing that Essex, Kent, and Northamptonshire, the favourite counties for inclosures, were also the richest; and civil lawyers held it as a maxim, that tenants in 'common' were not such good husbandmen as tenants in 'several;' but the more prudent, nevertheless, lamented to see poor men unjustly deprived of their common rights. To this the inclosers replied, that wool was a great article of commerce, and made England rich; and that the interest of the few was subservient to the interest of the many: that corn was cheap, and that pastures increased the number of clothiers."

But we must conclude. That much of the above was well known to the student of our social history before Mr. Thornbury's volumes appeared we readily concede. But since the world is not made up of students of social history the author's pages are none the less welcome on that account.

The Young Housewife's Book, or how to eke out a small income (Groombridge), is not a book at all, but a very little thin pamphlet of 30 pages containing a few receipts and some good advice for poor people. Had it been sold for a trifle we should have recommended it, but to charge sixpence, the representation in a poor man's family of a quarter of a day's hard work, for what ought not to cost more than a penny, is a strange way of showing practically "how to eke out a small income.',

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Messrs. Longmans have issued a tiny edition of *Moore's Lalla Rookh, Irish Melodies, Songs and Ballads*, in three minute volumes, each of which will lie in the waistcoat pocket. We may best describe them in the words of a young lady, who seeing them on our table exclaimed, "What dear little books!" Such volumes will carry the musical cadences of Moore everywhere; would that some enterprising publisher could find an author capable of teaching the masses how to *read* poetry musically.

Garden Memoranda.

KNAP HILL, NEAR WOKING.—It is impossible to overrate the beauty and grandeur of effect which Waterer's nurseries possess at the present time. Nearly 25 acres of Rhododendrons and hardy Azaleas of every conceivable tint and shade of colour may here be found now in full bloom. They have been planted in masses in beds and borders, the latter sloping in some instances like the stage of a greenhouse, though not so steep, down to the margins of the walks with which they are interspersed, and literally banks of flower. Handsome standard Rhododendrons of great age and size are also liberally scattered over the whole extent of space just mentioned, and as may be imagined the display they make is striking in the extreme. The soil here being sandy peat is peculiarly well adapted for plants of this kind; they therefore thrive and flower annually in the greatest profusion, and never have they been better than they are this year. Although peat suits them best, however, Messrs. Waterer affirm that they will grow and flower very well in other soils, provided they are light and open, but that if stiff and heavy they are all the better for being mixed with leaf mould, or charred vegetable refuse. A great point, they add, is to plant sufficiently thick to cover the ground, and so afford shade to the roots.

Many seedlings are just now flowering for the first time. Among the best that have received names are Warrior, a deep purple with an immense head of bloom; Champion, rosy pink, compact and good; Mrs. Stevenson, rosy salmon; and Combii, salmon pink. Of older varieties, not already mentioned by us, one of the best is William Downing, a showy and excellent kind. Prince Albert we saw here in really good condition.

It is not Rhododendrons and Azaleas alone, however, that thrive here; all kinds of nursery stock do equally well. Conifers, especially Araucarias and Deodars, grow with wonderful vigour and rapidity, and soon form handsome specimens, which though large are continually transplanted, to keep their roots within bounds; they are therefore capable of being removed to other places with safety. Pinus macrocarpa may be seen here in the shape of a tree 40 feet in height, and we counted on a specimen of P. nobilis 104 cones. Seeds of Araucaria imbricata, numbering upwards of a hundred thousand, have lately been received and sown here; they occupy many cold pits in which the soil (loam) has been put in, levelled, and the seeds set small end downwards. We also noticed numbers of small plants of the new Cupressus Lawsoniana.

Weeping trees form a distinguishing feature of this nursery, especially Beeches, of which there are some fine specimens. We also remarked a few noble trees of a very dark variety of purple Beech, which if freely introduced into parks and pleasure grounds would tend in a remarkable degree to vary and beautify their appearance. A variety of Laburnum (Waterer's) is likewise just now in perfection, while the common kind is getting out of flower. This therefore, independent of its superior beauty and sweet scent, is worth attention for its late blooming habit alone. A Weeping Yew, grafted on a common one about 5 feet high, had a remarkable appearance; the upright stem and head spreading out horizontally gave it the form of the letter T. Tree Pæonies and other flowering plants are liberally distributed about the borders; forming altogether such a show of bloom as is rarely one's good fortune to see.

ROYAL NURSERY, SLOUGH.—Since our last visit to this establishment, which may be stated to be the head-quarters of floriculture, Mr. Turner has enriched his already extensive collection of Tulips by the addition of the principal part of the stock of the late Mr. Groom, of Clapham Rise. We have been in the habit annually of calling attention to the best varieties in the last-named collection, but on visiting the nursery recently, we confess that the same kinds could scarcely be recognised in the better soil and purer air of Slough, which, comparatively speaking, may be said to have made new flowers of many of them. These, in addition to the finest "strains" of all the established varieties, we need not say have made Mr. Turner's bed of 180 rows, or 1260 roots, one of the gayest floricultural displays of the kind anywhere to be met with. In feathered bizarres we noticed very fine examples of Dr. Horner, Mr. Sanderson, and J. F. Wood. In flamed bizarres, Lord Raglan, Prince of Wales, Vivid, Everard, and a flamed variety of Dr. Horner, which is very distinct from the feathered kind. In bybloemens, Maid of Orleans. Duchess of Cambridge, Abbot's Gem, and Rutley's Queen were conspicuously good. In flamed bybloemens, Princess Royal, David, Thalia, Musidora, Pandora, and Bloemart were among the best. With roses Mr. Turner's bed was richly furnished; Battersby's Gem, Heroine, and Aglaia were beautifully feathered, and this good old kind was equally fine in a flamed state. There were also King of Saxony, Lady Peel, Lady Stanley, Anastasia, and that good old sort Triomphe Royale, with many others in their best condition. It is unnecessary to speak of the collections of Pelargoniums grown here, as those who are in the habit of visiting the great metropolitan exhibitions will have noticed the great beauty of the specimens grown and exhibited by Mr. Turner. Here we remarked Admirable, a flower of fine form; Lord Raglan, brilliant scarlet; Wonderful, Meteora, Una, a very free blooming white variety; Seraskier, Fair Ellen, and Governor

General, which should be in every collection. These were all very fine. In addition to large plants we observed some very fine spotted seedlings, particularly Conspicuum, Mr. Hoyle, Spotted Gem, Mr. Beck, and Queen of the Fairies. These are all distinct varieties, spotted in the under petals, of fine form and free bloomers, fully equal to the best of the continental kinds in point of attractiveness, and far superior to them in form and substance. One of the best Geraniums we have seen is a seedling, well named King of Scarlets, as it is by far the most brilliant scarlet with dark upper petals we have yet met with, and is a free bloomer. In a house devoted to seedling Fancy Pelargoniums, we noticed some very fine seedlings; one of these in particular, named Emperor, was remarkable for size, form, and marking. This is a free blooming variety with rich maroon top petals with white margin, and maroon spots on the lower petals with white ground colour. Jenny Ney is also a finely formed flower and a free flowerer, of a beautiful rose and white colour; and Helen Faucit is a fine bright variety; a large and smooth bright coloured kind was named King of the Fancies, and Carminatum is a flower of fine form, and a free bloomer. One of the best and most attractive is Mrs. Colman, which is very bright, with white centre and margin, and will evidently make a good exhibition variety; Countess of Abingdon is also a good rose coloured kind. Two dark varieties were distinct and fine; one of them is named Sir Joseph Paxton, maroon and white, and the other General Pelissier, which is a great improvement on Advancer. These seedlings are all free flowerers, many of them are new in colour and finely shaped. During the present month the Pelargoniums alone will be worth a visit. Bedding and soft-wooded plants are grown extensively here, but a great many of the new things are not yet in bloom. We however noticed some fine Petunias; Majestic, Major Domo, and purpurea alba were beautifully marked kinds; so also was Marquis de St. Innocent, a new continental variety, bright crimson in colour, striped with white; this looked as if it would be a good bedding variety. Imperial, the new double white variety, was also in flower, and is certainly well worth attention. Among new Verbenas now blooming were Mrs. Holford, a fine white variety; Loveliness, bright rose, and a capital bedding sort; Crimson Perfection; Nymph, a good light continental variety; and Blue Bonnet, which seems to be a good bedding kind. Kinghorn's General Pelissier Geranium was in bloom, and is well deserving of the high character which has been given it. Some of the new variegated Geraniums were also in flower, but Alma promised to be the best, the colour being very bright, with smoother foliage than the others and white margin; it is also a free grower and bloomer. A collection of shrubby Calceolarias was just coming into blossom; observable among them was Hawk, a very attractive spotted kind of decidedly shrubby habit. There were also several other distinctly marked kinds, as well as selfs, some of which were of new tints, and all of shrubby habit, adapted either for bedding purposes or for culture. One of the most desirable is King of Yellows, a very dwarf variety, rich orange yellow, and very free; Orange Boven, bright orange brown, is an excellent bedding kind; Goldfinder, a small-flowered variety, deep yellow and a dense bloomer, should likewise be in every collection; as should also Spotted Gem, rich yellow covered with reddish brown spots, dwarf in habit and an intense bloomer; King of Sardinia, a Sultan in habit, but dwarfer and more shrubby, rich crimson; and Eclipse (Rollison's) the brightest colour of all the crimsons, but apparently a bad grower. Cinerarias were going out of flower, but enough remained to show that Brilliant, Admiral Dundas (Henderson's), optima (Hopwood's), Admiral Dundas (Ivery), optima (Bousie), Sir Charles Napier, Emperor of the French, Duchess of Wellington, Oliver Cromwell, picturata, and Lord Stamford, are among the best. Planting out Dahlias has by this time been completed, the plants having been grown on in pots for the purpose; Mr. Turner considers this plan much better than planting out very early.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—It is a very common practice in the management of this and other show houses to huddle the plants thickly together in order to produce a dense mass of bloom, but this should never be done with hard-wooded plants, especially at this season, when they are starting into growth, and most things if they are to be of any further service require a fair share of light and air while in bloom. Valuable specimens of hard-wooded things, particularly Heaths, should be frequently examined, turning them partially round in order that their shoots may be equally exposed to the light, and if anything appears to be suffering from confinement it should be removed at once to more airy quarters. Should the weather continue bright the beds and borders of this house will require a liberal supply of water to keep them properly moist, and the soil about strong growing plants should be occasionally examined to see that it is not too dry towards the bottom of the bed, for the amount of moisture absorbed by such things at this season is much greater than inexperienced persons are apt to imagine. Now that many of the inmates of the greenhouse can with safety be removed to the open plant ground, where they will do quite as well or better during summer than under glass, there will be no necessity for crowding the specimens left, therefore see that every plant stands quite clear, so that all its parts may be fully exposed to light and air. In placing greenhouse plants out of doors care should be taken not to rashly expose them to bright sunshine, particularly if they are at all tender through having been kept close or are in a growing state. Indeed the plant ground should be so situated that the plants will not be exposed to the midday sun, for few things in pots will do much good if exposed to the full force of the summer's sun.

Stove.—Where this house is principally used to furnish a supply of flowering plants for the summer and autumn decoration of the conservatory, some foresight and care will be necessary in order to have the things in a fit condition for removal to the conservatory when they may be wanted there, for until the weather becomes warmer than it has hitherto been plants muston no account be removed from a warm close moist atmosphere to a cool airy house without some preparation. And plants that have been grown in the stove should either be removed to an intermediate house or placed in the coolest end of the stove.

FORCING DEPARTMENT.

Vineries.—Borders that have been lately uncovered should be carefully examined, and if found too dry give a liberal soaking of good strong manure-water from the stable or farm-yard tank. It will be advisable, however, to mix the manure-water with sufficient warm water to bring the temperature to from 70° to 90°. Take advantage of bright days to admit air freely where the Grapes are colouring, and avoid moisture in the atmosphere by removing all plants from under the Vines. Attend carefully to young Vines recently planted, keeping the soil about their roots in a healthy moist state, maintaining a moderately moist atmosphere, and shading if necessary until the Vines get a fair start.

Melons.—Where the fruit is swelling endeavour to keep the soil in a nice healthy state as to moisture, avoiding either extreme. Give air freely whenever the weather admits, and use every means to preserve the foliage in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves immediately they are perceived, which when left only serve as nurseries for insects. There is yet a fair chance of obtaining a good crop in "dung frames," and if any of the frames which have been used for getting up the bedding-out stock can be spared for this purpose the beds should be made and the plants got in without loss of time. Very little artificial heat will be necessary at present and the bed should not be made to heat too strongly otherwise there will be time lost before the plants can be safely put in. The beds should be made high enough however to allow of applying a lining if necessary later in the season, but this will be easily managed by making the bed some two feet high with any useless material which will not ferment, and placing upon this sufficient well worked stable dung to afford a gentle heat.

FLOWER GARDEN AND SHRUBBERIES.

The weather during the last ten days has been very favourable for the newly planted-out stock and well prepared plants are rooting into the fresh soil freely, those who delayed planting out until the first week in June, and were then prepared with strong plants in good condition, will probably have their beds covered before those who planted out earlier; should the weather continue dry and warm, however, the plants must be regularly attended to with water, for it will not do to leave them to take their chance because they have made a few roots since planting out. Daily waterings will not however be so essential now that the plants have made some progress at the root, as the increased root action will balance the extra drain upon the system of the plant resulting from full exposure to sun and air; but the soil must be well supplied with water until the beds are fairly covered, by which time, if the soil is deep and open as it should be, the plants will find sufficient moisture in the soil. See that everything liable to be injured by a sudden storm of wind is well secured by pegging or staking, as may be proper, and keep the surface soil about all recently planted things loose and open by frequent stirrings, which will greatly assist in promoting rapid growth. When there is a large demand for cuttings for spring propagation, a number of plants of each variety proportionate to the probable demand for cuttings should be selected from the reserve stock, potted in 7-inch pots in light soil, and plunged in the reserve garden. These, with very little attention, will make nice stocky plants in course of the summer, and there is no risk of losing in winter plants prepared in this way, and this can hardly be said of autumn-rooted cuttings of many things, and by repotting and placing them in growing circumstances early in spring, each plant will furnish a large number of cuttings sufficiently early to make good strong plants before planting out time. Young specimens of ornamental shrubs and trees which it is desirable to get to grow rapidly should be thoroughly soaked with water at once, especially Coniferous plants.

HARDY FRUIT AND KITCHEN GARDEN.

Trees that have not got fully established since replanting will be benefitted by mulching over their roots, which will prevent rapid evaporation, and keep the soil in a healthy state as to moisture. And the same attention will be useful to trees on shallow borders, especially Peaches and Nectarines, which are very subject to the attacks of mildew if allowed to get too dry at the root in summer. Where it can be procured, a thin coat of half rotten leaves should be used for mulching, and in the case of trees inclined to weakness a portion of good rotten dung might be mixed with the leaf soil, and would be of great service in strengthening the trees. Do not give up the war upon the insects until they are entirely eradicated, and give timely attention to the stopping of gross shoots, &c., on pyramidal and other trees which it is desired to keep in form. Those who are fortunate enough to have a heavier crop of fruit set than the trees are likely to bring to perfection should thin at once, in order to secure fine fruit with a prospect of a crop next season. See that there is plenty of Peas planted for furnishing a late autumn supply, and also attend to keeping up a succession of French Beans, Spinach, and all kinds of salad. Where it can be done, Lettuces should be planted on a north border at this season, as it is difficult without more watering than can always be afforded to have them crisp and tender in hot weather, unless they are in a cool situation. Sow Onions for drawing young for salad; also Endive for autumn use, and see that there is plenty of Parsley provided to furnish a supply in winter. Keep the soil loose and open among all growing crops, by means of frequent stirrings.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 12, 1856, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind.	Rain.
Friday 6	4	30.253	30.189	66	46	56.0	58	54	N.	.00
Satur. 7	5	30.282	30.218	73	45	59.0	58	54	S.W.	.60
Sunday 8	6	30.203	30.178	72	52	62.0	59	54	S.W.	.00
Mon. 9	7	30.128	30.062	75	49	62.0	61	54	S.W	.60
Tues. 10	8	30.088	30.064	76	37	56.5	62	54½	N.E.	.00
Wed. 11	9	30.066	30.004	76	39	57.5	62	55	S.	.00
Thurs. 12	10	29.920	29.854	66	55	60.5	63	55½	S.W.	.12
Average .		30.133	30.081	72.0	46.1	59.0	60.4	54.4		.12

June 6—Fine, with low white clouds; very dry; slight haze.
— 7—Fine throughout.
— 8—Cloudy and fine.
— 9—Overcast; very fine; cloudy.
— 10—Very fine throughout; cold at night.
— 11—Clear and fine; cloudless and exceedingly fine.
— 12—Very fine; lightly overcast; cloudy; rain at night.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending June 21, 1856.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	72.3	49.9	61.1	14	0.38 in.	1	4	5	2	4	7	3	4
Mon. 16	71.8	49.4	60.6	13	0.46	2	3	5	1	8	6	3	2
Tues. 17	72.5	49.4	60.9	17	0.80	1	4	2	—	6	8	4	5
Wed. 18	72.2	50.9	61.5	16	0.50	2	2	2	2	5	6	9	2
Thurs. 19	70.5	48.7	59.6	14	0.37	2	3	1	2	2	4	10	6
Friday 20	72.0	50.0	61.0	12	0.21	2	4	1	1	6	8	7	1
Satur. 21	73.7	50.6	62.1	13	0.68	2	4	3	2	1	14	4	—

The highest temperature during the above period occurred on the 19th, 1846—therm. 93 deg.; and the lowest on the 15th, 1850, and 20th, 1855—therm. 30 deg.

Notices to Correspondents.

Books: *J R.* Several of the Nurserymen's Catalogues now convey the information you want. We cannot undertake to name them, for obvious reasons. As to grafting seeds our opinions are what they have always been.—*L L.* Neill's Fruit, Flower, and Kitchen Garden may possibly answer your purpose ‡

Diseases: *W S.* Your Geraniums appear to have been alternately quite dry and waterlogged. The Cucumbers are affected with the disease which is so prevalent. The best cultivation cannot always master it, but with bad cultivation success is very precarious.—*Constant Reader.* There is no "Oidium" about your Vine leaves. It is of no use, therefore, applying sulphur. They are chlorotized, either from old-standing disease or from the present condition of the roots. If you have reason to suspect that the latter is the case, you must apply your remedy there. Your leaves will not stand much sun. They seem indeed to have been partially caught by the sun already.—*H B.* Your leaves are affected by a curious fungus "Ascomyces," of which an account will be given in the Vegetable Pathology. It looks at first like the Curl, but it is quite distinct. You must apply sulphur.—*Y G S.* The disease which attacks your Grapes has been noticed several times in the *Gardeners' Chronicle* the last two or three years. From all the information which we have been able to collect on the subject, it appears that it arises from the roots not being well drained, too deeply planted, or some other unfavourable circumstance in their condition. There is no fungus about them.—*W W.* The Apple branch which has suffered from a shot is very interesting. You would add to the obligation if you could send a vertical section, including the bark, as only half the history is told by the turned specimen. The same tree might possibly on careful inspection afford such an example. *M. J. B.*

Mealy Bug: *Sub.* An excellent article on this subject has been only just given at p. 341.

Melons: *Young Gardener.* Melons early in the season require setting. If that has been done then the dropping off of the young fruit may be attributed to over watering or want of heat, or both combined.‡

Mowing: *E P N.* For so small an amount of work the smallest sort will be best. But we think you will find, after the experience of a year, that the scythe is cheapest. Concerning the Crystal Palace shows, apply to the Secretary there.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Halifax.* Embothrium lanceolatum and coccineum are different species. Embothrium ferrugineum is the same as Lomatia ferruginea, and the latter is the correct name.—*A Perkins.* It is very like Acacia longifolia, and is certainly from New Holland, not New Zealand.—*Ramsley.* 1, Billardiera scandens from New Holland; 2, some wretched Spermacoce.—*C Howie.* It may be Jurinea alata, but it looks more like J. depressa.—*H J Canty.* A Mormodes of some sort, not determinable from a single flower, and Epidendrum odoratissimum.—*Joseph Butler.* Carex paniculata, a common coarse-growing Sedge.

Notice to Quit: *Beginner.* We are not attorneys. You had better apply to one.‡

Veronica: *Devonian.* Your hybrid was much faded when it reached us; but it is we fear too pale to be a favourite.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Nitro-Phosphate or Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

LONDON MANURE COMPANY
(Established 1840).
The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.
THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—
Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).
NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.
Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.
Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

ANALYTICAL REPORT (CORRECTED).
THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—
"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."
Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.
Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.
Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.
SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

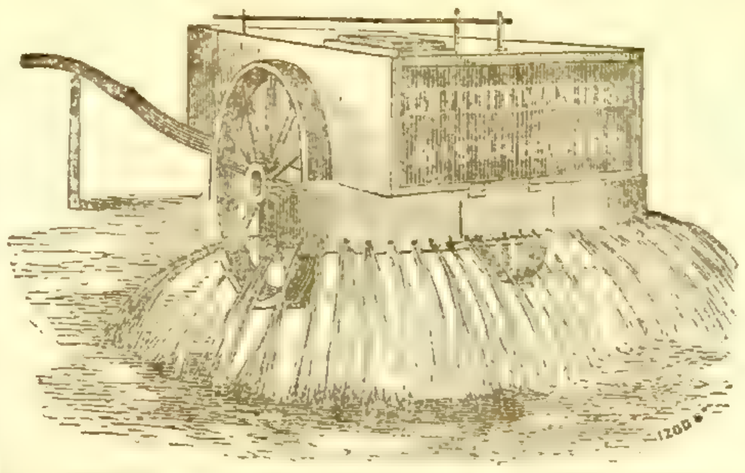
THE CONSERVATIVE LAND SOCIETY.—The 15th Quarterly General Meeting will be held at Exeter Hall on Thursday, the 26th of June, at 3 o'clock, Viscount Ranelagh in the Chair. The Thirty-fifth Public Drawing for Rights of Choice on the Society's Estates will take place, when 100 Share Numbers will be drawn, and 50 Share Numbers added to the Seniority List by date of Membership.
CHARLES LEWIS GRUNEISEN, Secretary.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

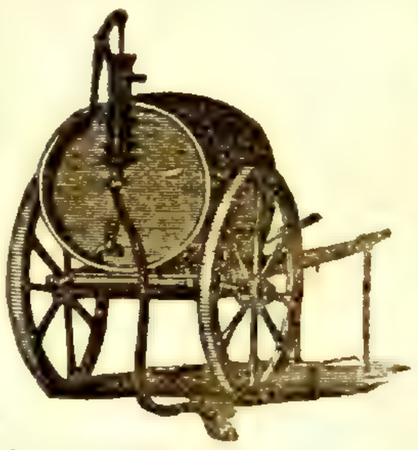
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

LIQUID MANURE.



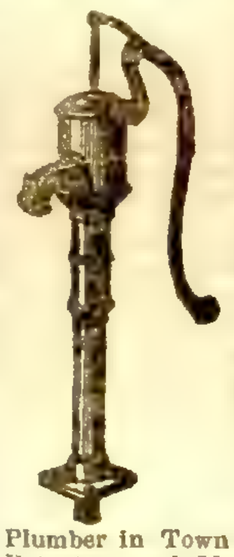
PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*
1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.
1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

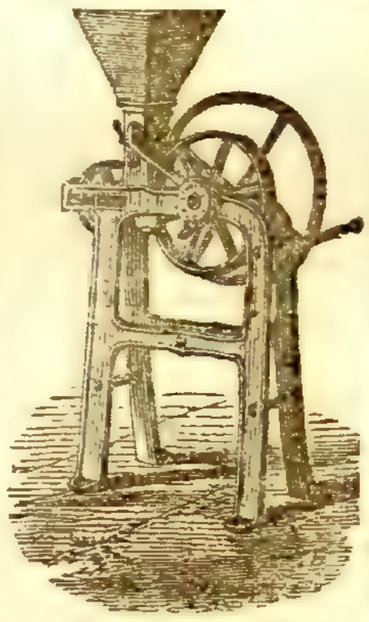
WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.



Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „ long	3 „ 3 „		1 14 0
3 „ ditto	3 „ 6 „		2 8 0
3½ „ ditto	3 „ 6 „		2 12 0
4 „ ditto	3 „ 6 „		3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

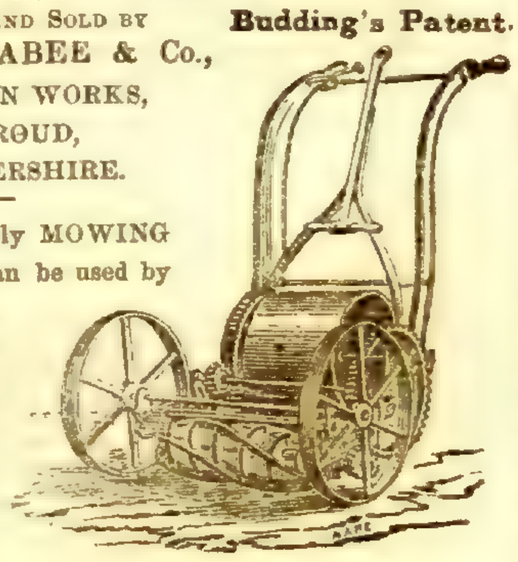
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

OAT-CRUSHING AND BEAN-SPLITTING MILL
(TURNER'S No. 5).
This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15*s.* 6*d.*
Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

IMPROVED LAWN MOWING MACHINES.
MANUFACTURED AND SOLD BY **Budding's Patent.**
JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting		16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„	22 ditto	... 6	0	0
Pony Machine (or Donkey)	„	26 ditto	... 8	0	0
Horse Machine	„	28 ditto	... 11	0	0
Ditto	„	36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

PAXTON WORKS, SHEFFIELD.
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

SLATE WORKS, ISLEWORTH, MIDDLESEX.
EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted
Priced Lists of Plant Tubs and Boxes forwarded on application.

CORN CRUSHERS AND CHAFF CUTTERS.—The progress of mechanical inventions has of late years been distinguished by the advancement of science in the more judicious mode of feeding cattle, instead of the hitherto erroneous and wasteful system of using unprepared and indigestible food as an unvarying round of diet in the keeping of stock. The general practice of the country is so far behind, that apart from the value of the manure, a very large margin of profit is annually sacrificed. Under a proper management, kibbling corn, the cutting of hay and straw, are indispensable, effecting a saving of 50*l.* per cent., whether used in a raw state or steamed. Oat and Wheat Straw is recommended, when cut, to be mixed with Oats for "draught horses in particular," and the same extent of saving is effected, if given to carriage and riding horses. Bruised Corn is well known to be more nutritious, and far more economical than the grain in its natural state, while it puts the horse into finer condition for work, and imparts to the frame new energy, and unwonted power to resist fatigue. It is of vital importance to the Agricultural interest, to increase the productiveness of the soil, and it is of no less import to apply any method which may best economise his provender.
RICHMOND & CHANDLER'S unprecedented celebrity for their improved CHAFF MACHINES and CORN CRUSHERS, achievable only by intrinsic merit, has secured for them the highest character in the trade, together with the confidence of the public, whether as regards true economy or the unapproachable finish and sterling quality which characterise all their productions, and render them worthy of the reputation of a Manchester manufacturer. The most distinguished authorities in all civilised countries report their unqualified satisfaction with the highly beneficial effects resulting from the use of these justly celebrated Machines, and with the established fact of their not being subject to any of the contingencies inseparable from other machines, they are calculated to meet with general approval in the present advancing state of agriculture.
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The next Session will begin August 11th. The annual fees for boarders vary from 55 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Exhibition of Stock, Implements, Poultry, &c., will take place on THURSDAY, November 27th, at Gloucester. Premiums to the amount of 412*l.* will be offered for Cattle, Sheep, Pigs, and Horses, and 120*l.* for Poultry. Members only can compete for the Premiums for Stock, but the Poultry Premiums are open to Public competition.—For further particulars apply to EDWARD TRINDER, Secretary.

YORKSHIRE AGRICULTURAL SOCIETY.—The following Prizes are offered for ESSAYS and REPORTS:—
ON THE MANAGEMENT OF GRASS LAND, 10*l.*
ON ANBURY, OR FINGERS AND TOES IN TURNIPS, 10*l.*
The Essays must be sent in before the 6th of AUGUST, 1856, and particulars of competition may be obtained of the Secretary.
Advertisements for insertion in the forthcoming Journal of the Society (which will be shortly published), must be sent to the printer, Mr. Coultas, York.
Kirk Deighton, Wetherby. JOHN HANNAM, Secretary.

The Agricultural Gazette.
SATURDAY, JUNE 14, 1856.

WE can obtain room for a report of the discussion at the Central Farmers' Club last week, ON BREAKING UP GRASS LAND, only by condensing the addresses of the several speakers here. Mr. WOOD, of Ockley, Sussex, the President of the Club, who read the opening paper, commenced by enumerating the exceptions which were universally maintained, notwithstanding the prevalence of the idea that land would pay better if broken out of pasture. That these exceptions are numerous enough the following list will testify. Mr. WOOD said:—
"If land is conveniently situated for receiving the drainage of a town, or for being turned into a water meadow; if it be so steep and hilly as to make it difficult or expensive to cultivate; or if it be on chalk or other rock, with so little depth of mould as to render

it unfit for the production of root crops or corn, in all such cases it would be undoubtedly wrong to bring it into cultivation. Again, when Grass is specially required, as for milch cows, to a certain extent, in the neighbourhood of towns; and for meadow hay, as in the neighbourhood of London; or where, from the height or exposed position of the land, the climate is of such a nature that Wheat cannot in ordinary seasons come to perfection, unless this objection is counterbalanced by extraordinary applicability of the land, for the production of Swede Turnips or other crops, these cases I regard as exceptional, and as not bearing on the subjects immediately before us, and probably there may be several others of like description, though it would be profitless for me to enumerate them even if they occurred to me."

That there is a large remainder of our pasture lands to which the question for discussion fairly applied no one can deny, and as to all of this Mr. WOOD took it for granted that the owner was in favour of continuing it in Grass, while the occupier was for breaking it up.

This difference of opinion is easily accounted for. The breaking-up of Grass land endangers the landlord's chances of rent, from the tenant not farming the land so as to keep it in a condition to command the same rent as it had previously done in Grass, and which by good management and liberal manuring may be done. In fact, he runs the risk of having the land thrown on his hands, both from the tenant allowing it to deteriorate, and also from the circumstance that there is more competition for Grass land than for arable, because the latter not only requires a larger amount of capital to do it well, but also requires that capital to be invested for a much greater length of time without any return upon it; whereas a tenant can always for several years obtain good crops from fresh broken-up land, without being at much expense for manuring it, and consequently he incurs no risk of loss from hard-cropping, at all events for the first seven years of his occupation.

The question, however, has to be decided on a comparison of receipts and payments under both systems of management, and this Mr. WOOD gives in the following terms:—

"For grazing stock upon the second or middling stamp of land in my own district, paying, say 35*s.* for rent, tithes, and taxes, I should estimate the produce, thus,—

				£	s.	d.
Keep of a two-yearling steer from May 1 to Sept. 17, 20 weeks, at 2*s.* 6*d.*				2	10	0
Ditto of 5 sheep through the winter at 6*s.*				1	10	0
				4	0	0
Costs and expenses:—						
Rent, tithes, and taxes	£1	15	0			
Spreading droppings, fencing, and weeding, &c.	0	3	0			
	£1	18	0			
FOR MAKING HAY.						
1½ tons, at 4*l.*	£5	0	0			
After Grass	1	10	0			
				6	10	0
Cost and expenses:—						
Mowing and making	£1	0	0			
Manure, &c.	1	15	0			
Rent, tithes, and taxes	1	15	0			
	£4	10	0			
Total produce				10	10	0
Total costs				6	8	0
Two crops				4	2	0
Total profits per annum				£2	1	0

"I therefore make the total profits on an acre of Grass land to amount to 2*l.* 1*s.* to pay for time, skill, judgment, capital, and risks. I will now proceed to estimate the profit on the same stamp of land in cultivation, taking the system of rotation and management that I usually adopt myself, viz., a six-shift course, with alternate white and green crops, and taking Wheat twice in six years, though I must remark that when Wheat is likely to sell as high as has lately been the case, I have substituted Wheat for Oats, and grown it every other year. My rotation of crops is as follows:—1st year, winter Beans; 2d ditto, Wheat; 3d ditto, Tares or Mangel Wurzel; 4th, ditto, Oats; 5th ditto, seeds; 6th ditto, Wheat."

We do not give the calculation in detail; it may suffice to quote the results on the whole six years of cropping, which are as follows:—

Crop.	Costs and expenses. £	s.	d.	Produce. £	s.	d.
Beans, first year	8	14	0	7	7	0
Wheat, second year	6	0	3	12	0	0
Tares or Mangel, third year	9	8	8	7	10	0
Oats, fourth year	3	10	6	9	16	0
Seeds, fifth year	3	2	0	8	10	0
Wheat, sixth year	5	9	0	15	0	0
Total	36	4	5	60	3	0
Deduct		—		36	4	5
Profit on six years		—		23	18	7
This gives as the annual average profit on land cultivated				3	19	9

On comparison of this with the estimated profit on Grass lands (both of them a great deal too high, according to ordinary and average experience) we have a difference of 1*l.* 18*s.* 9*d.* per acre in favour of arable land, and on this Mr. WOOD comes to the conclusion that it is *not* advisable to break up pasture lands. The difference of profit is not sufficient to pay for the increased landlord's capital in extra buildings and the increased tenant's capital in cultivation. The conclusion at which Mr. WOOD arrives may be perfectly correct, and probably is so over a great extent of Grass lands in this country; but the figures which lead him to it certainly do not lead us to any such result. Ten shillings an acre extra rent will well pay for extra buildings, and 28*s.* extra profit is ample payment for the tenant's extra capital. Mr. WOOD's paper concluded with remarks on the possibility of dispensing with hay and Grass in the feeding of cows and cattle, and on that kind of green land which would pay best to bring under the plough.

The subsequent discussion elicited the general opinion that land worth 25*s.* or even 20*s.* an acre as pasture should not be disturbed, Mr. PAYNE, however, contending that when land was worth less than the larger sum per acre it became a question whether it ought not to be broken up. We conclude with an extract from his address upon the subject:—

He lived in a neighbourhood with a large proprietary, and where the breaking up of inferior Grass land had been carried to a great extent. In a case in which 100 acres of pasture was broken up, on a cold land farm of 300 acres, the land having been thoroughly drained to begin with, the tenant more than doubled his produce. Taking into account the straw which the land newly broken up produced for six or seven years afterwards, without extraneous assistance, the breaking up of Grass land materially benefitted the land previously in arable, and which had perhaps not grown sufficient to manure itself before. Happily they could now obtain artificial manures, but if they confined themselves to the produce of the farm, nothing could be more beneficial to the soil than the tenant's breaking up inferior descriptions of Grass land. One result was, that the tenant was enabled to grow a much larger quantity of Clover. Farms thus treated had maintained one-third more sheep than they did before, and it was, in his opinion, a national benefit to break up inferior pastures. But before allowing the tenant to break up a large quantity, he wou'd ascertain whether he had sufficient capital to carry out the work in the best manner; and having satisfied himself on that head, he should entertain no doubt as to the success of the process. He should be sorry if proprietors thought that all that farmers wanted was to get possession of their land, and stick the plough in it (laughter). He wanted to convince landlords that it would be a great benefit to them to have inferior pasture lands broken up. The land of which he had previously spoken was a tenacious clay in a cold district. The first step towards making such land useful was thorough drainage. When that was accomplished, there were two modes in which the land might be brought into tillage. One to plough in the turf, another to pare and burn it. In his opinion the latter mode was the best, because it exterminated all the insects which were so prejudicial to farming, whilst where the turf had been ploughed in, for four or five years after the farmer was pestered with the wireworm and other insects. He was confident too that—in the first five or six years, at all events—the return would be greater if the turf had been pared and burned, than if it had been ploughed in. The ashes produced by burning worked down into the soil, and very much improved its condition. Three or four years after land was converted into tillage, he had seen ashes ploughed up, not less than a foot below the surface; and it was his opinion that the presence of ashes in the soil materially assisted the growth of the crops. He was rather surprised to hear Mr. WOOD raise a question as to the expenses of labour. Every one he knew who had broken up land of the description mentioned held that he could make much more of the farm, in consequence, than he did before; and he contended that, considering the artificial manures which were now within their reach, the cheaper corn was, the more they ought to grow.

OF all the privileges conferred by the possession of land there are none more important than the rights appertaining to property in water, indeed the value of land itself depends to a much greater extent than might at first be thought on the available means of water supply. So true is this that in this country every stream, however small, is a property of importance, and consequently its pollution or unfair abstraction is rigidly guarded against by legal enactments, and hence, therefore, opinions are sought and evidence procured to guide verdicts of juries, decisions of arbitrators, or votes in Parliament.

Now, as it has before been shown that water supply is a matter entirely depending upon geological details, it follows that in all questions affecting it guidance should be sought by not merely a surface examination but a careful investigation of facts often at a distance from the point in dispute, but which facts can only be supplied by a study of the structure of the earth's crust. And we cannot better exemplify the truly practical nature of the science of geology than by reviewing the facts of a parliamentary inquiry relative to the water supply of a large town, in a case where the rights of water as affecting land and the structure of the substrata as affecting the argument come out in strong relief.

The borough of Cheltenham is for the most part situate on deep sand beds reposing in undulations of lias clay, a condition which ensured the storing up of every drop of water which fell in the shape of rain, as it would percolate through the porous sand and be retained in the impervious clay, thus affording a supply of a good and wholesome water for the accommodation of a limited population. We here use the term "limited," as the wells sunk into this natural reservoir depended for their supply upon the amount of rain and the extent of the sand area, and hence afforded the most simple example of what is meant by a spring.

Now, as the population increased the drain upon this source of supply necessarily lowered its level, which eventuated in lowering the wells until many of them were even sunk into the clay itself, and as this clay is highly charged with chemical ingredients, such as salt, lime, and magnesia, the deeper the wells were made in it the greater the amount of impurities with which the water became charged. In this position of the case powers were sought by a water company to divert some small streams* running from the western slopes of the Cotteswold hills, which rise high to the east of the town, into a reservoir for the use of the inhabitants, and as this from the smallness of the streams did not so materially interfere with the rights in that water beyond what a reasonable compensation would meet, the powers sought were obtained. Of late years, however, the supply from this source has been found inadequate to the increasing wants of the inhabitants, added to the increased demand for water required by the Board of Health, and in this state of affairs Parliament was asked to sanction the diversion of a powerful spring, the source of one of the largest tributaries of the Thames, and therefore rising from the eastern slope of the Cotteswolds. To this, however, the landlords, farmers, and occupiers of lands on the stream to which the spring gave rise raised an opposition founded on the following facts:—

The stream turned a large number of mills, the first of which was within a couple of hundred yards from its source.

On its banks were some elegant seats of country gentlemen, to the beauty, fertility, and residential importance of which the stream in question was absolutely necessary.

The agricultural interest in general was much concerned by the river flats being occupied by irrigated meadows, a point of great importance, as from the elevation and aridity of the stony Cotteswolds the sheep farmers in an elevated and exposed and consequently late growing country were, in the Grass of the irrigated meadows, supplied with that early spring feed which enabled them to compete with their neighbours in more fortunate circumstances of land and climate, and thus it was argued that the whole of the hill district, the heights as well as the intervening valleys, would suffer from the abstraction of their water.

These arguments, which were foreseen by the company's engineer, were proposed to be met in the following ingenious manner, which would indeed have proved all that could have been desired, but that the *geological facts of the case* showed that it could not be realised. "It is true," said the engineer, "we wish to take from the source of your river a daily supply of one million of gallons of your water, but this shall be done in such a manner that you will be at no loss, but rather be benefited thereby."

Now the plan proposed was that of a compensation reservoir, which may be briefly explained as follows:—At a convenient spot a little way down the stream it was proposed to make a large reservoir to be supplied by the water of the stream, and when this was filled the withdrawal of the required million gallons for the daily use of the town from a spring yielding two million of gallons should commence; and now there comes in the compensation system, as in seasons of a short supply of water, or in times of drought, while the million gallons a day were being taken from the spring, a million gallons were to be daily supplied from the compensation reservoir for the requirements of the dwellers down the stream. This arrangement, it was contended, would ensure an equable flow of water in the river and so nicely balance demand with regulated supply that a benefit was to accrue rather than an injury. This proposition it will be seen was founded on the assumption that the district under review was subject to a periodical glut of water, but the geological evidence founded on a knowledge of the structure of the strata was as follows:—

The water gathering beds are the porous strata of the oolitic limestone, into which rain percolates as rapidly as it falls.

These rocks may therefore be considered as forming the drainage area of their district.

As these oolitic rocks rest upon the impervious clays of the lias, the latter rock affords the watershed for the springs.

Now, as the percolation through porous rocks of any thickness must be gradual, so springs from it are maintained at a tolerably equable rate, and a large superabundance of water cannot be at any time expected. On the contrary, where rain falls directly on impervious clays sudden floods are the result, porous strata thus giving rise to springs which are tolerably constant in their flow, impervious strata causing floods and inundations, in

* These streams issue from the top of the lias which creeps high up in the hills, and being capped by the porous oolitic freestone, the latter is the collecting ground of the rain—thus made spring water.

which case such water can be stored for future use, as under such circumstances drought is certain to supervene if dry weather be of long continuance.

Now, in the case of the Cotteswolds, it can never be said that we have too much water, as any temporary increase is gladly made use of for the purposes of irrigation, and therefore the geological structure of the country is opposed to the theory of compensation reservoirs—a system which in a clay district might fully answer the intended purpose—and so upon these grounds the application failed.

As these and questions of a like nature are continually arising for the consideration of the owners and occupiers of land, it follows that the science which enables one to deal with them in a proper manner must be one of an eminently practical nature, and as such it gives us great pleasure to find that geology forms a prominent feature in the educational schemes of all places for the instruction of those who are to have to do with land; thus lectures in the class room, and such practical field operations as making maps of different formations or sections of strata occupy much of the attention of properly educated agricultural students, whilst in the Government School of Mines the principles of a science are taught, of which if some of our plain farmers only knew the advantages, they would at once consider it as altogether removed from the regions of science on account of being so eminently practical.

DRYING GRAIN AND HAY CROPS, &c., BY HOT AIR.

THE cloud which hangs over America, the inundations in France, the aspect of the corn market in this country, have led me to reflect on the evils of a deficient harvest in any, but especially in the present, year. No greater misfortune can occur in a financial, social, or industrial point of view. A deficient harvest may arise from the seasons or from imperfect agriculture—or a combination of both. As respects agriculture, it is no doubt in a more improved state than at any former period in these kingdoms, although far from what it may be. My conviction is that agriculture is yet only in its infancy, and that the produce of the soil may be augmented, profitably, to an extent little yet thought of. As respects the seasons, they depend on a power higher than that of man; but I cannot help humbly thinking that the energy, skill, and forethought of man may do much more than has yet been accomplished, to guard against some of their bad effects on the all important produce of the earth, as respects the food of man and his various wants.

As respects grain crops and hay, I have long been impressed by the idea that some artificial means might be employed to counteract the effects of a wet season, whether in harvesting grain crops or hay, but I never could see my way to the practical accomplishment of this end. A recent notice in your Paper has arrested my attention and suggested the application of an ingenious invention to these purposes. In your Paper of the 17th of May, a description is given of a simple and economical means of applying heat to garden structures. For these purposes a moist heat is required, for the purposes I contemplate a dry heat would be required, and can, even more readily, be had. My idea is that grain crops and hay may be subjected, under cover, to the circulation of currents of dry heated air, and that very rapidly all moisture may be removed from them, rendering it at once possible to dispose of them in safety to await the demands of consumption. The invention to which I allude, and by which I trust these ends may be accomplished, is that of Mr. Hazard which, by a simple and economical process, generates and circulates currents of pure air, heated to such a regulated temperature as may be required, and which can be made to fill, and circulate in, any given inclosed space. I will assume that a barn of some size shall be fitted with an apparatus of this kind, and that the crop of a Wheat-field or hay-field shall be brought into it, in successive quantities. The surplus moisture can at once be dispelled and driven off. Thus the process of the best harvest can at once be artificially performed, and thus there need be no more damaged grain or hay from the fields, the produce of which is so treated. My belief is that it would be an economical process (I forbear to go into detail on that point), and that its results would amply compensate its expenses, but fair trials and experience could alone conclusively decide that point.

One result, however, is clear, that the quality of the produce so treated, with good management (which must be assumed in all improved systems), would be the highest. Pure, though heated air, would alone be used; no bad taste could be imparted, and as respects grain, it is clear that what is called damp and soft grain in the early winter need no longer exist, and that the newest Wheat would at once be rendered hard and fit to come into consumption; the exact degree of dryness might be regulated by the intentions of the grower, whether to sell or to keep. There would in the process be no similar effect to that of "kiln-drying," by which a taste is imparted; it would be a mere dislodgement of water, the degree to which the process was carried being completely under control. In the same way as regards hay, my belief is that its quality would be the finest, its colour and its juices would be completely preserved, the surplus moisture would alone be driven off.

It cannot be expected that such a process—the mere mention of which will be startling to many—could be adopted except by degrees; but if it be not suggested or attempted, it can never even be tried; and such is, I hope, my justification in desiring to make known the scheme and system which have occurred to me to be practicable and likely to be advantageous. If proved to succeed, it would soon spread; there would be no obstacle on the ground of expenditure, which would be moderate compared to the object. It would be applicable in the first instance to farms of some size, and where a steam engine exists in connexion with the barn, the facility would be the greatest for the experiment or the practice.

I have seen the system applied to the seasoning of wood in the simplest manner, and with beautiful and perfect success. I am informed that it is applied with great effect to the drying of the wetted worsted yarn preparatory to weaving, in which the quantity of water expelled is very great relatively to the substance of the yarn. It has seemed to me impossible not to stretch the imagination to the application of the system to purposes of a far more extended and important character.

My impression is that the same system might be applied to the curing of Oak bark, an operation requiring great vigilance and more skill than is frequently applied to it, the sole desideratum being to expel the surplus moisture and to retain the natural substance and qualities in an uninjured state—but I forbear to say more on that separate subject. I have intentionally restricted my statement to generalities, which can readily be followed by more detailed statements should such come to be required. Many difficulties and objections will no doubt be raised and entertained, and some of them I already anticipate, but as yet I see none which may not be obviated and removed. If the project has weight it will no doubt be worked out, as many have before it which were at first thought chimerical—and as this will no doubt be by many persons, those especially who are disposed rather to stand still than to go forward. My opinion is that this is the age in which we ought to go forward—not less in rural than in other affairs. *T. F. Kennedy, London, June 8, 1856.*

THE PARIS AGRICULTURAL EXHIBITION.

THE award of prizes was at last officially made known on Friday morning by fixing the plates to the stalls of the *fortunate* animals; we purposely use the word *fortunate*, for in many instances success seems to have been rather the result of luck than the award of merit. As it is, some of our best animals in the Palace are either passed by in silent contempt or ridiculously stigmatised with a *mention honorable*, and that, when competing in classes where there are so many as eight prizes given.

It is always a most invidious task to find fault with the decision of judges, it looks so much like mere selfish disappointment of our own interests or predilections, that it is with the greatest reluctance we venture to make a few remarks on this subject; but when we see such breeders as Lord Faversham, Mr. Douglas, Mr. Stratton, and some others discarded altogether, and their animals, some of which have gained prizes in our own "All England" and local shows when competing against our best breeders, passed over, we have reason to express our regret that an exhibition so remarkable and so important for its probable influence on the progress of agriculture on the continent, should have been marred by so flippant an exclusion as that of which we complain.

The reason alleged is over-fattening in the animals; it is the old vexed question rehashed and served again. We must confess at once that we have this on rumour alone, and although we have it on a most reliable authority, yet we should have abstained from making any remarks on a mere surmise, had we anticipated anything like an explanation from the judges; but as they have not thought fit to give any reason for their deeds, we feel at liberty to make any remarks we choose on the strange ostracism with which they have visited some of the best animals in the Palace.

In the programme distributed in England, there was a small paragraph stating that animals considered too fat by the judges should be disqualified, or something to that effect. We suppose it was with the authority of that warning that the French judges exercised their superior judgment, and ventured to decide the exact point where fleshy quality ended, and over-fattening commenced. The reason alleged for the objection to high condition in breeding animals is that it makes them barren, and this is at once taken for granted, without stopping to inquire whether this rule admits of no exception. But experience tells us that there are a great number of good animals—in fact, we may say all good animals, for we seldom saw a good animal that was not in good condition—which notwithstanding their high condition are regular breeders, whilst on the other hand, we daily see animals poor in every respect, poor in condition, wretched in quality, defective in every point, and withal utterly barren. There are others which, when in a low condition, proved barren, and which when put upon a more nutritious diet and made actually fat, were made to breed.

We do not mean to say that a very high condition does not in some instances interfere with breeding, but we contend that where a rule admits of so many exceptions it ought not to sway the judgment of those who have to decide the respective merits of animals in so absolute a manner. Propensity to fatten is always concomitant with symmetry and other good qualities in an animal, it is in itself a most important point of excellence, and constitutes one of the principal merits of an improved breed, because it is from that cause that precocity of development arises; why then blindly condemn the demonstration of that precious quality, when it can be proved that it has not been attended with the alleged evil of barrenness? It seems to us that the very goal of perfection at which breeders should arrive, is that very combination of high condition and fruitful breeding, which in several instances in this exhibition has been visited with ignominious condemnation.

Before we speak of the successful competitors, let us at once record an incident which reflects great honour on the English exhibitors. Our readers are aware of the frightful calamity that has just scattered ruin, desolation, and death in various parts of France. Never in the memory of living men had inundations been so disastrous in their effects, and made so many victims. With the view of alleviating those evils and helping the thousands of wretched inhabitants whose property and homes have been swept away by the pitiless tide, Mr. Jonas Webb, who is ever ready with a good idea, seconded by Mr. Towneley, Lord Faversham, Lord Hill, Lord Clancarty, Lord Talbot, &c., in fact, nearly all the English, Irish, and Scotch exhibitors, has commenced a subscription list, which we hope will reach an amount worthy of English generosity. This has already produced the best possible effect among the French, for nothing tends more to cement union and mutual esteem than sympathetic deeds of charity.

On Thursday last a grand banquet was given by the French judges and the members of the agricultural press, to the foreign judges and other distinguished agriculturists. Some four or five speeches were delivered, the first and last of which were alone remarkable. Mr. Evelyn Denison spoke in remarkably good French, and his beautiful sentiments were most sincerely and warmly cheered; the last speech was delivered by Monsieur Léonce de Lavergne, so well known in England. Useless to say the speech of that gentleman was worthy of his fame, and elicited the greatest applause.

On Monday night Mr. Jonas Webb gave a dinner to several of his friends to celebrate his success as an exhibitor; about 20 sat down to a sumptuous banquet, among whom were several distinguished men of France and Belgium. The Scotch also have had several *fêtes* under the able management of Mr. Maxwell, whose exertions generally on behalf of the Scotch exhibitors certainly deserve the highest praise.

On Monday the prizes were given in one end of the galleries, which had been tastefully decorated, and turned into a spacious hall. Owing to the great number of prizes to be distributed, only those who had gained gold medals, that is those who had taken the first prize, were admitted into the hall, the others are to receive their silver and bronze medals in one of the offices attached to the building.

Originally only four prizes were offered in each class; but when the return of entries was made, and the number of the animals ascertained, a greater number were given in proportion with the quantity of animals exhibited. Thus the short-horns had 8 prizes in the 2 bull classes, and 7 in the 2 cow and heifer classes respectively. Some of the Scotch classes had so many as 11 prizes to compete for. In the short-horns the principal prize-takers were Mr. Charles Towneley, who had the first in every class in which he exhibited. 1st prize for aged bulls, for Master Butterfly; 1st prize for heifers, and 1st prize for cows. Next to him comes Mr. Ambler, who takes the 1st prize for young bulls and the 3d for heifers, Lord Monk taking the 2d. The 3d is given to Mr. Oliver for a heifer bred by Mr. Douglas, of Athelstane, whose animals, notwithstanding their acknowledged merits, were disqualified for being too fat, although there were others in quite as high a condition, to which prizes were awarded. By a strange anomaly Lord Faversham's bull and Mr. Douglas's animals had a *mention honorable*, that is, commended. It is difficult to understand such an act of inconsistency, for either those animals were rejected as being too fat or they were not—if disqualified from competing for prizes, why should they be commended?

In the cow class Mr. Charles Towneley was awarded the 1st prize, the 2d to Mr. Douglas, the 3d to Captain Ball, the 4th to Lord Monk.

In the Herefords class only four animals were exhibited, and had to compete for six prizes. Mr. Fisher Hobbs, who out of the four animals had three to his name, gained the 1st prize for a very good bull and the 2d for a very good heifer, and we must say that notwithstanding the small numbers of the animals exhibited, Mr. Hobbs's two bulls and heifer were very good specimens of that breed, and would have gained similar distinction had there been even a greater competition.

In the Devons Mr. Turner as usual kept his ground, carrying the 1st prize for bulls and cows; but this class, like the Herefords, was but imperfectly represented, as far as numbers went at all events.

In the sheep classes there were many very good animals exhibited; Messrs. Landay and Turner in the Leicesters, Messrs. Jonas Webb, H. S. Hayward, and Rigden in the Southdowns, and Mr. Beale Brown in the Cotswolds, carrying the principal honours. Mr.

Druce was also awarded prizes for crossed breeds of Down-Cotswold, which demonstrated in a very remarkable manner the excellent results of that crossing.

In the pig classes, Captain Gunter's breed was most conspicuous for its success, the principal prizes being carried by animals bred by him.

Having thus given a short summary of the prizes awarded to Englishmen, we will now proceed to give an idea of the magnitude of this exhibition by recording the numbers of the animals exhibited in each class, both English and foreign.

The short-horn breed was represented by 140 animals, bred in England; these were divided into four classes—yearling bulls and heifers, aged bulls and cows; to these 30 prizes were offered, 8 for each class of the males, and 7 for each class of the females. In the class of young bulls there were 25 animals, in the heifer class 27; the old bulls numbered 36, and the cows 43. Besides these there were other short-horns bred in France, to which prizes were also awarded, and which competed separately among themselves. Of these there were 55 exhibited, making a total of nearly 200 short-horns in the exhibition. There was also a class of half-bred animals, the result of the crossing between foreign breeds with short-horn or other bulls; to these 21 prizes were given, and out of that number no less than 19 were carried by animals crossed from short-horns.

The Scotch breeds were most numerously and beautifully represented. There were in the Ayrshire class 18 bulls and 60 heifers and cows; to these 19 prizes were awarded, 8 for the males and 11 for the females. Besides these 78 Ayrshires there were 17 bred in France, forming a distinct class, making a total of 95 animals of that breed. The black polled Angus numbered above 40 head, to which 13 prizes were offered; the West Highlands 30 head, competing for 11 prizes. The Irish Kerry breed had 23 head, to which 8 prizes were offered. Altogether the United Kingdom, including the Channel Islands, contributed about 400 head of cattle.

The prizes for Ayrshires are taken by Mr. Kirkwood, of Killermont, Mr. Evans, of Carnock, Mr. Stewart, of Strathane, near Auchenberger, Mr. Porteous, Mons. E. Bonnemant, Mr. Rennie, and Mr. A. Dunlop for bulls; and Sir M. Stewart, Mr. Gardiner, Mr. Porteous, and Mr. Dunlop for cows. Several of the animals have been sold at prices varying from 50*l.* to 100*l.*

The prizes for Polled breeds are taken by Messrs. M'Combie, Walker, Watson, and the Earl of Southesk. Some of these, too, have been sold at high prices.

The Dutch breed had 40 head; the various Swiss tribes of cattle amounted to 228 animals, pretty equally divided among the Friburg, Bernese, Schwitz, Eastern Switzerland, and Unterwald. The Tyrolese and Austrian breeds numbered 62 head, and the long-horned Hungarian, Moravian, Gallician, and Bohemian races, about 50. There were besides 4 buffaloes from Hungary; Saxony contributed 12 head, Denmark and Holstein 32.

France, as may well be imagined, exhibited all her breeds to great advantage in point of numbers and merit; the heavy big boned Norman breed mustered 61 head, the beautiful white Charolais about 40; the other breeds, such as the Manielle, the Garonese, Breton, Limousin, Parthenaise, &c. &c., about 100 more, so that reckoning the pure English breeds also exhibited by France, there were about 500 head of French breeds. So the exhibition of cattle consisted on the whole of the extraordinary number of 1300 animals.

The sheep of all races and countries are also very numerous. England exhibited 250 pens; Holland, 24; Austria, 100; Saxony, 28; other foreign states, 18. France exhibited about 200 pens of her own breeds, including also other breeds introduced from foreign countries. So there were altogether about 1200 sheep, 500 of which were exhibited by France, 400 by Great Britain, and the rest by other European countries.

In the pig classes there were 171 animals, 72 of which came from the United Kingdom; out of the 82 contributed by France there are no less than 65 from English breeds.

In the poultry classes there were 474 pens, containing about 1400 birds.

There were 2107 lots of implements of every kind and shape imaginable; 317 were contributed by the United Kingdom, 3 by Australia, 88 came from Belgium, 51 from Denmark, 5 from Holstein, 2 from the Roman States, 7 from the United States, 42 from the Grand Duchy of Luxembourg, 33 from Holland, 1 from Prussia, 5 from Saxony, 36 from Switzerland, 4 from Wurtemburg, and no less than 1430 from France. Among the prizes awarded for implements are those for general-purpose-plough and for heavy-land-plough, to Mr. Howard; for light-soil-plough, to Messrs. Ransome; for heavy and light ploughs, to Mr. Howard; for grubbers, to Mr. Coleman; for clod-crushers, to Mr. Crosskill; for sowing machine and for seed and manure drill, to Mr. Hornsby; for water drill, to Mr. Dray; for dibbling machine, to Mr. Garrett; horse-hoe for corn, to Mr. Howard; winnowing machine, to Mr. Thompson; for horse-rake to Mr. Marychurch; for steam engines to Barrett & Exall and Hornsby & Son; for portable threshing machines, to Ransome & Sons and to Mr. Barrett; for corn-crushers, to Mr. Turner; for root-cutters, Messrs. Ransome; one-horse carts, Mr. Law; for drain-pipe machine, Mr. Whitehead; and for cooking machine, Mr. Stanley.

The agricultural produce numbered 4635 lots; of these 120 only came from England, 480 to various other nations, and 4065 to France.

On Tuesday, after distribution of prizes, to which only those who had gained gold medals were admitted, the distribution of this immense assemblage of animals and things began in earnest, and high time it was; the distemper known in France by the singular name of *cocotte* was prevailing to an alarming extent, scarcely was there an animal that escaped—some were even seriously affected by it, and this made exhibitors the more anxious to remove their cattle.

Towards the close of the Exhibition, the sales became brisk, and although very low figures had to be submitted to in general, yet several animals fetched a good price. We should think that on the whole four-fifths of the English exhibition have remained behind. There was a great demand for Ayrshires which fetched a very high figure, but the short-horns were the favourites. Mr. Ambler's Grand Master was sold for 250*l.* Two animals bred by Jonas Webb and the property of M. R. de la Tréhonnais, were sold even before the opening of the exhibition for 360*l.* Several fetched prices ranging between 80*l.* and 150*l.*, and we should think the average of the sale of short-horns would come to about 60*l.*

At the moment we write these lines the Industrial Palace, but a few days since so full of life, noise, and activity, is all but silent and deserted; most of the stalls are empty, the Swiss cattle bells and the rustic horns of the herdsmen are gone to awake other and widely different echoes, the immense nave is stripped of its gay flowers and green shrubs, and nothing remains but that impression which such a removal must necessarily create. And now from that Palace, where so great a lesson has been taught to European agriculture, men from all parts of the world have gone back to their distant homes, carrying with them new ideas, a better judgment of things, and in many instances elements of improvement in the shape of animals, implements, and seeds, which before were unknown in their respective countries. This is a great practical result which alone would suffice to reward the exertions of those who first conceived, and then so completely and satisfactorily achieved this great undertaking.

Paris, June 12th, 1856.

THE BRITISH FARMER AT THE FRENCH CATTLE SHOW.

'Tis over there in Parrus as I've a ben to zee,
The Cattle Show in what they calls their Pally Dangdoostree;
They French be clever fellers, of that there bain't no doubt,
In tittivatun up a pleace and zettun of it out.

'Tis in the Shonseleasy, their public pleasure grounds,
Where company, refreshment, and all sarts o' games abounds,
And well it is wuth zeeun, the truth I'll own to you,
Not only for the beastices but the beauty on it too.

Wi' flags o' differ'nt colours upon his outer part,
They 've stuck their Pally woaver and made un gay and smart,
Likewise wi' shrubs and vlowers, adornun' the way in,
The purtiest shrubs and vlowers as I thinks I ever zin.

Inzide wi' turf and gravel walks they'd got the ground laid out,
And trees, and shrubs, and fountains, which was summat like to spout,
And fruits, and blooms, and blossoms, that smelt so sweet and strong,
That I thought o' Cupid's Gearden as you hears of in the zong.

Then there was molten imidges and statchies for to zee,
And now I s'pose you wonders where the beastices could be;
To the bullocks, cows, and oxen, the stations as was gave,
They was beneath the galleries and round about the nave.

Their nations, names, and breeds, weren't wrote on papers like to ours,
But on shields adorned wi' flags, and trimmed wi' imitation vlowers,
And lots more flags hung woaver 'em, and garlands, likewise,
I never zee sitch cattle-stalls in all my life afore. [more;

There was Yorkshire, there was Durham, Sussex, Jersey, Guernsey, too;
There was Hereford, and Devonshire, as fine as e'er was grew;
And also Scotch, and Alderney, Swiss, Jarman, Danish, Dutch,
And French; zum on 'em pretty good: zum wasn't good for much.

The pigs and ship and poultry was lodged in pens outzide;
I never thought a Frenchman in his pig could take a pride;
I vancied nobody could breed a good fat hog but we,
But here was zome as purty pigs as ever I did zee.

And there was purty creeturs too—another kind and sort,
They poked the pigs wi' parasols to make 'em squeak and snort:
How they did giggle, to be sure, and laugh to hear the row!
'Tis rum to zee a purty gal a playun wi' a zow.

To zee the voreign herdsmen and shepherds drest so gay,
'Twas raly quite as good, mun, as gwiun to a play;
How differ'nt to our drovers, and gaapun shepherd-boys,
And carter-chaps, 'longzide 'em in smock-frocks and corduroys!

The talkun and the babble was wuss than any mill,
Them Frenchmen and Frenchwomen, their tongues is never still.
They gabbles, screams, and chatters, till your head is in a maze,
Like a lot of noisy magpies and jackdaws, and rooks, and jays.

I missed one sort of animal I reckoned I should vind,
Which I thought as how a Frenchman ate as often as he dined,
There was no lack of ox and cow, nor yet of sheep and hog,
And goats they had, and rabbits—but they hadn't got ne'er a frog.

In purtiness, and all that there, our Zmithfield club they beat,
But I thinks we got the best on 'em, a purty sight, in meat;
They be better hands at ornyment, their trimmuns is the chief,
But the leg o' mutton we grows best and rears the primest beef.

Punch.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

SPECIAL COUNCIL, *June* 11: Lord Portman, President, in the Chair.

FOREIGN STOCK.—The period for receiving entries for foreign stock, to be shown at the Chelmsford Meeting, was further extended to the 28th June. The French Commissioner of Agriculture informed the Council of the intention of the Emperor of the French to pay all the expenses attending the transit of cattle to be exhibited at Chelmsford, and to send some of the finest specimens of improved short-woolled sheep from the Imperial bergeries.

ASSIZES.—The President informed the Council that the Lord Chief Baron of the Exchequer had kindly postponed the holding of the Assizes at Chelmsford, from the week of the Society's Show, for which they had been fixed, to a subsequent date. The thanks of the Council were ordered to the Lord Chief Baron for this mark of his kind consideration, and of his recognition of the national objects of the Society.

WEEKLY COUNCIL, *June* 11.—Lord Portman, President, in the Chair.

AGRICULTURAL CHEMISTRY.—The following Annual Report of Professor Way, Consulting Chemist of the Society, was read:—

In accordance with the usual custom, I beg to present to the Chemical Committee a report on the operations of the laboratory during the past year—that is to say, from the 1st of May, 1855, to the 31st of April, 1856. The number of analyses made in the laboratory during this period for members of the Society at reduced rates is 241. They are as follows:—

Soils	13
Marls and limestones	5
Superphosphate of lime	53
Guano	61
Animal charcoal, coprolite, and other phosphoric substances	23
Various other manures	53
Animal and vegetable products	8
Oil-cake	8
Waters	5
Miscellaneous	12
	241

This number is almost identical with that of last year, but inasmuch as my report in May, 1855, embraced only a period of 11 months, the number of analyses during the past year falls short to some extent of the previous year, although double what it was in 1854. It is probable that the changes, in the list of charges which will be proposed to the Council on the 4th of June, will, if adopted, cause a considerable increase in the number of those members who are in the habit of taking advantage of the laboratory. The great bulk of the analyses above mentioned are, as will be seen, those of guanos, superphosphate of lime, and other manures. I am gratified to be able to report, that although no doubt abundance of inferior manures are still to be met with, their general character is yearly improving, a result which may be ascribed to greater competition and better information on the part of the makers, but above all, perhaps, to the consciousness on the part of dealers that their manures will be in all probability subjected to the searching ordeal of chemical analysis. During the past year I have at the request of the Council made several examinations and reports, amongst which may be mentioned the various mineral and other substances collected in the Pacific, and forwarded from time to time by her Majesty's Government to the Society.

In the spring and summer of last year I delivered as usual three lectures on different subjects, one of which, "On the atmosphere as a source of nitrogen to plants," was subsequently published in the Journal of the Society.

Pursuant to a resolution of the Committee made in October last, I have since that time been engaged in an examination of the waters of land drainage, and have obtained results which I believe will prove very interesting to the agricultural public. The full details of this inquiry have been prepared for publication in the next number of the Society's Journal; but I may perhaps here mention that in the course of the investigation it became necessary to institute a new method of determining small quantities of nitric acid, without which the examination of drainage water would have been comparatively valueless. No such method was in existence, although it had been long a desideratum, and the question had attracted the attention of chemists in all countries. After several months' labour I succeeded in devising a method by which extremely minute quantities of nitric acid could be estimated with great accuracy. It is true that very lately, and simultaneously indeed, the same thing has been accomplished in Paris by M. Ville; but this circumstance only proves how very much such a process was required. M. Ville's method is totally different from mine both in principle and practice.

I am engaged also at the request of the Committee in an investigation on the action of the atmosphere on soils, but although I have already obtained some interesting results, they are not sufficiently advanced for publication. (Signed)

15, Welbeck Street, May, 1856. J. THOMAS WAY.

Members' Privileges of Chemical Analysis.—The Council, on the 4th of June, 1856, fixed the following rates of charge for analyses to be made by the consulting chemist for members of the Society, who, to avoid all unnecessary correspondence, are particularly requested, when applying to him, to mention the kind of analysis they require, and to quote its number in the subjoined schedule. The charge for analysis, together with the carriage of the specimens, must be paid to him by members at the time of their application.

	£	s.
No. 1. An opinion of the genuineness of Peruvian guano	0	5
„ 2. An analysis of guano, showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts, and ammonia	0	10
„ 3. An estimate of the value (relatively to the average of samples in the market) of sulphate and muriate of ammonia, and of the nitrates of potash and soda	0	10
„ 4. An analysis of superphosphate of lime for soluble phosphates only	0	10
„ 5. An analysis of superphosphate of lime, showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime, and ammonia	1	0
„ 6. An analysis (sufficient for the determination of its agricultural value) of any ordinary artificial manure	1	0
„ 7. Limestone:—The proportion of lime, 7*s.* 6*d.*; the proportion of magnesia, 10*s.*; the proportion of lime and magnesia	0	15
„ 8. Limestones or marls, including carbonate, phosphate, and sulphate of lime, and magnesia with sand and clay	1	0
„ 9. Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime	1	0
„ 10. Complete analysis of a soil	3	0
„ 11. An analysis of oil-cake, showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre; as well as of starch, gum, and sugar, in the aggregate	1	0
„ 12. Analysis of animal products, refuse substances used for manure, &c. from 10*s.* to	1	10
„ 13. Determination of the "hardness" of a sample of water before and after boiling	0	10
„ 14. Analysis of water of land drainage, and of water used for irrigation	2	0
„ 15. Determination of nitric acid in a sample of water	1	0

N.B. The above scale of charges is not applicable to analyses made for persons commercially engaged in the manufacture or

sale of manures. The address of Professor Way, the Consulting Chemist of the Society, is 15, Welbeck Street, Cavendish Square, London, where all letters and parcels should be directed.

COMMUNICATIONS were received from Mr. Parr on the utility that would arise from an extensive distribution of the schedule of Professor Way's chemical charges for analysis; from Mr. Fuller, M.P., on disease among his ewes in Sussex from inflammation of the udder; from Messrs. Prentice, of Stowmarket, details of their charges for Asphalte Flooring; from Mr. Thurlow on the pods of the "Locust-tree" as food for cattle; and from Mr. Salter, offering to communicate his views on the origin and cure of the Potato disease.

Lord Portman, Lord Walsingham, Lord Lovaine, M.P., Mr. Lawrence, and Prof. Way, made interesting statements on Portland Cement and Asphalte Flooring, and on the character of the Locust-tree pods as food for live stock.

The Council adjourned to Wednesday next, when Prof. Way would deliver a lecture on his additional researches on the Composition of the Waters of Land Drainage.

BATH AND WEST OF ENGLAND, *June 5.*—This Society has been holding, during the past week, its annual meeting at Yeovil, where a large display of implements and live stock has been exhibited, and a great gathering of West of England farmers has been attracted by them. The show has much increased upon those of past years. The exhibitors of implements during the five years of the Society's existence have numbered as nearly as possible 50, 60, 70, 80, and now 97, at the successive meetings at Taunton, Plymouth, Bath, Tavistock, and Yeovil. A great majority of them are local manufacturers, though the great firms that are met with at shows wherever held, as in England, Scotland, Ireland, and even France, are present here also. The trial of implements included ploughs, subsoil ploughs, harrows, drags, scarifiers, cultivators, reaping machines, hay-making machines, and many others. The heavy land implements were tried on an exceedingly stiff soil where six horses were needed for some of the ploughs, the furrows being, however, enormously deep.

The cattle show included about 350 head of stock. Devons, as might be expected, predominated; 57 of the 87 cattle shown being of that breed. Leicester sheep again occupied the same relative position to the breeds of sheep; 73 Leicesters were shown, 19 Cotswolds, 34 Horns and mountain Sheep, 43 Hampshire and other Downs. There was a large show of Horses and a fair show of Pigs. The Prize list for Devon Cattle, to which considering the locality the greatest interest attached, is as follows:—

DEVONS.

Class 1. For the best Bull in its fourth year, 12*l.*, to J. W. Bullen, Esq., Crediton; 5*l.*, to Mr. Andrew Hewish, Stoodleigh, Tiverton. Highly commended, Mr. S. H. Coram, Trull, near Taunton.

Class 2. For the best Bull, not under three years old, 12*l.*, to Mr. John Bodley, Stockley, Pomeroy, Crediton; 5*l.*, to Mr. T. W. Fouracre, Durston.

Class 3. For the best Bull under two years, 1856, 8*l.*, to Mr. T. Webber, Tiverton; 4*l.*, to Mr. Edmund Coles, Stone Farm, Yeovil. Highly commended, Mr. Wm. Gibbs, Bishop's Lydeard. Commended, Mr. Richard Corner, Torweston Farm, Williton.

Class 4. For the best Cow in calf (or in milk, having had a calf within six months next preceding the first day of the exhibition), 8*l.*, to Mr. William Gibbs, Bishop's Lydeard; 4*l.*, to Mr. Geo. Turner, Barton, Exeter. Highly commended. Mr. Walter Farthing, Stowey Court, Bridgwater. Commended, Mr. Thomas W. Fouracre, Durston, Mr. John Bodley, Stockley Pomeroy, near Crediton.

Class 5. For the best Heifer, in calf or in milk, under three years old, 8*l.*, to Mr. Thomas B. Warren, of Shillingstone, Dorset; 4*l.*, to Mr. Thomas Miller, Castle Farm of Sherborne.

Class 6. For the best pair of Heifers, not exceeding two years old on 1st June, 1856, belonging to the same owner, 8*l.*, J. W. Bullen, Esq., Crediton, Devon; 4*l.*, to Mr. Thomas Miller, Castle Farm, Sherborne.

Notices to Correspondents.

BUTTER: *Doubty.* We had cows on Grass last year, and their cream and butter had the acrid taste that you complain of. We had about a dessert-spoonful of saltpetre dissolved in water, and put into every gallon of milk before it was churned, and a small bit of common salt was put into the milk pan when the milk was brought in from the cows. The cream was put to stand in boiling water for half an hour, and frequently stirred while the water cooled before it was churned. Ultimately we had good butter, but certainly not till after this season of the year had passed. So that probably the improvement was attributable, not to our treatment, but to the natural alteration of the pasture, which is full of Buttercups at this season.

CANDLE GUTTERING: *A Lady Philosopher* assumes as a fact that which is merely a fiction.

EGGS: *A Lady.* The Rev. W. D. Fox says, "The recipe given the other week answers for eggs wanted for cooking, but a much preferable, indeed a perfect one, is to take eggs when newly laid and place them with the small end downwards exactly perpendicular in a board perforated with holes for the purpose. It should be, say 2 feet by 1 foot 6 inches, and have legs at the four corners, about 3 inches long. This will enable them to be piled one upon another to any extent, as they are filled. Eggs put in thus fresh from the nests in August and September will keep till winter as good as fresh ones, not only for cooking but eating. The temperature of an Apple room, where frost and autumn heat are excluded, is right for them. I have eaten them and seen my friends do so at the breakfast-table when four or five months old frequently, and can confidently recommend this plan, which I think I originally copied from your Paper many years since."

IRISH MOSS: *An Old Subscriber* calls attention to the importance of the Irish Moss; dissolved in 10 times its quantity of water and boiled, it makes an excellent drink for calves, superior to Linseed.

PIGS: *Mary Ann.* The disease appears to be inflammation of the air passages. Bleeding is indicated, which may be done from the tail, and the bowels moderately opened with a dose of salts.

WHITFIELD FARM: *Carolus.* If you will favour us with your address we shall be happy to give you a note of introduction. The farm is no longer a public example farm.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

MESSRS. E. G. HENDERSON & SON'S
NEW CATALOGUE FOR THE PRESENT SEASON

Is now ready, and contains descriptions of the most approved novelties in cultivation. The following selection they beg particularly to recommend:—

NEW VERBENAS.
Géant des Batailles
Imperatrice Elizabeth
Mrs. Hosier Williams
General Bosquet
Madame Kien
Foudroyante

NEW FUCHSIAS.
Venus de Medici
Gloire de Neipe
Donna Joaquina
Pendula
Malakoff

NEW CHRYSANTHEMUMS.
Scarlet Gem
John Salter
Trophee
Durafiet
Stellata globosa

NEW AZALEAS.
Admiration
Criterion
Barclayana
alba illustrata
Crispiflora
Eulalie Van Geert
Princess Mary of Cambridge
Variegata superba
Juliana

NEW GERANIUMS.
Fairy Nymph
Bridal Ring
Countess of Bective
Highland Chief
Mountain of Snow
General Pelissier

NEW CALCEOLARIAS.
Ethel Newcome
Little Dorrit
Minnie
General Pelissier
Eclipse
General Canrobert

NEW PETUNIAS.
Countess of Ellesmere
Duchesse de Brabant
Madame la Comtesse Gérard
Madame Grandgeorge
Charles de Rosmini
Ernest de Lepinau

Gloxinia Jacqueline
Phlox Madame Fontaine
Veronica Imperial Blue
Gynerium argenteum (Pampas Grass)
Bouvardia longiflora
Potentilla coccinea flore pleno
Begonia Zanthina argentea
Dahlia Crystal Palace Scarlet
Eucharis amazonica

Ardesia crispa
Locheria magnifica (Achimenes)
Tydæa amabilis („)
Cuphea eminens
Gonocalyx pulcher
Clematis cærulea grandiflora
Delphinium cardinale (Scarlet)
Calyptraria hæmantha
Sonerila margaritacea superba

Leptodactylon californica, 10*s.* 6*d.*
Æschynanthus fulgens, 10*s.* 6*d.*
Ceanothus floribundus, 10*s.* 6*d.*
Clematis glandulosa (new), 10*s.* 6*d.*
Phygilius capensis, 10*s.* 6*d.*
Tecoma fulva, 10*s.* 6*d.*
Rondeletia anomala
Rhododendron Moulmeinense, 10*s.* 6*d.*
Maranta pardina.

With Catalogue (which can be had post free on application), will be published a plate of nine new flowers, price 1*s.*, or 12 stamps (post free).

Wellington Nursery, St. John's Wood, London.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.
27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede
Tweeddale purple-top Yellow Bullock Turnip
Improved Green Round do.
„ Red Round do.
Improved Pomerarian White Globe Turnip
„ Red Globe do.
„ Long Red and Orange Globe Mangel

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.
27, Great George Street, Westminster.

CHOICE VERBENAS, PETUNIAS, ETC.

MITCHELL AND Co. are now sending out the following first-rate varieties of VERBENAS, 6*s.* the collection, good strong plants:—Géant des Batailles, Madame Reine, Madame Cambacères, Julia Pacquin, Wonderful, Mons. Richalet, Lord Raglan, Marchioness of Ellesmere, Mrs. Halford, Blue Beard, Tyrian Prince, Florence Nightingale.

New Double PETUNIA IMPERIALIS, strong plants, 6*s.* per dozen, or 45*s.* per 100.

TREE CARNATIONS, consisting of the very best varieties, 12*s.* per dozen.

DAHLIAS, one of the choicest collections ever offered, 6*s.* per dozen, or four dozen for 20*s.*

Post-office orders are respectfully requested from unknown correspondents, made payable to JOHN FAIRBROTHER.

All Orders over 25*s.* are delivered carriage free in London or any Station on the London and South Coast Railway.
Bristol Nurseries, Kemp Town, Brighton.

HAVING during several years taken much trouble in the production of a new variety of CABBAGE, we are now able to offer PEARSON'S EARLY CONQUEROR as the best and earliest kind yet known. It is very dwarf, occupies but little room and is as tender as Asparagus, and is pronounced by all who have tasted it as of unequalled flavour. It should be sown the third week in July, or in late situations earlier, as it seldom can be made to run. Packets sent by post on receipt of 12 postage stamps.
J. R. & A. PEARSON, Chilwell Nurseries, Nottingham.

FLOUR, warranted free from Adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56 lbs.) 12*s.* 4*d.*; fine Households, recommended for Bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat-meal, for Brown Bread, 11*s.* 0*d.*; best coarse and fine Scotch Oatmeal.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for Making Bread supplied gratis.

NOTICE—DISSOLUTION OF PARTNERSHIP.

MR. ROBERT KENNEDY, of the BEDFORD CONSERVATORY, Covent Garden, announces that the PARTNERSHIP between him and Richard B. Kempton has ceased, and all credits are to be paid to the said R. KENNEDY. The debts due to the late firm are to be received by him; and he will conduct the business, as heretofore, in his own name; and will use every effort to maintain the patronage of those who have most liberally supported him for the last twelve years.
ROBERT KENNEDY, Seedsman and Florist, Bedford Conservatory, Covent Garden.

SEED TRADE.—PARTNERSHIP DISSOLVED.—RICHARD B. KEMPTON, so many years with Mr. JAMES CARTER, of Holborn, deceased, and lately in partnership with ROBERT KENNEDY, acquaints his numerous friends and the trade that this PARTNERSHIP IS DISSOLVED; and that the Seed Business will be now executed by him on his own account upon orders addressed to R. B. Kempton, 2, King Street, Covent Garden, with the greatest care and punctuality. Aquatic and other Plants supplied, Aquavivaria, &c. A Catalogue of Dutch and Cape Bulbs will be published shortly.

GLENNY'S OPINION ON FLOWERS, PLANTS, FRUITS, IMPLEMENTS, &c.—All packets must be addressed Mr. GLENNY, Dungannon House, Fulham. Enclose a directed envelope for answer.

TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND (sharp grit and free from iron) 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered five miles or to any London wharf or railway, (sacks cost price, or on hire 6*d.* each). Kentish and other Peats and Loam in large or small quantities. Terms cash.
JOHN KENNARD, Swan Place, Old Kent Road.

ROLL TOBACCO CORD,

THE Cheapest and most Effectual Article for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 6, Walcot Cottages, Kennington Cross (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2½, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes and Jets are also supplied.

FOWLER AND FRY, AGRICULTURAL IMPLEMENT MANUFACTURERS, Temple Gate, Bristol, beg to call attention to the under-mentioned articles:—

One-row Seed and Manure Drill, a most complete thing, 6*l.* 10*s.*
One-row Drill, for seed only, 4*l.*
Prize Grass Seed Distributor, 12 feet long, 3*l.* 10*s.*
Patterson's Patent Clod-crusher, which is so constructed that it is capable of working where the ground is in a sticky state from wet.
Corne's Patent Chaff-cutters.
Oat and Bean Mills.
Gardner's Turnip Cutters.
Bushe's Root Graters.
Cozen's celebrated Press Ploughs, &c.

FOWLER & FRY are Agents for all the principal makers of Agricultural Implements, and always keep a large assortment on hand in their Show-room.
Catalogues, &c., sent upon application.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators
Axes
Bagging Hooks
Bills
Borders, various patterns
Botanical Boxes
Brown's Patent Fumigator
Cases of Pruning Instruments
Daisy Rakes
Dibbles
Dock Spuds
Draining Tools
Edging Irons and Shears
Flower Scissors
„ Stands in Wires and Iron
Fumigators
Galvanic Borders and Plant Protectors
Garden Chairs and Seats
„ Loops
„ Rollers
„ Scrapers
Gidney's Prussian Hoe
Scissors
Grape Gatherers and Scissors
Gravel Rakes and Sieves
Greenhouse Doors and Frames
Hammers
Hand-glass Frames
Hay Knives
Horticultural Hammers and Hatchets
Hoes of every pattern
Hotbed Handles
Ladies' Set of Tools
Labels, various patterns, in Zinc, Porcelain, &c.
Lines and Reels
Marking Ink
Mattocks
Menographs
Metallic Wire
Milton Hatchets
Mole Traps
Mowing Machines
Pickaxes
Potato Forks
Pruning Bills
„ Knives, various
„ Saws
„ Scissors
„ Shears
Rakes in great variety
Reaping Hooks
Scythes
Scythe Stones
Shears, various
Sickles
Sickle Saws
Spades and Shovels
Spuds
Switch Hooks
Thistle Hooks
Transplanting Tools
Trowels
Turfing Irons
Wall Nails
Watering pots
Weed Hooks
Wheelbarrows
Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.

BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10s. 6d.
BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6
BOYD'S PATENT VULCAN BLADES 4 6

May be had of all Ironmongers and Seedsmen; and Wholesale of Wm. Dray & Co, Swan Lane, London.

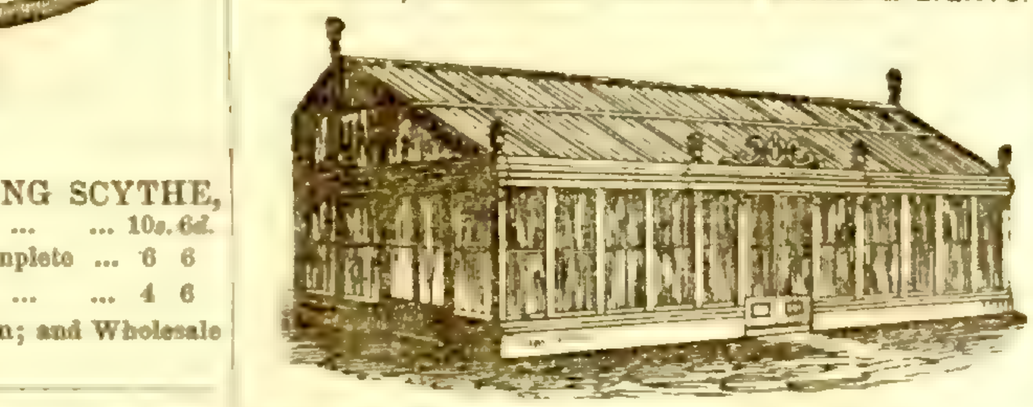
THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

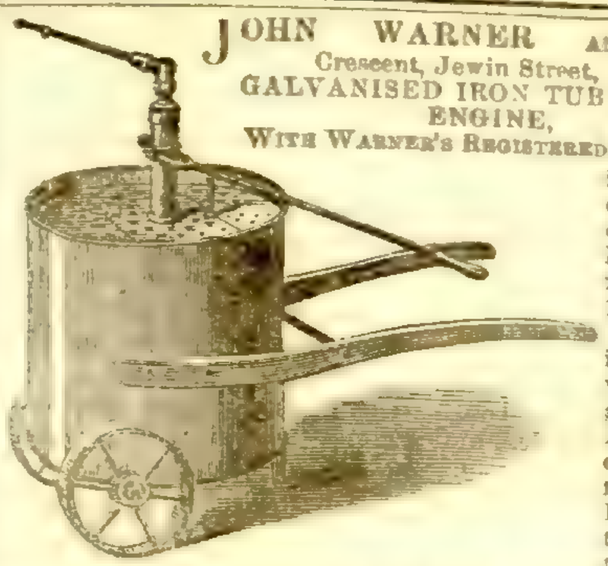
W. F. Roe (late Farnham Roe), Hydraulic Engineer, 70, Strand, London.



HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.

JAMES WATTS, Hothouse Builder, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.



JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
With Warner's Registered Spreader,

is strongly recommended, for durability and low price, viz., 2l 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high				...	£4 10
No. 2	„ 15	„	„ 45	„	...	5 10
No. 3	„ 28	„	„ 45	„	...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws 25 feet high			...	£2 15
No. 13	„ 12	„	„ 30	„	...	3 5
No. 11	„ 16	„	„ 40	„	...	4 0
No. 12	„ 24	„	„ 45	„	...	5 0
No. 14	„ 30	„	„ 45	„	...	5 18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

Read's Syringe, with two roses and one jet, 19s.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

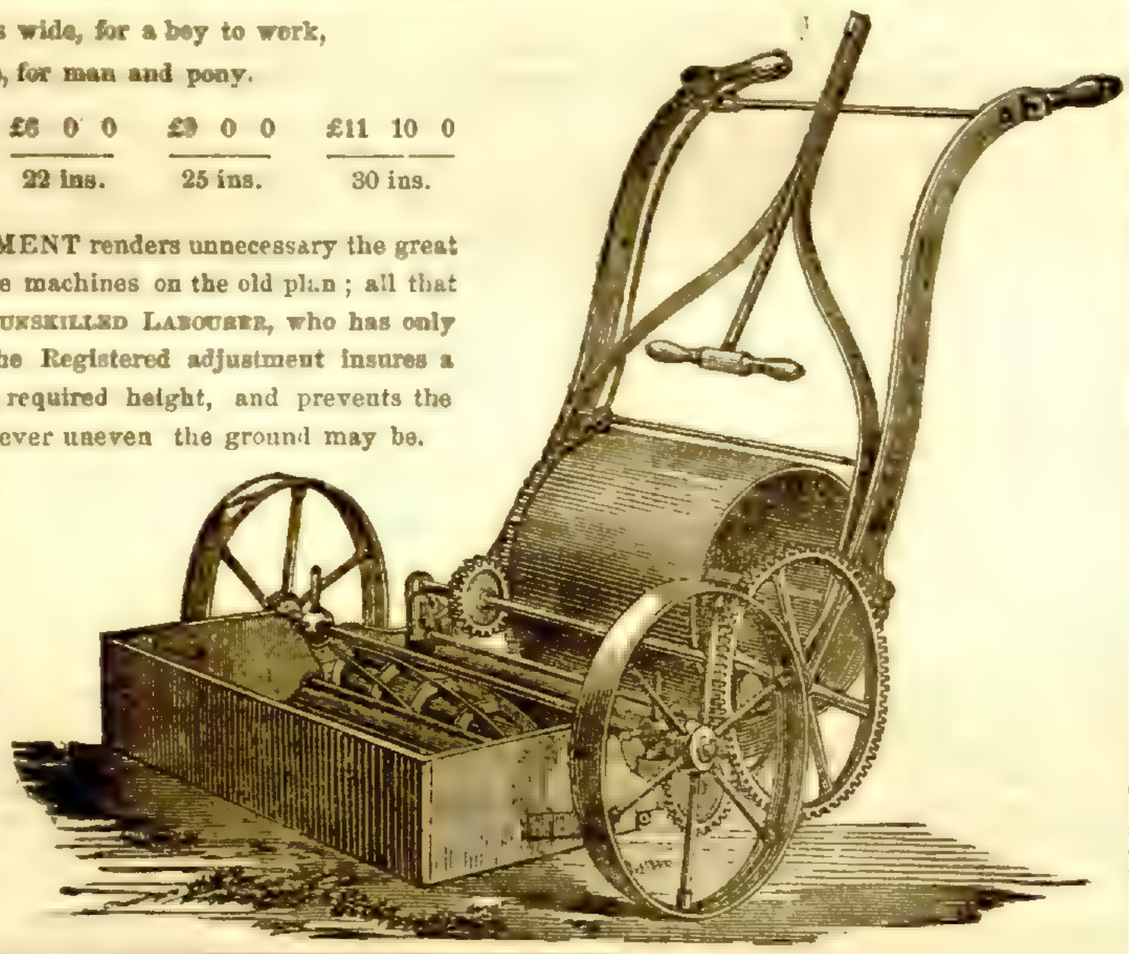
To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled Labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.



B. SAMUELSON, Britannia Works, Banbury.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,
SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at Half the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

To Mr. Green, Leeds.—Sir, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, Joshua Major.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned.

London Agents: Messrs. Cottam & Hallen, 76, Oxford Street; and Messrs. Burgess & Key, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. Charles Garrood, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9s. per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co, Inventors and Manufacturers, St. Paul's Square, Birmingham.

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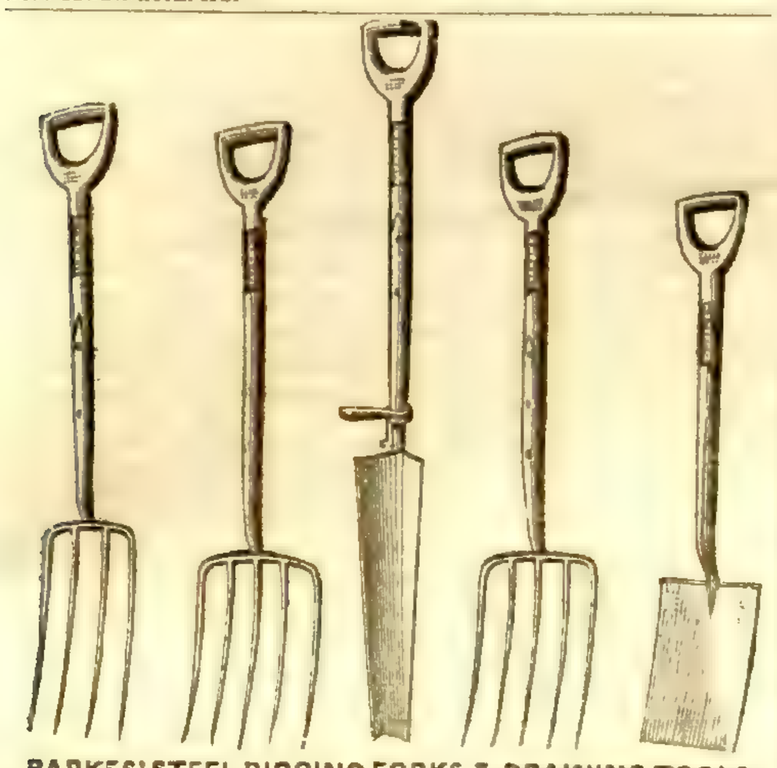

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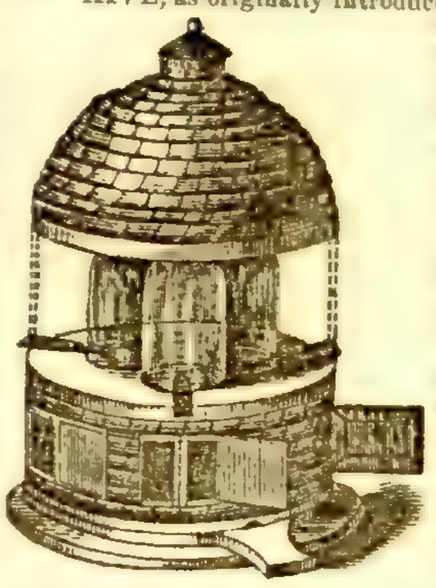

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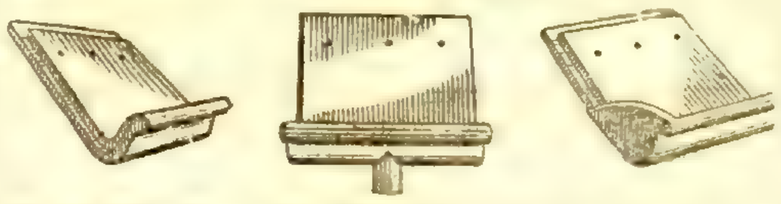

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SHIELD'S STEPPING-STONE TO ANIMAL AND VEGETABLE PHYSIOLOGY.
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Just published, New and Improved Edition, price 1*s.*,
THE CURABILITY OF CONSUMPTION. Being a Series of Papers presenting the most prominent and important Practical Points in the Treatment of the Disease. By F. H. RAMADGE, M.D., Fellow of the College of Physicians, and late senior Physician to the Royal Infirmary for Diseases of the Chest, &c. Also, by the same Author, price 10*s.* 6*d.*,
A TREATISE ON ASTHMA AND DISEASES OF THE HEART.
London: LONGMAN, BROWN, GREEN, & LONGMANS.

WANTED, a reading of the GARDENERS' CHRONICLE. It will do if it is posted on WEDNESDAY, and will be returned if required.—Address, stating particulars, R. W., 2, Primrose Bank, Ventnor, Isle of Wight.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, June 14, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1856.] SATURDAY, JUNE 21. {Price Fivepence. Stamped Edition, 6*d*.

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CRYSTAL PALACE.—GRAND HORTICULTURAL FETE.—The Second Flower Show of the present Season will be held on WEDNESDAY and THURSDAY, the 25th and 26th instants. On WEDNESDAY, the 25th, the doors will be opened at 12 o'clock Admission by Season Tickets or by payment of 7*s*. 6*d*. On THURSDAY, the 26th, the doors will be open at 10. Admission by Season Tickets or by payment of 2*s*. 6*d*. For the accommodation of Gardeners a Special Train will leave London Bridge Station at 6 o'Clock, A.M., on WEDNESDAY, the 25th. Trains will run from London Bridge at frequent intervals. Tickets of Admission, including conveyance by Railway, may be obtained previously at the London Bridge Terminus, at the several Agents of the Brighton Company, and at the Company's Offices, 43, Regent Circus, Piccadilly.—June 21.

MAIDSTONE HORTICULTURAL SOCIETY.—The following Prizes, open to all England, will be given at the First Exhibition for the present year of the above Society, which will be held on THURSDAY, June 26, in the field adjoining the Rocky Hill Terrace. For collectio s of Eight Stove or Greenhouse Plants—first prize, 5*l*.; second, 3*l*.; third, 1*l*. For Six Exotic Orchids:—first prize, 2*l*.; second, 1*l*. For collections of 36 Roses in single trusses:—first prize, 2*l*.; second 1*l*.; third, 10*s*. For collections of Fruits, to include Grapes, Pine Melon, Peaches, Nectarines, and Strawberries:—first prize, 3*l*.; second, 2*l*. No exhibitor to receive two prizes in the same class. For rules and further particulars apply to
JOHN B. MONCKTON, Hon. Sec., Maidstone.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next Exhibition of this Society will be held on WEDNESDAY, the 2d day of July, 1856.

In addition to the usual prizes, a Silver Cup, value Five Guineas, will be given for the best 48 Roses.

Lists of Prizes, with the Regulations of Exhibition, Tickets of Admission, and all further information, may be obtained on application to WILLIAM FRYER, Hon. Sec.

Chatteris, June 21, 1856.

THE MIDLAND COUNTIES GREAT HORTICULTURAL AND FLORICULTURAL EXHIBITION will be he'd, by permission, among the Ruins of KENILWORTH CASTLE, on WEDNESDAY, 2d of July next, when Prizes amounting to nearly 100*l*. are offered for general competition. In addition a Cup, value 5 guineas, will be given by the trade of Kenilworth to the most successful exhibitor attending from a distance of over 10 miles. All entries must be made on or before the last day of June.

Schedules and every information may be obtained on application to J. CHEYNE, Secretary.

Priory Gardens, Warwick.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that the Half-yearly General Meeting of the Members of this Soc will be holden on WEDNESDAY, the 9th July next, a Horticultural Society's Rooms, 21, Regent Street.

To "Elect a Vice-President in the room o ph Neeld, Esq., deceased." To "Elect a Member of the Co tee in the room of Mr. Chaundy," deceased." To receive a mendation from the Committee that Rule No. 19 be altered, and do stand as follows:—"That all Life Subscriptions of 10*l*. 10*s*. and upwards, and all Legacies, shall be invested in the names of the Trustees in the Three per cent. Consols, and only the interest thereon, the Annual Subscriptions and Donations of less than 10*l*. 10*s*. be applied to general purposes."

The Committee beg to give notice that THREE PENSIONERS will be added to the List on the 9 h July, but in consequence of JOHN DICKER, of Chapel Street, Stockwell, having subscribed 15 years consecutively, being in distress, and having complied with all the requisitions of the Committee, he will, in accordance with the Rules, be placed on the List of Pensioners WITHOUT AN ELECTION. A Ballot will therefore take place for the TWO remaining vacancies from among the Candidates named below. The Chair to be taken at 12 o'Clock. The Ballot will close at 2 o'Clock.

NAME.	APPLICATION	AGE	RESIDENCE.
William Thacker	Seventh	68	Wimbledon
Charles Charlton	Sixth	71	Jersey
Joseph Jeffrey	Sixth	83	Newport, Monmouth
John Lawson	Fifth	77	Warcop, Appleby
James Smith	Fifth	70	Brighton
Ann Arnold	Fourth	64	Cheshunt
Frederick L. Burnet	Fourth	54	Brixton
William Dungate	Fourth	70	Tiverton, Bath
Alexander Gregory	Fourth	63	Leyton
William Jackson	Third	67	Kennington
John Davy	Second	69	Bristol
Mary Anne Farquharson	Second	69	Plymouth
Elizabeth Pope	Second	70	Northill, Beds.
Robert Hodge	First	48	Pocklington, Yorksh.
Benjamin Priest	First	61	Brixton
Michael Quigley	First	61	Alresford

P.S.—The Polling Papers have all been delivered. Any Subscriber not having received one is requested to make application immediately. E. R. CUTLER, Secretary.

14, Tavistock Row, Covent Garden.—June 21.

CHERTSEY HORTICULTURAL SOCIETY.—The Summer Exhibition of this Society will be held in the Grounds of Cowley House, Chertsey, on FRIDAY, June 27, when Prizes will be awarded for the best Collections of Plants, Flowers, Fruits, and Vegetables. A Military Band will be in attendance. The gates will be opened at 2 o'clock. Schedules may be obtained on application to the Secretary, HENRY LAMB, Chertsey.

HEREFORD HORTICULTURAL SOCIETY.—The First Exhibition for the present year will be held on the Castle Green, Hereford, on THURSDAY, July 3d, open to all Exhibitors. Besides the ordinary Prizes of the Society, SPECIAL PRIZES for Plants to the amount of 17*l*. 10*s*, Cut Flowers, 7*l*, and Fruit 1*l*. 10*s*., will also be given Schedules may be obtained on application to Mr. WM. SMITH, Florist, Hereford, Assistant Secretary. WM. PHILLIPS, Hon. Sec.

N.B. Prizes to similar amounts will also be given at the Exhibition to be held on TUESDAY, Sept. 9.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Second Grand Flower Show of the above Society will he held by permission of the Earl of Essex in Cassiobury Park, near Watford, on THURSDAY, July 3, open to all Exhibitors. An efficient Band will be in attendance. Schedules may be obtained on application to the Secretary.—By Order of the Committee,

High Street, Watford. Mr. JOHN PEARCE TAYLOR, Sec.

GRAND EXHIBITION OF RHODODENDRONS
AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK, LONDON.

JOHN WATERER begs to say that his unequalled collection of the above popular plants is now in full bloom, and can be seen daily by orders (gratuitously) granted by Fellows of the Society.

The two celebrated new varieties John Waterer and Mrs. John Waterer are now finely in bloom, as are also the following late blooming kinds:—Lady Eleanor Cathcart, concessum, Brayanum, roseum invictum; atrosanguineum, Leopardi celebrandum, blatteum, erectum, &c. The display altogether exceeds in gorgeousness any Floral Exhibition hitherto attempted in this country.—The American Nursery, Bagshot, Surrey.

EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to intimate that his collection of the above plants is now finely in bloom, and will continue in perfection throughout the month of June, and may be inspected daily (gratis).—American Nursery, Bagshot, Surrey, near the Farnborough Station, South Western Railway; and Blackwater Station, South Eastern Railway, from whence conveyances are always to be obtained.

EXHIBITION OF AMERICAN PLANTS,
KNAP HILL NURSERY, WOKING, SURREY.

MESSRS. WATERER AND GODFREY have great pleasure in stating that their Collection of American Plants at the Nursery is now finely in bloom, and may be seen daily gratis. The Nursery is readily reached by Train to Woking Station in 40 minutes; there are always plenty of conveyances at the Station.—June 21.

GRAND EXHIBITION OF AMERICAN PLANTS,
ASHBURNHAM PARK, ADJOINING CREMORNE GARDENS, KING'S ROAD, CHELSEA.

MESSRS. WATERER AND GODFREY beg to announce their Collection of these beautiful Plants is now open daily, and affords probably the finest display of flowers ever witnessed in this metropolis. Admission One Shilling.

The American Plants at the Nursery are also now in great beauty, and may be seen every day free.

Knap Hill Nursery, Woking, Surrey, near the Woking Station, South Western Railway.

THE NEAREST AMERICAN NURSERY TO ANY RAILWAY STATION.

AN EXTENSIVE COLLECTION, covering nearly 30 acres, of AMERICAN PLANTS, in bloom during June, may be seen in high perfection at GEORGE BAKER'S, WINDLESHAM NURSERY, BAGSHOT, SURREY. 1¼ mile from Sunningdale Station, on the Staines and Wokingham Railway; 26 miles from Waterloo Station; and at the Royal Botanic Gardens, Regent's Park.—Orders of Admission may be had (gratis) from Fellows of the Society, or on application to the Advertiser.

GEORGE TAYLOR, JUNIOR,
GROWERS' SALESMAN
FOR CHOICE GARDEN PRODUCE,
ST. JOHN'S MARKET,
LIVERPOOL.

Terms—"CASH."

CHOICE CALCEOLARIA SEED.

JOHN HENCHMAN, JUNIOR, is now ready to send out SEED of his choice and well known strain of CALCEOLARIAS, at 5*s*. per packet. Trade packets, 10*s*.

Edmonton, Middlesex.

J. C. WHEELER AND SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

NOVELTIES.

ISAAC DAVIES has now in bloom a most beautiful SEEDLING GERANIUM, a pure white, large flower with pink spot, truss from 8 to 11 flowers. Also some splendid SEEDLING SHRUBBY CALCEOLARIAS, of the most brilliant colours, crimson, scarlet, yellow, &c., to which he desires to call the attention of the trade; being so distant from London he cannot convey them there in a condition to be exhibited.—Larkfield Nursery, Wavertree, Liverpool.

MISS NIGHTINGALE.—Strong Plants of this beautiful Heliotrope are now ready, 3*s*. 6*d*. each. One Plant given to the Trade when three are ordered. It received a Certificate of Merit from the Royal Botanic Society of London on May 28th, 1856; also a Certificate of Merit from the National Society of Florists, June 12, 1856:—Good habit, large truss, colour dark lavender, extra strong scent.—Post-office Orders payable at Paddington.

WILLIAM FIELD, Florist, Kensal New Town, London.

HOLLYHOCK SEED.

A. PAUL AND SON have a few packets of their superb HOLLYHOCK Seed to dispose of; price 2*s*. 6*d*. or 5*s*. per packet, the latter saved from the leading named sorts. The present is a good time to sow out of doors to obtain plants to bloom next year.—Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON respectfully inform admirers of the Rose that their extensive collection is just coming into Bloom, will be in fullest Bloom the first week in July, and continue flowering till November. Inspection is freely invited.—Nurseries, Cheshunt, Herts, on Cambridge line of Eastern Counties Railway.

PERPETUAL ROSES IN POTS AND BEDDING PLANTS.—For BASS and BROWN'S Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A LARGE SURPLUS STOCK AT REDUCED PRICES.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to BASS & BROWN, Sudbury, Suffolk.

TO THE TRADE.

CHARLES SHARPE has on hand fine selected RAPE or COLE SEED for sowing. Samples and prices can be had on application.—Wisbeach, Cambs.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, June 21.

CHINESE PÆONIES.

JOHN SALTER'S collection of these splendid flowers (some of which were exhibited at the Botanical Society on Wednesday last and awarded a Prize) is now in full bloom, and may be seen every day except Sunday. He can still furnish plants of his new Chrysanthemums "Alfred Salter" and "Scarlet Gem," and all the leading sorts of last season.

Versailles Nursery, William Street, near Hammersmith Turnpike.

NEW VERBENAS OF 1856.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the new Verbenas raised by Weatherill, Smith, Cole, Martin, Todman, Rougier and Chauviere, in well established Plants, at 6*s*. per dozen; best varieties of previous seasons, at 2*s*. 6*d*. per dozen; first class Fuchsias, 4 . per dozen; Pompone, or large flowered Chrysanthemums, 3*s*. 6*d*. per dozen. Any of the above sent free by post if desired. Descriptive Catalogues sent on application.—67, High Street, Battle, Sussex.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.

J. G. WAITE, Seed Merchant, 181, High Holborn, London.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.

Fine selected GRASSES for PERMANENT PASTURE, 30*s*. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.

Fine LAWN GRASS, 1*s*. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.

J. C. WHEELER & SON,
Nurserymen and Seed Growers, Gloucester.

FRANCIS R. KINGHORN is now sending out his unequalled New Scarlet Geraniums, Countess of Warwick, Annie, and General Pelissier. For description see advertisement of April 12th, page 243. Good established plants, 10*s*. 6*d*. each. The usual discount to the trade. Plants added to compensate for distant carriage. A remittance will be required from unknown correspondents. Post-office Orders on Richmond, Surrey.

St Margaret's Gardens, Isleworth.—June 21.

AZALEA INDICA.

J. IVERY AND SON, NURSERYMEN, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.

J. I. & SON also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season. Dorking, June 21.

TO BE SOLD, 10 Standard ORANGES, 4 feet in stem, with fine bushy heads—magnificent plants; four Dwarf do., large and well furnished; 30 Myrtles, 6 to 9 feet high, very effective; and three Camellias, double white, double striped, and double blush, from 3 to 5 feet, and 3 feet in diameter.—For further information apply to HENRY J. OLDROYD, Nurseryman and Seedsman, Shrewsbury.

WILLIAM BARRATT,
LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and PLANTS.

CRYSTAL PALACE—GRAND HORTICULTURAL FETE.

T. GREEN'S REGISTERED LAWN MOWING AND ROLLING MACHINES will be exhibited on the lawns on WEDNESDAY the 25th, and THURSDAY the 26th inst.

DOG BREAD.

TO BE SOLD, about 2 tons of returned SHIP BREAD, in good condition. Price, delivered at railway or on board ship, 12*s*. per cwt. cash.—Apply to W. H. [illegible], 30, Regent Road, Liverpool.

GARDENERS' CHRONICLE PENNY STAMPED

LIST OF PRIZES AWARDED AT THE ROYAL BOTANIC GARDENS, REGENT'S PARK,

June 18th, 1856.

EXTRA GOLD MEDAL.

Mr. May, Gr. to H. Collyer, Esq., Dartford, for 16 Stove and Greenhouse Plants.
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

Mr. Taylor, Gr. to J. Coster, Esq., Streatham, for 16 Stove and Greenhouse Plants.
Mr. Woolley, Gr. to H. B. Kerr, Esq., Cheshunt, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

Mr. Peed, Gr. to T. Tredwell, Esq., Norwood, for 16 Stove and Greenhouse Plants.
Mr. Cutbush, Nurseryman, Barnet, for 12 Stove and Greenhouse Plants.
Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, for 10 Stove and Greenhouse Plants.
Mr. Roser, for 8 Greenhouse Azaleas.
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 12 Orchids.
Messrs. Lane, Nurserymen, Berkhampstead, for 10 Roses in pots.

GOLD MEDAL.

Messrs. Fraser, Nurserymen, Leyton, for 12 Stove and Greenhouse Plants.
Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam, for 10 Stove and Greenhouse Plants.
Mr. Cutbush, Barnet, for 10 Cape Heaths.
Mr. Peed, for 8 Cape Heaths.
Mr. Peed, for 8 Greenhouse Azaleas.
Mr. Clarke, for 12 Orchids.
Mr. Turner, for 12 Pelargoniums.
Mr. Nye, Gr. to E. Foster, Esq., Clewer Manor, Windsor, for 10 Pelargoniums.
Mr. Francis, Nurseryman, Hertford, for 10 Roses in pots.
Mr. Parker, Nurseryman, Holloway, for 20 Variegated Plants.

LARGE SILVER GILT MEDAL.

Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
Mr. Dodds, Gr. to Sir J. Cathcart, Bart., Cooper's Hill, for 10 Stove and Greenhouse Plants.
Mr. Roser, Gr. to J. Bradbury, Esq., Streatham, for 6 Stove and Greenhouse Plants.
Mr. Green, for 6 Tall Cacti.
Mr. Taylor, for 6 Greenhouse Azaleas.
Mr. Grix, Gr. to A. Palmer, Esq., Cheam, for 6 Exotic Orchids.
Mr. Bousie, Gr. to the Hon. H. Labouchere, Stoke Park, for 6 Fuchsias.
Messrs. Dobson, Isleworth, for 12 Pelargoniums.
Mr. Holder, Gr. to Rev. E. Coleridge, Eton College, for 10 Pelargoniums.

LARGE SILVER MEDAL.

Mr. Williams, Gr. to Miss Traill, Bromley, for 6 Stove and Greenhouse Plants.
Messrs. Jackson, Nurserymen, Kingston, for 10 Cape Heaths.
Mr. Williams, for 8 Cape Heaths.
Mr. May, for 6 Cape Heaths.
Messrs. Fraser, for 6 Greenhouse Azaleas.
Mr. Carson, for 6 Exotic Orchids.
Mr. Turner, for 6 Fancy Pelargoniums.
Mr. Bousie, for 6 Fancy Pelargoniums.
Mr. Turner, for 6 Pelargoniums sent out in 1854 or 1855.
Mr. Burn, for 8 Queen Pine Apples.

SILVER GILT MEDAL.

Mr. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
Mr. Morris, Gr. to Coles Child, Esq., Bromley, for 10 Stove and Greenhouse Plants.
Mr. Morris, for 6 Stove and Greenhouse Plants.
Mr. Mortimer, Gr. to J. R. Scott, Esq., Hornsey, for 6 Tall Cacti.
Messrs. Fraser, for 10 Cape Heaths.
Mr. Rhodes, for 8 Cape Heaths.
Mr. Roser, for 6 Cape Heaths.
Mr. Dodds, for 6 Exotic Orchids.
Mr. James, Gr. to F. Watson, Esq., Isleworth, for 6 Calceolarias.
Mr. Bray, Gr. to Baron Goldsmid, Regent's Park, for 6 Fuchsias.
Messrs. Fraser, for 12 Pelargoniums.
Mr. Weir, Gr. to J. Hodgson, Esq., The Elms, Hampstead, for 10 Pelargoniums.
Messrs. Fraser, for 6 Fancy Pelargoniums.
Mr. Windsor, for 6 Fancy Pelargoniums.
Mr. Nye, for 6 Pelargoniums of 1854 or 1855.
Mr. Fletcher, Gr. to Dr. Young, Kennington Lane, for 12 Exotic Ferns.
Mr. Fletcher, for 30 British Ferns.
Mr. Beale, Gr. to A. Smith, Esq., Wood Hall, for 4 Pine Apples.
Mr. Fleming, Gr. to the Duke of Sutherland, Trentham, for a Providence Pine Apple.
Mr. Burn, Gr. to the Hon. E. G. Douglas Pennant, Penrhyn Castle, Bangor, for 1 Queen Pine Apple.
Mr. Frost, for 12 lbs. Grapes.
Mr. Fleming, Trentham, for 1 dish of Black Hamburgh Grapes.
Mr. Hill, for 1 dish of Black Prince Grapes.
Mr. Bailey (Shardeloes), for 1 dish of White Muscadine Grapes.
Mr. Turnbull, for 1 dish of Muscat Grapes.
Mr. Forbes, for 1 dish of Frontignan Grapes.
Mr. Snow, Gr. to Earl de Grey, Wrest Park, Silsoe, Beds, for 1 dish of Peaches.
Mr. Davies, for 1 dish of Nectarines.

SILVER MEDAL.

Mr. Clarke, Gr. to C. Webb, Esq., Hoddesdon, for 10 Stove and Greenhouse Plants.
Mr. Taylor, for 6 Cape Heaths.
Mr. Morris, for 6 Exotic Orchids.
Mr. Turner, Nurseryman, Slough, for 6 Calceolarias.
Mr. Hutt, Gr. to Miss Burdett Coutts, Highgate, for 6 Fuchsias.
Mr. Gaines, for 12 Pelargoniums.
Mr. Windsor, Gr. to A. Blyth, Esq., Kiddapore Hall, Hampstead, for 10 Pelargoniums.
Messrs. Dobson, for 6 Fancy Pelargoniums.
Mr. Bray, for 6 Fancy Pelargoniums.
Messrs. Dobson, for 6 Pelargoniums, sent out in 1854 or 1855.
Mr. Keele, Anguloa sp.
Mr. Fleming, Trentham, for Bilbergia thyrsoides.
Mr. Carson, for 12 Exotic Ferns.
Mr. Baillie, Gr. to W. C. Carbonell, Esq., Harrow Road, for 12 Exotic Ferns.
Mr. Baillie, for 30 British Ferns.
Mr. Tysoe, Wallingford, Berkshire, for Collection Ranunculus.
Messrs. Paul, Nurseries, Cheshunt, for Cut Roses.
Mr. Thompson, Dyrham Park, Barnet, for 3 Fancy Pelargoniums.
Mr. Gillham, Mogden Lane, Isleworth, for Providence Pine Apple.
Mr. Barron, Gr. to Mrs. Vivian, Singleton, Swansea, for 1 Queen Pine Apple.
Mr. Jones, for 4 Ripley Queen Pine Apples.
Mr. Davies, for 1 Pine Apple.
Mr. Tillyard, Gr. to the Right Hon. the Speaker, Heckfield, for 3 dishes of Grapes.
Mr. Henderson, for 12 lbs. Grapes.
Mr. Williamson Gr. to Lord Lonsdale, Whitehaven Castle, Cumberland, for 1 dish of Black Hamburgh Grapes.
Mr. Hill, for 1 dish of Black Hamburgh Grapes.
Mr. Turnbull, for 1 dish of Black Prince Grapes.
Mr. Robinson, Warnford Park, for 1 dish White Muscadine Grapes.
Mr. Clark, High Grounds, for 1 dish Muscat Grapes.
Mr. Drummond, Gr. to S. Lyne Stevens, Esq., The Grove, Roehampton, for 1 dish of Frontignan Grapes.
Mr. Hill, for 1 dish Peaches.
Mr. Drummond, for 1 dish Peaches.
Mr. Mitchell, for 1 dish of Nectarines.
Mr. Ayres, Gr. to Lord Southampton, Whittlebury Lodge, Towcester, for 1 dish of Nectarines.
Mr. R. Smith, Richmond Road, Twickenham, for 2 dishes of Strawberries.
Mr. J. Monro, for box of Peaches and Nectarines.

SMALL SILVER MEDAL.

Mr. Hamp, Gr. to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
Mr. Barter, for 6 Cape Heaths.
Mr. Dunsford, Chingford, Essex, for 6 Exotic Orchids.
Mr. Gaines, Nurseryman, Battersea, for 6 Calceolarias.
Mr. Davidson, Gr. to G. Bishop, Esq., Regent's Park, for 6 Fuchsias.
Mr. Gaines, for 6 Fancy Pelargoniums.
Mr. Weir, for 6 Fancy Pelargoniums.
Mr. Bragg, Nurseryman, Slough, for 36 Pansies.
Mr. James, for 24 Pansies.
Mr. Turner, for Seedling Pelargonium "King of Scarlets."
Mr. Wakefield, for 24 Cut Roses.
Mr. Parker, Nurseryman, Holloway, for Dendrobium cumulatum.
Messrs. A. Henderson & Co., Pine-apple Place, for Eucharis grandiflora
Messrs. A. Henderson, for Grevillea longifolia.
Mr. Gedney, for 12 Exotic Ferns.
Mr. Taylor, for Correct Labels.
Messrs. Lane, for Rhododendron javanicum.
Mr. May, for Cattleya Mossiæa superba.
Messrs. Henderson, Wellington Road, for 24 Calceolarias.
Mr. Salter, Nurseryman, Hammersmith, for collection of Chinese Pæonies.
Mr. Davies, Oakhill, East Barnet, for 1 Providence Pine Apple.
Mr. Jones, Gr. to the Dowlais Iron Company, for 1 Antigua Pine Apple.
Mr. Floud, Gr. to R. Fothergill, Esq., Abernant, Aberdare, for 1 Queen Pine Apple.
Mr. Dawson, Gr to Earl Cowper, Penshanger, for 1 Pine Apple.
Mr. Turnbull, Gr. to Duke of Marlborough, Blenheim, for 1 Pine Apple.
Mr. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, for 1 Green-fleshed Melon.
Mr. Ruffett, for 1 Green-fleshed Melon.
Mr. Dawson, for 1 Scarlet-fleshed Melon.
Mr. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Stafford, for 12 lbs. of Grapes.
Mr. Davies, Oakhill, for 1 dish of Black Hamburgh Grapes.
Mr. Forbes, Gr. to the Duke of Bedford, Woburn Abbey, for 1 dish of Black Hamburgh Grapes.
Mr. Frost, for 1 dish of Black Hamburgh Grapes.
Mr. Phipps, for 1 dish of White Muscadine.
Mr. Smith, Gr. to S. Ricardo, Esq., Titness Park, Sunning Hill, for 1 dish of White Muscadine Grapes.
Mr. Williams, Gr. to Mrs. Warner, Hoddesdon, for 1 dish of White Muscadine.
Mr. Frost, for 1 dish of Muscat Grapes.
Mr. Dawson, for 1 dish of Frontignan Grapes.
Mr. Ruffett, for 1 dish of Peaches.
Mr. Mitchell, for 1 dish of Peaches.
Mr. Richards, Gr. to Lord Londesborough, Grimston Park, Tadcaster, for 1 dish of Peaches.
Mr. Sparrow, Gr. to Lord Robert Grosvenor, Moor Park, for 1 dish of Nectarines.
Mr. Fleming, Trentham, for 1 dish of Nectarines.

SMALL SILVER MEDAL.

Mr. Eyles, Gr. to Sir Edward Kerrison, Oakley Park, Scole, Norfolk, for 1 dish of Nectarines.
Mr. Mitchell, for 4 dishes of Peaches and Nectarines.
Mr. J. Monro, for 4 dishes of Peaches and Nectarines.
Mr. Burn, for 1 dish of Apricots.
Mr. Bousie, for 1 dish of Black Cherries.
Mr. Fleming, Trentham, for 1 dish of Black Cherries.
Mr. Fleming, Trentham, for 3 Plum trees in pots.

BRONZE MEDAL.

Mr. George, Gr. to J. Nicholson, Esq., Stamford Hill, for 6 Fuchsias.
Mr. Cutbush, Highgate, for 12 Pelargoniums.
Mr. Cutbush, Highgate, for 6 Fancy Pelargoniums.
Messrs. Dobson, for 36 Pansies.
Mr. Holder, for 24 Pansies.
Mr. Turner, for Seedling Pelargonium "Prince of Prussia."
Mr. August, Beddington, Surrey, for 24 Cut Roses.
Mr. Green, for Epiphyllum Edwardsi.
Mr. Hamp, for Canna Warczewiczi.
Mr. Gaines, for 12 Exotic Ferns.
Mr. Cutbush, Highgate, for 12 Exotic Ferns.
Messrs. Fraser, for Correct Labels.
Mr. Taylor, for Correct Labels.
Mr. Fletcher, for Aerides odoratum.
Messrs. Standish & Noble, Nurserymen, Bagshot, for collection of Rhododendrons.
Mr. Salter, for collection of Iris Germanica.
Mr. Ruffett, Gr. to Lord Palmerston, Brockett Hall, Herts, for 1 Providence Pine Apple.
Mr. Ewen, Bodorgan, Anglesea, for 1 Green-fleshed Melon.
Mr. Robinson, Gr. to E. E. Tunno, Esq., Warnford Park, for 1 Green-fleshed Melon.
Mr. Tegg, Gr. to A. Pryor, Esq., Dover House, Roehampton, for 1 Green-fleshed Melon.
Mr. Mitchell, Kemp Town, Brighton, for 12 lbs. of Grapes.
Mr. Busby, Gr. to J. Crawley, Esq., Stockwood Park, Beds, for 1 dish of Black Hamburgh Grapes.
Mr. Henderson, for 1 dish of Black Hamburgh Grapes.
Mr. Taylor, Gr. to C. A. Hanbury, Esq., Willen Hall, for 1 dish of Black Hamburgh Grapes.
Mr. Taylor, Streatham, for 1 dish of White Muscadine Grapes.
Mr. Busby, for 1 dish of White Muscadine Grapes.
Mr. Dawson, for 1 dish of Peaches.
Mr. Henderson, for 1 dish of Peaches.
Mr. Mitchell, for 1 dish of Peaches.
Mr. Fleming, Trentham, for 1 dish of Peaches.
Mr. Hill, for 1 dish of Nectarines.
Mr. Tegg, Dover House, for 1 dish of Nectarines.
Mr. Henderson, for 1 dish of Nectarines.
Mr. Nicholl, gr. to General Studd, Oxton House, Exeter, for 1 dish of Nectarines.
Mr. J. Monro, for 2 dishes of Peaches and Nectarines.
Mr. Fleming, Trentham, for 1 dish of Plums.
Mr. Snow, for 1 dish of Figs.
Mr. Richard, for 1 dish of Figs.
Mr. Bailey, for 2 dishes of Strawberries.
Mr. Frost, for Tropical Fruit.
Mr. Drummond, for 12 pots of British Queen Strawberries.
Mr. Tillyard, for 1 dish of Currants.

CERTIFICATE OF MERIT.

Mr. Wakefield, Gr. to Miss Palmer, 48, Portland Place, for 6 Fancy Pelargoniums
Mr. Gaines, for 6 Pelargoniums sent out in 1854 or 1855.
Mr. Green, for Correct Labels.
Mr. Roser, for Correct Labels.
Mr. Mitchell, Nurseryman, Kemp Town, Brighton, for a collection of Ranunculus.
Mr. Turner, for Variegated Pelargonium "Alma."
Mr. Turner, for Petunia "Marquis de St. Vincent."
Mr. Turner, for Pelargonium "General Williams."
Mr. Turner, for Pelargonium "Mr. Beck."
Mr. Turner, for Pelargonium "Spotted Gem."
Mr. Turner, for Seedling Pelargonium "Emperor."
Mr. Turner, for Seedling Pelargonium "Helen Faucett."
Mr. Turner, for Seedling Pelargonium "General Pelissier."
Mr. Hoyle, Reading, for "Pelargonium "Viola."
Mr. Dawson, for 1 Green-fleshed Melon.
Mr. Henderson, Gr. to Sir G. Beaumont, Bart., Cole Orton Hall, Ashby-de-la-Zouch, for 1 Green-fleshed Melon.
Mr. Frost, Gr. to L. Betts, Esq., Preston Hall, Maidstone, for 1 Green-fleshed Melon.
Mr. Dawson, for 1 dish of Black Hamburgh Grapes.
Mr. Turnbull, for 1 dish of Black Hamburgh Grapes.
Mr. Sharland, Gr. to — Farmer, Esq., Gunnersbury, for 1 dish of Black Hamburgh Grapes.
Mr. Phipps, Gr. to Lord Carnarvon, High Clere Castle, Hants, for 1 dish of Black Hamburgh Grapes.
Mr. Thomas, Gr. to J. Baxendale, Esq., Whetstone, for 1 dish of White Muscadine Grapes.
Mr. Tegg (Dover House), for 1 dish of Peaches.
Mr. Drummond, for 1 dish of Peaches.
Mr. Henty, Gr. to D. B. Chapman, Esq., Roehampton, for 1 dish of Peaches.
Mr. J. Monro, Gr. to Mrs. Oddie, Colney House, St. Alban's, for 1 dish of Peaches.
Mr. Ewen, for 1 dish of Figs.
Mr. Monro, Gr. to the Earl of Clarendon, The Grove, Watford, for 1 dish of Figs.
Mr. Marcham, Gr. to A. Oates, Esq., Hanwell, for 1 dish of Black Cherries.
Mr. Phipps, for 2 dishes of Strawberries.
Mr. Snow, for 1 dish of Strawberries.
Mr. Frost, for 1 dish of Strawberries.
Mr. Solomon, Peckham, for 1½ brace Cucumber.
Mr. Clarke, for Citron (new species).

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed* ... ... 1*s.* per packet.
Calceolaria, *choicest varieties* ... ... 1*s.* „
Cineraria „ „ ... ... 1*s.* „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

EXTRA FINE SHOW DAHLIAS AT SIX SHILLINGS PER DOZEN.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, having an immense stock of the above, offers them at 6*s.* per dozen strong plants, and well assorted colours, to clear out for the season, including many varieties of 1855, such as Admiral Dundas, Mrs. Stowe, Comet, Surpriser, Rose Unique, Ruby Queen, Goldsmith, &c. &c. 25 plants extra fine varieties of Show Pansies, 12*s.*; 25 ditto ditto Phloxes, 16*s.*; 25 ditto Belgian Daisies, 8*s.* Selected Pansy Seed, 1*s.* and 2*s.* per packet.

Post-office Orders payable at Middleton, Lancashire.

"WHEELER'S LITTLE BOOK WILL DO SOMETHING TO SATISFY THEIR EXPECTATIONS."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.

J. C. WHEELER & SON, Nurserymen and Seed Growers, Gloucester.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, AND CAULIFLOWER.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Drumhead or Cattle Cabbage, 4*s.* per 1000. A few thousands of bedded autumn early Cabbage, fine plants, yet to dispose of, at 6*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

NEW FUCHSIAS, VERBENAS, AND PETUNIAS, AT REDUCED PRICES.

BAINBRIDGE AND HEWISON, of the York Nurseries, are now prepared to supply the following at the prices attached:—

NEW FUCHSIAS—Wonderful, 7*s* 6*d.*; Conqueror, 5*s.*: Venus de Medici, 5*s.*; and Charlemagne, 5*s.* The four for 20*s.*

NEW VERBENAS—Criterion, Sir Colin Campbell, Eugenie, King of Roses, Cedo Nulli, Dandy, Blue Bonnet, King of Sardinia, Dr. Maclean, Lady Camoys, Lady Kerrison, Imperialis, and Nosegay, 2*s.* each or 18*s.* per dozen. (B. & H.'s selection 15*s.* per dozen).

NEW PETUNIAS—Hermione, Imperial, Monsieur Loyre, Majestica, Madame Eugenie Lemichez, Marquise De Saint Innocent, and Prothe, 2*s.* each, or the seven for 12*s.*

Pompone Chrysanthemums, early flowering ... 4*s.* per dozen.
Herbaceous Plants in pots, good selection 4*s.* to 8*s.* „
Phloxes (select) ... ... 6*s.* to 12*s.* „
Pansies ... ... 4*s.* to 9*s.* „
Greenhouse Plants ... ... 9*s.* to 15*s.* „
Stove Plants ... ... 12*s.* to 18*s.* „

Camellias 1½ to 5 feet, fine healthy plants, price according to size. Any small number of plants free by post.

For other plants see their Catalogue, which will be sent (post free) on application.—7, Bridge Street, York.—June 21.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede
Tweeddale purple-top Yellow Bullock Turnip
Improved Green Round do.
„ Red Round do.
Improved Pomerarian White Globe Turnip
„ Red Globe do.
„ Long Red and Orange Globe Mangel

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

CHOICE NEW GERANIUMS.

LUCOMBE, PINCE, AND CO., having now a very large stock of fine healthy Plants of the *Newest* and *Choicest* GERANIUMS, are enabled to offer them at the under-mentioned reduced prices:—

Selection from the following varieties, 3*l.* per dozen:

Cloth of Silver	Omar Pacha	Serena
Empress	Pallas	Sanspareil
Evening Star	Phaeton	Saracen
King of Portugal	Petruchio	Topsy
Meteora	Pandora	Vesper
Medaille d'Or	Rosaline	Wonderful

Selections from the flowers of 1854 and 1855, if left to L., P., & Co., from 12*s.*, 18*s.*, to 30*s.* per dozen. Plants will be given over to compensate for carriage.

For further particulars apply to the Exeter Nursery, Exeter. Established 1720.

SUPERB TEA ROSES IN POTS.

WILLIAM WOOD AND SON have much satisfaction in offering their friends splendid grown Plants of the following, and other very beautiful kinds of TEA ROSES IN POTS on their own roots. The plants are remarkably strong and well-grown, more especially those offered in (24) size pots, which are half specimens, and peculiarly adapted for parties intending to grow Roses for Exhibition, or for Greenhouse culture.

TEA SCENTED.—Per plant.	In 48 size pots		In 24 size pots.	
	s.	*d.*	*s.*	*d.*
Bougère, light rose, very large	1	6	2	6
Borét, rosy crimson	1	6	2	6
Devoniensis, creamy white, large and fine ...	1	6	2	6
Gloire de Dijon, fawn shaded with salmon ...	2	6	3	6
La Sylphide, salmon buff	1	6	2	6
Le Pactôle, lemon, yellow centre	1	6	2	6
Madame Bravy, cream colour	1	6	2	6
Maréchal Bugeaud	1	6	2	6
Madame Mélaine Oger, pale yellow, splendid	2	0	3	6
Madame Willermoz, white with salmon, centre large, magnificent	2	6	3	6
Safrano, fawn colour	1	6	2	6
Souvenir du 30 Mai, rosy salmon, large ...	1	6	2	6

Other fine sorts of Tea Roses left to our own selection, 15*s.* to 30*s.* per dozen acccording to size. China Roses, 9*s.* to 12*s.* per dozen.

Extra fine plants of Hybrid Perpetual Roses—Duchess of Norfolk, General Jacqueminot, and General Castellane in pots at 2*s.* 6*d.* each. Plants presented for distant carriage.

The usual Discount allowed to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea.

This Horticultural Establishment is an unlimited source of attraction.

The Collection of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42*s.*
Stove and greenhouse Ferns	„	18
Hardy do.	„	9
Selaginellas or Lycopodiums	„	18
Geraniums, show and fancy varieties ...	„	9
Gynerium argenteum (Pampas Grass) ...	„	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.—Packets of each sealed and warranted by them, at 2*s.* 6*d.* free by post.

EXPERIENCED GARDENERS.

L. P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.

Exeter Nursery, Exeter. Established 1720.

MESSRS. E. G. HENDERSON & SON'S
NEW CATALOGUE FOR THE PRESENT SEASON

Is now ready, and contains descriptions of the most approved novelties in cultivation. The following selection they beg particularly to recommend:—

NEW VERBENAS.
Géant des Batailles
Imperatrice Elizabeth
Mrs. Hosier Williams
General Bosquet
Madame Kien-
Foudroyante

NEW FUCHSIAS.
Venus de Medici
Gloire de Neisse
Donna Joaquina
Pendula
Malakoff

NEW CHRYSANTHEMUMS.
Scarlet Gem
John Salter
Trophee
Durafiet
Stellatum globosum

NEW AZALEAS.
Admiration
Criterion
Barclayana
alba illustrata
Crispiflora
Eulalie Van Geert
Princess Mary of Cambridge
Variegata superba
Juliana

NEW GERANIUMS.
Fairy Nymph
Bridal Ring
Countess of Bective
Highland Chief
Mountain of Snow
General Pelissier

NEW CALCEOLARIAS.
Ethel Newcome
Little Dorrit
Minnie
General Pelissier
Eclipse
General Canrobert

NEW PETUNIAS.
Countess of Ellesmere
Duchesse de Brabant
Madame la Comtesse Gérard
Madame Grandgeorge
Charles de Rosmini
Ernest de Lepinau

Gloxinia Jacqueline
Phlox Madame Fontaine
Veronica Imperial Blue
Gynerium argenteum (Pampas Grass)
Bouvardia longiflora
Potentilla coccinea flore pleno
Begonia Zanthina argentea
Dahlia Crystal Palace Scarlet
Eucharis amazonica

Ardisia crispa
Locheria magnifica (Achimenes)
Tydæa amabilis („)
Cuphea eminens
Gonocalyx pulcher
Clematis cærulea odorata
Delphinium cardinale (Scarlet)
Calyptraria hæmantha
Sonerila margaritacea superba

Leptodactylon californica, 10*s* 6*d.*
Æschynanthus fulgens, 10*s.* 6*d.*
Ceanothus floribundus, 10*s.* 6*d.*
Clematis glandulosa (new), 10*s.* 6*d.*
Phygelius capensis, 10*s.* 6*d.*
Tecoma ulva, 10*s.* 6*d.*
Rondeletia anomala
Rhododendron Moulmeinense, 10*s.* 6*d.*
Maranta pardina.

With Catalogue (which can be had post free on application), will be published a plate of nine new flowers, price 1*s.*, or 12 stamps (post free).

CALCEOLARIA AND CINERARIA SEED.

MESSRS. E. G. H. & SON beg also to announce that the CINERARIA SEED of this year's saving is ready in packets of 2*s.* 6*d.* and 5*s.* each.

Orders can now be taken for the SEED of their new and superb CALCEOLARIAS (of the kinds for which the Silver Medal was awarded by the Royal Botanic Exhibition on Wednesday the 18th inst.), the collection of which can be seen in flower at their Nursery. Seed, 5*s.* per packet; second quality, *only* 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London.

The Gardeners' Chronicle.
SATURDAY, JUNE 12, 1856.

MEETINGS FOR THE ENSUING WEEK.

CRYSTAL PALACE HORTICULTURAL EXHIBITION: Wednesday, June 25, at 12 o'clock; and Thursday, June 26, at 10 o'clock.

AT length the British Public has been able to see what may be done with water applied to ornamental purposes, and we may now hope that the dirty discreditable syringes which here and there disfigure our places of common resort will be required to cease their squirting. On Wednesday the wonderful fountains in the grounds of the Crystal Palace were for the first time brought into play, and with a degree of success which must have been as gratifying to Sir JOSEPH PAXTON as it must have been disagreeable to those who foresaw nothing but failure in this vast undertaking. It was a grand triumph of art and science.

The water works at Sydenham may be described as belonging to two different systems. The first, which has been long in action, includes all the jets and fountains and basins belonging to the high level or terraces and adjoining stations. The second, which was displayed on Wednesday, includes a pair of beautiful water temples, a long line of cascade

flowing from each, and a prodigious series of jets, possessing various degrees of strength, and deriving their origin from the midst of two immense basins, or rather lakes, covering the lowest level of the grounds The number of jets thus distributed is nearly 12,000, discharging about 120,000 gallons of water per minute. It was impossible that such a deluge of water should fail in any hands to produce a grand effect; when directed by taste and distributed over many acres, its appearance could not be otherwise than perfectly magical.

Fortunately it was one of those brilliant afternoons in which a few passing clouds were just sufficient to mitigate the heat of a June sun, and the ground was dry enough to invite thousands of gaily dressed visitors to scatter themselves over the grassy slopes that overlooked the scene. A little too much wind drew down the valley and scattered some of the jets into mist, as we fear not a few of the fair spectators discovered to their cost; but although the effect was somewhat impaired, especially about the water temples, yet the general result was superb. First the little jets on the terraces displayed their water plumes, and might be thought to dance with joyous anticipation of what was to come. Presently afterwards a cloud of spray appeared round the water temples, and was shortly succeeded by a circular sheet of water streaming down their sides in its progress over the cascades to the scene below. Then came a pause. The Royal carriages passed slowly over the winding roads and round the lake, the gay crowd running from all directions to catch one other glimpse of the features they love so well to look upon. The station of the august party is finally taken up, and in an instant the surface of the tranquil lake bursts into wondrous life; jet succeeds jet, fountains of all kinds sparkle and dash into fantastic forms, and on either hand a vast torrent struggles perpendicularly towards the sky, sighing, and surging, and panting, like some fierce columnar water god endeavouring to force his way upwards from a subterranean prison; and not alone, but surrounded by a crowd of attendants, clustering round his base, and giving solidity to the space he stood upon. The author of Undine should have been present to describe the scene. The *Times* relates what happened in more sober language than we can command:—

"The effect was little less than magical, and for an hour afterwards charmed alike the eye and the ear. The large fountains in the lower basins, and the circular one situated on the plateau, depend solely upon the water for their effect, and not at all upon architecture or sculpture, like the smaller fountains on the terraces, with which visitors to the Palace have long been familiar. The water which they contain is made obedient to the hand of the artist and shoots into the air, forming innumerable devices of great beauty. Around the circular basin, and in some parts of the larger ones, it becomes a liquid hedge, or plays in a network of jets, while in the centre and over almost the whole surface of each of the basins it throws up sparkling showers in all shapes, to various heights, some breaking into misty spray at an immense elevation from the surface."

What that elevation may have been we will not venture to compute. To us it appeared that the usual height of the principal jets was equal to that of the galleries in the Palace itself; but we also thought that when, as if with some vast effort and renovated strength, a sudden heave propelled the water to the highest, it must have gained the level of the crown of the nave.

Nor was this a sudden and violent operation, passing away after the display of a few minutes' brilliancy. On the contrary, we should say that at the end of half an hour the scene had hardly lost any of its grandeur; and certainly none of its beauty.

We cannot now stop to describe in homely terms the manner in which this great result has been brought about. To that we may return hereafter, when we have procured an exact authentic account of the arrangements.

Next Tuesday the Fellows of the Horticultural Society once more assemble to consider what course to take with their Garden, and, as we trust, to come to some final decision upon the subject. It is certain that the subscription, upon which some gentlemen confidently reckoned, has not reached much more than 3000*l.*, although 5000*l.* is the smallest sum that is required even to *make an attempt* at maintaining the Garden. Under such circumstances it seems that there is but one course to pursue.

No one who has been present at the meetings of the Society held during the spring can entertain a doubt that a large number of the most influential members disapprove altogether of the attempt which it has been proposed to make; many of those who have sent in their subscriptions have done so from an unwillingness not to contribute to an experiment which if successful might possibly be of permanent utility; and the result is that out of 750 members only 195 have signified their willingness to be parties to the maintenance of the Garden at Chiswick. The reason is obvious. They are convinced that such an establishment would be discreditable to the Corporation unless maintained in a state of complete efficiency; and they are also persuaded that to so maintain it is beyond its possible pecuniary resources.

We therefore suppose that the Fellows will by this time have discovered that the course recommended by the Council six months since is the only one which is practicable. This recommendation was to relinquish the Garden at Chiswick, and after realising the property there, to form a small experimental garden in some more convenient place, means being at the same time taken to reorganise the Society, to readjust the rate of subscription, and to take in future a more scientific direction, garden exhibitions being abandoned, at least for the present. Were this done the Society would be in a safer pecuniary position than ever, and it is reasonable to suppose that the public would gladly give their support to an institution which, abandoning show for practical utility, could exist with a more moderate income produced by a less costly scale of annual subscriptions.

Doubtless there is a part of the public which has for many years contributed to the funds of the corporation merely for the sake of the brilliant displays at Chiswick, and which with no real love of horticulture, has for personal gratification alone associated itself with an institution chartered for the promotion of horticulture in all its branches. Such portion of the Fellows may be expected to fall away when that which attracted them to Chiswick is withdrawn. But there is another and a greater public, poorer indeed but more in earnest, which attaches as much importance to the production of a Cabbage as of a Camellia, and which would willingly aid an institution that applied its funds exclusively to the improvement of the art of gardening. It is out of that other public that the Horticultural Society must reconstruct itself, if it is to exist. Should that be found impossible, the inference will be that the Society has done its work and is no longer wanted. If that is really the case the sooner the truth is declared the better, so that the corporation may retire from the field with honour while able to do so.

This at least is certain, that the action of the Council should be left perfectly free and unimpeded after Tuesday next. We have never objected to the discussions and proceedings which have now endured for half a year. But it is time to put an end to them. The legally governing body is the Council, which is responsible for its acts, and which is not only as much interested in the welfare of the Society as any one possibly can be, but is alone able to judge correctly of the manner in which its affairs can be most advantageously conducted. If there is to be a continual interruption to its proceedings on the part of some half-a-dozen Fellows its action is paralysed, and the solid interests of the Society are placed in serious danger. We therefore trust that gentlemen will be satisfied with the experiments that have been made, although they have not terminated as may have been expected. When more than three-fourths of the Society tacitly signify their dissatisfaction with the maxims proposed by the promoters of recent schemes, it will surely be felt that such schemes ought to be abandoned. Let the general meeting then on Tuesday resolve unanimously that the Council be authorised to take such steps as in their opinion the interests of the Society demand, even although they should involve the relinquishment of the Garden at Chiswick and the realisation of the property contained within it.

New Plants.

177. Rhytidea bicolor.

Gen. nov. Liliaceum: Brodiææ proximum, perianthio inflato corrugato basi gibboso limbo revoluto, squamis hypogynis O, diversum.—R. *bicolor*.

Among the novelties exhibited by Messrs. Veitch at the May show in the Crystal Palace was a singular bulb, with narrow leaves much shorter than the stout scape, which was terminated by several longstalked umbellate pendulous flowers, deep crimson except the limb, which consisted of six short sea green revolute nearly equal segments. The tube of these flowers was obovate, slightly three cornered, much wrinkled, with three pairs of gibbosities at the base. Immediately within the throat arose three firm roundish apiculate concave scales or barren stamens; and between stood as many broad thin oblong anthers two-lobed at either end and opening by their sharp edges. The filaments of these anthers were distinctly adnate to the tube of the perianth. There were no hypogynous scales; the pistil was exactly that of *Brodiæa congesta*. We find nothing like it in books, or in our herbarium, and therefore propose it as a new genus nearly allied to Brodiæa, but distinguished by the marks above indicated. It is a native of California and perfectly hardy.

PLANT DISEASES.

The rapid increase within the last few years of what may be called plant diseases is remarkable, and it is much to be regretted is to a great extent inexplicable. Since the advent of the Potato murrain how many new forms of disease have presented themselves among cultivated plants it would not be easy to explain. The Vine mildew, like the Potato blight, has brought thousands in the wine countries to a state of famine. The Cucumber and Melon chlorosis has baffled, and does baffle at the present moment, the skill of many of the most intelligent and enterprising gardeners in the country, and not only in Great Britain but also upon the continent, and I have reason to believe also in America. The spot among Pelargoniums is an old grievance, which a few years back deprived the writer of 6000 plants in a few months; then again, we have what is called by Mr. Fish the "palsy" among Calceolarias, a disease which has been rife for several years past among the high-bred herbaceous kinds, and from which Messrs. Henderson suffered very much; now it has spread to the original species and shrubby kinds, and I fear is contagious. A nobleman's gardener told me a few days back he had been obliged to give up the growth of Calceolarias, both as pot and bedding plants, as he found it quite impossible to keep them healthy. One of the great London nurserymen has lost an 18-light pit full of plants this spring, all bedding kinds; and I know another gardener who out of a stock of 5000 plants in rude health in February could not muster 500 to plant out at bedding time; and what is worse, many of the plants when bedded out go off, Mr. Fleming and many other successful growers having last season lost many hundreds after they had become established, and were fully in bloom. Again Salvia patens, to-night a strong robust healthy-looking plant, is to-morrow a withered mass, hundreds dying off in the same way. Petunias, Verbenas, Lobelias, and many other plants used for the flower garden are similarly affected, and lastly it appears even the Pine Apple is suffering from chlorosis.

Nor are these diseases confined to tender plants alone; Carnations and Picotees, Pinks, Heartsease, and similar soft herbaceous plants also suffer, and even a cultivator as renowned and careful as Mr. Turner of Slough lost two or three years back an immense quantity of young stock.

To what are these ailments to be attributed? As is justly remarked the most skilful and the most careless cultivators suffer alike, and plants which a few years back would grow anywhere and under very ordinary treatment now cease to yield any profit to the cultivator. In the kitchen garden Spinach has long become an uncertain crop, Cauliflower is failing, Parsnips are spotted, and Onions are constitutionally what they used not to be. To recur to the question at the head of this paragraph, is it the wearing out of species, the use or rather abuse of highly azotised and stimulating manures, or are certain plants becoming sick of the soil where they have been grown for years, and only require a change of soil and climate to induce their pristine vigour? I am no believer in the wearing out of species, but I am quite convinced that many plants if kept too long on the same soil deteriorate very appreciably, and I am equally certain that overfeeding and careless seeding exercises a very deteriorating influence on plants which are increased principally from seed; in fact diseased parents produce, as a rule, diseased offspring, but to such a state of gambling has the seed trade descended, that it matters little how seeds are saved, so long as they can be procured in quantity. Some years back when writing on the spot in Pelargoniums, I endeavoured to inculcate this doctrine, and I have reason to believe that by breeding only from healthy parents and avoiding highly enriched composts and liquid manure a great improvement has taken place in the constitution of the plants. With regard to change of soil and climate every farmer knows that if he does not follow a systematic rotation of crops, and if he does not change his seed, obtaining it from a different soil and a distant part of the country, his crops soon deteriorate, and ultimately become worthless; but in flower gardening the same bed is occupied by the same plants year after year, and yet we wonder "that they do not do as they had used to do." Strange would it be if they did; the soil is sick and tired of them and they of the soil, a radical change is necessary, and I think an annual exchange of cuttings, I taking my friend's in Bedfordshire and he mine from Hants, would do much to improve the constitution of our plants, and to increase their blooming and growing qualities. With the finer kinds of Calceolarias (bedding kinds I speak of) some such change is indispensable, or they will annually deteriorate, until at last they will throw themselves out of cultivation, as they have done in one place already. With Cucumbers and Melons in a diseased state, I find if I send my diseased plants to a neighbour three miles away they become healthy, but if I receive his healthy plants with his good soil to pot them in they are not a week in my garden before they become diseased. How is this? Is the disease in Cucumbers contagious as

Mr. Fish asserts the "palsy" in Calceolarias is, or will my hard water from the limestone and my neighbour's soft water from an open pond account for the difference? There is, I think, some reason in this suspicion, for being very badly supplied with water, I always find my plants show the most disease when I am compelled to use that from a hard-water well, though I take care to expose it to the action of the air for some time before I use it. Now, for Melons and Cucumbers I find the following general rules, the result of an extensive series of experiments, the most suitable to prevent, or at any rate to moderate the virulence of the disease.

1st. Use simple and well aërated compost, consisting of turfy loam, turfy peat in the proportion of three parts of the former to one of the peat, adding about two quarts of thoroughly decomposed or charred cow-dung to each pot or hill of plants.

2d. Maintain a nice bottom-heat of 70° to 80°, but endeavour by free airing of the house or pot to promote a slow, steady, hardy growth, and if in houses do not stop the plants until they have attained the length of 8 to 10 or more feet. Allow no fruit to be produced until the plants are thoroughly established, and then avoid leaving too many fruit on the plants at the same time.

3d. Use soft water the heat of the bed or plunging material, avoiding hard by all means. If liquid manure becomes necessary, prepare it by putting 1 peck of fresh cow-dung, 2 oz. of common salt, and a lump of lime to 20 gallons of water. Mix it well over night, and strain it through a sieve before using the following day.

4th. Ventilate as freely as you can, and endeavour to keep the plants as hardy as possible. If the plants flag, shade them with Scrim's or Haythorn's netting; indeed a shade of this kind kept on constantly through the summer will do no harm. Avoid extremes of temperature, a cool moist heat especially on warm nights will be found favourable, while a close warm moist heat is provocative of disease.

If these rules are observed no one need fear the disease much, but if you allow the plants to carry fruit before they are thoroughly established, you deserve to pay the penalty of your indiscretion. I have mentioned charred cowdung to be used in the compost; let me explain; it is thus prepared. Collect the dung dry from the field, or dry it artificially; then procure a bundle of straw and some small sticks, such as old brooms, and having lighted the fire throw on a thin layer of the dung, then more straw and sticks, and so on, until you have charred the lot. The object is more by exposing the dung to heat to destroy the insects and ovaria generally deposited in it, than to convert it into charcoal. This, however, will be found an excellent manure to use for many soft-wooded plants, especially Fuchsias, Geraniums, Gloxinias, and the like. When charred it may be used quite as safely as if three years old, which is not the case when reduced to a friable state by slow decomposition.

In concluding these remarks let me impress upon gardeners the importance of getting their seeds saved over as wide an extent of country as possible. Three of the very best gardeners in England, they were brothers, lived respectively in Kent, Shropshire, and Devonshire. No men produced such fine vegetables, and why? Their seeds were always running the round of these three counties, and hence were annually in a fresh soil and climate. Let the seed trade pay attention to this fact! *Quis.*

VEGETABLE PATHOLOGY.—No. CXXVI.

503. PARASITÆ (*Phænogams. Broomrape, Mistletoe, Balanophoræ*).—The Dodder after it has germinated throws up a slender cord which attaches itself to some neighbouring plant, and if suitable to its nature, lives upon its juices by means of suckers (adventitious roots) sent out from this stem. There are many plants, however, as Thesium, Rhinanthus, Orobanche, and possibly the Balanophoræ also, which after germination attach one of their rootlets to the root of some Phænogam, which penetrates to the young wood and thus imbibes the juices. The connection with the matrix may be more or less absolute, but at any rate a large portion of nutriment is always derived from it, though a part may occasionally be derived from the soil. Mr. Mitten was I believe the first to point this out in Thesium, but it has of late been followed out by Decaisne (see *Gardeners' Chronicle*, 1848, p. 636), Caspary, and others, insomuch that the cultivation of many of these plants is now a matter of comparative facility.* The disturbance caused in the matrix is very various in degree. If it is only annual, destruction is almost certain. At Florence it is a difficult matter to cultivate Peas on account of a species of Broomrape, and in our own country, especially towards the south of England, Beans, Clover, and Hemp occasionally suffer material damage. If the plant is biennial, the injury though still considerable may not be so great as to destroy life, and with strong perennial roots there is simply a great amount of distortion without absolute destruction. The parasite in such cases often extends gradually at the base beneath the bark, at the same time swelling out, to which there is a corresponding swelling in the matrix. As this is generally of longer life than the parasite, when the latter dies, the tissues gradually break up or shell out and leave a distorted cup marked with irregular plaits, the tissues of which are singularly deranged. Specimens of parasite-nests are figured in *Gardeners' Chronicle*, Dec. 3, 1853, resembling very closely the cups produced by *Balanophoræ* though produced by various species of Loranthus. The former are in great request in Thibet, where they are turned into cups which command a great price when the tissues are arranged in the most approved fashion, while others are worth only a few pence.

504. The seeds of Loranthus, Viscum, Myzodendron, and other Mistletoes vegetate on the branches, to which they adhere either by the slime contained in their outer coat, or by feathery appendages which are a modification of the slime and curl round the twigs like little tendrils keeping the seed firmly fixed. As in the other cases the root penetrates through the bark till it comes in contact with the alburnum, where it can profit by sap already elaborated. The derangement of the tissues of the matrix is more or less, according to the particular species of parasite, but in all cases alike the tree suffers in some degree from the stranger.

504. The vascular system of the matrix and parasite are often incorporated so intimately that it seems as if the vessels went from the one into the other. This is however I believe a fallacy. The vascular tissue in the young parasite is like other tissue of the kind, formed by a transformation of its cells, induced by the neighbourhood of the vascular tissue of the matrix. The case is in fact very like that of adventitious roots and buds, which are always formed in the neighbourhood of vascular tissue.† That the vascular system of the two are at length perfectly incorporated appears quite certain, and according to Mr. Newport it is probable that something of the same kind takes place as regards the tracheæ in truly parasitic insects.‡ A good figure of the parasitic nests formed by Myzodendron will be found in Dr. Hooker's Antarctic Flora. *M. J. B.*

* Several species of *Orobanche* are raised successfully from seed in the Berlin Garden by Tittelbach, an adjunct of the Institution. Verhandlungen des Vereins zur Beförderung des Gartenbaues in d. k. Preuss. Staaten, 1853.

† It is on this account that buds are formed in the axils of leaves. In *Gleditschia* three or four buds one above the other, besides the thorn, are often found in one axil.

‡ Linn. Tr., vol. 20, p. 346.

ENTOMOLOGY.

THE ROSE-STEM BORING SAW-FLY.

NUMEROUS, to a surprising extent, are the evils to which the Rose fancier is subject. The green-fly and coccus assail the twigs of his favourite plant, whilst the caterpillars of many moths and saw-flies feed on the leaves, either openly (for the most part) or inclosed in moveable cases, formed by themselves from portions of the leaves, and consequently more difficult of detection, whilst a few insidiously burrow into the substance of the leaves, forming tortuous dark-coloured galleries, within which the caterpillar feeds unsuspected and at its ease. The bud is assailed as soon as it makes its appearance by the caterpillars of some species of little moths of the family Tortricidæ, which fasten the young leaves and buds into a mass within which they also "take their ease in their own inn." All these insects are, however, more or less visible to the observant Rose fancier; but the insect whose proceedings we are now to describe is far more obnoxious, as it completely conceals itself until the mischief which it effects is completed, and its presence is only made known when the bud which has escaped its numerous foes, and is just ready to reward the cultivator, suddenly falls down, on the slightest breeze,

just as "when rude hands the twin buds sever." The cause of this sudden and unexpected breakage of the stem is a small caterpillar or grub of a species of saw-fly which, having entered into the stem of the bud at one of the eyes, has eaten its way downwards, consuming the pith of the plant, and forming a cylindrical burrow down the centre 2 or 3 inches long. It is during the month of June that this mischief is chiefly effected. I have found the larvæ in this position on the 3d of June in the stems of the buds, but during the winter also they may be found in the pith of Rose snags and dead Rose stumps, resembling in this respect the small black caterpillars of a Tortrix, whose history I trust to complete for illustration in our entomological series. A larva which I have found in the middle of February in its cocoon in a dead Rose stump, and which had burrowed about an inch deep into the pith, closing the mouth with a fine web, and which is represented in the accompanying figure, was of a pale green colour, with fine black hairs scattered over the body; the head yellow green, with a fulvous patch in front, the legs pale yellow, and the back with a darker line down the middle; the eyes were black and the jaws dark at the tips; the legs are 22 in number. Reaumur has figured this Rose larva in his fifth volume, pl. 10, fig. 1-3, but has given no description of it. Bouché, the Berlin horticulturist, who has so carefully investigated the natural history of garden insects describes the larva as cylindrical, dark green above, with a pale dorsal line, and with the sides and belly greyish green, a double row of black dots along the sides, the head dotted with black and the eyes and orbits pitchy black. This description, according to Dahlbom (Clavis Nov. Hym. Syst. p. 35) is made from a larva which has not yet arrived at its penultimate change.

From the statement of Bouché it would appear that in its young state in the autumn the larva feeds on the leaves of the Roses, and that on the approach of winter it burrows into the stem to hybernate, but as I have seen the parent fly depositing its eggs on the Rose leaves in the first or second week in May in fine early seasons, and have subsequently found the young larvæ in the bud stems, I am inclined to believe that like the Gooseberry saw-fly this insect goes through several generations in the course of a season, and that the young larvæ will indifferently eat the Rose leaves or burrow into the twigs. The perfect insect is the Tenthredo cincta of Linnæus (Emphytus cinctus of modern authors); the body of the male is entirely black and glossy, that of the female is of the same colour, but is distinguished by having a white band across the middle of the abdomen. It is this sex which is represented in the accompanying figure, the cross lines showing the natural size. The legs are reddish brown with the thighs black, the coxæ of the hind legs of the female are pale buff. The wings are glossy, slightly stained with brown, with a black stigma on the fore margin of the anterior pair. They are very active in the sunshine and appear in the perfect state in the month of May. The Rose cultivator will hardly need to be reminded of the necessity of carefully examining such of his Rose twigs as droop or break off in the manner above described, in order to search for and destroy the larvæ. As to the destruction of the perfect insect, it is not difficult to those who know it, as it is of considerable size, and easily to be observed on the Rose trees in the sunshine whilst in the act of depositing its eggs. *J. O. W.*

Home Correspondence.

How to encourage Cucumber Plants to root.—The remarks by a correspondent in a late Number, on a mode of encouraging Cucumber and Melon plants to root freely, have induced me to trouble you with the results of my experience in the matter. He proposes to introduce double earthenware tubes into Cucumber and Melon beds for the purpose of encouraging the growth of healthy roots. It does not seem very clear to me what advantage there is to be gained by the introduction of earthenware tubes, or indeed any sort of tubes, for as it is the air which is continually circulating around such articles imbedded in the soil which attracts the roots to their surface, and not any virtue in the articles themselves, the same results are insured when the soil contains a considerable amount of charcoal in a rough state. I will endeavour to describe the method I adopt to increase the production of strong healthy roots, but it will first be necessary to give a slight sketch of the house in which my plants are grown. It is 28 feet long by 12 feet wide inside; 9 feet from floor to ridge; the path, 3 feet, is in the middle; the beds on each side 3 feet wide by 1 foot deep from slate covering of tanks to the kerb; partitions of ½-inch deal divide the beds into 4 feet spaces, the allowance of room for a single plant, the whole resting on a series of brick arches. The pipes for heating the atmosphere pass round the house, between the bed and outside walls. The ventilation is conducted by opening a series of sliding ventilators in the walls, connected to a horizontal rod, which moves all at once. These apertures are below the pipes, so that no sooner does the air enter than it becomes warmed before coming in contact with the foliage. Additional air is provided for by moving the ridge the whole length, and by a number of circular sliding ventilators, placed at short intervals along the middle of the pathway, communicating with 4-inch tile drains led under the house from each side, having a number of grated openings into the exterior atmosphere along the walk. Those in the path are never shut in summer, and the air from them keeps a comfortable feel in the house even when the thermometer ranges about 80°—a great desideratum which, in all forcing houses, should never be lost sight of. Before planting out I put 2 inches of broken tiles on the slates by way of drainage, then 2 inches of chopped turf, then 1 foot of soil, composed of two parts turfy sandy loam, one part leaf mould, and one part rotten cow dung, adding a few pieces of rough charcoal. The fire is then lighted for one day to warm the bed through. The plants are now put out, and a good watering given. They are trained on a wire trellis 1 foot from the glass, and are stopped when they reach the first wire, after which they are trained very much like a Vine, having three rods, on the short spur system. When they have obtained a good hold of the soil, and the roots make their appearance, the whole surface of the bed is covered with a layer of Moss obtained from woods or old stumps of trees. I procure the Moss as free from Grass and other plants as possible, as these draw too much nourishment from the soil. In about eight days the roots begin to appear

through the Moss, and in three weeks the whole is one mass of healthy fibres. The bed is then covered with 3 inches of old Mushroom refuse, to which is added a few pieces of charcoal, and no more soil is allowed for the year; but when the roots again appear through this—if it be desirable to prolong the fruiting season—we cover with another layer of Moss as a finish. In watering—which, even in the hottest weather, is never necessary oftener than once a week, or three times a fortnight—I use manure-water prepared in the following manner:—A 60 gallon cask is sunk in the ground level with the surface; another of the same dimensions, having a ¾inch tap inserted about two feet from the bottom, is placed alongside. Into this tub is put one peck of soot and one peck of horse droppings fresh from the stable. The tub is then filled to the brim with rain water, and the whole is well stirred and allowed to settle for a week, after which it is run off into the bottom tub, clean, and fit for immediate use. The top tub is again filled and is ready by the week following if wanted. When used the only diluting it receives is the small quantity of hot water necessary to raise the temperature of the liquid to from 65 to 70 degrees. Now the advantages of using Moss on the beds of such a structure are, I think, threefold. First, its capacity for retaining a great quantity of moisture among its thick layers, and thus keeping the roots of the plants constantly humid, thereby rendering frequent little waterings unnecessary. Second, in keeping the atmosphere day and night charged with that degree of humidity without which it is useless to attempt to grow the Cucumber to anything like perfection. And, thirdly, it gives a neat cheerful appearance to the house, which never fails to please the eye however frequent the visits. We use a shading of thin calico in bright weather, and use the syringe freely with tepid rain-water three times a day. The temperature of the atmosphere ranges from 65° to 70° at night from June till October without the aid of fire-heat; the bottom-heat being kept steadily at 70°. By the above treatment I can always induce the plants to root freely on the surface, which is more important, than those deep in the soil, as they are farther from the direct influence of the dry air and moisture—agencies, the importance of which cannot be over-rated. I prefer good old sorts of tried merit, of from a foot to 14 inches long, to the Heroes, Captivations, and Standards of the day, and although I have never measured my crops by the yard I have always plenty of Cucumbers. I think many exhaust their plants by subjecting them to very high and dry temperatures. They neither remain so long in bearing, nor do they produce the number of fruit, to say nothing of their liability to be eaten up with thrips, spider, &c. The temperature here in winter is seldom higher than 55° at night in fine weather, and in very hard nights I have had it from 35° to 40°, and no injury done. I think the less fire-heat at all seasons the better, provided there is every command of air and moisture. *W. Watt, Aswarly Park, Lincolnshire.*

Blight cured by Sulphur. On Thursday, the 12th June, the Vines in a vinery here appeared affected by a sudden blight (the leaves shrivelled and burnt as by a sirocco), so severely as to promise the eventual total failure in perfecting fruit. Sulphur was directly applied without, and after, a syringe washing. This appeared to do little good. Last year this process, although it seemed to check the blight, completely failed in saving any portion of the fruit. Sulphur was then placed on the floor and burnt, and this seemed to arrest partially the progress of the blight. Then the thought occurred of sprinkling water on the heated flue, and sulphur upon that. This caused a health-giving vapour to rise, but it was found that the water poured upon the hot flue dried up too rapidly. The thought then came into the mind of the experimenter to sprinkle the water, and next the sulphur upon the cold flue, and then gradually to warm the flue. This, along with keeping up sufficient temperature, has been found to answer (as far as yet appears) perfectly. Each night this method has been followed, and now new leaves are growing, and the whole crop looks beautifully healthy. From this may not the inference be drawn that the evil effects of blight, of all descriptions and in all places,—in trees on walls, or standards, and in Hop grounds—may, by timely and proper employment of water, fire, and sulphur, be in great part checked, mitigated, or altogether avoided: although, of course, their application *sub Dio* may be a matter of difficulty, and prove of less virtue? The virulence of that exceedingly curious, novel distemper, which so (almost) unaccountably last year affected the otherwise ordinarily little excitable minds of many worthy Hop factors—sulphurophobia—would probably also yield to the gentle "alterative" thus humbly presented for exhibition, their main cause of dislike to the application of sulphur to the foliage of the Hop being, in great part, obviated by its taking the form here mentioned. It is for you to say whether the individual who has apparently saved my Vine crop deserves especial notice for his ingenuity. He is a labourer in my employment; his name Samuel James. *H Clinton, Colonel, Barkway, near Royston, Herts.*

Horticultural Frauds.—Will you (on permission) favour me with the address of your fair correspondent signing herself "Jessica," as I am anxious to learn the name of the party who supplied the Grass seed for her lawn, for a more singularly parallel case to my own could not be described. I certainly did not lime and use the garden engine, but about the same proportion of ground was brought into my lawn from the adjoining meadow, which was efficiently prepared by the removal of the surface, levelled down, and sown with a highly vaunted mixture of seed especially selected for lawns, and which "had given the greatest satisfaction to half the nobility and gentry of the kingdom"—in evidence of which, testimonials (how are they obtained?) from numberless sources were liberally and gratuitously given with the seeds. I send you—as I sent the party supplying the mixture—a specimen of the products of this celebrated sample of the West of England Lawn Seed. (Have you ever seen a lawn in the West of England?) The most provoking part of my mishap is (independent of an outlay for preparation to about the same amount as your fair friend) that the meadow and the other adjoining meadow pieces have from close feeding a far finer swathe now than the piece taken into lawn. I may mention the same party supplied me with small samples of "new and superior" Mangel and garden Carrots, both of which completely failed and required re-sowing. The "weaker sex" do indeed, with justice, demand a champion; and though none so good, so powerful as yourself, I, for one, if permitted, would volunteer my humble services, and should this be favoured with any notice by your fair correspondent, she may at once regard and install me, if it be her pleasure, as honorary secretary to the "Ladies' Protective Floricultural Association" (and an honour I shall esteem it), to which may be attached the condition that I shall only hold office so long as my services merit their approval and (above all price) their smiles. There is now more than ever great need of some understanding amongst amateur gardeners; the trash and rubbish advertised as new and handsome annuals of fine and improved varieties of bedding plants—*usque ad nauseam*—should be peremptorily dealt with, and an article, quarterly, from your valuable pen, stating that which is really good and that which is not, would prove sufficiently protective to all parties, to the strong as well as to the weak—headed, "Cautions to amateurs in their selections of flower-seeds and bedding plants." Guarded by such a leader if they go wrong the fault will then rest with themselves; your duty towards the floral public will have been discharged. *Thomas Ingle, M. D, The Villetta, Emsworth, Hants.* [We are unacquainted personally with the facts now alleged; but this we do know, that anything more disgraceful than the "fine selected Grass seeds" frequently supplied to purchasers cannot be pointed out in the long catalogue of horticultural impositions.]

Wolfsbane or Monkshood.—I notice that the Aconitum Napellus is coming into bloom, and it would be a good time to point out its dangerous properties. It is unfortunately very common in the neighbourhood of London, and I observed it in one instance growing alongside a patch of Parsley. The late fatal accident at Dingwall has made it well known by hearsay, but it is surprising how few know it by sight. This I therefore repeat would be an excellent time to direct attention to it by a short description in your columns, accompanied by an advice to unite in a combined attack on it throughout the country. Many people suppose it to be a kind of Larkspur, and think it too pretty to be destroyed. Having suffered from its poisonous effects myself, I would gladly do anything to assist in its extermination. *William B. Smith, of Peter Lawson & Son's (London Branch), 27, Great George Street, Westminster.*

Fumigation.—I am obliged to "H." for his courteous and practical reply to my question relating to this subject, and I beg to inform him that I have no objection whatever to the filling of my conservatory with Tobacco smoke, nor have I any difficulty in destroying the insects there by the ordinary modes of fumigation. Therefore, I wish an answer to my question on entirely different grounds, in order to feel certain that we use a most expensive article in the most economical and effective manner. And surely with the amount of science we possess at our command we ought to know something more definite about the cause that produces the effect in an operation of every day occurrence than can be given by even the most experienced gardeners; consequently the chemist who would answer the following questions would confer a general benefit:—What is the name or nature of the substance driven off by the burning of Tobacco that proves so destructive of insect life? The nature of that substance being ascertained, is it produced by Tobacco only, or may it be had for the cost of collection from our fields or ditches? There is everything in favour of the latter supposition, as some plants (the Elder for instance, as mentioned by "H") produce the same effect as Tobacco in solution, and would probably produce the same results in burning. At all events, a knowledge of even these, as facts, would soon lead to less expensive, if not less offensive, modes of fumigation, and prove, as I have said, a boon of no small magnitude to the community in general. *J. M.*

Gardeners' Benevolent Institution.—We have recently had two or three articles in your Paper urging the claims of support which this institution has upon the public. So far so good. But there is another point equally or even more important than that to which I would direct attention—it is the difference of claim for election as pensioners (which the polling papers exhibit) existing between different candidates. After perusing the list, and observing which two were the most likely, according to their present position, to be elected in July, I find one candidate 63 years of age (in his fourth application), who has never subscribed, numbers 523 votes; whereas the votes of another (in his sixth application), a subscriber for eight years and 83 years of age, only amount to 142. In the rules we find these words, "the object is to give a decided preference to those persons who have been contributing to assist others." To me the above system of voting appears inconsistent on the part of the subscribers, and I fear that it has a tendency indirectly to injure the institution. I admit, however, that there are many (as your correspondent observes too truthfully at page 405), "who having families find themselves ill able to subscribe even one guinea annually." In such cases I would suggest the propriety of publishing their claims more fully than has hitherto been done. The widow of James Arnold, who subscribed 8 years, appears also to have a strong claim upon subscribers. *W. C. E., Gloucester.* [We have a very sensible letter upon this subject from "a working man," but we are unable to publish it till next week.]

Peaches and Nectarines.—Some time ago I placed four Peach and one Nectarine stones in a pot, and all have grown about 12 inches high; but on shifting them I found only the halves of five stones. This I do not understand. Will you enlighten me on the subject. *Diamond.* [The other halves must have been overlooked.]

Societies.

Royal Botanic, Regent's Park, *June* 18.—This Society's second exhibition took place on Wednesday last. The day was cloudy but dry, the exhibition a good one, and there was a large attendance of visitors.

Stove and Greenhouse Plants were numerous. Of groups of 16 plants the best came from Mr. May, gr. to H. Colyer, Esq., of Dartford. Conspicuous among them were Dipladenia crassinoda, beautifully clothed with flowers of unusual brilliancy; Ixora javanica, a fine bush, every branch of which was furnished with a great bunch of orange-coloured blossoms; some huge specimens of Aphelexis, Epacrises, and Pimeleas; Rondeletia speciosa in full growth and well flowered; the pale yellow Allamanda grandiflora and a large bush of Dillwynia clavata, loaded with rich brown and yellow Pea-shaped blossoms. Next in point of merit stood Mr. Taylor's collection from Streatham. It contained Adenandra fragrans; Aphelexis spectabilis grandiflora, literally a ball of blossoms, 2 feet in diameter; Pimelea hispida; and a charmingly flowered Ixora coccinea. Mr. Peed produced Cyrtoceras reflexum, in good condition; Epacris miniata; two well flowered Azaleas and Pimelea Hendersoni. Of other plants in this class Mr. Barter had Roella ciliata, covered with handsome blue blossoms, and not possessed of that rustiness of appearance which usually belongs to this plant. Dipladenia crassinoda, Statice arborea, and Allamanda grandiflora, from the same exhibitor, were also excellent specimens of good cultivation.

In 12 Stove and Greenhouse Plants the first prize was awarded to Mr. Cutbush, of Barnet, in whose group were beautiful bushes of Aphelexis, Polygalas, Heaths, and Statices. Messrs. Fraser had Statice Holfordi, Pimelea Hendersoni, Rhynchospermum jasminoides, and the bright red-flowered Azalea refulgens.

In collections of 10 Stove and Greenhouse Plants Mr. Carson had an excellent example of Mussænda frondosa, well furnished large white foral leaves or bracts the most showy portion of the plant; two beautiful Everlastings, two Allamandas, two Polygalas, and two handsome Azaleas. Mr. Green sent an admirable specimen of Epacris miniata beautifully flowered, the latter hanging down in profusion from the undersides of every shoot like long rows of coral drops tipped with white. The same exhibitor also sent charming plants of Allamandas, Azaleas, and Everlastings. Mr. Dods' collection, as far as display of flower was concerned, was rather past its best. Phænocoma proliferum was, however, in good condition, and so was Aphelexis humilis rosea, a fine kind with large showy blossoms. Among Mr. Morris's plants we observed well flowered examples of Hoya imperialis and campanulata, the latter a sweet-scented kind furnished with numerous bunches of greenish yellow saucer-shaped blossoms. The same group also contained a good Stephanotis floribunda.

Groups of 6 Stove and Greenhouse Plants came from Messrs. Roser, Williams, Morris and others. Among them were Aphelexis macrantha purpurea; Erica Cavendishi, Eriostemon buxifolium, Abelia floribunda, a handsome greenhouse shrub; Ixora coccinea and the sweet scented Stephanotis. Mr. Hamp showed Relhania squarrosa, a yellow flowered plant seldom exhibited, and Mitraria coccinea.

Tall Cacti were shown by Mr. Mortimer and Mr. Green, and a beautiful seedling, a cross from Cereus speciosissimus, came from Mr. Davey, of Colney Hatch. Each petal was of a beautiful violet colour with a well defined rib of red down the centre, thus producing a pleasing and rather striking contrast of colours.

Orchids were neither so numerous nor in such good condition as we have seen them. Of groups of 20 the best came from Mr. Gedney of Hoddesdon. It contained Galeandra Funcki, a greenish yellow kind, with brown streaked lip; Lycaste Skinneri, finely flowered; Phalænopsis; Cattleya Mossiæ, Harrisoniæ, and superba, the latter a rosy purple kind with deep crimson yellow-streaked lip; Calanthe Masuca, a fine plant, but not sufficiently in bloom; and an example of the rare Aerides maculosum. Among Mr. Woolley's plants, which were next in point of merit, were Dendrobium transparens, a small flowered species of the nobile breed, and extremely pretty, especially when seen so finely bloomed as this plant was; also Barkeria spectabilis, a

full of flower as it could hold; Cattleya intermedia and superba, the latter with two blooms on it; Saccolabium guttatum, the white Phaius, and a very finely flowered Sobralia macrantha.

Of groups of 12 Orchids the best came from Mr. Keel, gr. to J. Butler, Esq., of Woolwich. It contained a specimen of Cattleya Mossiæ loaded with flowers, in which there was more orange than usual; Dendrobium tortile with conspicuous sulphur coloured trumpet-shaped lip; and the rich orange blossomed Lælia cinnabarina. Mr. Clarke, of Hoddesdon, had Epidendrum macrochilum, with large white lip stained with purple; the Wallich Phaius, and the little straw coloured Oncidium stramineum.

Of collections of 6 Orchids there were several. The best came from Mr. Grix, gr. to A. Palmer, Esq., of Cheam. It contained a large and remarkably fine Aerides odoratum; also a specimen of A. crispum, with magnificent branched spikes of pink and white flowers. Mr. Carson sent Dendrochilum filiforme, with long pendent tails of small green blossoms; Saccolabium Blumei, with three very fine spikes of bloom; and the variety of Bearded Lady's Slipper called superbum. Mr. Dods produced Anguloa Ruckeri, two beautifully flowered Stanhopeas, and Cattleya Mossiæ. Mr. Morris sent Acineta Humboldti; the singular looking Maxillaria tetragona, and the deep brown and purple flowered Epidendrum Hanburyanum.

Roses in pots from Messrs. Lane and Francis formed an interesting feature of the exhibition. Mr. Lane's Persian Yellow was charmingly flowered, and so was Miss Glegg, a small white kind. Other well known kinds, such as Paul Perras, Duchess of Sutherland, Louise Peronny, Great Western, and Souvenir de Malmaison were also equally "well done." Messrs. Paul had some handsome cut Roses.

Cape Heaths were contributed in good condition by the usual exhibitors of them. Among the different varieties were tricolor Wilsoni, and other sorts belonging to that class; metulæflora, denticulata moschata, depressa, ventricosa grandiflora, Cavendishi, propendens, Bergiana, mutabilis, ampullacea, gemmifera, and tortiliflora.

Of plants having fine foliage Mr. Parker and Messrs. Henderson sent collections, in which were Ferns, some pretty Lycopods, including L. Martinsi, a variegated Hydrangea, Caladiums, Rhopalas, and variegated Orchids.

Of novelty there was little or nothing; Eucharis grandiflora and Grevillea longifolia received prizes. The first is fully described by us at p. 63; the last was scarcely in flower.

Ferns were furnished by Mr. Fletcher and others. Among them were good examples of Woodsia Ilvensis and Hymenophyllum Tunbridgense.

Pelargoniums were plentiful and made a good display. Mr. Turner's plants were all that could be desired, both as regards growth and bloom. The sorts were Astrea, Lucy, Queen Eleanor, Esther, Painter Improved, Leonora, Governor General, Enchantress, Virgin Queen, Sanspareil, and Carlos. Mr. Dobson was second. In the Amateur class Mr. Nye, gr. to E. Foster, Esq., was first. He had Attraction, Edith, Purple Perfection, Golden Fleece, Enchantress, Fair Helen, optimum, Seraskier, and Carlos. Of fancy kinds Mr. Turner's were the best. They consisted of Erubescens, Criterion, Lady Hume Campbell, Celestial, Evening Star, and Perfection. In the Amateur class Mr. Bousie, Stoke Park, was first with Electra, Criterion, Charles Dickens, Cassandra, Triumphant, and Barbette. Of other Fancies, four plants more than four feet in diameter were shown by Mr. Thomson, of Barnet. They had neither stick nor tie about them, and were exhibited to show that Pelargoniums can be grown without such appliances. They were not sufficiently advanced in bloom; but as regards growth they were as compact and bushy as if the ordinary attention to staking had been paid them. Of new Pelargoniums Mr. Turner sent Snowflake, Omer Pacha, Admirable, Lord Raglan, Wonderful, and Phäeton. Of Seedling Pelargoniums Mr. Turner sent Prince of Prussia, a brilliant scarlet with dark top petals; King of Scarlets, scarlet with black blotch; General Williams, a kind with dark upper petals, white throat, and pink under petals, streaked with crimson; and Mr. Beck, rose, with spots on all the petals. Of Fancies were General Pelissier, a pleasing flower; Helen Faucit, equally showy but with more colour; and Emperor, a flower of the Hero of Surrey class. Viola (Hoyle), is also a pretty variety, large, showy, and of a new shade of colour. Alma (Turner) is a charming variety of the variegated class; it is a glowing scarlet, dwarf, and has a fine foliage.

Petunias worthy of notice consisted of the double white Imperial and Marquess de St. Innocent (Turner), a purple sort, striped with white like a Carnation.

Calceolarias were shown by Mr. James. The sorts were Brunette, Fandango, Beauty, Marie, Commander in Chief, and Duchess of Northumberland. Of shrubby kinds Mr. Turner produced the following:— Eclipse, brownish red; Hebe, yellow; Hawk, spotted yellow; Harlequin, spotted yellow and brown; Albira, a free flowering yellow, slightly spotted; and Orange Perfection. Some good unnamed seedlings of the herbaceous class were shown by Messrs. E. G. Henderson.

Of Fuchsias there were some admirable plants beautifully flowered from Mr. Bousie and others. The varieties were not different from those named by us on former occasions.

Messrs. Tyso, of Wallingford, exhibited some beautiful Ranunculuses. The following were the best in their collection of 100, viz, Exhibitor, Sincerity, Imperial, Meekness, Renovator, Festus, California, Enchanter, Pertinax, Suaviter; also fine specimens of Naxara, Eliza, Gomer, Commodore Napier, Marquis of Hereford, Defoe, Liffey, Hon. R. Wilson, Kilgours Queen, Coronation, Sir J. De Græhme, and Sabina.

Of Pæonies and Irises Mr. Salter sent handsome collections of cut blooms.

Pansies were not shown in very good condition. Messrs. Dobson had Satisfaction, Maria, Alpheus, Royal Albert, Duke of Perth, Sir J. Paxton, Yellow Climax, Ariel, Lady Carrington, Pomona, Rhoda, Aurora, Pompey, Mrs. Douglas, Lord Dunfermline, Wonderful, British Queen, Mary Taylor, Charles Cowan, Fanny Kemble, Ostrich, Nonpareil, Duke of Newcastle, Lady Emily, J. B. Gough, Sir J. Franklin, Beauty, Miss Talbot, Seedling, Miss Nightingale, Emperor, Fearless, Earl Mansfield, Memnon, and Jubilee. Mr. Stark, of Edinburgh, had among others a singular variety, named Mazeppa, in which each petal was half purple and half white. It looked as if it might prove an effective bedding variety.

The fruit, as usual, excited a good deal of interest. There were upwards of 30 Pine Apples. The heaviest Providence weighed 8 lbs. 10 oz.; this was from Mr. Fleming, of Trentham, and obtained the 1st prize. The 2d prize was awarded to Mr. Gilham, for a finely formed and well finished fruit. There were several other good specimens, but they were either over or under ripe. The Queen Pines were very superior, and mostly from growers in Wales. Mr. Jones and Mr. Burn obtained the chief prizes for handsome fruits averaging 5 lbs. We observed a very good Lemon Queen from Mr. Jones which weighed 6½ lbs., but it was not nearly ripe, and therefore received no award.

The 1st prize for Black Hamburgh Grapes was justly awarded to Mr. Fleming; the bunches were not extraordinary for size, but they were finely coloured, and had large berries. There were 17 exhibitors in this class, but none of the others passed mediocrity. Mr. Hill, gr. to R. Sneyd, Esq., had first-rate examples of Black Prince, which were rewarded accordingly. Mr. Turnbull had the best Muscats; they were, however, deficient in that fine golden yellow which they should possess when in perfection; but this perhaps must not be looked for in June. In the Frontignan class Mr. Forbes, of Woburn, was placed at the top, and in Muscadines Mr. Baillie and Mr. Clarke were equal. Mr. Turnbull exhibited three bunches of a seedling Black Grape, but the Judges deemed it so like the West's St. Peter's as to make it no award.

The prize Peaches as usual came from Mr. Snow, gr. to Earl de Grey; the sort was Noblesse. Mr. Hill and Mr. Drummond were second with Royal George. In this class there were 19 exhibitors and 13 prizes awarded.

The Nectarines were generally very good and beautifully coloured. Mr. Davis, of Oakhill, was 1st, with Violette Hâtive; Mr. Ayres and Mr. Mitchell were good seconds with Elruge. Mr. Monro exhibited several boxes of this fruit.

An extra award was made to Mr. Burn for an excellent dish of Apricots.

For Plums Mr. Fleming was 1st, with Goliath. In Figs there were five or six competitors; Mr. Snow and Mr. Richards were equal with "Brown Turkey." Mr. Bousie had very good May Duke Cherries, which were placed on a par with Mr. Fleming's Tartarians. Mr. Smith showed very superior examples of British Queen and Sir Chas. Napier Strawberries, for which the Judges gave an extra award. Mr. Bailey had good examples of Admiral Dundas, a new sort in the way of British Queen, but coarser. Among others shown were Sir Harry and Black Prince; these were stated to have been ripened out of doors.

Of Melons there was a fair display; Mr. Ruffett and Mr. Bailey obtained first prizes for Hybrid Green-flesh sorts; and Mr. Dawson was first for a Scarlet Hybrid. No second nor third prizes were awarded for Scarlet-fleshed sorts, as they were very deficient in flavour.

Among Miscellaneous Fruits were Plum trees in pots from Mr. Fleming; on one tree of Jefferson, about 2 feet high, were a dozen of fruits. Mr. Tillyard had a nice dish of White Currants; there were also Strawberries in pots from Mr. Drummond. They were British Queens and extremely well flavoured.

Notices of Books.

The Ferns of Great Britain illustrated, by J. E. Sowerby. The Descriptions, &c., by C. Johnson. 8vo, with 49 plates (6*s.* uncoloured).—*The Fern Allies*, by the same. 8vo, with 31 plates (18*s.* coloured).—*The Ferns of Great Britain and their Allies, &c.;* by Anne Pratt. 8vo, with many plates (12*s.* ? lithotinted).

We place these three works side by side, for the purpose of drawing attention to a circumstance which we think deserves some mark of reprobation. The two first are published by Mr. Sowerby, a most respectable bookseller. The latter is an opposition volume got up within a few months after the completion of his work by the Society for Promoting Christian Knowledge. We do not presume to enquire whether an application of funds subscribed for religious purposes to the publication of works having no bearing upon religion is proper; that is a point to be settled between the Society and its friends. Neither need we ask whether it is consistent with Christian feeling for a wealthy association to take the bread out of the mouth of its neighbour. But we have a right, and it is our duty, to protest against this being done by means such as have been resorted to in the present instance. Upon comparing the Society's plates, ill executed as they are, with those of Mr. Sowerby, it is obvious that they have been in several cases purloined from that gentleman, without the slightest acknowledgment, and as we have reason to believe without any permission having been granted. This is most especially glaring in the case of *Polystichum Lonchitis, Gymnogramma leptophylla, Asplenium fontanum*, and the *Hymenophyllums*, and is easily traceable elsewhere, even although it is connected with such blunders on the part of the draughtsman as attaching the magnified leaf of *Hymenoph. unilaterale* to *H. tunbridgense*. To be sure a notice is now introduced into the book informing the public that "The artist wishes it to be understood that he has purchased permission of Mr. J. E. Sowerby to copy from the work lately published by him, entitled the Ferns of Great Britain, illustrated, *certain details of the Plates*, including the figure of the rare plant, *Gymnogramma leptophylla*." But this was not done, as we are informed, till legal proceedings had been threatened, and even then was conceded with the worst possible grace. We presume all this has taken place without the knowledge of the Society for Promoting Christian Knowledge, and is the mere act of some of the gentlemen entrusted with the management of its affairs. But it is on that account the more necessary that the attention of the supporters of the Society should be drawn to so reprehensible an application of its funds.

Garden Memoranda.

ROYAL BOTANIC GARDEN, REGENT'S PARK.—The exhibition of American plants held here under canvas is as fine, if not finer, this season than ever we have seen it. Individually the plants are literally masses of bloom, and the three collections (which are supplied by Messrs. John Waterer, Standish and Noble, and Baker), coming into flower as they have done all at one and the same time, have produced a display, the effect of which is grand in the extreme.

Decidedly the gem not only of Messrs. Waterer's contributions but of the whole exhibition is the Rhododendron called Lady Eleanor Cathcart, a brilliant salmon pink with a dark spot in the upper petals. This noble specimen, which is at least 12 feet in height and as much through, has been and still is covered with flower, and looking over the whole show from whatever point of view one will this plant naturally attracts attention. Fifty guineas, we were informed, were refused for this plant the other day, when it was in perfection. So much for its value. Next in point of merit, though much smaller in size, may be mentioned John Waterer, an intense deep crimson, with immense heads of bloom. Of the same class but different a little in shade is Mrs. John Waterer, also a first-rate variety. Of other deep crimsons worthy of especial notice were atro-sanguineum, Vandyck, and Blandyanum. The latter was, however, nearly out of flower; Leopardi, a lilac, is beautifully spotted, and Sherwoodianum is also worth attention. Blatteum, a spotted deep lilac kind, shaded with violet, has great heads of flower which, from their diversity of colour, make this variety one of the best of its class. Celebrandum, a singular looking kind, has blossoms of a deep port wine colour. Lefevreanum is a striking and beautiful variety on account of its lively pink colour and conspicuously spotted upper petals. Brayanum, as we have stated before, is one of the best of brilliant rosy pink sorts. Geranioides, a spotted pink kind, is small but neat; Cyaneum is one of the best of the bluish lilac varieties. Waterereanum, in the shape of a huge bush loaded with bloom, was at least 14 feet high, and as much through. Roseum elegans, a standard, was also conspicuous and fine. Of light coloured kinds the best were perspicuum, gloriosum, and delatissimum; fastuosum, a well known showy double lilac, was not fully in flower; Luciferum, French white in colour, was extremely delicate; Gretry is in the way of Blatteum, but paler; album elegans makes a pretty standard, as does also maculatum grandiflorum, a rosy pink kind spotted and pale in the centre. Of new sorts the best is Madame Van der Weyer, a pink shaded with violet prettily spotted; and Sir Colin Campbell, an extremely handsome rosy pink kind with light centre.

In Mr. Baker's collection ponticum album was in excellent condition; Catawbiense bicolor is also a beautiful sort; and of crimsons, ignescens is one of the most striking; Mammoth, a profuse flowerer, is rose when it opens, but changes to a delicate pink; Altaclerense splendens, a crimson kind with black spots, is one of the handsomest of its class, as is also Towardianum, a rose coloured sort with finely shaped flowers; album superbum is a good white, and the same may be said of nivaticum, though the latter is not a large kind; versicolor is distinct and pretty, as is also bicolor, a rose and white coloured kind; Empress Eugénie, a white sort, is delicately spotted; and among dark varieties, atra-purpureum and erectum deserve notice. The semi-double Hyacinth florum we did not see in perfection, but we noticed a double lilac sort equally pretty called Vervaneanum. Kalmioides has peach-coloured blossoms and foliage not unlike that of the broad-leaved Kalmia.

An as yet little known Belgian kind called concessum was by far the most striking of Messrs. Standish & Noble's group, and is a real acquisition. It has rosy pink flowers with pale centres, and is excellent both in shape and substance. Fleur de Marie, a rosy crimson

kind with paler centre, is also transparent and beautiful; Maid of Saragossa is a good pink; Reedianum, an intense rosy crimson, is also late and good; Nobleanum bicolor makes a handsome standard; Ariel is a rosy salmon, and conchiflorum, a charming little pink kind and a most profuse flowerer, although not remarkable for good shape must prove a favourite. Duc de Brabant is a pretty variety in the way of pictum. Many other sorts deserve notice, but the above are a few of the more striking.

Messrs. Rollisson's Nursery, Tooting.—Some new span-roofed houses have recently been erected here for the accommodation of Orchids, of which we need scarcely say this nursery contains a large collection. Other improvements in the shape of a new show house, &c., are also, we believe, contemplated. Several species of Aerides, Cattleyas, and other Orchids were in flower, and at the end of one of the houses which contained them we remarked a small group of Nepenthes, placed on iron lattice work laid over an open tank of water. Several of them had pitchers on them. In the same house was also a good plant of Angiopteris evecta, sent to Messrs. Rollisson by their collector, Mr. Henshall, from Java, where it was found growing in a temperature varying from 52° to 64°, near the grand range of mountains at an elevation of 3500 feet above the level of the sea. In one of the cooler houses Rhododendron javanicum was in bloom, several shoots of it having produced large and fine trusses of orange flowers; this was the best variety, of which Messrs. Rollisson have a fine stock. Among other remarkable plants was Meyenia erecta, an African shrub, with blossoms something like those of Thunbergia chrysops, but of better colour, and altogether more beautiful. This is said to flower freely; to have it in perfection, however, it should be grown in what is termed an intermediate house, which it well deserves. Of Indian Azaleas one named perfecta elegans promises to become a favourite. It resembles Perryana, but is an improvement on that variety, being finely spotted in the upper petals. A. crispiflora is also a beautiful kind, with brilliant pink flowers, the petals of which are regularly crimped all round the edges. A coloured representation of it has been given in the Botanical Magazine, t. 4726. A. Eulalie is likewise said to be a handsome variety, but we did not see it in flower. The Australian Hedaroma (or Genetyllis) Hookerianum, a greenhouse shrub of considerable beauty, was not in bloom. This is the same as the Genetyllis macrostegia of the Botanical Magazine. Among new evergreen shrubs supposed to be hardy we must not overlook Vaccinium erythrinum, introduced by Mr. Henshall from volcanic mountains in Java, where it grows at an elevation of 10,000 feet above the level of the sea. It forms a close bush thickly set with dark green leaves, and loaded with deep crimson flowers. Among Achimenes Ambrose Verschaffelt is well worth attention. It has lilac blossoms of medium size, charmingly streaked and blotched in the centre with purple. Of Gloxinias we remarked some beautiful kinds, mostly upright sorts like the old Fyfeana. The best were G. virginalis, carthusiana, Rex ignis, Mars cærulea, Auricula, and Helen of Orleans. The flowers of the last are blue edged with white, and extremely pretty. Gesnera Miellezi is also a very handsome plant. Its blossoms are purplish-lilac with white throat. Among Geraniums was a very pretty horse-shoe kind called Gloire de Douai, the flowers of which are white with pink centres. We also noticed the double White Petunia Imperialis, which is sweet-scented and valuable for cutting from for bouquets.

In a close pit was a collection of Orange trees which had got out of health. Their leaves were affected by scale and soot fungus. The plants were therefore cut well back, and what shoots and leaves remained on them were thoroughly cleaned by means of soft soap, sulphur, and tobacco water. After that they were repotted, shaking all the old soil from their roots, and now, although not placed on bottom-heat, but merely kept warm by shutting them up early in the afternoon and syringing them occasionally, they are breaking freely and promise to make good trees.

Out of doors American plants were in bloom, and Tree Pæonies. Among the latter one named Triomphe Van der Maalen, a white kind with a crimson centre, was very showy.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—At no season should the plants be crowded in this house, and this is especially to be avoided at the present time, when mildew is active and most things in such a state as to be speedily injured by it. Endeavour to grow every plant well, and to bring nothing but fair specimens here, and then there will be no temptation to huddle them together for the purpose of making the one hide the defects of the other. In the case of soft-wooded stove plants, or such things as are grown in a season, it is not of much importance if they receive a little injury by being placed close while in bloom; but all valuable specimens of hard-wooded plants should stand quite clear so that every part may receive plenty of light and air. Indeed, most conservatories are so constructed and managed as to be very unsuitable for many of our finest summer blooming greenhouse hard-wooded plants, as Ericas, Leschenaultias, &c., and if these must be brought here they should while in flower be placed near the glass in the coolest part of the house, where air can be freely admitted during the day, and a little left on at night when the weather is warm will greatly assist in preventing etiolation. Such things as are well known to be impatient of a confined atmosphere should on no account be allowed to remain too long in a situation which is in the least unsuitable, for fine specimens are not grown without much time and care, and many of them do not soon, if ever, get over an injury which at the time, save to the practised eye, may be hardly perceptible. The Camellias and Azaleas for early flowering will have set their buds, and should be removed to a sheltered shady situation out of doors, for if kept in heat they will be apt to make a second growth, which must be avoided, as it prevents their flowering so freely as would otherwise be the case. Give every possible attention to plants for autumn and early winter flowering, as Lilium lancifolium, Chrysanthemums, Salvia splendens, Globe Amaranths, Tree Carnations, Scarlet Geraniums, Cinerarias, Gesneras, Begonias, Euphorbias, &c.; let these have plenty of pot-room, good rich compost, a moist atmosphere, and plenty of space for the perfect developement of their foliage, regulating the temperature according to the nature of the plant, and they will make very rapid progress. Selago distans is an exceedingly useful winter flowering plant, requiring merely a cold pit to grow in and flowering through a long season. But we have nothing that surpasses the Epacris, the wintering blooming Ericas, and Cytisus; and these should not be overlooked in making a selection. Among comparatively new plants Sericographis Ghiesbreghtiana is a really good thing for the decoration of the conservatory in winter, as is also the blue Conoclinium; and the singular looking Thyrsacanthus rutilans is first-rate for a rather warm house, but we have not found it to answer for winter use in the conservatory. The atmosphere of plant houses can hardly be kept too moist at this season, but it is very easy to err in the opposite direction; therefore sprinkle every available surface frequently, and syringe growing stock lightly twice a day during bright weather. Avoid a too free use of shading, and ventilate freely in order to secure compact growth.

FORCING DEPARTMENT.

Pineries.—Where the bottom heat is obtained from tan or other fermenting matter it will be necessary to add a little fresh material at intervals, in order to recruit the heat, but at this season it will be safer to surface with a few inches of fresh tan in a rather dry state than to turn the bed, mixing the fresh materials, which often cause too strong a heat; and at this season there is much more danger of erring on the side of too much than too little bottom heat. Give every attention to keeping up a succession of fruit. Perhaps the most certain method of doing this is by securing and potting a number of suckers proportionate to the demand, at short intervals during the growing season, therefore attend to keeping up a regular supply of young plants, if doing this should necessitate throwing away a few overgrown plants which have failed to fruit at the desired time. We have frequently seen gardeners allow the number of large plants to increase, so that there was little room left for the young stock, which suffered accordingly, and disappointment came in due course. Do not let the growing stock suffer for want of pot room, or through dryness at the root, and afford them a moist atmosphere, syringing and shutting up early in the afternoon, so as to give the house a good steaming. Recently potted plants, especially if they were much pot bound before being repotted, should be kept rather close and shady, with a thoroughly moist atmosphere, and very carefully attended to with water until they appear to have taken to the fresh soil. Vineries.—In the case of fruit intended to be kept as long as possible, the berries should be thinned, so that they will hardly touch when fully swelled, for it is scarcely possible to keep Grapes through the winter except they are severely thinned. Be particularly careful of the foliage of the Vines intended to furnish a late supply of Grapes, and if plants must be grown in the house, see that they are not infested with black thrips or red spider, for if either of these pests is allowed to gain a footing on the Vines, the foliage will probably be greatly injured, and then there will be no chance of keeping the Grapes in good condition for any time after they are ripe. Muscats must be encouraged with a brisk temperature while setting.

FLOWER GARDEN AND SHRUBBERIES.

Now that the bedding stock is fairly cleared off and growing freely in its summer quarters there will be more space and time to attend to the propagation of favourite hardy plants, and no time should be lost in getting a good supply of cuttings of such things as it may be thought desirable to increase, for the propagation of the bedding out stock for next season will soon require attention. If not already done, sow Brompton and Queen Stocks for spring flowering, selecting for them a bit of light rich soil, and never letting the surface become dry until the plants are well above ground, for there is no time to be lost if these are to be had strong for blooming next May, and at that season we have nothing more beautiful nor half so fragrant as well grown plants of the latter. Do not omit to put on a slight hot-bed a good stock of Pink pipings, and also see that there are plenty of young plants of Pansies for enlivening the borders next spring. These have hitherto been left too much in the hands of the florists, but they are deserving of extensive cultivation for the spring decoration of the flower garden. Young shoots when they can be procured will root freely under a hand-glass in a shady situation, and if planted out in rich soil in a shady corner will grow rapidly during the autumn, and may be transplanted into the flower garden when the frost cuts off its present occupants. Persevere with mowing, rolling, &c. Keep down weeds and let neatness prevail everywhere.

HARDY FRUIT AND KITCHEN GARDEN.

Black-fly is sometimes very troublesome on the late Cherry trees at this season; it is however easily got rid of by dipping the ends of the shoots in tobacco water, giving the trees a good washing with the engine next morning. This may occupy a little more time than the usual method of syringing, but it is a more certain remedy, and much less tobacco water is required. Lay in the young shoots of Peach and Nectarine trees, stopping any that may seem to be taking a decided lead, and endeavour to secure an equal state of growth all over the trees; also persevere in stopping the breast wood on all trained trees, whether wall, espalier, or pyramid; and proceed with nailing as expeditiously as circumstances will admit. Get Carrots, Onions, &c., thinned.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 19, 1856, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer.		Temperature					Wind.	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 13	10	29.777	29.525	64	54	59.0	59	55	S.W.	.24
Satur. 14	11	29.779	29.568	65	37	51.0	61	55½	S.W.	.14
Sunday 15	12	30.102	29.909	75	35	55.0	61	55½	N.W.	.00
Mon. 16	13	30.133	30.022	74	44	59.0	63	56	S.W	.00
Tues. 17	14	29.921	29.850	74	42	58.0	62	56	S.W.	.04
Wed. 18	○	29.905	29.785	75	45	60.0	63	56½	W.	.12
Thurs 19	16	29.623	29.493	62	49	55.5	60	56½	S.	.08
Average		29.893	29.756	69.8	44.7	56.8	61.3	58.7		.52

June 13—Rain; cloudy; rain at night.
— 14—Cloudy; showery and boisterous; clear; cold.
— 15—Very fine; cloudy; clear, nearly at freezing in the night.
— 16—Very fine throughout.
— 17—Very fine; partially overcast; cloudy; showery.
— 18—Exceedingly fine throughout.
— 19—Rain; densely clouded; showery; fine; cloudy.
Mean temperature of the week 4 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending June 28, 1856.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	72.9	49.6	61.2	15	1.37 in.	2	1	1	1	2	11	8	4
Mon. 23	73.5	49.1	61.3	14	0.70	1	1	3	10	3	3	5	4
Tues. 24	73.7	50.1	61.9	10	1.16	—	2	4	1	2	12	7	2
Wed. 25	71.9	50.8	61.4	9	0.6	1	1	5	2	6	9	4	2
Thurs 26	72.5	50.8	61.6	16	1.22	1	2	4	1	2	10	8	2
Friday 27	73.2	51.2	62.2	13	0.98	2	2	2	2	4	12	6	—
Satur 28	72.6	50.6	61.6	14	0.32	2	2	6	1	2	8	3	6

The highest temperature during the above period occurred on the 22d, 1846, and 27th, 1826——therm. 93 deg.; and the lowest on the 23d, 1851—therm. 35 deg.

Notices to Correspondents.

Cacti: *Orig. Sub.* We will endeavour.

Diseases: *A E.* The blight on your Peach leaves arises from a minute fungus belonging to the genus Ascomyces. Your only hope is from the use of sulphur.—*J W S.* Your Grapes are affected with the common rust, which arises from slight external injury, or from abrupt changes from drought to moisture. The affection on the leaves is the wart, which is always we believe connected with some defect in the roots. We conceive that it is an attempt of nature to remedy those defects. Sulphur can be of no use in either case. *M. J. B.*

Insects: *Quercus.* The insects which you have sent up, and which were found gnawing the bark of young Oak trees, are two species of weevil, Hylobius abietis, long notorious for barking Fir trees, and Otiorhynchus vastator, an omnivorous species. The stems should be examined about midnight with a lanthorn, and the insects caught and destroyed, or they may be prevented ascending the stems by wrapping a bit of rag round the base of each daubed over with birdlime.—*E S.* The insects which are killing your Quickset hedges are a large species of Coccus, which must either be picked off by hand or the shoots washed with hot water or gas-tar water. *W.*

Gooseberry Blight: *J O W.* The production on your Gooseberry leaves is Æcidium Grossulariæ. *M. J. B.*

Names of Fruits: *W B.* Your Peach is certainly not the Noblesse, the leaves of which are serrated without glands and the flowers large, whereas yours belong to the division having globose glands and small flowers. It appears to be the Nivette, sometimes called the Dorsetshire Peach, a variety near the Late Admirable, but somewhat earlier.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time. - *L P.* May we beg you to *read* the foregoing memorandum. 6, Asphodelus luteus; 7, Centaurea montana; 12, Polygonum Bistorta; 8, Centranthus ruber.—*X.* We know nothing of a Lælia Brysiana. Caveat emptor.—*C.* Cephalanthera pallens.—*T G S.* It is Fuchsia cordifolia.—*R S.* A state of the common Turkey Oak—Quercus Cerris.—*Mary.* Saxifraga sarmentosa.—*Marx.* Ranunculus arvensis.

Pæonies: *J C.* There is a fragrant Chinese variety already known. It is a better thing than what you send.

Skeleton Leaves: *F S.* We have nothing to add to what we have formerly stated. We are assured that nothing more is necessary than to gather the leaves when hardest, to steep them in rain water till they are rotten, and then to wash the pulp away with great care, aided, if needed, by a camel's hair pencil. A solution of chloride of lime is finally used to bleach them.

The Crystal Palace. An *Exhibitor* must excuse us for saying that no public object is to be gained by further discussion of the arrangements of which he complains. He should bring his grievances before Mr. Ferguson, who, we are certain, will give them full consideration.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
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THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—
Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).
NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.
Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.
Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

ANALYTICAL REPORT (CORRECTED).
THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—
"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."
Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.
Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.
Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.
SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

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Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
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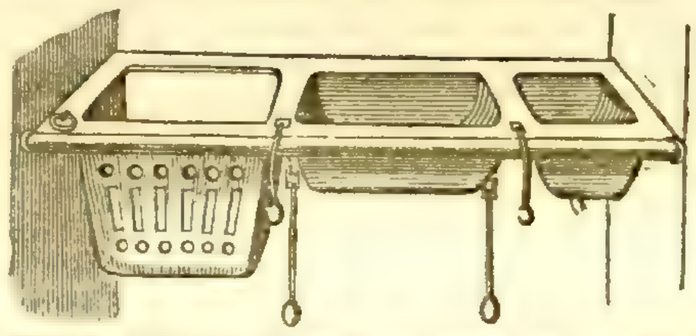

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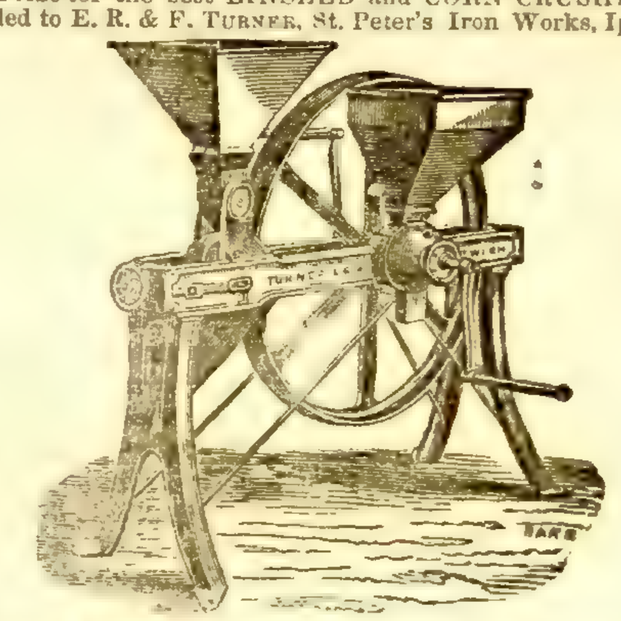
The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



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CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.
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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Exhibition of Stock, Implements, Poultry, &c., will take place on THURSDAY, November 27th, at Gloucester. Premiums to the amount of 412*l.* will be offered for Cattle, Sheep, Pigs, and Horses, and 120*l.* for Poultry. Members only can compete for the Premiums for Stock, but the Poultry Premiums are open to Public competition.—For further particulars apply to EDWARD TRINDER, Secretary.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of Live Stock (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 17; and on the previous day there will be a public Trial of Implements. Premiums to the amount of 694*l.* are offered, many of which are open to general competition.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD, 1856.
PROGRAMME.
TUESDAY, JULY 15, and WEDNESDAY, JULY 16.—The Implement Yard open from 10 o'clock in the morning till 6 o'clock in the evening, on TUESDAY; and from 7 o'clock in the morning till 6 o'clock in the evening, on WEDNESDAY, at an admission-charge of 2*s.* 6*d.* for each person. Machinery will be exhibited at work on each of those days at the following hours:—

I. WORKED BY STEAM, OR OTHER (THAN HAND) POWER.

Threshing Machines	From 11	till 1	o'clock
Tile and Brick Machines	„ 12	„ 2	„
Saw and other Mills	„ 1	„ 3	„
Chaff-Engines	„ 2	„ 4	„

II. WORKED BY HAND POWER.

Chaff-Cutters	From 11	till 1	o'clock
Tile Machines	„ 12	„ 2	„
Mills	„ 1	„ 3	„
Turnip-Cutters	„ 2	„ 4	„
Oilcake-Breakers	„ 2	„ 4	„
Winnowing-Machines, Barley-Hummellers, &c.	„ 2	„ 4	„
Miscellaneous	„ 2	„ 4	„

WEDNESDAY, 16.—The Judges to inspect the Live Stock and Farm Poultry, and to award the Prizes. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards, of which notice will be given) the public to be admitted into the Cattle Yard and to the Exhibition of Farm Poultry, on the payment of 5*s.* each person, at the Special Entrance: Members of Council and Governors of the Society being admitted by Tickets, to be purchased at the Finance Department of the Society at the Show Yard. At 8 o'clock in the evening the Cattle and Poultry Yards will be closed.
THURSDAY, 17.—The General Show Yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the public from 6 o'clock in the morning till 6 in the evening; admission 2*s.* 6*d.* each person. The Dinner of the Society in the Pavilion adjoining the Show Yard, at 4 o'clock; the doors to be opened at 3 o'clock.
FRIDAY, 18.—The General Show Yard open to the public from 6 o'clock in the morning till 6 in the evening; admission 1*s.* each person. General meeting of the Members, and distribution of the Foreign Prizes, in the Shire Hall, at 10 o'clock in the forenoon.
President — LORD PORTMAN.
Stewards of Departments.
CATTLE—Mr. Woodward; Sir Stafford Henry Northcote, Bart., M.P.; Mr. Jonas.
IMPLEMENTS—Mr. Cavendish, Mr. Wren Hoskyns, Sir Archibald Keppel Macdonald, Bart.
POULTRY—Mr. Joseph Cooke, Mayor of Colchester.
FINANCE—Colonel Challoner, Mr. Fisher Hobbs.
SALE OF TICKETS—Mr. Henry Wilson.
RECEIPTS AND ADMISSION TO SHOW YARD—Mr. Raymond Barker.
PAVILION DINNER—Sir John V. B. Johnstone, Bart., M.P.; Sir John Villiers Shelley, Bart., M.P.; Mr. Bramston, M.P.; Mr. Brandreth.
GENERAL ARRANGEMENT OF SHOW—Mr. Brandreth Gibbs.
By order of the Council.
London, June 18, 1856. JAMES HUDSON, Secretary.
By the Regulations of the Society, all persons admitted to the Show Yard, or other places in the temporary occupation of the Society during the meeting, shall be subject to the rules, orders, and regulations of the Council.
Pavilion Dinner Tickets and Subscriptions at the Finance Department of the Show Yard. Pavilion Dinner Tickets, price 10*s.* each (including one pint bottle of wine) will be sold at the Finance Department of the Show Yard on the Wednesday and Thursday of the Show week, between the hours of 10 o'clock in the forenoon and 3 in the afternoon, each day.
Subscriptions due to the Society will be received by the Finance Committee, at their department adjoining the public entrance to the Show Yard.

TO EXHIBITORS AND VISITORS AT THE MEETING OF THE ROYAL AGRICULTURAL SOCIETY AT CHELMSFORD, JULY 1856.—At a Meeting of the Inhabitants of Chelmsford held on the 19th inst., to take into consideration the accommodation to be afforded to visitors, Mr. W. D. BURRELL, Bookseller, was appointed Registrar, to whom intending Exhibitors and Visitors should at once apply to secure accommodation, enclosing Registration Fee of 1*s.* in stamps.

The Agricultural Gazette
SATURDAY, JUNE 21, 1856.

IN a former paper ON WEEDS we pointed out that Nature had been so prodigal of means for the preservation of even the commonest species, which indeed are so common in virtue of this very fact, that it behoves all those who would successfully cope with them to make themselves acquainted with their habits; and this not as in the nature of a general law but as a subject purely specific, each species having its peculiarities, an appointed time for its appearance, and the perfection of its seeds—

some affecting one soil or accompanying one crop, and some another; some but very partial or local in their habitats, whilst others are to be met with everywhere; so that Nature must have in such cases provided extraordinary means for the continuance of its species, and it necessarily follows that either the farmer is not acquainted with these in all their bearings, or if so his means for the destruction of his enemies are not equal to their powers of reproduction.

In order therefore to exemplify our views on this subject, we cannot do better than devote a brief space to the examination of the nature and habits of two of our commonest and confessedly most mischievous weeds, namely the *Tussilago farfara*, Coltsfoot; and *Leontodon Taraxacum*, Dandelion. By so doing we shall furnish our readers with a lesson on the importance of cultivating their powers of observation, whilst at the same time we shall show that every act should be the result of that careful thought by which the acquisition of facts should ever be accompanied.

The Coltsfoot is a perennial plant, with a creeping underground stem—the *rhizome* of the botanist—large coarse leaves, which succeed the flowers, the latter causing it to be placed in the natural order *Compositæ*, the heads of flowers being compounded of a multitude of *florets*, making a compound flower by their union. The florets are followed by the seeds, each of which is armed with a feathery down—*pappus*—by means of which it is capable of being wafted from one place to another by the slightest breeze.

Here, then, we see that in the Coltsfoot the farmer has to deal with a plant whose underground stems sufficiently provide for its increase at the starting point of any individual plant, whilst its floating seeds afford hundreds of chances of establishing new centres on fresh places of his own or his neighbour's land; and if we look more carefully into the processes connected with the perfecting of the seed, we shall see that in endowing this plant with a creeping habit, Nature has not neglected the other and more general mode of propagation by seeds.

The flowers appear as early as the first week in March, first by a single head growing here and there, afterwards others make their appearance, until from a single root as many as 20 flower scapes may arise; these grow quite upright, gradually unfolding until the star-like flower is fully exposed to the rays of the sun, this being necessary for ripening. The *pollen* or fecundating powder having performed its functions, the involucre closes tightly over the dying florets, and the flower droops its head, by which the involucral scales act as tiles to the roof, under which the seeds begin to swell, when in order to ripen them these heads again gradually assume the upright position, now exposing the seeds to the heat of the sun's rays, and as the ripening process proceeds the involucre gradually falls back, or becomes *reflexed*, leaving the seeds with their now expanded pappus, or full fledged wings, in such a position that a puff of wind can in the readiest manner sweep them all away. Now, with the ripening of the seeds the leaves have begun to push forth, and as these grow fast into a broad and flat surface, this and the whitened heads of ripening seeds soon attract the notice of the farmer, which the less conspicuous yellow flowers had failed to do, and consequently the hoe is put in action to destroy the pest, which is fast overgrowing the young crop, but it must be obvious that its use at this time, though it may prevent the perfecting of the later flowers, must assist in the most perfect sowing of the seeds of the earlier flowers, and if we bear in mind the fact that each head of flowers may perfect 150 seeds, and that there may be from 12 to 20 heads to each root, we shall see that if one head has been allowed to ripen its seed there is ample guarantee for the continuance of the pest, and we shall therefore not be surprised at a large colony of Coltsfoot appearing where but a short time since we could only observe a single root. We have seen in three years Coltsfoot completely covering a field, where originally there were but a few centres of single plants. From an examination of the natural history of this plant, then, it appears that, in order to keep ourselves from propagating it we should carefully watch the appearance of its first flowers, as by using the hoe then we despoil these, of which, by an opposite process, we usually sow the seeds, and at the same time cut off the heads of what would otherwise be their successors; and at this time we do the further good of preventing the growth of leaves, by which means we cripple the enlargement and extension of the rhizome.

But further, knowing how the latter spread, and that the usual method of ploughing only divides the plant into a multitude of cuttings which, by the after processes of harrowing are scattered over the whole field and will grow wherever they are left, does it not follow that the first isolated colonies should be attacked by a careful forking which, though sometimes a troublesome and expensive operation, yet being the more so the more it is required, will prevent after expense, and indeed be cheaper in the end.

The history of the Dandelion is much the same as that of the Coltsfoot; its stem, however, is not of the creeping kind; but though a kind of taproot it is endowed with such wonderful vitality that unless cut off very low down it soon reappears with several heads or buds instead of one. The progress of its seed development, and the mode by which it is scattered, is much the same as in the Coltsfoot; its flowers, however, are blooming throughout most of the open part of the year, and each head that ripens may perfect as many as 170 seeds, and in a plant which we counted in August last year, there were 12 heads of flowers at one time, so that allowing these plants to seed in only a partial degree, it will soon augment in spite of much work to prevent it.

Here, then, in these two plants we have proof of the wonderful means used to the great end of their propagation, the knowledge of which in all their details is of vital importance in checking their increase. Does it not follow from these instances that weed plants cannot all be treated alike, and that hoeing and other acts connected with them should be done at such a time and in such manner as the peculiar kinds of weeds pertaining to different districts, soils, and crops may indicate, in order to which much observation and inquiry is necessary? Hitherto many farmers have been content to view weeds as necessities, which they thought themselves clever if they only confined to certain limits; but notwithstanding their wonderful powers of reproduction, we can see no reason for their constant growth and succession, except that from the small amount of knowledge which those who have to deal with them possess of their natural history, they sow as much with one hand as they destroy with the other.

Heavy crops of Grass, hazardous weather, and demand for labourers everywhere, unite to make wages very high; and the prices paid for mowing are unusually heavy. We should be obliged by information on this point from those correspondents in the several counties who have been kind enough to answer similar inquiries on previous occasions.

Six shillings per acre is being paid in the county of Surrey for mowing natural Grass, and 6*s*. to 8*s*. per acre for mowing Clover? What are the prices paid elsewhere? Information on this point will be useful both to labourers and farmers.

THE WATER DRILL.

Within the last few years the practice has arisen of sowing along with the Turnip seed either liquid manure or water in which guano or other soluble manure has been mixed. The practice originated, we believe, with Mr. Chandler, of Aldborne, near Hungerford, Berkshire. His drill consists, besides the ordinary arrangements for delivering the seed in rows, of a tank, from which the liquid is either baled out by revolving buckets, or permitted to escape by open cocks, so as to pass in equal and uniform quantity down the tubes into which the seed is delivered, this being thus washed into the ground. In the southern and midland counties of England, where a dry May presents often a great hindrance to the successful brairding of the Turnip crop, this machine of Mr. Chandler's has, as might be expected, proved of great assistance wherever it has been tried.

We have before us a letter from the inventor, dated Jan. 7 of this year, in which he states that he has drilled upwards of 100 acres of Turnips annually with it on his own farm, with very successful results. He says, that in large districts of Turnip cultivation his drill is now a constant implement of the farm. He states that the water-drill is especially valuable for sowing Cabbage seed, as on three acres of Cabbage plants, when it was used, the result has been extraordinarily good. He expects indeed to grow early Cabbage by this plan, so as to feed them as early as April. And the circular issued by the manufacturers of his machine contains testimonials to its value equally conclusive.

Perhaps, however, the best testimony that has yet been given is that of Mr. A. Ruston, of Chatteris, in the Isle of Ely, whose experiments with it may be best introduced by the following letter, with which we have been favoured by himself.

"Wenny Road, Chatteris. Jan 8, 1856.

"I have found the drill simple and easy of management, and, as my published experiments show, I have found it highly advantageous. Last year I sowed 44 acres of Mangels with it, and 125 acres of Coleseed. In every field I served a certain number of rows with the dry drill, using the same amount of the same kind of manure precisely. In every case the water-drill was considerably in advance of the other. When the Coleseed had been sown a fortnight, that put in with the water-drill appeared four or five days forwarder than the other, and this is maintained throughout. Where the water-drill was used, I also had a much fuller and more level plant. The difference was very perceptible. As far as you could see to distinguish anything, you could pick out the spots where the dry drill was used. Several practical farmers witnessed these facts, and can bear testimony to their correctness. One great advantage is secured by using the water-drill, viz., an equal distribution of the manure. This I tested last year by putting the Coleseed into the cistern with the liquid, and sowing it in that way on 24 rows on one field, and as many in another. In both these cases I had a very level and regular plant, thus showing that if the Coleseed were deposited so equally in the row, the manure must necessarily be the same. Another great advantage derived from using the water drill is the rapid early growth of the plant. When artificial manures are used, they must be dissolved necessarily to some extent before they can supply the food to the plant; and in a dry summer, or upon a dry soil, it frequently occurs that there is not sufficient moisture in the soil to dissolve the manure, and consequently the plant does not receive that impetus in its growth that it otherwise would do. Now, the artificial manure being put into the cistern with the water, is rendered much more beneficial, because its most fertilising portions become quickly dissolved, and the consequence is you have a rapid early growth of the plant, for its action upon it is immediate. And this is highly important, especially upon soils like my own, where it is always difficult to secure a good plant and early growth in consequence of drought, or fly, or some of the many other pests to which our young plants are exposed. In two or three different instances I have sown land with Coleseed when the soil has been quite wet enough for any purpose, and in every one of these cases have found the liquid drill quite as much superior to the dry drill as where they were used on a soil in a dry and dusty state; clearly showing, I think, that the success of the water-drill is very greatly attributable to the action of the water upon the manure. I can grow full good crops of Coleseed with a moderate quantity of superphosphate of lime, without yard manure, but for root crops I always give a dressing of dung. My experiments very clearly show that the water-drill occasions a much more rapid early growth, as I have shown it always is so; and my own observation and experience enables me to say that this growth is continued to the end. The different weights of the Mangels, as shown in my published paper, reveal this quite satisfactorily.

"Alfred S. Ruston."

Mr. Ruston's experiments, referred to above, are well worth record. He has described them himself in the agricultural periodicals of the day, and we shall copy the tabular statements which he has given both of 1854 and 1855. At the London Farmers' Club, where Mr. Spooner introduced (1854) the subject of liquid manuring for discussion at one of its monthly meetings, Mr. Ruston stated that he was about to make a set of experiments with Mangel Wurzel, and test the comparative merits of dry and water drills; and this was done during the season of 1854, which was unfavourable, as the drought of August and September very much checked the growth of green crops, so as to hide any advantage or difference at the brairding of the seed due to the use of either kind of drill. Nos. 4, 5, and 6, in the following Table, were the hottest land, and consequently the crop was a light one. In No. 7 those sown with the dry drill were a total failure.

No.	Sown April.	Drill used.	Superphosphate per acre.	Cost of manure per acre.		Manure per acre.	When weighed.	Produce per acre.		Return for superphosphate		
				s.	*d.*	Loads.		tons.	cwt.	£	*s.*	*d.*
1	1st	Water	1½ cwt.	11	3	16	Oct. 15	20	16¾	0	16	0
		Dry	Ditto	11	3	16	"	15	8¾	0	9	0
		"	None	...		16	"	13	13½		...	
2	3d	Water	½ cwt.	11	3	16	Oct. 5	20	19½	1	10	0
		Dry	Ditto	11	3	16	"	15	16¾	0	4	0
		"	None	...		16	"	15	0		...	
3	17th	Water	1 cwt.	7	6	11	Oct. 4	17	7¾	2	3	0
		Dry	Ditto	7	6	11	"	13	15½	1	10	0
		"	None	...		11	"	8	15		—	
4	5th	Water	1 cwt.	11	3	11	Oct. 3	15	14¾	0	19	0
		Dry	Ditto	11	3	11	"	14	14½	0	14	0
		"	None	...		11	"	11	17½		...	
5	18th	Water	1 cwt.	7	6	13	Oct. 4	13	13¼	1	14	0
		Dry	Ditto	7	6	13	"	10	8¼	0	17	6
		"	None	...		13	"	6	18½		...	
6	4th	Water	1½ cwt.	11	3	15	Oct. 3	9	18¾	0	16	0
		Dry	Ditto	11	3	15	"	8	12¼	0	9	6
		"	None	..		15	"	6	14		...	
7	20th	Water	1 cwt.	7	6	13	Oct. 17	27	14¼		...	

The above is as perfectly conclusive on the value of the water-drill, as any experiment of any one year's duration in agriculture can be. The last column is calculated at 5*s*. a ton for the produce. But we have now two years' experience, for Mr. Ruston in the following statement for 1855 perfectly corroborates the other.

He says that since the previous year its use in his neighbourhood has been greatly extended; and opinions relative to its value on fen soils have undergone a thorough change. Many who last year regarded it with a good deal of suspicion and apprehension, have since been led to acknowledge its merits, and have pronounced favourably of its effects where it has been submitted to a trial. The table appended shows full particulars of the different trials made this year by Mr. Ruston, the whole of which were made with Mangels.

He says that this year he made a precisely similar class of experiments with Coleseed, and although he cannot furnish actual results, as such a crop cannot be tested by the weighing machine as the Mangels can, yet the water-drill produced from 30 to 50 per cent. more feed than the dry drill, all other things being equal. "I ought also to remark," he says, "that all those several experiments, as well as those of the Mangels, were inspected and carefully examined by several practical farmers resident in the neighbourhood, and they can bear testimony to the perfect accuracy of my statements."

Upon referring to the table below, it will be seen that in Nos. 1, 2, and 3, there is considerably less produce per acre from both drills, than in Nos. 4 and 5. This arises entirely from the fact that in Nos. 1, 2, and 3, the soil is of a very hot gravelly nature, and consequently much less adapted for the growth of Mangels than Nos. 4 and 5, where the subsoil is cool and moist, and the land necessarily much less affected by drought. But notwitstanding this, Nos. 2 and 3 are soils of greatly superior quality to Nos. 4 and 5 for general farming purposes. I feel it important to offer these few explanatory observations, although the relative merits

of the two drills are in no degree affected by these peculiar circumstances.

No.	Sown April.	When weighed.	Drill used.	Superphosphate per acre.	Cost per acre for artificial manure.		Farm-yard manure per acre.	Produce per acre.		Difference in value of produce.		
				cwt.	s.	d.	Loads	tons.	cwt.	£	s.	d
1	26th	Oct 16	Water	1½	11	3	13	18	2¼	2	8	0
		"	Dry	1½	11	3	13	8	1¾		...	
2	25th	Oct 16	Water	1½	11	3	13	19	2¾	1	9	0
		"	Dry	1½	11	3	13	13	15		...	
3	24th	Oct.15	Water	2	15	0	13	19	2¾	1	14	0
		"	Dry	2	15	0	13	12	15¾		...	
4	21st	Oct.17	Water	1½	11	3	13	27	5¾	2	13	0
		"	Dry	1½	11	3	13	16	10		...	
5	27th	Oct.17	Water	1½	11	3	10	30	0	2	7	0
		"	Dry	1½	11	3	10	20	13½		...	

We add to this the report which Mr. Pusey gives of his experience on the subject, in the "Journal of the English Agricultural Society." His experiment was made in 1852. Mr. Pusey says:—

"As at our annual trial of implements the delivery alone of the manure by the different drills can be tried, it seemed to me that it might be of use to farmers, if I tried the comparative effect produced on the crop by the ordinary drill and the water drill. Accordingly, after feeding off some vetches towards the end of July, I put in two acres of Turnips with Chandler's water drill and within five days, four acres more with a prize Turnip drill made by Hornsby. The ground was almost wet, so that the water drill had no advantage on that account. The quantity of manure was the same in each; it was rather large, because the season was late, —6 cwt. of superphosphate per acre. The water drilled Turnips took the lead, and kept it in a most extraordinary way till December, when the weighing took place, and the following result appeared:—

Water-drilled, with 6 cwt. of superphosphate 13½ tons;
Dust-drilled, with 6 cwt. of ditto 6½ tons.

I cannot account for this enormous difference: I never saw so great a difference before, and should not expect it again; but after some years' experience of the two drills I have determined to abandon the use of the dust drill in flat drilling, and to use the water-drill only For there is, firstly, the advantage that you can drill in dry weather, at once; secondly, that the manure is better diffused in the soil for each plant to feed upon; thirdly, that you save the expense of the ashes required by the dry drill, say from 24 bushels, at 2*d.* per bushel, 4*s.* per acre; fourthly and lastly, that much less labour of horses and men is required with the water-drill, especially now that by means of a gutta percha pump, costing 4*l.*, which can be purchased with the drill, the boys who drive can fill the water carts also. I find the comparative labour as follows:—

DUST DRILL.

Horses.	Men.	Boys.
4 in drill	2	1 with drill
1 fetching ashes	4	0 mixing manure
1 supplying drill	1	1 with ash-carts
6	7	2

WATER DRILL.

Horses.	Men.	Boys.
2 in drill	2	0 with drill
2 fetching water	0	2 filling and driving water carts
4	2	2

It is only fair to add that Mr. Spooner, of Southampton, has invented another form of liquid manure drill in which the manure is delivered in the form of dry powder in the same manner as that in which manure drills generally act, while the liquid is supplied by cocks from a tank of clean water. No cumbrous apparatus of revolving buckets is thus needed, and the difficulty alleged of that mode of delivery, that in the case of only half soluble manure, water is delivered at one time, and sediment at another, is overcome.

Mr. Spooner has received many testimonies, from those who have used his machine, to its fitness and success. He tells us, that he has this last year 28 tons of Mangel Wurzel and 12 tons of Carrots per acre, in alternate rows, from seed put in by means of his water-drill at one operation with water and dry artificial manure, without the use of any dung whatever. Of course, unless the water, seed, and manure had all been evenly distributed, so as to secure an immediate brairding of the seed, this result could not have followed.

On the whole, we submit that the experience here recorded will be taken as a very efficient advocacy of the practice of distributing liquid manure with the Turnip and Mangel Wurzel seed in the drills.

Mr. Chandler's drill is made by Messrs. Reeves, of Bratton, near Westbury, Wilts. Cost 27*l.* 10*s.* for sowing four or five rows, and 22*l.* for sowing three rows.

Mr. Spooner's drill is made by Messrs. Tasker and Fowle, Waterloo Iron Works, Andover. Cost 35*l.* 10*s.* *From Rendle's Farm Directory.*

THE PARIS CATTLE SHOW.

WE add here a list of such English exhibitors as received prizes. The whole prize list occupies nearly 90 large octavo pages in the official publication, and it is impossible to do more than extract such awards as our readers may be supposed to be interested in.

CATTLE.

SHORT-HORNS.—*Young Bulls:* 1st, Mr. Ambler, Halifax; 2d, Viscount Monck; 3d, Lord Hill; 4th, Lord Clancarty; 5th, Mr. S. Marjoribanks, Watford; 6th, Mr. Cartwright, Aynho; 7th, Mons. C. Adam, Boulogne; 8th, Mons. De la Trehonnais, Falmouth.—*Old Bulls:* 1st, Mr. Towneley; 2d, Mr. Sadler, Scotland; 3d, Lord Clancarty; 4th, M. Tachard; 5th, Mr. Stratton, Swindon; 6th, J. H. Langston, Esq., M.P.; 7th, Mr. J. Watson; 8th, Mr. Jonas Webb.—*Heifers:* 1st, Mr. Towneley; 2d, Lord Monck; 3d, Mr. Ambler; 4th, Mr. Oliver, Scotland; 5th, Mr. Ball, Ireland; 6th, Lord Hill; 7th, M. de la Trehonnais.—*Cows:* 1st, Mr. Towneley; 2d, Mr. Douglas, Scotland; 3d, Mr. Ball; 4th, Lord Monck; 5th, Mr. Adam; 6th, Lord Clancarty; 7th, M. de la Trehonnais.

HEREFORD.—*Bulls:* 1st, Mr. Fisher Hobbs.—*Cows:* 1st, Mr. W. Perry, Herefordshire; 2d, Mr. Fisher Hobbs.

DEVONS, &c.—*Bulls:* 1st, Mr. G. Turner: 2d, Mr. J. Pitcher, Sussex.—*Cows:* 1st, Mr. G. Turner: 2d, M. Talamon; 3, Mr. W. Farthing; 4th, Mr. Pitcher.

CHANNEL ISLAND CATTLE.—*Bulls:* 1st, Mr. Fowler, sen., Watford; 2, Mr. J. Rougier, Guernsey.—*Cows:* 1st, Mr. Torode, Guernsey; 2d, M. Rougier; 3d, Mr. Fowler.

AYRSHIRE.—*Bulls:* 1st, Mr. H. Kirkwood; 2d, Mr. D. Craig; 3d, Mr. J. Stewart; 4th, Mr. R. Hewetson; 5th, Mr. R. Porteous; 6th Mr. E. Bonnemant; 7th, Mr. J. Rennie; 8th, Mr. A. Dunlop.—*Cows:* 1st, Sir R. Shaw Stewart; 2d, Mr. G. Gairdner; 3d, Mr. R. Porteous; 4th, Mr. A. Dunlop; 7th, Mr. Alan Porteous; 8th, Mr. MacAllister; 10th, Mr. A. Oswald.

ANGUS AND GALLOWAYS.—*Bulls:* 1st, Mr. MacCombie; 2d, Mr. R. Walker; 3d, Mr. H. Watson; 4th, Mr. J. Beattie; 5th, Lord Southesk; 6th, Mr. J. Stewart.—*Cows:* 1st, Mr. MacCombie; 2d, Lord Southesk; 3d, Mr. J. Collier; 4th, Mr. R. Walker; 5th, Mr. A. Bowie; 6th, Lord Talbot; 7th, Mr. R. Scott.

WEST HIGHLAND.—*Bulls:* 1st, Messrs. Smith, Minmore; 2d, Mr. N. Malcolm; 3d, Mr. A. Stewart; 4th, Mr. A. Pollok; 5th, Lady C. Menzies.—*Cows:* 1st, Duke of Sutherland; 2d, Mr. A. Pollok; 3d, Mr J. Gordon; 4th, Lady C. Menzies; 5th, Mr. N. Malcolm; 6th, Mr. W. Webster.

KERRY.—*Bulls:* 1st, Lord Talbot; 2d, Mr. G. Roe; 3d, Mr. E. C. Irvine.—*Cows:* 1st, Mr. O'Reilly; 2d, Mr. G. Roe; 3d, Mr. W. S. French.

SHEEP.

MERINOES.—*Rams:* 1st, Mr. T. Sturgeon, Essex.

LEICESTERS.—*Young Rams:* 1st, Mr. W. Sanday; 2d, Mr. G. Radmore, Thorverton; 3d, Mr. R. Creswell, Leicester; 4th, Mr. G. Turner.—*Old Rams:* 1st, Mr. G. Turner; 2d, Mr. W. Sanday; 3d, Mr. R. Creswell; 4th, Mr. J. Collier, Morayshire.—*Ewes:* 1st, Mr. W. Sanday; 2d, Mr. G. Turner; 3d, Mr. J. Collie; 4th, Mr. G. Murray, Scotland.—*Old Ewes:* 1st, Mr. W. Sanday; 2d, Mr. G. Turner; 3d, Mr. G. Hope, East Lothian; 4th, Mr. G. Radmore; 5th, Mr. R Creswell.

COTSWOLDS, &c.—*Young Rams:* 1st, Mr. G. Fletcher, Shipton; 2d, Mr. J. K. Tombs, Langford; 3d, Mr T. B. Browne, Hampen; 4th, Mr. J. Brown, Salperton; 5th, Mr. E. Handy.—*Old Rams:* 1st, Mr. J. Brown; 2d, Mr G. Fletcher; 3d, Mr. Tombs; 4th, Mr. E. Handy; 5th, Mr. Beale Brown.—*Ewes:* 1st, Mr. Beale Brown; 2d, Mr. G. Fletcher; 3d, Mr. G. Brown.—*Old Ewes:* 1st, Mr. J. Alcock, Gloster; 2d, Mr. T. Beale Browne; 3d, Mr. G. Browne; 4th, Mr J. K Tombs.

SOUTHDOWNS.—*Young Rams:* 1st, Mr Jonas Webb; 2d, Mr. W. Rigden, Hove, near Brighton; 3d, Mr. H. Scott Hayward, Folkington, Sussex; 4th, Mr. R. S. Skirving, Haddington.—*Old Rams:* 1st, Mr. Jonas Webb; 2d, Mr. W. Rigden; 3d, Mr. H. S. Hayward; 4th, Mr. R. S. Skirving.—*Ewes:* 1st, Mr. H. S. Hayward; 2d, Mr. Denman, Lewes.—*Old Ewes:* 1st, Mr. J. Hutchinson, Peterhead.

HAMPSHIRE DOWNS.—*Rams:* 1st, Mr. J. W. Brown, Uffcote.

CHEVIOTS.—*Young Rams:* 1st, Mr. J. Carruthers; 2d, Mr. T. Elliott; 3d, Mr. D. Horne; 4th, Mr. W. Houstown; 5th, Mr. C. Hood; 6th, Mr. W. Trench.—*Old Rams:* 1st, Mr. J. Carruthers; 2d, Mr. T. Borthwick; 3d, Mr. J. Brydon; 4th, Mr. T. Elliot; 5th, Mr. Andrews; 6th, Mr. W. Houstown; 7th, Mr. W. Patterson.—*Ewes:* 1st, Mr. T. Borthwick; 2d, Mr. T. Elliot; 3d, Mr. D. Horne; 4th, Mr. J. Johnstone.

BLACKFACED.—*Rams:* 1st, Mr. J. Drive; 2d, Mr. J. Stewart; 3d, Mr. J. Watson; 4th, Mr. A. Blacklock; 5th, Mr. J. M'Kinlay; 6th, Duke of Hamilton; 7th, Mr. G. Sandilands; 8th, Mr. MacLaren.—*Ewes:* 1st, Mr. G. Sandilands; 2d, Mr. A. Pollok; 3d, Mr. J. Stewart; Mr J. Drive; 5th, Mr. Maclaren; 6th, Mr. A. Blacklock; 7th, Mr. J Collier,

OTHER BREEDS.—1st, Mr. S. Druce, Oxfordshire.

SWINE.

LARGE BREEDS.—*Boars:* 1st, Mr. E Bowley, Cirencester.

SMALL BREEDS.—*Boars:* 1st, M. Weyer, Luxembourg; 2d, Captain Gunter, Brompton; 3d, Mr. M. Shaw, Suffolk.—*Sows:* 1st, M. Pavy; 2d, Captain Gunter; 3d, Mr. H. S. Hayward.

Home Correspondence.

On breaking up Grass Land.—Grass lands must be divided under at least three heads, viz., of down lands, old pastures, and good meadow or grazing land. The advantages arising from the breaking up of old pasture land appear so numerous, and the disadvantages so few, that I propose to confine my observations chiefly to the benefit likely to accrue to each class of the community by the cultivation of land of various degrees of quality. There are advantages arising to the labourer, the farmer, the landlord, and the public, from increase of employment, of profit, of rent, and of food. In considering this highly important subject, we are required to prove that converting pasture land into arable will increase the employment of the labourer, will increase the quantity and value of the food produced from the land, will increase the profit to the farmer, and also increase the rent (consequently the profit) of the landlord. Suppose we take 100 acres of good meadow or grazing ground:—1. Let us consider the quantity of food produced from that land, the quantity of cattle that food will feed for a year, and the labour required for the management of the cattle and the land. We will suppose that 100 acres of good pasture land will supply sufficient food to keep 33 oxen or cows the whole year. I believe it is generally allowed that if a given number of cattle are kept on a farm wholly pasture for a year, that half (or nearly so) of the farm must be mown to produce sufficient fodder for the cattle for 24 weeks in winter, when little or no benefit can be derived by their being allowed to graze. For instance, we will suppose that 30 cwt. of hay is mown per acre, which I think will be allowed by pasture farmers to be a fair average crop, 50 acres will consequently produce 75 tons of hay; now I have ascertained by experience that full grown oxen or cows will consume 2 cwt. of hay per week, provided nothing else is given, so 33 cattle, which is the given number, at 2 cwt. each per week, will require 79 tons of hay, more than the produce of 50 acres. The remaining 50 acres will not give more Grass than will be required by the 33 oxen or cows during the rest of the year, including the after Grass of the land mown. That this amount of food is required for the maintenance of the number of cattle given I know to be a fact, inasmuch as I have gained this information by practical observation. —2. I will now consider the amount of labour required on this farm of 100 acres of pasture land. First, the cost of making 50 acres of hay, ricking, thatching, &c., I estimate at 15*s.* per acre, equal to 37*l.* 10*s.* I shall allow one man only to perform the whole of the remaining work of the farm, which I imagine will be sufficient. I am supposing that the cattle are allowed to graze in the summer, and in the winter are foddered either in the fields or yards. I am also presuming that the cattle are fatting, and not kept for the purpose of yielding milk; in the latter case the one man would require at least two women to assist in the operation of milking. We have now come to the conclusion, that 100 acres of prime pasture land will produce sufficient food for 33 oxen or cows, and that the labour attendant upon that land is:—

For making 50 acres of hay, at 15s. per acre...	£37	10	0
Wages of one man for 52 weeks, at 10s. per week	26	0	0
Making a total of	£63	10	0

I have not allowed anything for horse labour, as 15*s.* per acre for the hay making includes that expense. I have endeavoured to show in a few words that from a farm wholly pasture only a small amount of produce can be realised, and only a very small amount of labour is required; that consequently such a system of farming cannot be beneficial to the landlord, inasmuch as he cannot by liberal cultivation clauses and improvements enhance his rent; that it cannot be beneficial to the tenant because he is unable by the employment of capital, industry and skill to overstep the bounds of that beaten track in which his ancestors have walked for centuries; that it cannot be beneficial to the labourer because, as has already been seen, so small an amount of labour is required; and so small is the amount of produce gained, that it must tend to advance the price of provisions, and consequently tend to advance the poverty of the labourer. That it cannot be beneficial to the public is self-evident, because we have already shown that the landlord, tenant, and labourer suffer, and surely it may be said in the losses of these three degrees of men the public at large partake. *E. H.*

The Improvement of Settled Estates.—Those who are acquainted with the farming of England will readily agree with me that much has yet to be done to enable farmers to raise corn at a profit, should we return to the low prices of the first four or five years of free trade; but on the other hand the value of land may very generally be said to be but half developed from the want of better buildings, draining, clearing, and other improvements that are necessary to enable farmers to make the most from it. This being so, one would suppose that a plan by which capital may be brought to effect these improvements, without diminishing the landowner's income, would be most acceptable, and more particularly so to the owners of settled estates. Acting on this idea Mr. Humbert, of Watford, has for the last six months been urging on the attention of members of Parliament the importance of passing a general act to allow the owners of settled estates to charge their properties for a limited number of years with an annual rent charge in repayment of money expended in their permanent improvement, but strange to say he has failed in bringing many into his views, notwithstanding that similar powers have been given to several companies and the principle is working well; and four millions of the public money has of late years been advanced in this way in draining alone, to the great advantage of the tenants, and the permanent benefit of the estates. That it is generally hopeless to expect large outlay of capital on settled estates without some such security must be evident. The owners unless in possession of other means are seldom disposed to make large investments in the improvement of such properties, however great may be the returns, for they too often have to look to the savings from their annual income as their only means of providing for younger children, and cannot afford to spend these in the improvement of land to benefit the heir at their cost, or their tenure is too uncertain to induce them to make the outlay, and it is to this we may ascribe that so much land in this country lies half cultivated, or in unprofitable wood or pasture. Were the owners allowed to charge their land with the repayment of the cost of such permanent improvements by annual payments, and permitted to sell the rent charges so created, they would find no difficulty in bringing any amount of capital to the improvement of land, and British capital that now goes into foreign schemes from the want of such legitimate employment at home, would be freely lent to landowners to increase the productions of our own country; and in this way the landowner might have his estate improved, free of cost, (for the tenant would freely pay the rent charge,) with the certainty of the income being increased as the rent charges ceased. The heir would receive the estate improved, and the country would get the benefit of the increased employment given to the labourers, and the enlarged production that would result from the greater fertility thus created. *Hewitt Davies, 3, Frederick's Place, Old Jewry, June 17.*

The Hay Crop of 1856.—The extraordinary and most opportune fall of rain (6 351 inches) in April and May, after the great aridity of February and March, has brought the meadow and pasture Grasses to such a condition of excellence and abundance that, if the present forcing weather continue during 10 or 12 days, the metropolitan counties will probably witness the making and harvesting of a hay crop so vast as to not only supply the deficiency of 1854 and 1855, but to furnish an ample reserve stock of hay for the ensuing winter. All, however, must depend upon the will of the Highest.

It is not our object to induce any great confidence in prognostics; but some reference may be safely made to the equinoxes of March and September as indices of the weather that may be expected to prevail during the following summers and winters. Exceptions there are, and must be to this and every other rule; but who ever can refer to the weather summary of the late estimable Gilbert White, in his "History of Selborne," comparing the calendar of each month from 1768 to 1792 with the data of experience and more recent tables, will scarcely doubt that such as the weather has been within two or three days after the transit of the equinoctial line so it will remain, on the whole, during the following summer or winter months. Some years ago, the developments of the Oak and Ash tree, as to comparative precocity, were supposed to preindicate the character of the following summer. In 1844, one of the driest seasons within memory, the spring Grass and fodder crops were nearly unproductive, and as the summer retained the same character, no rain having fallen till the end of June, many were constrained to feed their cattle upon the green boughs of trees. In that year a paper appeared in one of the Cambridge journals announcing, as a long noticed fact, that "in any year when the Oak expanded its buds and became clothed with leaves, while those of the Ash remained comparatively dormant, the summer would be early and warm, congenial to husbandry and farm crop." This theory produced great sensation, and assuredly was verified to the letter in 1844; observant persons, and some of great erudition, paid much attention to the subject, and information was sought far and near; Mr. Sturgeon—then a high electrical authority—stated that the various objects which constitute the vegetable clothing of the land are never precisely in the same electric condition. An Oak and an Ash tree, for instance, are not endowed with the same degree of electric force, one being positive to the other, and consequently the latter negative to the former. This may be the fact, but it explains nothing as to points in question. Let us then inquire what was the real state of these two trees just before the late coldest weather of May gave place to the warmth of the present date. Both had protruded leaves before the 29th, but unquestionably those of the Oak were far better defended, and more regularly developed. In April, 1854, prior to the visitation of the 25th night, the hot weather of Easter had clothed the Oaks with complete verdure, yet every twig was utterly stripped of its honours by the 10° of frost that occurred after midnight. The summer proved glorious and prolific, and the preceding equinox had been favourable. If these lines suggest inquiries after facts the writer's desire will be attained. *J. T.*

Skin Diseases of the Dog.—Adverting to the meeting of the Royal Agricultural Society on the 3d April last, the proceedings of which are reported in No. 15 of the *Gardeners' Chronicle*, will you allow me, through the medium of your columns, to appeal to the kindness of the gallant officer who sat as chairman of that meeting, and beg of him to favour the public with the recipe he alluded to as being a most valuable remedy in skin diseases of dogs? Like the gallant Colonel I also am a lover of dogs, and it vexes me sadly to see how mine are plagued with fleas in spite of the care bestowed in keeping them clean in every respect. The scratching to which they naturally resort to allay the irritation caused by these abominable little parasites creates sores which appear always to have a tendency to run into mange. Hoping that the distress of my canine favourites may plead my excuse for thus calling for aid on their behalf. *Sirius, Jersey.*

Drying Hay.—I have just perused the letter of Mr. Kennedy in this day's *Chronicle* on drying grain and hay crops. I think we have the means at hand for a trial of what he suggests already, if our leading Hop growers could be induced to try it, *viâ* their drying kilns, for if Hops can be dried by hot air, which is a fact patent enough, I think the same means might be brought to bear with any of the Grasses and cereals. At any rate it would be worth the trial to see what might be done on a small scale. Although Mr. K.'s suggestion is a very good one, it becomes a question of a serious character to be brought to bear for a large crop, still for a bad season something of the kind would be admirable and a step in the right direction. *H. H.*, 19, *St. James's Square, Westminster.*

Ricks on the Sea Coast.—Why don't farmers living near the sea coast, or exposed places, do as they do on the coasts of the Mediterranean to preserve their hay-stacks from being blown over when half cut, which is simply to let two poles, or only one, into the ground on the lee side of the stack and *in* it. I shall try it on my hill, 500 feet above the sea. *Somerset.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *June* 18: Colonel Challoner, Trustee, in the Chair.

Drainage Waters.—Professor Way, the Consulting Chemist of the Society, gave a second lecture on the subject of the chemical composition of Drainage Waters. This lecture is already in type, and will form a portion of the new Number of the Society's Journal, expected to make its appearance in a few weeks.—On the motion of Mr. Chadwick, seconded by Dr. Calvert, the best thanks of the meeting were voted to Professor Way for the valuable and interesting matter he had then brought before the members, and for the lucid manner in which he had explained the scientific details. Colonel Challoner, Mr. Evelyn Denison, M.P., Dr. Calvert, Mr. Chadwick, Lord Walsingham, and Mr. Paine called the attention of the meeting to particular points connected with the practical bearings of these researches, which enabled Professor Way in reply to render his statements more complete.

The Council adjourned to the 25th of June, when Professor Simonds would deliver his second lecture on Parasites affecting Domesticated Animals.

Reviews.

A Retrospect of English Agriculture during the last 15 years; being a Paper read and discussed at the ordinary meeting of the Society of Arts, March 5, 1856, H.R.H. Prince Albert, President, in the chair. By Charles Wren Hoskyns.

Agricultural Statistics. By Charles Wren Hoskyns.

"——— Sua si bona nôrint
Nos numerus sumus."———

John Murray.

These are reprints from the Journals where they first respectively appeared. Those who have not copies for preservation of two very excellent papers should procure these pamphlets.

Yearly Tenancy and Farm Leases. Lecture by Mr. J. D. Ferguson, of Bywell, to the Hexham Farmers' Club. J. Grey, Esq., of Dilston, President, in the chair. Journal Office, Newcastle.

This little tract reports a lecture on a very important subject which tells us very satisfactorily—

"1st, how it is that a tenant at will has not a fair chance of doing either justice to himself or his farm; 2nd, in what way generally a yearly tenancy of a farm often militates against the interest of the proprietor as well as his tenant; and 3d, in what way tenants-at-will, or those holding their farms merely from year to year, are not so useful to their country in a general sense as those having leases."

Then, on "Farm Leases," it states "in what way reciprocal advantages are derived by both landlord and tenant, when the one grants, and the other accepts, a lease of a farm for a term of years."

On these several points we shall make a few extracts:—

1. A tenant at will cannot do justice either to himself or his farm, for "It is impossible to expect that he shall lay out his capital in the permanent improvement of another person's property, without security that he or his heirs may at least reasonably expect the yearly interest on the capital he has employed in the cultivation of his farm. For a landlord to expect that his tenants shall expend considerable sums of their own in draining, fencing, or building, without the security of a lease, is to my mind, tantamount to his asking each of them for the loan of a sum of money, without any security or written document whatever, as evidence of his having received it, and few indeed I apprehend would be willing to lend their money in that way."

2. A yearly tenancy militates against the interest of the landlord as well as the tenant. "Every landlord is of course anxious that his farms should always be kept in good condition, lest, in the event of his tenants resigning possession of his farm, he should lose money by re-letting it at a lower rent, and this you will at once perceive begets, as I said before, a new bargain and a written agreement with every tenant every year previous to Martinmas, if the entry is at May-day. Now, if the price of farm produce is looking up in the market, the landlord is naturally and reasonably anxious for an increase of rent, probably beyond what his tenants had before paid, and on the other hand, if farm produce has come down in price, then it is also natural and reasonable for each tenant to make a fresh bargain, so that his rent may be less than formerly. All this, then, begets a constant and unseemly bickering from year to year between a landlord and his tenant, which a lease would entirely prevent. It follows, then, that in order to carry out what I think is perfectly fair on the part of the landlord, stringent clauses should be insisted on, which a tenant, having only a yearly interest in his farm, has often decided objections in agreeing to, because he subjects himself to considerable outlay without the sure prospect of obtaining sufficient reimbursement. Now, a lease for a number of years would cure all this, because a tenant knows very well if stringent or severe conditions are insisted on in the lease, of laying yearly on his fields a certain quantity of manure or lime, he, or his heirs in the event of his death, are the only parties who shall reap the benefit."

3. Tenants-at-will are not so useful to their country as those having leases. "They do not so freely expend their capital or cultivate their farms with the same spirit and energy as those having the security of a lease, and this no man can be surprised at, for although the landlord may be the best of men, and may in every respect act the part of a most honourable and considerate landlord, yet no man can tell when he may dispose or excamb part of his property, when a change may come over his circumstances, or when death may put an end to his kind intentions, and hinder the fulfilling of any promise he may have made, and, therefore, the tenant farming from year to year is naturally reluctant to lay out any capital of his own in improving his farm, consequently his crops on undrained and therefore indifferently cultivated fields are often scanty in the extreme when compared with the crops of the vigorous tenant who has the security of a lease, and who judiciously expends his capital in giving employment and otherwise permanently improving his farm, which his landlord (though perhaps willing) has not the means to do."

On the form of lease recommended as fair between landlord and tenant Mr. Ferguson is not likely to meet with such general acquiescence among his readers as the above paragraph will obtain for him.

Miscellaneous.

The Beet Sugar Manufacture.—"Our largest agricultural establishments are employed upon the Beet. In the department of the Pas-de-Calais, one single farmer, M. Crespel de Lisse, grows 2500 acres of Beetroot every year, feeds 1000 head of cattle upon the pulp, and in this way produces sufficient manure to grow upwards of 3000 quarters of corn: there is nothing of the kind in England upon such a large scale. In the department of the Oise, a company is established at Dresles, with a capital of 30,000*l.*, for carrying on a similar concern; last year they grew 1200 acres of Beet from which they made sugar and alcohol, and with the pulp fed I do not know how many animals, harvested 1000 quarters of Wheat, and after disbursements and receipts to the amount of several millions of francs, divided, so I have been told, 15 per cent. upon the amount of the shares. The State has its share of these enormous productions, as an hectare (2½ acres) of Beet pays to the revenue for duty upon the homegrown sugar nearly a thousand francs (40*l.*); and yet sugar is lower in price than ever. Such are the wonders achieved by modern chemistry. And now for the reverse of the picture: beautiful as is this crop, it has narrow enough limits. At most it occupies one thousandth part of the soil, and may hardly be extended further. Hitherto it has not succeeded in the southern half of France; it answers only in the rich, fresh, (*fraiche*) deeply cultivated lands. It requires enormous capital to begin with, and oftentimes to be renewed, for the establishing of sugar houses and distilleries, and, what is still more serious, the outlet for the produce is not unlimited. It is only owing to the Grape disease that Beetroot spirit obtains favour; should the disease disappear, this branch of production will stand a chance at least of being seriously interfered with. As regards the sugar, there is no certainty that the price will not still further decline, and it is not to be compared, for importance of consumption, to articles of food. The true object of agriculture—its secure basis—is the production of meat and bread." *Journal of Agriculture.*

Calendar of Operations.

JUNE.

Cheshire, *June* 17.—The weather for the last few weeks has been most favourable for the crops, and Wheat, Barley, and Oats, with very few exceptions, are looking remarkably well. Beans and Peas are not much grown in this county, but what we have seen are also looking very healthy. In some localities, however, there are complaints of the wireworm having injured the crops both of Wheat and Barley seriously, and we have heard of instances where farmers have in consequence ploughed up a portion of their Wheat and sown the land with spring corn. It does not appear that any effectual remedy has yet been discovered for the preservation of the crops against these pests, but their depredations are sometimes checked by an application of 6 or 8 cwt. of salt per acre, and the use of a Cambridge or Crosskill's roller. Grass is plentiful, and all kinds of stock appear to be doing well. Mangel Wurzel and Turnips have come up well, but there are complaints of the insect tribe injuring the young plants as soon as they make their appearance above ground; we trust, however, that these attacks are only partial, and that this very genial weather will force them out of danger, and that we shall yet have good crops. Early Potatoes, where not cut down by the frost, are looking well, and will soon be ready for market; some crops within the influence of the sea air are very forward, and a few have already been sold. We are informed that a less breadth of land has been planted than for several years past, therefore we are led to believe that a remunerative price to the grower will be maintained in consequence. All descriptions of weeds are growing rapidly, and farmers require an additional force of labourers to keep pace with their work; but it is to be hoped that they will be repaid by the excellence of the crops, of which there is now great promise. All descriptions of store stock are dear, and feeding being remunerative at these high prices is very doubtful. A mixture of Italian Rye-grass with Clover, &c., for soiling horses and cattle in the stall is beginning to be appreciated; we are now cutting our second crop of fine growth. There appears to be a scarcity of pigs in the country, as stores are dearer than we ever remember them, and fat ones are much inquired after. We believe that one cause is the great losses amongst young litters from severe frosts early in the spring, at which time the first litters of the year generally make their appearance; a great improvement as regards warmth, which is so essential to young pigs, might be made in even the best pig-styes of the present day.

West Sussex, *June* 17.—Since our last report we have had a continuation of such weather as has kept us all contented, in fact hardly a complaint has been heard. The spring corn that so long looked backward was at last set to growing by fine seasonable showers, and when it had enough then we had bright sunshine, which the Wheat began to want, so that now the prospect is good for corn; Grass is also abundant, and if we have now fine weather there will be more good hay made than has been for several years; the Clover, where it has not entirely failed, is very heavy, and the rain that we had on the 13th has laid some of it, but as it is fit to cut it will not suffer on that account. Turnip and Swede sowing is now employing us, and the fly has been more than usually busy; many are sowing the second time, and without a change will have to do it again. The old and common idea that the east wind brings it does not seem to hold good this season, as the prevailing currents have been lately from the south-west. Potatoes look very healthy. The Wheat ricks have nearly all disappeared, the stock is certainly lower than usual at this season; as the general opinion was that the price would fall with the termination of the war, few cared to keep back when they could conveniently sell out. This, perhaps, was one of those cases when statistics would have been useful; but there is such a desire for speculating in all Britons that with many agricultural statistics are viewed with great disfavour. But the most

feasible reason that I have heard here is, that supposing the estimate to be taken too high, then prices would fall in anticipation of abundance; and if taken too low, then the importers would set to work more eagerly, and so bring down the price in that way: but this is all upon the supposition that the estimates will be taken wrong, and they go so far as to say that it is impossible to arrive at any thing near the truth, forgetting that the thing is done in individual cases every year without much error, and the more general the system becomes the nearer the truth it will be. *G. S.*

WESTER ROSS, *June* 10.—Within the last four weeks there has fallen a quantity of rain uncommonly large for this season of the year, and during the greater part of that time the wind has been very cold and easterly. In the early part of last month the weather, fortunately, was very favourable for preparing the ground for Turnips, and a good deal was then accomplished; since that time this work has proceeded very slowly and very unsatisfactorily. Sowing of Swedes has been finished generally, and they are now appearing above ground thick and regular. We have now had a few days comparatively dry, and plough, grubber, and harrows have been wrought with all alacrity, and to great advantage. Sowing of common Turnips is now proceeded with, and in 10 days will be all but completed. The quantity of manure applied to Turnips seems still on the increase; for it is no rare thing to meet with farmers who scruple not to apply to each acre 3*l.* worth of purchased manures. The season appears to have been favourable to the brairding of Potatoes, as they appeared above ground about a fortnight earlier than usual, and already a few fields have been hoed a first time. They are close brairded, and seem strong and vigorous. Autumn-sown Wheat on dry soils never looked better; indeed, we are at a loss to know what some crops will come to; whether they will lodge early, and be of little or no use, or whether they will stand erect to harvest, and yield a return more abundant than any we have ever had before. On undrained and cold soils the Wheat does not look so well, and Oats and Barley until a few days ago looked as if they were half drowned, and seemed quite unable to keep pace with the rapidly advancing Wheat. Now, however, they are coming away in good earnest, and there is every reason to anticipate at least an abundance of straw this year. The hay crop is heavier than it has been for years, and the pastures afford a sufficient bite for stock. Cattle, fat and lean, are in good demand, and prices are again remunerating. The rise in wages of day labourers and half-year servants has stopped, but as there is abundant employment at fair wages contentment generally prevails.

Notices to Correspondents.

BARN FLOORS: *J L S.* If you mix broken glass up in the mortar for the barn floor it will puzzle the rats. But a well made concrete as foundation for the ordinary cement is perfectly efficient.

BOYD'S SCYTHES: *G S.* in answer to our note at page 397 says:—"The one that I had was not radially grooved at the joint where the greatest strain is. I have since seen such, and one great defect will be cured by it. But there are many more to be remedied. The method of attaching the iron to the wood at the heel leaves it so weak that no man would venture into a heavy corn field with them. For lawn mowing they may do, but no better than the others; but for farm work they will not do, to say nothing of the price.

CHAFF-CUTTING AND BRUISING MACHINE: *T.* For the former apply to Richmond and Chandler, of Salford, and for the latter to Turner, of Norwich; or you may apply to any of the commission agents, as Burgess & Key; Dean, Dray, & Co., &c.

DISEASED FLOCK: *Correspondent.* We fear we shall not have an opinion for you in time for publication this week, but if you will favour us with your address it shall be sent to you.

DUNG-HEAP: *Eaton.* Farm-yard dung is best preserved under a covering of loam or vegetable mould. If laid upon a bed of such stuff and covered by it, the volatile parts will be retained and the soluble parts will not run to waste. This is better than adding gypsum.

FREEHOLD LAND SOCIETY: *W H B.* We do not know the address of its office.

HEREFORDS: *J J P.* In a recent number of a Canadian paper there is an account which may serve your purpose. We quote the following passages:—"Mr. Heath, of Ludham Hall, says,—'You wish to know the weights of some of my prize Herefords. A two years and ten months steer (four quarters, beef only) weighed 92 stones (1280 lbs., 14 lbs. to the stone), winner of the gold medal given for any breed of all ages in London, 1850. A four years old and eight months old ox, 134 stones (1876 lbs.), winner of 30*l.* in London, 1851. One three years and nine months old, 126 stones (1764 lbs.), winner of second prize of 15*l.* The next Hereford I showed was at Birmingham, 1853, two years and eleven months old, winner of the gold medal and 30*l.* I brought him home again, and showed him the following year in London; he won the first prize of 25*l.*, and, had he had justice done him, would have won the gold medal, 1854. I showed at Birmingham a Hereford, the same year, winner of the gold medal and 30*l.* These two animals were twins bred by Mr. Thomas Carter, Dodmore, Ludlow; the former weighed 129 stones (1806 lbs.), the latter, 133 stones (1862 lbs.); their ages, when killed, were three years and eleven months. I bought them the end of October for 50*l.*, sold them December, 1854, for 120*l.*; they won me in money 75*l.*, and the two medals are worth 40*l.* for old gold. These two Herefords made me in all 245*l.* I showed a heifer, winner of first prize of 10*l.* at Birmingham, four years and ten months old, weighed 96 stones (1344 lbs.) I showed in London, this year, winner of first prize of 25*l.*, sold him for 65*l.*, three years and eleven months, weighed 128 stones (1792 lbs.). A steer I showed in the young class in London, 1854; he had not a prize awarded to him. I showed him this year at Birmingham, won the gold medal and 30*l.*; sold him for 67*l.* 10*s.*; he weighed 136 stones (1906 lbs.); was three years and eleven months old.' Mr. Heath breeds early lambs for the London market, feeds the ewes the same year, buying in the fall—a practice with many graziers in England. Mr. Rowland, of Buckinghamshire says:—'I have not shown oxen of late years; the breeders, in a great measure, have been the exhibitors. I was an exhibitor for some years after I came here, and took three prizes with Hereford oxen, which weighed from 260 to 270 stones, 8 lbs. to the stone. This was beef, hide, and rough fat.' Mr. Edward Price, Leominster, says:—'In December last, I sold to the agent of his Royal Highness Prince Albert 4 one year old Hereford steers for 130*l.* The weight of my three years and ten months old Hereford heifer, which took the first prize of 10*l.* and 20*l.* extra money, and gold and silver medal at Birmingham, was 18 scores per quarter in her beef (1440 lbs.). The only reason I give the weights and prices of these Herefords is—the shorthorn breeders have always been boasting of early maturity and great size. I contend that the weight is the proof. Now, I want to see shorthorn breeders show such proofs as above.'"

MR. WOOD'S PAPER: *Anon.* The Paper may probably be obtained on application to Mr Corbet, the secretary to the club, Bridge Street, Blackfriars. We will publish an extract next week on the point to which you refer.

RENOVATING OLD PASTURE. *M G Y.* You had better sow the Clovers and Italian Ryegrass on all soils, and on heavy clays sow Timothy Grass and Festuca loliacea in addition, while on light soils Festuca rubra, and perhaps Lotus corniculatus might be sown along with the common Clover and Ryegrass.

SALT: *M G Y.* You may use 3 or 4 cwt. of salt per acre on moor land reclaimed from heath. It will not perform the office of lime however in the soil.

WIREWORM: *C. Wilkinson.* Pressure during the growth of the crop and exposure to the frosts of winter are the two remedies mainly relied upon, but there is no certain remedy.

PAGE AND CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make Four Gallons fit for use.
Ten Gallons and upwards, Carriage Free to London.

AFTER FIVE YEARS' EXTENSIVE USE by the most eminent Gardeners in the Kingdom, the superiority of PAGE AND CO.'S BLIGHT COMPOSITION is unquestionable, requiring only a trial to insure its general use for destroying every pest to which Plant and Fruit Growers are subject (without injuring the most delicate flowers or foliage), and promoting a luxuriant growth.

The greatest indication of its value is its adoption by the NURSERY TRADE as the most efficient and economical means they can employ, many of whose opinions will be found recorded in a Pamphlet of Testimonials, which may be obtained of the Agents; but to publish them as previously would take the whole advertising medium of the *Gardeners' Chronicle*.

For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

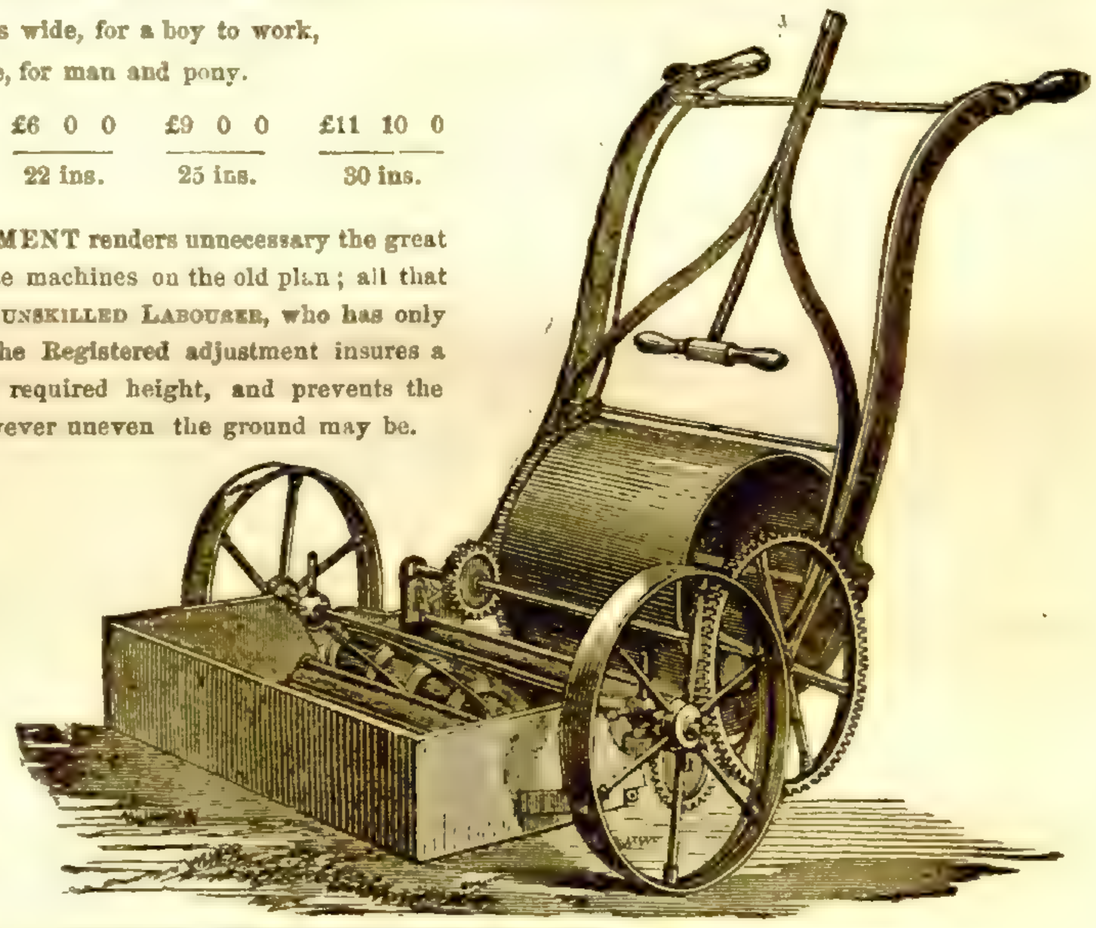
Pamphlets, with instructions for use, free by post on application to

PAGE & CO., Seed Merchants, Southampton.

SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING-GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,
SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq. Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

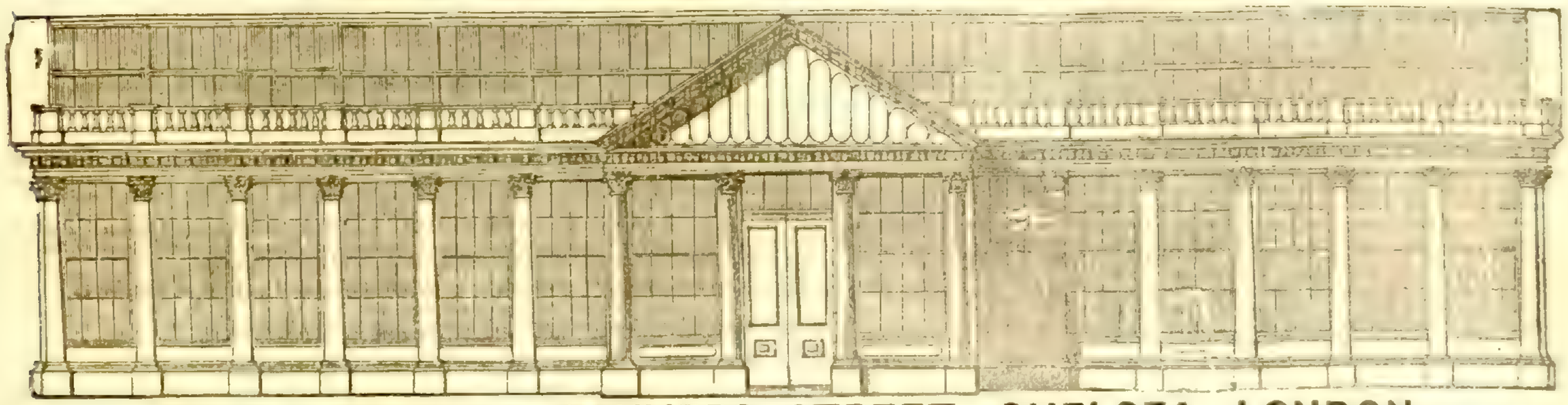
The above Machines are warranted to answer the purpose as described, or may be returned.

LONDON AGENTS: Messrs. COTTAM & HALLEN, 76, Oxford Street; and Messrs. BURGESS & KEY, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



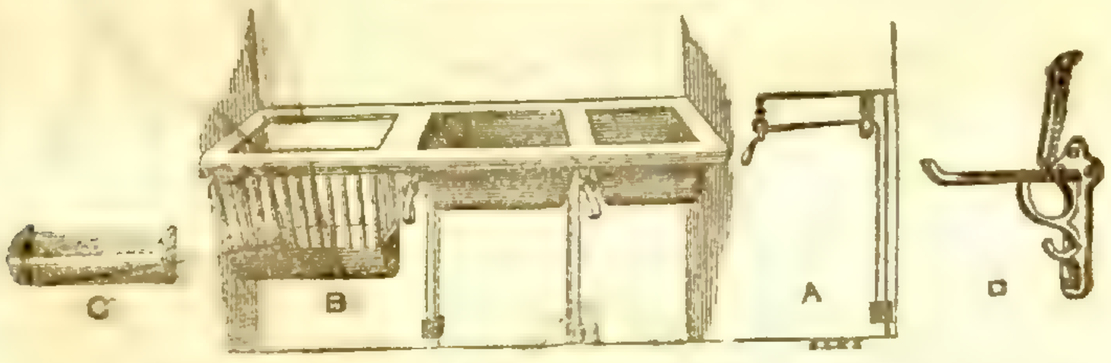
GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace, and Osborne.

Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

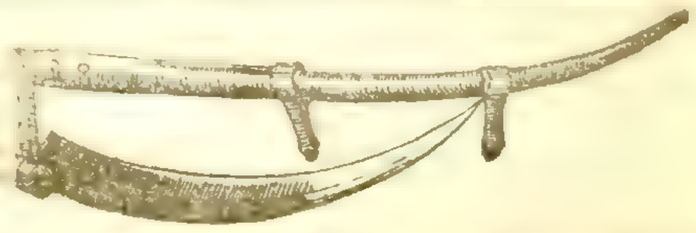
THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanatorium, 46, Leicester Square.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67 and 68, King William Street, London. Drawings forwarded by post.



BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10*s.* 6*d.*
BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6
BOYD'S PATENT VULCAN BLADES 4 6

May be had of all Ironmongers and Seedsmen; and Wholesale of WM. DRAY & Co., Swan Lane, London

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent.**

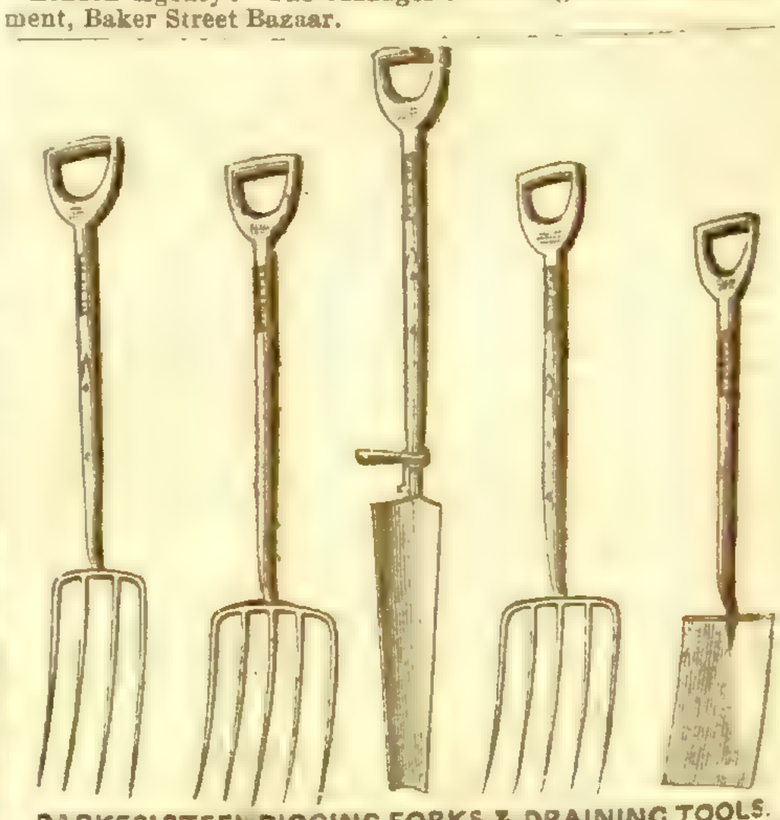
JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5 10*s.* 0*d.*
Ditto for Man and Boy	" 22 ditto	... 6 0 0
Pony Machine (or Donkey)	" 26 ditto	... 8 0 0
Horse Machine	" 28 ditto	... 11 0 0
Ditto	" 36 ditto	... 15 0 0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

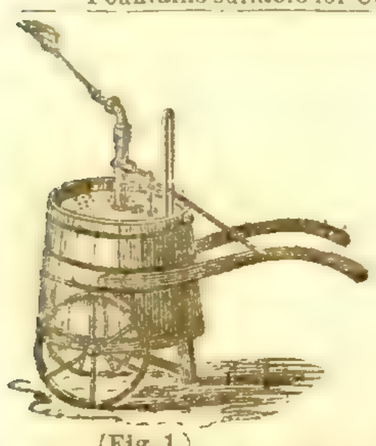
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps 103, Newgate Street, London.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the convevance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.



(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high				...	£4 10
No. 2	„ 15	„	„ 45	„	...	5 10
No. 3	„ 28	„	„ 45	„	...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high				...	£2 15
No. 13	„ 12	„	„ 30	„	...	3 5
No. 11	„ 16	„	„ 40	„	...	4 0
No. 12	„ 24	„	„ 45	„	...	5 0
No. 14	„ 30	„	„ 45	„	...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

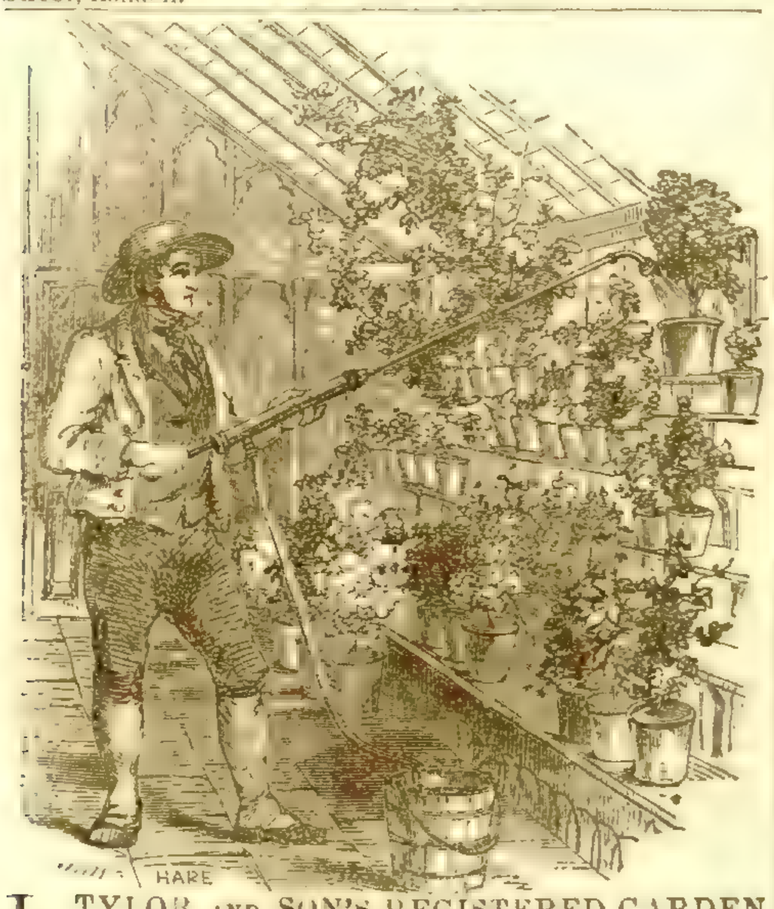
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅝ inch, 12*s.*; No. 3, do, diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BEEHIVES.

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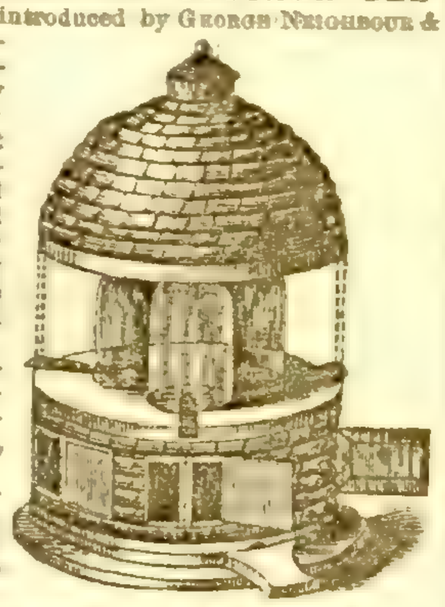

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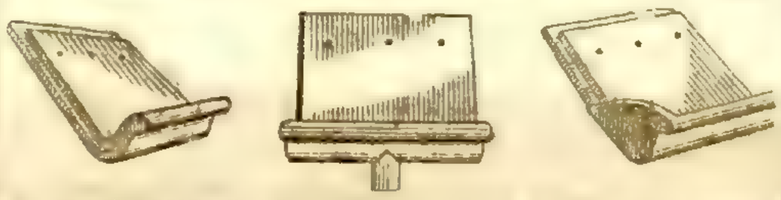

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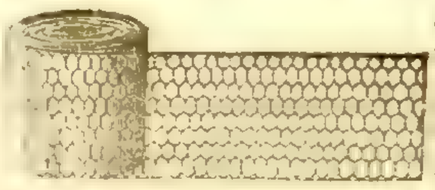

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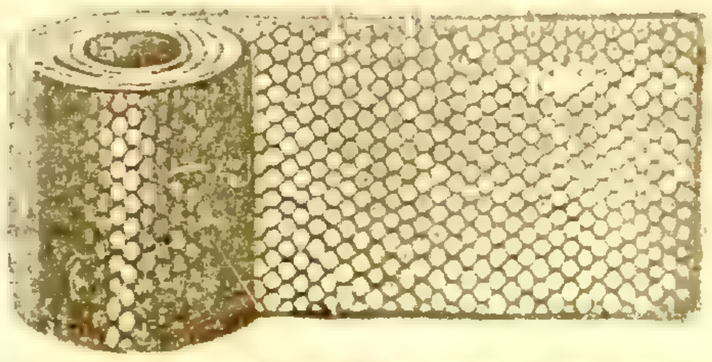

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1⅝-inch	„ 24 inches wide	... ...	5½ „	4½ „
1⅝-inch	„ strong, do.	... ...	6½ „	5¼ „
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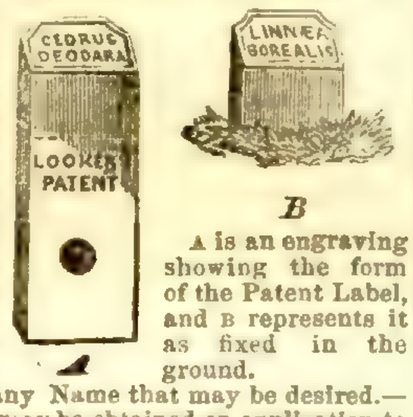

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12	„	9	„	13	„	9	...	... 14	0
10	„	10	„	10½	„	10½	...	... 14	0
11	„	10	„	11½	„	10½	...	... 14	0
11	„	11	„	11½	„	11½	...	... 14	0
12	„	11	„	12½	„	11½	...	... 14	0
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13½	„	13½	„	14½	„	13½	...	... 16	0
15½	„	13½	...	...	...	...	...	... 16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.

Ditto, not exceeding 1 foot ... 2½ „

Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

IMPROVED METAL FENCING.

MESSRS. HARRISON AND CO. supply or contract for the construction in all parts of the country of their improved Galvanized Strand Fences, which are acknowledged to be unequalled for their economy, efficiency, and durability.

Offices, 66, Cannon Street, London.

GUTTA PERCHA! GUTTA PERCHA.—The Improved Flexible Tubing, made expressly for Watering Gardens, at 4*d.* and 6*d.* per foot; to be had only of Messrs. Thorn, 98, New Bond Street. Gutta Percha Speaking Tubes at 3*d.* and 4*d.* per foot.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At Edgington & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1. Quality, Inches in Diameter and Price per Yard:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes and Jets are also supplied.

TO GENTLEMEN. TO GARDENERS.

WANTED IMMEDIATELY, the Address of any Gardener or his Employer who has not received (free by post) Patterns, with prices and particulars, of HAYTHORN'S HEXAGON GARDEN NET, for the protection of bloom, fruit, and flowers from frosts, birds, wasps, flies, children, and servants; covering also for Hot-houses, without preventing the admission of light and air.—Letters and orders to be directed to J. W. Haythorn, Nottingham. Parcels—carriage paid to London, Liverpool, Leeds, Bristol, Hull, &c.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

GARDEN VASES, WIRE WORK, AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory for aviaries, poultry houses, arbours, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to Cottam & Hallen, Iron Works, 2, Winsley Street, Oxford Street.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex. Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, June 21, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1856.] SATURDAY, JUNE 28. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The LAST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT will take place on WEDNESDAY, July 9. Tickets to be obtained at the Gardens only by orders from Fellows of the Society, price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each. Gates open at 2 o'clock. Carriages to set down and take up either at the South, North, or East entrances to the Gardens; the North Gate opens directly into the covered Exhibition Grounds. N.B. Exhibition Tickets not used on the 9th will be admitted to the Gardens any day between July 10th and August 1st, Sundays excepted.

NATIONAL FLORICULTURAL SOCIETY, 21, Regent Street.—Notice is hereby given, that the SEVENTH EXHIBITION will be held on THURSDAY next, July 3, when Prizes may be awarded for 3 distinct SCARLET PELARGONIUMS; 4 distinct FUCHSIAS; 12 distinct trusses of VERBENAS; 4 distinct trusses of PHLOXES; 6 distinct blooms of PINKS, and 6 ditto ditto to private growers only; 12 distinct ROSES; 6 ditto Private growers only. Censors, Messrs. Keynes, Turner, Baker, Henderson and Moore. Seedlings as usual. Nothing for competition can be staged after 12 o'clock. John Edwards.

NATIONAL CARNATION and PICOTEE EXHIBITION will be held August 5th, in conjunction with the Handsworth and Lozells Exhibition on the above day. All who intend to exhibit should give notice and forward their subscriptions to the secretary on or before the 13th of July, on which day the lists must close. George P. Tye, Hon. Sec.
Birmingham, June 26.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The Second Grand Flower Show of the above Society will be held by permission of the Earl of Essex in Cassiobury Park, in a magnificent Marquee provided for the occasion by Mr. S. Staff, Lawson Street, Dover Road, London, on THURSDAY, July 3, open to all Exhibitors. A Grand Review of the Hon. Artillery Company and the Herts Yeomanry Cavalry will also take place in the Park. The Society's Brass Band, under the direction of Mr. Graves, will be in attendance. Watford Station on the London and North Western Railway is about 10 minutes' walk from Cassiobury Park. Trains stop every half hour, and Omnibus will convey Passengers to and from the Exhibition.
High Street, Watford. John Pearce Taylor, Sec.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

"WHEELER'S little Book will do something to satisfy their Expectations."—*Gardeners' Chronicle.*

Our Little Book contains a List—a very select List—of the best Garden and Flower Seeds in cultivation. It also contains descriptions and prices, and will be found a safe and unerring guide to all purchasers. It should be in the hands of every one who has a garden.
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

NEW HORSE-SHOE SCARLET.
J. H. BIRD is now sending out his beautiful New Horse-shoe Scarlet Marshal Pelissier, pronounced by all who have seen it to be the finest ever offered. Strong Plants, 5*s*. each, usual allowance to the trade. For full description see advertisements in Edwards's "National Garden Almanack" for 1856. Post-office Orders to be made payable to
J. H. Bird, Florist, Stoke Newington.

POTATOES.—TO SEEDSMEN, ETC.
J. SHEPPARD begs to announce he has an acre of ASHLEAF POTATOES (true) in full foliage, which will be saved for seed and sale, and invites their inspection, in consequence of the difficulty of knowing their genuineness without seeing the leaf.—Also a large breadth of Frame, York and Scotch Regents, Snowballs, and Early Shaws.
East Grinstead, Sussex, distant half a mile from the E. G. Railway Terminus.

New and Beautiful Hardy Coniferous Tree.
CUPRESSUS LAWSONIANA.
MESSRS WATERER and GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s*.; six plants, 4*l*. 10*s*.; 12 plants, 7*l*. 10*s*.—Knap Hill Nursery, Woking, Surrey.

EXHIBITION OF AMERICAN PLANTS,
Knap Hill Nursery, Woking, Surrey.
MESSRS. WATERER and GODFREY have great pleasure in stating that their Collection of American Plants at the Nursery is now finely in bloom, and may be seen daily gratis. The Nursery is readily reached by Train to Woking Station in 40 minutes; there are always plenty of conveyances at the Station.—June 28.

THE NEAREST AMERICAN NURSERY TO ANY RAILWAY STATION.
AN EXTENSIVE COLLECTION, covering nearly 30 acres, of AMERICAN PLANTS, in bloom during June, may be seen in high perfection at GEORGE BAKER'S, WINDLESHAM NURSERY, BAGSHOT, SURREY, 1¼ mile from Sunningdale Station, on the Staines and Wokingham Railway; 26 miles from Waterloo Station; and at the Royal Botanic Gardens, Regent's Park.—Orders of Admission may be had (gratis) from Fellows of the Society, or on application to the Advertiser.

GRAND EXHIBITION OF RHODODENDRONS
At the Royal Botanic Gardens, Regent's Park, London.
JOHN WATERER begs to say that his unequalled collection of the above popular plants is now in full bloom, and can be seen daily by orders (gratuitously) granted by Fellows of the Society.
The two celebrated new varieties John Waterer and Mrs. John Waterer are now finely in bloom, as are also the following late blooming kinds:—Lady Eleanor Cathcart, concessum, Brayanum, roseum invictum; atrosanguineum, Leopardi celebrandum, blatteum, erectum, &c. The display altogether exceeds in gorgeousness any Floral Exhibition hitherto attempted in this country.—The American Nursery, Bagshot, Surrey.

ROSES.
A. PAUL and SON respectfully inform admirers of the Rose that their extensive collection is just coming into Bloom, will be in fullest Bloom the first week in July, and continue flowering till November. Inspection is freely invited.—Nurseries, Cheshunt, Herts, on Cambridge line of Eastern Counties Railway.

ROSES.
H. LANE and SON, Great Berkhamstead, have the pleasure of informing their Patrons that their extensive collection of Roses will be in full bloom about the first week in July. Their Coniferæ, Rhododendrons, and a General Stock of Trees and Shrubs and Fruit Trees are remarkably fine, and well worth the attention of Planters.
The Nurseries are within a few minutes' walk of the Station on the London and North Western Railway.

NEW FUCHSIA—"GEM OF WHITEHILL."
WILLIAM FULLER begs to inform the Trade and Public generally that he has a few extra strong Plants of the above splendid variety, that will bloom this season, for sale at 7*s*. 6*d*. each; or where three are taken one will be given over. Post-office Orders to be made payable at Newton Abbott.
Courtenay Nursery, June 28.

J. C. WHEELER and SON'S *Short Select* SEED LIST *for this Season is now ready, and may be had gratis on application.*
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

FINE NEW ITALIAN RYE-GRASS, imported direct from Italy.
Fine selected GRASSES for PERMANENT PASTURE, 30*s*. per acre. This will include a mixture of the *true Cow Grass* or Perennial Red Clover.
Fine LAWN GRASS, 1*s*. per lb.; 40 lbs. will be sufficient for an acre. Delivered carriage free.
J. C. Wheeler & Son, Nurserymen and Seed Growers, Gloucester.

CHOICE NEW GERANIUMS.
LUCOMBE, PINCE, and CO., having now a very large stock of fine healthy Plants of the *Newest* and *Choicest* GERANIUMS, are enabled to offer them at the under-mentioned reduced prices:—
Selection from the following varieties, 3*l*. per dozen:

Cloth of Silver	Omar Pacha	Serena
Empress	Pallas	Sanspareil
Evening Star	Phaeton	Saracen
King of Portugal	Petruchio	Topsy
Meteora	Pandora	Vesper
Medaille d'Or	Rosaline	Wonderful

A fine collection of these is now in full bloom in their Nursery, to which L., P., & Co. beg to call attention.
Selections from the flowers of 1854 and 1855, if left to L., P., & Co., from 12*s*., 18*s*., to 30*s*. per dozen. Plants will be given over to compensate for carriage.
For further particulars apply to the Exeter Nursery, Exeter. Established 1720.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42*s*.
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties	"	9
Gynerium argenteum (Pampas Grass)	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

BEDDING PLANTS.
F. and A. SMITH beg to offer strong plants of the undermentioned in May from 3*s*. per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.
F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s*. 6*d*. per packet assorted colours.—Dulwich, Surrey.

PERPETUAL ROSES in POTS and BEDDING PLANTS.—For Bass and Brown's Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A Large Surplus Stock at Reduced Prices.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to Bass & Brown, Sudbury, Suffolk.

NOTICE TO ALL ENGLAND—MARSHAL PELISSIER.
J. H. BIRD will give a Five Guinea Cup for the best Four Plants of his Marshal Pelissier, Horse-shoe Scarlet, at the June Show of the Crystal Palace 1857.—Open to all England.

CHOICE CALCEOLARIA SEED.
JOHN HENCHMAN, Junior, is now ready to send out SEED of his choice and well known strain of CALCEOLARIAS, at 5*s*. per packet. Trade packets, 10*s*.
Edmonton, Middlesex.

TO THE TRADE.
CHARLES SHARPE has on hand fine selected RAPE or COLE SEED for sowing. Samples and prices can be had on application.—Wisbeach, Cambs.

TO THE TRADE.
CHARLES SHARPE and CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, June 28.

GEORGE TAYLOR, Junior,
Growers' Salesman
For Choice Garden Produce,
St. John's Market,
Liverpool.
Terms—"Cash."

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*.; sent post free, 1*s*. 2*d*. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d*. per packet. Catalogue on application.
DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d*. per packet.
Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

NOTICE.
WAITE'S ECLIPSE HYBRID TURNIP SEED, which he advertises at 3*s*. per lb., can be had at William M'Culloch's Seed Warehouse, Dundalk, Ireland, at 1*s*. 8*d*., warranted genuine as when leaving his Establishment, 181, High Holborn, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.
THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

AZALEA INDICA.
J. IVERY and SON, Nurserymen, &c., Dorking and Reigate, beg to say they have just published a DESCRIPTIVE CATALOGUE of all the newest and most approved kinds of the AZALEA, which may be had in exchange for one postage stamp.
J. I. & Son also beg to say their fine collection of all the new varieties is now in bloom, and will continue so for several weeks; intending purchasers will do well to obtain the Catalogue and then pay a visit to this Nursery, the stock being unusually fine this season.—Dorking, June 28.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.
LUCOMBE, PINCE, and CO. have now ready for sending out Seeds of their very superior
CINERARIAS AND CALCEOLARIAS,
which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.—Packets of each sealed and warranted by them, at 2*s*. 6*d*. free by post

EXPERIENCED GARDENERS.
L., P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.
Exeter Nursery, Exeter. Established 1720.

NEW ACHIMENES.
BASS and BROWN are now supplying Plants of the following superb new ACHIMENES:—
ACHIMENES (MANDIROLA) ROEZLI.—Habit of Gesneria zebrina, with velvety striped foliage, marbled with black flowers of a beautiful rose, shaded with lilac, 10*s*. 6*d*. each.
Also five other splendid new varieties, viz., C. Bouche, Chr. Dagen, Holgärtner Wendischuch, (Mandirola) lanata, and purpurea multiflora (for descriptions see Catalogue No. V). The six varieties together, including Mandirola Roezli, for 30*s*.
The following four very fine varieties may now be had for 10*s*. viz., Dr. Hopf, Edmond Boissier, Edouard Otto, and Ambrose Verschaffelt. Choice varieties 6*s*. and 10*s*. per dozen.
NEW GLOXINIAS.
The 20 new varieties (see Catalogue No. V.) may now be had for 45*s*. for this season flowering, or 10 of the erect flowering varieties for 25*s*., or 25*s*. for the other 10. Plants from last autumn bulbs of 16 varieties of the same, which will produce abundant bloom, may still be had for 50*s*.; eight erect flowerings for 26*s*.; or the other eight for 24*s*. 12 choice varieties for 20*s*.
Carriage free of all plants not under 20*s*. to all the London termini.—Bass & Brown, Sudbury, Suffolk.

GARDENERS' CHRONICLE ONE PENNY NEWSPAPER

CRYSTAL PALACE.

SECOND GRAND FLOWER SHOW, 1856.

WEDNESDAY and THURSDAY, June 25th and 26th.

AWARD OF THE JUDGES.

PLANTS.

PRIZES OF 30*l.* EACH TO

Mr. James May, Gardener to H. Colyer, Esq., Dartford, Kent, for 20 Stove and Greenhouse Plants in flower.

Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 20 Orchids of Exotic species.

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for 20 Orchids of Exotic species.

PRIZES OF 20*l.* EACH TO

Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham, for 20 Stove and Greenhouse Plants in flower.

Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt, for 20 Orchids of Exotic species.

A PRIZE OF 18*l.* TO

Mr. John Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for 12 Stove and Greenhouse Plants in flower.

PRIZES OF 15*l.* EACH TO

Messrs. Veitch and Son, Nurserymen, Exeter and Chelsea, for 20 Variegated Plants and Plants of fine foliage.

Mr. P. Bassett, Gardener to R. S. Holford, Esq., M.P., Weston Birt, for 12 Orchids of Exotic species.

A PRIZE OF 12*l.* TO

Mr. S. W. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, Cheam, for 12 Stove and Greenhouse Plants in flower.

PRIZES OF 10*l.* EACH TO

Mr. O. Rhodes, Gardener to J. Philpott, Esq., Stamford Hill, for 20 Stove and Greenhouse Plants in flower.

Mr. R. Roser, Gardener to J. Bradbury, Esq., Streatham, for 6 Stove and Greenhouse Plants in flower.

Messrs. T. Jackson & Son, Nurserymen, Kingston-on-Thames, for 20 Variegated Plants and Plants of fine foliage.

Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 20 Variegated Plants and Plants of fine foliage.

Mr. M. Clarke, Gardener to C. Webb, Esq., High Grounds, Hoddesdon, for 12 Orchids of Exotic species.

Mr. S. W. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, for 6 Orchids of Exotic species.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 6 plants of Nepenthes, with pitchers.

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for 12 Roses in pots, distinct kinds.

Mr. Chas. Turner, Royal Nursery, Slough, for 12 Pelargoniums in pots, distinct varieties.

Mr. Chas. Turner, Royal Nursery, Slough, for 12 Fancy Pelargoniums in pots, distinct varieties.

PRIZES OF 8*l.* EACH TO

Mr. W. Cutbush, Nurseryman, Barnet, for 12 Cape Heaths.

Mr. Thos. Williams, Gardener to Miss Traill, Hayes Place, Kent, for 10 Cape Heaths.

Mr. B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood, for 12 Greenhouse Azaleas.

Mr. John Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for 6 Greenhouse Azaleas.

PRIZES OF 7*l.* EACH TO

Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, for 6 plants of Nepenthes, with pitchers.

Mr. John Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for 6 Tall Cacti, in flower.

Mr. E. P. Francis, Nurseryman, Hertford, for 12 Roses in pots, distinct kinds.

Messrs. Dobson & Son, Nurserymen, Isleworth, for 12 Pelargoniums in pots, distinct varieties.

Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, for 12 Fancy Pelargoniums in pots, distinct varieties.

PRIZES OF 6*l.* EACH TO

Mr. James Morris, Gardener to Coles Child, Esq., The Palace, Bromley, for 12 Stove and Greenhouse Plants in flower.

Mr. W. Cutbush, Nurseryman, Barnet, for 6 Stove and Greenhouse Plants in flower.

Mr. Thomas Williams, Gardener to Miss Traill, Hayes Place, Kent, for 6 Stove and Greenhouse Plants in flower.

Mr. James Morris, Gardener to Coles Child, Esq., The Palace, Bromley, for 6 Orchids of Exotic species.

Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames, for 12 Cape Heaths.

Mr. R. Roser, Gardener to J. Bradbury, Esq., Streatham, for 10 Cape Heaths.

Mr. B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood, for 10 Cape Heaths.

Mr. James May, Gardener to H. Colyer, Esq., Dartford, for 6 Cape Heaths.

Mr. R. Roser, Gardener to J. Bradbury, Esq., Streatham, for 6 Greenhouse Azaleas.

PRIZES OF 5*l.* EACH TO

Mr. Geo. Young, Gardener to W. Stone, Esq., Dulwich Hill, for 20 Variegated Plants and Plants of fine foliage.

Mr. O. Rhodes, Gardener to J. Philpott, Esq., Stamford Hill, for 10 Cape Heaths.

A. Rowland, Esq., Rosenthal, Lewisham, for 6 Roses in pots, distinct kinds.

PRIZES OF 5*l.* EACH TO

Messrs. Dobson & Son, Nurserymen, Isleworth, for 6 Fuchsias in pots, distinct varieties.

Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, for 12 Pelargoniums in pots, distinct varieties.

Mr. W. Holder, Gardener to the Rev. E. Coleridge, Eton, for 6 Pelargoniums in pots, distinct varieties.

Mr. N. Gaines, Nurseryman, Battersea, for 12 Fancy Pelargoniums in pots, distinct varieties.

Mr. T. Windsor, Gardener to A. Blyth, Esq., Hampstead, for 6 Fancy Pelargoniums in pots, distinct varieties.

PRIZES OF 4*l.* EACH TO

Mr. B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood, for 12 Stove and Greenhouse Plants in flower.

Mr. R. Parker, Paradise Nursery, Holloway, for 20 Variegated Plants and Plants of fine foliage.

Mr. P. Bassett, Gardener to R. S. Holford, Esq., M.P., Weston Birt, for 20 Variegated Plants and Plants of fine foliage.

Mr. F. Fletcher, Gardener to J. F. Young, Esq., Kennington, for 12 Exotic Ferns in pots.

Mr. James Harlock, Gardener to R. W. Nutter, Esq., Wanstead, for 6 Cape Heaths.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 Greenhouse Azaleas.

Mr. N. Gaines, Nurseryman, Battersea, for 12 Pelargoniums in pots, distinct varieties.

Messrs. Cutbush & Son, Nurserymen, Highgate, for 12 Fancy Pelargoniums in pots, distinct varieties.

PRIZES OF 3*l.* EACH TO

Mr. E. A. Hamp, Gardener to James Thorne, Esq., Mawbey House, South Lambeth, for 12 Stove and Greenhouse Plants in flower.

Mr. G. T. Brush, Gardener to J. Tritton, Esq., Bloomfield Hall, Norwood, for 6 Stove and Greenhouse Plants in flower.

Mr. James Morris, Gardener to Coles Child, Esq., the Palace, Bromley, for 20 Variegated Plants and Plants of fine foliage.

Mr. R. Oubridge, Gardener to James Foster, Esq., Stamford Hill, for 20 Variegated Plants and Plants of fine foliage.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 6 Plants of Anæctochilus and Physurus.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 12 Exotic Ferns in pots.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants in flower (Aerides species).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants (Theophrasta imperialis).

Mr. George Young, Gardener to W. Stone, Esq., Dulwich Hill, for 6 Cape Heaths.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for Lapageria rosea.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for 12 Plants of recent introduction.

Mr. R. Parker, Paradise Nursery, Holloway, for a collection of 25 Miscellaneous Plants.

Mr. John Salter, Nurseryman, William Street, Hammersmith, for a collection of Chinese Peonies.

Mr. R. Sim, Nurseryman, Foot's Cray, for 60 varieties of British Ferns, hardy.

Mr. J. James, Gardener to W. F. Watson, Esq., Isleworth, for 6 Calceolarias in pots, distinct varieties.

Mr. Geo. Blundell, Gardener to David Rowland, Esq., Sydenham Hill, for 6 Fuchsias in pots, distinct varieties.

Mr. T. Windsor, Gardener to A. Blyth, Esq., Hampstead, for 6 Pelargoniums in pots, distinct varieties.

PRIZES OF 2*l.* 10*s.* EACH TO

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for Ouvirandra fenestralis.

Mr. P. Bassett, Gardener to R. S. Holford, Esq., M.P., Weston Birt, for a collection of Lycopodiums.

Mr. W. Cutbush, Nurseryman, Barnet, for a collection of Aphelexis.

Mr. James May, Gardener to H. Colyer, Esq., Dartford, for Cattleya Mossiæ.

Mr. James May, Gardener to H. Colyer, Esq., Dartford, for Dipladenia crassinoda.

Mr. C. Tyso, Wallingford, Berks, for a collection of cut Ranunculuses.

Mr. Charles Turner, Royal Nursery, Slough, for a collection of cut Pinks.

PRIZES OF 2*l.* EACH TO

Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt for 6 Plants of Anæctochilus and Physurus.

Messrs. T. Jackson and Son, Nurserymen, Kingston-on-Thames, for 12 Exotic Ferns in pots.

Mr. John Green, Gardener to Sir E. Antrobus, Bart. Lower Cheam, for New or Rare Plants in flower (Erica depressa and hybrida).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants (Myrtus microphylla).

Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham, for 6 Cape Heaths.

Mr. John Green, Gardener to Sir E. Antrobus, Bart, Lower Cheam, for 6 Cape Heaths.

PRIZES OF 2*l.* EACH TO

Lady Dorothy Nevill, Dangstein House, Petersfield, for Peristeria fuscata.

Messrs. Cutbush & Sons, Nurserymen, Highgate, for a collection of 12 Lycopodiums.

Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt, for a collection of Gloxinias.

Mr. F. Fletcher, Gardener to J. F. Young, Esq., Kennington, for Bigonia splendens.

Messrs. T. Jackson and Son, Nurserymen, Kingston-on-Thames, for Seedling Hybrid Rhododendron (maximum coccineum).

Messrs. Mitchell and Co., Bristol Nurseries, Brighton, for a collection of cut Ranunculuses.

Messrs. J. Dobson and Son, Nurserymen, Isleworth, for a collection of Pansies.

Mr. W. Bragg, Slough, for a collection of Pansies.

Mr. Charles Turner, Royal Nursery, Slough, for 6 Calceolarias in pots, distinct varieties.

PRIZES OF 1*l.* 10*s.* EACH TO

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for Rhododendron Javanicum.

Mr. E. A. Hamp, Gardener to J. Thorne, Esq., Mawbey House, South Lambeth, for a collection of 12 Amaryllis.

Mr. James Harlock, Gardener to R. W. Nutter, Esq., Wanstead, Essex, for Erica ventricosa.

Mr. F. R. Kinghorn, Richmond, for Seedling Geraniums.

Mr. W. Holder, Gardener to the Rev. E. Coleridge, Eton, for a collection of Pansies.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for Seedling Pelargoniums of 1855 and 1856 (Quercifolium floribundum, for bedding purposes).

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 Spotted Gem).

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (Prince of Prussia).

PRIZES OF 1*l.* EACH TO

Mr. P. Bassett, Gardener to R. S. Holford, Esq., Weston Birt, for 12 Exotic Ferns in pots.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants in flower (Kalmia latifolia picta).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants (Rhopala Jonghi).

Mr. T. Windsor, Gardener to A. Blyth, Esq., Hampstead, for 3 Geraniums.

Mr. F. R. Kinghorn, Richmond, for Geranium General Pelissier.

Messrs. Dobson & Son, Nurserymen, Isleworth, for 6 Calceolarias in pots, distinct varieties.

Messrs. Cutbush & Son, Nurserymen, Highgate, for 12 Pelargoniums in pots, distinct varieties.

Mr. R. Pryer, Gardener to A. F. Moore, Esq., Perry Mount, Sydenham, for 6 Pelargoniums in pots, distinct varieties.

Mr. R. Pryer, Gardener to A. F. Moore, Esq., Perry Mount, Sydenham, for 6 Fancy Pelargoniums in pots, distinct varieties.

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (King of Scarlets).

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (Matilda).

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (Viola).

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (conspicuum).

PRIZES OF 15*s.* EACH TO

Mr. John Hally, Nurseryman, Blackheath, for 12 Exotic Ferns in pots.

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants in Flower (Hoya species, Japan).

Mr. R. Parker, Paradise Nursery, Holloway, for New or Rare Plants in flower (Cattleya species).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants in flower (Thibaudia species).

Mr. John Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, for New or Rare Plants in flower (Erica eximia superba).

Mr. R. Roser, Gardener to J. Bradbury, Esq., Streatham, for New or Rare Plants in flower (Erica Paxtoni).

Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for New or Rare Plants (Aralia Japonica).

Mr. Glendinning, Nurserymen, Chiswick, for New or Rare Plants (New Species of Larch. North of China).

Mr. Thomas Childs, Gardener to A. Secretan, Esq., Thornton Heath, Croydon, for a collection of 12 Achimenes.

Mr. J. Shrimpton, Gardener to A. Doxat, Esq., Putney Heath, for a collection of Seedling Verbenas.

Mr. J. Bates, Nurseryman, Oxford, for 6 Calceolarias in pots, distinct varieties.

Mr. N. Gaines, Nurseryman, Battersea, for 6 Calceolarias in pots, distinct varieties.

Mr. Charles Turner, Royal Nursery, Slough, for Seedling Pelargoniums of 1855 and 1856 (Miss Foster).

Mr. N. Gaines, Nurseryman, Battersea, for Seedling Pelargoniums of 1855 and 1856 (Princess Royal).

CUT FLOWERS.

PRIZES OF 3*l.* EACH TO

Messrs. Paul & Son, Nurserymen, Cheshunt, for 50 distinct varieties of Roses (3 trusses of each).

Mr. E. P. Francis, Nurseryman, Hertford, for 50 distinct varieties of Roses (3 trusses of each).

A. Rowland, Esq., Rosenthal, Lewisham, for 25 distinct varieties of Roses (3 trusses of each).

PRIZES OF 2*l.* EACH TO

Mr. C. G. Wilkinson, Western Roseries, Ealing, for 50 distinct varieties of Roses (3 trusses of each).

Mr. G. T. Brush, Gardener to J. Tritton, Esq., Bloomfield Hall, Norwood, for 25 distinct varieties of Roses (3 trusses of each).

A PRIZE OF 1*l.* 5*s.* TO

Mr. E. P. Francis, Nurseryman, Hertford, for 24 varieties of Roses (single blooms).

A PRIZE OF 1*l.* TO

Mr. George Bradstock, Gardener to T. Anderson, Esq., Wallington Lodge, Carshalton, for 25 distinct varieties of Roses (3 trusses of each).

A PRIZE OF 15*s.* TO

Mr. E. Hollamby, Nurseryman, Tonbridge Wells, for 24 varieties of Roses (single blooms).

PRIZES OF 10*s.* EACH TO

Mr. George Bradstock, Gardener to T. Anderson, Esq., Wallington Lodge, Carshalton, for 24 varieties of Roses (single blooms).

Mr. G. Wortley, Gardener to Mrs. Maubert, Norwood, for 24 varieties of Roses (single blooms).

Mr. G. T. Brush, Gardener to J. Tritton, Esq., Bloomfield Hall, Norfolk, for 24 varieties of Roses (single blooms).

Mr. James August, Beddington, for 24 varieties of Roses (single blooms).

Further List of Prizes awarded at this great Horticultural Exhibition continued on next page.

CRYSTAL PALACE LIST OF PRIZES—*Continued.*

FRUIT.

A PRIZE OF 8*l.* TO

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a Collection of Fruit in 8 dishes, not less than 5 distinct kinds.

PRIZES OF 6*l.* EACH TO

Mr. James Nicholl, Gardener to General Studd, Oxton House, Devon, for a Collection of Fruit in 8 dishes, not less than 5 distinct kinds.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a Collection of 3 Pine Apples.

PRIZES OF 5*l.* EACH TO

Mr. R. Turnbull, Gardener to the Duke of Marlborough, Blenheim, for a Collection of 3 dishes of Grapes, distinct kinds.

Mr. W. Forsyth, Gardener to Baron Rothschild, Gunnersbury Park, Ealing, for 4 Vines in pots, with ripe fruit.

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for 4 Plants of Peaches and Nectarines in pots.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for Plums, Apricots, and Cherries in pots, 4 plants.

PRIZES OF 4*l.* EACH TO

Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans, for a Collection of Fruit in 8 dishes, not less than 5 distinct kinds.

Mr. R. Jones, Gardener to the Dowlais Iron Company, Dowlais, for a Collection of 3 Pine Apples.

Mr. M. Clarke, Gardener to C. Webb, Esq., Hoddesdon, for a single dish of Muscat Grapes.

Mr. John Davis, Nurseryman, Barnet, for a box of 12 lbs. of Grapes.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a Collection of 3 kinds of Cherries, 1 dish of each, in fifties.

Mr. R. Turnbull, Gardener to the Duke of Marlborough, Blenheim, for a Collection of 3 dishes of Strawberries.

Mr. Thomas Page, Gardener to W. Leaf, Esq., Streatham, for 4 Vines in pots, with ripe fruit.

Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for Plums, Apricots, and Cherries in pots, 4 plants.

PRIZES OF 3*l.* EACH TO

Mr. John Povey, Gardener to Rev. J. Thorneycroft, Thorneycroft Hall, Congleton, for a Providence Pine Apple.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a Providence Pine Apple.

Mr. Jno. Burn, Gardener to the Hon. Colonel Pennant, Penrhyn Castle, Bangor, for a Queen Pine Apple.

Mr. W. Barron, Singleton, Swansea, for a Queen Pine Apple.

Mr. John Davis, Nurseryman, Barnet, for a Jamaica Pine Apple.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a single dish of Black Hamburgh Grapes.

Mr. C. Smith, Gardener to Arthur Anderson, Esq., Norwood Grove, for a single dish of Black Hamburgh Grapes.

Mr. John Davis, Nurseryman, Barnet, for a single dish of Muscat Grapes.

Mr. W. Forsyth, Gardener to Baron Rothschild, Ealing, for a single dish of Grapes, Sweetwater.

Mrs. Hindle, Stoke Newington, for a box of 12 lbs. of Grapes.

Mr. E. Spary, Queen's Graperies, Brighton, for a box of 12 lbs. of Grapes.

Mr. S. Snow, Gardener to the Earl De Grey, Wrest Park, for a single dish of Peaches, of one kind.

Mr. John Davis, Nurseryman, Barnet, for a single dish of Nectarines, of one kind.

PRIZES OF 2*l.* EACH TO

Mr. John Beale, Gardener to Abel Smith, Esq., Ware, for a Collection of 3 Pine Apples.

Mr. Joseph Gillham, Nurseryman, Isleworth, for a Providence Pine Apple.

Mr. R. Jones, Gardener to the Dowlais Iron Company, Dowlais, for a Queen Pine Apple.

Mr. George Young, Gardener to W. Stone, Esq., Dulwich Hill, for a Collection of 3 dishes of Grapes, distinct kinds.

Mr. W. Hill, Gardener to R. Sneyd, Esq., Keele Hall, Staffordshire, for a single dish of Black Hamburgh Grapes.

Mr. W. Hudson, Gardener to Mrs. R. Barchard, Wandsworth, for a single dish of Black Hamburgh Grapes.

PRIZES OF 2*l.* EACH TO

Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham, for a single dish of Muscat Grapes.

Mr. G. Blake, Wickham Hall, Bromley, for a single dish of Grapes, Sweetwater or Muscadine.

Mr. Peter Kay, Finchley, for a box of 12 lbs. of Grapes.

Messrs. Mitchell and Co., Brighton, for a box of 12 lbs. of Grapes.

Mr. R. Turnbull, Gardener to the Duke of Marlborough, Blenheim, for a single dish of Peaches, of one kind.

Mr. W. P. Ayres, Gardener to Lord Southampton, Whittlebury Lodge, Towcester, for a single dish of Nectarines, of one kind.

Mr. R. A. Dalrymple, Pontypool Park, Monmouthshire, for a Green-fleshed Melon.

Mr. T. Bailey, Shardiloes, Amersham, for a Scarlet-fleshed Melon.

Mr. S. Snow, Gardener to Earl De Grey, Wrest Park, for a single dish of Figs, consisting of 10 Fruits.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a single dish of White Cherries.

Mr. David Ferguson, Stowe, for a single dish of Black Cherries.

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a single dish of Plums.

Mr. G. Wortley, Gardener to Mrs. Maubert, Norwood, for a single dish of Strawberries.

Mr. R. Turnbull, Gardener to the Duke of Marlborough, Blenheim, for Seedling St. Peter Grapes.

Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans, for Peaches and Nectarines.

Mr. W. Hill, Gardener to R. Sneyd, Esq., Keele Hall, Staffordshire, for Black Prince Grapes.

A PRIZE OF 1*l.* 10*s.* TO

Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans, for a single dish of Plums.

PRIZES OF 1*l.* 5*s.* EACH TO

Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham, for a single dish of Black Cherries.

Mr. J. Cuthill, Camberwell, for a single dish of Strawberries.

PRIZES OF 1*l.* EACH TO

Mr. W. Davis, Velindra Gardens, near Cardiff, for a Queen Pine Apple.

Mr. John Burn, Gardener to the Hon. Colonel Pennant, Penrhyn Castle, Bangor, for a collection of Pine Apples.

Mr. John Davis, Nurseryman, Barnet, for a single dish of Black Hamburgh Grapes.

Mr. Charles Smith, Gardener to Arthur Anderson, Esq., Norwood Grove, for a single dish of Grapes, Sweetwater or Muscadine.

Messrs. Mitchell & Co., Nurserymen, Brighton, for a single dish of Peaches, of one kind.

Mr. Thomas Frost, Gardener to E. L. Betts, Esq., Preston Hall, Maidstone, for a single dish of Peaches, of one kind.

Mr. W. Hill, Gardener to R. Sneyd, Esq., Keele Hall, Staffordshire, for a single dish of Nectarines, of one kind.

Mr. J. Tegg, Gardener to R. Hutton, Esq., Putney Park, for a Green-fleshed Melon.

Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead, for a single dish of Figs, consisting of 10 Fruits.

Mr. E. R. Carpenter, Bare Hall Gardens, near Birmingham, for Seedling White Grapes.

PRIZES OF 15*s.* EACH TO

Mr. R. A. Dalrymple, Pontypool Park, Monmouthshire, for a Queen Pine Apple.

Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans, for a single dish of Peaches, of one kind.

Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham, for a Green-fleshed Melon.

Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead, for a Green-fleshed Melon.

Mr. S. Snow, Gardener to Earl De Grey, Wrest Park, for a Green-fleshed Melon.

Mr. E. R. Dalrymple, Pontypool Park, Monmouthshire, for Strawberries.

A PRIZE OF 10*s.* TO

Mr. M. Clarke, Gardener to C. Webb, Esq., Hoddesdon, for Citrons.

Crystal Palace, June 26th, 1856. **(By Order.)** **G. GROVE, Secretary.**

MESSRS. E. G. HENDERSON & SON'S
NEW CATALOGUE FOR THE PRESENT SEASON

Is now ready, and contains descriptions of the most approved novelties in cultivation. The following selection they beg particularly to recommend :—

NEW VERBENAS.
Géant des Batailles
Imperatrice Elizabeth
Mrs. Hosier Williams
General Bosquet
Madame Kien
Foudroyante

NEW FUCHSIAS.
Venus de Medici
Gloire de Neisse
Donna Joaquina
Pendula
Malakoff

NEW CHRYSANTHEMUMS.
Scarlet Gem
John Salter
Trophee
Duraflet
Stellatum globosum

NEW AZALEAS.
Admiration
Criterion
Barclayana
Alba illustrata
Crispiflora
Eulalie Van Geert
Princess Mary of Cambridge
Variegata superba
Juliana

NEW GERANIUMS.
Fairy Nymph
Bridal Ring
Countess of Bective
Highland Chief
Mountain of Snow
General Pelissier

NEW CALCEOLARIAS.
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Minnie
General Pelissier
Eclipse
General Canrobert

NEW PETUNIAS.
Countess of Ellesmere
Duchesse de Brabant
Madame la Comtesse Gérard
Madame Grandgeorge
Charles de Rosmini
Ernest de Lepinau

Gloxinia Jacqueline
Phlox Madame Fontaine
Veronica Imperial Blue
Gynerium argenteum (Pampas Grass)
Bouvardia longiflora
Potentilla coccinea flore pleno
Begonia Zanthina argentea
Dahlia Crystal Palace Scarlet
Eucharis amazonica

Ardisia crispa
Locheria magnifica (Achimenes)
Tydæa amabilis (")
Cuphea eminens
Gonocalyx pulcher
Clematis cærulea odorata
Delphinium cardinale (Scarlet)
Calyptraria hæmantha
Sonerila margaritacea superba

Leptodactylon californica, 10*s.* 6*d.*
Æschynanthus fulgens, 10*s.* 6*d.*
Ceanothus floribundus, 10*s.* 6*d.*
Clematis glandulosa (new), 10*s.* 6*d.*
Phygelius capensis, 10*s.* 6*d.*
Tecoma fulva, 10*s.* 6*d.*
Rondeletia anomala
Rhododendron Moulmeineuse, 10*s.* 6*d.*
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With Catalogue (which can be had post free on application), will be published a plate of nine new flowers, price 1*s.*, or 12 stamps (post free).

CALCEOLARIA AND CINERARIA SEED.

Messrs. E. G. H. & Son beg also to announce that the CINERARIA SEED of this year's saving is ready in packets of 2*s.* 6*d.* and 5*s.* each.

Orders can now be taken for the SEED of their new and superb CALCEOLARIAS (of the kinds for which the Silver Medal was awarded by the Royal Botanic Exhibition on Wednesday the 18th inst.), the collection of which can be seen in flower at their Nursery. Seed, 5*s.* per packet; second quality, *only* 2*s.* 6*d.*

Wellington Nursery, St. John's Wood, London.

NEW VERBENAS OF 1856.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the new Verbenas raised by Weatherill, Smith, Cole, Martin, Todman, Rougier and Chauviere, in well established Plants, at 6*s.* per dozen: best varieties of previous seasons, at 2*s.* 6*d.* per dozen; first class Fuchsias, 4 . per dozen; Pompone, or large flowered Chrysanthemums, 3*s.* 6*d.* per dozen. Any of the above sent free by post if desired. Descriptive Catalogues sent on application.—67, High Street, Battle, Sussex.

The Gardeners' Chronicle.

SATURDAY, JUNE 28, 1856.

IN another column will be found a report of the meeting of the Horticultural Society last Tuesday. We find with no small satisfaction that the Society has done us the honour to adopt the advice we last week presumed to offer, and that the free action of the Council is at length secured. An attempt indeed at obstruction was again made, but the learned gentleman with whom it originated could find in the whole meeting but one supporter, and that one we believe was owing to an accident. Let us hope that the rebuke was felt.

The course which the Council are prepared to take is explained in their address to the meeting. They will do their utmost to preserve the Garden, by selling the House in Regent Street, and so reducing the incumbrances of the Corporation; they mean also to make a further appeal to the public in the hope that some at least of the subscriptions which have been conditional upon raising 5000*l.* may be placed at their disposal when it is seen that London property will be insufficient. Measures will also be taken to diminish the rate of subscription and to increase the privileges of the Fellows. But the Council reserve the power of relinquishing the Garden if it is eventually found necessary to do so; and that power is expressly conveyed to them by the resolution passed on Tuesday.

Among other topics introduced into the address was the announcement that an application had been made to Government for the rooms in Somerset House about to be vacated by the Royal Society. There can be no doubt that such a concession on the part of the Treasury would be not only a very proper but also a popular measure. For certainly few chartered scientific bodies can have greater claims upon Government upon the ground of public utility; while an official recognition of the meritorious efforts of the Horticultural Society during half a century would contribute in no small degree to assist in the reorganisation which is contemplated by the Council.

As there seems to be a temporary cessation of communications respecting the CUCUMBER DISEASE, it may be well to make a few general observations while we have breathing time. The first point is to distinguish accurately between the several diseases with which Cucumbers are affected. 1. The red spider arises in general from keeping the frame too dry, a fault which is injurious to the plants in more ways than one, as it prevents the formation of new roots and is fatal to those already formed. 2. Mildew arises generally from a dry soil and damp atmosphere. Where there is proper ventilation the gardener will seldom be troubled with it in his frames; but should it make its appearance, his only remedy is sulphur either crude or in solution. As the sulphur acts by the production of sulphurous acid, which kills the mould which constitutes the mildew, it may be expected to be efficacious for that purpose and for no other. The gardener must divest himself of all notions of blight falling from the atmosphere, and recognise the real cause of the mildew; viz., the rapid growth of a little mould in consequence of circumstances favourable to its growth, and he must then apply the proper remedy, with a view to meet the especial case before him. 3. The little Vibrio first discovered in specimens forwarded by Mr. BAILEY, of Nuneham, causes gouty swellings on the roots, in consequence of which the plant itself becomes diseased. But little is known at present on the subject. Experiment should be directed to find some substance which, when mixed with the soil, may be fatal to the Vibrio, and yet may not injure the tender roots. 4. The Cucumber Murrain:—A great deal has been said about the question whether this may be considered a constitutional disease, or merely one induced by bad treatment. If, however, it is reflected that the Cucumber stood the test of years under very indifferent management without any such affection; that different seedlings from the same packet of seed, all saved from a single fruit, exhibit very different conditions; that it occurs under every conceivable form of treatment; that it is capable of modification and alleviation under careful hands; and that no change of soil or avoidance of forcing manure affords complete security, it seems highly probable, in spite of a few facts which seem to tend in a contrary direc-

tion, that the disease is strictly constitutional. The use of highly nitrogenous manures has, we believe, brought on a delicacy of constitution which may be exhibited to a greater or less extent according to circumstances in the seed of plants which have been too highly fed. The other theory is certainly untenable, and we shall be obliged if we give up the former to have recourse to the supposition, without a particle of proof, that there is something in the constitution of the atmosphere, as for instance a comparative paucity of ozone, which has of late years disposed plants to become diseased. Such assertions are in fact tantamount to an unwillingness to confess our ignorance. They are easily made, and incapable of being deliberately argued, unless we were in a position to compare the precise condition of the atmosphere at the present day with that some five-and-twenty or fifty years ago.

Mr. Ayres' communication (Nov. 10, 1855,) requires and deserves an especial notice. He has not confused the different diseases, and his remarks as to the Cucumber Murrain arising from improper soil deserve attention. These, however, have already been in great measure answered, and his remark that strong liquid manure always aggravates the evil, is confirmatory, so far, of its tendency to generate disease. The absence of lime in the soil, except in the form of magnesian lime, would be worth more consideration if the disease were not equally virulent in districts where every pan of water is so impregnated with carbonate of lime as to leave on drying a white spot upon the leaves. Iron is so common a constituent in the soil, and apparently so necessary, that its presence is not of much value as regards the cause. His strongest point is his assertion that he has raised plants from old seed and seed derived from various quarters without any security. We can ourselves confirm his report as far as French and Belgian seed go, but forcing manures have been used on the continent as well as amongst ourselves; and it is well known that the strongest of all manures is frequently applied in a liquid state in China, from whence also he obtained seed. At the same time we are quite ready to confess that it is very difficult to conceive how Cucumber seed should in general have deteriorated, which according to the constitutional theory appears to have been the case. Experiments however have yet to be made to show how seed derived from a supposed untainted quarter would fare, if strictly confined to wholesome loam, free from nitrogenous manure. Mr. Ayres' practical observations as alleviations of the evil, whatever be its cause, deserve the attention of all cultivators:—1. Not to allow the plants to overbear; 2. To give immediate attention whenever the slightest untoward symptom appears; 3. To avoid all highly nitrogenous manures, and above all to confine the roots within pots, not allowing them to penetrate into the manure beneath, at the same time procuring that sort of loam which is most congenial to the plant. The latter point is of immense importance. The old gardeners were especially careful as to the soil, and we are sure that a little more caution in this respect would in great measure modify the evil. Our advice is still, save seed from the healthiest plants, and in a year or two we feel confident that every one who takes that course and avoids forcing manures will have a more healthy stock than his neighbours.

In addition to the diseases which affect the Cucumber, we have to call attention to one which seems to have been but little noticed by writers. Whether, however, it is a distinct disease, or simply a symptom of a diseased condition perhaps admits of question. However this may be, the matter is well worth consideration. The affection consists in a strong hypertrophy of the peduncle, in consequence of which, as in an example before us, it is drawn out to a length of 3 inches or more, while fertilization never takes place and the fruit itself does not swell but gradually fails. It seems always to be connected with the presence of rich manure, and is believed to be one form assumed by the Cucumber Murrain, a notion which is supported by the fact that the base of the Cucumber in that disease is so often nourished to excess while the upper part fails. It is desirable to be in the possession of the experience of large Cucumber growers on the subject, as also of the comparatively diseased condition of plants which are planted where none of the heat is derived from fermentation. It would be interesting, moreover, to know the result of growing Cucumbers in good maiden loam without any mixture whatever of animal manure, whether in solid or liquid form. It is, however, obvious that such experiments must be conducted with great care, and the results from time to time accurately noted, to be of real value. If well conducted, they would be calculated to throw much light upon a perplexed question. *M. J. B.*

WITCHES' BROOMS ON SILVER FIRS.

Almost every one who takes any interest in the welfare of young Fir plantations has had reason to observe a very beautiful little orange-coloured fungus with a profusion of spores contained in a delicate colourless sac which year after year appears on some individuals of the Scotch Fir, till they at length in many cases fail altogether. This is the only species of a small but interesting group of parasites which has at present been recorded as occurring in this country, but I believe I have now before me a very curious diseased condition of the Silver Fir which will eventually prove to have been caused by another species.

It was stated in this Journal (Oct. 2, 1852), on occasion of figuring a fine parasite which had been discovered by Dr. Thomson on Abies Smithiana at an elevation of 8000 feet amongst the northern Himalayas, that the Silver Fir in the Vosges mountains and in some parts of Germany was subject to a disease which totally alters the character of the tree. This fungus is Æcidium elatinum, and its effect is to produce in different portions of the branches bunches of deciduous shoots which are known in Germany under the name of Hexen-Besen, and in France under that of Pâneurs de Sotré (Balais des Sorciers), names equi-

valent with that of Witches' Brooms. It is also called in France Rebrousses. A specimen kindly forwarded to me from the neighbourhood of Hastings by Sir C. Lamb is, I believe, a true example of a Witches' Broom, though I have not seen the fungus. As there is no good description in any book with which I am acquainted, some further notice will not be superfluous.

The diseased part, though terminating a branch, does not appear to have arisen from the central bud, as the axis is not continuous with it. It consists of a fascicle of branches irregularly whorled and divided, springing from a bulb-shaped swelling, resembling somewhat the swelling caused by *Myzodendron*, but not like that consisting of two distinct tissues which ultimately separate. These branches lose their leaves every year, and in spring put forth pale yellow buds, which at first sight would lead one to suppose that the fascicle is entirely parasitic. One or two withered leaves alone remain upon the specimens, which are about one-third of an inch long, and of a very different texture from the normal leaves. The bark on the gouty knob from which the fascicle springs is five times as thick as on the unaffected part, and rather rugged externally, and within shows unequivocal signs of decay in the form of dark irregular patches which are more or less superficial, or reach to wood itself, but do not penetrate into its substance. These dead spots, which are indicated by cavities or rugosities externally, are taken possession of by Acari and the woolly Aphis, which may perhaps aggravate the affection but do not cause it. The tissues of the knob are more irregular than usual, and show admirably the spiral structure of the wood-cells. I could not trace the slightest appearance of mycelium. The leaves on the branches immediately below the knob are not deciduous, but their form and size are materially changed, and what is very curious the silver marking beneath is scarcely visible. Though the buds of the diseased part had made some progress, those on the evergreen branch were very small, and had not pushed at all.

I have the promise of further information in the course of a few weeks. Meanwhile I take this opportunity of giving a much reduced figure of the general appearance, which may elicit information as to the occurrence of this affection from other quarters.* In summer the Witches' Besoms are known at a distance by their red brown tint and bushy habit. Some trees are so infested by them that it is with great difficulty only that they struggle for existence. The figure represents the Sussex specimen, from the gouty base of which a slice has been taken to show the dark patches in the bark. *M. J. B.*

* Specimens of *Æ. elatinum* are published by Mongeot and Nestler, No. 285, and it is figured by Albertini and Schweinitz, Consp. Fung., t. 5, f. 3.

VEGETABLE PATHOLOGY.—No. CXXVII.

505. Parasitæ (*Phænogams. 2. False Parasites*).—We have hitherto spoken of those Phænogams only which derive their nourishment wholly, or in great part from the plants on which they grow. But there is also a vast tribe of False Parasites which live entirely on the trunks of trees without however being nourished by their sap, besides multitudes of plants which merely run over the trees or cling to them by tendrils or other clasping organs, without throwing out the semblance of a root. The common Clematis or Traveller's Joy is a familiar example in our own hedges and thickets, where it often as effectually smothers and stifles the plant over which it runs, as if it were excluded from light and air in a closed room. In Tropical forests however, where vegetation is so much more rapid and luxuriant, the effect is in proportion disastrous. The original trunk may be overrun with hundreds of these false parasites which in their turn are infested with others till the whole forms an inextricable mass or actually pulls down the original tree by its weight. It is a curious fact with respect to some of these climbers, as for example Cassia quinquangulata, Rich.,* that the same species according to circumstances may either grow freely, forming a tree, or run over neighbouring plants in the shape of a scandent shrub. In the latter case the structure of the stem is sometimes altogether different from what it is in the former, insomuch that the two might be supposed not merely to belong to different species, but to different genera or natural orders. The ducts in these climbing stems are frequently extremely large, a necessary condition when it is considered to what a strong degree of compression they are often subjected.

506. Those plants however which most fatally compress and throttle as it were the plants on which they grow, are those which run up the stems in the form of a close spiral. Where they are merely annuals, the death of the climber relieves the stem, but where the growth is perennial, and slower than that of the matrix, after the climber has borne all the distension of which the spiral it forms is capable, the wood between the whorls begins to swell, and at last more or less perfectly closes over the false parasite, forming those curious spiral stems which are eagerly sought for by the manufacturer of walking sticks. In such a case if the stem is not entirely destroyed, which sometimes happens, the growth is effectually checked, and vigorous timber is never formed.

507. These plants however merely use the trees as a support, without throwing out any roots, except those by which nourishment is derived from the soil. But there are hundreds of species which have no roots except those which are aërial, or which run amongst the decomposed vegetable matter which is entangled amongst those of other false parasites. Some of these plants prefer such situations, though they by no means live on moisture derived from the air, because they have just the degree of exposure to light which suits their habits, and because the soil in which they grow is thoroughly drained. Others however do not depend at all upon the soil, but derive in many cases the whole of their nourishment from the air. These all alike, whatever be their habits, tend ultimately to the same end of overwhelming the plant which supports them.

508. Beside these however there are many plants, as Ivy, Ficus stipularis, &c., which throw out roots wherever the stem presses close against the substance which sustains them, which act merely as supports by dilating at the base like suckers where they cannot penetrate, but which if occasion offers, enter into it, and administer nourishment. Such roots however never imbibe sap from the plant to which they cling, but where they indeed convey nutriment, it is in the form of inorganic fluid, and whatever matters it may hold in solution. These plants, like other false parasites which have been mentioned, may prove destructive by mere luxuriance, where their rate of growth is greater than that of the plant which supports them. But it has been often questioned, whether, when the rate of growth of the false parasite is inferior to that of the supporter, they are really injurious. The question is one of some importance, as the beauty of trees is often greatly increased by the accession of plants like Ivy. Now there can be no question whatever about their being perfectly harmless in respect of exhaustion by means of their abundant rootlets. It is not however so clear whether they may not be injurious in other ways. The first effect is probably beneficial as they protect the trunk from cold winds, the effect of which on vegetation may be seen by the comparative facility with which the bark is stripped off in a warm genial day, or one which is chilly from North East wind. But after a time they form a complete network over the trunk, and as the parts of which it is composed increase in the thickness the network loses in great measure its powers of extension, and the trunk is in consequence strongly compressed, and the expansion of the tree in some measure impeded. We believe however that the injury due to this circumstance is greatly exaggerated. At any rate if Ivy is not to be allowed a place on forest trees it should be destroyed at as early a period as may be convenient. When it is once established, the injury due to the sudden removal of the warm screen upon the trunk may more than counterbalance the mischief of compression. *M. J. B.*

* See Cruger Bot. Zeit., 1851, p. 469.

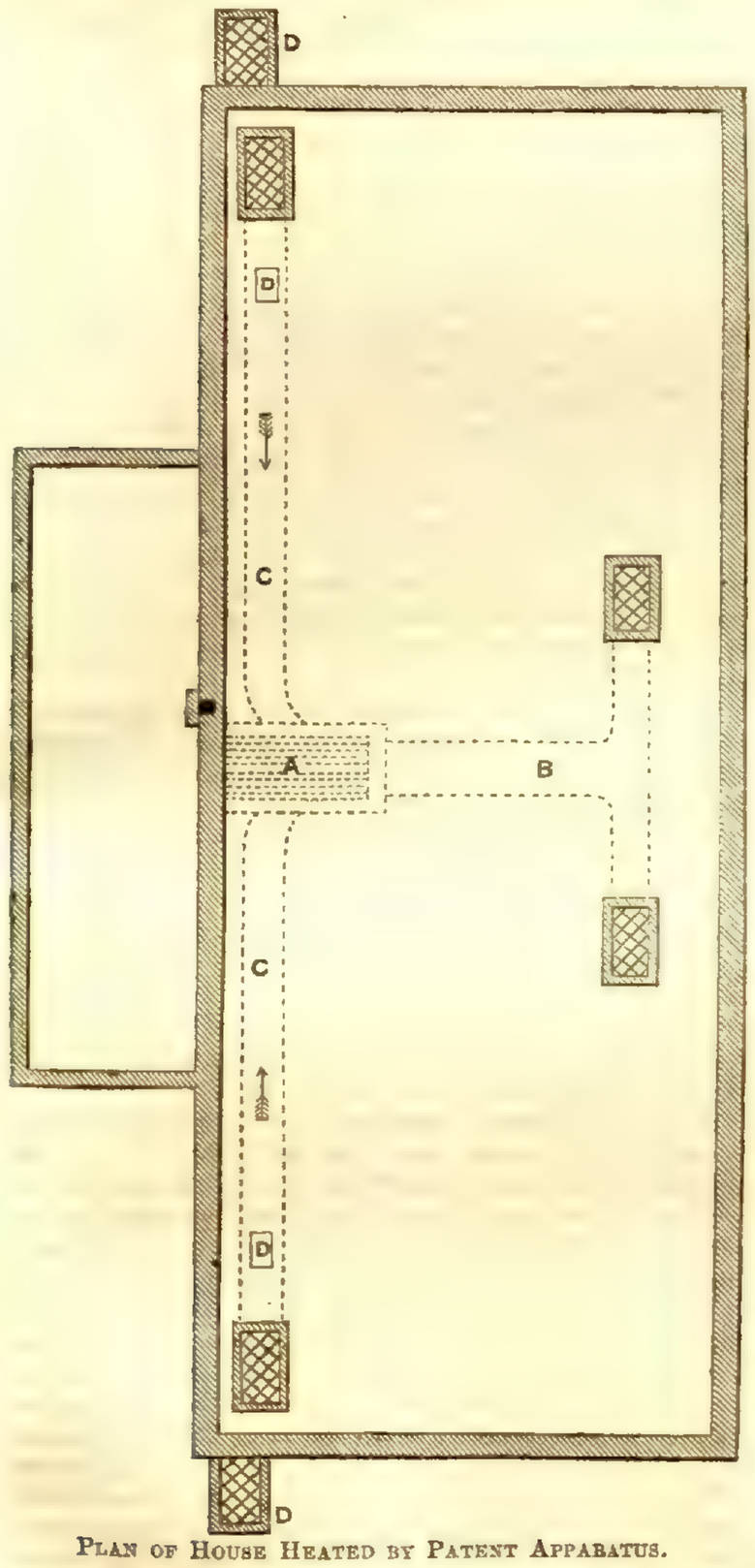
HAZARD'S SYSTEM OF HEATING.

I VENTURE to affirm, from the experience I have had of the successful operation of this system of heating and ventilating, that for simplicity, economy, and efficient adaptability for warming and ventilating every kind of horticultural structure it stands unrivalled, and that it is destined at no distant period to supersede every other plan now in use. You have said, and truly, in your columns, that "If there is any one thing upon which we have insisted from the very commencement of this Journal more than another, it is the necessity of finding some method of admitting warm damp air to the interior of glass houses, copiously, and at will, without having recourse to the dry cold blasts which find their way through ordinary ventilators—that the interior of a hothouse should feel the breeze as freely and as constantly as an orchard house, and that without some power of this kind, good gardening is impossible." Now Hazard's system, I aver, has conferred on us this power.

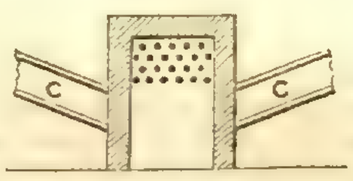
Again, in your No. of the 17th ult., after paying a just tribute of respect to the memory of the late Mr. Meek, you proceed as follows:—"In short, he clearly saw, that if it could be accomplished, the true way of heating the air of a plant house must be not by radiation from pipes, but by warm currents driven or drawn in every direction;" and further, "to keep warm air in active motion in plant-houses we have always maintained to be the great desideratum of modern gardening: there is not a practical man who does not endorse that opinion, and all which now remains is to show how it can be effected." I perfectly agree with you, and I beg leave to add that Hazard's system without an inch of artificial radiating surface, with its cold air drains communicating with the external atmosphere at will, its hot air ventilators with their evaporating tanks above or below, the grates emitting and evolving their warm and damp, or hot and dry air at will, in a natural and healthy state, with all its constituent gases unimpaired, and sweeping with its July breeze every inch of the internal area of the house to the vigorous and healthy development of every plant with which it comes in contact, thereby almost, if not altogether effects the "great desideratum of modern gardening," and renders it, in my opinion, the most natural and most efficient system of heating and ventilating horticultural structures that we yet possess.

The apparatus itself is simple in its construction, easily kept clean, and is by no means liable to get out of order, and from the action of the cold air drains and the distance the hot air pipes are from the fire they never get hot enough to burn the air when rushing through the hot chamber in which the pipes are enclosed, on its way to the interior of the house. The fuel best adapted for working the apparatus is coke, or the Welsh stone coal and cinders.

We have a heat extractor, with its appendages, applied to the Vineries here. I may mention by the way that the Vineries were heated in the first instance in the most efficient and substantial manner with all the most approved modern appliances of hot water. Nevertheless, we were wasting, on ordinary occasions, an average of 420° of heat up the chimney. The extractor I placed in the dip of the flue 3 feet from the boiler, and by its absorbing power it arrests fully two-thirds of this truant heat, and renders it available by turning it into the houses for economical purposes, and this has produced such surprising results. And so immediate and complete is the sympathetic union and diffusion of the hot air with the atmosphere of the house, that when the hot air was issuing from the grating at 192°, 3 feet above it had fallen to 70°, but what is most surprising of all I generally find that the temperature is higher in those portions of the house *farthest* from the hot air ventilator than in its immediate neighbourhood.

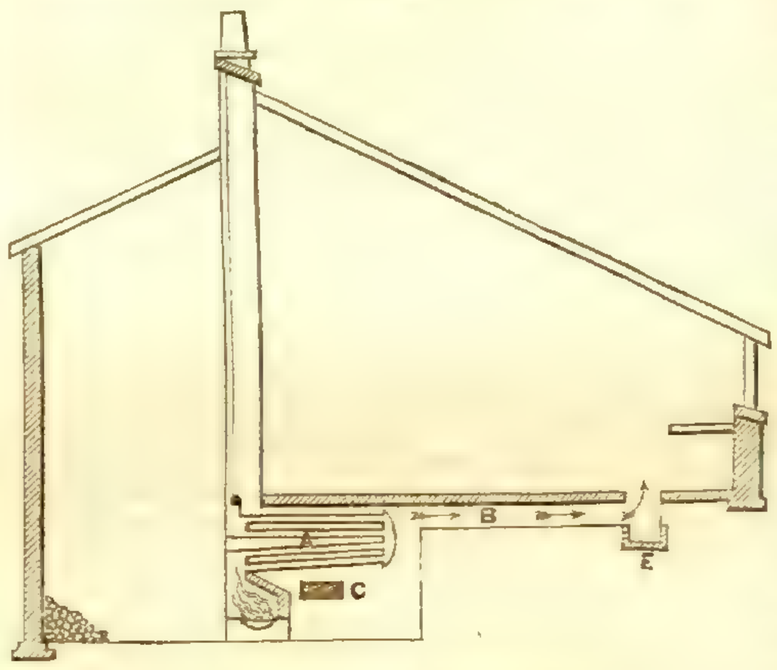


PLAN OF HOUSE HEATED BY PATENT APPARATUS.



TRANSVERSE SECTION OF WARMING APPARATUS.

TRANSVERSE SECTION OF HOUSE WITH APPARATUS BELOW THE FLOOR.



A Hot air chamber, containing the apparatus.
B The drain conveying the hot air to front of house.
C Cold air drain.
D D External openings to be used at will.
E Cistern for producing vapour.

The accompanying plan and section show the patent apparatus, with its appendages, as applied to the heating and ventilating a lean-to house 45 feet long, 16 feet wide, and 14 feet high. *James Davidson, Gardener, Welford Park, Newbury, Berks.*

Home Correspondence.

The Bark Trade.—A letter of mine on the subject of the sale of bark appeared not long since in your Paper under the signature of "A Country Gentleman." Subsequently a letter appeared in your Paper signed "H. Clinton," who stated that he should be glad to communicate with me on the subject. I have since received a communication from Colonel Clinton, who is anxious that it should receive publicity in your columns. I therefore subjoin his letter, with a request that you will (if you see no objection) publish it in the *Gardeners' Chronicle. Henry Ker Seymer.*—The letter in question is as follows:—"The case of bark wonderfully resembles the case of Wheat, but in its treatment how different is the destiny of each. In the one case Wheat is grown, 'fielded,' 'cured,' manipulated by the producer, and goes though the hands of cornfactor, mealman, and miller, to the baker, and 'the system' is so ingeniously contrived that the producer of Wheat cannot throw in the teeth of the baker, at least, the charge bark-produce-sellers must make against the tanners and bark buyers. These individuals, on the other hand (in the case of bark) according to the actual system, go to the producers, and say, 'We must "shave" your (corn) bark, *i.e.*, take off its "waste" (chaff!) and put it (the bark) through the mill; therefore we can, and will, offer you just as little as we please, and if you will not take our price, you must throw the bark away.' From the results of this state of things it is surely not very unreasonable that the producers of bark should try to relieve themselves, without entertaining the slightest wish to encroach upon that which ought to be the just profit to accrue to the tanners and bark buyers. I am very far from wishing to appear so presuming as to suppose that anything I may say shall influence, in any way, the whole mass of bark-produce-sellers of England; therefore I humbly venture to propose that such persons, or their representatives, shall be invited to assemble, either in London or more properly in Birmingham, where a committee might be formed that should consider the subject and mature a plan—the best that might present itself—with a view towards putting this part of the business of buying and selling on its proper footing. *H. Clinton, Royston, Herts.*"

Roses with Green Centres.—I have a Rose (standard) in my garden which would not blossom. Thinking it might object to being pruned, I left it alone this spring and trained the shoots over a hoop; there has been an abundance of buds, but hardly one perfect flower, all of the latter having a protruding green centre. Some of the leaves have large dark blotches upon them. My subsoil is a wet clay, but I take care to give Roses nearly 2 feet depth of Dartford loam. Can you oblige me by suggesting the cause of the complaint, and a remedy? *C. F.* [It is usually believed that green centres are caused by the application of strong manure to the roots of Roses.]

Larix chinensis.—Can any of your readers inform me what is the Larix chinensis of Miller's Gardener's Dictionary? The cones are described as being larger than those of the L. europæa, ending in acute points, and the scales as being prominent, like those of the Scotch Fir. The kind is said to have been sent to England, as a Pine good to keep up banks. *J. D.*

Gardeners' Benevolent Institution.—As I have no doubt that Sir Joseph Paxton is a reader of your Paper, I herewith, through the medium of the same (if you will have the goodness to oblige me in giving it place in your next), take this opportunity of raising my feeble voice by returning him my sincere thanks for the able manner in which at the last annual meeting he advocated the cause of us poor gardeners who are subscribing members of the Gardeners' Royal Benevolent Institution. I fully concur with him—and I think that every member will do the same—that giving the males 20*l.* a-year and the females 16*l.* would be better than the present practice, at least I think that it would be the means of inducing more to become subscribers. But the great point is this: since I have been a member I have solicited many of my brother gardeners to become subscribing members of the Institution, but only in one instance have I been successful. With that exception the reply has been, "What is the good of subscribing to such an Institution when we see that many who have never subscribed one shilling to its funds are receiving the pension, or rather the fruits of other people's labours?" What Sir Joseph Paxton justly remarks is that there are many gardeners, very many I am sorry to say, who although filling respectable situations get very low wages, and therefore as a class few are enabled to lay by anything for old age; and again they are generally married men, and many have to struggle hard to save one guinea a year to keep up their annual subscription; but that is not all; for instance, there are now no less than six candidates on the list for the pension on the election which is to take place in July next, who have never subscribed to the Institution. I do not know who are on the committee or I would lay the case before them, but as it is I trust that these few remarks will come before some of them, and if so, receive their warmest consideration, for truly it is a hard case for a hard-working man who has been subscribing for 9 or 12 years to support the charity to see another man who does not belong to our fold "allowed" by the committee to step in before him and partake of his hard earnings while he himself is shut out, at least for a time. I earnestly beg that the gentlemen who constitute the committee will bear this in mind, and if so I doubt not that they will come to a unanimous verdict on the subject, and will say that what has been done on that head has been unjust. It is well known that when the day of adversity arrives there are many ready enough to become candidates for the support afforded by the Institution, notwithstanding that they have never contributed their annual mite to its funds. As a subscriber I would suggest to those who have votes at the ensuing election to give them to subscribers only, and that preference should be given to those who have subscribed the greatest number of years. I have always done so. Surely this is nothing more than justice, and no reasonable person can object to it. What is there to prevent the committee coming forward at once with some bye-law to effect that object? Or it may be asked, do the committee consist of nurserymen? If so, perhaps the present practice is to 'them a convenience; but surely common prudence tells us that if a charity is to be supported by gardeners, they ought to be the gainers by it, for what says the old adage, "Charity begins at home."—*A Working Gardener.*

Melons.—For the last three years I have failed in bringing Melons to maturity, notwithstanding that my gardener has every requisite. The plants are reared and blossom, and bring their fruit to the size of large bulbs in perfect apparent health, but as soon as the first Melons approach the usual size to ripen the plants decay, the foliage goes and dies off, and leaves nothing but shrivelled stalks and unripe Melons which of course do not come to maturity. I find on inquiring at the gardeners around that they know of no such instance as the failure of the whole plant and stalks just as the fruit is ripening. I find that the soil of the bed in which they are planted is barely 18 inches deep, and the soil is loose sandy mould and loosely lying round the roots, whereas I am told that the soil ought to be deep soil for Melons, and well and closely packed, and trodden in at the bottom of the pits. My gardener,

however, insists that 18 inches is quite a sufficient depth of soil, and that they ought to be loosely rooted in the soil. You will oblige me by saying what you think the cause of this is, for it is not one sort only but every sort that is bred that fails. Has it anything to do with the watering? *A. W.* [It would seem that the soil is unable to feed the plant enough to enable it to carry the fruit. Probably the soil is not deep enough or strong enough; or perhaps the water is deficient in quantity or quality. Try cowdung water.]

Hypertrophy of Vines.—I am afraid my Vines are doing very badly, as from the under side of the enclosed leaf you will perceive all is not right. Can you tell me what causes the injury, and give me a remedy in your next Saturday's paper. My own opinion is that the border is by far too damp, being within 10 feet of a mill dam, and when the water is not kept very low it rises almost to a level with the border. *R. B, Stroudwater.* [Certainly. Your Vines are dropsical; they cannot digest the water they are forced to imbibe, the effect of which is the pimpled puckered state of the leaves. If you cannot get rid of the water try what free air and a high temperature will do for you.]

Horticultural Frauds.—Having read the sweeping accusations of your fair and medical correspondents against seedsmen and their wholesale frauds, would you allow me to give my own experience in laying down a pleasure ground. I am not going to be the champion of seedsmen, as I know they are not all blameless, and I readily admit that some of them practise shameful impositions upon their customers; but in the cases referred to it is surely only fair to put the saddle on the right horse. I know nothing of the "wretch who supplied the rubbish" to your fair complainant, but as he may be as innocent as the party who supplied me, you may be doing him no more than justice by publishing the following facts. Three years ago I built a house for my family on a field of 7 acres, which had been lying in meadow over 20 years. About half an acre around the house I laid out in pleasure ground. For the purpose of elevating the terrace on which the house stands as well as to make sure of getting rid of weeds, I had the sod carefully removed to the depth of from 6 to 8 inches. I then prepared the soil by digging deep, breaking the clods, and removing all stones. When ready for sowing, which was in the spring of 1854, I had it sown with a proper proportion of the following mixture, viz., Cynosurus cristatus, Poa nemoralis, Poa pratensis, Festuca pratensis, Festuca tenuifolia, white Clover, and Perennial Rye-grass, all of which I knew to have been imported direct from Germany with the exception of the Rye-grass; the seeds I know were perfectly pure and correct to name, for I not only examined them carefully but had a portion of them sown on garden ground, which had been some time in cultivation. The pleasure ground was soon beautifully green, and I rejoiced in anticipation of the fine velvet sward which I would have in a year or two; but judge my surprise when, in the following season I found the whole surface dotted over with tufts of Cocksfoot, Yorkshire Fog, Goose Grass, Rib Grass, besides a wonderful assortment of Docks, Thistles, Dandelion, Ragweed, &c., &c. The disappointment, as you may conceive, was very great after all my trouble, but I could not for a moment blame the seed, as what I had sown in the garden ground was as fine as possible, and is now a beautiful sward, like an old well kept bowling green; it is therefore possible that your correspondents who complain so bitterly may, like myself, have sown their Grass seeds on dirty land, notwithstanding their own opinion to the contrary, and that the seedsman in the "west" may be entirely blameless. As for the failure in the Mangel and Carrot which the Doctor complains of, I suspect if he will take the trouble to inquire he will find that the same misfortune is very general this season, arising from the harsh dry weather which prevailed so long in spring. As a proof of this I may mention that I sowed a portion of a field with Mangel upon the 15th of April, when the weather was soft and rainy; the remainder of the field I did not get sown until the 1st of May, at which time the wind was driving from the east, and the soil was quite parched: the early sown portion came away as thick as Cresses, while the other, sown from the same seed bag, has proved almost an entire failure, and I am now making up the blanks by dibbling in plants taken from the successful part of the field. Besides the failure caused by the dry withering season, I learn that the worm is attacking the Mangels wholesale, and that whole fields which had shown an excellent braird have now become sickly, and the entire crop is dying off. When on the subject of Mangel seed it is perhaps worth noticing the extraordinary length of time which it retains its vitality, in consequence of a hard thick shell, in which the kernel is embosomed. The following is the result of a trial made this season with the various kinds: 100 seeds of each were sown in a flower-pot, and all were treated alike; the Long Red produced 109 healthy plants; the Red Globe, 124; the Orange Globe, 133; and the Long Yellow, 147; the first three varieties were all of the growth of last year, whereas the Long Yellow was 10 years old, it having been the growth of 1846; this experiment not only showed that many of the seeds produced doubles, but if kept dry we need not hesitate to sow old seed; besides, I find that the older the seed the fewer plants run up to flower stems. In consequence of the thickness of the shell of Mangel seed a good deal of moisture is required to vegetate it, and cultivators should be careful never to sow it deeper than half an inch. *D. D.* [Our readers will be grateful for the information thus conveyed to them by a correspondent who although he withholds his name we may say is entirely to be relied upon. But Mrs. Jessica's complaint was that choice lawn seeds were *not* sent her; and this was substantiated by the specimens she sent us.]

Nectarines.—Calling the other day to see Lady Southampton's beautiful gardens at Whittlebury Lodge, I found Mr. Ayres gathering fruit to pack for London. Thinking the Elruge Nectarines unusually large I asked Mr. A. to measure and weigh one of the largest, and the dimensions were 9 inches the largest way in girth, and 8 inches the other; and the weight was within a trifle of 6 ounces. Is not this an unusual size? A Peach 7 ounces is a very fine fruit; but a Nectarine 6 ounces must be a monster. *A Looker-on.*

Societies.

Crystal Palace Horticultural Show, *June* 25 & 26.—On this occasion the plants were arranged differently from what they were in May, and certainly more effectively. The great mass of the exhibition was this time accommodated in the centre transept, while the fruit, new plants, cut flowers, and miscellaneous subjects were staged in a double line with a division between them in the nave, in the direction of the crystal fountain. Along both sides of the transept in front of the Orange trees, and as close to them as they could be placed were stagefuls of Heaths, Variegated plants, Azaleas, Roses, and Pelargoniums; in the centre was a circular stage at least 30 feet in diameter, raised up to a point on which was set a pretty specimen of Norfolk Island Pine, supported by noble examples of stove and greenhouse plants, and right and left of this, midway between the outside benches, were stagefuls of Orchids and Ferns, while all the salient points were neatly rounded off and surmounted by statuary. This kind of arrangement we need not repeat was a great improvement on that of former exhibitions; but still in our opinion it falls short of what might be effected with such materials out of doors under canvas. The exhibition itself, with the exception of the fruit, was not so good as that which was held here in May. The weather was however fine, and there was a large number of visitors, according to the daily papers 14,214 on the 25th, and 13,661 on the 26th.

Of collections of 20 Stove and Greenhouse plants Mr. May, gr. to H. Colyer, Esq., had the best. It contained noble specimens of Everlastings, Ixoras, Kalosanthes, which are now everywhere coming into bloom; Allamandas, Dipladenias, Heaths, Clerodendrons, Pimeleas, Rondeletias, Vincas, and an example of the Stag's Horn Fern Platycerium alcicorne. Mr. Taylor, of Streatham, had much smaller plants, all belonging to nearly the same genera, to which may be added Azaleas, of which he had a plant or two still in good condition. Mr. Rhodes sent some pretty Statices, and a charming specimen of the white Pimelea Neipergiana.

In groups of 12 Stove and Greenhouse Plants the best came from Mr. Green, gr. to Sir E. Antrobus, Bart. It contained the gay-looking Kalosanthes miniata, Gardenia Fortuni, with blossoms like polished ivory, and so sweet as to fill the air in their neighbourhood with fragrance; the fine Epacris alluded to in our last report of the exhibition in Regent's Park, and some extremely well flowered Allamandas. The next group in point of merit came from Mr. Carson, gr. to W. F. G. Farmer, Esq. In this the Allamandas, which are extremely showy at this season, were scarcely so well in flower as could have been wished, but he had excellent Everlastings and Azaleas, more especially A. Gledstanesi, which was quite a pyramid of bloom. Among Mr. Morris' plants, which were placed third, was a pretty specimen of Stephanotis.

In the collection of 6 Stove and Greenhouse Plants contributed by Mr. Roser were well-grown examples of Erica Bergiana, Aphelexis, Epacrises, and Leschenaultias. Mr. Williams, gr. to Miss Traill, sent Kalosanthes and Everlastings in good condition.

Variegated Plants were shown in beautiful order by Messrs. Veitch. The back row of his group contained Dracæna Draco, the variegated Arundo Donax, Livistona Borbonica, very fine; Musa zebrina, and the pale green deeply divided leaved Aralia pulchra. In the second or middle row were Maranta Warczewiczi, Croton pictum, Dieffenbachia picta, Maranta zebrina, the beautiful Cissus discolor, Croton variegatum, and Pandanus argenteus variegatus, while in front were Coleus Blumei and pectinatus, the former blotched, the latter streaked and mottled with brown; Maranta vittata, the red and brown Dracæna terminalis and ferrea, Ananassa sativata variegata, a variegated variety of the Aloe-leaved Yucca, and a Hydrangea with green and white leaves. These, as well as the next collection from Messrs. Jackson of Kingston, were tastefully set up, and taken as a whole the effect which they produced was wonderfully fine. Among Messrs. Jackson's plants were Araucaria excelsa, Solanum variegatum with huge leaves veined with purple, the variegated Aspidistra lurida, Cycas revoluta, variegated Pandanus, Aralias, and Cordyline australis. Messrs. Lee, of Hammersmith, contributed smaller plants of the all but hardy Dracæna indivisa, Caladium pictum bicolor, the red hairy-leaved Begonia splendida, Marantas, and Crotons. Mr. Morris exhibited two beautiful plants of Cissus, Caladiums, Acrostichums, and other Ferns, Astrapæa Wallichi, and a variegated Solanum. In other groups furnished by Messrs. Bassett, Young, and Parker were variegated Orchids, Sarracennias, Ferns, and Lycopods.

Tall Cacti were shown in good condition by Mr. Green. The varieties were Epiphyllum aurantiacum, speciosum coccineum, the beautiful rosy pink variety of speciosum called elegans, and other better known sorts.

Of Ferns there were some charming collections, the best of which came from Mr. Fletcher, gr. to Dr. Young, of Kennington. It consisted of Polypodium spectabile, Nephrolepis Davallioides, Lomaria magellanica and discolor. Alsophila Colensoi, Asplenium Belangeri, Platycerium grande and alcicorne, Gymnogramma lanatum, two small-leaved Gleichenias, and Davallia tenuifolia. Messrs. Veitch & Son also had fine plants of Platycerium alcicorne and grande, Davallia solida, Gleichenia microphylla, Dicksonia antarctica, three Adiantums, the pretty Gymnogramma ochracea, Thyrsopteris elegans, a very handsome kind; Neotopteris vulgaris, and a Davallia. Mr. Cutbush, of Barnet, also contributed a group of well-grown Ferns, among which was a fine plant of Gymnogramma ochraceum. Mr. Sim, of Foot's Cray, showed 60 British specimens, among which were some remarkably fine varieties.

Of Lycopods Messrs. Bassett & Cutbush had well-grown plants of viticulosum, Galeotti, inequalifolium, uncinatum, umbrosum, Wildenovi, and the small apodum and lepidophyllum.

Orchids were in tolerably good condition, but not very numerous. Among large collections the best was from Mr. Gedney, who furnished various Cattleyas, including the handsome C. Harrisoniæ, Odontoglossum citrosmum, Calanthe Masuca, Epidendrum verrucosum, and a handsome Bearded Lady's Slipper. Mr. Woolley sent Stanhopea tigrina, the White Phaius, Sobralias, Phalænopsis, Aerides, Cypripediums and Lycastes. Messrs. Veitch obtained a first prize for a beautiful collection of 20 plants. Among them were Anguloa Ruckeri, with two large brown-spotted orange blossoms; Oncidium pulvinatum and phymatochilum, Aerides Lobbi, a capital plant of Cypripedium barbatum, Lælia purpurata, an extremely fine species with large white flowers and purple lip; Vanda tricolor and suavis, Saccolabium guttatum and Blumei, Phalænopsis, Odontoglossum hastilabium, the pinkish-lilac Barkeria Lindleyana, several Cattleyas, the best variety of Odontoglossum grande, and the handsome Cypripedium barbatum superbum with flowers streaked and mottled with brown.

Of Orchids in collections of 12, Mr. Bassett, gr. to R. S. Holford, Esq., had some pretty plants, consisting of Aerides, Cattleyas, Cypripediums, and Dendrobes. From Mr. Clarke also came a group both well grown and flowered.

Among Variegated Orchids, which were furnished by Messrs. Veitch & Woolley, were Physurus argenteus and pictus, and Anæctochilus setaceus, intermedius, xanthophyllus, and Lowi.

Pitcher plants were well shown by Messrs. Veitch, who contributed Nepenthes lævis, sanguinea, Rafflesiana, lanata, ampullacea, and phyllamphora. A group of nearly similar kinds was also shown by Mr. Gedney.

Azaleas were produced by several exhibitors; but they were evidently past their best. They formed, however, a good termination to one of the tables and contrasted well with a group of plants remarkable for fine foliage opposite which they were placed.

Cape Heaths were numerous and more varied than usual. They were exhibited by Messrs. Williams, Roser, Peed, May, Cutbush, Jackson, and others. Among them were good plants of Shannoni, obbata, Savilleana, Westphalingia, gemmifera, Massoni, florida, odorata, ventricosa magnifica, elegans, and different varieties of tricolor. Mr. Glendinning had the new kind called Spenceriana, a pretty sort with a good habit and transparent glossy pinkish lilac blossoms.

Of New Plants Messrs. Veitch had two Hoyas; one named longifolia had long narrow leaves and cream-coloured flowers, the other was in the way of carnosa. The same firm also sent an Aerides with a large bright purple lip; the pink-blossomed Rhododendron Princess Royal which has been shown before; Wartzia aurea, a yellow-flowered annual; a Thibaudia with creamy blossoms barred with brown; and a handsome Kalmia called picta, a large spotted variety of latifolia. Of new plants not in bloom this firm furnished Theophrasta imperialis, a plant with leaves some 2 feet long and 8 inches wide; Aralia japonica, Myrtus microphylla, a plant with something of the aspect of Boronia serrulata; and Rhopala Joughi. The last has large handsome foliage. Mr. Glendinning, of the Chiswick Nursery, sent of plants not in flower, the handsome new Larch Abies Kæmpferi, a species of Rhamnus, from which it was stated the green dye of China was produced; and a spiny cut-leaved Orange from the North of China, said to be hardy.

Of Miscellaneous plants Messrs. Veitch sent small flowering examples of Philesia buxifolia, Sonerila margaritacea, Leptodactylon Californicum, two Nidularias; a yellow fruited Capsicum, the beautiful Gesnera Donckaari, fine plants of Wellingtonia, Begonia Thwaitesi, Ixora Lobbi, and a panful of the singular looking Ouvirandra fenestralis. The same firm also showed a beautiful specimen of Lapageria rosea, trained in the form of a parasol, whose fringe was represented by a row of rich crimson blossoms. Mr. Parker sent Dendrobium cumulatum, Lady Dorothy Neville a fine plant of Peristeria fuscata, and Messrs. Jackson, of Kingston, the white variety of Agapanthus, which is however slightly tinged with blue; a blush

purple Pentstemon from Oregon, and a rosy pink Rhododendron called maximum caucasicum. Messrs. Lane & Gaines exhibited finely flowered specimens of R. javanicum. A group of miscellaneous plants, shown by Mr. Parker, embraced Lycopods, Ferns, Palms, and Orchids. Among the Ferns was the handsome Pteris aspericaulis. Other miscellaneous plants consisted of Gesneras, Achimenes, and Amaryllids.

Roses in pots were furnished by Messrs. Lane, Francis, and Rowland. They were well flowered; but as the day advanced the heat, which was great, very much impaired their beauty. Boxes of cut Roses from Messrs. Paul, Francis, Wilkinson, and others were not so numerous as we have seen them.

Pelargoniums were plentiful. The only collections, however, in first-rate condition were those from Mr. Turner, of Slough; next in point of merit were Mr. Dobson's. In regard to Seedlings 1st prizes were awarded to Spotted Gem (Turner), Prince of Prussia (ditto); 2d prizes to Viola (Hoyle), Matilda (ditto), conspicuum (Turner); and a 3d prize to Miss Foster (ditto); King of Scarlets (Turner), Agnes (Hoyle), and Standard (ditto), were also shown in good condition. Messrs. Veitch, Lee, and Kinghorn likewise showed some good kinds; some of the sorts from the latter exhibitor we hope to notice hereafter. Pinks finely laced were shown by Mr. Turner. The best were Adonis, Mr. and Mrs. Stevens, New Criterion, Purity, James Hogg, Sarah, Cardinal, Purple Perfection, Rival, Mr. Hobbs, Sovereign, and optima.

Fruit was shown extensively; but with one or two glorious exceptions it did not exceed mediocrity. This remark applies more especially to white Grapes, which were for the most part unripe. Queen Pines were good, and there was a Providence which weighed 10¼lbs. from Mr. Fleming, gr. to the Duke of Sutherland at Trentham. Mr. Fleming also exhibited a miscellaneous collection of fruit of superior excellence, to which a first prize was justly awarded. It consisted of Black Hamburgh Grapes, large both in bunch and berry and extremely well coloured, two Providence and two Queen Pine Apples, two Cashmere Melons, two dishes of Cherries, one dish of Early Orleans Plum, and a dish of Ingram's Prince of Wales Strawberry. Mr. Nichol, of Oxton House, Devon, and Mr. Munro, gr. to Mrs. Oddie, also exhibited collections.

Of Pine Apples, the best came from Mr. Fleming, Mr. Povey, Mr. Burn, Mr. Barron, and Mr. Jones. The Queens from the last-named exhibitors were most excellent specimens of good Pine growing. The best Black Jamaicas came from Mr. Davis.

Grapes of the Black Hamburgh kind, well grown and in all respects beautiful, came from Mr. Fleming and Mr. Smith of Norwood, and excellent bunches of the same variety came from Mr. Hudson, and Mr. Hill, gr. to R. Sneyd, Esq. Of Muscats, Mr. Clarke of Hoddesdon and Mr. Turnbull had the best; but Mr. Davis and Mr. Taylor also showed good bunches. To Mr. Forsyth's (of Gunnersbury) Sweetwaters a first prize was justly awarded, and good bunches of the same sort came from Mr. Blake. Mr. Hill showed excellent bunches of Black Prince. Mr. Turnbull had a seedling St. Peter's, to which the judges gave a prize, and a seedling white Grape from Mr. Carpenter also received an award. It was stated to be a cross between the Black Hamburgh and Sweetwater.

Of Grapes in pots, Mr. Forsyth had capitally fruited specimens in the form of arches, and others badly coloured came from Mr. Page of Streatham.

In Peaches, Mr. Snow was again first with most excellent examples of Noblesse, but good fruit was also exhibited by Messrs. Turnbull, Frost, Mitchell, and Munro, gr. to Mrs. Oddie. Messrs. Davis, Ayres, and Hill had the best Nectarines. The sorts were chiefly the Elruge and Violet Hâtive.

Of Figs, a capital dish of Brown Turkey came from Mr. Snow, and Mr. McEwen of Petworth also showed good fruit.

Cherries both black and white first-rate examples came from Mr. Fleming, and Mr. Ferguson of Stowe also showed good fruit on the branches, and in a model of the house in which they grew. This was shaped like the letter A, and was constructed of wood and glass.

Of Plums the best came from Mr. Fleming and Mr. Munro; the former also showed examples of them in pots from an orchard house. Messrs. Lane likewise exhibited in this class.

Strawberries, in the shape of three excellent dishes, came from Mr. Turnbull; and of single dishes the best were shown by Mr. Wortley and Mr. Cuthill. The latter were Black Prince from the open ground, where it has been ripe some time.

Of Melons, green-fleshed, Mr. Dalrymple and Mr. Tegg had the highest flavoured; and the best scarlet-fleshed, a small kind, came from Mr. Bailey, of Shardiloes.

HORTICULTURAL, *June* 24.—A special general meeting was held by adjournment from May 1, for the purpose of determining whether the Garden at Chiswick is to be retained or not; Colonel Challoner in the chair. The following report from the Council was read:—

"The wishes of the last Special General Meeting have been complied with. The subscription for raising the sum of 5000*l.* for the purpose of trying the experiment of maintaining the Garden has been kept open till this day, and now amounts to 3267*l.* 2*s.* 0*d.* This sum has been promised by 200 out of the 750 Fellows of the Society, and by 29 strangers, and is in almost all cases made conditional upon the whole sum of 5000*l.* being provided. The Council had hoped that the readiness with which their appeal was at first responded to would be the forerunner of complete success; to secure which they put in action advertisements, circular letters, and personal applications. Since, however, the public has not sufficiently responded to the appeal that has been made the time has now arrived when action must take the place of discussion, and the Society must decide upon its future course.

"It would undoubtedly be a grievous calamity if the Garden which has now at the cost of so much money been brought to its present state of efficiency were to be relinquished; and the present Council feel themselves bound to exhaust all other resources before they irrevocably consent to surrender the lease, and realise the property at Chiswick.

"While, therefore, they announce the failure of the attempt to secure the necessary funds by mere voluntary subscription, they must also add that it seems to *them advisable to realise other property before determining to break up the Garden;* and they have therefore taken into consideration the possibility of selling the lease of the house in which we are now assembled, and finding a place of business elsewhere. It is true that the proceeds of the sale of the house must be applied to the discharge of the securities of the corporation, unless some new arrangement can be made with those who hold such securities, and that little immediate relief would be experienced by the measure; but, on the other hand, the Council hope that if the Corporation debt were seriously reduced, a part at least of the subscriptions already announced would then be allowed to go to the maintenance of the Garden, although the condition under which they were obtained shall not have been fulfilled, and that such further sum as may be required might be raised by the issue of Corporation bonds upon the security of the Garden and the remaining corporate property.

"It is true that by the sale of the house in Regent Street little improvement may be effected in the income of the Society, the annual cost of new premises being equal to the balance of interest payable for the debt secured by the house itself. The Council however think that under any circumstances something may be gained by the exchange. They also observe that Government has assigned apartments at the public charge in Burlington House to the Linnean and Chemical Societies, as well as to the Royal Society which removes from Somerset House, thus recognising the claims of other chartered scientific bodies to similar accommodation. Under these circumstances they cannot but entertain a hope that an association which has exhausted itself in works of the greatest social value, by encouraging improvements in the all important arts of cultivation, the introduction of new fruits, new esculents, and new ornamental plants, will have its claims favourably received by her Majesty's Government, and they trust that an application which they have preferred for rooms in Somerset House or elsewhere will be successful. The difficulties of the Society would be much diminished if this most desirable object could be attained, for the interest now paid upon our fixed debt would then become available for carrying out the purposes of the Society.

"The Council, however, feel as strongly as anyone the indispensable necessity of augmenting the fixed income of the Society; in the absence of which all plans for securing the permanence of the institution must be at least precarious if not abortive. It is not to be doubted that the present rate of subscription is too high; and the Council entirely agree with those who urge the necessity of a considerable reduction in the annual subscription. If practicable 2*l.* 2*s.* would be better than 3*l.* 3*s.*, as 3*l.* 3*s.* would be than 4*l.* 4*s.*, the latter sum being still paid by those only who desire to retain privileges commensurate with such an amount. It is thought that many will desire to continue that subscription, that others will consent to split their present four guineas into two, and, should further arrangements be carried out, the Council will be prepared to propose some of the methods suggested for effecting this reduction of subscription with as little immediate detriment as possible. They trust that eventually the change will have been found extremely beneficial; but this can only be the result of time. When, however, it is seen that the action of the Society continues in vigour, that its means are steadily applied to the advancement of horticulture, and that all which is wanted to increase its utility is increased funds, the Council confidently believe that friends enough of gardening are to be found in this great country to provide amply the means required for such important purposes as those within the scope of the Society. In whatever changes may be effected the Council would in no degree curtail the existing privileges of Fellows; on the contrary, they would desire to extend them by rendering the library more attractive, and by giving the Garden the most scientific and practical character attainable.

"Many observe that the Society has become too much an association for the purposes of Exhibition; and that objects of display have absorbed means that would have been better applied to practical horticulture. In this view the present Council in some measure concur; but it must be remembered that the urgent pecuniary necessities of the Society first caused the system of exhibiting to be established, and that such necessities have never ceased to exist. And even now it is the belief of many gentlemen that the exhibition of plants must be the mainstay of the Society. The importance of exhibitions is incontestable, for they afford the readiest means of displaying progress, but it becomes daily more doubtful whether exhibitions such as those at Chiswick have been will continue to be desirable in connection with this Society. They are springing up everywhere; the last Number of the *Gardeners' Chronicle* contains advertisements from Sydenham, Maidstone, Chatteris, the Midland Counties, Chertsey, Chelsea, the Regent's Park, Hereford, and Watford—excellent symptoms of the progress of gardening, but not favourable to the re-establishment for the present of exhibitions at Chiswick, where our bad position incapacitates us from contending with places more favourably situated. The Council, however, do not altogether abandon the idea of holding exhibitions in the Garden if it is preserved; on the contrary they would be glad to revive them should a favourable opportunity present itself; but that revival would involve a material change of plan, and would have to be made with a view to the gratification of the Fellows and their friends rather than that of the public at large. Such meetings might thus indeed become more exclusive, but they need not be the less agreeable and instructive on that account. Nor would they be less useful if converted into social reunions rather than indiscriminate public assemblages. The progress of gardening might be demonstrated by the contents of the garden itself, and by the contributions of those who cultivate plants for their own sake, and not with the special object of occasional display.

"Such are the views of the present Council; they have been formed in the hope of reconciling the interests of horticulture, the objects of the charter and the personal wishes of the Fellows, so as to secure the permanence of this great institution. What may be possible under future and altered circumstances can only be determined as changes progress; but the Council trust that the views they take are such as justify them in asking the meeting now to entrust them with that freedom of action in the absence of which no public affairs can possibly be conducted.

"Whatever changes may be contemplated in the privileges, proceedings or constitution of the Society must, under the charter, be incorporated in the by-laws. And as no by-laws can be valid until certain formalities have been complied with and the acquiescence of the corporation has been signified in general meetings summoned for the purpose, there will be ample opportunities hereafter for a full discussion of whatever new arrangements the Council may think that the interests of the Society require."

It was moved by Mr. Blandy, seconded by Mr. Spencer, of Norwood, that this report be received and adopted. After some conversation, in which General Sir Augustus Dalrymple, Bart., asked for further information, which was given by the Chairman, this resolution was carried unanimously.*

It was then moved by Colonel Challoner, seconded by Mr. Blandy, "That this meeting, after hearing the statement now made authorises the Council to take such measures for the reorganisation of the Society as they may consider advisable, even though those measures should involve the relinquishment of the Garden at Chiswick and the realisation of the property, or any part of the property therein."

A discussion ensued. Mr. Blandy, on the part of the Council, after ably exposing the fallacies and inconsistencies of Mr. Godson, stated distinctly that although the Council were most anxious to preserve the Garden, and were ready to make any sacrifice consistent with the honour of the Society to effect that object, yet they could give no unconditional pledge upon the subject. The first consideration was to take care that the Corporation should be able to meet its engagements; that secured, the Garden was also safe. The Chairman also replied, in answer to an inquiry from Mr. Gadesden, that the intention of the resolution was to enable the Council to give notice at Michaelmas to quit the Garden should it be unfortunately found that such a measure

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* In answer to a question from General Sir Augustus Dalrymple, Bart., the Chairman entered into a further explanation of the views of the Council, and directed the following letter to be read:—

"47, Rue de Clichy, Paris, June 21, 1856.

"Dear Sir,—Since the 1st of May I have been looking anxiously for information respecting the Horticultural Society, and the progress of the subscription towards the required 5000*l.*, and it is only by a letter in yesterday's *Times* that I learn that 1700*l.* is still wanting, and to be raised by the 24th instant. I hope the warm appeal of 'An Oldish F.H.S.' will be responded to worthily, and that you will find the Society with the required amount in hand on Tuesday. Should this unhappily not be the case, but to meet the deficiency then found a sufficient body of the earnest supporters of the Garden should resolve to increase their subscriptions proportionally, I shall be ready to concur in the arrangement to the extent of doubling the sum (Twenty Pounds) I authorised you (in April) to put down to my name. The Emperor here has just had the new gardens on each side of the 'Avenue de l'Impératrice'—a noble conception—laid out for the instruction and gratification of *his* people, with all the rare trees and plants long since naturalised and matured in the promenade portion of the Garden at Chiswick: and it will be a scandal to our country, where the Government (I say it not by way of reproach) does not take in hand these things (leaving them rather to the natural spirit and energy of *our* people), that this Garden, so replete with magnificent exotics, should pass under the auctioneer's hammer, and be perhaps either rooted up, or portioned out into building plots (like Pope's villa), to say nothing of the loss to the nation at large of the manifold benefits afforded by the Garden, by the skilful management and propagation and liberal distribution by the Society of seeds, plants, and cuttings, so justly eulogised by 'An Oldish F.H.S' Fashion is, we all know, capricious enough, and we may never see again the gay crowds that used to adorn the Fêtes; but surely the great horticultural body in England can afford to maintain a model garden for themselves, notwithstanding and independently of the splendid speculation of the Crystal Palace and its grounds. I will hope so at least till Tuesday next.

"Dr. Lindley. J. T. WINTERBOTTOM."

was unavoidable. Mr. Godson again attempted to address the meeting, but being listened to with impatience and having no amendment to propose, was called to order and resumed his seat. Col. Challoner's resolution was then carried with only two dissentients; and the meeting separated after unanimously voting thanks to the gallant Chairman for his impartial conduct.

Clifton Horticultural Exhibition.—Horticultural societies in the country have many difficulties to contend with, one of the greatest of which is that the subscriptions depend too much upon intending exhibitors in their respective neighbourhoods, and that consequently if the schedules and prizes are not prepared according to their fancied interests, so that they may always win, they withdraw their support and withhold their productions. The true way to succeed is not simply to secure impartiality of judgment—though this is very important—but also to encourage competition from distant localities. There are hundreds of plant growers who think their pets very prodigious until they see them placed in juxtaposition with better ones.

The horticultural meeting now under notice is held in the gardens of the Clifton Zoological Society, the managers of which being independent of individual interests are enabled to take advantage of the best lessons within their reach. They have formed their schedule on the Chiswick models, and retained London judges. On Thursday, June 5, they gave away nearly 200*l.* in prizes, and the show was one of the finest we have ever seen out of the metropolis.

The Orchids were entirely the production of the county, and very good, especially the first 12 (prize 8*l.*) from Mr. Bassett, gr. to R. S. Holford, Esq., Weston Birt, and those from Messrs. Garraway and Mayes. The Ferns and Lycopods, especially the latter, were well grown, in abundance and variety.

The collections of Stove and Greenhouse Plants contained many fine specimens and were in excellent order; and the Azaleas were noble plants, well grown, and loaded with blossom.

The collections of Ornamental Plants were well done, especially one of 50 plants from Mr. Tanton, gr. to G. S. Wintle, Esq., of Hacclecote, near Gloucester.

Cape Heaths are unfortunately losing favour or are less fortunate in cultivation than they were a few years back; everywhere we observe a falling off in quantity and quality compared with what was usual some few years back; the plants at Clifton were as respectable as they are generally seen, and amongst them were some good specimens.

The Pelargoniums were abundant and well flowered; they were not, however, so well up to the London standard as many other subjects. The Fuchsias were generally good, especially the first collection, which was exceedingly fine.

Half of a large tent was filled with Calceolarias, which are evidently grown well and extensively in the district; this may also be said of Pansies. Roses were exhibited well grown in pots, and also as loose bunches; the latter formed one of the most attractive features in the exhibition; they were very select, and truly fine. Twenty-four varieties exhibited by Messrs. Pullen, of Westbury, near Trym, were excellent, and a similar collection from Messrs. Garraway and Mayes was but little behind them. The Society wisely determined to give encouragement to every class of exhibitors and offered prizes for British Ferns in eighteens, and collections of wild flowers. In every case the schedule was well responded to, and many extra prizes were merited and awarded; in the whole five large tents were well furnished in addition to the reptile house, which was devoted to Orchids, Ferns, and Lycopods. Upwards of 8000 people visited the gardens during the afternoon. The fruit and vegetables were entirely local, and did credit to the cultivators.

Notices of Books.

The Fly-fisher's Entomology, with coloured Representations of the Natural and Artificial Insect, and a few observations and instructions on Trout and Grayling Fishing by Alfred Ronalds; with 20 coloured Plates. Fifth Edition. By Piscator. London, Longmans. 8vo., 132 pp.

If Dr. Johnson could have lived to these days he would have hardly ventured to make his well-known savage remark upon the brethren of the angle. In modern times some of the profoundest philosophers, the most learned antiquaries and naturalists, reverend divines, and practical men of business have taken to the sport with an earnestness and zest scarcely bestowed upon any other pursuit, whilst piscatorial literature itself has become a study, and early editions of Izaac Walton are as eagerly bought up as those of Shakspeare. The work before us has reached a fifth edition, a sufficient proof of its value, founded not only upon the very precise nature of the instructions for making tackle of all kinds, especially artificial flies, but also on the results of experiments which the author undertook, with great ingenuity and patience, in order to investigate the habits of the trout, and especially the nature and extent of its senses of hearing, sight, taste, and smell, and more particularly on the excellent representations which the author has given of the various insects which serve these fishes for food throughout the year and the fac similes of them as manufactured by the angler.

We have, in fact, never seen better figures of any insects than are here given, especially of some of the larger Ephemeræ, the living attitudes of which are truthfully rendered. The smaller figures are, however, much less satisfactory.

The author of the work having emigrated to Australia, the present edition has been edited by "Piscator," who takes great credit for having revised the nomenclature of the insects, and ascertained the specific names of all the species not previously given. How this has been effected we can hardly conceive, since the original specimens drawn by Mr. Ronalds have been in the possession of the writer of the present notice ever since the publication of the first edition of the work, 20 years since; and it is quite impossible to determine the smaller Ephemeræ and Trichoptera by such figures as those given by Ronalds. A happy guess has been made in many cases, and it is evident, from Ronalds' observations, that the fish does not scrutinise the *specific distinctions of the artificial fly* presented to it. An odd mistake has been made with No. 24, which is a small Perla (chloroperla), but which, in p. 92, is called a Tenthredo, although the order and family are given correctly. It is also unentomological to speak of "larvæ when in the Nympha state."

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—This house should now be gay with such things as Achimenes, Clerodendrons, Allamandas, Gardenias, Stephanotis, and other showy plants from the stove, for without the assistance of these it is hardly possible to produce a first-rate display at this season; and if the house can be kept rather close many of our most showy plants will be more at home here while in bloom than they would be in the stove; and the length of time which they retain their beauty renders it very desirable to grow them largely for this purpose. To do these justice, however, the house should be cleared of Ericas and such plants as are soon injured by a close confined atmosphere, so as to be able to keep it closer and moister than would suit these, for very few stove plants will do any good in a temperature that is regulated for Ericas and such plants. Stove.—The stock here will now be growing very rapidly, and must be afforded sufficient space to allow the perfect development of the foliage and the formation of compact handsome specimens; the atmosphere of this house can hardly be kept too moist, and the plants should be sprinkled overhead morning and evening, and every available surface kept constantly moist. A slight shade will be indispensable for tender plants in active growth for a few hours on the forenoons of bright days; but this should be used as sparingly as is consistent with the perfect safety of the foliage. Plants that are known to suffer from the direct action of the sun's rays should be placed in a shady part of the house or kept together at one end where they can be shaded without interfering with plants that require plenty of light. Mealy bug and black thrips will require to be looked after here for some time to come, and the utmost diligence must be used to keep these pests in check.

FORCING DEPARTMENT.

Vineries.—Attend to keeping cool and moist where the fruit has been cut in order to preserve the foliage in a healthy state as long as possible. The laterals need not be kept very closely stopped after the fruit is cut, but they must not be allowed to shade or injure the principal leaves. If there is any appearance of red spider give the foliage a good washing with the engine directly the fruit is cleared off, and repeat this as long as there is a vestige of the enemy to be seen. Give prompt attention to the thinning of the fruit in succession houses, for like many other jobs this is most easily and expeditiously done when taken in time. Look well to the state of the borders where the fruit is swelling, and give a thorough soaking of tepid, good strong manure-water wherever the soil is found to be at all dry, and aim at having the borders in a healthy state as to moisture where the fruit is about colouring, for a healthy root action has more to do with the colouring of the fruit than many persons seem to suppose. Young Vines planted out this season should be encouraged to grow freely, and as the roots will be near the surface see that they are not allowed to suffer for the want of water, and in the event of hot drying weather a slight mulching over the roots would be useful. Do not keep the laterals too closely stopped, as the more leaves, &c., the Vines are allowed to make the more freely the roots will run in the border, and this deserves attention the first season. Peaches.—Spare no pains to maintain a moist state of the atmosphere where the fruit is swelling, syringing freely, and shut up early in the afternoon, but give air sufficiently early in the morning to prevent the least risk of scorching.

FLOWER GARDEN AND SHRUBBERIES.

Late-sown annuals should be thinned out as soon as they are well above ground, for if left to grow too thickly they spoil one another, and never make half the display plants do that are allowed plenty of space, and which are grown strongly from the first. Attend to staking such of the herbaceous plants as require it before they get blown about and injured, and do not huddle the stems together as is too frequently done. The early flowering bulbs, as Tulips, Hyacinths, Turban Ranunculuses, &c., will now be ready for taking up, and should not be left in the ground after the decay of the foliage, as if wet weather occurs they will be making fresh roots, which weakens them for next season. On light dry soils American plants will be greatly benefitted by a good soaking of water after flowering, and the finer specimens should be mulched to assist in keeping the roots moist during the growing season. Attend to the propagation of the better varieties of Pentstemons, which are exceedingly useful plants; also see to having a good stock of the border Picotees and Carnations, which are invaluable for cutting, and although now discarded from the parterre, should not be overlooked: cuttings of these, if put in before the wood gets too hard, root as freely as Pinks.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with nailing in the young wood of wall trees, and see that they are perfectly clear of insects; also stop any gross shoot, and endeavour to secure a fair supply of bearing wood all over the tree; gross shoots that were stopped early in the season should be divested of all the laterals except one, or if they can be spared, removed altogether. Keep the breast wood on Pear and other wall or espalier trees closely stopped in and attend to thinning the fruit where the crop is too heavy for the strength of the tree. Look to preparing Strawberry runners for forcing next spring; if not already done a good breadth of Brussels Sprouts should be planted on very rich deep soil, for if not got in at once the crop will be but poor, and it is very desirable to secure a good supply of this most useful winter green. A fair supply of Savoys and Broccoli, &c., should also be planted at once; continue to plant out Celery as ground can be spared, and keep it well supplied with water. Cauliflowers and other strong growing things will be greatly benefited by an occasional watering with manure water. Keep the hoe in action on dry days, cut Box edgings in showery weather, and endeavour to have all neat and clean.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending June 26, 1856, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 20	17	29.941	29.553	67	40	53.5	59	56½	S.W.	.16
Satur. 21	18	30.053	29.982	68	54	61.0	61	56½	S.W.	.88
Sunday 22	19	30.068	29.938	68	50	59.0	60	56½	N.W.	.00
Mon. 23	20	30.225	30.193	69	42	55.5	61	57	N.E.	.00
Tues. 24	21	30.190	30.148	68	55	61.5	62	57	W.	.00
Wed. 25	(	30.178	30.159	82	50	66.0	62	57	W.	.00
Thurs. 26	23	30.211	30.162	88	56	72.0	64	58	N.W.	.00
Average		30.109	30.002	72.8	49.6	61.2	61.1	56.9	..	.24

June 20—Rain; heavy clouds and showers; cloudy at night.
— 21—Very fine; fine with clouds; rain.
— 22—Cloudy; fine; cloudy.
— 23—Overcast; cloudy and fine.
— 24—Very fine, uniformly overcast; cloudy and fine.
— 25—Overcast; very fine; cloudy and fine.
— 26—Very fine; hot and sultry; cloudy and fine.

Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending July 5, 1856.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	72.7	49.7	61.2	7	0.20 in.	2	4	3	1	1	12	5	2
Mon. 30	72.7	50.2	61.4	11	0.80	—	4	4	2	4	9	5	2
Tues. 1	72.0	52.5	62.2	15	1.18	1	2	5	—	4	10	6	2
Wed. 2	73.3	52.7	63.0	12	0.22	1	3	2	—	5	10	7	2
Thurs. 3	74.8	52.5	63.6	13	0.78	2	3	2	—	5	8	9	1
Friday 4	76.4	51.5	64.0	7	0.33	1	4	2	1	2	12	7	1
Satur. 5	78.1	51.6	64.8	11	0.59	1	2	4	1	5	9	8	—

The highest temperature during the above period occurred on the 5th, 1852—therm. 97 deg.; and the lowest on the 3rd, 1849—therm. 35 deg.

Notices to Correspondents.

Books: *Scalpel.* Dr. Lindley's "Medical and Œconomical Botany" contains figures of every one of the plants you inquire about. For 7*s.* 6*d.* you have 363 such figures of medical and œconomical plants, which thus cost about a farthing each.

Climbing Roses: *W V.* Prune them hard in just before Christmas. You need not cut them down to the ground.

Columbines: *E C.* It is by no means unusual in this species for the same plant to have some flowers of a pure white, others entirely claret-coloured (brownish purple), whilst in others again one segment of the corolla is claret-coloured, even to the very claws, the rest of the flower being white. The appearance belongs to the family of "sports."

Crystal Palace Water Works: *Fenchurch St.* We believe the best answer that can be given you will be in the words of Count Alexander de Laborde, when speaking of the waterworks of Versailles:—"C'est ici que l'on pourrait chercher à repousser tout sentiment d'admiration en calculant ce que cela a pu coûter, manière de raisonner qui exclue toute grande entreprise."

Diseases: *H C C.* Your Peach twigs are affected with a very curious disease; they first become sphacelated above, a minute fungus belonging to the genus Hendersonia with very beautiful spores then establishes itself upon them, gumming commences, and the upper part of the shoot decays. Are you not too liberal with your liquid manure? It seems for the most part impossible to use strong nitrogenous manures, even in the case of annual or short lived plants, without laying the foundation of future mischief. When your trees were full of fruit the excessive demands of the fruit might prevent immediate evil, but now that you have a bad crop the twigs are over nourished, and disease ensues. *M. J. B.*

Galvanised Iron Pipes: *T G* would be much obliged to any one who could inform him from experience if galvanised iron pipes are likely to have a less pernicious effect on water used for drinking than those of lead, which in the district he inhabits are immediately corroded.

Grass Seeds: *J G.* Any of the firms you name will certainly supply you faithfully, except the last in the list.

Guano: *J N L.* The ammonia is usually distributed equally through the mass. But sometimes it occurs in largish crystalline lumps. The dust is merely the larger pieces broken down.

Law Relating to Removal of Trees: *XIX.* A great deal depends on the terms of the lease. If there is no special agreement to the contrary, trees, shrubs, and vegetables planted by a nurseryman or market gardener with a view to sale in the ordinary course of his business can be removed by him, but if he does not remove them he cannot make the landlord pay for them unless there is some special custom to that effect prevailing in the part of the country where the nursery or market garden is situate. On all such matters however you had better be advised by your solicitor.

Slugs: *J D.* Destroy them by all means. We never heard even a poetical plea in their favour.

Yew and Box: *Diss.* The first is certainly indigenous; and we never heard the Box tree suspected of being a foreigner.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

TURNIPS.

TOTTENHAM SEWAGE GUANO (HIGGS' PATENT) now ready for delivery from the Works at 4*l.* 4*s.* per ton. Apply to Mr. HIGGS, Sewage Works, Page Green, Tottenham, Middlesex.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY (Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

ANALYTICAL REPORT (CORRECTED).

THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—

"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."

Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.

Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.

Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.

SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Exhibition of Stock, Implements, Poultry, &c., will take place on THURSDAY, November 27th, at Gloucester. Premiums to the amount of 412*l.* will be offered for Cattle, Sheep, Pigs, and Horses, and 120*l.* for Poultry. Members only can compete for the Premiums for Stock, but the Poultry Premiums are open to Public competition.—For further particulars apply to EDWARD TRINDER, Secretary.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of Live Stock (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 7th; and on the previous day there will be a public Trial of Implements. Premiums to the amount of 694*l.* are offered, many of which are open to general competition.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD, 1856.

PROGRAMME.

TUESDAY, JULY 15, and WEDNESDAY, JULY 16.—The Implement Yard open from 10 o'clock in the morning till 6 o'clock in the evening, on TUESDAY; and from 7 o'clock in the morning till 6 o'clock in the evening, on WEDNESDAY, at an admission-charge of 2*s.* 6*d.* for each person. Machinery will be exhibited at work on each of those days at the following hours:—

I. WORKED BY STEAM, OR OTHER (THAN HAND) POWER.

Threshing Machines	From 11 till 1 o'clock
Tile and Brick Machines	„ 12 „ 2 „
Saw and other Mills	„ 1 „ 3 „
Chaff-Engines	„ 2 „ 4 „

II. WORKED BY HAND POWER.

Chaff-Cutters	From 11 till 1 o'clock
Tile Machines	„ 12 „ 2 „
Mills	„ 1 „ 3 „
Turnip-Cutters	„ 2 „ 4 „
Oilcake-Breakers	„ 2 „ 4 „
Winnowing-Machines, Barley-Hummellers, &c.	„ 2 „ 4 „
Miscellaneous	„ 2 „ 4 „

WEDNESDAY, 16.—The Judges to inspect the Live Stock and Farm Poultry, and to award the Prizes. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards, of which notice will be given) the public to be admitted into the Cattle Yard and to the Exhibition of Farm Poultry, on the payment of 5*s.* each person, at the Special Entrance; Members of Council and Governors of the Society being admitted by Tickets, to be purchased at the Finance Department of the Society at the Show Yard. At 8 o'clock in the evening the Cattle and Poultry Yards will be closed.

THURSDAY, 17.—The General Show Yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the public, from 6 o'clock in the morning till 6 in the evening; admission 2*s.* 6*d.* each person. The Dinner of the Society in the Pavilion adjoining the Show Yard, at 4 o'clock; the doors to be opened at 3 o'clock.

FRIDAY, 18.—The General Show Yard open to the public from 6 o'clock in the morning till 6 in the evening; admission 1*s.* each person. General meeting of the Members, and distribution of the Foreign Prizes, in the Shire Hall, at 10 o'clock in the forenoon.

President — LORD PORTMAN.

Stewards of Departments.

CATTLE—Mr. Woodward; Sir Stafford Henry Northcote, Bart., M.P.; Mr. Jonas.

IMPLEMENTS—Mr. Cavendish, Mr. Wren Hoskyns, Sir Archibald Keppel Macdonald, Bart.

POULTRY—Mr. Joseph Cooke, Mayor of Colchester.

FINANCE—Colonel Challoner, Mr. Fisher Hobbs.

SALE OF TICKETS—Mr. Henry Wilson.

RECEIPTS AND ADMISSION TO SHOW YARD—Mr. Raymond Barker.

PAVILION DINNER—Sir John V. B. Johnstone, Bart., M.P.; Sir John Villiers Shelley, Bart., M.P.; Mr. Bramston, M.P.; Mr. Brandreth.

GENERAL ARRANGEMENT OF SHOW—Mr. Brandreth Gibbs.

By order of the Council,

London, June 28, 1856. JAMES HUDSON, Secretary.

By the Regulations of the Society, all persons admitted to the Show Yard, or other places in the temporary occupation of the Society during the meeting, shall be subject to the rules, orders, and regulations of the Council.

Pavilion Dinner Tickets and Subscriptions at the Finance Department of the Show Yard. Pavilion Dinner Tickets, price 10*s.* each (including one pint bottle of wine) will be sold at the Finance Department of the Show Yard on the Wednesday and Thursday of the Show week, between the hours of 10 o'clock in the forenoon and 3 in the afternoon, each day.

Subscriptions due to the Society will be received by the Finance Committee, at their department adjoining the public entrance to the Show Yard.

The Agricultural Gazette.

SATURDAY, JUNE 28, 1856.

THE following suggestion deserves all the publicity we can give it. Anything which facilitates communication between employer and labourer is of great public value, and never more so than now, when the harvest season has commenced, and large bodies of people have commenced their annual migration from the over-populated to the agricultural districts. Our correspondent "T. G." of Clitheroe writes as follows:—

"Travelling in Yorkshire about this time last year I met with three or four mowers on the Shipley Station, who had come out of Cumberland in search of work and seemed at a loss which way to turn to find it; and it occurred to me that if the persons who wanted mowers, hay-makers, or reapers were to send to an authorised person at the nearest railway station stating how many of each or of either they were wanting, this person (say the vendor of books on the station) by a conspicuous device, which when once known would be immediately seen by the men in search of work, might advertise this want to everybody who passed through the station, who, if no device was exhibited, would see at once that they had no occasion to stop there, and if it was shown they would learn by inquiry where the employment was to be obtained.

"The remuneration of the agent should be obtained both from the employers and the workpeople by a regular tariff, to be fixed at a low rate after consideration (a low rate would be more remunerative than a high one), say 2*d.* from each workman, and 4*d.* from each employer for every workman so sent.

"I regret that I have not sent this suggestion sooner, as hay time will be fairly on with any improvement in the weather, but it only occurred to me again to-day on seeing my own mowers at work, and one of them who is very intelligent, and who has travelled a good deal in search of work, tells me my plan is a good one.

"If this plan were to become general, and a low fare fixed, far more would travel in search of work at this season and in the harvest. The same device should be adopted at every station or mistakes would be made, say a white flag. The plan once organised could not fail to benefit both labourers and employers."

AN interesting report was this week presented by Dr. LETHEBY to the City Commissioners of Sewers on the subject of cow-houses in the city. It appears that there are now 19 cow-houses containing 195 cows within the city boundaries. Though great improvement has latterly taken place in their management yet "the ventilation of the premises is often very imperfect, the paving is bad, the drainage incomplete, and the wet fodder and the manure are sometimes stowed in the same shed in which the animals are confined. This not only does injury to the cows, but it also exposes the milk to the chance of becoming tainted with putrid emanations."

That all these are unavoidable consequences of the circumstances in which the animals are placed appears from the confined space in which they are crowded.

"The space which is allotted to each animal in the cow-houses of the city is, as nearly as possible, 760 cubic feet, though in some cases it is not more than 300 feet. This includes the entire area of each shed, as, for example, the space occupied by the passage, &c. Now, when we consider that a cow consumes the oxygen of about 1000 cubic feet of atmospheric air in 24 hours, and that the carbonic acid produced by it vitiates at least five times as much more, it must be evident that unless the ventilation of the sheds is maintained in a very perfect manner, the animals must breathe a very foul atmosphere, and must endure a great deal of discomfort."

The other points to which the report refers are: (1) the small superficial area apportioned to each animal—not more than 1 yard by 3 upon an average; (2) the food supplied to them, grains "the staple article," "an unnatural food," and necessarily therefore exerting an injurious influence on the health of the animal; (3) unequal intervals of time between the milkings, 13 or 14 hours at one time, 10 or 11 at another; "this irregularity excites irritation in the gland, and products of a diseased nature are thereby secreted; (4) the quality of the milk, which is the result certainly of all these causes, as well as, possibly, of adulteration in addition to them all. "I find," says Dr. LETHEBY, "that it is subject to great variation." The cream is sometimes 12 to 13 per cent. of the milk, and sometimes merely "a trace, and that of the worst description." The impression that water has been added is confirmed by the fact that while a gallon of good milk contains about 9100 grains of solid nutriment, the poor milk of London furnishes only from 6800 to 7000 grains of it. On subjecting the milk to microscopic examination it appears that while buttery particles are sometimes present in due proportion, at others there has been "a marked diminution in the richness of the material, and occasionally the presence of diseased products—products which are very analogous to common matter, and which indicate a disordered state of the secreting gland."

These details are of great importance to country as well as city readers. The producers as well as the consumers of milk are interested in knowing the conditions of health and productiveness. That it is hardly possible to ensure them in the city, where standing ground is so valuable, is apparent from the gradual decline of cow-keeping within its bounds. By far the larger portion of the milk consumed is imported from the country, and

the sooner all of it is so obtained the better for those who drink it.

WE hope next week to give in full the results of the Agricultural Examination lately instituted by the Society of Arts: at present we can only refer to it for the purpose of intimating that very few candidates appeared for their certificate. One of "Proficiency" was awarded to Mr. JOSEPH POLLARD, Hitchin Mechanics' Institute. The Institutions in union with the Society of Arts are chiefly confined to towns and manufacturing districts, and are a very imperfect means of introducing agriculturists to such an arena as was last week offered to them. We hope that another year a larger number may present themselves, and thus enhance the distinction which success confers. On Tuesday last the Society held its anniversary meeting and annual dinner at the Crystal Palace, where a number of very able addresses turning chiefly on the need and means of education were delivered. Sir CHARLES FOX and Mr. WREN HOSKYNS spoke especially on the relationship of employers and employed, referring with great effect to their own personal experience in confirmation of what they said. The experience of such men has been various enough and sufficiently extensive too to give their opinions all the force of a general law.

They were perfectly agreed that "to do as you would be done by" in dealing with those whom you employ is a maxim dictated by interest as well as duty, productive of happiness to those who observe it as well as to those towards whom it is observed, and resulting in the best and therefore the most economical performance of the work to be done, whether on the farm or in the shop.

As to the drainage of the Aldershott Camp, about which considerable discussion took place in this and other agricultural journals a few weeks ago, we learn that the authorities have at length placed the whole of the necessary works in the hands of Messrs. GIRDWOOD & THOMPSON, who are well-known agricultural engineers. We understand that while the great principles of agricultural drainage will be adhered to by these gentlemen, still there are special circumstances—such as the trampling of troops and horses and the passage of artillery in wet weather—which render other arrangements necessary over and above what are usually resorted to in ordinary land drainage.

HOME FARM MANAGEMENT.—No. V.

ON the appointment of a properly qualified manager to take charge of a newly established home farm, there are several duties that will call for his attention before the regular farming operations can be entered upon. The nature of these duties shall depend, to some extent, on the season of the year at which he enters on his charge, and, as far as may be practicable, that should in every instance be the beginning of October. It is in a great measure owing to the winter exertions of the farmer that superior summer crops are obtained. Now, if a farm grieve enters to a new charge in spring, summer, or any other season except that of early winter, the chances are that his management, however good it may be, will be neutralised for the first or second years by the ill-judged preparatory operations of others. October is the beginning of the farmer's year, and should also be the beginning of the farm steward's term of service. Assuming, then, that the latter enters at this season on the charge of a new home farm, he proceeds at once to get the stock of horses, cattle, and implements put into satisfactory order. A descriptive and priced inventory of the stock on the lands at the time is carefully made, and the details of each class entered in the books under its proper head. New animals and implements are then purchased as may appear advisable, and these also are recorded in the inventory lists, according to their prices. By this means the groundwork of an annual valuation of the whole stock is laid, and facilities afforded for afterwards determining with accuracy the clear profits of the farm by the year, and from the time it is entered upon till any other period of its history.

The selection of suitable workmen is the next matter requiring attention on the part of a newly-appointed farm overseer. If the farm he is to have the management of has been in the proprietor's hands in previous years, it will be judicious in him to act with great caution in regard both to the old workmen, and to long-established customs, even though he consider important changes necessary to his ultimate success as a manager. Should he cut and carve with perfect freedom in these respects, and bring everything to his mind at once, he will very likely soon find himself in a disagreeable position, with even his employer against him. Too hasty reforms in the established order of things on a home farm are always dangerous, and if not ending in the overthrow of the reformer himself will probably, at any rate, very materially weaken his influence for a time. It is much safer to enter gradually on a course of reformation where that may seem to be necessary, and submit for a year or two to some disadvantages, than turn everything upside down at once. But in beginning operations on a new home farm there is no evil of the kind referred to, to be encountered by the steward. He has or ought to have complete freedom in selecting his workmen, and if he consult his own and his employer's interests, he shall act in this matter with great caution and discrimination. The system of judging of a farm servant's qualifications merely by the breadth of his shoulders and the size of his hands is essentially a bad one, and though many tenant farmers apply no other tests in engaging their workers, yet a well-qualified steward will take very different measures. He ought to hire no man until it has been ascertained from his previous employer and from other quarters that he has a good moral character, is honest, sober, industrious, a fair workman, and is civil and obliging. A man of this kind may be trusted, and will work as faithfully for an employer who is a nobleman as he would for the poorest farmer in the kingdom. With a staff of labourers having these qualifications the manager of a farm will have no difficulty in getting his wishes carried out in the daily operations, and in that way the probability of his success is greatly increased. Indeed, the skilful selection of servants is one of the most important duties which a farm manager can undertake. It was the first Napoleon's intuitive discrimination of character that gave him so many talented generals qualified to carry out his views, and even in home farm management a tithe of that great man's perceptive faculties, conjoined with a considerable amount of inquiry in respect to the antecedents of those who wish to be employed, would bring about the most satisfactory results. Why, even in a whole district of surrounding country such care as this in the choosing of workmen for a single home farm would have most beneficial effects. It would tend to raise the standard of attainment, and excite a proper ambition in the minds of young labouring men. To what other cause can we attribute the insolence and regardlessness of many workmen at the present day to their employer and his interests, than to the fact that they imagine that without any certification of good character they may get a new master whenever they please! The farther removed the labourer is from that state of dependence which borders on pauperism the better will it be for his employer, but there is a vast difference between the independence which springs from a consciousness that he has done the duty of his station, and that insolent behaviour which almost denies a master's right to interfere in the every day occurrences of the farm. For a servant to rely on his superior for a certificate of good character is not dependence at all. The man is supposed to earn his right to a testimonial, and if he has been at this pains, surely it becomes his master to certify the fact without supposing for a moment that he is in the circumstances doing more than simple justice. Were all employers—including both farmers and farm managers—to act faithfully towards each other, and only recommend those who really deserve to be recommended, our farm servants would soon become a very superior class of men, and be in every way worthy of the confidence of their masters. Here is a wide field for a great moral reformation, and if reform is to begin anywhere, it should be on example farms. Let the persons in charge of such farms therefore do all in their power to encourage good conduct and industry in their workmen. Let them aid them in the pursuit of knowledge by the establishment of libraries and reading rooms for their use, and let them by every justifiable means excite within their breasts a healthy ambition to rise in the world. Above all, let them care for their moral culture, and induce them as far as may be possible to observe the Sabbath in the way in which it ought to be observed. The efforts of a farm steward in improving the morals and general character of the workmen under his control should in particular be directed to the children on the farm. If he take care that they are all educated and counselled as they should be, they will soon spring up trustworthy and valuable servants.

But it may be said, "What has all this to do with home farm management?" Much every way, I answer. Any experienced farmer knows that he is largely dependent on his workmen for success in any of his operations. Now, if the physical powers of these men are regulated by properly constituted and well trained minds they become skilled and faithful workers, and their employers are gainers to a greater or smaller extent in consequence. On these purely selfish and secular grounds—though others might be stated with far greater force—every nobleman and gentleman who has a home farm will find it judicious to encourage his manager to do everything in his power to elevate in the moral and social scale the labourers that are under his charge.

It is a very general complaint in some districts—particularly in England—that intelligent farm labourers capable of carrying out their masters' wishes are not to be got on any terms. There is perhaps much truth in this, but certainly the evil is not nearly so great as it is thought to be. If the right men are selected for the work, and a few good hands imported from some other district where the labourers as a class are better informed, good management will soon make a very great difference in the qualifications of the staff of workmen. While strict rules enforcing an observance of necessary duties are absolutely indispensable in taking charge of the workers on a farm, yet there are certain principles which ought to be remembered by those entrusted with this charge. They should keep the fact in view, for example, that it is not by subjecting their men to very long hours that most labour will be accomplished—that it is not by task driving either that this is attained—and that perpetual grumbling will do evil. This is not the way for a farm manager to get his workmen to accomplish the largest possible amount of labour. He should give them a pleasure in their work by showing that he can appreciate their exertions to please him. Their daily duties should rather be performed with a feeling of confidence that an extra effort put forth willingly to promote their employers' interests will meet with notice and approval, than with an impression resting on their minds that though they do their utmost to give satisfaction, yet they will never succeed in drawing forth upon themselves either a kindly look or an approving smile. Be assured that neither the labourer's head nor his heart is insensible to kindness, and his hands will not fail to testify his gratitude to a master who treats him as he deserves. If the reverse of this is the case, there is something wrong in the course of treatment, or otherwise the man is irremediably bad, and for that he may be less to blame than the systems are under which he has been placed. *J. Lockhart Morton.*

EXPERIMENTS IN THE FERMENTATION OF MANURE HEAPS.

I. A HEAP of sods and weeds containing about 40 cart-loads was put to rot, and allowed to remain two or three months. There being a large proportion of earth in the heap, it was employed to mix up with the contents of two very large cesspools which received the drainage of eight 10-roomed houses, and had not been emptied for 17 years. The odour given off by the accumulation was most sickening, and large bubbles of gas generated by the decomposing mass were constantly breaking upon the surface of the water. The soil residue was mixed with nearly its own bulk of the soil and sods, and was thus rendered so free from smell as to be carted past a terrace of houses in the daytime without a complaint. About 35 loads of refuse was removed. With this heap was mixed in a few weeks its own bulk of horse, cow, and pig dung, which soon formed a black homogeneous mass almost odourless. It gave off no perceptible gas, and proved in the end as powerful a manure as could safely be applied to land. Some York Regent Potatoes planted with it grew tops nearly 6 feet long with a corresponding crop of tubers, and Early Shaws at 2 ft. 6 in. from row to row could not be dug the second week in July without first removing the tops. The men who dug this crop stated that it was the best they ever dug at the time of year.

II. Four cwt. of pigeon dung was mixed with twice its weight of soil and kept for about five months exposed to weather. It was once turned. No smell of ammonia was perceived during that period, nor would test-paper indicate escape of ammonia save when the heap was turned. A very slight odour was then perceptible, and by careful management a feeble reaction could be detected by the test-paper. I believe the influence of this was superior to 4 cwt of the best guano applied in the usual way.

III. A person in the neighbourhood had accumulated the blood from the public slaughter-houses for many weeks. At the time of which I speak the mass consisted of more than a dozen tons of black coagulum which was putrefying in a hole. The stench given off could be smelt for half a mile in the direction of the wind, and every one was loud in denouncing the effluvia. The most sceptical would have admitted the formation and escape of phosphuretted hydrogen had he been kept a few minutes on the lee side of the mass. I purchased this and had it carted within a hundred yards of a number of good houses. It was placed to the S.W. so that the offensive stench might be borne on the wind to the inhabitants, and was left a day uncovered. Complaints were numerous, threats of legal proceedings were made, and when sufficient attention was thus roused to call persons' thoughts to the mode of destroying the effluvia a quantity of earth about equal to the blood was thrown over it. The cure was instantaneous, and no further complaint was made though the whole of the stuff was left for a fortnight where it was first placed. No gas was given off which could be detected by smell or test-paper.

IV. From the same person was purchased at the same time about 20 tons of slaughterhouse refuse consisting of the partially digested food taken from the insides of animals which were killed, and of waste pieces of skin, flesh and hair removed in dressing the carcases for sale. This was carted to the same field as the former, and, like it, was left uncovered to arouse attention, which it did most effectually. Several tons of night soil were added to the heap and the whole was covered with earth, when no more annoyance arose from it than from an equal quantity of dry sawdust. As a manure I never saw anything equal it for efficiency.

V. Forty loads of sods from an old pasture were laid to rot and frequently watered with 'steepwater' from a maltkiln. The latter is a substance abounding in nitrogen and earthy salts from the Barley. With these were mixed as much Cabbage and green refuse as could be accumulated, amounting to about 16 loads. From this ordinary tests could detect the escape of neither ammonia nor sulphuretted hydrogen. Four tons of waste wool containing a good deal of oil were then added as a body consisting of much nitrogen and sulphur, well known for its generating great heat when moistened, and for the fœtid odours given off during decomposition. The same result being obtained, 13 tons of mixed horse, cow, and pig dung were added, and then, after a short time, about eight tons of nightsoil. The heap now con-

sisted of materials which were as likely to evolve ammonia and give off offensive odours as anything we can conceive. No smell however being perceptible, and no reaction appearing with test-paper, a feather moistened with hydrochloric acid was employed. This was held over all parts of the heap and at the lee side of it and then away from it in the air, but no difference could be perceived in the two cases. It was then taken to the neighbourhood of an old fashioned manure heap* containing some fifteen loads, when the white wreaths gave a lesson which it may be hoped will be learnt effectually by those whose wealth is thus hourly dissipated.

I have avoided laboratory experiments as much as possible in this essay, because I know the objection which practical men entertain to them. But one may be here mentioned in the hope that others will repeat it, because it is more convincing than a thousand arguments.

A quantity of the heap Experiment V. was digested with water and gave a light brownish solution neutral to test-paper. This was carefully filtered twice and then mixed with caustic potash to test the presence of ammonia. None was given off, but a brown flocculent substance collected upon the surface of a perfectly clear white fluid. This was filtered and the brown substance burnt, when it evolved ammonia copiously. It also gave off ammonia slowly when exposed to the air.

Here then was nitrogenised matter in the form of as true a salt as the muriate of ammonia which the farmer buys of the manufacturing chemist for manure. Moreover it was so combined that even potash could not expel it. It was perfectly soluble in water and therefore ready for plants to take up as food. In manure thus fermented I have little doubt will be found an adequate remedy for weak straw upon well farmed land; and that the economy of nitrogen will lead to an increase of grain can hardly admit of doubt. In short here was what Nature makes when she decomposes substances in the earth, a perfect manure according to the highest authority.†

VI. The account of these experiments would hardly be complete unless it were extended to note the value of green vegetable matter as a manure, and a peculiarity of its fermentation which seems to have been doubted or denied. Ploughing in a green crop is thought to enrich the land in carbon by the fermentation in the soil of what is ploughed under. Gathering green vegetable matter into heaps is regarded very much in the light of forming "a carbonaceous residue of decayed plants." Mr. Stephens has some strong remarks of this kind under the head of "composts," and Prof. Johnston appears to lean to the same view. The latter gentleman has however one passage which it is impossible to pass, as a very large number of my own observations are entirely opposed to it. He says "vegetable substances in general do not decay so rapidly, and emit no odour of ammonia when fermenting." "Elements of Agricultural Chemistry," p. 205. The words "in general" are in italics, and are clearly meant in some measure to qualify what is stated. But, if the passage mean anything, its signification is that with very few exceptions the fact is as stated.

Having considerable doubt of the fact I resolved to test it practically, and have had collections of green vegetable matter made whenever possible. It has been placed in small heaps such as a barrowful, and in large ones of 2 or 3 cartloads, and comprises Grass, Cabbage, Radishes, and weeds of every kind grown in the neighbourhood. I have tested more than fifty heaps composed chiefly of different weeds, and in no instance have I failed in getting turmeric paper strongly browned when held in the vapour given off by the decomposing substances. The "odour of ammonia" was certainly not perceptible at a distance from my one or two barrowsful of weeds fermented in the open air, but neither would it have been from an equal quantity of ordinary manure under the same circumstances. It was however distinctly and easily perceptible if the nose were placed close to that portion of the heap from which a forkful had just been taken, and I am induced to suspect that the want of this precaution led to the statement I have quoted from that justly high authority Prof. Johnston.‡

One Experiment upon a larger scale was most notable. Three or four cartloads of waste Radishes were placed to ferment and allowed to remain for three weeks, and when they were removed (June 25, 1853) nearly the whole mass was rotten. Upon coming up to the labourer who was set to remove them I was surprised to find him standing back from the heap with his eyes watering and apparently just recovering his breath. My own nose however soon told me the reason, for the quantity of ammonia given off was such that it was impossible to breathe with the head held closely over the heap. One or two other men who smelt the gas believed I had mixed "hartshorn" with the heap. From no equal quantity of either animal or vegetable matter did I ever observe an equal escape of ammonia.

Unfortunately I am not able to state what other gases were given off. I left the spot to procure the means of testing it, and upon my return had the mortification of finding that the man had made an end of his "nasty job" and had removed the mass to an adjacent dunghill. I had omitted to tell him to leave it till I came back.§

With a knowledge of these facts I have no alternative but to differ from the high authorities I have named, and may venture to express a hope that chemists will investigate this subject in the field and not in the laboratory.

It surely is a significant hint to farmers to accumulate as much of the green refuse of their farms as possible, and to ferment it with so much soil as to save the ammonia and other valuable compounds with which the decaying plants abound. *Rev. W. R. Bowditch in the Journal of the Royal Agricultural Society.*

Home Correspondence.

Wheat in Two Feet Rows.—I feel gratified by the kindly feeling evinced towards me in a late article by the Hardys in your Paper. I should have been happy to have given them all the credit they could wish for in their adopting into their practice the culture of Wheat in rows 2 feet apart, had I been aware of it, or if it had not escaped me, since it is a plan I have long advocated. It is a mode of tillage in which I am much interested, and I think one which ought to be of some consideration with agriculturists in general. I do not mean in limiting the distances of the rows to 2 feet absolutely, but to such distance, and I believe about 2 feet will on most soils be found to answer, as will secure a standing crop, and will permit of working the intervals through almost the entire growth of the crop, thus to establish that successive fallow with crop in every year as will by its continuous operation on the soil make up for the annual exhaustion of the crop. But I am particularly well pleased by their adoption of that distance of 2 feet on so large a scale as several acres. It is a distance I was led at first to adopt from an experiment of so far back as 1819 or 1820 from its giving on ordinary land a heavier return than any greater or less distance. I found then that my rows at distances of 22½ inches and 30 inches gave a heavier acreage return than at any less distance, while, in the rows, these distances gave the same produce; thus I augured that 22½ inches were sufficient in ground of medium fertility. The succeeding year's experiment with Wheat—the first was with Barley—gave also a return of higher produce at 2 feet than at 9 inches: since then several experiments have sustained these first ones by showing that crops at working distance, that is 2 or about 2 feet, were more productive than broadcast crops. It was then at a distance of 2 feet that, at the time of the Potato failure, I suggested through the periodical press the cultivation of the land supposed to be exhausted by the successive crops of Oats, and left—waste, in the expressive language of the country—to recover its fertility by the unassisted operations of natural causes. I urged wherever I could this tillage, but although the press favoured it by a very general promulgation and approbation, though my letters were copied from paper to paper, it was all without effect; the general ignorance of husbandry as a science in all classes, the insignificance of the projector, the want of practical experience on any considerable scale, with the prevailing torpidity, all militated against it; and although it offered the means of replenishing our coffers, of restoring the abundance which the loss of the Potatoes had deprived us of, of giving to a starving people a bellyfull of a food superior to what they were accustomed to, and by leaving untouched the produce that had hitherto constituted the source of an income would have at once restored that equilibrium which has taken so many years to bring about, and which is not yet recovered, for we are yet in Ireland consumers to a very great extent of foreign food (Maize), yet I believe not one attempt was made to realise it; no, not though through their own Journal in 1848 and 1849, I urged its consideration on the Royal Agricultural Improvement Society of Ireland. Ruin and depopulation prevailed for want of energy to make an essay, an effort, and to this day the supposed exhausted land, as often as it becomes so, is left waste in weeds and rubbish, unproductive of aught but what its sabbatical years may throw up; the productive fields having to bear the weight in rent and taxes of the unproductive ones. I then rejoice that the Hardys are successfully, and on a tolerably large scale carrying out the plan I have urged in vain, as it may reach Ireland and engage the attention of our farmers. The Hardys hold me now on the right scent, but I fear not only they but every one else will hold me but a slow hound, since I have not run down my game in 36 years, but my farming has been but desultory, thanks to my circumstances, which have not permitted an unremitting pursuit on a scale that would have effectually proven my views. Although advocating a general distance of 2 feet between the rows, yet I am led to suppose from an accident in an experiment ten years ago, that in highly manured land this distance may be much increased with even larger returns, even to 3 or more feet, and from hence I infer that sufficiently wide intervals may be left between double rows of grain to admit of green crops; on this plan the mode of tillage might approach the Lois Weedon by somewhat increasing the fallow intervals, and sowing 2 instead of 3 rows of grain, for with 2 rows the grain would be less likely to overhang. There is an experiment I should like to try were I so situated as to permit it, of sowing Wheat or other grain in wide strips in fallow drills, alternating with wide strips of manured green crops, never changing their places nor applying manure to the grain crops, but annually and in large quantities to the green crops. I should expect from this that the rank manure so largely and constantly applied to the ground on which the green crops were grown would cause them to be very productive, and that the Wheat would be also benefited by the underflow of the ultimate products of the manure and its operation on the inorganic matters in the soil. There must exist such underflow or drains would not act; and in whatever way may exist the power of appropriating their proper elements in plants, each might thus take up those which they could assimilate. It might facilitate this underflow of ultimate products to the Wheat if, in artificially drained land, the drains were made in the centre of the grain strips. The Hardys deserve every credit and every one's good wishes for the spirit with which they are carrying out their experiments; 40 acres of experiments in various soils under the care of such men must afford valuable results. I am proud of their notice as I am in that of all men who seek to multiply the products of the earth to the benefit and comfort of their fellow-men. Surely in Ireland, if not in England, we want stirring up. Surely it may be possible to make the average crops equal to the good ones, if not to the best. Surely the availing ourselves of the natural causes of fertility will economise our manures and probably render every farm self-supporting; no system can be good, none perfect, none general that does not do this; the robbing Peter to pay Paul may be very well for those who can rob Peter, but is very sad for the poor fellow himself and certainly not good to those who depend for their

* Potatoes manured with this heap yielded little more than half the crop of those manured with the other.

† Value of Manure of Heap V.—Experiment I.—Part of this heap was employed for Potatoes. Forty pounds' weight of "Haigh's Seedling" (kidney) Potatoes were planted with it April 4th, 1855, 3 feet 3 inches from row to row, and 18 inches from set to set, upon land of fair quality and in good condition. Underdate August 17, 1855, I have this memorandum relative to the crop:—Average yield 31 fold. Sets 5½ packs (of 240 lbs.) each per acre; 31 × 5½ = 170 packs per acre. Present price 10*s.* per pack; produce = 85*l.* per acre. This experiment is not offered for more than it is worth. Part of this large produce is undoubtedly due to peculiarity of management, which this is not the place to describe. It may also fairly be doubted how far a crop off five rods of ground will justify reasoning applied to a field or a farm. No account was kept of the quantity of manure applied, though I do not think it was much, if anything, above an average. But even after every allowance I think the most sceptical will admit that the manure employed must have been better than common. Savoys were planted between the rows of Potatoes in the last week of June and they are now, October 29th, an excellent crop. Experiment II.—The following appears beyond objection:—An acre of light land, of medium quality and in fair condition, was ploughed and planted with York Regent Potatoes, half on the 3d and half on the 11th of May. The sets were of the ordinary kind purchased as wanted. Drills were made by the plough 2 feet 2 inches apart, and the sets planted about 15 inches from each other in the row. The rows ran east and west. Twelve one-horse cartloads of manure were given to the acre, besides 3 cartloads of ashes obtained by burning vegetable rubbish. The Potatoes were once handhoed and then earthed by the plough July 7th. They were much admired by neighbouring farmers during growth and on the 31st of August were sold upon the land for 20*l.* 5*s.* per acre, to be cleared by September 28th. I regret my inability to learn the exact produce. Several experienced dealers who saw the crop as it was thrown up estimated it at from 72 to 80 packs per acre. This experiment as the complement of the former seems every way satisfactory as to the quality of manure treated as recommended.

‡ Small Heaps of Weeds.—I have this year had made from 40 to 50 small heaps of weeds of various kinds with a view to ascertain whether from a bushel to a barrowful would always give off sensible ammonia. In every case I detected it by smell and by turmeric. Large Weed Heap.—To remove this subject from the domain of nice chemical investigation or delicate manipulation and bring it fully within the cognizance of the illiterate, I collected between six and seven cartloads of weeds and placed them to rot upon a hardly-trodden unabsorbent bottom. The unabsorbent character of the base is so essential to perfect success in the experiment, that I would advise those who repeat it to select, if possible, a place which has been puddled. The weeds were all pulled by hand from among Onion crops. They were in full growth, but none had flowered or seeded. They were wheeled upon a heap which slightly consolidated it. This heap was not touched till fluid had run from the bottom three or four days, when a hole a foot square was cut in its centre by a spade nearly but not quite to the bottom. Next day this hole contained some fluid, and in two or three days almost a gallon at a time could be collected. The smell to leeward now became insufferable even at nine or ten yards' distance. Several labouring men, who had been brought up gardeners and farmers, described it as smelling stronger than any "ashplace" they ever emptied.* A friend (an intelligent amateur farmer) to whom I showed part of a bottle of the liquid could hardly believe it other than an artificial preparation of "stinking fish in stale urine." One still afternoon I placed some hydrochloric acid in a soup-plate upon the heap, when a wreath of white fume arose, which was easily visible at 200 yards' distance. Two men at work in the next field were attracted by the "smoke," and "couldn't think how the green lump of muck could catch fire," and they actually laid down their tools to come and see. I subsequently asked them how far off the "smoke" could be seen? One said half a mile, the other a quarter; and to the latter statement both adhered firmly as being quite within the truth. This popular mode of exhibiting the subject will probably weigh more with practical men than the most elaborate analysis. I am not at liberty here to say anything relative to the incalculable damage done by weeds; but it is to be hoped that farmers will draw the inference which it does not seem easy to miss. I may perhaps be excused for adding a caution to those who feel disposed to investigate this subject for themselves. They should keep as much as possible on the windward side of the heap, and in manipulating with the fluid should choose a place where a draught will carry from them the evolved gases. Notwithstanding every precaution against inhaling the gases given off, I was made ill by them for more than a week, and my eldest child, a boy of seven years of age, was seized with all the symptoms of typhus after smelling (in the open air) the contents of a bottle to which a strong acid had just been added.

§ Radishes.—An experiment was made this year (1855) to confirm the one above given. The very dry spring was unfavourable for this purpose, as it caused the formation of an unusual quantity of woody fibre, and thus diminished the proportion of sulphurised and nitrogenised matter, and retarded decomposition; nevertheless when the mass (about three cartloads) was rotting, the results were identical with those of last year. The man who removed the half-rotten mass said, "Eh, yon things do stink; they fair took my breath when I flung 'em into the cart." If not polite this is certainly emphatic. Some Radishes were dug into the land upon which they grew, and examined from time to time. When an individual Radish was pulled out of the ground about half decayed, there was no difficulty in detecting free ammonia. By breaking through the envelope of woody fibre and shielding the root from the wind by the hand, the gas given off by the decaying interior would always affect turmeric paper.

* Nightsoil and ashes form one of the principal manures in this neighbourhood.

bread on the wealth alike of Peter and Paul; the plan of high farming is therefore false, for it is built on the poverty of low farming. *J. M. Goodiff, Scrably.*

Wireworm.—In common with most persons farming new broken land, we are somewhat troubled with that terrible pest the wireworm; I therefore took in hand to experiment upon them. The result I subjoin. If you think it may be of service to my brother farmers, and choose to give it insertion, do so. The experiments were made with guano, kelp, blood manure, nitrate of soda, potash, lime unslacked but powdered, and salt, in the following manner: In as many different egg-cups I placed about a teaspoonful of each; in one hour every wireworm was dead. Now all the above named substances being to a greater or less extent fertilisers, it appears to me that by a judicious application to land infested with the worm a double advantage may begained by assisting the crop at a critical period and crippling its enemy. By the aid of a powerful microscope I could discover the cause of death from both the salt and the lime to proceed from blisters; but of the others I could discern no outward cause. Out of the above substances I should prefer to use either guano or fresh slacked lime, because from their light feathery nature they are very inquisitorial, seeking their way into every nook and cranny; at all times applying it to the fresh turned urrow, because the wireworm upon being turned up o the surface immediately seeks to hide himself by burrowing from his natural enemy the rook, and thereby avoiding the warm coat you are providing for him. The heavy roll should be used immediately after sowing, weather permitting. *Sawyer Spence, Hainault Forest.*

Dimensions of Short horn Cattle.—Seeing recently a query from one of your correspondents respecting the measurement of prize bulls, I send you the dimensions of my bull Grand Duke 2d (12,962). Although he is not a prize bull, never, I believe, having been shown, he is a noble animal, combining with his ample proportions the fine quality which is characteristic of Mr. Bates's stock:—

	ft.	in.
Length from the root of the horn to the setting on of the tail	8	6
Length from shoulder point to hock bone	3	2
Length from hock bone to the end of rump ...	2	4
Height (to top of shoulder)	5	1
From the dewlap to the ground	1	6
From behind the shoulder to the ground	2	2
From middle of the knee to the ground	1	2
Girth behind the shoulder	7	10
Do. across the loins	8	8
Width across the hock bones	2	3

The main points shown by the foregoing measurements are his large size, his closeness to the ground, and his width at the hock bones. It has been remarked on looking at him, that his legs from the knee to the ground were so short that had they been represented so in a picture it would have been deemed an exaggeration. The chief portion of his height is made up as it ought to be—of the great depth of his frame. Size is frequently desirable in cattle, while disproportioned length of leg is always to be deprecated. Grand Duke 2d is in thriving condition, but thin rather than fat, it being an object to prevent so large an animal from growing too heavy. Were he fat his dimensions would be enormous. If the owners of bulls would follow my example and publish the dimensions of first-rate animals, the comparisons thus suggested would be interesting and useful. At the ensuing meeting of the Royal Agricultural Society, any person wishing to measure the bulls or other stock might, I should imagine, readily obtain permission from their owners to do so. I may, in conclusion, state that the live weight of my bull is 1 ton 1 quarter, and that I have recently let him for the remainder of the season to Mr. Lees, near Coleshill. On a future occasion I may perhaps send you the dimensions of my yearling bull by the Duke of Gloster out of Ferret. *Willoughby Wood, Holly Bank, Burton-on-Trent.*

Cost of Mowing.—You ask for information as to the price paid for mowing at this time in the localities of your several correspondents. I beg to inform you that in this neighbourhood 4*s.* and 5. per acre have been paid for mowing natural Grass; 5*s.* 6*d.* was in one instance paid for mowing a very heavy crop of Clover, which was bought by public auction at 7*l.* 2*s.* 6*d.* per acre. I believe the price is now rising, but it has not hitherto ranged above what has been paid during past years. The crops are good. *C. F. Humbert, Watford.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Weekly Council, *June* 25: Mr. Miles, M.P., Vice-President, in the chair.

Parasites in Domesticated Animals.—Professor Simonds, the Veterinary Inspector of the Society, delivered the concluding part of his Lecture on Parasites. In the former part he had explained the peculiarities of parasitic insects producing annoyance to live stock on the external covering of the body, or passing into the interior passages through the mouth. In this portion he dwelt on the natural history and characteristics of those more insidious worms which attack the internal organs of the animal body, as well as the alimentary canal. He explained the varied forms of animated structure which these creatures assumed, the successive transformations through which they passed, and the amount of injury in each case which they produced. His lecture was illustrated by coloured drawings highly magnified from microscopic investigations. According to the recent resolution of the Council the lectures delivered by the Veterinary Inspector will be put by him into manuscript and submitted to the Journal Committee for publication.—On the motion of Mr. Raymond Barker, seconded by Mr. Scott, the best thanks of the meeting were proposed to Professor Simonds for his interesting and valuable lecture. Mr. Miles, on putting the question, which was carried unanimously, would take care that Professor Symonds' suggestion for a distinct lecture on the subject of Rot in Sheep should be brought under the notice of the Publication Committee. He passed a high eulogium on the clear manner in which the Professor had rendered the scientific details of his subject intelligible.—Mr. Newman, of Marnhead, referred to the absence of rot in sheep fed on the water meadows in Devonshire, where no stagnant water remained on them; and Mr. Scott alluded to the Portland water meadows, where the water was stagnant, and on which sheep were put a certain time before being sent to the butcher, for the purpose of having the rot given to them.

Farm Memoranda.

Messrs. Hardy and Son, Seed-Growers, Maldon.

"Elisha the son of Shaphat was ploughing with twelve yoke of oxen before him and he with the twelfth, and Elijah passed by him and cast his mantle upon him." 1 Kings, xix. chap., xix. verse.

Mr. Editor,—In the whole range of your reading or experience have you met with a description, or seen an operation of agriculture equal to this penned by the inspired writer for our instruction and imitation nine hundred years before the Christian Era, or two thousand seven hundred and fifty years from the present time? I will answer for you that you have not, nor has any one of the numerous readers of your valuable journal.

Elisha, who was worthy to receive the mantle of the prophet Elijah, was ploughing in his field, or on his farm, with 12 yoke of oxen before him and himself with the twelfth. We boast, or modern farmers boast of their Royal and other agricultural societies and wonderful improvements; but in my opinion ancient farmers excelled all modern ones in the culture of Cereals and Pulse as much as ancient sculptors, painters, and poets excelled all modern ones; and it is quite certain that the learned of antiquity understood what was the real food of plants, and what their seeds were composed of, equally as well as the profoundest analytical chemists do at the present day. If any one doubts this, let him attentively read the books on agriculture handed down to us from those ancient times; and let him carefully reflect what immense cities and countries teeming with inhabitants were supported by the farmers alone of those countries, and without foreign commerce or foreign guanos, and he will, however humbling it may be to his pride, be forced to admit the truth of what I here state.

Is it not wonderful that every man of modern times who attempts to improve the agriculture of this country — and especially if he make experiments, by which means alone improvements can be made — immediately becomes a marked man, and is the butt and ridicule of the whole agricultural world? Tull experienced this in its most rancorous extent; and Tusser is reported also to have met with nothing but ingratitude from those whom by his practice and writings he was so anxious to serve; but especially if the experiments are made on a small scale only, and the experimentalist do not occupy 500, 800, or 1,000 acres of land, then all the agricultural world are up in arms against him, and it requires no small quantity of nerve to bear up against the assault.

It has fared thus exactly with the Messrs. Hardy, father and son, two men who ought to be held in the highest honour by every philanthropist of this country, and especially by every proprietor of land whether he possess thousands, or only one solitary acre. These men, who possess two farms abutting on each side of the south-west road about a mile from the town of Maldon, are by their skill and practice approaching nearer to the practice and skill of the ancient farmer Elisha than any other men I have read or heard of; but they have shared the fate and persecution of all who dare break through the trammels with which custom has surrounded them. Bear in mind that Elisha, when the prophet threw his mantle upon him, was himself with the twelfth yoke of oxen, and that all the other eleven were before him. An unskilful man would have been at the van and not in the rear of his army of ploughmen and ploughs and oxen, and an idle man would have been riding into the field on his horse or mule, and giving his ploughmen a look only; but Elisha was at work, and he had all his men at work before him, that he might see that every one of them did his work well, that is, ploughed deeply and thoroughly, knowing as every skilful man knows, and every farmer ought to know, that thousands of crops of corn annually come to nothing from a want of the ground having been thoroughly ploughed or dug before the seed was put into it. Elisha therefore in Palestine, on his large farm, and the noble Cincinnatus I must also instance in Italy, with his occupation of six acres only, for he had no more, I have no doubt, as they were preeminently wise men and preeminently industrious withal, took especial care that their lands should be completely cultivated before they sowed the seed, which was to produce some thirty-fold, some sixty-fold, and some a hundred-fold, otherwise the increase of crop, above the quantity of seed sown, would have been perhaps not more than twelve-fold, the maximum quantity that English agriculture produces in this boasted country at the present day. But to return to the Messrs. Hardy, whom I have now several times visited, and whenever I have gone thither I have always found them exactly as Elijah found Elisha, that is, at work in their fields among their workpeople, sometimes ploughing, sometimes digging with forks, and sometimes putting in the seed for the crops, and sometimes setting aside a few square yards or rods of ground on which to work out their experiments. They reside about 30 miles from myself, and hence I do not see them so often as I could wish; but the last time I was with them was on Trinity Monday, when I found the father at his farm in a Wheat field in the midst of nearly a dozen workpeople forking out Couchgrass, and the son was at his farm also among workpeople hoeing Peas, and both in their shirt sleeves. Should it be said, as I know it will be, that there ought not to have been Couchgrass on the farm, I myself agree that there ought not; and I am satisfied that next year there will be none; but Mr. Hardy only became tenant of this farm last Michaelmas, when, as several persons told me, from a long period of shameful farming it was the foulest and most exhausted land in that neighbourhood; but notwithstanding its poverty and the Couchgrass, there was in that field as fine a crop of Wheat growing as I think is to be found in the county of Essex.

Now a common farmer, on taking that farm, would have said he could grow nothing on it until by fallowing he had been able to cleanse it from Couch and other weeds; and he would have said rightly, but Mr. Hardy must have a crop of Wheat notwithstanding the poverty and foulness of his land, and he knew how to produce one, and to cleanse his land during its growth. But could common farming have accomplished this? Certainly not; but the Hardys are no common but very uncommon farmers. They are, as the world ought to know, as Elisha and Cincinnatus were, that is, thorough cultivators, and thin-seeders. Their farms, as I have said, abut upon each side of a high-road near Maldon, and a stranger may at once know them as he rides or walks along the road by their garden-like appearance, and the luxuriant crops in them. This year, I think, Messrs. Hardy have six fields of Wheat, the quantity of seed drilled varying from half a peck, or 4 quarts per acre, to 1 bushel; and the son, by way of contrast, and to convince his neighbours of the folly of thick-seeding if possible, has 2 acres drilled with 2 bushels an acre.

The seed, of course, was put in in rows, and these vary in width between each from 1 to 3 feet asunder; and it was in a field of Wheat of this kind wherein I found the elder Mr. Hardy, in his shirt-sleeves, among his workpeople between the rows, forking out Couch, the land having been previously horsehoed.

Maldon is but a few miles from Chelmsford, from which there is a railroad, and of course trains; and the object I have in writing to you is to recommend gentlemen who may visit the former town at the show, to get into a train and inspect these farms; and should they do so, they will see as fine Wheat as can be grown from 4 quarts of seed only, as well as others from 1 peck to 2 and even to 4 pecks; they will see the plot also of 2 bushels an acre, which, although I myself have not seen that plot, I will pronounce to be the worst on the whole farms. I write thus confidently because Messrs. Hardy pursue my plans exactly, and the best crops I ever grew were from on an average 1 peck of seed per acre, and I never exceeded either for Wheat, Barley, or Oats, or Vetches, half a bushel.

I add, also, that Maldon is only 6 miles from Mr. Mechi's at Tiptree Hall, and the Messrs. Hardys' farms are only 7 miles from Mr. Mechi's; and I further add, that, should any gentlemen follow my recommendation, and visit these farms, if they will use my name, and I hereby give them authority to do so, the Messrs. Hardy, who are real John Bull Englishmen, will show them every attention, and explain to them every operation performed on what I shall here baptise the real Model Farms. *George Wilkins, Parsonage, Wix, June* 21.

Miscellaneous.

Breaking up of Grass Lands.—It is my decided opinion that, as a rule, it is a practice extremely injurious to break up well-managed old Grass lands of good soil and strong quality. I think many of our old pasture lands are deteriorating from want of management. I have land which at one time I thought I must break up, it was becoming so bad; but I adopted another plan; my farm is a feeding farm; I soon found wherever I had cattle eating the Turnips on the ground I had beautiful herbage. If any of our friends have lands good in quality but in a poor condition, if they will pasture in the winter their sheep upon it with Turnips they will improve it. Land of good quality ought not to be brought under the plough unnecessarily. With regard to those lands, of which one gentleman has said they would not keep a goose, the grand thing is to apply bones if the land is suitable. I do not know a field in Cheshire that, when well drained, would not bear bones. The effect is miraculous: I could refer to a farm where bones applied to land of that kind produced an effect beyond all description. From being amongst the poorest it became among the very primest in the county. Therefore I think it is a matter well worthy of consideration whether it is desirable to conclude that old Grass lands of good quality should be broken up and brought under the plough. I think it would be

unfavourable to the advancement of our Cheshire agriculture if such were the case. *Mr. Dutton at Chester.*

Calendar of Operations.

JUNE.

BERWICKSHIRE MERSE FARM, *June* 21.—Our Turnip sowing is now all but over. Considering the splendid prospect of an early spring and a fine tilth, the season has been unusually protracted. The first heavy rains in the end of May caught us soon after we commenced sowing Swedes, and rendered fallow-work impracticable for a fortnight, besides compelling us to work much of the prepared land over again. Ever since the weather has been exceedingly changeable, scarcely a night without showers, and often very heavy, which has compelled us to work the land in small breaks, from hand to mouth as it were, a method far from economical of time. Some, indeed, losing patience, drilled up their land without further labour, but in very indifferent order as to both quickens and clods. From the appearance of their braird, however, it seems probable that those who were more patient will be the gainers in the long run. The ravages of the "fly" have been very partial, amounting to total destruction on some farms, while on others they are altogether unknown. On the latter the first-sown Swedes are just ready for thinning. Our neighbours in the clay district of the South-east fortunately took advantage of the dry season to begin early, and were pretty well through before the rain came: what remained after that period became (of course) unmanageable. On our lighter soils, such early sowing is undesirable, owing to the danger of shooting before harvest. A general rule here is never to begin before the 12th of May. The few experimental patches of Mangels that are tried here and there are somewhat blanky, as is usual with that delicate seed, and will require to be filled up with Turnips. Where the soil is suitable they sometimes produce large returns; but in our climate are by no means so safe as Swedes. We sow a few only, chiefly for the spring feeding of cows. Potatoes look strong and healthy after their first cleaning. They were planted early, but not to any extent, owing to the depression of the market this spring. The grub has been very destructive among Potato Oats, and annual weeds got a fine start during the dry weather. We have been doing what we could to keep them down, but their destruction is far from being completed, being practicable in dry weather only. Fallow Wheat on clay lands (where only it is grown) was almost destroyed by the severity of the winter, and cannot be a good crop. With us the Cereals are growing rapidly, and threaten over luxuriance. Beans look uncommonly well, but Peas much injured by snails. It is only ten days since we began to cut Grass. Owing to the failure of Red Clover the practice of soiling, which has gained ground of late years, will be very limited this year. Pastures were almost drowned out by the rains, and the consequence was a very slight demand for grazing cattle at our great June fair, so much so that the Yorkshire dealers were said to have lost from 1*l.* to 2*l.* a head on such as they were able to dispose of. Since we have got rid of superfluous moisture, Grass has grown strong and plenty for all stock. The crop of lambs is uncommonly good, more than half of the ewes having twins; but an unusual loss has been experienced from scouring. The bulk of the fat hoggs in the county were sold in April, and the remainder in May, so that there is scarcely such a thing as a fat sheep to be seen now. The comparatively low price of lambs all along has offered no inducement to sell for fat, but rather to winter them. Stack-yards are well cleaned out, and but few will reap the benefit of the high and rising grain markets. *J. T.*

Notices to Correspondents.

BURNET: *G Walker.* It is a useful herb in calcareous sheep pastures, and we are not aware of its having any injurious effect.

DISEASED FLOCK: *C O.* says—"In the early part of last year the ewes were attacked with dysentery, and I lost a considerable number of them, and a very large proportion of their lambs. This year the disease has reappeared with even greater violence, and some cases of decided rot have also terminated fatally. I have caused the diseased sheep at once to be removed by themselves from the rest of the flock, as the disease manifests itself, but almost every day increases the inmates of the 'hospital.' The lambs of this year are dying three and four in a day, and on opening them very large numbers of tape worms are discovered in their stomachs, and parts of tape worms are frequently voided by the lambs whilst living." [The information afforded is not sufficient to enable us to give a careful and reliable opinion on a matter of such importance. You say some cases of decided *rot* have also terminated fatally. Now rot or cothe is a well understood disease, and we presume in your case the invariable *post mortem* appearance of flukes in the liver was exhibited. If all the cases manifested this appearance, then of course rot was the disease; but if only a portion, then we should consider that two diseases were present. If, however, instead of flukes in the liver there were abscesses and tubercles in and about the lungs as well as the mesentery, the dry rot, as it is sometimes called, we should say with regard to the lambs that it was congenital, and produced by diseased parents. The presence of tape worms is probably the consequence rather than the cause of the disease. If it were the latter the exhibition of spirits of turpentine is indicated, or lime water may be tried. If the flock had been kept in a low marshy situation we would recommend a change to high and dry pasturage, nutritious feeding, with the addition of Linseed cake and a little salt in the food, so as to bring them on for the butcher as soon as possible. Neither the ewes nor the lambs should be used again for breeding. *W. C. S.*]

DOGS: *R R.* says—"If your correspondent of Jersey will keep his dogs on a bed of wood shavings the fleas will soon leave them."

ELEMENTS OF PRACTICAL AGRICULTURE: *E Morris.* Professor Low's book (Longman); Stephens's Book of the Farm, and Blackie's Cyclopedia. They cost respectively about 1*l.*, 2*l.*, and 3*l.*

GORSE: *X.* Gorse when properly grown and consumed in combination with other fodder, is no doubt a highly nutritious food. Thousands of acres of waste lands are well adapted to its culture; seed should be sown not later than August. The quantity of seed to sow per statute acre is about 15 lbs. The method of bruising has hitherto been a tedious process; but machines are now made for the purpose. Messrs. Richmond & Chandler's chaff-machine answers very well. It is found an advantage to use a portion of straw, and cut both together.

TOP-DRESSING OLD PASTURE: *M G Y.* If you have no dung you had better get a compost made of earth, turf parings, any green stuff rotted in a heap, &c., and then add 2 cwt. of guano to as much of the stuff as you can spare for every acre. Young seeds will not generally be hurt by moderately feeding them with sheep before winter.

WHEATS: *A B.* Some Wheats are hardier than others, but we don't know if any are especially adapted to undrained clay soil. We should grow some strong coarse productive sort, as Spalding's Red. You can use a horse-hoe between rows 12 inches apart very well.

WINTER BEANS: *A B.* They *are* a safe crop. Sow in October, in rows 2 feet apart, having cleaned the land and tilled it well. If you have not manure, apply 2 cwt. of guano on your clay soil before sowing, and sow wood ashes, or some other alkaline mixture, in early spring, at the rate of 20 or 30 bushels per acre.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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For List of Agents, see *Gardeners' Chronicle* of April 12th, and previous Numbers.

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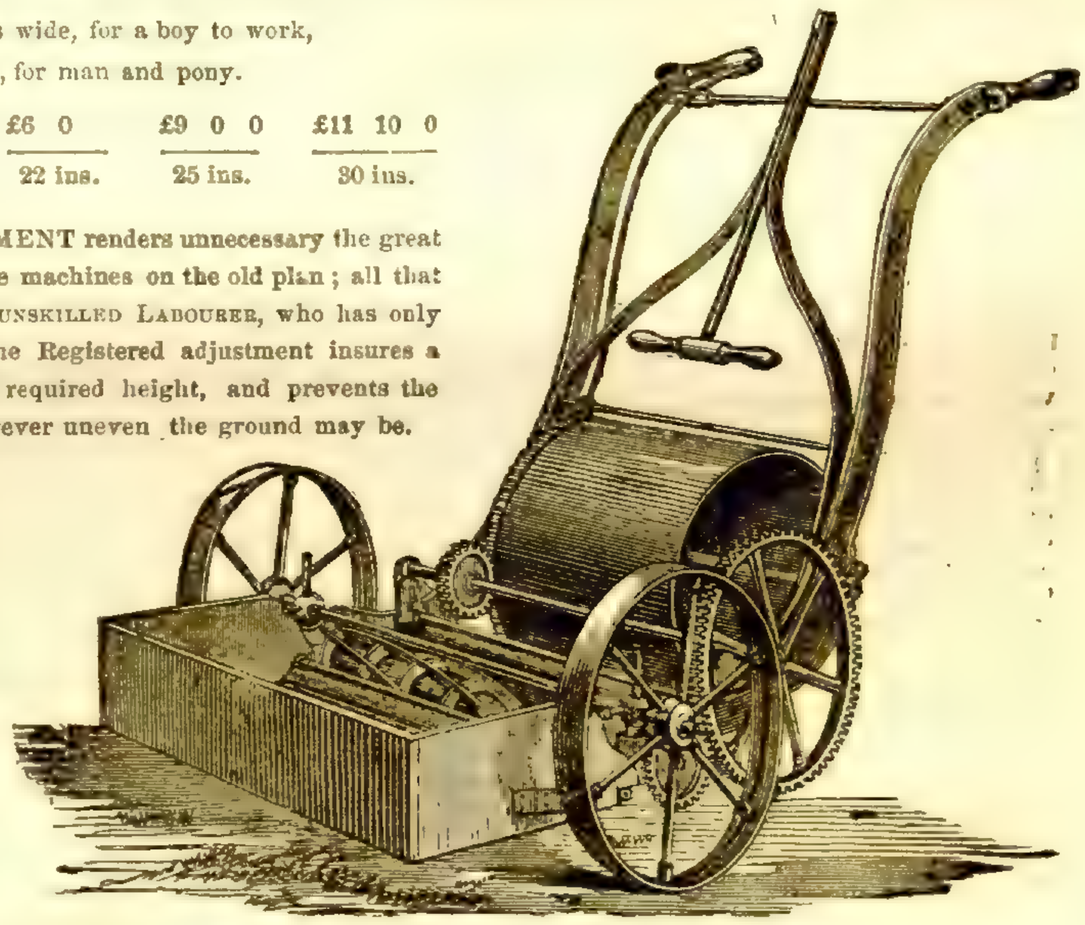

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SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

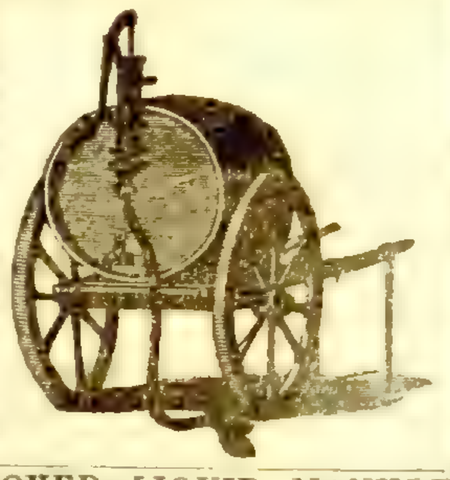
TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned.

LONDON AGENTS: Messrs. COTTAM & HALLEN, 76, Oxford Street; and Messrs. BURGESS & KEY, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



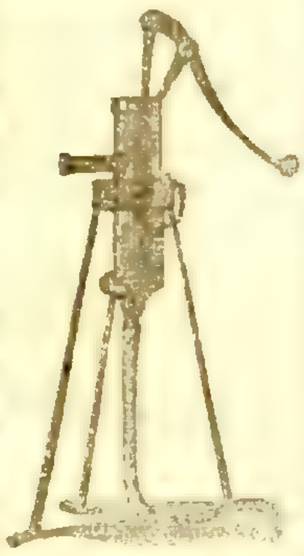
Price of Pump and Union, 50*s*.

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s*. 6*d*. per foot.

1¼ Gutta Percha Suction, 1*s*. 9*d*. per foot.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.



Price of 4½ in. Pump, with legs, 3*l*. 3*s*. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s*. 9*d*. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s*. 6*d*. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

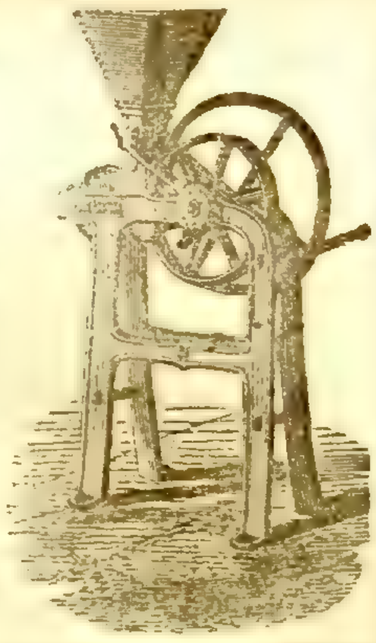
HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s*. each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10*s*. 6*d*.
BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6
BOYD'S PATENT VULCAN BLADES 4 6

May be had of all Ironmongers and Seedsmen; and Wholesale of WM. DRAY & Co., Swan Lane, London.

OAT-CRUSHING AND BEAN-SPLITTING MILL (TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!



Price £5 15*s*. 6*d*.

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.

IMPROVED LAWN MOWING MACHINES. **Budding's Patent.**

MANUFACTURED AND SOLD BY

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

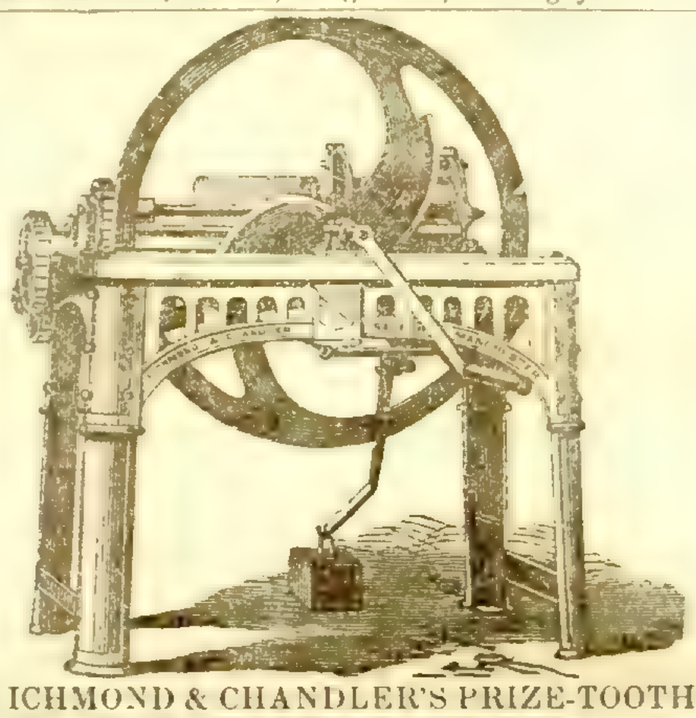
Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s*.	0*d*.
Ditto for Man and Boy	"	22 ditto	... 6	0	0
Pony Machine (or Donkey)	"	26 ditto	... 8	0	0
Horse Machine	"	28 ditto	... 11	0	0
Ditto	"	36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d*. Stop-ends and outlets 6*d*. each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d*. per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Gloster, Bridgewater, and Rugby.

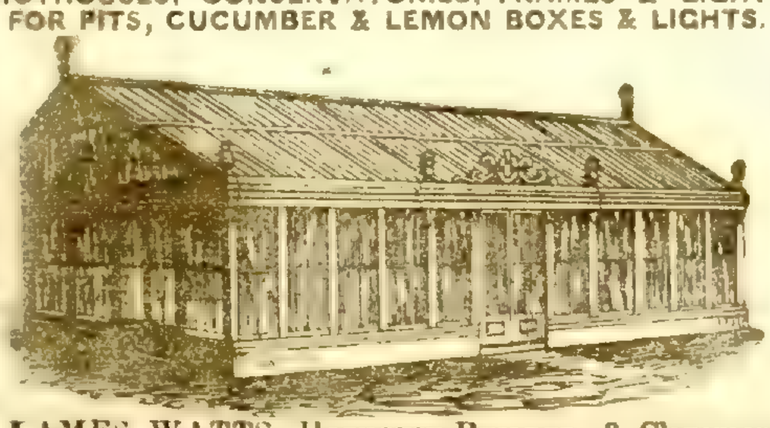


RICHMOND & CHANDLER'S PRIZE-TOOTHED ROLLER CHAFF-CUTTING MACHINES are constructed entirely of Iron, and are therefore remarkably firm when in use. This important quality is wanting in all wood framed machines, which are, of course, liable to contraction.

RICHMOND AND CHANDLER'S IMPROVED PREMIUM CORN CRUSHERS are also constructed entirely of Iron and are not subject to the same contingencies as others. They are adapted for bruising Beans, Oats, Indian Corn, &c., and can be worked with less labour for the quantity crushed than any yet produced.

PATENT HAYMAKERS AND HORSE RAKES, which can be confidently recommended as capable of doing their work efficiently, expeditiously, and with economy.—Implement Works, Salford; Branch Establishment, South John Street, Liverpool.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

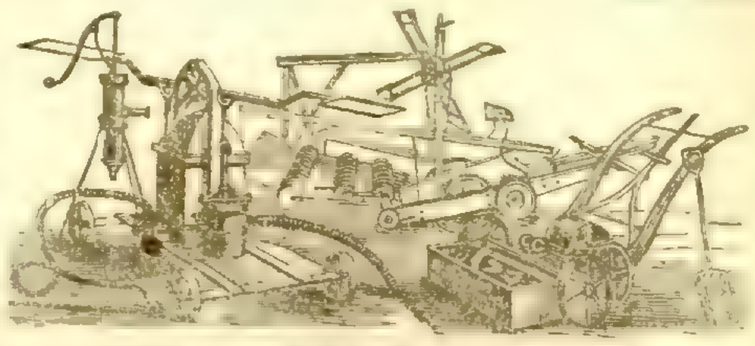
NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements. Glasses, & Thermometer, price 35*s*., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery. Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.

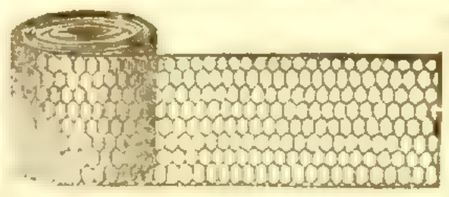
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d*. per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—



Galvanized, 24 inch wide, 2-inch mesh, 6*d*., 8*d*. and 11*d*. per yard.

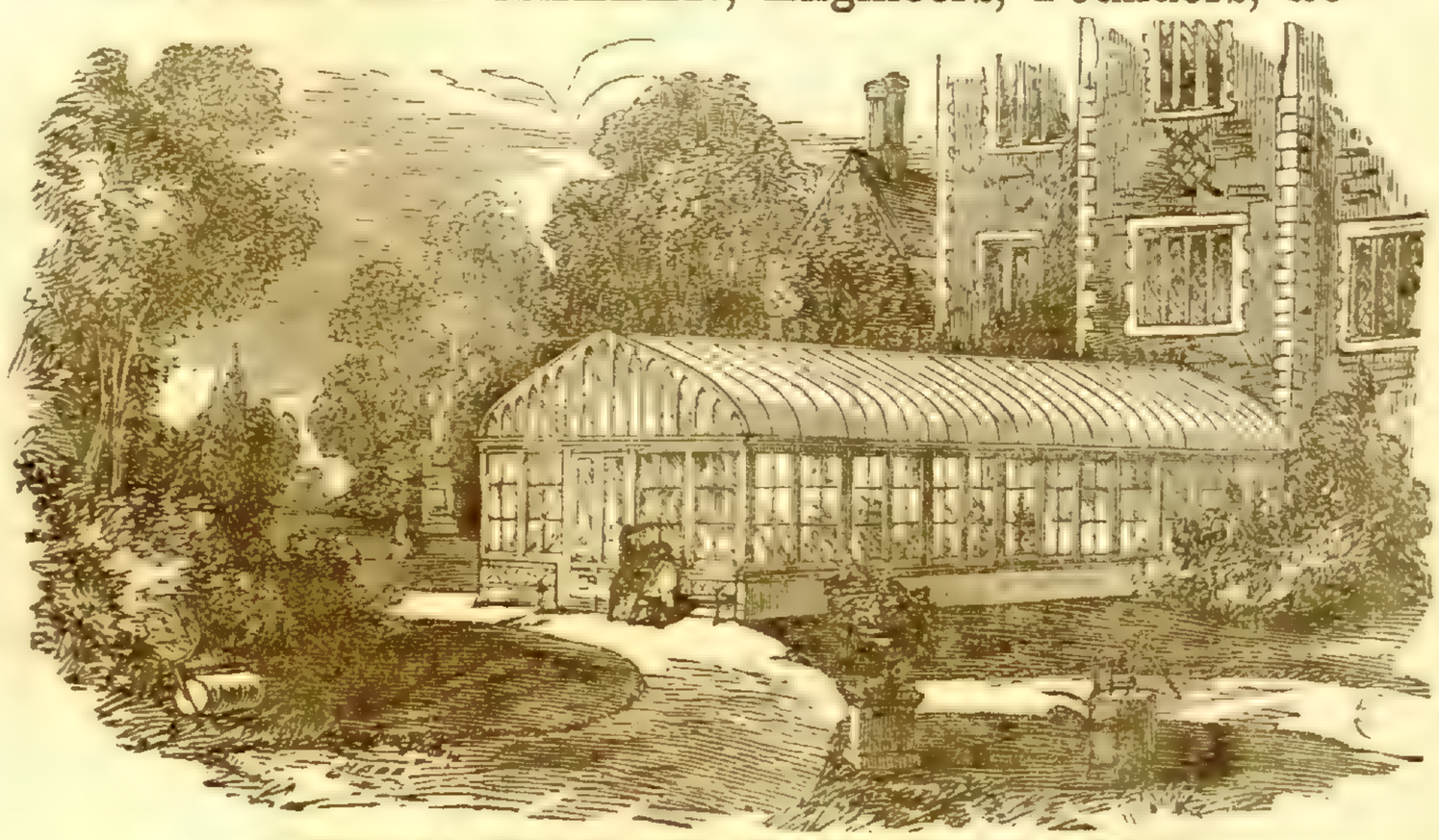
Galvanized, 24 inch wide, 3-inch mesh, 4*d*., 5½*d*., and 7½*d*. per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s*. 6*d*. to 12*s*. 6*d*. each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d*. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at AUSTIN & SERLEY'S Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.

N.B. Fountains from 10*l.* to 400*l.*

FOWLER AND FRY, AGRICULTURAL IMPLEMENT MANUFACTURERS, Temple Gate, Bristol, beg to call attention to the under-mentioned articles:—

One-row Seed and Manure Drill, a most complete thing, 6*l.* 10*s.*
One-row Drill, for seed only, 4*l.*
Prize Grass Seed Distributor, 12 feet long, 3*l.* 10*s.*
Patterson's Patent Clod-crusher, which is so constructed that it is capable of working where the ground is in a sticky state from wet.
Corne's Patent Chaff-cutters.
Oat and Bean Mills.
Gardner's Turnip Cutters.
Bushe's Root Graters.
Cozen's celebrated Press Ploughs, &c.

FOWLER & FRY are Agents for all the principal makers of Agricultural Implements, and always keep a large assortment on hand in their Show-room.

Catalogues, &c., sent upon application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

JAMES PHILLIPS AND CO. have the pleasure to hand their prices of the following articles:—

AQUARIA, WITH EBONY STANDS,

20 inch diameter ...	... 15*s.*	15 inch diameter ...	... 9*s.*
19 " " ...	... 14	14 " " ...	... 8
18 " " ...	... 13	13 " " ...	... 6
17 " " ...	... 12	12 " " ...	... 5
16 " " ...	... 10		

Made of the shape suggested by Mr. SHIRLEY HIBBERD, and differing from the usual inverted Propagating Glass.

Tanks Glazed with Plate Glass, from 30*s.* each; Syphons for ditto, 2*s.* 6*d.*

CUCUMBER TUBES.

12 inches long, each ...	1*s.* 0*d.*	20 inches long, each ...	1*s.* 8*d.*
14 " " " ...	1 2	22 " " " ...	1 10
16 " " " ...	1 4	24 " " " ...	2 0
18 " " " ...	1 6	26 " " " ...	2 2

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	3*s.* 0*d.*	12 inch diameter, each...	8*s.* 0*d.*
7 " " " ...	3 6	13 " " " ...	10 0
8 " " " ...	4 0	14 " " " ...	12 6
9 " " " ...	5 0	15 " " " ...	17 0
10 " " " ...	6 0	16 " " " ...	22 0
11 " " " ...	7 0		

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Preserve Jars with and without covers, Plate, Sheet, Crown, and Ornamental Window Glass; Crystal Glass Shades for ornaments.

116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by	4 in.	and 6 in.	by 4½ in.	...	...	12*s.*	0*d.*
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	0
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½ "	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

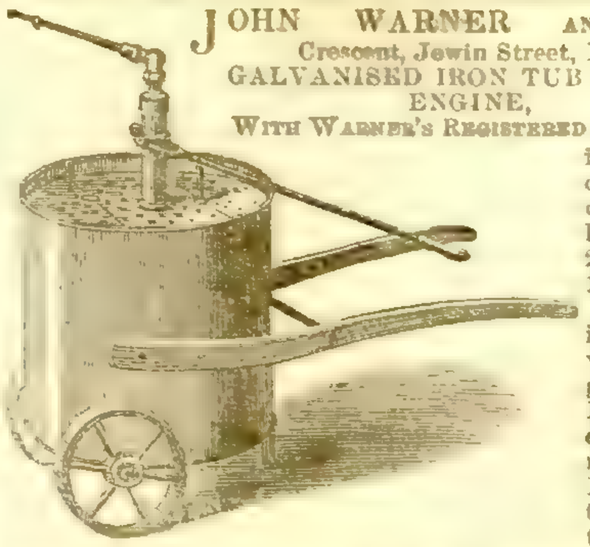
Established more than 100 years.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Hoe	Prussian [Scissors
Axes	Grape Gatherers and	Pickaxes
Bagging Hooks	Gravel Rakes and Sieves	Potato Forks
Bills	Greenhouse Doors and Frames	Pruning Bills
Borders, various pat- [terns	Hammers	" Knives, various
Botanical Boxes	Hand-glass Frames	" Saws
Brown's Patent Fumigator	Hay Knives	" Scissors
Cases of Pruning In- [struments	Horticultural Hammers and Hatchets	" Shears
Daisy Rakes	Hoes of every pattern	Rakes in great variety
Dibbles	Hotbed Handles	Reaping Hooks
Dock Spuds	Ladies' Set of Tools	Scythes
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Scythe Stones
Edging Irons and Shears	Lines and Reels	Shears, various
Flower Scissors	Marking Ink	Sickles
" Stands in Wires and Iron	Mattocks	Sickle Saws
Fumigators	Menographs	Spades and Shovels
Galvanic Borders and Plant Protectors	Metallic Wire	Spuds
Garden Chairs and Seats	Milton Hatchets	Switch Hooks
" Loops	Mole Traps	Thistle Hooks
" Rollers	Mowing Machines	Transplanting Tools
" Scrapers		Trowels
		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

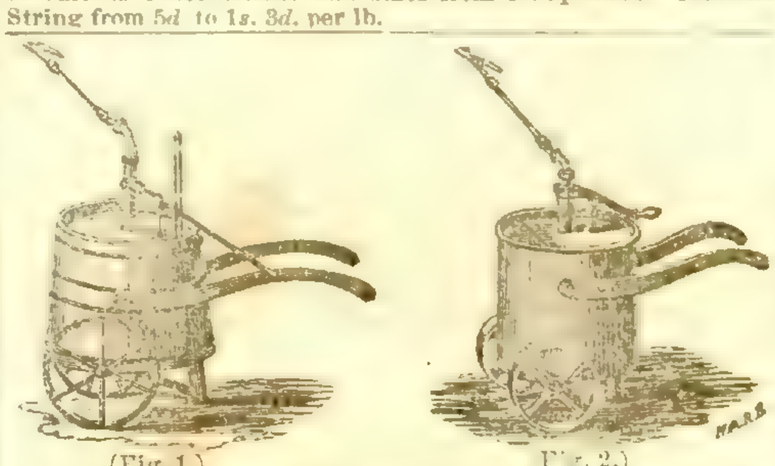
DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.



JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4	10
No. 2 " 15 "	" 45 "	...	5	10
No. 3 " 28 "	" 45 "	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2	15
No. 13 " 12 "	" 30 "	...	3	5
No. 11 " 16 "	" 40 "	...	4	0
No. 12 " 24 "	" 45 "	...	5	0
No. 14 " 30 "	" 45 "	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

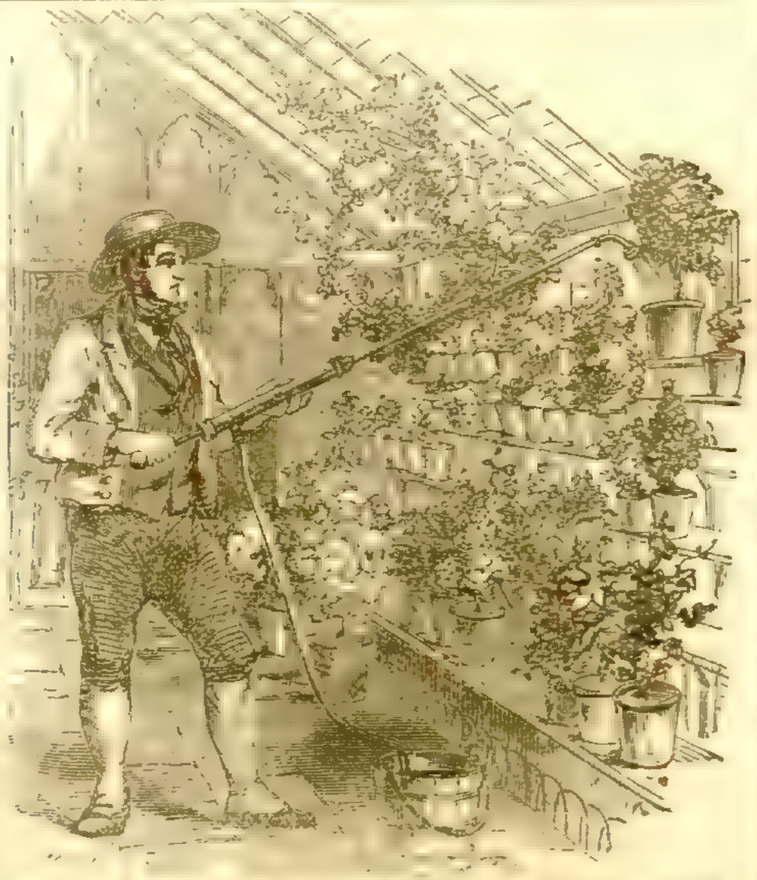
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves. 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order, the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets bearing their names and address, at 6*d.* each; of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Common Iron Bedsteads, from 16*s.*; Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 15*l.* 15*s.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1	4	6
Chintz furniture	0	17	0
Paillasse, wool mattress, bolster, and pillow ...	1	13	0
A pair of cotton sheets, three blankets, and a coloured counterpane	1	5	0
	£4	19	6
A double Bedstead, same	£6	15	9

If without Half-tester and Furniture—

Single bed, complete	£3	13	9
Double bed, complete	£5	5	9

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the display of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make this establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15*s.* to 32*s.*; Sponging, 14*s.* to 32*s.*; Hip, 14*s.* to 31*s.* 6*d.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15*s.* 6*d.* to 45*s.* the set of three.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads and Bedding), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; 4, 5, and 6, Perry's Place. Established 1820.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

TO MARKET GARDENERS, ETC.

TO BE LET, with immediate possession, one of the best MARKET GARDENS in the vicinity of Bath, containing about 12 acres, and more land if required, with good Dwelling-house, Outbuildings, Yard, Barns, 3-stall Stable, Washing-house, and Potato Store for about 1000 sacks, with large Melon and Cucumber Houses heated with hot water, two Greenhouses, and one Vinery and sundry Pits. The Goodwill of the Business, in connection with a Stand in the Bath market, will be included in the rent. The Property has been in the hands of the owner's family for 40 years, who have carried it on successfully, and have frequently taken Prizes at the Regent's Park and Chiswick Shows. It is in the highest state of cultivation. The Crops under stock to be taken at a valuation, and paid so as to suit the convenience of a tenant, as may be agreed upon. The owner gives it up on account of ill health. This is an unusual opportunity for obtaining a first-rate provincial business upon very moderate terms, and none but those giving good references as to character, capital, and ability, will be treated with.—For further particulars and to treat, apply to COTTERELL & SPACKMAN, Land Surveyors, 6, Terrace Walks, Bath.

WANTED, a COUNTRY RESIDENCE, with from 50 to 100 Acres of Land.—Situation preferred about one hour's ride from London, on the Brighton or Epsom Railways.—Particulars and price of Freehold may be forwarded to Messrs. Davis and Vigers, 3, Frederick's Place, Old Jewry.

WIDGEON OR TEAL.

WANTED, a few Young Birds of this description for Ornamental Water.—Address (by letter only) with prices, &c., to S. W. S., care of Messrs. Algar & Street, 11, Clement's Lane, City.

Sales by Auction.

THE LODDIGES COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the Third Sale of this important collection of ORCHIDS is fixed to take place at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 15th July.—Catalogues will be ready for distribution 10 days before the sale.

IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, July 8, at 1 o'Clock precisely, a collection of Orchids just received from Brazil in excellent condition, including fine masses of Cattleya Pinelli, C. Acklandiæ, and other fine and probably new species; Lælia Brysiana and purpurata, Sophronitis grandiflora and violacea. Also a collection of established Orchids, including Cattleya Quindos, maxima, elegans and superba; Dendrobium Dalhousianum, Lælia Perrini, superba, &c.—May be viewed on the morning of Sale and Catalogues had.

HORTICULTURE.

NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of he most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, CAULIFLOWER AND CELERY.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Bedded Celery, 8*d.* per 100, 5*s.* 6*d* per 1000; Drumhead or Cattle Cabbage, 4*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

NEW VERBENAS, PETUNIAS, ETC.

NEW VERBENAS OF 1856.—Duke of Cambridge, Dr. Maclean, Antagonist, La Stella, Tranby, Blue Bonnet, Eugenia, Mrs. H. Williams, Géant de Batailles, Imperatrice Elizabeth, Jno. Edwards, Standard Bearer, Victory, Imperialis, King of Sardinia, Crimson Perfection, Admiral Lyons, Sir C. Campbell, Dandy, and Countess of Oxford, at 6*s.* per dozen.

NEW PETUNIAS, 1856.—Hermione, Monsieur Loyre, Prothe, Madame Eugene Lemichez, Marquise de St. Innocent, Countess of Ellesmere, Leon Leguay, Wilhelm, Pfitza, Marquise de la Ferté, Velasquez, Amazon, and Dryburgh Beauty, at 1*s.* each or 6*s.* the 12.

NEW SHRUBBY CALCEOLARIAS, 1856.—Albira, General Canrobert, General Pelissier, Hawk, Harlequin, pallida, Rosy Morn, King of Sardinia, Little Dorrit, Pilot, Sir C. Isham, Desirable, Hon. Mrs. Macleod, and Negro, 2*s.* 6*d.* each, or 24*s.* per dozen.

Locheria magnifica, 10*s.* 6*d.*; Tydæa amabilis, 10*s.* 6*d.*; Cuphea eminens, 3*s.* 6*d.* each; Meyenia erecta, 21*s.*; Gonocalyx pulchra, 10*s.* 6*d.*; Achimenes Dr. Hopf, Edmond Boissier, Edouard Otto, Fimbriata violacea, and Madame Hagnaur, 1*s.* 6*d.* each; Cineraria seed of 1856, ready in packets at 1*s.* 6*d.* and 2*s.* each; May's Paragon Cabbage in packets 6*d.* each, also wholesale.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

SUPERB TEA ROSES IN POTS.

WILLIAM WOOD AND SON have much satisfaction in offering their friends splendid grown Plants of the following, and other very beautiful kinds of TEA ROSES IN POTS on their own roots. The plants are remarkably strong and well-grown, more especially those offered in (24) size pots, which are half specimens, and peculiarly adapted for parties intending to grow Roses for Exhibition, or for Greenhouse culture.

TEA SCENTED.—Per plant.	In 48 size pots.		In 24 size pots.	
	s.	*d.*	*s.*	*d.*
Bougère, light rose, very large	1	6	2	6
Burét, rosy crimson	1	6	2	6
Devoniensis, creamy white, large and fine ..	1	6	2	6
Gloire de Dijon, fawn shaded with salmon ...	2	6	3	6
La Sylphide, salmon buff	1	6	2	6
Le Pactôle, lemon, yellow centre	1	6	2	6
Madame Bravy, cream colour	1	6	2	6
Maréchal Bugeaud	1	6	2	6
Madame Mélanie Oger, pale yellow, splendid	2	0	3	6
Madame Willermoz, white with salmon, centre large, magnificent	2	6	3	6
Safrano, fawn colour	1	6	2	6
Souvenir du 30 Mai, rosy salmon, large ...	1	6	2	6

Other fine sorts of Tea Roses left to our own selection, 15*s.* to 30*s.* per dozen according to size. China Roses, 9*s.* to 12*s.* per dozen.

Extra fine plants of Hybrid Perpetual Roses—Duchess of Norfolk, General Jacqueminot, and General Castellane in pots at 2*s.* 6*d.* each. Plants presented for distant carriage.

The usual Discount allowed to the Trade.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HAVING during several years taken much trouble in the production of a new variety of CABBAGE, we are now able to offer PEARSON'S EARLY CONQUEROR as the best and earliest kind yet known. It is very dwarf, occupies but little room, and is as tender as Asparagus, and is pronounced by all who have tasted it as of unequalled flavour. It should be sown the third week in July, or in late situations earlier, as it seldom can be made to run. Packets sent by post on receipt of 12 postage stamps.

J. R. & A. PEARSON, Chilwell Nurseries, Nottingham.

TESTIMONIALS.

From R. Owtram, Esq., Rayton.

"Rayton, June 21, 1856.

"My dear sir,—The Cabbage produced from your seed is much superior both in quantity and quality to any I ever grew.—Yours very truly. (Signed) "RICHARD OWTRAM."

From Mr. Wm. Hurst, Seed Merchant, 6, Leadenhall Street, London.

"Beaminster, Dorset, June 24, 1356.

"My dear Sir,—Yours followed me to the above town, where I am on my annual journey for 30 years. I recollect well seeing your new Cabbage at Chilwell last season, and it is my firm belief that a better kind cannot be found. It appears to have all the best qualities about it, being of dwarf habit and a fine Cabbage in every respect, and one that all growers of that valuable vegetable ought to possess. The 1 oz. you were so kind to give me I have set out for stock, &c. I sincerely hope we may get a good crop.—With kind respects, I am, dear sir, yours sincerely. (Signed) "WM. HURST."

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

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TO NURSERYMEN AND GARDENERS.

REIGATE SILVER SAND (sharp grit and free from iron) 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered five miles or to any London wharf or railway, (sacks cost price, or on hire 6*d.* each). Kentish and other Peats and Loam in large or small quantities. Terms cash.

JOHN KENNARD, Swan Place, Old Kent Road.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

HOGG'S EDGING TILES for GARDEN WALKS, FLOWER BEDS, &c., price 13*s.* per 100 (4½ per yard), Registered.—These Tiles are an elegant, cheap, and durable substitute for Box Edging. They afford no shelter for vermin, and act as a Drain to the paths, are easily laid down, and last for years without further expense. In colour they resemble Bath stone, and are of unusual hardness.—Full particulars on application to R. BLACKET, Witham, Essex.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

VENTILATION.

J. KITE, Patentee for Ventilating and Smoke-curing Operations.—Churches, chapels, schools, club-houses, public buildings, stables, &c., effectually ventilated, upon a new and economic system. Also, the New Patent Albert Chimney Cap, for the cure of smoke. Patronised by her Most Gracious Majesty; 200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Government buildings, &c. Wrought iron, 25*s.*; galvanised ditto, 30*s.*; cast iron, 35*s.* each, the latter as durable as the building itself. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt, BARTON'S Ironworks and Manufactory, for the Patent Stable Fittings and enamelled Mangers.

Address, JAMES BARTON, 370, Oxford Street, London.

ROSERIES, WITH KENT'S PATENT WEATHER-PROOF GLAZING.—Estimates forwarded for this new kind of House, as recommended in leading article of this Journal, June 14th. Direct, stating proposed length and width, to ALFRED KENT, Horticultural Building Works, Chichester. Illustrated Price Books of other Houses on receipt of four stamps.

MARQUEES on Hire at prices to suit the times; they are new, lofty, and a great variety kept. Several new and second-hand on sale; cheap Garden Tents from 30*s.* each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

RICK CLOTHS 30 feet by 30 feet, for 30 tons of Hay, 5*l.*; 30 by 36 feet, for 40 tons, 6*l.* 10*s.*; 36 by 36 feet, for 50 tons, 7*l.* 10*s.*

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

GARDEN NETS, FISHING NETS, SHEEP NETS.—New Garden Net, 1 inch mesh, 1½*d.* per yard; ½ inch, 2½*d.* Tanned Fishing Nets, 6*s.* 3*d.* per 100 yards. Wasp and Fly Worsted Net, 7*d.* per square yard. Sheep Nets, 4*s.* per 100 yards. All kinds of Fishing Nets on sale cheap.

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes and Jets are also supplied.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St. Paul's Square, Birmingham.

AWARDED A FIRST CLASS CERTIFICATE AT THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY'S SHOW, JUNE, 1856.

LOOKER'S PATENT IMPERISHABLE GARDEN LABELS.—These Improved Garden Labels are made hollow, in well-burnt red or other eartheuware, with a thick sloping top, on which are impressed any names of Trees, Plants, &c. that may be required. These Labels will stand for years unaffected by damp or change of atmosphere; and the letters, &c., being impressed, are as durable as the Label itself. Their appearance is extremely neat; and they occupy but little space, while a broad view is presented of the impression on the top. Each Label can be impressed with any Name that may be desired.—Further particulars and prices may be obtained on application to BENJAMIN LOOKER, Jun., Inventor, Patentee, and Manufacturer, Kingston-on-Thames.

A

B

A is an engraving showing the form of the Patent Label, and B represents it as fixed in the ground.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, June 28, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1856.] SATURDAY, JULY 5. {Price Fivepence. Stamped Edition, 6d.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The LAST EXHIBITION this season of PLANTS, FLOWERS, and FRUIT will take place on WEDNESDAY, July 9. Tickets to be obtained at the Gardens only by orders from Fellows of the Society, price 5s., or on the day of Exhibition, 7s. 6d. each. Gates open at 2 o'clock. Carriages to set down and take up either at the South, North, or East entrances to the Gardens; the North Gate opens directly into the covered Exhibition Grounds. N.B. Exhibition Tickets not used on the 9th will be admitted to the Gardens any day from July 10th to August 1st, Sundays excepted.

GRAND NATIONAL FLOWER SHOW, Chelmsford, July 16 and 17.—Forms to be filled up by intending Exhibitors at the above Show must be forwarded to the Hon. Secretaries, Messrs. W. W. Duffield and Fred. Chancellor, not later than Tuesday next, the 8th July.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Grand Autumn Exhibition at the above Palace and Grounds on the 3d and 4th of SEPTEMBER, when an additional amount of Prizes will be offered, Schedules of which will shortly be published, and may be had on application to Mr. E. Spary, General Superintendent of the Exhibition; or of the Secretary, 45, Lavender Street, Brighton.

Edward Carpenter, Secretary.

EXHIBITION OF AMERICAN PLANTS,
Knap Hill Nursery, Woking, Surrey.

MESSRS. WATERER AND GODFREY have great pleasure in stating that their Collection of American Plants at the Nursery is now finely in bloom, and may be seen daily gratis. The Nursery is readily reached by Train to Woking Station in 40 minutes; there are always plenty of conveyances at the Station.—July 5.

THE NEAREST AMERICAN NURSERY TO ANY RAILWAY STATION.

AN EXTENSIVE COLLECTION, covering nearly 30 acres, of AMERICAN PLANTS, in bloom during June, may be seen in high perfection at GEORGE BAKER'S, WINDLESHAM NURSERY, BAGSHOT, SURREY, 1¼ mile from Sunningdale Station, on the Staines and Wokingham Railway; 26 miles from Waterloo Station; and at the Royal Botanic Gardens, Regent's Park.—Orders of Admission may be had (gratis) from Fellows of the Society, or on application to the Advertiser.

CHOICE CALCEOLARIA SEED.

JOHN HENCHMAN, Junior, is now ready to send out SEED of his choice and well known strain of CALCEOLARIAS, at 5s. per packet. Trade packets, 10s.
Edmonton, Middlesex.

NEW VERBENAS OF 1856.

WILLIAM KNIGHT, Florist, &c., begs to offer the new Verbenas raised by Weatherill, Smith, Cole, Martin, Todman, Rougier and Chauviere, in well established Plants, at 6s. per dozen; best varieties of previous seasons, at 2s. 6d. per dozen; first class Fuchsias, 4s. per dozen; Pompone, or large flowered Chrysanthemums, 3s. 6d. per dozen. Any of the above sent free by post if desired. Descriptive Catalogues sent on application.—67, High Street, Battle, Sussex.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.

WILLIAM BARNES is now prepared to send out Seeds of his beautiful and well-filled CALCEOLARIA, CINERARIA, and SWEET WILLIAM, the two former 2s. 6d., the latter 1s. 6d. per packet.

It is needless to say anything in recommendation of the above, as W. B. has received numerous testimonials in their praise from the many gentlemen and gardeners whom he has supplied. Payment by postage stamps.
Address—Camden Nursery, Camberwell.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3s. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

POTATOES.—TO SEEDSMEN, ETC.

J. SHEPPARD begs to announce he has an acre of ASHLEAF POTATOES (true) in full foliage, which will be saved for seed and sale, and invites their inspection, in consequence of the difficulty of knowing their genuineness without seeing the leaf.—Also a large breadth of Frame, York and Scotch Regents, Snowballs, and Early Shaws.

East Grinstead, Sussex, distant half a mile from the E. G. Railway Terminus.

ROSES.

J. AND J. FRASER beg to announce that their collection of ROSES is now in Flower, to which they respectfully invite the attention of the public.

The Nursery is about 15 minutes' walk from the Lea Bridge Station, on the Eastern Counties Railway.

*** Trains from Shoreditch about 12 times a day.

The Nurseries, Lea Bridge Road, Essex.—July.

ROSES.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WILLIAM WOOD AND SONS' Extensive Collection of ROSES, extending over an area of several acres, will be in fine bloom on and after the 14th of July.

N.B. Hayward's Heath is a station on the London and Brighton Railway, 12 miles distant from the Nursery. Conveyances may be had at the Station.—July 5.

ROSES.

JAMES MITCHELL respectfully informs the Nobility and Gentry his unrivalled collection of ROSES is now in full bloom.
Piltdown Nurseries, Maresfield, Sussex, July 5.

ROSES.

H. LANE AND SON, Great Berkhamstead, have the pleasure of informing their Patrons that their extensive collection of Roses is now in full bloom. Their Coniferæ, Rhododendrons, and a General Stock of Trees and Shrubs and Fruit Trees are remarkably fine, and well worth the attention of Planters. The Nurseries are within a few minutes' walk of the Station on the London and North Western Railway.

ROSE NURSERIES, HERTFORD.

EDWARD P. FRANCIS invites the attention of the Horticultural public to his ROSES on the MANETTI STOCK, upwards of 30,000 having been budded last summer. They are admitted by Mr. Rivers and other celebrated growers to be the finest lot of stuff ever grown, and are now coming into full flower. Trains direct to Hertford (Eastern Counties). Morning and evening are the best for seeing Roses.

PERPETUAL ROSES IN POTS AND BEDDING PLANTS.—For Bass and Brown's Advertisement of these see *Gardeners' Chronicle* of May 17th, p. 349, containing Descriptive Lists of first-rate sorts.—Sudbury, Suffolk.

GERANIUMS.—A Large Surplus Stock at Reduced Prices.—Fine Plants of new and other first-rate sorts both show and fancy. Names given on application.
Apply to Bass & Brown, Sudbury, Suffolk.

TO THE TRADE.

CHARLES SHARPE AND CO. have a quantity of GREEN and PURPLE-TOP SCOTCH and other TURNIP SEEDS to offer, of a selected stock, growth of 1855. Price on application.—Nursery and Seed Establishment, Sleaford, July 5.

AZALEA INDICA.

J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, July 5.

NEW HORSE-SHOE SCARLET.

J. H. BIRD is now sending out his beautiful New Horse-shoe Scarlet Marshal Pelissier, pronounced by all who have seen it to be the finest ever offered. Strong Plants, 5s. each, usual allowance to the trade. For full description see advertisements in Edwards's "National Garden Almanack" for 1856. Post-office Orders to be made payable to
J. H. Bird, Florist, Stoke Newington.

NOTICE TO ALL ENGLAND—MARSHAL PELISSIER.

J. H. BIRD will give a Five Guinea Cup for the best Four Plants of his Marshal Pelissier, Horse-shoe Scarlet, at the June Show of the Crystal Palace 1857.—Open to all England.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world, upon application.

Primula, *choicest fringed* ... ... 1s. per packet.
Calceolaria, *choicest varieties* ... ... 1s. „
Cineraria „ „ ... ... 1s. „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.
James Carter & Co., Seedsmen, 238, High Holborn, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.
Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, CAULIFLOWER AND CELERY.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6d. per 100, 4s. 6d. per 1000; all the sorts of autumn and spring Broccoli, 8d. per 100, 5s. 6d. per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10d. per 100; Bedded Celery, 8d. per 100, 5s. 6d. per 1000; Drumhead or Cattle Cabbage, 4s. per 1000. Packages containing plants to the value of 1l. and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of Cattell's Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.
Nurseries, Westerham, Kent.

NEW FUCHSIA—"GEM OF WHITEHILL."

WILLIAM FULLER begs to inform the Trade and Public generally that he has a few extra strong Plants of the above splendid variety, that will bloom this season, for sale at 7s. 6d. each; or where three are taken one will be given over. Post-office Orders to be made payable at Newton Abbott.
Courtenay Nursery, July 5.

J. HOADE AND SON, of Addlestone, near Chertsey Surrey, offer 1s. packets of their choice ANEMONE SEED, saved from the highest coloured Flowers, with printed directions for sowing, &c. Also a very few 1s. packets of first-class PRIMULA, sent prepaid on receipt of 13 stamps.

DUTCH BULBS.—As the period is approaching for sending out the orders for DUTCH BULBS for the ensuing season, we respectfully suggest to our friends and the trade generally, that they instruct their correspondents in Holland to consign the cases direct to our care here, for immediate transmission to their respective destinations, by which greater expedition will be obtained in their delivery.

Betham & Blackith, Custom House and General Forwarding Agents, Cox's Quay, Lower Thames Street, London.—July 5.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42s.
Stove and greenhouse Ferns	„	18
Hardy do.	„	9
Selaginellas or Lycopodiums	„	18
Geraniums, show and fancy varieties ...	„	9
Gynerium argenteum (Pampas Grass) ...	„	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway

IMPORTANT TO THE SEED TRADE.

True Flat Red Tripoli Onion, 19l. per cwt., 3s. 6d. per lb.
White Spanish ditto, 7l. per cwt., 1s. 6d. per lb.
Cottrell's fine Early Champion Cabbage, 2s. per lb.
Drumhead ditto, 8l. 8s. per cwt.; Enfield Market, 2s. 6d. per lb.
Prince Albert do., 2s. 6d. per lb.; Sprotboro' do., true, 1s. 6d. p. lb.
Malta Lettuce, 3s. 6d. per lb.; Hardy Green do., 5s. per lb.
Cottrell's Splendid Early Sebastopol Peas, per bush., 38s.
Cottrell's Early Wonder (splendid pods, large as Scimitar), 32s.
Radish, 27s. per bush.; Skirving's Swede, 24s. per bush.

All Warranted. All other articles, as per Catalogue sent out at Christmas last, at proportionate low prices, on application to J. H. COTTRELL, appointed by the assignees to clear out the Stock of Dawe, Cottrell, & Benham, Bankrupts.
3, Laurence Pountney Lane.

NOTICE TO THE SEED TRADE.

J. H. COTTRELL has no connection with any house at 36, Moorgate Street, City. J. H. C. hopes his friends will please address all letters to him to 3, Laurence Pountney Lane; also those for the assignees.

GROOM.

H. MATTHEWS, Son-in-law and Successor to the late Henry Groom, Florist, Clapham, Surrey, begs to call the attention of the Nobility, Gentry, and Public generally, to his large and beautiful stock of Liliums, Tritonea aurea, &c.

H. M. having made a general revision in the scale of the late Mr. Groom's charges the demand is very great; he therefore recommends an early application to ensure orders being executed. The reputation gained by the late Mr. Groom for the above requires no comment.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.
John Weeks & Co., King's Road, Chelsea.

WANTED, the very best fimbriated PRIMULA SEED, both colours, say price per lb.; also CINERARIA extra.—A. B., 25, Bishopsgate Within.

GEORGE TAYLOR, Junior,
Growers' Salesman
For Choice Garden Produce,
St. John's Market,
Liverpool.
Terms—"Cash."

NOTICE to CREDITORS of C. H. GARDINER, of the Fant Nurseries, Maidstone, Kent.—Those Creditors who have not sent in their Accounts are requested forthwith to do so, or they will be excluded from a dividend.—Monckton & Son, Solicitors, Maidstone.—July 5.

PAGE & CO.'S BLIGHT COMPOSITION

CAN NOW BE OBTAINED OF

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester; and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Messrs. Rendle & Co., Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. W. Barratt, St. John's, Wakefield
Messrs. Thos. Davies & Co., Wavertree, Liverpool
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. F. Smith, Rivershead Nursery, Sevenoaks
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Mr. Burham, Hastings
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. Thomas Cridland, Willington, near Taunton
Mr. Hy. Horne, Market Place, Henley-on-Thames
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. A. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. J. Scott, Merriott Nursery, Crewkerne
Mr. H. Steel, Shefford, Beds
Mr. A. Christie, Maidenhead
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, Glasgow; and of

BRIDGEWATER PAGE & CO., Seed Merchants and Growers,
37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station); and 58, Above Bar, Southampton.—Communications by post should be directed Oxford Street, Southampton.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

H. J. MORTON AND Co., Galvanized Iron Works,
2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.

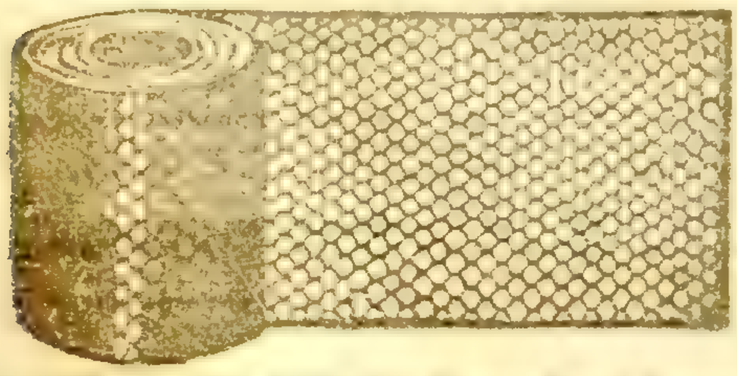
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1½-inch „ strong, do.	6½ „	5¼ „
1½-inch „ intermediate, do.	7½ „	6 „
1½-inch „ extra strong, do.	10 „	8 „

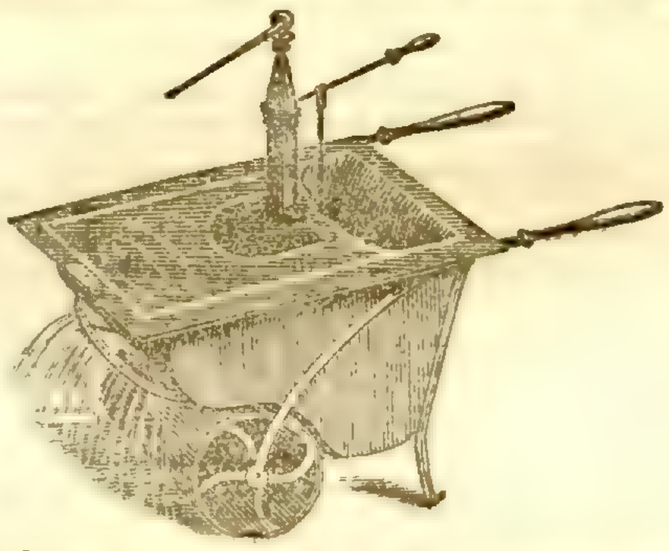
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

GARDEN VASES, WIRE WORK, AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory for aviaries, poultry houses, arbours, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to COTTAM & HALLEN, Iron Works, 2, Winsley Street, Oxford Street.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	Grape Gatherers and Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	„ Knives, various
Borders, various patterns	Hammers	„ Saws
Botanical Boxes	Hand-glass Frames	„ Scissors
Brown's Patent Fumigator	Hay Knives	„ Shears
Cases of Pruning Instruments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
„ Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Monographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
„ Loops	Mole Traps	Transplanting Tools
„ Rollers	Mowing Machines	Trowels
„ Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4	10
No. 2 „ 15 „	„ 45 „	...	5	10
No. 3 „ 28 „	„ 45 „	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2	15
No. 13 „ 12 „	„ 30 „	...	3	5
No. 11 „ 16 „	„ 40 „	...	4	0
No. 12 „ 24 „	„ 45 „	...	5	0
No. 14 „ 30 „	„ 45 „	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

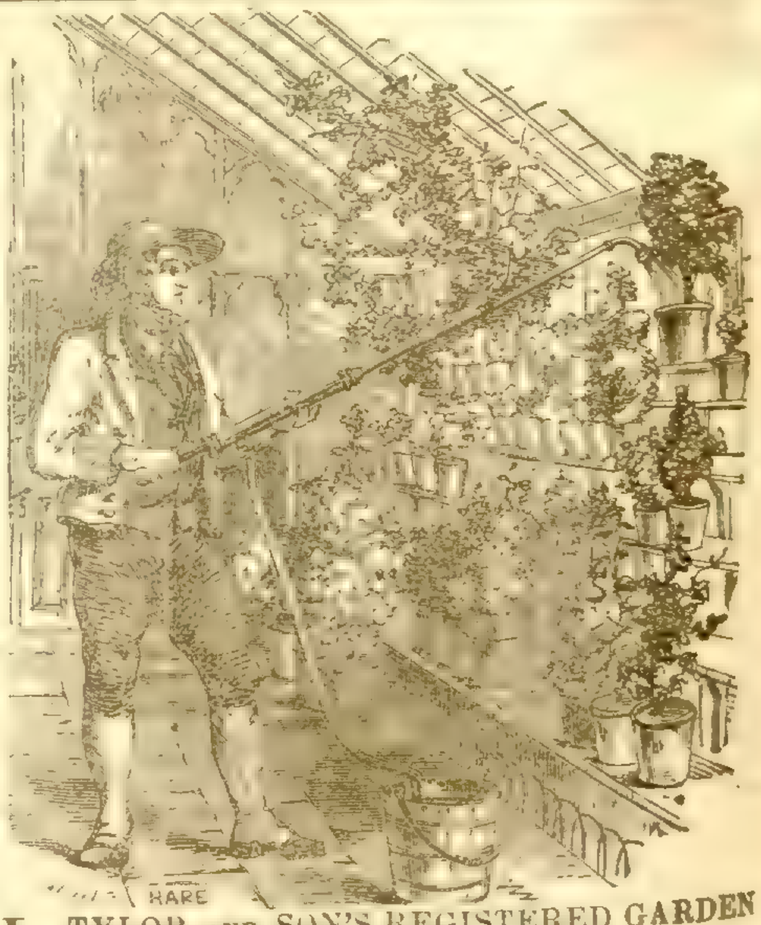
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

NEW VERBENAS, PETUNIAS, ETC.

NEW VERBENAS OF 1856.—Duke of Cambridge, Dr. Maclean, Antagonist, La Stella, Tranby, Blue Bonnet, Eugenia, Mrs. H. Williams, Géant de Batailles, Imperatrice Elizabeth, Jno. Edwards, Standard Bearer, Victory, Imperialis, King of Sardinia, Crimson Perfection, Admiral Lyons, Sir C. Campbell, Dandy, and Countess of Oxford, at 6*s.* per dozen.

NEW PETUNIAS, 1856.—Hermione, Monsieur Loyre, Prothe, Madame Eugene Lemichez, Marquise de St. Innocent, Countess of Ellesmere, Leon Leguay, Wilhelm, Pfitza, Marquise de la Ferté, Velasquez, Amazon, and Dryburgh Beauty, at 1*s.* each or 6*s.* the 12.

NEW SHRUBBY CALCEOLARIAS, 1856.—Albira, General Canrobert, General Pelissier, Hawk, Harlequin, pallida, Rosy Morn, King of Sardinia, Little Dorrit, Pilot, Sir C. Isham, Desirable, Hon. Mrs. Macleod, and Negro, 2*s.* 6*d.* each, or 24*s.* per dozen.

Locheria magnifica, 10*s.* 6*d.*; Tydæa amabilis, 10*s.* 6*d.*; Cuphea eminens, 3*s.* 6*d.* each; Mevenia erecta, 21*s.*; Gonocalyx pulchra, 10*s.* 6*d.*; Achimenes Dr. Hopf, Edmond Boissier, Edouard Otto, Fimbriata violacea, and Madame Hagnaur, 1*s.* 6*d.* each; Cineraria seed of 1856, ready in packets at 1*s.* 6*d.* and 2*s.* each; May's Paragon Cabbage in packets 6*d.* each, also wholesale.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

NEW VERBENAS.

Blue Bonnet	Madame Adolphe Wieck
Countess of Dunmore	" Kien
Crimson Perfection	" Garland
Dr. Maclean	Mrs. Hosier Williams
Duke of Cambridge	Moonlight
Géant des Batailles	Mrs. Archer Clive
Imperialis	Nosegay
King of Sardinia	Picturata
Loveliness	Purpurea magnifica
Lady Camoys	Premier
" Kerrison	Pre-eminent
" Harcourt	Standard Bearer
La Stella	Victory
	Viscountess Emlyn

The above at 1*s.* 6*d.* each, or 15*s.* per dozen.

Alceste	Mousse Pacha
Admiral Hamelin	M. Rovier
Belisaire	Palladium
Delices de Flore	Pulcherrima
Julie Paquin	Paul de Kock
Lord Raglan	Silistria
Lord Raglan (Defosse)	Surprise
La Favourite	Souvenir de Marie
Mrs. Holford	Ulysse
	Variegata

These 1*s.* each, or 9*s.* per dozen.

FUCHSIAS.

Climax	Napoleon III.
Dominiana	Omer Pacha
Empress Eugenie	Prince Albert
Favourite	Queen Victoria
Mrs. Story	Water Nymph
Maid of Kent	Clio

This collection of 12 for 10*s.* 6*d.*, or 1*s.* each.—A remittance from unknown correspondents is respectfully requested.

JOHN CLARK, Belle Vue Nursery, Cheltenham.

CHOICE NEW VERBENAS, FUCHSIAS, ETC., OF THIS SPRING.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire, begs to offer the following at the reduced prices annexed, all in strong healthy plants; descriptive lists of them on application.

VERBENAS.—Antagonist, Tranby, Sultan, Admiral Lyons, Picturata, Imperatrice Elizabeth, Blue Bonnet, Crimson Perfection, Duke of Cambridge, Dr. Maclean, King of Sardinia, Loveliness, Pre-Eminent, Premier, Standard Bearer, Victory, Criterion, Cedo Nulli, Dandy, Eugenie, General Simpson, John Edwards, King of Roses, Sir Colin Campbell, Unanimity, Lady Camoys, Lady Kerrison, Mrs. Archer Clive, Imperialis, La Stella, Countess of Dunmore, Mrs. Hosier Williams, Vicomtesse Emlyn, Countess of Oxford, Nosegay, and Purpurea magnifica, at 1*s.* 6*d.* each, or 18*s.* per dozen, or six for 10*s.*, post free when more than six are taken.—CONTINENTAL VARIETIES: Bicolor, Beauté de Vitry, Géant des Batailles (fine crimson), Julie Pequin, Madame Adolphe Wieck, Mademoiselle Rinz, Monsieur Roviere, Nelly, Pulcherrima, Surprise, Souvenir de Mario, and Variegata; the 12 for 7*s.* 6*d.* post free.

FUCHSIAS.—Admiral Boxer, Conqueror, Donna Joaquinna, General Williams, Favourite, Venus de Medici, Wonderful, Prince of Wales, Charlemagne, Countess of Burlington, Emperor Napoleon, and Volcano di Aqua (the four last named not until the middle of July), at 3*s.* 6*d.* each, or six for 15*s.* post free.

PETUNIAS.—Countess of Ellesmere, Majestic, Major Domo, Picturata, Purpurea alba, Hermione ("Imperial," double white, 1*s.* each), Leon Lequay, Madame Eugenie Lemichez, Docteur Andry, Marquise de St. Innocent, Monsieur Loyre, Prothe, and Wilhelm Pfitzer. The above (except Imperial) 2*s.* each, or 20*s.* per dozen, post free.

ACHIMENES.—Ambroise Verschaffelt, Dr. Hopf, Edmond Boissier, Edouard Otto, Gigantea, Hendersoni, Chirita, Maria violacea, Carl Wolforth, Louis Van Houtte, M. de Parpart, Sir T. Thomas, Madame Randatler, and Picturata. The above 14 for 15*s.* post free.

GLOXINIAS, Choice, 12*s.* and 18*s.* per dozen; ditto, erect flowering, 21*s.*

CHOICE MISCELLANEOUS PLANTS.

	Each—*s.*	*d.*		Each—*s.*	*d.*
Tydea splendens	3	6	Rhodolea Championi ...	2	6
" Warcewiczi ...	2	0	Myrtus myrsinoides ...	2	6
Mandirola Roezli 3*s.* 6*d.* &	5	0	" apiculata	2	6
" lanata	3	6	Achimenes locheria magnifica	10	6
Escallonia pterocladon ...	2	6	Epacris Eclipse (Story's)	3	6
Passiflora alba nigra ...	2	6	Aubretia Mooreana (New Alpine)	1	6
" Decaisneana 2*s.* 6*d.* &	3	6	Hoya fraterna ... 3*s.* 6*d.* &	5	0
Dipladenia splendens ...	2	6	Chrysanthemum Alfred Salter	3	6
" magnifica ... 3*s.* 6*d.* &	5	0	Cuphea eminens	5	0
" Wagneriana... ...	3	6	Cereus M'Donaldi 3*s.* 6*d.* &	5	0
Vaccinium erythrina ...	5	0	Mimulus Lydia (Smith's new)	1	6
Cassia floribunda	2	6			
Sonerila margaritacea, strong ... 3*s.* 6*d.* to	7	6			
Impatiens Jerdoniæ 1*s.* 6*d.* to	2	6			
Medinella magnifica ...	5	0			

Strong Plants may be depended on. Orders executed in rotation as received. It is respectfully requested that all orders be accompanied with a Post-office Order made payable at Marsden, Lancashire, unless reference is given.

BEDDING PLANTS.

F. AND A. SMITH beg to offer strong plants of the undermentioned in May from 3*s.* per dozen:—Ageratum, Alonsoa, Anagallis, Cuphea, Calceolaria, Geranium (in great variety), Heliotrope, Lantana, Lobelia, Mimulus, Nasturtium, Pentstemon, Petunia, Pansies, Roses, Salvias, Fuchsias and Verbenas in great variety, Climbers, &c. Also Story's and other new Fuchsias, Petunia imperialis, &c.

F. & A. S. beg to refer to former advertisements for a description of their superb Balsams, seed of which may still be obtained at 2*s.* 6*d.* per packet assorted colours.—Dulwich, Surrey.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.—Packets of each sealed and warranted by them, at 2*s.* 6*d.* free by post.

EXPERIENCED GARDENERS.

L. P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.

Exeter Nursery, Exeter. Established 1720.

The Gardeners' Chronicle.

SATURDAY, JULY 5, 1856.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 9—Royal Botanic .....2 P.M.

WHILE every one is eager to remedy the nuisances attendant upon the Thames and its foul waters, men are strangely forgetful of the atmosphere that rests upon its banks. Commissions exhaust financial and engineering skill in impracticable devices for securing a separate sewerage; but not a voice is raised against the avalanches of soot that pollute the London air. Nostrils are in the ascendant, and lungs are forgotten.

It is however by no means clear that Father Thames is guilty of all the offences laid to his charge. It is the fashion to abuse him, to say that he is muddy and stinking, and the sink of all that is disgusting and alarming; to lay cholera at his door, and fever present with pestilences yet to come. The clamour is too attractive to subside; for it furnishes a topic upon which deodorizers, and drainers, and patent manure makers, and great engineers are never weary of descanting; to say nothing of the satisfaction of always having a spectre within call. No one seems to thank him for the services he renders, or to remember that the duty he performs is that which Providence has assigned him. That he carries off our foul rejections is most true, and we ought to be grateful. Nature provided him for the very purpose, as she provided all other rivers, which are the natural drains and scavengers of every country. And it is far from certain that high level drains and low level sewers, aided by a million horse steam-power, will do their work half so well. Let us hope they will not render an evil half imaginary wholly real.

In our eyes there is an evil of greater magnitude which should first be dealt with, and that is the nuisance of chimneys and their soot. Recent legislation, it is true, has done much to abate the mischief, and London owes Lord PALMERSTON a heavy debt of gratitude for what he has caused to be effected. It is impossible to deny that the atmosphere in which we exist is of as much importance as a river on which we merely look. Whether we will or not the first is incessantly pouring down our throats; the second will only do so when we dive beneath its surface. The dose of the first is inevitable, of the last is as we please. Yet we hear little of the pestilent chimneys that are permitted to poison the air of Lambeth, or of others whose sooty craters still emit their contents as often as the eye of the informer is withdrawn. Let any one go down to Vauxhall Bridge and look to the potteries on the right bank. The last time we had the misfortune to be there a south-east wind enveloped us in a fog of greasy soot. Well may a correspondent of the *Times* call the nuisance "atrocious." No word in the English language so well expresses the fact.

This we submit is quite as much in need of reform as the Thames at flood or ebb; and a fortnight's resolute struggle in the police courts would extinguish it, with this advantage, that the cost of the extinction would fall upon the persons who commit the nuisance. We have not far to look for instances of the effect of a soot-charged atmosphere upon health. Our friend BROOME, the clever Chrysanthemum grower in the Inner Temple Garden, shall speak for himself. After complaining to the *Times* of certain factories near him which set Lord PALMERSTON's Act at defiance whenever they think nobody is looking, and describing the effects of soot upon his plants, he proceeds as follows:—"There is another and far greater circumstance connected with these gardens than the vegetable world; the benchers and members very liberally, at a great sacrifice of comfort and expense, allow about 200 families orders to walk in the gardens the whole year through. They also throw them open to the public after 6 o'clock in the evening, and on Sundays, on fine evenings, we average from 10,000 to 11,000 that pass in the course of the evening; the majority of these are poor little sickly-looking creatures, penned up in the close lanes and alleys round the neighbourhood, not old enough to get to the parks (as they would be tired in going there). I will tell you what they put me in mind of when they get on the lawn—a little dog that has been tied up all day and let loose. They roll and tumble about, kicking up their little legs on the Grass; it really does my heart good to see them; and I must confess that out of such a number of little creatures, and no one to look after them except the officers of the gardens, I rarely have a flower plucked or a branch injured. Picture to yourself these poor little children walking and rolling in clouds of smoke for three hours; what good can such an atmosphere do them, inflating their little lungs with beastly smoke such as it was here two years back? When they came out they looked pale and tired; now they go out with their little eyes sparkling with joy, running and jumping like so many kittens, refreshed from the change of air, and pleased with the treat. And all this is caused by suppressing the smoke nuisance."

Undoubtedly Mr. BROOME is right, and we hope the gentlemen in the Temple will see to the final suppression of the smoke in their own neighbourhood. It would be an example of public spirit which others might be expected to follow.

It is not indeed merely because of the health of the neighbourhood that the factory-chimney-nuisance demands removal with a firm hand. The Temple Gardens themselves, one of the most agreeable places on the banks of the river, owed their once faded state to the evils of soot, and date their revival, such as it is, from the period of its partial suppression. What does Mr. BROOME say as to that? "I have been gardener to the Hon. Society of the Inner Temple 23 years. When I first entered their service the Temple Gardens were very celebrated for white and red Roses, and I was surprised in the city of London at the Rose blooming at all, being a plant more sensitive to smoke than any other of the vegetable kingdom; still the old Provence, Cabbage, and Maiden-blush bloomed here beautifully. There were then only two steamboats on the river Thames, that went to Richmond; but, as time rolled on, by degrees old Father Thames became crowded with them every three or four minutes, and as they passed the gardens they vomited out their clouds of smoke on to my poor Roses to such an extent that at last they ceased to bloom, and gradually began to decay. To add to this nuisance a forest of high chimneys sprang up on the south side of the river; these, if possible, were worse than the steamboats, enveloping the garden in smoke night and day; all sorts of vegetation began to dwindle, except Chrysanthemums. Some fine old Lime trees used to grow and bloom beautifully; they ceased to bloom and almost to throw out a leaf; but, thanks to our legislators, they passed an act to make these abominable nuisances discontinue. Such has been the result of this, that I am happy to inform you, this year my poor Roses that have been in the gardens so many years are now fast recovering their health and show that they will not cease to blow, for I have a great many white ones coming, and red also, and the plant bids well for healthy wood for another year. The poor forest trees also are making shoots much better, although the spring has been so unfavourable to vegetation; in fact, everything in the garden is greatly improving in health and vigour. My Stocks have not been so

fine for years past. I don't want you to take my opinion on it; come and see, and judge for yourself. I challenge contradiction to this statement, and this is all through suppressing the smoke nuisance."

What is true of the Temple Gardens is true of every other place in this huge metropolis where soot is permitted to escape in large quantity. It is soot which ruins the plants in Whitehall Gardens, Buckingham Palace, and St. James's Park, and in every other Square, Garden, or place within its reach. It surely behoves all who value their health and comfort in London to set their faces resolutely against further submission to the evil. As to Lambeth, lying *South West* of the new Houses of Parliament, we seriously recommend the potteries there to the attention of all who desire that stately pile to retain its beauty, or the interior decorations their freshness, or the surrounding neighbourhood its health. Owing to some sort of dexterous management the potteries in Lambeth have hitherto managed to claim exemption from the operation of Lord Palmerston's Act; but we see that this exemption is about to be withdrawn by a new act of Parliament, and we most earnestly hope that the moment the act shall have passed they will be compelled once for all either to consume their smoke or to blow out their fires. It is insufferable that a neighbourhood should be poisoned in order that a few manufacturers may be enabled to divide greater profits than they could gain if located elsewhere.

The accompanying figures represent a singular example of malformation in some unknown tree. Our untiring correspondent, Mr. Skinner, has sent it from Guatemala, but was unable to ascertain the plant that had produced it. He regarded it as a branch, the extremity of which had been accidentally arrested in its progress, and so compelled to grow down upon itself. In other words the matter which had been provided for forming the wood of the lengthening branch, having found itself unable to advance directly onwards, took a lateral direction forming layer upon layer of almost horizontal fibres, till at last, the force of development being expended, the malformation resulted in a cup-shaped woody head. It however seems probable that some mechanical obstacle, such as a ligature passed round the branch just below the summit, was also present and prevented a descending formation of wood, so contributing to the appearance in question. The object, singular as it is in mere form, has a higher interest on account of some considerations to which it naturally gives rise.

In the first place, the growth being stopped, where were the leaves which must have produced the wood? The specimen having been found without its bark this question can only be answered conjecturally. It is, however, almost certain that leaves existed in the cup itself, as is indicated by small scars, one of which on a level with B in the right hand figure evidently represents the seat of a once active bud, and several such scars are visible both outside and inside the cup.

But the most remarkable feature in the specimen is the spiral arrangement of the fibres of wood. The stalk is evidently constructed with fibres arranged spirally, but that peculiarity is most especially evident in the cup, which at A shows unmistakeable evidence that the long spiral turn of the stalk is suddenly exchanged for a very flat spiral running round the cup. A careful examination of the cup itself, inside or outside, and at either end, brings out the same fact, viz., that every fibre which constitutes the specimen is firmly directed in a strictly spiral manner.

This brings to our recollection some examples of spirally formed wood, which we had almost forgotten. Some years since a Pear tree, which had been felled and thrown aside, gradually lost its bark, which rotted off, when the wood cracked into a multitude of spiral fissures having as low an angle as about 45°; unmistakeably indicating that the deposit of wood had been going on in a closely twisted manner, and not longitudinally, as is generally supposed to be the natural direction. In those knaurs, too, which schoolboys knock out of the bark of Lime trees and other trees, and which botanists call embryo buds, every rudimentary undeveloped bud is surrounded by closely packed fibres spirally arranged. Nor, indeed, is this entirely absent from the logs of Lignum vitæ to be seen in hardwood warehouses.

But these cases, striking and unusual as they seem to be, only represent a universal law. We believe that the woody fibres, or longitudinal structure, of all plants whatsoever is spiral, and that the cases now brought under notice are only the ordinary state in excess. Look up at an Oak, the rents in the bark which indicate the course of its fibres all lean slightly one way, and represent a long spire; look at a scaffold pole, or at the fine "stick" set up in the rosary of the Crystal Palace, or at any ship's mast which is not made by clamping planks together, and it will be seen that every little split upon its surface follows a spiral line. We have spent a summer's day in a search after an exception, and without finding one. Our monster from Guatemala is after all, then, only conformable to rule; although we did not know that the rule existed.

And if we look around us the same tendency to spirality is found everywhere among plants. To say nothing of the tendrils of the Vine or the Pea, or of the twining stem of Bindweed plants, or of the huge twisted cables (lianes) which impede all passage through a primæval forest, we may point to such a case as the annexed figure which represents some non-twining plant, we forget what, which has taken upon itself to carry the twisted structure to a degree wholly unobserved in it before.*

Nor is this peculiarity, which seems peculiar to the Vegetable Kingdom, or if not peculiar chiefly manifested there, confined to external organs. The microscope shows it in all the tissues that are invisible to the naked eye. Break the stalk of a Strawberry leaf, or the leaf of a Lily, or the shoot of a Dogwood, or the sheaths of the huge foliage of the Banana, and spiral threads appear in endless profusion; these, which represent the mutilated air-vessels, the most delicate of the vegetable organisms, are invariably spiral; but so seem all the other tissues, for the microscope in certain lights clearly indicates spiral lines over all the surface of the most attenuated films. Even in the lowest conditions that exist in the vegetable world the same spirality is still observable; the teeth of Mosses, the elaters of Liverworts, the tubes of Lichens and some seaweeds, and even those animalcular procreative bodies which escape all research except that of the most lynx-eyed observers, each is spiral. It is impossible indeed to look without a spiral tendency manifesting itself wherever the eye is directed, whether in external organs manifest to the bluntest perception or in those recondite structures known to none except the eyes of higher intelligence.

Why then this peculiar attribute? Why is the solid timber spiral? and the microscopic cells and tubes spiral, and reproductive organs spiral, and everything that is weakest as well as strongest spiral still? Is it to make the weak strong and the strong stronger? We believe so, as seems to be proved in those weak tropical climbers which singly lie prostrate, but which when two or three come together and twist into one column stand erect like the stiffest trees of the forest. This is however a question for future discussion. We content ourselves with producing the Guatemala monster as a demonstration of a universal law.†

* The specimen was furnished by some correspondent, but unfortunately his letter of explanation has been hopelessly mislaid.

† We must endeavour on some other occasion to show the close connection between these facts concerning internal structure and the well known spiral arrangement of leaves or external appendages of the axis.

New Plants.

178. Coryanthes Sumneriana.

C. hypochilio galeato apice acuto anticè puberulo ungui æquali, mesochilio eplicato intus lævi epichilio æquali, epichilii margine patulo lobis lateralibus uncinato-falcatis.

A native of Brazil, where it was found in the province of St. Catharine's by a collector in the service of our correspondent M. de Jonghe. Purchased in June, 1854, for the Bishop of Winchester, it flowered at Farnham Castle a week or two since. It is next akin to *C. maculata*, from which it differs in the flowers being chocolate-brown without any spots, and in the form and proportion of the parts of the lip. The helmet (hypochil) is slightly acute, and slopes gradually from the crown, instead of being curved inwards in front, in the way of a Phrygian cap; and the neck (mesochil) is quite as long as the bucket (epichil), the lateral lobes of whose points are between hooked and sickle-shaped. In *C. maculata* the neck is short, and the lateral lobes are nearly straight or slightly curved. Mr. Lawrence, the gardener at Farnham Castle, informs us that the flower stem rose *upright* for nearly 18 inches, and only bent down when the two flowers became too heavy for it to support their weight. We venture to name this fine addition to the most remarkable genus among Orchids after the Rt. Revd. Charles Richard Sumner, Lord Bishop of Winchester, a most enlightened patron of scientific horticulture, and the possessor of one of the best and best cultivated collections of Orchids in Europe.

VEGETABLE PATHOLOGY.—No. CXXVIII.

509. Parasitæ (*Cryptogams*). Parasitic Cryptogams have almost the same relation in respect of their parasitism to the plants on which they prey, as Parasitic Phænogams. Like them they are divisible into two principal groups, true and false parasites. The false parasites may, however, in some cases, in consequence of their ultimate effects when once established, be as fatal as those which are more immediately or directly injurious.

510. Before we proceed to the consideration of the more prominent species which are injurious to plants, it is requisite to make a few observations. A very large portion of fungi grow on decayed or decaying animal or vegetable matter. It has therefore been doubted whether it is possible for any fungus to establish itself upon an organism in perfect health. But fungi are not the only parasitic Cryptogams. There are truly parasitic Algæ and Lichens as well as fungi. *Elachistea scutulata*, for instance, is so incorporated with *Himanthalia lorea*, the common seaweed known under the name of sea-thongs, that it is impossible to say where the tissue of the one ends and that of the other begins. The parasite moreover bears two kinds of fruit totally different from those of the seaweed on which it grows, so that there can be no more question about the one not being a modification of the other, than there is of the Mistletoe being of an entirely distinct nature from the tree on which it grows. The same may be said of those parasitic Lichens which infest the fruit of many other species. There is the most intimate confluence of the respective tissues with complete difference of essence. In neither case is there any pretence that the parasite was established on a plant already diseased.

511. It is a well known fact that if the spores of Tilletia caries (Bunt) are dusted on perfectly clean grains of Wheat, the produce will be diseased. There was, however, no more disease in the Wheat so treated, than in any other grains, till the Bunt was applied, therefore whatever may be the action upon the infested Wheat, it is quite certain that the disease is the consequence of the application of the Bunt spores. In the same way the Grape mildew may be communicated to leaves which are perfectly healthy, both of the Vine and of other plants. The effect may be to set up disease in the tissues wherever the mycelium comes more intimately in contact with them, by means of puckers or otherwise,

but the disease is no less the consequence of the fungus, than the silkworm murrain is the consequence of the growth of spores simply dusted on the caterpillar. In the same way disease is produced directly by a host of fungi upon tissues perfectly healthy before they came in contact with the spores of the parasite. It is indeed curious, with such plain and incontestible facts before us, that there should be a disposition anywhere to deny the possibility of moulds growing on perfectly healthy tissue, and consequently of their being the cause of various diseases to which the animal or vegetable world is subject.

512. If, however, there were room for doubt, every pretext for disbelief is done away by the fact that when chemical substances inimical to the growth of fungi are applied, and the mould in consequence dies, the disease of the plant is arrested, though it is plain that if the disease was in the first instance independent of the parasite, its removal could not improve the previous condition.

513. It is to be hoped, indeed, after all that has been published on the effects of fungi, and of the different ways of propagation which exist in the same species, that the fact will now be recognised that fungi are capable of communicating disease. We may in certain cases mistake the real habits of the species. We may attribute disease to the presence of fungi, where the fungi are merely developed on matter already diseased; but with proper pains and a competent knowledge of the species of fungi and their habits we shall not fall into such mistakes. We are not to suppose in every case where fungi are present that they are chargeable with the evil, though they may possibly aggravate it when present. Fruit, for instance, when perfectly ripe, is ready to undergo another series of phenomena which end in complete chemical dissolution. The evil may however be suspended for a time, but the slightest external injury admits the spores of some of our common moulds; they germinate, live at the expense of the cells they traverse, and finally the whole mass is reduced to a putrescent pulp completely overrun with mucedinous matter. In this sense Dr. Hassall is perfectly right that decay is produced by mould, but the mould merely took occasion of the injury to establish itself, and the exigencies of its mycelium completed the mischief.

514. There are abundant cases in which it is necessary that the cultivator should be able to distinguish accurately between decay aggravated by or immediately arising from the presence of parasitic fungi. In the one case he has a tolerably certain remedy; in the other he can only palliate evil, which in many instances may have gone so far as not to admit of remedy.

515. Having once established the fact that diseases do arise from fungi, the remedy according to circumstances may be either a preventive of anticipated evil or a cure of evil already existent. The remedy which is applicable in the one case may be totally inapplicable in the other. It is probable that the spores of Bunt would not be destroyed by crude sulphur, and it would be dangerous to apply strong metallic poisons to growing plants, as the remedy might be as bad as the disease. It will be necessary therefore in practice to remember this distinction. *M. J. B.*

ENTOMOLOGY.

THE CANE BORER.

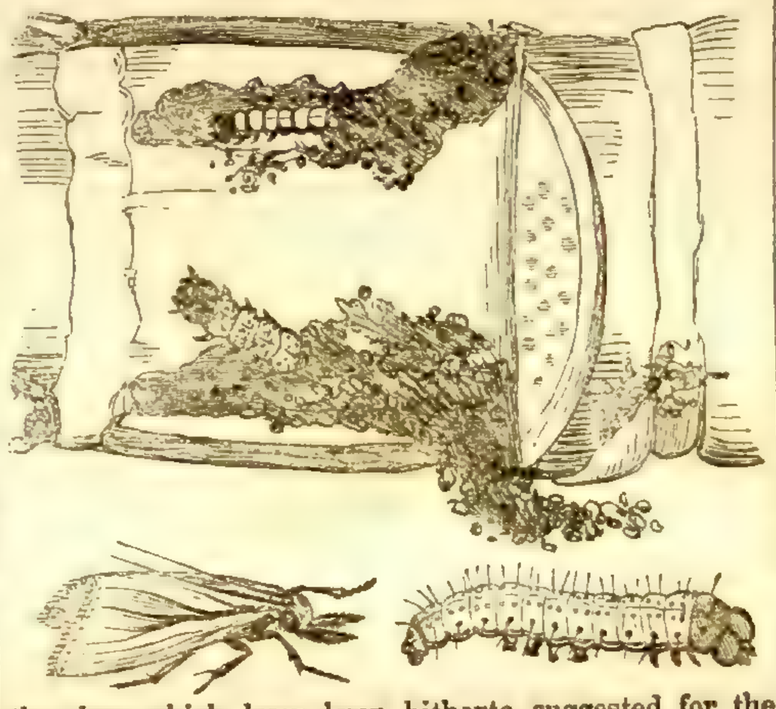
THE island of Mauritius is at the present time afflicted with one of those visitations which from time to time occur in different parts of the world, in which myriads of injurious insects perhaps never or but very rarely seen before are produced, destroying the crops of the earth to so great an extent as to spread desolation and alarm among the inhabitants. It appears from the report of a committee appointed to investigate the subject during the course of last year, that with the view of regenerating the various kinds of Sugar-canes grown on the island a cargo had been imported from Ceylon, and it is conjectured that it was in these canes that an insect was introduced which, from the habit of the caterpillar of boring into the heart of the Sugar-canes, has received the common name of the "Cane borer," and which is the offspring of a moth belonging to the section Tortrices of Latreille and genus Procerus of Hübner, and which is specifically named P. sacchariphagus in the report of the Committee before us, published in the early part of the present year.

The eggs are deposited among the green leaves of the cane, and the young caterpillars are found on the healthy canes at the axils of the leaves. They, however, soon eat the leaves from the tender parts of the heart of the plant, destroying the cane in a frightful manner, by forming burrows in the stem filled with excrement, and which shortly have the effect of completely disorganising the functions of the vessels, so that crystallisation will no longer take place, and the cane is not even fit for the making of rum. Having reached its full size (when it measures 12 or 14 lines long), it leaves the interior of the stem and forms a loose silken cocoon among the dead leaves of the plant, and the moth makes its appearance in about 15 days, which with 9 days in the egg, 31 in the caterpillar, and 4 or 5 in the perfect state will give about 60 days for the entire transformation of the species, so that in the course of a year (as the broods appear to be consecutive) there are five or six generations. The caterpillar has the head covered with a black plate, the neck is also covered with a paler coloured plate, and the body is furnished with a number of short black hairs arising from small black points connected laterally by a pink band, and the perfect insect has the wings silvery grey, powdered with ferruginous and with slender black radii and marginal black dots.

The following is a summary of the suggestions which, at the request of Dr. Ulcoq, a large Sugar cane planter in the island, I have submitted to the committee appointed to report upon the subject.

The natural history of the borer presents several points of great importance, showing the difficulty of attacking the insect in its natural state and position. The fact of the larva being an internal feeder of course prevents the application of remedies of an external kind, such as are used for the destruction of aphides, scale insects, &c., either by syringing the plant with an offensive liquid, such as tobacco water, infusion of quassia, and the like, or by suffocation by the fumes of sulphur or tobacco; in like manner poisoning or disgusting the insect by the vegetative absorption by the plant of liquids which would injure the insect without affecting the plant appears equally impracticable; and hence I must confess myself as sceptical as to the alleged benefits arising from adding one portion of pentasulphide of calcium to 30 of water in which the cuttings of the cane tops for planting have been immersed.* The continuous production of the insect throughout the season, as many as six generations in a year having been computed, renders any attempts to destroy the perfect insect on its arriving at the winged state almost hopeless. The only suggestion which I would make on this head is that it should be ascertained when the earliest brood of moths appears in the spring, and that during the week in which they appear saucers of burning oil should be placed at nightfall near the canefields, in order to attract and burn the newly hatched moths. This remedy however (which has been found of very great advantage in France as applied to the destruction of the Vine Tortrix) would only be found beneficial by all the cane planters adopting it simultaneously.

The burning of the worst infested canes, as well as every particle of the tops, leaves, and dry straw which have fallen to the ground and do not pass through the mill, appears to me to be the most advantageous of all



the plans which have been hitherto suggested for the destruction of the insect in large quantities.

The treatment of the cuttings made for fresh plantations seems to require especial care, since the instinct of the parent moth teaches it to deposit its eggs on the young and tender parts of the plant, which are precisely those which are selected for these cuttings. The immersion of these cane tops in water heated to at least 120° to 125° Fahrenheit whereby the borer is destroyed, is a process which, although in skilful hands it may prove effectual, is very liable to be attended with dangerous effects in unskilful, and it has suggested itself to my mind that as the caterpillar is hatched in nine days from the deposition of the egg, it would be very advantageous if the cane tops could be placed for a fortnight or three weeks in a greenhouse or other erection within which the atmosphere might be kept well saturated with the fumes of prussic acid. This would unquestionably destroy the young caterpillars as soon as hatched, and it has been found practical in England to adopt this plan, using a considerable quantity of bruised Laurel leaves for the purpose of evolving the fumes of the prussic acid. It may also be suggested that if the cane tops were laid or planted in trenches, kept well moistened with water, the destruction of the insect would to a great extent be effected, and I cannot but think that the sudden development of the borer in such vast numbers so soon after the introduction of the plants from a different locality is owing to a different mode of treatment, such as growing the plants in a drier soil, which would have the effect of giving a greater energy to the powers of development of the insect.

The repeated observations which have been recorded on the sudden and periodical appearance of certain species of insects in vast numbers lead me to infer that the present invasion of the borer in Mauritius is only a temporary one, which even if left in the hands of Nature herself would in the course of a season or two be brought within much narrower limits. A case precisely similar to the present has been communicated to us by the celebrated Indian botanist, Dr. Wight, who was for some years employed by the East India Company in superintending the Cotton plantations at Coimbatore in the Nilgherries. In the year following the introduction of the plants from the United States they were attacked by an insect, and not less than three-fourths of them were killed; since that period, however, with the exception of a stray individual or two, the insect has not again made its appearance.

I presume the insect now infesting the canes in the Mauritius is identical with the borer of the West Indian Sugar-cane described by the late Rev. Lansdown Guilding, in the Trans. of Soc. of Arts, xlvi., 143, under the name of Diatræa sacchari (for which memoir he received the gold Ceres medal of the Society), which, however, appears to me to be identical with the Phalæna saccharalis of Fabricius, Ent. Syst. III., pt. ii, p. 238. It appears that the West Indian canes are never entirely exempt from this dreaded pest, which occasionally destroys whole acres, the larvæ burrowing into the stem in the same manner as the borer of the Mauritius.

The accompanying wood-cut represents part of the stem of a cane with two burrows of the borer, also the larva itself and the moth, copied from the plates attached to the report above mentioned. P.S. Since the above was written I have been informed by an intelligent Jamaica cane grower that the borer was very destructive in that island about 15 years since, and that its ravages were greatly checked by the refuse being allowed to accumulate upon the grounds, fire being then lighted to windward which soon cleared the grounds, the old roots subsequently throwing up more vigorous shoots. *J. O. W.*

* I cannot, however, but think that if a very careful examination of the canes were made from day to day with "intelligence" and "perseverance" (those two most essential elements in this as in all similar investigations), a careful planter might make great progress in getting rid of the insects by examining the axils of the leaves for the eggs and young larvæ, by cutting out those young larvæ which have only just penetrated into the cane, and by cutting down and burning the canes worst infested. A most instructive case of the good results of such a process of intelligent perseverance in clearing a large greenhouse from scale insects has been lately recorded in the *Gard. Chron.*

EXAMPLE OF BOTANY IN VILLAGE EDUCATION.

IN reply to your proposal to print the papers shown you by "B.," you are perfectly welcome to do so. But allow me to preface their insertion in the *Gardeners' Chronicle* by stating the way in which they were obtained. If you think it likely to be of use, I will send you a few notices explaining the plan on which I have proceeded. The experience I have acquired since I sent you a notice on this subject, some four or five years ago, has amply convinced me that systematic botany might be conveniently adopted for *educational* purposes (as distinguished from merely *instructional*) with the children of country parishes. Here it has been taught as merely after-school work, restricted to volunteers, the lessons given at uncertain intervals, and without books. I have no hesitation in saying the results have been decidedly beneficial. Observant faculties have been strengthened, reasoning powers expanded, the intellectual and moral status improved. If the plan were a little more systematized, as I hope to see it, and schoolmasters and schoolmistresses adequately qualified for carrying it out, we should find it a most important adjunct to whatever means may be employed for raising the intellectual character of our agricultural population.

It was in order to give "B." an idea of what some of our village school children know about the wild flowers of this district, that I prepared two blank schedules (No. 1), and carried some specimens of "Geum rivale" to the school. Whilst the rest of my little friends used their slates, the observations of the two most proficient were inserted by themselves on the blank schedules, and there was not a single fault in their spelling. They were then asked a few questions, which had also been previously prepared, and their replies were noted down *verbatim*. They then had specimens of "Geranium pyrenaicum" given them, and were told to prepare a schedule (No. 2) for themselves, and fill it up.

To show their replies more distinctly, whatever is here given in italics was either written (in the schedules), or spoken (in answer to the questions), by the two children, one of whom was 14, and the other 13 years old.

SCHEDULE No. 1 FILLED UP BY H. S.

	Number present.	Modification, from Cohesion.	From Adhesion, Insertion.
Calyx, sepals ..	5	*Monosepalous* ..	*Inferior*
Corolla, petals	5	*Pentapetalous* ..	*Perigynous*
Stamens ..	∞	*Polyandrous* ..	*Perigynous*
Pistils, carpels	∞	*Polygynous* ..	*Superior*

Class:—*Dicotyledons.* Division:—*Angiospermous.* Section:—*Calycifloral.* Order:—*Rosanths.* Genus:—*Avens.* Species:—*Water.* Any other species of this genus in Hitcham?—*Common Avens.*

Marks assigned by J. S. H.—4 + 8 + 12 + 16 = 40.

J. S. H.—You have lost one mark by not observing the five small outer sepals of the calyx. This plant has been said to have a double calyx; but perhaps it is better to consider the five outer sepals in the light of bracts, and then the outer calyx must be called a small involucre.

SCHEDULE No. 1 WAS ALSO FILLED UP BY S. M. L.

Marks assigned by J. S. H.—4 + 6 + 12 + 16 = 38.

J. S. H.—You also have lost one mark from not observing the five outer sepals. And you have further lost two marks from saying the calyx is pentasepalous, whereas the sepals distinctly cohere, and therefore the calyx is to be described (as H. S. has done) as monosepalous. I see that M. B. has correctly noticed the five outer sepals.

J. S. H.—I shall now ask you a few questions respecting this Water Avens. You know (I see) that it belongs to Rosanths, and that Rosanths are Dicotyledons: but suppose you had not known this plant to belong to Rosanths, what would have decided your placing it among Dicotyledons?

Child.—*Veins of leaves branched; sepals and petals in fives.*

J. S. H.—Do you know any Monocotyledon which has the parts of any of its floral whorls either five or twice five in number?

Child.—No. (One thought she did, but could not name any plant.)

J. S. H.—You may be sure, if you had no other characters to guide you, that flowers with five or 10 parts to any of their whorls are Dicotyledons. You have placed this plant in the Angiospermous division of Dicotyledons: why so?

Child.—Because I know it is only the Conifers that belong to the Gymnospermous Division.

J. S. H.—You know that Angiospermous implies that the seeds are inclosed in a vessel. What is the botanical name for this vessel which incloses the seeds?

Child—Pericarp. (One of the children had forgotten.)

J. S. H.—What is the pericarp derived from?

Child.—Ovary.

J. S. H.—You have placed Rosanths in the Calycifloral section of Dicotyledons. Why so?

Child.—Because the corolla and stamens are attached to the calyx.

J. S. H.—Some Ranunculanths look very like some Rosanths: each with their five petals, their numerous stamens and regular flowers. How would you instantly distinguish between them?

Child.—Because Ranunculanths have hypogynous corolla and stamens, and Rosanths have perigynous.

J. S. H.—Thalamifloral Dicotyledons are partly characterised by having polypetalous corollas. This Water Avens has a polypetalous corolla. Are Calycifloral Dicotyledons at all characterised by this circumstance, or are there other conditions of the corolla in flowers of this section?

Child.—Yes: monopetalous.

J. S. H.—The Corollifloral section has monopetalous flowers. How then do you discriminate between such as you would place in this section and such as are monopetalous and yet retained in the Calycifloral section?

Child.—Corolla with stamens are hypogynous.

J. S. H.—Do you find stipules in the specimen?

Child.—Yes.

J. S. H.—Do you find bracts in the specimen?

Child.—No.

J. S. H.—Do you know the name by which the pericarp is called in this plant?

Child.—I don't know.

J. S. H.—It is not yet ripe, but it will be an Achene. The petals and stamens are strictly perigynous in Rosanths; but look at our list of Hitcham plants, and think a little, and say whether there are any of this order in which they assume an epigynous character?

Child.—The Crab Apple.

J. S. H.—You might have added the common Hawthorn.

SCHEDULE No. 2 WAS ALSO PREPARED AND FILLED UP BY H. S.

	Number present.	Modification, from Cohesion.	From Adhesion, Insertion.
Calyx, sepals ..	5	Pentasepalous ...	Inferior
Corolla, petals..	5	Pentapetalous ..	Hypogynous
Stamens	10	{ Monadelphous ... / Decandrous ...	Hypogynous
Pistils, carpels...	2	Monogynous ...	Superior

Class:—Dicotyledons. Division:—Angiospermous. Section:—Thalamifloral. Order:—Geraniánths. Genus:—Cranesbill. Species:—Mountain.

Marks assigned by J. S. H.—5 + 12 + 12 + 14 = 43.

SCHEDULE No. 2 WAS ALSO PREPARED AND FILLED UP BY S. M. L.

Marks assigned by J. S. H.—5 + 12 + 12 + 13 = 42.

J. S. H.—I see you both have been doubtful about the number of carpels in the pistil. You might, I think, with a little more consideration have stated them as being "many" (∞). I have allowed the usual marks, as I always prefer a (?) to a guess. I have given H. S. one more mark than S. M. L., because she has favoured me by adopting the name Geranianths in our new list, instead of the old one Cranesbills, with which S. M. L. seems so well content that she has not troubled herself further.

You have both answered very well, considering we have not examined these two flowers this year.

Hitcham, June 15, 1856. J. S. HENSLOW.

Home Correspondence.

Gardeners' Benevolent Institution.—As the next election of this Institution approaches, the anxiety of the friends of the candidates for the pension naturally increases, and the question whether any but subscribers should be eligible becomes more agitated. My constitutional repugnance to "appear in print" is great, and would not have been overcome, if I had not seen this morning in your pages a communication signed "A Working Man," who says, he writes through your columns because he does not know who are on the committee, or he would have laid his case before them. If he is a subscriber, this information is fully afforded him in the papers which are annually transmitted to him. However, as he has chosen the *Chronicle* as the channel in which he may state his reasons why a subscriber should alone be the recipient of the charity's bounty, I, in return, working for one who is not, reply to his arguments. Many years ago, before I became a subscriber, I was more than once solicited by the Secretary to become one, but declined on the ground that I knew of no person who was a claimant for the pension, and if I was to start a candidate, living in the north of England where there are few subscribers, I never should be able to elect him. At last however Mr. Cutler mentioned the name of one who had been put on the list, and whom I had known 20 years before, a foreman in a London Nursery, and for whom I had a great regard, and I became a member at once for the purpose of assisting him. It is this feeling of our nature which commenced the charity, carries it on, and if done away with will destroy it, or very much impair its usefulness. It has its origin with the wish of each member to assist some particular candidate whose suffering and destitution he is either acquainted with himself, or from the statement of a friend. Do away with this feeling, and make it a law that subscribers only, and first those who have subscribed the most, shall be eligible to the pension, and the Institution becomes a benefit club, and when one pensioner dies the committee have only to meet *pro formâ*, and elect his successor, on the principle of priority or seniority. All interest in our exertions for an election are then at an end, and the society will soon find its strength annually and rapidly decrease. By the exertions of myself and other friends of blind Robert Hodge, whose case we have taken up, we have added 16 new subscribers of 21*s.* each to the funds of the Institution. Is this vicarious subscription not to be considered as that of the poor candidate? I am not by any means arguing that a subscriber has no preferential claim—God forbid. If there were two candidates unknown to myself or friends of equal moral merit, and whose distress was on a par, I would at once give my votes to him who had most assisted the charity, the bounty of which he asked in return. "A Working Gardener" (and I know of very few who are not so in one way or another) closes his letter with what he calls the old adage—"Charity begins at home"; but he quotes it incorrectly—it is, "Charity should begin at home," and if it does not begin there, it begins nowhere. It should begin with our own family, friends, and neighbourhood, and after that extend its horizon with its means. In the course of my canvas for votes, I have found some, not very many, object because my friend was not a subscriber, but I have not found one of those I solicited to become members of the Institution refuse for the reason assigned by "A Working Man," viz., that the "fruits of other people's labours" are enjoyed by those who are not entitled to them. The great cause of so few working gardeners subscribing is, as Sir Joseph Paxton said, the low and inadequate wages they receive; they prefer running the risk of distant and contingent evil rather than submit to a privation immediate and certain. Does it not occur to "A Working Gardener" that if the gardeners as a body were to subscribe, on the principle he lays down, they could carry any one they might propose? But if they do not do so, surely he should not complain if the uninterested supporters of the charity should now and then wish to nominate one. "A Working Gardener" says something about the "committee consisting of nurserymen," and of the "present practice being to them a convenience," &c. To this I have only to remark, while I remember that "sufferance is the badge of all our tribe," that the poor blind man I am interested for never "paid me a penny." I accidentally came across him, and I cannot conceive a case which should more excite the sympathies of our nature than his—a kind, good, and moral man, struck blind in middle life, doomed for the remainder of it to eat the cold crust of casual charity. I have to apologise for this long letter, but I was incontinently obliged to write when I saw the remarks of "A Working Gardener," which, if unanswered, are calculated to injure the charity we are all so desirous of supporting. *Geo. Cunningham, Oak Vale Nursery, Liverpool.*——I am glad to see the claim of candidates who are subscribers to this Institution supported. I protested against the principle on which Blair was elected in preference to those who had supported the Institution, and I am watching with interest the result of the next election; for with Alexander Gregory numbering on the last occasion 523 votes, and only his third application, against Joseph Jeffreys' 142 votes, who had subscribed eight years, his fifth application, there seems little chance. I, with many others who with difficulty can spare a guinea, am sorry that there is not some preference given at least to those who have subscribed above half the term of years. Why not let their votes count double?—for it seems, as your correspondent in last week's Paper hints, that nurserymen have great interest in getting in particular parties. As regards the ensuing election, I have been solicited by two to vote for Michael Quigley, who never subscribed to the Institution; but I could not listen for a moment to anything so unjust to those who had lent a helping hand to assist others. I have given my votes, as I always do and will, to Joseph Jeffreys and Ann Arnold (although I know nothing of them) until they are elected. If gardeners as a body would only follow this rule, the charity would meet with more encouragement from that class. I, like your correspondent, have solicited many to become members, but I am ashamed to say it without gaining any one. It is grievous to see men in good situations raising paltry excuses against subscribing their mite. How many claims they may have upon their salary I don't pretend to say; we have all ways enough for it; but there should be in the subscribing to this charity the pleasing satisfaction that should we require in our old age a helping hand it will not be refused us or our widows. That we may never require it is the wish of all. The great age of Joseph Jeffreys, 83, with eight years' subscription, against Alexander Gregory, 63, who has never subscribed to the charity, will be watched by many a hard-working and subscribing gardener. *G. Bond, a Subscriber.*

Water Lilies.—I have more than twice as many flowers on my Water Lily this year as usual, owing to our having lowered the pond in May from its usual level. Why do we not hear of hybrids between the hardy and tender Nymphæas? *Somerset.*

Gooseberry Caterpillar.—The following is a certain remedy for this pest. In a mild day wet the affected bushes with water from a syringe or watering-pot, and with a pepper-box sprinkle over the wetted leaves some white Hellebore powder. The caterpillars will soon be destroyed if this is carefully done, and be seen lying on the ground in scores. Hellebore is a poison, but it neither injures the leaves nor the fruit. It costs only 1*s.* 6*d.* a pound, and may be got in any druggist's shop. The whole expense, including labour, need not exceed ¾*d.* per bush. For the last 12 years I have seen it used every year with complete success. *J. Lockhart Morton, Lasswade, Mid-Lothian.*

Carbonic Acid Bread.—Wheaten bread or flour may be set up with carbonic acid gas and water, as I have directed, or the carbonic acid may be indirectly "suborned" as follows:—Flour or whole meal, 1 lb.; bi-carbonate of soda, 40 grains; sugar, one pinch, if liked; salt, one pinch. Mix thoroughly, then add water, half a pint; muriatic acid, 50 drops. Knead thoroughly but quickly, and bake likewise in a quick oven, or on a hot plate, with a double cover. Anybody may grind their own meal in a 30*s.* mill. Rotating ovens are sold throughout London, while double covers for hot plates have been recently patented in Glasgow. For 10 lbs., or any larger quantity of meal or flour, the acid, the soda, and the water may be multiplied by 10, and so on for any larger quantity. Brown or whole meal bread will require one-fifth more water than white bread. The preceding receipt is for white bread, so one-fifth more water will make it suitable for brown bread. That is to say, for making 8 lbs. of whole meal into brown bread, 5 pints of water will be required, whereas for 8 lbs. of flour, 4 pints of water will suffice, and so on for larger quantities. When the acidulated water is added, the acid combines with the soda and turns it into common salt, while the carbonic acid gas escaping raises the bread. The bi carbonate of soda, otherwise baking soda, costs at the druggist's 4*d.* per lb. The muriatic acid is equally cheap. Once weighed, the ingredients may be afterwards measured. The resulting bread, whether brown or white, is simply delicious. *Henry M'Cormac, M.D., Belfast.*

Quercus sessiliflora.—If any of your correspondents can inform me where I may find large, healthy and well-grown individuals of this Oak, bearing acorns, I shall be greatly obliged. I should take an opportunity of visiting some of the trees of most promising description in July or August, and of satisfying myself of the correctness of the species, and thereafter when the acorns are ripe I should myself or by some trustworthy hand gather the acorns for sowing in my own seedbeds. As I have the Ordnance Map of as much of England as has been published, a reference to that map by any correspondent who is kind enough to assist me will make the locality perfectly clear. *Diss.* [We recommend the New Forest.]

Crystal Palace Fountains.—Unless I misunderstand the meaning of the paragraph which you insert from the *Times* in your article upon the new water fountains at the Crystal Palace in the *Chronicle* of the 21st June, there is a palpable mistake in it. It is this. "The large fountains in the lower basins, and the circular one situated on the plateau, depend solely upon the water for their effect, and not at all upon architecture or sculpture like the smaller fountains on the terraces," &c. Now does this mean that the effect of the fountains on the terraces is heightened by the proximity of the statues and architecture on the terraces, or by the sculpture and architecture belonging to the fountains themselves? as if the latter is meant, as I read it, the report is erroneous, unfortunately no sculpture or architectural design adds beauty and interest to any of the garden fountains. This is what I have always considered the great desideratum at the Crystal Palace—some tasteful designs for constantly playing fountains, for which Rome, Paris, and most continental towns afford admirable examples—appropriate designs which may add full effect to the play of the water, and when dry may form a pleasing ornament to the grounds. I have mentioned this to the authorities, but though they quite agree with me, they say at present it cannot be afforded. I would rather at first have spent money on these than have made such an outlay upon those grand works which can only give pleasure for half an hour. At Paris you may see those beautiful fountains in the Place de la Concorde and elsewhere playing all day long, and the same with other continental cities, but in London, except those lovely dumb waiters in Trafalgar Square, and two or three other nearly as fine specimens, we have I believe nothing in England that we can call a handsome public fountain. How delightful is the sight and how grateful the sound all who are near fountains in hot weather can fully appreciate. We look to the Crystal Palace for models of taste to follow, and the noble gardens require but the animation and charm caused by permanent fountains to make the scene perfect. Even the fountains within the building scarcely ever play. I will only add the hope that when the company is in funds something more worthy of the place and of the national taste may be found than to my humble taste the most extraordinary and incongruous compositions pointed out to me as appropriate in the gallery over the entrance to the centre transept. A few persuasive words in your columns may bring about the desiderata, and funds may be forthcoming for permanent fountains of graceful and appropriate design in the gardens, and at any rate the daily performance of the fountains in the building. *Birchhyrst.*

Melon Disease.—In your impression of the 30th ult. I read an article by "A. W." upon the failure (for the last three years) of his Melons. He has, he says, inquired of gardeners around him, and finds that they know of no such instance as the failure of whole plants and stalks just as the fruit is ripening. It is gratifying to find that failures of that sort are so rare; but that "A. W." is not a solitary instance I can fully testify, as for the last three years my Melons have failed precisely the same as "A. W.'s," although my treatment has been different from his. Instead of 18 inches of loose sandy mould lying loosely round the roots, I have 20 inches of rather stiff loam mixed with cow-dung three years old, about one-sixth of the latter to five-sixths of the former, pressed as firmly as the hand will do it all over the bed. The water I have used is rain-water, conveyed from the roofs of vineries and greenhouses into a cemented cistern, where it undergoes filtration. What can be purer for the purpose I know

not. In watering I have carefully avoided extremes, and where the cause of failure lies I am at a loss to conceive, unless it is by my inability to apply sufficient bottom heat at the time they begin to fail. My pits are 5 feet 6 inches wide by 12 feet long; I fill them with well prepared stable manure, which gives a bottom heat of 75° for a time, as it decays the heat declines, and I find it impossible to apply linings sufficient to keep up the heat in the middle of the bed without scorching the roots near the sides. Am I right in my opinion as to the cause of failure? *C. D., Wood Hall, Essex.*

Weston Flower Show.—The Weston people are 30*l.* in debt from last flower show and are begging for subscriptions to make up that sum. When I tell you that out of 252*l.* collected, only 64*l.* odd were allotted to prizes, you will not be surprised at the remaining four-fifths going to pay exorbitant bills of the tradesmen of the place. Printing, 28*l.*!; for the use of field, 5*l.*, one day!; police (two blue bottles), 4*l.* 5*s.*; and so on. *Somerset.* [If there is no mistake here, such charges ought not to be allowed by the committee. The first and third are outrageous—as they are stated.]

Melons, &c.—I perceive by your last impression that "A Looker On" at Whittlebury Lodge has got his eyes on some very fine Nectarines, and no doubt as Elruges they were very fine, as the weight (6 oz.) testifies. But as an old Peach grower I must open a "Looker On's" eyes by stating the fact that I have for many years sent Peaches to my noble employer's table weighing 10, 11, and one as much as 12½ ounces, which certainly was a "monstrous fine fruit," as Paddy would say. So much for Peaches. Now for Melons. I see one of your readers ("A. W.") is in trouble about his dying off before bringing the fruit to maturity, and your recipe of cow-dung water would, in my opinion, only hasten their dissolution in such uncongenial soil. Who ever heard of loose sandy soil to grow Melons in? I defy any one to produce a Melon fit to be seen on any such soil; in fact, the stronger or stiffer the loam the better for Melon growing. I have for many years grown my Melons in loam so strong that when I want grafting clay I invariably go to the same heap of loam, and I may just mention that in this strong adhesive loam—almost a clay—I have grown the Beechwood 12 lbs. weight, and the quality unsurpassable. Let "A. W." try the very strongest loam he can get, and he will have plenty of Melons. *An Observer.* [This advice about soil is certainly quite right; and we dare say "A. W." will take it hereafter. But it does not exactly meet the question, which is how to keep the Melons on *now*, not how to manage them hereafter. We still say try cow dung.]

Societies.

LINNEAN (Anniversary), *May* 24.—The President in the chair. The King of Portugal was elected an honorary member. The following new members of Council, viz., Prof. Bentley, L. L. Dillwyn, Esq., Prof. Owen, J. Woods, Esq., and J. Yates, Esq., were elected in the room of R. C. Alexander, Esq., G. B. Buckton, Esq., C. J. F. Bunbury, Esq., J. Curtis, Esq., and W. Spence, Esq. T. Bell, Esq., was re-elected President; W. Yarrell, Esq., Treasurer; J. J. Bennett, Esq., Secretary; and R. Taylor, Esq., Under Secretary. The President nominated F. Bootn, Esq., R. Brown, Esq., Prof. Owen, and W. Yarrell, Esq., Vice Presidents for the year ensuing. The annual accounts showed a small balance in favour of the Society. The Secretary reported that since the last anniversary eighteen fellows and one foreign member had been lost by death, and eight others had withdrawn, and that twenty fellows had been elected.

June 3.—The President in the chair. Mr. W. Penney was elected an associate. Mr. Westwood made some observations on a lepidopterous insect now ravaging the Sugar Canes in the Island of Mauritius. It was stated that this insect (of which as many as half a dozen broods are perfected in one year,) by burrowing in the Canes has greatly diminished as well as deteriorated their saccharine products. A conversation followed on the means of destroying the insect, and thereby preventing its ravages, in the course of which it was suggested that the best remedy seemed to consist in burning the whole of the Canes not fit for use, as well as the refuse, after selecting and preserving in situations beyond reach of the insects a sufficient number of sound eyes for the purpose of propagation. There was further read a "Note on the Development of Fungi upon Patna Opium," by the Rev. M. J. Berkeley. Some specimens of the shell of opium-cakes, consisting of the petals of Papaver somniferum, agglutinated with an impure opium paste, known under the name of lewah, had been sent to Mr. Berkeley by Dr. Thomson, to whom they had been communicated by Dr. Macinnon from Patna, in consequence of an affection to which the opium cakes have been subject for the last year or more. On examination with the microscope the shell from the perfect cake showed abundant mycelium of Penicillium, with necklaces of spores of various sizes, but without any symptom of consequent decay. The shell from the unsound cake was infested with Acari, and there were abundant traces of the same Penicillium, but not in so perfect a condition. There seemed also to be a mixture of the spores of Aspergillus with copious sporangia of Eurotium herbariorum, which is now recognised as a form of the fruit of that genus; besides which there were little heaps of white matter, consisting of minute bodies endowed with Brownian motion, and numberless infant spores of some mould resembling the yeast fungus. In the former case mould was present, but not in such abundance as to do mischief; in the latter, mould predominated, and was apparently the cause of the deterioration of the opium. Mr. Berkeley suggested as a remedy, that supposing the above to be the true explanation of the deterioration, the opium cakes should be submitted to sulphurous acid (the vapour of common sulphur), as soon as any mould appeared on them. Mould, he observed, certainly has the power of destroying the virtue of many drugs, and why not that of opium?

June 17.—The President in the chair.—A Special General Meeting was held for the purpose of considering a proposal from her Majesty's Government to give apartments to the Linnean Society in Burlington House, in conjunction with the Royal and Chemical Societies; when the following resolution proposed by Dr. Hooker, and seconded by Mr. J. Forster, was unanimously adopted, viz.: "That the Council be authorised to place itself in communication with the Councils of the Royal and Chemical Societies with the view of carrying out the proposal of the Government as to the occupation of Burlington House." At the ordinary meeting which followed, J. Wainwright, Esq, was elected a Fellow. The following papers were read:—1. "On a supposed new organ in insects," by J. B. Hicks, M.D. 2. "On a new species of Peziza, being the full developement of Sclerotium roseum of Kneiff," by F. Currey, Esq. The genus Sclerotium, the author observes, is one which has long occupied a doubtful position among fungi; and after having been bandied about from one family to another, the opinion has been gaining ground that the Sclerotia are not autonomous productions, but only the mycelia of other fungi, which being arrested in growth, whilst retaining their vitality, await only a favourable season for attaining their full development. In numerous instances they have been ascertained to produce fungi of various kinds and belonging to widely different families, but there is still a vast number in which no such subsequent development has been traced. Any new case in which the full development is observed thus becomes interesting to mycologists. Mr. Currey had observed a case of this kind in the Sclerotium roseum, which is found in the interior of the stems of Rushes and Bullrushes, and is of an oblong cylindrical form rounded at the end, and from ⅛ to ½ an inch long. In April last whilst searching for Algæ in a pool on Paul's Cray Common, Kent, he found an elegant Peziza growing on the last year's stems of a species of Rush, probably Juncus conglomeratus. On close examination this was found to be not attached to the surface of the Rush, but to issue from its interior, causing a longitudinal fissure; and on splitting open the Rush, a tubercular body became visible, which proved to be Sclerotium roseum, to which the stalk of the Peziza was attached, and to which in fact it grew. The number growing from each Sclerotium varied from two to 13. Mr. Berkeley has given to this Peziza, which proves to have been previously unknown, the M.S. name of P. Curreyanum. The paper was accompanied by a drawing of the fungus. 3. "Notes on some rare or undescribed fungi lately found in the vicinity of Malvern, Worcestershire," by E. Lees, Esq. This paper, which was accompanied by a series of drawings of the plants noticed, consisted principally, or at least to a very great extent, of characters and observations on the habits of several supposed new species of British fungi of the genera Agaricus, Cantharellus, Polyporus, Thelephora, and Mitrula.

The following circular has just been issued.—Linnean Society, 32, Soho Square, June 24th, 1856. At the Special General Meeting of the Society, held on the 17th inst., it was unanimously resolved:—"That the Council be authorised to place itself in communication with the Councils of the Royal and Chemical Societies, with the view of carrying out the proposal of the Government as to the occupation of Burlington House." The Council has had under its serious consideration the best means of meeting the expenditure necessary to be incurred in connexion with the removal, including not only fittings and furniture for the apartments in Burlington House, but also the cost of reinstating the Society's present house previous to the expiration of the first seven years of the lease; which together (as far as can be at present estimated) will require about 800*l.* As there are no existing funds from which this expenditure can be defrayed, and as it appears to the Council that it would not be desirable to add to the bonded debt of the Society, they propose to raise the estimated sum by a general subscription, and confidently trust that there will be no difficulty in obtaining it for so important a purpose; especially when it is considered that a large reduction will thereby be effected in the annual expenditure of the Society. In this confidence they submit the accompanying first list of subscribers, and earnestly recommend the subscription to the members. It being very desirable to ascertain as speedily as possible the amount subscribed, an early reply is respectfully requested. *John J. Bennett, Secretary.* The subscription to June 28th amounts to 410*l.* and includes the names of Thomas Bell, 50*l.*; John Joseph Bennett, 20*l.*; George Bentham, 20*l.*; Robert Brown, 20*l.*; Sir William Hooker, 20*l.*; Joseph Hooker, M.D., 20*l.*; John Lindley, 20*l.*; Richard Owen, 10*l.*; William Wilson Saunders, 20*l.*;

Notices of Books.

On the Variation of Species, with especial reference to the Insecta, followed by an Inquiry into the Nature of Genera. By T. Vernon Wollaston, M.A., F.L.S. London: J. Van Voorst, 1856.

IT has often been remarked that entomologists seem to have been overwhelmed by the richness and diversity of their subject, and have very seldom made the same use which botanists have done of their multiform facts, in regard to geographical distribution, classification, and other high branches of natural science. We have in this work of Mr. Wollaston's an admirable exception to the above remark. The author has almost devoted his life to natural history; he has visited Madeira four times in order to collect and most carefully to observe the insects in their native home. His great work on the Insecta Maderensia, beautifully illustrated by Mr. Westwood, affords a truly magnificent testimony of the author's zeal for science. Mr. Wollaston in the present volume generalises the results of his long-continued observations, and brings into play his accurate knowledge of the land mollusca of Madeira. The main result is that species, when inhabiting an island or any distant locality, vary considerably more than the great majority of naturalists are willing to allow. To those not conversant with natural history this may appear a trivial point, but undoubtedly it has a direct bearing on questions which every one must consider important, namely, on the first appearance or creation of organic beings. Mr. Wollaston argues in great detail (but we wish sometimes for even more detail), from finding a regular gradation of intermediate forms, that certain insect forms are only varieties, and not true species; but these varieties in some cases differ so much from each other, that had only a few specimens been collected, they would undoubtedly have been considered specifically distinct. From such cases the argument is carried on by analogy to other closely allied forms. Some naturalists think that the whole fabric of natural history is in danger of being crushed by the load of specific names; and these will hail with thankfulness Mr. Wollaston's work. We do not wish by this remark to undervalue the discrimination of the nicest details; we object only to the raising of minute points, even when strictly inherited, to an equal scale of importance with physiological differences, and differences of habits of life.

Although Mr. Wollaston admits a great amount of variation, he strongly denounces those who doubt whether there is any essential distinction between species and permanent varieties, such as Mr. Wollaston himself freely admits. He allows only a "legitimate" amount of variation; but the reader may search in vain for a distinction between legitimate and illegitimate variation: it seems hard justice to denounce any one for breaking a law, which is not and cannot be enunciated, and which even the lawgiver himself does not seem always to know (p. 33, 39,) whether or not he is breaking.

In regard to the causes of variation, Mr. Wollaston attributes but little to the direct action of climate, more to the effects of the neighbourhood of the sea, and most of all to isolation. The effects of isolation must be considered at present as empirical; for it is not obvious why mere seclusion should cause variability. To isolation, and consequent interbreeding, the author attributes that diminution of size which is frequently characteristic of the Madeira insects. Much might be said in favour of this view; at the same time it must be owned that breeders, for instance of short-horns, will probably be surprised to hear of ill effects being attributed to the interbreeding of some 20,000 or 100,000 individuals, living on an island 30 miles in length—a perfect continent to such little creatures.

One of the most remarkable facts discovered by Mr. Wollaston in Madeira is the frequently wingless condition of the beetles; out of 550 Coleoptera there collected, no less than 200 are more or less apterous—a truly surprising proportion. It particularly deserves notice that several of those genera which have winged species on the continent have wingless species in this little group of islands. We are thus reminded of the Dodo and Solitaire of Mauritius and Bourbon, and of the Apteryx and other great extinct wingless birds of New Zealand. As in the caverns of North America and of Styria, the beetles and other animals which inhabit these eternally dark recesses are eyeless, inasmuch as sight would be useless to them; so on the small islands of Madeira, Mr. Wollaston thinks that the beetles are wingless, because powers of flight would be of little use, or even injurious to them, as when once on the wing they would be very liable to be blown out to sea and thus lost. Not only are many of the truly endemic beetles here apterous, but Mr. Wollaston firmly believes that some of the actually same species, which are winged in Europe, are wingless in Madeira. The tendency to diminution in size attributed by the author to interbreeding, is thought to be sometimes overborne by the supposed law of compensation or balancement; by which increase of general size has been gained by the loss of the organs of flight. But we think further observations are wanted on this head; and we would venture to suggest to the author to collect, if possible in the same locality, half a dozen of the British Calathus mollis in its winged, half-winged, and quite wingless condition, and compare each series in regard to general size.

The final chapter contains a valuable, but perhaps

somewhat too metaphorical, discussion on classification, or the relation of groups to each other. There are several other interesting subjects, especially geographical distribution, treated with much ability, but on which we have not space here to enter. Under a discussion on the powers of diffusion which different species possess, there are, as we believe, some quite unparalleled facts given, namely, the existence in abundance of Helix Wollastoni, and of some varieties of other species of Helix, on certain hills in Porto Santo, and nowhere else in the whole group; this same species and the same varieties being found fossil in the ancient superficial calcareous beds (which include several extinct species) in the same identical localities where their living descendants now flourish, and nowhere else fossil or recent in the Madeira group.

Finally, we can confidently recommend this work to the attention of naturalists as very instructive, and as eminently suggestive—than which we can hardly give higher praise—for on the abstruse questions here discussed, we may almost say with jesting Pilate, "What is truth?" We believe that Mr. Wollaston by the present work and by his Insecta Maderensia will have gained the high and well deserved respect of naturalists, even of those who will, either in going less far or further on the probable amount of variation, most differ from him.

Garden Memoranda.

MR. SALTER'S, HAMMERSMITH.—During the last few weeks there has been a grand display of Chinese Pæonies at this nursery. Mr. Salter's collection of these gorgeous flowers is perhaps the most extensive in the country, comprising as it does all the finest English and continental varieties, and they have blossomed unusually well this season. No one who has not seen these flowers can form any idea of their great size and beauty. Several of the sorts measured quite 8 inches in diameter, and they have colours varying from pure white to citron, blush, rose, and crimson. The finest we noticed among them were Queen Victoria, blush with a lemon centre; Humei alba, blush; Buyeki, dark rose; grandiflora nivea plena, very large white; Anemoneflora striata, yellowish white; Papaveræflora, blush and white; Reevesi plenissima, crimson; Melbourne, rose with a buff centre; Reine Hortense, rosy lilac with white centre; elegans superbissima, rose with salmon centre; Pottsi, crimson; P. plenissima, dark crimson; elegans, yellowish white; rosea plenissima, rosy pink; Victoire Modeste, blush; sinensis odorata, rosy crimson; triumphans Gandavensis, blush and citron; prolifera tricolor, white and lemon; lilacina superba, rosy lilac; Gloria Mundi, pale rose and citron; amabilis, sulphur-coloured; Maria, rosy crimson; virginalis, white; Walneriana, pale rose and white; edulis superba, dark rose; sulphurea superba, sulphur tinged white; Reine des Français, white shaded with delicate rose; Charlotta, dark rose; formosa, pale straw colour; and Duchesse d' Orleans, rose and blush. Collections of cut flowers of these beautiful varieties were shown both at the Regent's Park and Crystal Palace exhibitions, and we need not say were universally admired. When planted sufficiently near ponds to permit their large and showy blossoms to be reflected by the water, they have a charming effect.

In another part of the ground we observed a plantation of singularly marked and variously coloured Fancy Pansies. Among the more conspicuous of them were Orpheus, bronzy purple edged with yellow; Dandy Dinmont, yellow and purple with a yellow border; Celestial, white, shaded and margined with violet; Cerberus, purple and brown; Paul Pry or Mazeppa, purple, broadly tipped with white and very striking; Episcopalus, violet, striped with rose; Reine des Panaches, rose, striped maroon; Model, rose striped with purple; Butterfly, purple, mottled with yellow; Aristo, purple striped with lilac and rose; Bobo, silvery lilac; Leopold, purple mottled with yellow; Jonas, lilac striped with rose; Mars, red mottled with pale yellow; Pirate Queen, mottled purple with a yellow edge; Judy, violet, bordered with white; and delicata, red striped with lilac. Of these Mazeppa, though long in cultivation under the name of Magpie, is particularly worth attention. An extremely well marked bloom of it was shown at the last exhibition in Regent's Park by Mr. Stark of Edinburgh.

Indoors were several new striped Petunias, which have a very gay appearance. Among them were Madame Lemichez, lilac striped with white; Marquess de St. Innocent, dark purple striped with white and really very pretty; Madame de Pruines, black striped purple; Ernest de Lepineau, pale lilac striped white; Imperatrice Eugénie, violet striped with white; maculata, mottled rose; gloriosa plenissima, semi-double blush with green edges and centre; and Hermione, white spotted with lilac. We also noticed a distinct-looking seedling Geranium named Unique Rose d'Amour, pale rosy peach spotted with lake, trusses large and produced in great profusion.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The beauty of most soft-wooded plants here may be considerably prolonged by the use of weak manure water, which should be given as often as can be done conveniently. Indeed such things as Achimenes, Clerodendrons, &c., may be had in full beauty from June to October through being liberally supplied with manure water, but care must be taken not to give it too strong, especially at first. Keep the atmosphere as moist as can be done, but avoid damp at nights by leaving sufficient air on to cause a gentle circulation, and spare no attention that will keep the plants clear of insects. Stock for autumn and winter flowering will now require some care to get it sufficiently forward to be useful at the proper time. Chinese Primulas, especially the double varieties, if at all backward, may now be placed in a close frame, and shaded from the sun, when they will be found to make satisfactory progress. Cinerarias for early flowering should also be potted and started at once, choosing the strongest suckers for the purpose, and placing them in a close shady frame until they have become rooted. They are sometimes attacked by thrips, but if they are kept cool and moist, and smoked occasionally, no danger need be apprehended from this or other pests, and they will grow vigorously. COLD PITS.—The stock here will now be growing freely, and should be examined frequently in order to see if all is right; for plants growing rapidly speedily suffer from neglect in watering or from the attacks of insects. Examine young specimens that were potted early in the season, and shift at once such as require more pot room.

FORCING DEPARTMENT.

PINERIES.—Such varieties as are at all liable to spoil at the bottom before the upper pips are coloured should now be kept as dry as possible immediately they show the least signs of colouring, keeping the atmosphere also as dry as can be done without injury to the rest of the stock. VINERIES.—Grapes intended to hang through the winter should be thinned very freely, and, if necessary, they should be gone over a second time, leaving them so that the berries, when fully swelled, will scarcely touch each other. A moderate crop only should be left on the Vines; for, to ensure success in keeping Grapes fresh and in good condition till next March, the Vines must be in first-rate health; be satisfied, therefore, with a moderate, or rather light crop, in the late house. Keep the atmosphere of houses where the fruit is colouring in active circulation, using gentle fires by day, with abundance of air, and leaving a little air on at night, to prevent damp. If red spider appears inclined to be troublesome, wash the pipes, &c., with a mixture of soot and lime, and if the colour is objectionable, add more soot. FIGS.—Trees that have been kept dry while ripening the first crop, and are now cleared of this, should be well watered at the root, and if there is any appearance of red spider, the leaves should be thoroughly washed with the engine. Give manure-water to trees showing a heavy second crop, and keep the atmosphere moist by frequently sprinkling the passages and borders, &c. Keep the shoots thin and regularly tied, so as to avoid confusion, and expose all parts of the tree equally to the light. Where the fruit is ripening attend to previous directions, and keep the atmosphere and borders as dry as can conveniently be done. Assist trees in pots by giving them a liberal supply of manure water.

FLOWER GARDEN AND SHRUBBERIES.

Go over the beds frequently, and keep the young shoots of Verbenas, &c., nicely regulated and pegged down until the ground has got fairly covered, after which greater freedom of growth may be permitted. On light dry soils two or three applications of weak manure water given at intervals of a few days and when the ground is moist, will greatly assist in getting the beds covered without loss of time. See that Dahlias, Hollyhocks, &c. are securely staked and kept properly tied. Remove decayed flowers and seeds from Roses, and give autumn flowering varieties plenty of manure water in order to keep them in vigorous health and to secure plenty of "blooming wood." Such as are budded on the Dog Rose must be kept clear of suckers. Budding may now be proceeded with when the weather is cloudy. Give plants infested with green fly a liberal washing with the engine, or syringe them with Tobacco water. Mildew sometimes becomes troublesome after this season; it may however be kept in check by applying sulphur to the parts affected the moment it makes its appearance, first wetting them with water, in order that the sulphur may stick. Where required proceed with propagating herbaceous plants, in order to get this kind of work out of hand and the glasses, &c., at liberty for other purposes. Take advantage of showery weather to give the walks and lawns a good rolling, and endeavour to keep the Grass short and neatly mown.

HARDY FRUIT AND KITCHEN GARDEN.

Where Strawberry runners are in good condition, stock for forcing next season may now be potted, and placed in a close shady frame until it has got established. Prepare ground for fresh plantations by heavily manuring and trenching it; or if land cannot be obtained at once, select the strongest runners and plant them on a shady border in rich soil, to be transplanted with balls next month. During this month Asparagus beds can hardly have too much manure water from the stable or farm-yard tank. On light dry soils salt may be applied with advantage, but this should not be used on strong stiff ground, as it keeps it wet in winter and rots the roots. Finish planting out the principal crops of Broccoli and winter greens, and proceed with planting out Celery as ground can be spared for it, using plenty of manure and keeping it liberally supplied with water. Attend to staking late Peas, and keep the ground moist about those in a forward state, giving them a thorough soaking occasionally with water, which will help to prevent mildew. See to keeping up a supply of salad, Spinach, &c., and sow a good bed of Cabbages for winter use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 3, 1856, as observed at the Horticultural Gardens.

June. and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 27	24	30.144	30.030	88	57	72.5	66	59	S.W.	.00
Satur. 28	25	30.162	30.038	82	37	59.5	66	60	N.	.00
Sunday 29	26	30.256	30.189	77	42	59.5	66	60	S.W.	.00
Mon. 30	27	30.114	29.987	80	49	64.5	66	60	N.W.	.00
Tues. 1	28	30.202	30.178	71	44	57.5	66	60½	N.E.	.00
Wed. 2	●	30.193	30.162	72	36	54.0	67	60½	N.E.	.00
Thurs. 3	1	30.217	30.170	73	37	55.0	65	60	N.E.	.00
Average		30.184	30.096	77.5	43.1	60.3	66.0	60.0		.00

June 27—Cloudless and hot; very fine throughout.
— 28—Uniformly overcast; hot and sultry; very fine; cold at night.
— 29—Clear; with dry air; very fine; clear.
— 30—Clear; very fine; cloudy at night.
July 1—Very fine; cloudless; air very dry; fine.
— 2—Dry haze; very fine; unusually cold at night for the period of the season.
— 3—Clear and very fine throughout; cold at night.
Mean temperature of the week 2 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending July 12, 1856.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	76.7	52.3	64.5	12	0.45 in.	—	3	1	4	5	9	6	2
Mon. 7	74.1	53.2	63.6	16	0.34	1	1	5	2	6	8	4	3
Tues. 8	74.6	51.3	62.9	16	0.46	—	1	5	2	1	10	7	4
Wed. 9	74.3	51.0	62.6	13	0.57	3	1	2	—	3	8	9	4
Thurs 10	74.5	51.4	62.9	11	0.48	2	2	1	1	3	13	3	5
Friday 11	74.3	52.1	63.2	8	1.07	4	—	3	1	4	6	6	6
Satur 12	74.4	51.3	62.8	11	1.10	1	2	4	—	3	9	9	2

The highest temperature during the above period occurred on the 6th, 1852—therm. 95 deg.; and the lowest on the 10th, 1851—therm. 38 deg.

Notices to Correspondents.

DISEASES: *W B B.* Your plants seem to be affected by a form of the disease called clubbing, but as you remark there are no insects in the roots. In one plant the pith of the stem had been eaten, and in this I found a living larva, in addition to one which had fallen out. There was also another grub in the packet, the origin of which I could not trace. The curious point about your plants is that the cellular tissue of the thickened parts is completely filled up with a dense granular matter, which from the rose tint which it assumes under sugar and sulphuric acid is clearly nitrogenous. The section of the dry root resembles closely that of some dried brown truffle. Will you favour me with one or two fresh specimens wrapped up in tinfoil, or something which will prevent their drying up, directed Rev. M. J. Berkeley, King's Cliff, and I shall then hope to give you some better information. At the same time if any correspondent can transmit in a similar way an undoubted specimen of clubbing, it would be considered a great favour. *M. J. B.*

FUNGI: *Diss.* Drawings have been communicated which undoubtedly represent A. Vittadini. I have once, and once only, found this species on an exposed bank at Cotterstock, Northamptonshire. I have not heard of its being found this year, except in Norfolk. *M.J.B.*

GYNERIUM ARGENTEUM: *A M S.* This is the botanical name of the Pampas Grass. The latter will be found fully described and a woodcut illustration given of it in our vol. for 1854, p. 708. Its treatment has been given in our Number for March 15 of the present year, see p. 176.‡

HERBARIUM: *W D.* Dry your plants by pressing them firmly between sheets of paper, and frequently shifting them, in order that they may not become mouldy. When dried wash them with a weak solution of corrosive sublimate in spirit of wine. Afterwards fasten them with good carpenters' glue to paper, one species to each half sheet. Mark on the paper the name, locality, &c., of the species. Then collect all the species of each genus within a whole sheet of the same size, but stiffer, and mark the generic name on the left hand lower corner. Keep the sheets in any convenient cabinet. All this is explained in Professor Lindley's "Elements of Botany," p. 133.

INSECTS: *A Lady.* We do not know what is meant by a beetle-caterpillar; the insect that destroys the shoots of Pine trees is Hylurgus piniperda, of which a full account is given at p. 612 of our vol. for 1855. The striped Donax might, we suppose, be given to cattle green; just try whether they will eat it. It can do no harm.—*J S.* Your Asparagus beds are attacked by the common Asparagus beetle Crioceris Asparagi, the history of which you will find in the *Gard. Chronicle* for 1845, p. 592. We found no caterpillars on your Rose leaves, but from their appearance they seem to have been gnawed by the larvæ of the small black-winged saw-fly, the history of which is given in *Gard. Chronicle*, 1848, p. 524. *W.*

MORPHOLOGY: *G J.* It is a very striking instance of the torus or growing point of a flower proceeding to form a branch instead of remaining quiet.

NAMES OF FRUITS: *W Y.* Your Peaches are both the same sort, the Royal George.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*J R.* Hugo Finck was the collector who found it. Medicago orbicularis. We do not remember any Hymenocallis that answers to your description. —*Annie.* Tragopogon pratensis.—*A Botanist.* We do not recognize the little umbelliferous plant. Can you send us ripe seeds.—*Rusticus.* It seems to be some state of Lonicera Caprifolium. What is the value of a Honeysuckle that will not climb?—We have also received from some unknown correspondent, without any letter, a plant of Epidendrum virgatum and a flower of Trichopilia albida.—*H F.* We suppose Arctostaphylos Uva Ursi.

OLD PICTURE: *Sub Ant.* We doubt the possibility of answering your question.

PHALÆNOPSIS: *Orchid.* It is generally grown on a block of wood in preference to a basket. The Horticultural Society's fine plant to which you allude was grown on a block.‡

VINEGAR PLANT: *Somerset.* It is the spawn of a Fungus called Penicillium glaucum.‡

VINES IN COW-HOUSES: *C J S* would be obliged by any one who has tried the plan of growing Vines in cow-houses roofed with glass giving the result of their experience, and saying particularly if they allow the roots of the Vine to extend inside the house.

VINE MILDEW: *Reader.* Sulphur is a sure remedy for this disease, provided it is applied the moment the mildew appears. First wet the leaves and parts affected so as to make the sulphur stick, and then dust it thickly over them. You possibly fail from applying it in a dry state and from its not adhering to the Vines.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

ANALYTICAL REPORT (CORRECTED).

THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—

"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."

Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.

Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.

Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.

SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

FOWLER AND FRY, AGRICULTURAL IMPLEMENT MANUFACTURERS, Temple Gate, Bristol, beg to call attention to the under-mentioned articles:—

One-row Seed and Manure Drill, a most complete thing, 6*l.* 10*s.*
One-row Drill, for seed only, 4*l.*
Prize Grass Seed Distributor, 12 feet long, 3*l.* 10*s.*
Patterson's Patent Clod-crusher, which is so constructed that it is capable of working where the ground is in a sticky state from wet.
Corne's Patent Chaff-cutters.
Oat and Bean Mills.
Gardner's Turnip Cutters.
Bushe's Root Graters.
Cozen's celebrated Press Ploughs, &c.

FOWLER & FRY are Agents for all the principal makers of Agricultural Implements, and always keep a large assortment on hand in their Show-room.

Catalogues, &c, sent upon application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Exhibition of Stock, Implements, Poultry, &c., will take place on THURSDAY, November 27th, at Gloucester. Premiums to the amount of 412*l.* will be offered for Cattle, Sheep, Pigs, and Horses, and 120*l.* for Poultry. Members only can compete for the Premiums for Stock, but the Poultry Premiums are open to Public competition.—For further particulars apply to EDWARD TRINDER, Secretary.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of Live Stock (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 7th; and on the previous day there will be a public Trial of Implements. Premiums to the amount of 694*l.* are offered, many of which are open to general competition.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool.

YORKSHIRE AGRICULTURAL SOCIETY.—OPEN TO THE UNITED KINGDOM.—The NINETEENTH ANNUAL MEETING will be held at Rotherham, August 6 and 7 next, when 800*l.* will be awarded in Prizes. The entry closes on the 23rd July.

Prize Sheets and Certificates may be had on application to JOHN HANNAM, Secretary.—Kirk Deighton, Wetherby, July 5.

SOUTHDOWN SHEEP.

MR. HENRY OVERMAN informs his friends and the public that his SOUTHDOWN RAMS are ready for Letting; he has also 120 SOUTHDOWN SHEARLING EWES for Sale.—Weasenham, Rougham, Norfolk. July 5.

HAMPEN RAM SALE—1856.

T. BEALE BROWNE, Esq, has fixed MONDAY, the 28th of July, for the Sale by Auction of about 50 COTSWOLD SHEARLING RAMS, and four or five older Sheep. Two or three will be Let. Mr. BEALE BROWNE, on this occasion, hopes to have the pleasure of the company of his numerous friends, being satisfied that his Flock will meet their entire approval. Sale at 4 o'clock.—JAMES VILLAR, Auctioneer.

Hampen is 8 miles from Cheltenham, and 2 from Andoversford.

N.B.—This Flock took 10 Prizes, and three Gold and Silver Medals last year in Paris; in Ireland; at Carlisle, Hereford, Yorkshire, and Gloucestershire.

MR. JONAS WEBB begs to inform his friends and the public that his THIRTEENTH ANNUAL SHOW of PURE SOUTHDOWN RAMS will take place on FRIDAY, July 11, when the honour of their company will be esteemed a favour. The Sheep will be let or sold as usual, and may remain upon the farm until required by the purchasers. Conditions of the Sheep letting may be had on application. J. W. will forward Sheep half way, should the distance be further than 12, and not exceeding 100 miles; and all Sheep let at 20 guineas and upwards will be carriage paid by J. W. to any Railroad Station, and also on their return. Whittlesford Station on the Eastern Counties Line is two miles from Babraham. By permission, all trains, except the express, will on that day stop at Whittlesford, where conveyances will be in readiness to meet all the trains.—Church Farm, Babraham, near Cambridge.

The Agricultural Gazette.

SATURDAY, JULY 5, 1856.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY,	July	15	Great Meeting of the Royal Agricultural Society of England, at Chelmsford.
WEDNESDAY,	—	16	
THURSDAY,	—	17	
FRIDAY,	—	18	

THE suggestion made last week on the facilities which the Railway Companies might afford both to employers and to labourers during harvest time needs to assume a more practical form before it can be made useful.

Among the points tending to a common understanding on the subject are the following:—

(1). There ought to be a meeting in London of those employing the Newsvendors on the several lines to consider (subject to the approval of the different Railway Companies) what should be the remuneration, payable both by masters and by men, for every labourer thus engaged, and to determine on some device, which should be universal, to indicate at each station the office where information on the subject may be had.

(2). The Railway Companies ought to issue *harvest* tickets, which, like excursion tickets, would enable the holder to stop on the road without forfeiting his ticket, or even to go on (if time did not allow of his obtaining a fresh ticket) by paying the difference between the place for which he took his ticket and the place he stopped in. For instance—

If he took his ticket from London to Richmond he ought to be allowed to get out at any of the intervening stations (Brentford, for example) without giving up his ticket, or he ought to be allowed to go on to Windsor by paying the additional fare from Richmond to Windsor. How far this might suit the views or arrangements of the Companies we cannot of course tell, but they have already recognised the principle in their excursion tickets. These *harvest* tickets ought to be of a completely different character to all other railway tickets, so that the porter at each station would see at a glance that there was no imposition.

(3). All the employers of labour wishing to encourage the plan, should at once send to the nearest station to say how many persons they were likely to want, and if this were promptly done it would give the vendors of books an idea whether the matter was worth their notice, and the railway companies and telegraph companies ought to give them facilities for making the plan known by the circulation of hand-bills, posters, telegraphic messages, &c., at a very low rate; but if once organised it is our opinion that the system would become universal, and would be found of immense utility both to employers and workpeople.

The vendors of books at the several stations appear to be the most proper persons for agents; they are generally intelligent and quite alive to their own interests, and on the arrival of a train at each station it would be the easiest thing in the world for them to add to their usual cries of "*Times!*" "*Punch!*" &c, those of "Twenty mowers wanted!" "Fifty hay-makers wanted!" "One hundred reapers," or "Twenty Hop-pickers," as the case might be.

The newsvendors, if once they organised such a system, would no doubt give it great extension by communicating with each other by rail or telegraph (provided facilities were given for so doing), and would also pay and receive commissions from each other for intelligence, or workpeople sent to the station where they were wanted. *T. G.*

MAGNIFICENT harvest weather has succeeded magnificent growing weather, and there never, probably, was a better crop of hay in process of being better "won" than is now being gathered in throughout southern and central England.

A warm fortnight has improved the promise of a good Wheat harvest which most districts give—and it will be earlier ready for the sickle than was generally expected. We shall, as usual, give during the next few weeks reports from correspondents in the several counties, and shall be prepared early in August with a general report on the probabilities of the harvest, which will then be capable of more confident prediction.

The reports of green crops generally intimate the attacks of fly as being unusually mischievous among the Turnip fields, and the blanks among our Mangel plants as being unusually numerous. These have in many instances been filled up by transplanted Kohl Rabi or sown Turnips, and where they still exist transplanted Mangel plants still furnish the means of filling them when the soil again becomes moistened with showers.

The past season has distinguished most remarkably between the energetic and inactive cultivator. Showery and dry weather have alternated at such short intervals that the one has always been exactly suited while the other has been just too late. The agricultural diary of two men alike in the circumstances of soil and weather which have affected them, but differing thus in personal character, would during the spring of 1856 show with even greater clearness than it generally does how much the latter exceeds the former in its influence on personal experience.

WE publish in another column the questions put by the Agricultural Examiners to the candidates for the Certificate of the Society of Arts at their late annual examination in connection with the Mechanics' Institutes of the country. Only three offered themselves for agricultural examination; the certificates at the disposal of the examiners were of three classes, viz., Excellence, Proficiency, and Competency; and *one* of Proficiency was awarded. Our object in publishing the questions put is to add that we shall be glad to receive answers to them from any of our readers: and we shall be happy to present a copy of this Journal free for five years to come to the writer of the best set of answers that we may receive during the month of July.

It will be interesting to our readers to learn that among the four silver medals at the disposal of the Society of Arts for Papers read during the current session, two have been awarded for agricultural papers; one to Mr. WREN HOSKYNS for his paper on the Agricultural History of the past 15 Years, and one to Mr. BAILEY DENTON for his paper on the late Results of Land Drainage.

THE recent publication of a remarkable balance sheet before a Bankruptcy Court furnishes an extraordinary illustration of the need for personal superintendence in agricultural investments. Large sums spent in the purchase of estates, added to large sums spent in alterations and improvements, were confronted by the present value of the estates so altered and improved, ludicrously smaller than the cost by which their present state had been attained.

The landowner was, in this case, not a landlord merely, nor even chiefly—his attention was necessarily occupied by large business transactions, and could not be devoted to what never will succeed without it. Land improvement in order to be profitable must be carried on directly by those personally interested in its success, and capable of giving undivided attention to it. This is as true of an English estate at present as it has been of a West Indian one since labour has been paid for there, and produce has been unprotected. In neither case will deputies or even principals, if they be distracted by other cares, make profitable managers.

That success, however, does attend personal attention and the same energetic business habits as are needed to secure it in commercial pursuits when they are devoted to agricultural improvements may be proved by many instances. We do not know of any more striking than the case lately noticed in our columns of Mr. Fowler's estate on Dartmoor. Here, in a climate where grain will hardly ripen—one of the exceptional cases therefore quoted by Mr. Wood at the late discussion on breaking of Grass lands—Mr. Fowler, a Liverpool merchant, placed himself in 1847. The purchase of a portion of the moor was followed by the erection of farm buildings and a house, the enclosure of the land, and the cultivation of it. Green crops grown most successfully fed cattle under shelter, and the land, most of it laid down again, yields enormous crops of Grass. Six weeks ago fields worth in 1847 not 2*s.* per acre let for summer grazing for nearly 60*s.* And now a bleak and barren moor is rapidly becoming a pleasant country residence, while the balance of present value against original cost and subsequent outlay will prove as great a contrast to the balance against the unfortunate bankrupt in the case we have just referred to as any one interested in agricultural progress could desire.

DESTRUCTION OF WEEDS.

The subject of your leading article a week or two back on "eradicating weeds" is of vast importance, and claims especial attention of all agriculturists, and if the best means of attaining your object effectually were circulated through the columns of your *Gazette* it would prove one of the greatest achievements of the present day. Permit us to observe that if we wait till manual labour alone effects it, amongst thick crops especially, hey (the weeds) will not, and cannot ever be got rid of, in an agricultural point of view, however willing labourers are to work and their masters are to pay them. Having ourselves taken two farms last Michaelmas of 100 acres, completely run out with weeds of almost every description, we ought not to have grown an atom of grain or any other crop the first year, but confined ourselves solely to the extirpating of weeds. To cope with weeds, however, in our present position, was our first consideration; but having too little capital to employ to farm the first year without a crop, we had recourse and applied ourselves energetically to planting our corn in rows nearly 2 feet apart from each other, on the common stetched land, in order to clean it as effectually and cheaply as our own humble means and circumstances would allow us, thus admitting room for the common scarifier, horse hoe, Bean hoe, Turnip hoe, hack hoe, and all sorts of hoes, either wide ones for the interstices between each row and the furrows, or narrow ones for cleaning the rows of corn, which are, or rather ought to have been, planted early, and as singly and uniformly as possible; and this is how all corn might and ought to be planted to ensure the best of crops, whatever thickness different cultivators may think proper to adopt their seeding. (We contend not over 1 bushel per acre.) We have had till the present date, June 24, the horse-hoe in full operation extirpating the weeds, and hoeing the furrows, and "double-tomming" them up as a finish, a single small horse doing as much work, and more good, than 20 men could possibly do in the same space of time, and shall be able to perfect the cleaning of all the spaces by hand labour, chiefly by women and boys (for want of men) at all convenient times, with large and small hoes even up to the time that the corn is fit for the sickle, thus destroying most of the weeds, which would otherwise and under ordinary management have been allowed to run to seed. The result is that the most of the weeds are demolished, and the fecundity of the grain plants is assisted, and standing thin, as we profess to grow them with most advantage, they are surprising, having many large ears superlatively fine, waving majestically in the summer's breeze, as noble examples to larger establishments. We believe that if this system was persisted in repeatedly for about four years, very few weeds would remain to trouble any one, and that grain crops could be grown successfully, profitably, and bountifully for a series of years on the same ground without so much exhausting the land as in the common course of cropping. Unfortunately, however, the usual tenure of leases does not allow corn to be grown on this plan, hence the successes of some persons who have land of their own, over others who have it not so, or who hire it under restricted leases.

The fact is, that every good farmer ought to have the privilege of farming as he pleases, which would generally be to his own advantage, and his landlord's also. We consider this as one of the greatest hindrances to good farming or gardening. It may probably be here observed by some that this constant stirring of the soil so deeply between the rows of corn only encourages the surface weeds to germinate more readily and quickly, and the hoeing to injure the rootlets or fibres of the corn. Then why not set about more earnestly clearing them off again, if the aim is to detroy them and their posterity? and rest assured that every time the land is stirred it admits air and atmospheric food to the roots and blades of the corn, and that it then makes fresh rootlets, &c., which take a firmer hold of the land, and prevents its falling or lodging. (Root-fallen corn is occasioned chiefly from its being thick at an early stage of its growth.)

If the land we have recently taken were our own, or had we no restricted leases, and had we had sufficient capital at our command when we commenced to carry us through the first year, we should not have hesitated sacrificing our whole crop for that season; but would have adopted the following course:—First, as soon as we became in possession at Michaelmas, we would have set about cleansing all the ditches deeply, and examined all waterfalls, would have felled the timber and Pollards, plashed all the hedges to one uniform height, would have pared all the banks, and ploughed up all the windrows and headlands one rod wide, and would have burned all together at the very first opportunity that dry weather offered, and carted the thousands of loads of burnt earth thus supposed to be accumulated all over the barren fields (which must now be done by bits and bits, this year and next year, &c., if ever at all).

We would have planted small coppices of timber at some of the corners of the fields on the short lands as shades for cattle, for we have an idea that this is the plan that timber ought to be grown, if it is grown at all in this country. Such little groups or coppices of timber plantations we can conceive would have a charming and picturesque effect studded all over different districts, and were there a mandate for such a scheme it is our humble opinion it would not be amiss; for without some such a provision the loss of hedgerow timber may ultimately be seriously felt in this country, or we may be too dependent on foreign nations for it to suit our own interests.

After this we would have effectually drained the entire farm, and then have ploughed it all subsoil fashion, regardless of weeds for the present, and after it had been thus exposed to the frosts of winter, preparatory for a summer's fallow, we would then have taken the first opportunity of dry weather in early spring for using the scarifier, broadshare, harrow, horse-hoe, &c. &c., and thus by constant scuffling and picking all the Couch Grass, &c., which was not brought sufficiently to the surface for the sun and droughts to conquer, have reduced it to a perfect tilth as fine as possible, and rolled it down tight, would then have left it all till the first rains in summer had brought all the surface seedling weeds into action, when we would have repeated the whole operation of ploughing, scarifying, horse-hoeing, broadsharing, scuffling, harrowing, &c., barring the subsoiling crossways of the land, upsetting every field and every acre clean-fallow like. It being now Midsummer there would have been but little to fear of constant rains to hurt. Then we would have waited the next rains, and till the next crop of surface weeds had established themselves; meanwhile, when there would have been nought else to do, would have set all hands to work with Parkes's steel forks, and eradicated every patch of Twitch or Couch, Docks and such like perennials, which no summer fallows can or do ever exterminate. Thistles we believe are biennials, and all biennials may be destroyed in one year by constant cutting below their crowns if they are not allowed to seed, or propagate by offsets at their base. Some persons say Thistles do not seed; this is not the case, but their seeds lie dormant a whole year before they will germinate, neither will they then, unless exposed to the surface of the soil, like all other buoyant seeds, as Carrots, Dandelions, &c. Then for the last operation we would have transversed and upset all again into the regular order best suited as the fall of the land would have admitted of for conveying the surface water into the drains and ditches.* Assuming thus far to have been completed at about Midsummer, we would then have let all the land lie dormant again for six or eight weeks longer rolled down fine for another crop of weeds, and then with all possible despatch, no later than the last week in August or first week in September, have ploughed all in again with the greatest precision and exactness, every stetch in uniform order, scuffling, &c., into a perfect bed preparatory for the reception of the seed corn, sowing immediately without delay all (Wheat the first year, or rather the second year of holding) without any manure, except the burnt earth, in equal rows, five on a stetch, at about half a bushel to a bushel per acre for the first year; and the next year four rows in like manner alternately, merely transversing the ploughing, cropping, &c., either with the same crop again, or any other, as may be deemed preferable.

No fears need be entertained of grubs, slugs, &c., reducing such thin crops thus treated too much in winter, nor in spring. No, no; they are, like ourselves, more fond of tender food, and will reject plants when tough and old and stale; neither do rabbits feed on them so freely as when they are young and tender, and the plants themselves are thus more able to resist frost and other vicissitudes than those sown much later. Selected seed we find by experience is far preferable than sowing promiscuously any that comes first to hand, and half a bushel is quite sufficient to secure the best of crops; 3 pecks we consider too much or more than needful, 1 bushel extravagant, and over this to 2 or 3 bushels quite an abomination. Whatever thickness, however, our friends choose to adopt, we recommend all to grow their own seed (if they will not their general crops) on the thin principle, or procure it of some one who has done so, as by repeated growing it thin and singly in its natural state without any artificial means whatever in the shape of stimulants, it certainly improves its habits, and every year produces larger ears and finer corn, whereas by growing it thicker than it is naturally inclined, by various stimulants it becomes degenerated more or less, and is subject to diseases of various kinds. This rule applies equally to all kinds of corn, and to all kinds of seeds. It is a rule invariably with us, when we desire to keep a true stock of any one kind of seed, to grow it on poor land without dung; but when we grow for quantity we act contrary and sometimes have dearly to repent of it. This is especially exemplified in the case of the Potato at the present day. Mildews and blights and diseases of various kinds certainly attack precocities most, and such crops as have been stimulated with strong foods, such as liquid manures, guano, &c., for forcing abundant crops large in size, &c. It extends too to animal life; the fattest beasts for instance are by no means the most free from disease. And even the human body suffers premature death from gluttony and excessive drinking. *Hardy and Son, Seed Growers, Maldon, Essex, June* 29.

* The common practice of laying the land rough and cloddy in summer fallows, with a view of clearing the land from seedling annual and perennial weeds which often become ruinous, is a fallacy, except it is for killing Couch Grass and such like old-seated perennials or herbaceous plants, which can only be destroyed by uprooting and picking them off. The seeds of such cannot thus germinate, and the land, too, by being thus exposed to the summer's sun is much deteriorated and exhausted by evaporation, instead of being benefited thereby. The only motive it was evidently introduced for was to kill weeds—correct idea enough; but in this it fails by being laid rough and exposed, instead of being kept as confined as possible when it is not stirring. As corroborative of this statement, let a load or more of stones be shot down in a fallow field during the whole summer, or a corn or wood stack be set up, or a door or shutter be constantly kept on any particular spot; or choose a place where a building, house, or shed, &c., has stood, and the rest part of the field be exposed to the summer's droughts till the time of sowing, and we will vouch for a crop of Wheat outvieing the rest, and any one will have ocular demonstration of it, as the spot will be visible as far as the eye can discern it.

SOCIETY OF ARTS EXAMINATION IN AGRICULTURE.

I. Farm Practice.—In answering the following questions on the management of a farm, you will make your replies throughout consistent with the scheme of cultivation which you lay down for yourself in the first of them. The farm in question is 320 acres in extent—70 acres being in meadow-land and pasture: the soil is an adhesive loam, and its quality may be indicated by its rent and rates, which amount in all to 2*l.* 5*s.* per acre.

1. State the mode in which you will crop this farm, supposing it situated in midland or southern England—giving the acreage under the several crops you name—and bearing in mind (in reference to your crops for cattle food) what the requirements of your live stock may be. 2. State the quantity of seed you will need upon the farm for each of the crops you grow. 3. Estimate the produce of the farm in bushels of the several seed crops grown; and state the sum you will realise for each according to what you consider an ordinary price for each per bushel. 4. Say how many horses you will need to work the farm, and name the operations in which they will be engaged during the months of June and October respectively. 4 Relate the several operations after Wheat harvest in the culture of a succeeding Mangel Wurzel crop. 6. Estimate the cost of each of these operations per acre; and give all the other items which make up the cost per acre of the Mangel Wurzel crop. 7. Describe as concisely as you can the culture of Saintoin and Trifolium incarnatum, among forage crops—of the Carrot and Potato among root crops—of the Bean and of the Oat crop. 8. Say what quantity of purchased manure may be reasonably applied during the year upon the farm, enumerating the kinds and stating the application of each. 9. Give the number and kinds of the several agricultural implements which you will need upon the farm, state the cost of each, and say what implements you would have substituted for any on your list had the soil of your farm been a light sand instead of an adhesive loam. 10. Estimate the expenditure in wages on the farm, and name the ordinary prices per acre of the following operations; (*a*), hoeing Wheat; (*b*), thinning Turnips; (*c*), digging Potatoes; (*d*), mowing Clover; (*e*), reaping Wheat. 11. Give a rough estimate of the capital needed during a year's tenancy of the farm, specifying the amounts required respectively for rent and taxes, labour, horses, implements, live stock, seed, manure; and say if there is any other principal item of expenditure to be taken into account in addition to these. 12. Estimate the quantity of straw which under your scheme of cultivation will be produced for use as litter, fodder, &c. State also the number of tons of cattle food which your farm will yield, naming the several crops, the probable produce of each per acre, as well as on the whole. 13. Say how many and what kinds of live stock you expect to keep. 14. How long do the mare, the cow, the ewe, the sow, go with young? Name the months when you would wish them to bring forth, and give reasons for your choice of the time. 15. Give the probable annual consumption of a full-sized farm horse in full work, and sufficiently fed on Oats, Beans, and hay in winter, and on Oats and green food (Rye, Vetches, and Clover) in summer. Give the annual consumption on any other scheme of feeding, for which you might make provision on a light land farm. 16. Say how you would manage as to food, &c., during its first year a well-bred calf to be reared for fattening. 17. Give the routine of operations in the cattle feeding house during a day in February, stating the times of feeding, &c., and the quantities of each kind of food supplied per head. 18. Suppose an ox feeding to 60 or 70 imperial stone, to be ready for the butcher towards the end of its third year; state the kinds and quantities of food it will consume during its last nine months, from June till March. 19. Describe the operations of cheese-making, and say what quantity should be made from good meadow land in a dairy of 50 cows of a productive kind during the month of May. 20. If the farm we have supposed had been in Fifeshire instead of Kent or Surrey, what changes in the mode of cropping you have named would have become advisable?

II. Theory of Agriculture.—1. Name the causes to which the increased fertility of land just drained is to be attributed. 2. State some of the purposes served by fallow operations on the soil, whether during the growth of the crop or otherwise. 3. Describe the economical management of a dung heap, and give reasons for the several processes you recommend. 4. Name

some of the ways in which the application of lime to the soil increases its fertility. 5. Estimate the money value of a manure per ton possessing the following composition :—

Insoluble phosphate of lime	14.2
Soluble phosphate of lime	12.8
Organic matter	*15.5
Gypsum	32.2
Alkaline salts	2.3
Sand	13.5
Moisture	9.5
	100.0

6. Explain the increased efficiency of bones as a manure obtained by treating them with sulphuric acid. 7. Give reasons for the greater value of the manure from full grown fatting beasts as compared with that from young stock in a store condition. 8. State the way in which the warmth and quietness of feeding animals are found to economise their food. 9. Explain the process by which the addition of rennet induces the coagulation of milk.

III. RECENT AGRICULTURAL PROGRESS.—1. State the principal additions made of late years to the number of our agricultural implements. 2. Name those crops the cultivation of which has been either introduced or very largely increased during the past few years. 3. What is the most important improvement now generally adopted in the management and cultivation especially of clay soils? 4. Describe Mr. Smith's (of Lois Weedon) system of cultivating Wheat, and state the principles on which his experience of its success receives its explanation. 5 Name such recent geological discoveries as have been already used, or which promise to be made of use in agriculture. 6. Describe the cultivation of Italian Rye-grass, its probable produce under given circumstances, and the soils and locality on the farm to which it best suited.

MANUFACTURE OF SUPERPHOSPHATE OF LIME.

Long as bones have been employed as manure, and long as their difficult decomposability in the fresh state has been known, it is but recently that endeavours have been made to secure a higher and quicker return from the bones by a preliminary treatment. All that was done at first was to crush the bones coarsely ; afterwards the assistance of a previous fermentation to destroy the toughness of the cartilage was employed ; and then various forms of mills were made use of with a view to a more complete crushing of the material. In the present day sulphated bone-dust and the fine bone-dust from steamed bones dispute for the preference, and both are undoubtedly better than the earlier bone-dust. Both, when well prepared, contain a great abundance of fertilizing ingredients, and both are in a state of extremely fine division, in which they may be immediately assimilated by the plants ; when equally well prepared, one is only to be preferred to the other upon considerations of cost.

Chemistry has little to do with the preparation of the steamed bone-dust ; the steaming is a simple process, requiring no chemical knowledge, and several analyses have shown that during their steaming the bones principally lose fat and but little gelatine. Although it is placed beyond a doubt by numerous observations of practical agriculturists, that steamed bone-dust is assimilated by plants in a tolerably short time, the sulphated bone-dust still deserves the fullest consideration, especially until the manufacturers of the former manure can prepare it in sufficient quantity for the general requirements, and more easily soluble than the sulphated material.

A chemical preparation of the bones by treatment with sulphuric acid furnishes a manure that must be preferred to the steamed bone-dust, because the phosphate of lime contained in the bones is converted into a more soluble compound, and at the same time a mechanical disintegration of the bony tissue takes place.

Unfortunately these good qualities are scarcely to be met with in most of the samples of sulphated bone-dust which occur in commerce, for either only the finer parts of a coarse bone-dust are converted into superphosphate, whilst the coarser fragments, as might be expected, have escaped the action of the acid, or the whole mass of bone-dust is indeed penetrated by an excess of acid, but the acid phosphate has again been converted into the neutral salt by slaked lime or soap-boilers' refuse, so that a considerable sum is paid for a mechanical division, with the addition of a considerable weight of useless matter. There is less to be said against those manufacturers who dry the acid bone-mass with coal-dust or peat-charcoal, and thus render it pulverisable, although they not only use a considerable quantity of sulphuric acid, but also dilute their manure, and thus increase its weight too much for distant transport. The best process yet employed consists certainly in kneading the bone-paste, prepared with an excess of sulphuric acid, with bone-charcoal, which would otherwise be incapable of employment, and drying the mass ; of course, however, a product of this kind can only be prepared by a few manufacturers, and cannot be brought into market in anything like sufficient quantities. Its manufacture is confined to the districts of the sugar-refiners.

The following method is free from this limitation, and at least equally favourable in its results ; the author recommends it from his own experience.

As the complete solution of 155 parts of phosphate of lime [$(CaO)^3,PO^5$] requires 98 parts of hydrated sulphuric acid (SO^3,HO), about 104 parts of English sulphuric acid containing a little water, or about 90 parts of fuming sulphuric acid, but the bones, including the shafts, articulations, and cartilages, give on an average 55 to 60 per cent. of ashes containing 50 per cent. of phosphate of lime, we may calculate that for the breaking up 100 kilogrms. of bone-dust (taking into account the carbonate of lime) the quantity of ordinary English sulphuric acid required cannot exceed 36 kilogrms. Many English manufacturers use as much as 50 per cent. of sulphuric acid to the bone-dust ; but this quantity is excessive, and needlessly increases the price of the manure. Less acid even may be used by confining its action to the coarser fragments of the bone-dust, as these will longest resist solution in the soil.

By the ordinary process the very reverse takes place ; the whole of the bone-dust to be prepared is treated at once, or by degrees, with sulphuric acid, and the minute particles are first converted into superphosphate, the other portions following in proportion to their size, the largest fragments remaining untouched. The author therefore recommends the separation of the dust from the bone-mills by means of three or more sieves into dust, the particles of which are under 1, 2, and 3 millims, &c. The coarsest fragments are then first treated with the whole of the sulphuric acid, and the other portions are added in the order of their increasing fineness.

The calculation of the quantity of sulphuric acid to be employed in this case has nothing to do with the entire quantity of the bone-dust, but only with the portions which require disintegration, such as the fragments whose smallest diameter is above two millims ; the particles passing through apertures of one millim certainly do not require it ; the intermediate portions according to circumstances. If 40 kilogrms. of the coarsest fragments have been sifted out of 100 kilogrms. of bone-dust, they certainly only require 15 kilogrms. of English sulphuric acid, and if 25 kilogrms. be employed, there remains an excess of acid sufficient for 26 kilogrms. of finer fragments.

The sulphuric acid requires an addition of water, as English sulphuric acid contains only 20 per cent. of water ; and not only is water lost during the operation, but 155 parts of phosphate of lime fix at least 20 parts of water in their conversion into superphosphate, and the 136 parts of sulphate of lime formed at the same time may fix 36 parts of water. Nearly half its weight of water may therefore be added to the sulphuric acid.

It is advisable only to add the water after the coarsest fragments are soaked with the sulphuric acid, and to pour it in in small portions with constant stirring, as in this way the heat evolved by the mixture is favourable to the operation. The application of heat is unnecessary, and after standing for 24 hours the fragments of bone are completely softened, and may be crushed with the fingers. The finer particles are now kneaded into the paste, which is left standing for some days before the addition of the fine dust, after which, by leaving the mass in a dry place, the moisture soon disappears. An increase in the quantity of water facilitates the kneading of the mass, when the arrangements of a manufactory are such that hot drying places may be made use of.

By the treatment of 100 kilogrms. of bone-dust in the above manner with 25 kilogrms. of English sulphuric acid and 13 kilogrms. of water, about 130 kilogrms. of superphosphate of lime are produced. This is certainly dearer than the same weight of the ordinary sulphated bone-dust, but possesses the same efficacy as 200 to 300 kilogrms. of the latter, and is therefore comparatively cheaper, without taking into consideration the greater facility of transport.

In external appearance the preparation is a whitish-gray, crumbly, or pulverulent mass ; in dry air it does not become moist, its taste is scarcely perceptibly acid, and it may therefore very well be kept in sacks.

The advantage of the process just described over those already in use are, that—

1. The acid acts most powerfully upon the portion which is most difficult of solution ;

2. Only a very small quantity of sulphuric acid is required ; and 3. The unnecessary increase of weight is avoided, and distant transport is thus facilitated.—*Chemical Gazette.*

* Containing 1.6 of ammonia.

AGRICULTURAL STATISTICS OF EUROPE.

DIVISION 3—FRANCE.—CONCLUSION.

By MR. H. READER LACK.

THE agricultural statistics of France have been so recently brought before public notice by the translation of M. Léonce de Lavergne's Essay on the Rural Economy of the United Kingdom, compared with that of France, that allusion to them is hardly necessary. A recapitulation of some of the leading facts will, however, be requisite for the purpose of drawing some comparisons between the productive powers of the several European states included in this paper, so far at least as agricultural produce is concerned.

FRANCE.—The soil of the empire of France is distributed under the following heads :—

	English Acres.
Natural meadows	9,880,000
Artificial meadows	7,410,000
Roots	4,940,000
Wheat	14,820,000
Oats	7,410,000
Rye, Barley, Maize, and Buckwheat	14,820,000
Fallows	12,350,000
Other crops	7,410,000
Vineyards	4,940,000
Woods	19,760,000
Total cultivated	103,740,000
Uncultivated and waste lands	27,170,000
Total	130,910,000

It is stated in M. L. de Lavergne's work that a large portion of the uncultivated land in France is capable of improvement and of being brought into cultivation. Inclusive of woods it will be seen that the area of cultivated land at the present time exceeds one hundred million of acres. The woods occupy about one-seventh of the total area of the empire.

The principal Grain raised annually in France is estimated at—

	Imp. quarters.
Wheat	24,062,500
Mixed corn	2,625,000
Rye	6,150,000
Barley	3,718,750
Oats	10,718,750
Maize	1,531,250

About one-sixth of the crops is required for seed. Beetroot is very extensively cultivated in France for the manufacture of Beet-sugar, which is generally used throughout the country.

France is also rich in other agricultural products ; she raises annually large crops of Madder, Tobacco, Rape, Olives, and various fruit and vegetables.

The farm holdings vary considerably in size, but by far the greater number belong to the class of "small holdings."

Let us now review what has been stated in the present and two former divisions of this paper, and see in what relation these nations, whose statistics we have been examining, stand with regard to this country and to one another.

In the first place we shall find in the following table the proportion of cultivated land to each inhabitant in each of the countries named, in the years for which the details have been given already :—

	Acres.
Russia	6.59
Prussia	2.51
Saxony	0.68
Hanover	2.42
Wurtemburg	1.69
Austria	2.41
Belgium	1.03
France	2.33

Although these proportions are not all for one particular year, they may yet be taken as affording a fair approximation of the relative amounts of cultivated land in the countries alluded to. Russia, from her enormous territory and comparatively small population, stands at the head of the list ; and this should not be forgotten in comparisons between this and the more densely populated states of Europe. On the other hand it shows what room Russia has for an increased population.

According to the returns furnished to the Census Commissioners in 1851, the extent of cultivated land to each inhabitant in Great Britain was 1·38 acres. This amount appears small when compared with the proportions in some of the continental states, but then the superiority of English farming makes up in a great measure for the small extent of the land. What would not English farmers make of the fertile soils of the continent, or what would not the inhabitants of those countries be able to produce if they farmed on British principles ?

It must not be supposed, however, that those countries which have the largest proportion of cultivated land produce the largest crops, as will be seen by comparing the annexed table with that already given.

Countries.	Wheat.	Rye.	Barley.	Oats.
	PROPORTION TO EACH INHABITANT.			
	Bushels.		Bushels.	Bushels.
Russia	10.0		—	—
Prussia	1·8	5·9	1·7	6·9
Austria	2·2	2·9	2·4	3·9
Belgium	3·1	3·5	1·8	4·2
Holland	1·1	2·2	1·1	2·1
France	5·4	1·3	0·8	2·4

In the previous table it will be observed that the proportion of cultivated land in Belgium to each inhabitant is only 1·03 acres, and yet the relative proportions of the aggregate of the four principal kinds of grain are as great in that country as those in Austria and Prussia, in which the extent of cultivated land to each inhabitant is double that of Belgium.

An interesting feature in the last table is the means it affords of pointing to the descriptions of food used in each country. According to English ideas people who are fed upon black bread or oaten cake are regarded as a species of slaves, and this table will help us to discover, from the proportions of Wheat and the other grains, what probability there is of the population of any of these countries occupying so low a social position.

It is to be regretted that we have no English returns (nor for some time any chance of getting them, at all events not till 1857), to compare with those of these countries.

Taking the population of England and Wales at 18 millions, and the average consumption at 6 bushels per head, both below the mark, we should get a sum of 13 million and a half quarters, and deducting four millions of quarters for foreign Wheat imported, there would remain nine and a half million quarters for the produce of England, or 4·2 bushels per head. M. L. de Lavergne estimates the produce of England and Wales at 13 million quarters. It is difficult to say how near these estimates approach the truth, but however close they may be they never can compensate for the want of official and authorised returns.

In conclusion, we may reasonably infer that the effects of the Paris Exhibition of last year and the cattle show in that capital during the present summer will be to spread the English systems of farming, of breeding, and the use of English agricultural implements, and when foreigners, who are already possessed of good agricultural chemists, get these into their hands they will become formidable rivals of the British farmers. It will be needful for us, therefore, to advance also.

Home Correspondence.

The Cow Parsnip—Heraclèum sibiricum, var. *giganteum*.—Of our antediluvian fathers we are told on good authority that "there were giants on the earth in those days," and without intending to take part in a discussion which has puzzled alike divines, philosophers, and geologists, and on which, as Sir Roger de Coverley sagely observes, "much may be said on both sides," it is very clear that, in the animal world at least, there did exist a race of creatures widely differing, both in shape and size, from anything to be met with in the present day. A visit to any of our museums or geological collections will amply satisfy us on this point. Where are we to find the tribe of mastodon, mammoth, megatherium, ichthyosaurus, and others of their kith and kin, but as fossil reliques under glass covers, or as old friends with new faces in the gardens of the Crystal Palace? But, whatever may be the degeneracy of either men or animals in these our days, it does not appear to me that the observation can fairly be applied to the modern vegetable world. Look, for instance, at the account given in the *Gardeners' Chronicle* (Ap. 12, 1856), of the Blue Gum Tree of Tasmania (Eucalyptus globulus). What other age or country was ever known to produce timber trees of the height of 300 to 350 feet, and from which planks were obtained 145 to 160 feet in length, 20 inches broad, and six inches thick? I fancy too that it would be no easy matter to parallel another case referred to in the same paper of one of these trees whose total length was 318 feet, and which netted in money 245*l.* 12*s.*! Much undersold too, according to the statement. Passing from the forest to the garden, I might here enumerate a few modern monstrosities, more especially the Victoria Regia, or gigantic Water Lily; but I hasten to the more immediate object of this communication, which is, to direct your attention to the Cow Parsnip (Heraclèum giganteum), not so much as an ornamental garden plant, though this alone well entitles it to our consideration, as to the question how far it can be made available for cattle food by field culture. My first introduction to this plant was by a few seeds sent me about 25 years ago by my late excellent friend Mr. Loudon, and I have cultivated it both in Norfolk and Gloucestershire ever since, besides distributing seeds and plants in various quarters. Indeed, I may say, that when once a plant has blossomed, there will be no fear of losing the stock; for hundreds of seedlings are sure to spring up beneath and around the old stem of this plant. Mr. L. used to say that it afforded him more amusement than any other in his garden, from the rapidity of its growth and the great size to which it attained. By the bye, in this latter point, his opinion seems to have been varied with his experience; for whereas in his "Hortus Britannicus" (1830), he records 8 feet as the maximum height of any Heracleum, in his "Supplement to his Encyclopædia of Plants" (1841), he says, "When growing on deep loamy soil and liberally supplied with water when it is sending up its flower stalk, it will attain the height of 12 to 15 feet." The correctness of this statement I am able to confirm, as the following dimensions of a plant in the garden of this house will show. I shall merely observe that its great size is wholly independent of any adventitious aid; for it has had no other moisture than what fell from the heavens. The soil is, as recommended by Mr. Loudon, a deep loam: –

Dimensions of Cow Parsnip.	Ft.	In.
Circumference of stem near the ground	1	3
„ at 2 feet from the ground	1	1
„ at 3 ft. 9 in. from do., being the height of first joint	1	0
Length of the lower branches	6	10
Width of do., average	4	6
Height of plant in blossom	12	0

Now in contemplating a plant of the above magnificent proportions, one is naturally led to inquire how it is that all this immense mass of vegetation should be suffered to run to waste, as one may say, and that no attempt, at least none that I am aware of, should have been made to turn it to any practical farm purpose. Its very name would indicate its adaptation to something beyond mere ornament, and yet this is the character it holds in common with 16 other varieties of the same family; the rest, making in all 30 in number, are described by Loudon as simply uninteresting, with the exception of the Gum-bearing Parsnip and that is honoured with an *m*, for medicinal, as its characteristic. Now though I by no means go the length, or rather the height, of such a Brobdignagian crop as this, of 12 feet, I cannot but think that, reduced as it would be by field culture to something like 4 feet, or under very favourable circumstances a foot or two higher than this, it might be turned to account as green food for cattle, pigs, &c., nor why the giant of the garden should not, under proper discipline, be made to serve a good purpose in the field. From his high station in the former case, reduce him by drill to the ranks, and this his seeming degradation will be his surest passport to promotion; for in the vegetable as in the animal world size and weight are not the sole criterion of excellence; we esteem an ox, sheep, or pig, not for his over fatness but for his tendency to fatten under circumstances in which an animal, not having this tendency, would stand still if not absolutely go back in condition. This is an age of improvement, and I see no reason why the Cow Parsnip should not have a fair trial in the field as well as the Prickly Comfrey, the Bokhara Clover, or any other similar enormities. *Samuel Taylor, Wotton Parade, Gloucester, June* 30.

Crops in Cheshire.—I anticipate a very excellent crop of Wheat. The first ear that I noticed fairly shot was 16 days ago, and the growth since then has been remarkably rapid. During the past week it has grown 6 inches; the average height to the top of the ear will not be less than 4 feet 6 inches. I send you this as I perceive from remarks in your last publication that Wheat is rather backward. The Grass crops are likely to prove very good; there will be a considerable quantity housed to-day. Mangel Wurzels have missed to a considerable extent, and the vacancies have been filled up with Turnips, which are generally looking very well and out of harm's way of the fly. Potatoes are very luxuriant and are yielding a good crop; they are somewhat later on account of the frost, which cut a great portion of them down just as they appeared above ground. *Great Budworth.*

Corn Averages—Lady Day.—For the information of your agricultural readers, I beg to state that the average prices of Wheat, Barley, and Oats in England and Wales for the 52 weeks ending the 22d of March, 1856, was as follows, viz.:—

WHEAT ...	... 75*s.* 4*d.*	per Imperial Quarter.
BARLEY ...	... 35 11¾	do.
OATS ...	... 27 2¾	do.

Charles M. Willich, Actuary, University Life Assurance Society, 25, Suffolk Street, Pall Mall, June 30.

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MONTHLY COUNCIL, *July* 2.—Lord Portman, President, in the chair.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the Society's accounts; from which it appeared that the current cash-balance in the hands of the bankers was 3299*l.*

GUANO SUBSTITUTE.—The Committee reported the result of their examination into another claim which had been presented in form for the Society's 1000*l* Prize. It had been found much inferior to the standard required.

FOREIGN JURORS.—On the motion of Mr. Evelyn Denison, M.P., seconded by Mr. Fisher Hobbs, a new die was ordered for a gold medal of the value of 10*l.*, to be presented in the name of the Society to M. Tisserand, the agricultural commissioner from the French Government, and to each of the foreign jurors who should attend the Chelmsford meeting.

IMPLEMENT JUDGES.—Colonel Challoner, Chairman of the Implement Committee, reported the completion of the list of Judges of Implements for the Chelmsford Meeting.

MEMBER OF COUNCIL.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Jonas Webb, Mr. Edward Pope, of Great Joller, Dorsetshire, was unanimously elected a member of the Council in the place of the late Mr. Hampden Turner, deceased.

COMMUNICATIONS.—From the Earl of Clarendon in reference to the Polish Cattle Disease and Bat Guano; from the authorities of Bath and Salisbury; and from the Directors of the Gobelin Tapestry Works in France were laid before the Council.

The Council adjourned to their special meeting at Chelmsford on Friday, the 18th instant.

Miscellaneous.

The sheep stock of Great Britain.—The sheep of the British Isles are believed to number about 35,000,000; England alone possesses about 27,000,000; Scotland, according to the agricultural statistics of 1854, has 4,787,235, and Ireland, in 1853, had 3,142,656. Calculating the 35,000,000 as worth 30*s.* a-head, the sheep stock of Britain is worth 52,000,000*l.* sterling. The well being of these flocks is a point of national as well as of agricultural importance, for they not only materially embance the fertility of the soil and afford a good return to the farmer, but also largely contribute to the feeding and clothing of our population. About 10,000,000 of sheep, weighing on an average 80 lbs. each, are annually slaughtered for food. This furnishes 800,000,000 lbs. of mutton, or on an average rather more than half a pound per day for each individual in the three kingdoms. The mutton at 6*d.* per pound is worth 20,000,000*l.* sterling. Professor Low estimates that, allowing for the deficient weight of the wool of slaughtered sheep and lambs, each fleece averages 4½ lbs., and the total annual produce of wool will therefore be 157,000,000 lbs. Fixing the value at 1*s.* 3*d.* per lb., the total yearly value of the wool of Great Britain is nearly 10,000,000*l.* sterling. Besides this large home growth about 40,000,000 lbs. are annually received from Australia, and about 10,000,000 or 12,000,000 lbs. from the Cape of Good Hope and British India. Fifty years ago these countries exported scarcely a pound of wool. A hundred years ago the flocks of Great Britain were about half as numerous as they are now. *Mr. F. Dun.*

Composition of two Manures produced by the Precipitation of Sewage Water.—"Numerous attempts have been made to bring the valuable constituents of sewage water into an available condition, and the methods proposed for effecting this object have been extremely varied. By far the greater number of patents taken for the purpose have consisted of various plans for precipitating the valuable constituents; and though chemists have frequently pointed out—as has been very distinctly done both by Professor Way and myself—that ammonia, the most valuable constituent of a manure, cannot be precipitated by any process whatever, except such as are altogether precluded by their expense, still new patents are constantly being taken for doing what is impossible. The two analyses which follow may serve as illustrations of what may be effected. They were produced by experiments on a scale sufficiently large to test the value of the process, and the results are described as having been most perfect, and in every way successful. The exact mode in which the precipitation was effected has not been described to me; but this is of little importance, as the insignificant value of the product is the point to which I wish to direct attention.

	I.	II.
Water	18 04	4 03
Organic matter	19.71	30.13
Phosphoric acid...	2.03	0 60
Peroxide of iron and alumina	6 93	7.10
Sulphate of lime	27 15	3 14
Carbonate of lime	6 43	3.70
Alkaline salts	3 00	„
Sand	16 81	51.13
	100 00	99 83
Ammonia	1 13	0.64

A very trivial examination suffices to show that these substances are of trifling value. The first, which is the best of the two, and contains 2 per cent of phosphoric acid and 1 of ammonia, when calculated according to the method used for determining the price of a guano proves to be worth only about 16*s.* per ton, and the second does not exceed 7*s.*; yet these and similar substances are gravely declared to be equal in value to guano, and large companies and extensive works have been proposed for manufacturing them. The absurdity of such proposals is sufficiently obvious, but it may still be urged that the quantity of valuable matters which might thus be annually saved from the sewage of a large town would be very considerable; and this view is no doubt correct as an abstract question, although in practice it could not be economically carried out. Granting that the precipitation could be effected even at a nominal cost, it is indubitable that only a small proportion of the constituents of the sewage could be regained, and, after precipitation, a large expenditure would be required to bring the precipitate into a marketable condition, and the cost of transport would be so large, in comparison with its value, that it could not be economically employed, except in the immediate neighbourhood of the place of manufacture. This question I have discussed on theoretical grounds in a previous number of the Transactions, and I adduce the experiments now given as a confirmation of the opinions then expressed. In the particular instance before us, the expense of manufacture would undoubtedly greatly exceed the value of the manure, and as the whole process is represented as much cheaper and more effectual than any yet proposed, these analyses may be taken as a pretty conclusive proof of the futility of all processes for the precipitation of sewage water. I have seen no reason to alter the opinion expressed in a previous number, that if sewage is to be employed at all, it must be used *in toto* as liquid manure. I do not mean to assert that this can be done with profit, that being a question which engineers, and not chemists, must decide; for it is obvious that everything must depend on the cost of the works necessary for carrying it out." *Dr. Anderson in the Transactions of the Highland Society.*

Doctoring Clover Seed.—The practice of "doctoring" Clover seeds was carried to such a fearful extent some years ago, as to be made a subject of inquiry before a committee of the House of Commons. White Clover seed was first wet, and then exposed to the fumes of burning sulphur; while the bright blue colour of the red variety was improved by being shaken in a bag with indigo, or "with a preparation of logwood tinctured with a little copperas, and sometimes with verdigris." Not only was old seed improved in appearance by these means, but often the germinating power of the best seed was completely destroyed. From 6 to 8 lb. of seed will generally be found enough to sow, mixed with Rye-grass, if the seed was good; but as we are quite uncertain of what we are purchasing, we would recommend a much larger quantity to be sown. Some have recommended as much as 24 lb.; while others, amongst whom are some of the best farmers in the Lothians, never sow less than 16 lb., either of red Clover alone, or mixed with white and yellow. White Clover should never be sown in fields intended to be cut for hay, nor red in fields intended to remain in pasture, more than one year. We should never forget the principal use of red Clover, either as green fodder for cattle, or for hay; and in our endeavours to produce a heavy crop, we should guard against raising a coarse plant. Our object will be best attained here by having as many plants as possible; for the thicker the plants, the finer will be the stems: while a plant here and there will be sure to produce a coarse woody stem, which is never so well relished by animals; and hence the great advantage of thick seeding. *Quarterly Journal of Agriculture.*

Calendar of Operations.

JUNE.

BORDER OF THE FENS, *June* 30.—The hay harvest is progressing fast; most people speak with satisfaction of the Grass crop, although in many instances it does not prove so productive as at one time they were led to expect it would be, still the yield will be heavier than it has been in this neighbourhood for some years, and the quality good, as the whole of last week was characterised by beautiful summer weather, hot and drying, so that large quantities of both hay and Clover were secured in fine condition. It is the practice with several farmers here to mow their Clover

early, too early we think, with a view of getting a better second crop, but in more than one instance we have observed the first cutting to be so immature as to run together and shrink into a light fuzzy swathe, and make nothing of a stack compared with what it would have been by keeping the mowers out another fortnight; it is not enough to see two or three of the red flowers appear—the plant should be in full "bottle," the stalk well developed, and as near maturity as can be consistent with gathering as much of the foliage as possible, indeed, the withering of the lower leaves is commonly the criterion for cutting; but it must be borne in mind that the loss of leaf is sometimes hastened by thickness of plant, or wet weather, and that a mixture of Grass seeds will also affect materially the time to begin. The fine weather has been of inestimable benefit to the grain crops, as we seldom see such a rapid advance in so short a time as took place last week; the nights being very warm also aided in bringing the corn forward; much of the Wheat is in full flower, and looks already bold and healthy, the straw strong, and the ears large. Barley has improved greatly, although an unusual number of "blacks" has appeared; Oats are variable, those sown early look well; Beans have hitherto gone on remarkably well, and by this time much of their fragrant blossom has doubtless "set" and gone into pod. Potatoes and Peas also appear good; Turnips have come up sufficiently plentiful, but the fly has been busy among those sown early. The second week in June seems the most certain time for sowing in mid-eastern counties. Mangels are variable, and although we have seen several good pieces, yet it must be admitted that much uncertainty prevails in obtaining a plant of this useful root, and when the plant is up much attention is required to free the young Mangels from weeds, to thin them soon enough, and to leave them thin enough in the rows. We have abundance of keep for the stock, which in some measure accounts for the limited supply of fat animals to our markets, and makes it probable that presently we shall be compensated by a liberal quantity being brought forward of unusually excellent quality. The sheep are now doing well; lambs are also surmounting the weakness which so generally seemed to attend their first appearance this spring. Labour has been more plentiful of late; weeds have been excessively troublesome, and all spare hands have been urgently wanted to assist in their reduction, not extirpation, for weeds *will* grow on good land in good heart. Women receive 1*s*. per day, and gangs of children, including the gangman, 12*s*. per score of twenty per week [query day]. Mowing costs from 3*s*. to 4*s*. per acre; men's weekly wages, 13*s*. and 14*s*. per week. Very little old corn left in stacks. *J. W., Peterborough.*

SOUTH HANTS, *June* 30.—We have abstained from sending any report of these parts as we differed from the opinion of many as to the Wheat crops. The warm showers did not restore to vigour the sickly looking Wheats as imagined; they are set up and "straight as a poker," and now are shooting forth ears short and attenuated. Indeed, for many years we never saw so much inferior Wheat plant, and on the other hand on good deep loams and well farmed they are very fine, but again, the ears, as expected from the early grossness of the "flag," are not so fine as in former years. Some farms have only one fair piece of Wheat, and even on others the crop was throughout of an indifferent character. Then there are two good reasons why this falling off should occur. 1st. Many the last three years past have been sowing to Wheat all their best fields, and now those not so fertile have to take their turn in the rotation. 2d. Even where the land is of a fair description and the crop indifferent, it arises from the sowing hard of white crops one after the other, to force the land for the sake of present prices, as the tenant farmers have been doing the last three or four years; how can they expect a Wheat crop? Peas, Wheat, Oats=Wheat, Peas, Tares (ripened), Wheat. Again, some have Wheat, Tares, and Wheat again, and miserable it looks. The wire-worm was also very destructive in light lands and carried off half the plant, and even more in some instances. Mangels a failure in some parts, in others very fine; the baulked best, drilled on the flat a failure. Turnips are largely sown, but the fly has commenced its ravages. The hay crops abundant in places, in others light, even on good farms; much is safely secured, and in very admirable condition, though many carried a day too soon, as is often the case when housing their Wheat. Farmers, like soldiers, require courage and coolness on the day of battle. Some are reputed clever in obtaining fine crops, and equally expert in spoiling their treasure. Barley and Oats look well, especially the early sown; the later are somewhat scorched by the late intensity of the heats. There is not a rick of Wheat to be seen on many farms, whilst on others one solitary rick guards the threshold of the "rick-pound." This is reserved for harvest wages, and thatch, so tradition informs us. Many fresh manures are introduced, but nothing surpasses properly prepared bones and short manure. Tares, both winter and spring, are abundant, and look well. Guano-dressings of 3 to 4 cwt. per acre insure a fine plant. *X Y Z.*

Notices to Correspondents.

FLEAS IN PIGEON HOUSES: *R H.* See page 259 *Gardeners' Chronicle.*

GUANO, &c.: *J Mackenzie, M.D.* Mr. Spooner's water drill pours water *regularly* over any powdered manure, which it also distributes *regularly* and independently. A paper on the water drill at page 426 may perhaps be of use to you. We should advise iron piping in preference to gutta percha under ground, and gutta percha in preference to anything else above ground. Your best Lettuce to stand frost through the winter is the "Hardy Hammersmith."

MR. WOOD ON COW FEEDING: *Correspondent.* Not having room for the whole extract to which we last week referred, we here give the substance of it. Mr. Wood said:—"It now seems the opinion that the use of meadow hay is by no means economical. If we can dispense with natural Grass as hay for winter feeding, still less do we want it in summer. I am strongly of opinion that the feeding of beasts in summer on old pastures is not making the most of the land. I find it answer my purpose to turn my beasts out of a night, and to get them into single boxes by day in hot weather, giving them a little cake as I want them to feed faster or slower, and I have not the least doubt that if I ploughed up my pasture land where these beasts run I should obtain a much greater amount of beef, by feeding in the spring months on Mangel Wurzel, Rye, winter Barley, and Trifolium, and in the summer and autumn months on Tares, Clover, Cabbage, and Turnips, and in the winter months on Swedes, than I now do on old pasture in summer only, besides being able to turn every particle of dung to profitable account in the growth of corn, which is not now done with the land in pasture. I keep a dairy of 22 Alderney cows, and my practice is to stump them down with a chain and a strap round the horns through April and May; but when the fly comes in June, I feed them on Tares and what I can mow for them during the day, and stump them out of a night. After haying, I turn them loose on the after Grass, till the weather gets cold, when I take them in, first of a night, and then altogether, and put them on Cabbage and hay, which latter, I think, may be dispensed with by substituting straw with Rape cake, molasses, bran, pollards."

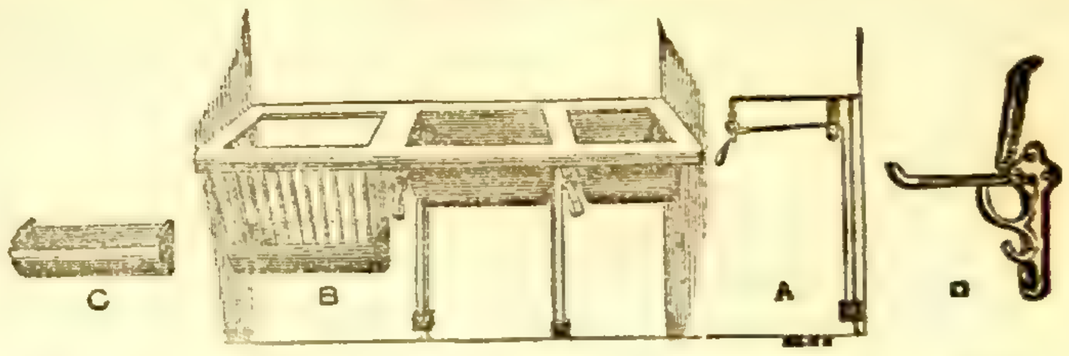
OXEYE: *Anti-Oxeye.* See the paper by Messrs. Hardy on Weed Destruction. The hay must be mown before the plant seeds, and in the pasture pulled after rain before flowering, or cut off with a hook on flowering. The Wheat and Oats should be sown at wide intervals, and the young plants may be then efficiently cut off by the hoe. The roots may be removed during a thorough Turnip fallow.

THE PIP OR CROUP IN CHICKENS: *J B W.* See what "H. L. R." says of a similar attack at p. 379. We will obtain for you further advice next week.

TURNIPS ON ASHES: *Talgarth.* You need not fear that the seed will be killed by an over-abundant dressing of ashes. At the same time care must be taken before sowing that the soil and ash be well mingled by plough, grubber, and harrow.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

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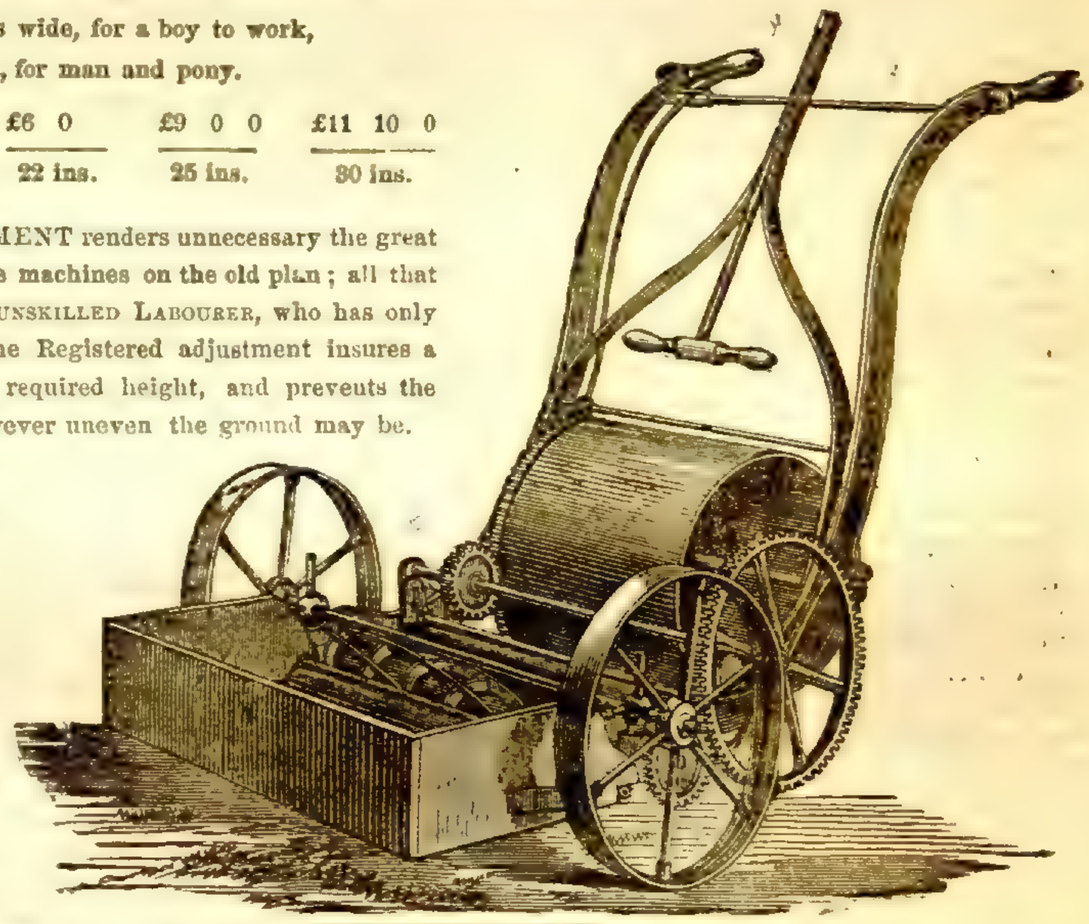
SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 16 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£5 10 0	£5 17 6	£6 0	£9 0 0	£11 10 0
Width Cut	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

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Illustrated Price Lists forwarded on application.

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A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

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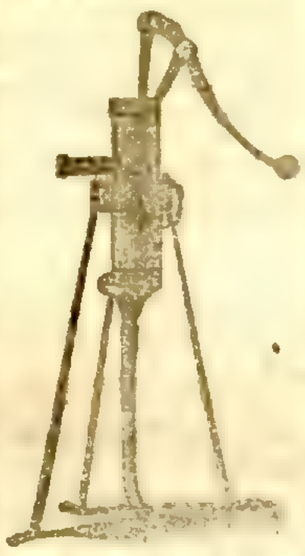
PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

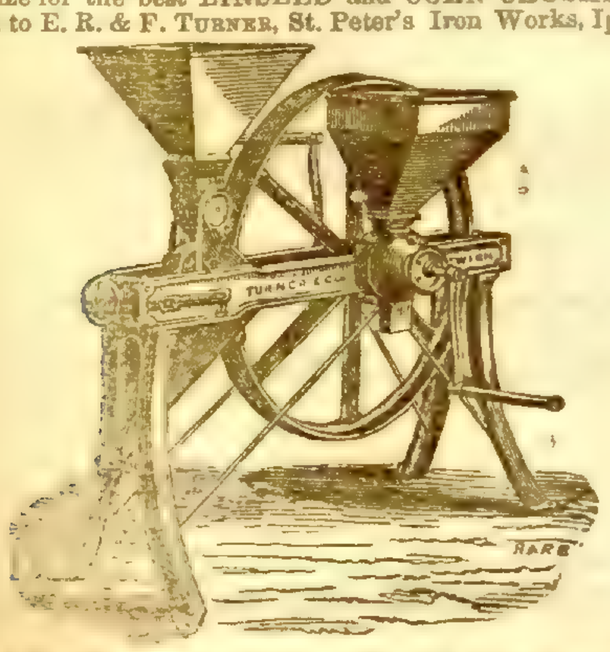
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

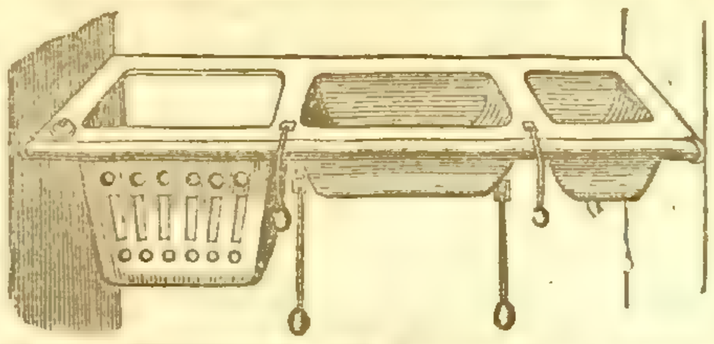
OILCAKE BREAKERS, made entirely of iron, with case, hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

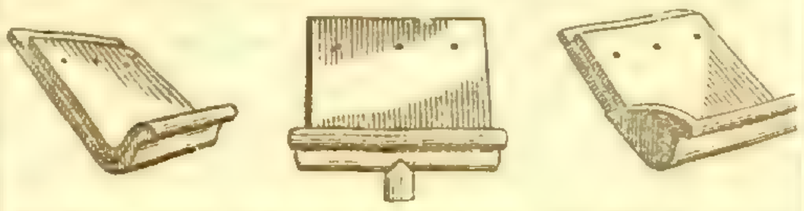
Illustrated Price Lists sent free on application.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.



BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4*d.* Stop-ends and outlets 6*d.* each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5*d.* per foot. This price to include Tiles (delivered at Agent's yard) cement, labour.—May be had in London, Glo'ster, Bridgewater, and Rugby.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,

PHŒNIX IRON WORKS,

NEAR STROUD,

GLOUCESTERSHIRE.

These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

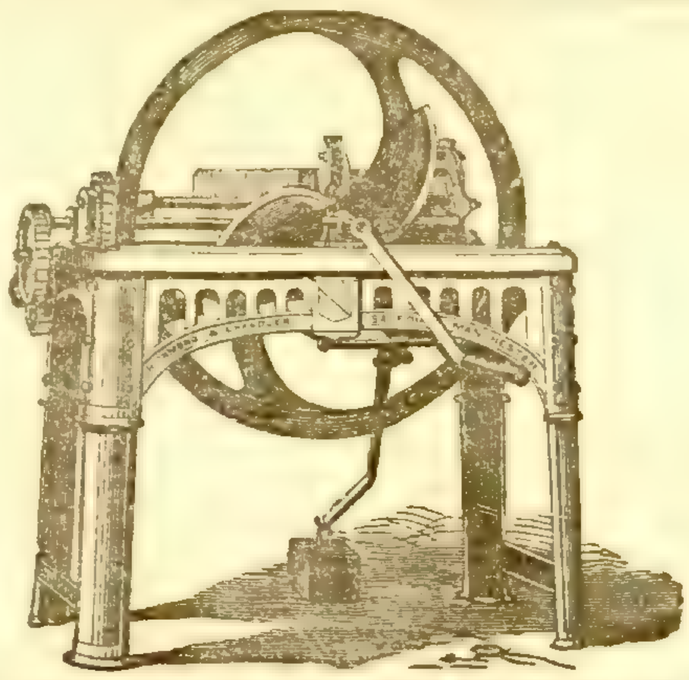
London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10*s.* 6*d.*

BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6

BOYD'S PATENT VULCAN BLADES 4 6

May be had of all Ironmongers and Seedsmen; and Wholesale of WM. DRAY & Co, Swan Lane, London.



RICHMOND & CHANDLER'S PRIZE-TOOTHED ROLLER CHAFF-CUTTING MACHINES are constructed entirely of Iron, and are therefore remarkably firm when in use. This important quality is wanting in all wood framed machines, which are, of course, liable to contraction.

RICHMOND AND CHANDLER'S IMPROVED PREMIUM CORN CRUSHERS are also constructed entirely of Iron and are not subject to the same contingencies as others. They are adapted for bruising Beans, Oats, Indian Corn, &c., and can be worked with less labour for the quantity crushed than any yet produced.

PATENT HAYMAKERS AND HORSE RAKES, which can be confidently recommended as capable of doing their work efficiently, expeditiously, and with economy.—Implement Works, Salford; Branch Establishment, South John Street, Liverpool.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

212° MILNER'S HOLDFAST AND FIRE-RESISTING SAFES (non-conducting and vapourising), with all the improvements, under their Quadruple Patents of 1840-51-54 and 1855, including their Gunpowder Proof Solid Lock and Door (without which no Safe is secure), the STRONGEST, BEST, and CHEAPEST SAFEGUARDS EXTANT.

MILNER'S Phœnix (212°) Safe Works, Liverpool, the most complete and extensive in the world. Show Rooms, 6 and 8, Lord Street, Liverpool. London Depôt, 47A, Moorgate Street, City. Circulars free by post.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

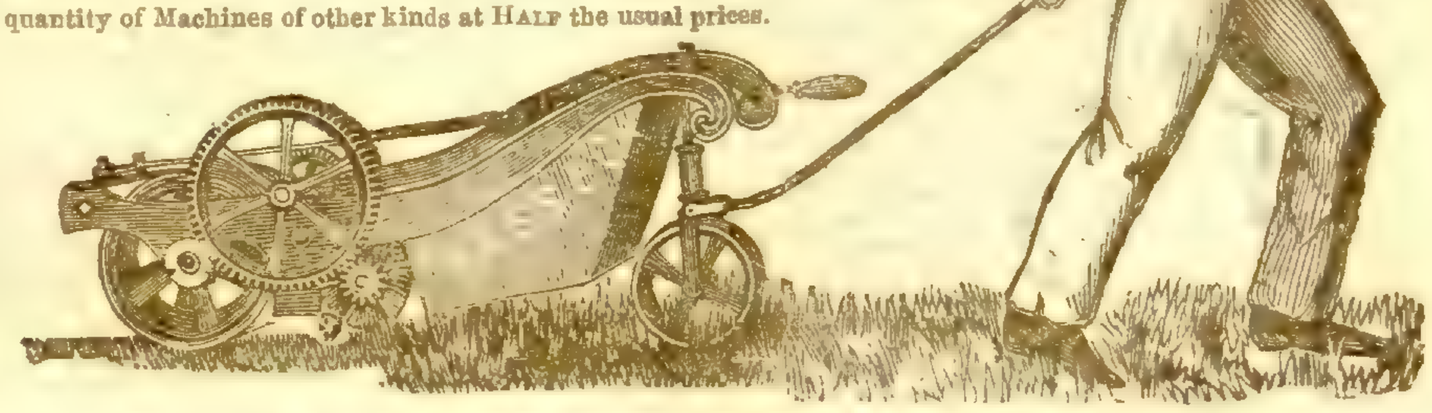
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.



Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

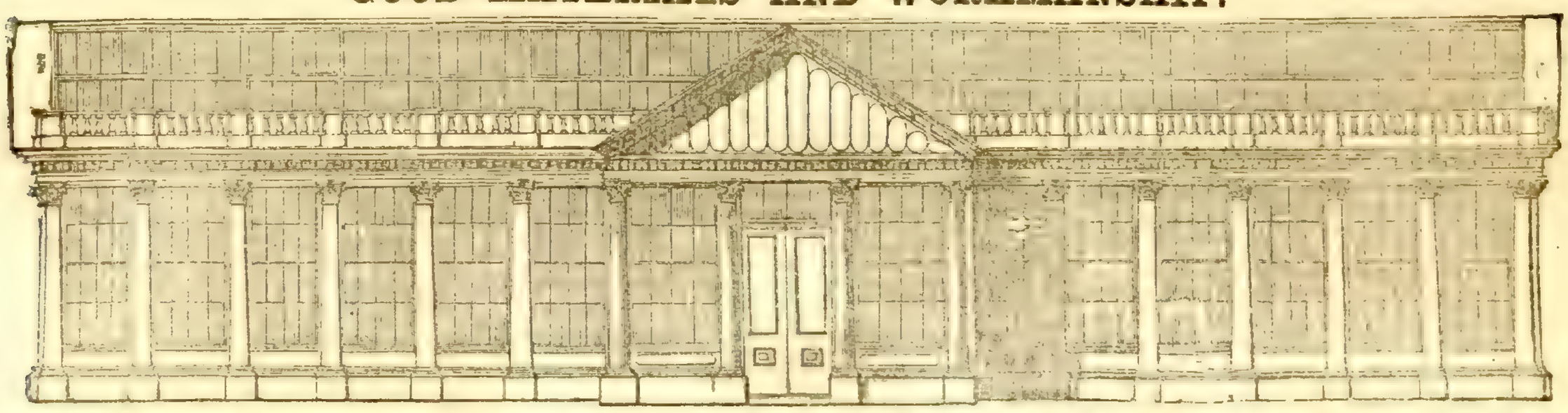
The above Machines are warranted to answer the purpose as described, or may be returned.

LONDON AGENTS: Messrs. COTTAM & HALLEN, 76, Oxford Street; and Messrs. BURGESS & KEY, 103, Newgate Street, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.

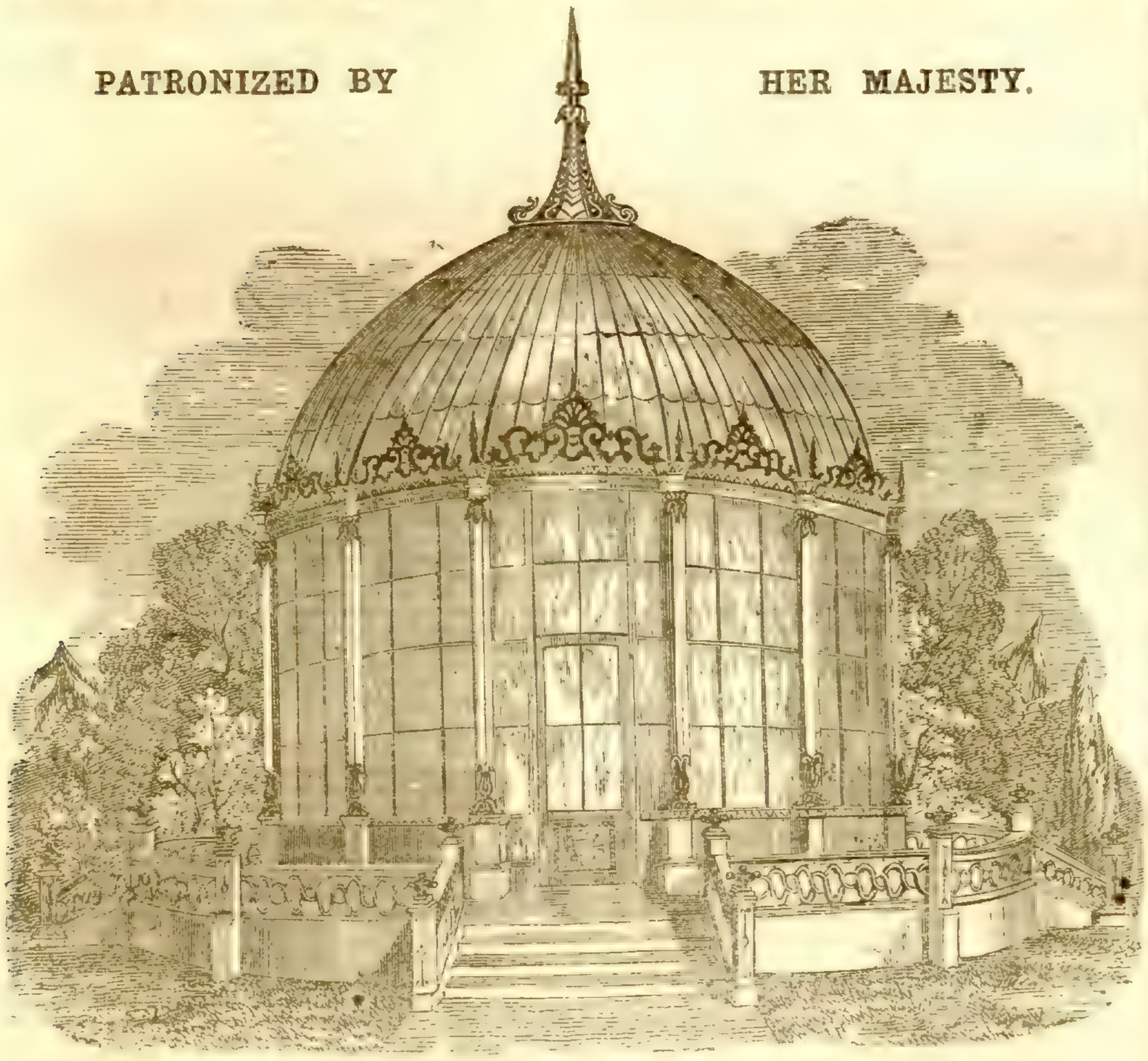


GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

PATRONIZED BY HER MAJESTY.



WILLIAM SHAKESPEAR,

(SUCCESSOR TO CLARK AND JONES),

Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,

55, LIONEL STREET, BIRMINGHAM.

WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c., for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the superior mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship. *Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.*

ESTABLISHED IN THE YEAR 1818.

ONE THOUSAND BEDSTEADS TO CHOOSE FROM.—HEAL AND SON have just erected extensive Premises, which enable them to keep upwards of One Thousand Bedsteads in stock, One Hundred and Fifty of which are fixed for inspection, comprising every variety of Brass, Wood, and Iron, with Chintz and Damask Furnitures, complete. Their new Warerooms also contain an assortment of BED-ROOM FURNITURE, which comprises every requisite, from the plainest Japanned Deal for Servants' Rooms, to the newest and most tasteful designs in Mahogany and other Woods. The whole warranted of the soundest and best manufacture. HEAL and SON'S Illustrated Catalogue of Bedsteads, and priced List of Bedding, sent free by Post.

HEAL & SON, 196, Tottenham Court Road.

HOLLOWAY'S PILLS SUPERIOR TO ALL OTHER REMEDIES FOR STOMACH COMPLAINTS.—Mrs. Baker, of Addington Street, Rochdale Road, Manchester, had suffered severely for many years from a weakness in the Stomach and a generally debilitated constitution. Although she had the best medical advice and tried every available remedy, yet she derived no permanent benefit; but by the use of HOLLOWAY'S Pills a perfect cure has been effected, as she now enjoys the best of health, and in gratitude for which she desires publicity should be given to her case.—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6d. and 1s.; and Family Canisters, at 2s., 5s., and 10s. each.

TO FLORISTS, ETC.

TO BE LET, three miles West of London, a NURSERY, with good Living House, consisting of five Rooms, Kitchen, &c., a Show House, three Growing Houses Pits, Frames, &c., ground well stocked with Shrubs, &c., Stabling Long Shed, Room for a Man, quantity of Leaf Mould and Dung and every convenience for carrying on business. Coming in 150*l*.—Apply to Mr. AMBROSE, Raven Inn, Battersea, Surrey.

Sales by Auction.

IMPORTED AND ESTABLISHED ORCHIDS.

MR. J. C. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, July 8, at 1 o'Clock precisely, a collection of Orchids just received from Brazil in excellent condition, including fine masses of Cattleya Pinelli, C. Acklandiæ, and other fine and probably new species; Lælia Brysiana and purpurata, Sophronitis grandiflora and violacea. Also a collection of established Orchids, including Cattleya Quindos, maxima, elegans and superba; Dendrobium Dalhousianum, Lælia Perrini, superba, &c.—May be viewed on the morning of Sale and Catalogues had.

PINE CONES,

MR. J. C. STEVENS will sell by Auction on TUESDAY 8th July, at about three o'clock, after the Orchids, 400 Fine CONES of ABIES DOUGLASI.—May be viewed on the morning of Sale.

THE LODDIGES COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the Third Sale of this important collection of ORCHIDS is fixed to take place at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 15th July.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

WINGHAM, KENT.

MR. HICKS will Sell by Auction, by direction of the Committee of the Wingham Horticultural and Floral Society, on THURSDAY, July 10, being the day appointed for their final Exhibition, the whole of the very extensive SHOW BOOTHS and EFFECTS belonging to the Society, comprising one excellent Framed Booth (with fine canvas covering), 80 feet by 20; One ditto, 30 feet by 20; the two forming a spacious T shaped booth; six Tables of 1½ inch Fir, each 11 feet by 3 feet 4 inches; 18 Tressels, 26 brass-headed Brackets, with staples, and 150 feet of green worsted Cord, 34 Rose Stands (wood), 33 Dahlia Stands (zinc), 35 Pink Stands (tin), 12 Carnation Stands (zinc), Ornamental Flower Pots and Stands, Terra Cotta Vases, Pansy Stands, Flower Trays, 24 dozen Plates, and 12 Dishes of superior quality, made expressly for the Society; Table Covers, and other effects.—The above may be viewed on Wednesday, the 9th inst., by application to the Secretary between the hours of 10 and 6, and no lot will be delivered until the afternoon of Friday, the 11th inst. The Sale will commence at 4 o'Clock, and the whole will be sold without reserve.

PUBLIC SALE OF A RICH AND IMPORTANT COLLECTION OF PALMS, ORCHIDS, ZAMIAS, CAMELLIAS, AZALEAS, &c.

TO BE SOLD BY AUCTION, on THURSDAY, July 24, at the Chateau de Bierbais, the seat of Mr. Deman de Lennick, near Brussels, Belgium, a fine collection of Living Plants, including rare and magnificent Palms, as Chamærops tomentosa, Chamærops stauracantha, Diplothemium argenteum, &c., in fine and large specimens; Zamias and Encephalartos of first choice; a beautiful set of rare and well established Orchids, as Cattleya crispa (with 60 and 70 bulbs); C. Luddemanniana (17 bulbs); Lælia elegans, very strong; Vanda cærulea; Sobralia macrantha, extraordinary specimen, with 120 stems, 20 feet circumference, &c. Several nice Ferns, amongst which a noble specimen of Angiopteris Wellincki, from Java, 15 yards foliar circumference; Camellias in large and strong pyramids; Azaleas, &c.—Printed Catalogues can be obtained on application to Mr. EDOUARD KEILIG, Brussels, Rue du Champ de Mars, 10.

NEW AND SPLENDID VOLUME OF
BOHN'S ILLUSTRATED LIBRARY.

WALTON'S COMPLETE ANGLER; with Variorum Notes, Practical and Historical. Edited by EDWARD JESSE, Esq. To which is added a Paper on FISHING TACKLE, an Account of FISHING STATIONS, &c. By HENRY G. BOHN. Embellished with 203 Engravings on Wood by the best Artists, price 5*s.*; or with the addition of 26 Engravings on Steel after Creswick, Absolon, Cooper, and others, chiefly engraved by Willmore, price 7*s.* 6*d.*

HENRY G. BOHN, York Street, Covent Garden, London.

Second Issue, price 2*s.* 6*d.*, or by post, 3*s.*

LAND DRAINAGE AND DRAINAGE SYSTEMS; with Plates by J. BAILEY DENTON, Drainage Engineer.

"The best practical treatise we have yet seen."—*Agric. Gazette.*
"A very able treatise."—*Mark Lane Express.*

London: RIDGWAY, Piccadilly; and METCHIM, Parliament St.

FRUIT CULTURE.

Now published, price One Shilling, No. I.,

THE STRAWBERRY. By G. MCEWEN, Gardener to B. W. Beaumont, Esq., M.P., Bretton Hall, and late Gardener to his Grace the Duke of Norfolk, Arundel Castle.

London: GROOMBRIDGE & SONS, Paternoster Row, and sold by all Booksellers.

EDINBURGH NEW PHILOSOPHICAL JOURNAL, NEW SERIES No. VII., for July, price 6*s.*, is now ready.

Edinburgh: A. & C. BLACK. London: LONGMAN & Co.

THE EDINBURGH REVIEW, No. CCXI., will be published on THURSDAY next.

CONTENTS:—

I. LEWIS ON THE CREDIBILITY OF EARLY ROMAN HISTORY.
II. DIARY OF GENERAL PATRICK GORDON.
III. GROWTH OF THE MAP OF LONDON.
IV. SAMUEL ROGERS.
V. CAVALIER AND THE CAMISARDS.
VI. THE COINS OF GREECE.
VII. HEINRICH HEINE.
VIII. SUPREME COURTS OF APPEAL.
IX. REMAINS OF WILLIAM ARCHER BUTLER.
X. MEMOIRS BY SIR ROBERT PEEL: THE CATHOLIC QUESTION.
XI. GREAT BRITAIN AND THE UNITED STATES. NOTE ON THE SUEZ CANAL.

London: LONGMAN & Co. Edinburgh: A. & C. BLACK.

THE HORSE FAIR.—LAST WEEK.—Messrs. LEGGATT, HAYWARD, and LEGGATT inform their Friends and the Public that the Exhibition of this grand PICTURE will positively CLOSE on SATURDAY, July 12.—Auction Mart, Bartholomew Lane, Bank. Admission 6*d.* each person, from 9 a.m. to 5 p.m.

TO BE SOLD very cheap, a large quantity of BAMBOO, suitable for Fencing; also a quantity of SHEATHING BOARDS adapted for a similar purpose.—For particulars apply to EDWARD QUIN, 37, Hardinge Street, Commercial Road, East.

GARDEN NETS, FISHING NETS, SHEEP NETS.—New Garden Net, 1 inch mesh, 1½*d.* per yard; ½ inch, 2½*d.* Tanned Fishing Nets, 6*s.* 3*d.* per 100 yards. Wasp and Fly Worsted Net, 7*d.* per square yard. Sheep Nets, 4*s.* per 100 yards. All kinds of Fishing Nets on sale cheap.

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

RICK CLOTHS 30 feet by 30 feet, for 30 tons of Hay, 5*l.*; 30 by 36 feet, for 40 tons, 6*l.* 10*s.*; 36 by 36 feet, for 50 tons, 7*l.* 10*s.*

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

MARQUEES on Hire at prices to suit the times; they are new, lofty, and a great variety kept. Several new and second-hand on sale; cheap Garden Tents from 30*s.* each.—R. RICHARDSON, 21, Tonbridge Place, New Road, London.

BE PARTICULAR TO ADDRESS AT FULL LENGTH

BENJAMIN EDGINGTON,
2, DUKE STREET, SOUTHWARK.
MARQUEES, TENTS, AND RICK CLOTHS.

RICK CLOTHS.—A large quantity of CANVAS intended for the Crimea has been made into RICK CLOTHS, to be SOLD as second-hand, at greatly reduced prices. A list forwarded by post.—Address, in full,

BENJAMIN EDGINGTON, 2, Duke Street, Southwark.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes and Jets are also supplied.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at AUSTIN & SEELEY'S Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.

N.B. Fountains from 10*l.* to 400*l.*

KENT'S PATENT WEATHER-PROOF GLAZING FOR HORTICULTURAL BUILDINGS AND GLASS ROOFS IN GENERAL. Exhibited at the Great Exhibition, 1851. Honourably mentioned. Illustrated Price Books on the receipt of four stamps, or estimates sent.

Horticultural Building Works, Chichester.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea; and at Mornington Place, Hampstead Road.

These Patent Horticultural Buildings are superior to all others, wood being used for the framework, but covered with Galvanised Iron Sashes, with excellent strong glass, and all completed for 1*s.* 3*d.* per foot super. Hundreds of references can be given, and Printed Price Lists sent.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

GLASS.

JAMES PHILLIPS AND CO. have the pleasure to hand their prices of the following articles:—

AQUARIA, WITH EBONY STANDS,

20 inch diameter ...	... 15*s.*	15 inch diameter ...	... 9*s*
19 " " ...	... 14	14 " " ...	... 8
18 " " ...	... 13	13 " " ...	... 6
17 " " ...	... 12	12 " " ...	... 5
16 " " ...	... 10		

Made of the shape suggested by Mr. SHIRLEY HIBBERD, and differing from the usual inverted Propagating Glass.

Tanks Glazed with Plate Glass, from 30*s.* each; Syphons for ditto, 2*s.* 6*d.*

CUCUMBER TUBES.

12 inches long, each ...	1*s.* 0*d.*	20 inches long, each ...	1*s.* 8*d.*
14 " " " ...	1 2	22 " " " ...	1 10
16 " " " ...	1 4	24 " " " ...	2 0
18 " " " ...	1 6	26 " " " ...	2 2

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	3*s.* 0*d.*	12 inch diameter, each...	8*s.* 0*d.*
7 " " " ...	3 6	13 " " " ...	10 0
8 " " " ...	4 0	14 " " " ...	12 6
9 " " " ...	5 0	15 " " " ...	17 0
10 " " " ...	6 0	16 " " " ...	22 0
11 " " " ...	7 0		

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Preserve Jars with and without covers. Plate, Sheet, Crown, and Ornamental Window Glass; Crystal Glass Shades for ornaments.

116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,
87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by 4 in. and	6 in. by	4½ in.	...	...	12*s.*	0*d.*	
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	0
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under	6 by 4	at	1½*d.*	is £0 12 6
From 6 by 4	"	7 " 5	"	2*d.*	" 0 16 8
7 " 5	"	8 " 6	"	2¼*d.*	" 0 18 9
8 " 6	"	10 " 8	"	2½*d.*	" 1 0 10
10 " 8	"	12 " 9	"	2¾*d.*	" 1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. " 3½*d.* to 5*d.* " " "
26 oz. " 3½*d.* to 7½*d.* " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St. Paul's Square, Birmingham.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

MARKING LINEN MADE EASY.—The Pen Superseded.—The most easy, permanent, and best method of Marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, &c., so as to prevent the Ink blotting, or the possibility of its washing out, is with CULLETON'S PATENT ELECTRO-SILVER PLATES. Any person can use them. Initial plate, 1*s.*; name plate, 2*s.*; set of numbers, 2*s.*; crest plate, 5*s.*, with directions. Sent post free to any part of the kingdom, by the Inventor and Sole Patentee, T. CULLETON, 2, Long Acre (exactly one door from St. Martin's Lane).—N.B. To prevent imposition it is necessary to write down the address.

H. WALKER'S NEEDLE WAREHOUSE is REMOVED to 47 Gresham Street.—Queen's Own Needles can be posted by any dealer. From the *Observer:*—

"WALKER'S ALLIANCE NEEDLES.—The best specimens of coloured printing on a small scale are, undoubtedly, the minute but most spirited portraits of the Allies by the patent oil colour process; one of which, in ten colours, is placed as a label on each paper of needles, on testing which, by every conceivable means, we pronounce them of most remarkable superiority, and equally suited to the most delicate or the most severe work. The Queen has long patronised Mr. Walker's productions, and we are sure no work-table should be without these singularly beautiful needles."

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S. & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

MALVERN SELTZER.

"**MALVERN** is not more celebrated for its glorious hills, pure air, and charming scenery, than it is for the sparkling freshness, absolute purity, and health-restoring properties of its mountain springs."

LEA, PERRINS, AND BURROWS,
GREAT MALVERN,
SOLE LOCAL AGENTS FOR
SCHWEPPE'S MALVERN SELTZER WATER.

The delicious Seltzer, manufactured at the Holy Well with the pure and pellucid water which flows from the granitic rocks of Malvern, is supplied direct from the place of manufacture by LEA, PERRINS, & BURROWS, Pharmaceutical Chemists and Mineral Water Agents, to whom orders for Malvern Soda, Potash, and Magnesia Waters, Malvern Lemonade, and Pure Malvern Holy Well Water, should also be addressed. Either as pleasant beverages, or as medicinal drinks, simply refreshing and antifebrile, or absolutely curative, in cases of acidity, heartburn, gout, &c., these Malvern waters are unrivalled.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, July 5, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1856.] SATURDAY, JULY 12. {Price Fivepence. Stamped Edition, 6*d*.

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CRYSTAL PALACE.—THIRD HORTICULTURAL EXHIBITION.—To Amateurs and Cottagers.—The Directors of the Crystal Palace Company give notice that the THIRD HORTICULTURAL EXHIBITION of the present Season will take place on WEDNESDAY, THURSDAY, and FRIDAY, September 10th, 11th, and 12th. Besides the usual Prizes for Stove and Greenhouse Plants, and for Dahlias, Hollyhocks, and other Flowers of the Season and Fruit, Prizes will be given for Flowers, Fruit and Vegetables by Cottagers and Amateurs. The Rules of Exhibitors' Schedules of Prizes may be had on application to the Secretary.

The Prizes awarded at the three Shows of the Season will be paid after the third Show. G. Grove, Secretary.

Crystal Palace, July 12.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON and SUSSEX FLORICULTURAL and HORTICULTURAL SOCIETY will hold their Grand Autumn Exhibition at the above Palace and Grounds on the 3d and 4th of SEPTEMBER, when an additional amount of Prizes will be offered, Schedules of which will shortly be published, and may be had on application to Mr. E. Spary, General Superintendent of the Exhibition; or of the Secretary, 45, Lavender Street, Brighton.

Edward Carpenter, Secretary.

NATIONAL CARNATION AND PICOTEE EXHIBITION.—The last day that ENTRIES can be received is TUESDAY, July 15th. No Person will be eligible to exhibit unless he has complied with this rule.

Birmingham July 12. George P. Tye, Hon. Sec.

BRITISH POMOLOGICAL SOCIETY.—A SPECIAL MEETING of the British Pomological Society will be held at the Rooms, 80, Bedford Street, Covent Garden, on THURSDAY, the 17th inst., at Two o'Clock, to receive and report upon Collections of STRAWBERRIES and CHERRIES, or any other Fruits which may be in season.

A Prize of Two Guineas will be given for a NEW SEEDLING LATE STRAWBERRY which shall be considered by the Society worthy of general cultivation. All packages to be addressed to Robert Hogg, Secretary.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of this Society, held on WEDNESDAY, the 9th July, for the purpose of electing Two Pensioners, the following was the result of the ballot:—

Name.	Application.	Age.	Votes.
William Thacker	Seventh	68	94
Charles Charlton	Sixth	71	451
*Joseph Jeffrey	Sixth	63	272
John Lawson	Fifth	77	79
James Smith	Fifth	70	65
Ann Arnold	Fourth	64	358
Frederick L. Burnet	Fourth	54	322
William Dungate	Fourth	70	80
Alexander Gregory	Fourth	63	670
William Jackson	Third	67	96
John Davy	Second	69	235
Mary Anne Farquharson	Second	69	97
Elizabeth Pope	Second	70	129
Robert Hodge	First	48	235
Benjamin Priest	First	61	4
Michael Quigley	First	61	51

The Meeting then declared Alexander Gregory and Charles Charlton, as having the greatest number of votes, duly elected Pensioners of this Charity. E. R. Cutler, Secretary.

14, Tavistock Row, Covent Garden.—July 12

* By an error this Candidate's age was stated as 83; it should have been 63.

ALEXANDER GREGORY, of Leyton, Essex, returns his sincere thanks to the Presidents and Subscribers of the Gardeners' Royal Benevolent Institution, for their kind and friendly support on being elected a Pensioner of that Society.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

GEORGE TAYLOR, Junior, Growers' Salesman for Choice Garden Produce, St. John's Market, Liverpool.

Terms—"Cash."

CABBAGE PLANTS.—True and strong Drumheads, 3*s*. 3*d*. per 1000; 7000 and upwards at 3*s*. per 1000. A choice selection of Garden Plants, Broccolis and Celeries, 7*d*. per 100. Cabbage, Savoys, Kails, &c. at 5*d*. per 100. Crates included and delivered at Godalming Station, by Thomas Welland, Surrey Gardens, Godalming, Surrey.

ROSES.

H. LANE and SON, Great Berkhamstead, have the pleasure of informing their Patrons that their extensive collection of Roses is now in full bloom. Their Coniferæ, Rhododendrons, and a General Stock of Trees and Shrubs and Fruit Trees are remarkably fine, and well worth the attention of Planters. The Nurseries are within a few minutes' walk of the Station on the London and North Western Railway.

ROSES.

A. PAUL and SON respectfully inform admirers of the Rose that their extensive collection is now in full Bloom, and will continue flowering till November. Inspection is freely invited.—Nurseries, Cheshunt, Herts, on Cambridge line of Eastern Counties Railway.

ROSES.

JAMES MITCHELL respectfully informs the Nobility and Gentry his unrivalled collection of ROSES is now in full bloom.

Piltdown Nurseries, Maresfield, Sussex, July 12.

ROSES.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WILLIAM WOOD and SONS' Extensive Collection of ROSES, extending over an area of several acres, will be in fine bloom on and after the 14th of July.

N.B. Hayward's Heath is a station on the London and Brighton Railway, 12 miles distant from the Nursery. Conveyances may be had at the Station.—July 12.

ROSES.

J. and J. FRASER beg to announce that their collection of ROSES is now in Flower, to which they respectfully invite the attention of the public.

The Nursery is about 15 minutes' walk from the Lea Bridge Station, on the Eastern Counties Railway.

*** Trains from Shoreditch about 12 times a day.

The Nurseries, Lea Bridge Road, Essex.—July.

TO THE NURSERY AND SEED TRADE.

HORATIO BUNTING and CO. beg to inform their Patrons and Friends that their collections of ROSES and ANNUALS (the latter extending over several acres) are now in bloom. An inspection is respectfully solicited. Open daily (Sundays excepted).

The Lexden Road Nursery and Seed Establishment is situated about 1½ mile from the Eastern Counties Railway Station, Colchester.

All correspondents are particularly requested to address—Lexden Road Nursery and Seed Establishment, Colchester.

NEW HORSE-SHOE SCARLET.

J. H. BIRD is now sending out his beautiful New Horse-shoe Scarlet Marshal Pelissier, pronounced by all who have seen it to be the finest ever offered. Strong Plants, 5*s*. each, usual allowance to the trade. For full description see advertisements in Edwards's "National Garden Almanack" for 1856. Post-office Orders to be made payable to

J. H. Bird, Florist, Stoke Newington.

NOTICE TO ALL ENGLAND—MARSHAL PELISSIER.

J. H. BIRD will give a Five Guinea Cup for the best Four Plants of his Marshal Pelissier, Horse-shoe Scarlet, at the June Show of the Crystal Palace 1857.—Open to all England.

J. HOADE and SON, of Addlestone, near Chertsey, Surrey, offer 1*s*. packets of their choice ANEMONE SEED saved from the highest coloured Flowers, with printed directions for sowing, &c. Also a very few 1*s*. packets of first-class, PRIMULA, sent prepaid on receipt of 13 stamps.

NEW FUCHSIA—"GEM OF WHITEHILL."

WILLIAM FULLER begs to inform the Trade and Public generally that he has a few extra strong Plants of the above splendid variety, that will bloom this season, for sale at 7*s*. 6*d*. each; or where three are taken one will be given over. Post-office Orders to be made payable at Newton Abbott.

Courtenay Nursery, July 12.

NEW PETUNIAS AND VERBENAS.

JOHN CLARK begs to offer fine strong plants of the following new Petunias:—Purpurea striata, Crimson Perfection, Imperial (double white), Majestic, Major Domo, Prothe, William Pfitzer, Monsieur Loyre, Marquis de Saint Innocent, Dr. Andry, Leon Lequay, Hermione, and all the new Verbenas of the season at 1*s*. each, or 10*s*. per dozen, package included. A remittance from unknown correspondents is respectfully requested.—Belle Vue Nursery, Cheltenham.

NEW VERBENAS OF 1856.

WILLIAM KNIGHT, Florist, &c., begs to offer the new Verbenas raised by Weatherill, Smith, Cole, Martin, Todman, Rougier and Chauviere, in well established Plants, at 6*s*. per dozen; best varieties of previous seasons, at 2*s*. 6*d*. per dozen; first class Fuchsias, 4*s*. per dozen; Pompone, or large flowered Chrysanthemums, 3*s*. 6*d*. per dozen. Any of the above sent free by post if desired. Descriptive Catalogues sent on application.—67, High Street, Battle, Sussex.

FIRST-RATE NEW FUCHSIAS, VERBENAS, PETUNIAS, ETC., OF 1856.

WM. RUMLEY and SONS' NEW DESCRIPTIVE CATALOGUE of the above, containing choice collections, at very reduced prices, is now ready, and may be had on application. Several of the best new Fuchsias of 1856, including that splendid new variety, Venus de Medici, may be had at 2*s*. 6*d*. each, or 6 for 12*s*., fine plants, free by post on receipt of a Post-office Order, payable at Richmond.

Gilling, near Richmond, Yorkshire.

CONES OF ABIES DOUGLASI.

GEORGE ROBERTS begs to make known that he has lately received from the north-west coast of America a package of fine CONES of ABIES DOUGLASI. This noble tree attains in its native habitats on the banks of the Columbia River a height of from 150 to 200 feet, affording timber unequalled for masts, and remarkably free from knots and tendency to warp. From its beauty, rapidity of growth (having reached at Dropmore 60 feet in 18 years), and long-proved hardiness in Great Britain during the severest winters, it is recommended for extensive cultivation by the principal authorities on Coniferous trees.

32, Moorgate Street, London.

CHOICE CALCEOLARIA SEED.

JOHN HENCHMAN, Junior, is now ready to send out SEED of his choice and well known strain of CALCEOLARIAS, at 5*s*. per packet. Trade packets, 10*s*.

Edmonton, Middlesex.

EXTRA CHOICE CALCEOLARIA SEED.

J. DOBSON and SON beg to announce that they are prepared to send out SEED saved from their unequalled collection in packets at 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each.—Woodlands Nursery, Isleworth; and High Street, Hounslow.

It is requested that all Seed orders may be addressed to the latter place.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.

WILLIAM BARNES is now prepared to send out Seeds of his beautiful and unrivalled CALCEOLARIA, CINERARIA, and SWEET WILLIAM, the two former 2*s*. 6*d*., the latter 1*s*. 6*d*. per packet.

It is needless to say anything in recommendation of the above, as W. B. has received numerous testimonials in their praise from the many gentlemen and gardeners whom he has supplied. Payment by postage stamps.

Address—Camden Nursery, Camberwell.

AZALEA INDICA.

J. IVERY and SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, July 12.

GRAPE VINES FROM EYES.

ROBERT GLENDINNING has a large Stock of all the leading kinds of Grape Vines in fine condition, exposed to greenhouse temperature, and which may be safely transmitted to any distance. If planted now a season will be gained. A collection of the principal kinds is now in fruit at the Nursery, and an inspection of them is respectfully solicited.

Chiswick Nursery, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*.; sent post free, 1*s*. 2*d*. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d*. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d*. per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

TO AMATEURS.—For 5*l*., Sixty SEEDS of various Plants and Bulbs from Port Natal, South Africa, comprising Ipomœas, Erythrinas, &c., &c., just arrived, and quite new.—Apply at 16, Victoria Grove Terrace, Bayswater Road.

WANTED, the very best fimbriated PRIMULA SEED, both colours, say price per oz.; also CINERARIA extra.—A. B., 25, Bishopsgate Within.

FRUITING AND SUCCESSION PINE PLANTS.

TO BE SOLD CHEAP, 100 FRUITING and 100 SUCCESSION PINE PLANTS, the former in 8 and 9-inch pots, in fine health and perfectly clean. All Ripley and Moscow Queens.—Apply to Mr. Glendinning, Chiswick Nursery, London.

POTATOES.—TO SEEDSMEN, ETC.

J. SHEPPARD begs to announce he has an acre of ASHLEAF POTATOES (true) in full foliage, which will be saved for seed and sale, and invites their inspection, in consequence of the difficulty of knowing their genuineness without seeing the leaf.—Also a large breadth of Frame, York and Scotch Regents, Snowballs, and Early Shaws.

East Grinstead, Sussex, distant half a mile from the E. G. Railway Terminus.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world, upon application.

Primula, *choicest fringed*	1*s*. per packet.
Calceolaria, *choicest varieties*	1*s*. „
Cineraria „ „	1*s*. „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

James Carter & Co., Seedsmen, 238, High Holborn, London.

New and Beautiful Hardy Coniferous Tree.
CUPRESSUS LAWSONIANA.

MESSRS WATERER and GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s*.; six plants, 4*l*. 10*s*.; 12 plants, 7*l*. 10*s*.—Knap Hill Nursery, Woking, Surrey.

LIST OF THE PRIZES AWARDED AT THE ROYAL BOTANIC GARDENS,

REGENT'S PARK, July 9th, 1856.

EXTRA GOLD MEDAL.

Mr. May, Gr. to H. Collyer, Esq., Dartford, for 16 Stove and Greenhouse Plants.
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 20 Exotic Orchids.

LARGE GOLD MEDAL.

Mr. Dodds, Gr. to Sir J. Cathcart, Cooper's Hill, for 16 Stove and Greenhouse Plants.
Mr. Taylor, Gr. to J. Coster, Esq., Streatham, for 16 Stove and Greenhouse Plants.
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, for 20 Exotic Orchids.

MEDIUM GOLD MEDAL.

Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam, for 16 Stove and Greenhouse Plants.
Messrs Fraser, Nurserymen, Leyton, for 12 Stove and Greenhouse Plants.
Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, for 10 Stove and Greenhouse Plants.
Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, for 20 Exotic Orchids.
Mr. Clarke, Gr. to C. Webb, Esq., Hoddesdon, for 12 Exotic Orchids.

GOLD MEDAL.

Mr. Cutbush, Nurseryman, Barnet, for 12 Stove and Greenhouse Plants.
Mr. Peed, Gr. to T. Treadwell, Esq., Norwood, for 10 Stove and Greenhouse Plants.
Mr. Cutbush, Barnet, for 10 Cape Heaths.
Mr. May, Dartford, for 8 Cape Heaths.
Mr. Turner, for 12 Pelargoniums.
Mr. Holder, Gr. to Rev. E. Coleridge, Eton College, for 10 Pelargoniums.
Messrs. Veitch & Son, Nurserymen, of Exeter and Chelsea, for 20 Stove and Greenhouse Plants of remarkable foliage.
Mr. Tillyard, Gr. to the Right Hon. the Speaker, for a Miscellaneous Collection of Fruit.

LARGE SILVER GILT MEDAL.

Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 16 Stove and Greenhouse Plants.
Mr. Morris, Gr. to Coles Child, Esq., Bromley, for 10 Stove and Greenhouse Plants.
Mr. Rhodes, for 6 Stove and Greenhouse Plants.
Messrs. Fraser, for 6 Kalosanthes.
Mr. Mortimer, Gr. to J. R. Scott, Esq., Hornsey, for 6 Tall Cacti.
Mr. Carson, for 6 Exotic Orchids.
Mr. Bray, Gr. to Baron Goldsmid, Regent's Park, for 6 Fuchsias.
Mr. Gaines, for 12 Pelargoniums.
Mr. Weir, Gr. to J. Hodgson, Esq., The Elms, Hampstead, for 10 Pelargoniums.
Messrs. Jackson, Nurserymen, Kingston, for 20 Stove and Greenhouse Plants of remarkable foliage.
Mr. Barnes, Gr. to Lady Rolle, for 84 Specimens of Coniferous Plants from the Arboretum at Bicton.
Mr. Fleming, Trentham, for a Miscellaneous Collection of Fruit.
Mr. Glendinning, for 3 dishes of Grapes.

LARGE SILVER MEDAL.

Mr. Williams, Gr. to Miss Traill, Bromley, for 6 Stove and Greenhouse Plants.
Mr. Glendinning, Nurseryman, Chiswick, for 10 Cape Heaths.
Mr. Williams, for 8 Cape Heaths.
Mr. Roser, Gr. to J. Bradbury, Esq., Streatham, for 6 Cape Heaths.
Mr. Morris, for 6 Exotic Orchids.
Mr. Turner, for 6 Fancy Pelargoniums.
Mr. Windsor, for 6 Fancy Pelargoniums.
Mr. Turner, for 6 Pelargoniums of 1854 and 1855.
Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon Court, for Miscellaneous Collection of Fruit.
Mr. Jones, Gr. to the Dowlais Iron Company, for 4 Pine Apples.

SILVER GILT MEDAL.

Mr. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants.
Mr. Peed, for 6 Stove and Greenhouse Plants.
Mr. Green, for 6 Tall Cacti.
Messrs. Fraser, for 10 Cape Heaths.
Mr. Rhodes, for 8 Cape Heaths.
Mr. Peed, for 6 Cape Heaths.
Mr. Harlock, Gr. to W. R. Nutter, Esq., Wanstead, for 6 Cape Heaths.
Mr. Dedman, Gr. to G. Foster, Esq., the Holme, Regent's Park, for 6 Exotic Orchids.
Mr. Turner, Nurseryman, Slough, for 6 Calceolarias.
Messrs. Dobson, Nurserymen, Isleworth, for 6 Fuchsias.
Mr. Windsor, Gr. to A. Blyth, Esq., Hampstead, for 10 Pelargoniums.
Messrs. Fraser, for 6 Fancy Pelargoniums.
Mr. Bray, for 6 Fancy Pelargoniums.
Mr. Turner, for 3 Pelargoniums.
Mr. Weatherill, Gr. to Dr. Macneil, Hornsey Road, for 3 Scarlet Pelargoniums.
Mr. Holder, for 6 Pelargoniums of 1854 and '55.
Messrs. Paul, Nurserymen, Cheshunt for 50 Cut Roses.
Miss Palmer, 46, Portland Place, for 25 Cut Roses.
Messrs. J. & C. Lee, Nurserymen, Hammersmith, for 20 Stove and Greenhouse plants of remarkable foliage.
Mr. Taunton, Gr. to J. S. Wintle, Esq., Hucclecote, Gloucestershire, for 20 Stove and Greenhouse plants of remarkable foliage.
Mr. Fletcher, Gr. to Dr. Young, Kennington Lane, for 12 Exotic Ferns.
Mr. Baillie, for 30 British Ferns in pots.
Mr. Weatherill, for 12 Verbenas in pots.
Mr. May, Dartford, 2 Ixora javanica, and 2 Dipladenia crassinoda.
Mr. Barnes, Bicton, for 4 Pine Apples.
Mr. Mitchell, Nurseryman, Brighton, for 3 dishes of Grapes.
Mr. M. Henderson, for 12 lbs. Grapes.
Mr. M. Henderson, for 1 dish Black Grapes.
Mr. Boyd, Gr. to Viscount Dillon, Dytchley, Oxon, for 1 dish Black Prince Grapes.
Mr. Tillyard, for 1 dish white Muscadine.
Mr. Clarke, for 1 dish Muscats.
Mr. Tillyard, for 1 dish Frontignan Grapes.
Mr. Mitchell, Brighton, for Seedling Grape Marchioness of Hastings.
Mr. Hume, The Poles, Ware, for 1 dish of Peaches.

SILVER GILT MEDAL.

Mr. Frost, for 4 dishes of Peaches and Nectarines.
Messrs. Lane, collection of Fruit Trees in pots.
Mr. Snow, for Seedling Grape.

SILVER MEDAL.

Mr. Hamp, Gr. to J. Thorne, Esq., South Lambeth, for 10 Stove and Greenhouse Plants.
Mr. Morris, for 6 Stove and Greenhouse Plants.
Messrs. Jackson, Nurserymen, Kingston, for 10 Cape Heaths.
Mr. Cole, Nurseryman, St. Alban's, for 6 Calceolarias.
Mr. Gaines, Nurseryman, Battersea, for 6 Fuchsias.
Mr. Swannell, Gr. to J. Russell, Esq., Harrow-on-the-Hill, for 10 Pelargoniums.
Mr. Gaines, for 6 Fancy Pelargoniums.
Mr. Weir, for 6 Fancy Pelargoniums.
Mr. Holder, for 3 Pelargoniums.
Mr. Cain, Gr. to Sir J. Easthope, Bart., Weybridge, for 3 Scarlet Pelargoniums.
Mr. Gaines, for 6 Pelargoniums of 1854 and 1855.
Mr. Francis, Nurseryman, Hertford, for 50 Cut Roses.
Mr. May, Gr. to C. M. Worthington, Esq., Cavensham Priory, Oxon, for 25 Cut Roses.
Mr. Parker, Nurseryman, Holloway, for 20 Stove and Greenhouse Plants of remarkable foliage.
Mr. Baillie, Gr. to W. C. Carbonell, Esq., Harrow Road, for 12 Exotic Ferns.
Mr. Carson, for 12 Exotic Ferns.
Mr. Taylor, for 6 Cape Heaths.
Mr. Glendinning, for Abies Kæmpferi.
Mr. Hamp, for Specimen of Ixora javanica.
Messrs. Henderson, Wellington Road, for "Ouvirandra fenestralis."
Mr. Parker, for Collection of 27 Plants.
Messrs. Veitch, for a collection of Novelties.
Messrs. Veitch, for Delphinium Cardinale.
Messrs. Veitch, for Desfontania spinosa.
Messrs. Standish & Noble, for Clematis lanuginosa pallida.
Messrs. Backhouse, York, for Cattleya Wagneri.
Mr. Watson, Market Gardener, Ealing, for Miscellaneous Collection of Fruit.
Mr. Fleming, Trentham, for 4 Pine Apples.
Mr. Fleming, for 1 Providence Pine Apple.
Mr. Barnes, Bicton, for 1 Queen Pine Apple.
Mr. T. Bailey, gr. to T. T. Drake, Esq., Shardeloes, for 1 Pine Apple.
Mr. M. Henderson, Gr. to Sir G. Beaumont, Bart., Coleorton Hall, Ashby-de-la-Zouch, for 3 dishes of Grapes.
Mr. Mitchell, Brighton, for 12 lbs. of Grapes.
Mr. J. Davis, Oakhill, East Barnet, for 12 lbs. of Grapes.
Mr. M. Henderson, for 1 dish of Black Hamburgh Grapes.
Mr. Forbes, for 1 dish of Black Hamburgh Grapes.
Mr. Hall, Gr. to S. Garrard, Esq., Colebrook Lodge, Putney Heath, for 1 dish of Black Hamburgh Grapes.
Mr. May, Dartford, for 1 dish of Black Prince Grapes.
Mr. Forsyth, Gr. to Baron Rothschild, Gunnersbury, for 1 dish of White Muscadine Grapes.
Mr. Turnbull, for 1 dish of Muscats.
Mr. Forsyth, for Vines in Pots.
Mr. Richards, for 1 dish of Peaches.
Mr. Turnbull, for 4 dishes of Peaches
Mr. Booth, Gr. to H. Alexander, Esq., Belmont, East Barnet, for 2 dishes of Peaches and Nectarines.
Mr. Chapman, Gr. to J. B. Glegg, Esq., Withington Hall, Cheshire, for 1 box of Nectarines.

SMALL SILVER MEDAL.

Mr. James, Gr. to W. F. Watson, Esq., Isleworth, for 6 Calceolarias.
Mr. Davidson, Gr. to G. Bishop, Esq., Regent's Park, for 6 Fuchsias.
Miss Palmer, 46, Portland Place, for 10 Pelargoniums.
Mr. Shrimpton, Gr. to A. Doxat, Esq., Putney Heath, for 6 Fancy Pelargoniums.
Mrs. Conway, Earl's Court, Old Brompton, for 3 Scarlet Pelargoniums.
Mr. Turner, for 24 Pinks.
Mr. Turner, for 36 Pansies.
Dr. Maclean, Colchester, for 12 Pinks.
Mr. James, for 24 Pansies.
Mr. Mitchell, Nurseryman, Maresfield, Sussex, for 50 Cut Roses.
Mr. Hume, Gr. to R. Hanbury, Esq., The Poles, Ware, for 25 Cut Roses.
Mr. Mitchell, Maresfield, for 24 Cut Roses.
Mr. Gedney, for 12 Exotic Ferns.
Mr. Halley, Nurseryman, Blackheath, for 12 Exotic Ferns.
Mr. Taylor, Streatham, for Correct Labels.
Mr. Barter, for 6 Cape Heaths.
Messrs. Veitch, for Leptodactylon californica and Philesia buxifolia.
Mr. Woolley, for 6 Achimenes.
Mr. Woolley, for Collection of Gloxinias.
Mr. Cole, St. Alban's, for 26 Calceolarias.
Mr. Carson, for Ixora alba.
Mr. Smith, Florist, Hornsey Road, for 24 Cut Verbenas.
Messrs. Henderson, Wellington Road, for 22 Gloxinias.
Messrs. Henderson, Pine-apple Place, for 24 Exotic Ferns.
Messrs. Smith, Florists, Dulwich, for 26 Balsams.
Mr. Glendinning, for Erica Spenceriana.
Messrs. Henderson, Wellington Road, for Tydea amabilis.
Mr. Glendinning, for Mandirola Roezli.
Mr. Carson, for Burlingtonia species.
Mr. Dodds, Gr. to Colonel Baker, Salisbury, for Providence Pine-Apple.
Mr. Young, Gr. to C. Bailey, Esq., Aberdare, Glamorgan, for 1 Queen Pine.
Mr. Williamson, Gr. to Lord Lonsdale, Whitehaven, for 1 Queen Pine.
Mr. Jones, for 1 Queen Pine.
Mr. Robinson, Gr. to Lord Boston, Hedsor, for 1 Pine Apple.
Mr. Cullingham, Gr. to Miss Traill, Bromley, for 1 Green-flesh Melon.
Mr. Bailey, Shardeloes, for 1 Scarlet-flesh Melon.
Mr. Wood, Gr. to C. R. S. Murray, Esq., Danesfield, Great Marlow, for 3 dishes of Grapes.
Mrs. Hindle, Nelson Lodge, Stoke Newington, for 12 lbs. of Grapes.
Mr. Phipps, Gr. to Earl of Carnarvon, Highclere Castle, Hants, for 12 lbs. of Grapes.

SMALL SILVER MEDAL.

Mr. Phipps, for dish of Black Hamburghs.
Mr. Hill, for 1 dish of Black Hamburgh Grapes.
Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim, for 1 dish of Black Prince Grapes.
Mr. Hill, for 1 dish of Black Prince Grapes.
Mr. Boyd, for 1 dish of Dutch Sweetwater Grape.
Mr. Wood, for dish of White Muscadine.
Mr. Dodds, Cooper's Hill, for 1 dish Muscats.
Mr. Taylor, Streatham, for 1 dish of Muscats.
Mr. Forsyth, for 1 dish of Peaches.
Mr. R. Davis, Gr. to J. Dixon, Esq., Astle Hall, Cheshire, for 4 dishes of Peaches and Nectarines.
Mr. Snow, for 1 dish of Figs.
Mr. J. Taylor, Brentford, for 1 dish of Black Cherries.
Mr. Snow, for 1 dish of White Cherries.
Mr. Tillyard, for 4 dishes of Strawberries.
Mr. M. Henderson, for a Box of Nectarines.
Mr. R. Davis, Astle Hall, for 2 dishes of Peaches and Nectarines.
Mr. Watson, Ealing, for 2 dishes of Peaches and Nectarines.

BRONZE MEDAL.

Mr. Hutt, Gr. to Miss Burdett Coutts, Highgate, for 6 Fuchsias.
Mr. Weir, for 3 Pelargoniums.
Mr. Windsor, for 3 Scarlet Pelargoniums.
Mr. Bragg, Nurseryman, Slough, for 24 Pinks.
Mr. Bragg, for 36 Pansies.
Mr. August, Beddington, Surrey, for 12 Pinks.
Mr. Holder, for 24 Pansies.
Messrs. Lane, Nurserymen, Great Berkhampstead, for 50 Cut Roses.
Mr. Terry, Gr. to Lady Puller, Youngsbury, Ware, for 25 Cut Roses.
Messrs. Lane, for 24 Cut Roses.
Mr. Francis, for 24 Cut Roses.
Mr. Gaines, for 12 Exotic Ferns.
Mr. Jackson, Kingston, for 12 Exotic Ferns.
Messrs. Fraser, for Correct Labels.
Mr. Taylor, for Correct Labels.
Mr. Clarke, for Erica parmentiera rosea.
Mr. Gaines, for 6 French Pelargoniums.
Mr. Weatherill, for 6 Petunias.
Mr. Weatherill, for a box of Cut Verbenas.
Mr. Green, for 6 Cape Heaths.
Mr. Forsyth, for 8 Hydrangeas.
Messrs. Henderson, Wellington Road, for Sonerila margaritacea.
Messrs. Henderson, for Sonerila margaritacea superba and Nidularia fulgens.
Mr. Green, for Rondeletia anomala.
Mr. Winfield, Gr. to W. H. Bracebridge, Esq., Sherbourn, Warwick, for 1 Providence Pine.
Mr. Davis, Gr. to J. W. B. Blakemore, Esq., Velindra House, Cardiff, for 1 Queen Pine.
Mr. Fleming, Trentham, for 1 Queen Pine.
Mr. Soloman, Peckham Rye, for 1 Queen Pine.
Mr. M'Ewen, Gr. to Colonel Wyndham, Petworth, for 1 Pine Apple.
Mr. Fleming, Trentham, for 1 Green-flesh Melon.
Mr. M'Ewen, Petworth, for 1 Green-flesh Melon.
Mr. Likeman, Market Gardener, Brighton, for 12 lbs. of Grapes.
Mr. Forbes, Woburn Abbey, for 12 lbs. of Grapes.
Mr. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Stafford, for 12 lbs. of Grapes.
Mr. Tillyard, for 1 dish of Black Hamburgh Grapes.
Mr. Fleming, Trentham, for 1 dish of Black Hamburgh Grapes.
Mr. M. Henderson, for 1 dish of Muscats.
Mr. H. Smith, Gr. to A. W. Robarts, Esq., Roehampton, for 1 dish of Peaches.
Mr. M. Henderson, for 1 dish of Nectarines.
Mr. Fleming, Trentham, for 4 dishes of Peaches and Nectarines.
Mr. Dawson, Gr. to Earl Cowper, Panshanger, for 2 dishes of Peaches and Nectarines.
Mr. Tillyard, for 2 dishes of Peaches and Nectarines.
Mr. J. Munro, Colney House, for 1 dish of Apricots.
Mr. J. Munro, Colney House, for 1 dish of Plums.
Mr. Ewing, for 1 dish of Figs.
Mr. Snow, for 1 dish of Black Cherries,
Mr. J. Taylor, Brentford, for 1 dish of White Cherries.
Mr. Hume, for 4 dishes of Strawberries.

CERTIFICATE OF MERIT.

Mr. James, for 36 Pansies.
Messrs. Dobson, for 36 Pansies.
Mr. Hollamby, Nurseryman, Tunbridge Wells, for 50 Cut Roses.
Mr. Munro, Gr. to the Earl of Clarendon, The Grove, Watford, for 25 Cut Roses.
Mr. Marchand, Gr. to E. Oats, Esq. Hanwell, for 25 Cut Roses.
Mr. Bradstock, Gr. to J. Anderson, Esq., Carshalton, for 25 Cut Roses.
Mr. Taylor, Gr. to A. Hanbury, Esq., Willen Hall, for 25 Cut Roses.
Mr. Terry, for 24 Cut Roses.
Mr. Hollamby, for 24 Cut Roses.
Capt. J. B. Maunsell, 33, Grosvenor Street, for 24 Cut Roses.
Messrs. Fraser, for Correct Labels.
Mr. Roser, for Correct Labels.
Mr. Turner, for Cut Verbenas.
Mr. Turner, for Seedling Calceolaria "King of Yellows."
Mr. Turner, for Seedling Calceolaria "Hebe."
Messrs. Standish & Noble, Nurserymen, Bagshot, for Rose "Victor Trouillard."
Mr. Parsons, Gr. to W. J. Blake, Esq., Danesbury, Welwyn, for Achimenes "Vivid."
Messrs. Veitch, for Pelargonium "Clarissa."
Messrs. Veitch, for Capsicum species.
Mr. Terry, for 1 Queen Pine Apple.
Mr. Dodds, Cooper's Hill, for 1 Queen Pine Apple.
Mr. Frost, Gr. to E. L. Betts, Esq., Preston Hall, Maidstone, for 1 Queen Pine Apple.
Mr. Cullingham, for 1 Green-flesh Melon.
Mr. Tegg, Gr. to A. Prior, Esq., Roehampton, for 1 Green-flesh Melon.
Mr. M'Ewen, Petworth, for 1 Green-flesh Melon.
Mr. Richards, Gr. to Lord Londesborough, Grimston Park, York, for 1 Green-flesh Melon.
Mr. Ewing, Gr. to O. F. Meyrick, Esq., Bodorgan, Anglesea, for 1 Scarlet-flesh Melon.
Mr. M. Henderson, for 12 lbs. of Grapes.

Further List of Prizes awarded at this Exhibition continued on next page.

LIST OF PRIZES—*Continued.*

CERTIFICATE OF MERIT.

Mr. Tillyard, for 12 lbs. of Grapes.
Mr. Mitchell, Brighton, for 12 lbs. of Grapes.
Mr. Hume, Gr. The Poles, Ware, 1 dish Black Hamburgh Grapes.
Mr. Morris, Bromley, for 1 dish Black Hamburgh Grapes.
Mr. Fleming, Gr. to the Duke of Sutherland, Cliveden, for 1 dish of Black Hamburgh Grapes.
Mr. James Taylor, Market Gardener, Brentford End, Isleworth, for 1 dish of Black Hamburgh Grapes.
Mr. Robinson, Gr. to E. R. Tunno, Esq., Warnford Park, for 1 dish White Muscadine Grapes.
Mr. Aldborough, Upton Park, West Ham, for 1 dish of White Muscadine Grapes.
Mr. Smith, Gr. to S. Ricardo, Esq., Titness Park, Sunning Hill, for 1 dish of Muscats.
Mr. Turnbull, for 1 dish of Nectarines.
Mr. J. Munro, Gr. to Mrs. Oddie, Colney House, St. Alban's, for 4 dishes of Peaches and Nectarines.
Mr. Wilson, Warwick, Market Gardener, for 4 dishes of Peaches and Nectarines.
Mr. Ewing, for 2 dishes of Peaches and Nectarines.
Mr. M. Henderson, for 2 dishes of Peaches and Nectarines.
Mr. Turnbull, for 2 dishes of Peaches and Nectarines.
Mr. J. Anderson, Longleat, for 2 dishes of Peaches and Nectarines.
Mr. Fleming, Trentham, for 1 dish of Plums.
Mr. Richards, for 1 dish of Figs.
Mr. Ingram, Gr. to J. J. Blandy, Esq., High Grove, Reading, for 1 dish of Black Cherries.
Mr. M'Ewen, Petworth, for 1 dish of Black Cherries.
Mr. Marcham, for 1 dish of Black Cherries.
Mr. Dawson, for 1 dish of White Cherries.
Mr. Robinson, Warnford Park, for 1 dish of White Cherries.
Mr. Martin, Gr. to J. Hargreaves, Esq., Silwood Park, Sunning Hill, for 1 dish of White Cherries.
Mr. Richards, for 1 dish of White Cherries.
Mr. Shrimpton, for 1 box of Muscadine Grapes.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. PER POST PREPAID.

		s.	d.
CINERARIA of the first quality	per packet	2	6
CALCEOLARIA, from the handsomest spotted and blotched varieties	"	2	6
MIMULUS, ditto ditto ditto ...	"	2	6
GLOXINIA, ditto 30 varieties	"	2	6
FUCHSIA, ditto 50 new ditto	"	2	6
PANSY, saved from 100 of the best vars., by name	"	2	6
POLYANTHUS, do. 50 ditto ditto	"	2	6
VERBENA, do. 50 ditto ditto	"	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do.	"	2	6
DAISY do. 50 of the new Belgian do. ditto.	"	1	6
ANTIRRHINUM, do. 20 best named varieties ...	"	1	0
ANEMONE, from the most showy and brilliant kinds	"	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

YOUELL & CO., Royal Nursery, Great Yarmouth, Norfolk.

DUTCH BULBS.—As the period is approaching for sending out the orders for DUTCH BULBS for the ensuing season, we respectfully suggest to our friends and the trade generally, that they instruct their correspondents in Holland to consign the cases direct to our care HERE, for immediate transmission to their respective destinations, by which greater expedition will be obtained in their delivery.

BETHAM & BLACKITH, Custom House and General Forwarding Agents, Cox's Quay, Lower Thames Street, London.—July 12.

CHOICE NEW ROSES OF 1856.

HENRY MAY has much pleasure in offering fine healthy Plants, in pots, of the following splendid new Roses:

HYBRID PERPETUALS.—Belle Jardinière, Belle d'Orleans, Docteur Henon, Duc d'Elchingen, General Simpson, General Pelissier, Josephine Ledechaux, Louise Magnan, Madame Knorr, Marquise de Murat, Mathurin Regnier, Mrs. Standish, Madame Cambacères, President Menoux, Belle Lyonnaise, Madame Place, Ornament des Jardins, Pæonia, Pauline Lansezeur, Souvenir de la Reine d'Angleterre, Souvenir du Petit Caporal, Triomphe de l'Exposition, Triomphe d'Avranches, Prince Noir.

BOURBONS.—Marquis di Balbiana, Conde di Montejo, Impératrice Eugenie, Perpetual Moss, Alfred Dalmas, Moss, Captain Ingram, Bicolor, Madame E. Ory.

SCOTCH ROSE.—Souvenir de Henri Clay.

Purchaser's selection from the above, 3s. 6d. each.

NEW VERBENAS OF 1856.—Duke of Cambridge, Dr. McLean, Antagonist, La Stella, Blue Bonnet, Tranby, Eugenia, Mrs. Hosier Williams, Géant des Batailles, John Edwards, Impératrice Elizabeth, Standard Bearer, Victory, Imperialis, King of Sardinia, Crimson Perfection, Admiral Lyons, Sir Colin Campbell, Countess of Oxford, Dandy, Loveliness, Lady Camoys, Lady Kerrison, Moonlight, Mrs. Archer Clive, Nosegay, Pre-eminent, Viscountess Emlyn, Lord Raglan, Criterion, Cedo Nulli, General Simpson, King of Roses, Purple Defiance. Any of the above 4d each, and post free when more than 12 are taken.

Fine PETUNIAS, striped, &c.—Leon Lequay, Monsieur Loyre, Madame Eugène Lemichez, Prothe, Marquise de St. Innocent, Countess of Ellesmere, Hermione, picturata, Velasquez, Marquise de la Ferté, Amazon, Dryburgh Beauty. Any of the above 6d. each, and post free when the 12 are taken.

NEW ACHIMENES.—Dr. Hopf, Edmond Boissier, Sir T. Thomas, fimbriata violacea, Edouard Otto, Madam Haagnaur, Carl Wolforth, Warczewiczi. The above 1s. each free by post.

Cuphea eminens, 2s. 6d. each; Meyenia erecta, 10s. 6d. each; Locheria magnifica, 10s. 6d. each; Tydæa amabilis, 10s. 6d. each; Hydrangea hortensis pleno, 2s. 6d. each; Tropeolum elegans, 2s. 6d. each; Petunia imperial, double white, 4s. per dozen, 25s. per 100. All the above are fine strong healthy plants, and all the above can be forwarded through the post with the exception of the Roses.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42s.
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties ...	"	9
Gynerium argenteum (Pampas Grass) ...	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

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PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

CHOICE NEW VERBENAS, FUCHSIAS, ETC., OF THIS SPRING.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire, begs to offer the following at the reduced prices annexed, all in strong healthy plants; descriptive lists of them on application.

VERBENAS.—Antagonist, Tranby, Sultan, Admiral Lyons, Picturata, Imperatrice Elizabeth, Blue Bonnet, Crimson Perfection, Duke of Cambridge, Dr. Maclean, King of Sardinia, Loveliness, Pre-Eminent, Premier, Standard Bearer, Victory, Criterion, Cedo Nulli, Dandy, Eugenie, General Simpson, John Edwards, King of Roses, Sir Colin Campbell, Unanimity, Lady Camoys, Lady Kerrison, Mrs. Archer Clive, Imperialis, La Stella, Countess of Dunmore, Mrs. Hosier Williams, Vicomtesse Emlyn, Countess of Oxford, Nosegay, and Purpurea magnifica, at 1s. 6d. each, or 18s. per dozen, or six for 10s., post free when more than six are taken. CONTINENTAL VARIETIES: Bicolor, Beauté de Vitry, Géant des Batailles (fine crimson), Julie Pequin, Madame Adolphe Wieck, Mademoiselle Rinz, Monsieur Roviere, Nelly, Pulcherrima, Surprise, Souvenir de Marie, and Variegata; the 12 for 7s. 6d. post free.

FUCHSIAS.—Admiral Boxer, Conqueror, Donna Joaquinna, General Williams, Favourite, Venus de Medici, Wonderful, Prince of Wales, Charlemagne, Countess of Burlington, Emperor Napoleon, and Volcano di Aqua (the four last named not until the middle of July), at 3s. 6d. each, or six for 15s. post free.

PETUNIAS.—Countess of Ellesmere, Majestic, Major Domo, Picturata, Purpurea alba, Hermione ("Imperial," double white, 1s. each), Leon Lequay, Madame Eugenie Lemichez, Docteur Andry, Marquise de St. Innocent, Monsieur Loyre, Prothe, and Wilhelm Pfitzer. The above (except Imperial) 2s. each, or 20s. per dozen, post free.

ACHIMENES.—Ambroise Verschaffelt, Dr. Hopf, Edmond Boissier, Edouard Otto, Gigantea, Hendersoni, Chirita, Maria violacea, Carl Wolforth, Louis Van Houtte, M. de Parpart, Sir T. Thomas, Madame Randatler, and Picturata. The above 14 for 15s. post free.

GLOXINIAS, Choice, 12s. and 18s. per dozen; ditto, erect flowering, 21s.

CHOICE MISCELLANEOUS PLANTS.

	Each—s.	d.		Each—s.	d.
Tydea splendens	3	6	Rhodolea Championi ...	2	6
" Warcewiczi	2	0	Myrtus myrsinoides ...	2	6
Mandirola Roezli 3s. 6d. &	5	0	" apiculata	2	6
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Escallonia pterocladon ...	2	6	Epacris Eclipse (Story's)	3	6
Passiflora alba nigra ...	2	6	Aubretia Mooreana (New Alpine)	1	6
" Decaisneana 2s. 6d. &	3	6	Hoya fraterna ... 3s. 6d. &	5	0
Dipladenia splendens ...	2	6	Chrysanthemum Alfred Salter	3	6
" magnifica ... 3s. 6d. &	5	0	Cuphea eminens	5	0
" Wagneriana... ...	3	6	Cereus M'Donaldi 3s. 6d. &	5	0
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Impatiens Jerdoniæ 1s. 6d. to	2	6			
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Strong Plants may be depended on. Orders executed in rotation as received. It is respectfully requested that all orders be accompanied with a Post-office Order made payable at Marsden, Lancashire, unless reference is given.

SPLENDID NEW PLANT—
DELPHINIUM CARDINALE.

MESSRS. VEITCH AND SON having exhibited this beautiful novelty at the Regent's Park Exhibition on WEDNESDAY last (where it had the FIRST PRIZE for new and rare plants awarded it), and it having fully realised their expectation of its beauty, *particularly as regards the colour* of the flowers, they again beg to call public attention to it.

The Colour, *a clear and real* SCARLET (not a dingy red as was prognosticated by some parties), was thought by many persons to be improbable if not impossible in this genus; but the specimen exhibited on Wednesday last is an *an ample answer to all doubt and cavil.*

It being a perfectly hardy perennial it should certainly be in every garden.

Specimens in flower may be seen at either the Chelsea or Exeter Nurseries.

Strong Established Plants	10s.	6d.
Second size "	7	6

With one over on three to *the Trade.*

Special terms to the Trade for larger numbers on application.

Exotic Nurseries, Chelsea and Exeter.—July 12.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.—Packets of each sealed and warranted by them, at 2s. 6d. free by post.

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L. P., & Co. have now several excellent practical GARDENERS whom they can with confidence recommend; their Testimonials as to moral character and abilities being in every respect unexceptionable.

Exeter Nursery, Exeter. Established 1720.

The Gardeners' Chronicle.

SATURDAY, JULY 12, 1856.

No one can be surprised that an article on VILLAGE BOTANY in our impression of Saturday last should have attracted much attention. The facts that it discloses would be remarkable even if they related to an "Academy," "Institution," "Establishment," or any other place of education dignified with a high-sounding name; as the result of a system of training little peasant girls in a small village school they deserve very serious consideration. For they show conclusively that it is possible to instil into the minds of the young and plastic, be their condition in life what it may, ideas of something beyond A B C and the dreary spelling-book.

That natural history, and especially plants should have peculiar attractions for young people arises out of the nature of things. The mere fact of life being present in them identifies them with our own proper nature, and gives them a charm which no abstractions can possess in an equal degree. The plant grows and changes its nature like ourselves; it produces its young, it has its season of infancy, youth, maturity, and old age. All its forms are beautiful; it ministers to our wants, or our pleasures; it creates fear by its danger, it allures by its gay colours or pleasant fragrance; it excites admiration by its infinite variety of form. All these qualities are unattended by a single disadvantage; no susceptibility is hurt by the imaginary cruelty attendant upon some branches of natural history, for plants have no feeling; no cost is incurred in their study for they surround us everywhere; no difficulties belong to their investigation, for their parts are large enough to be visible to the quick eyes of children; there is nothing disgusting in their habits or in the manner of seeking them.

If then their attractions especially secure for them the love of the young, their value as a means of disciplining the mind should also recommend them to the attention of the old. Botany has a high value undoubtedly if limited to the distinction of useful from useless, or dangerous from harmless plants. It is something for a child to know garden Parsley from Fools' Parsel, or Monkshood from Horse Radish; but it is more for its mind to be trained to habits of method and order, and its eye to minute observation. For if these qualities are once implanted in our nature they become habitual and are never wholly lost. Systematical Botany yields to no branch of knowledge in its adaptability to this purpose if properly taught. Even the exploded Linnean arrangement may be turned to some account by those who have the skill.

The difficulty is to find teachers. We do not mean that among our villages is no sufficient number of persons enough acquainted with plants to be available in some degree. The want is rather in their not knowing how to teach such a subject. Really good teachers indeed are rare in all branches of knowledge, and most especially in Natural History. The Hitcham example is however conclusive as to possibility. The papers published last week show that a child's mind may be trained by skill to a familiarity not only with the technical distinctions which constitute the foundation of

MESSRS. E. G. HENDERSON & SON'S
NEW CALCEOLARIAS AND CINERARIA SEED.

THEIR new and superb large flowering Calceolarias, for which the Silver Medal was awarded by the Royal Botanic Society, Regent's Park, Wednesday, July 9th, 1856, are the finest marked and the richest in colour of any that have been exhibited this season at the London Exhibitions, and may now be had, together with the following extra Choice Flower Seeds, suitable for the present season's sowing:—

No.	Per packet—s.	d.
1. Calceolaria, first quality	5	0
2. " second ...	2	6
3. Cineraria, choice mixed	2	6
4. Primula sinensis fimbriata, mixed	2	6
5. Hollyhocks, in 12 distinct colours	2	6
6. Hollyhocks, mixed ...	1	0
7. Geranium, Show ...	2	6
8. " Fancy ...	2	6
Carnations, fine stage flowers	2	6
Dianthus Dunnetti superbus	0	6
Mimulus variegatus ...	0	6
Petunia, choice, equal to named flowers	1	6
Pink, from named flowers	1	0
Pansy, choice Show ...	1	0
Pansy, Fancy	0	6
Picottee, from stage flowers	2	6
Stock (Brompton) in 4 cols.	1	6
" scarlet intermediate	0	6
Schizanthus retusus ...	0	6
" albus... ...	0	6

Directions for sowing the Calceolarias, &c., will be enclosed with each packet.

NOVELTIES.—PETUNIA "COUNTESS OF ELLESMERE." A bed of sixty plants of this striking variety can now be seen in flower at their Nursery; as also the NEW FUCHSIA "VENUS DE MEDICI." Messrs. E. G. H. & Son beg to mention that this Fuchsia is much improved when grown in a shady part of the house and not exposed to the power of the sun.

The Spring Catalogue may be had post free on application, or with Coloured Plate of Nine New Flowers, Price 1s.

Wellington Nursery, St. John's Wood, London.

botanical classification but with the unusual terms employed in systematical botany. It is seen that Greek and Latin compounds are as easily retained in the memory of childhood as any other words. This, we fairly confess, takes us by surprise, so contrary is it to our own anticipation or experience. The fact is, however, incontestable.

All will wish to know by what means such results have been obtained, some in the desire to imitate the example of Hitcham and some from mere curiosity. They shall be told. The minutiæ by which Prof. HENSLOW has achieved success shall be revealed to them. He has had the kindness to promise a detailed account of every step to be taken in the educational process; and this very day has commenced his task in another column. To that and succeeding articles we refer our readers with an entire conviction that with the same zeal, the same skill, and the same method they also will carry a most vital improvement into village schools. Let us hope the example will also *rise*.

NOW that EPIPHYTAL ORCHIDS are beginning to be more commonly cultivated in continental gardens, the attention of the French has been directed towards their peculiar manner of life, and the conditions most favourable to its healthy maintenance. At a recent meeting of the Imperial Agricultural Society of Paris, Mons. PAYEN introduced the subject with an account of some experiments he had tried.

Till now, observed this learned chemist, these plants were thought to derive their food exclusively from the gaseous matters of the atmosphere and from pure water containing no mineral substances. This was so contrary to the laws known to prevail among other plants, in all which inorganic matters are invariably present in some although variable quantities, that the question appeared to require solution. These *à priori* considerations had therefore led M. PAYEN to infer that Epiphytes, even such as are most completely aërial and live in hothouses suspended from mere wire, must contain in their tissues mineral compounds, some with an organic base or acid, others completely inorganic, and that their distribution through the various organs must take place, not accidentally, but according to the particular requirements of the plants, just as he had found them in species which derive their food chiefly from the soil.

This view has been completely justified by the result of the new examination to which Epiphytes have been exposed, whether they grew on dead or living wood, or whether their roots had penetrated among layers of moss or developed freely in mere air, with no other support than a leaden wire. The first result of these observations was communicated to the Horticultural Society of Paris on the 13th of March last, and gave rise to objections to which M. PAYEN has now replied. How, it was asked, can Orchids which grow and flower suspended from a single wire, and are never supplied with any but rain-water, possibly obtain a supply of inorganic matter? especially when it is remembered that rain-water suits them far better than any sort of pump-water; and that in their native countries the first roots by which Epiphytes are attached to trees or dead branches soon lose their power of growth, and are gradually replaced by new roots floating in the air.

To these arguments M. PAYEN replied by remarking that rain-water is not completely free from mineral matters, that the particles of dust at all times floating in the air cannot but perform an important part in the nutrition of Epiphytes, that the dead roots which accumulate at the base of such plants must assist in detaining such dust and in giving up their own mineral contents to the water which washes and gradually dissolves them. Moreover he was of opinion that minute particles of leaves, of flowers, of pollen, of seeds, falling from the neighbouring trees would assist in feeding Epiphytes, and enabling them to grow with a degree of vigour proportioned to the food they receive. The fact of mineral matters being actually present in the tissues of such plants was moreover a conclusive reply to those who believe that they are incapable of obtaining them. He added that some experiments in which he had been engaged along with M. MOQUIN TANDON seemed to show that the roots of epiphytal Orchids fixed to pieces of wood or bark, derive a portion of their food from those supports; for that by means of coloured fluids, especially of Orchall, they had been able to demonstrate the power in such roots of imbibition, sufficiently showing that they cannot be mere organs of attachment.

We are led from the report of these proceedings to conclude that in France at least the principles of cultivating Orchideous Epiphytes are less understood than here. No good English gardener thinks of trusting the growth of such plants to what they can find in the air. On the contrary, it is well known that although some will exist if suspended from mere wires, yet that no vigour is attainable under such circumstances, and if Orchids are to be grown well they must have their roots in contact with earth or its equivalent, such as decaying Moss, dead bark, or especially coarse peat. By such substances the inorganic matters demanded for the maintenance of such plants are gradually given up in sufficient quantity. It is moreover to be remarked that there is no evidence, that we know of, to sustain the assertion that the first roots produced by young Epiphytes die, and are succeeded by roots floating in the air. This we believe to be a complete mistake. On the contrary their roots naturally seize upon some support or other, wherever it can be found, and cling to it with the tenacity of life. Branches, old walls, the face of rocks, or their own stems and roots, offer these plants supports of which they greedily avail themselves. Even the East Indian Vandeous Orchids, the most aërial of all the race, form no exception to this statement. Importers of Orchids, and indeed the botanists who have merely had the opportunity of studying herbarium specimens, are familiar with this fact. Nor is it to be forgotten that the superficial area of roots by which such plants cling to their supports is often excessively great in proportion to the leaves and stems to be fed, as if nature gave them a power of enlarging their feeding surface in proportion to the difficulty experienced in finding food. Tæniophyllums, Chiloschista, the leafless Angureks are notable examples of this, to say nothing of Oncidiums, whose pseudobulbs are often seated upon deep beds of roots.

For ourselves we entertain no doubt that the nutrition of Epiphytes is essentially the same as that of other plants, and even less modified by circumstances than might be supposed. In their native haunts they find decaying bark, dead leaves, the dust carried everywhere by winds, and the dejections of birds, from among which there can be no difficulty in extracting the mineral food required in aid of what air and mere water can supply.

For the information of those who are interested in experimental researches into this curious question we extract the following passage from Professor EDWARD SOLLY's report on the inorganic constituents of plants published in the Transactions of the Horticultural Society, new series, vol. iii., p. 53:

"The inorganic constituents of Epiphytes were next examined. As many of these curious plants, which grow on the stems and branches of trees, derive nourishment chiefly from the air, and seem to flourish equally well whether the roots enter the soil or hang freely in the air, it was interesting to ascertain what proportion of earthy matters they contained, and whether it varied under different circumstances. It appeared probable that the quantity of inorganic matter which they contained would be smaller than that in most plants, and that the quantity present in those which grew only in air would be less than in those whose roots entered the soil. It was found, however, that the leaves of Orchidaceous plants contain about as much inorganic matter as those of Cabbages and other similar plants, and that there was but a trifling difference evident, whether the plants had their roots in the soil or in the air. The proportion of earthy matter in a plant of Catasetum grown in soil, and a plant of Bletia grown wholly suspended in the air, were—

	Water.	Organic Matter.	Inorganic Matter.	Inorganic in 10,000 parts dry.
Catasetum bulbs ...	8669	1269	62	465
Bletia bulbs	8309	1609	82	488
Catasetum leaves ...	8055	1791	154	794
Bletia leaves ...	8200	1658	142	793

Though the whole quantity of earthy matter present in the plant, as shown by the proportion contained in the dry leaves and bulbs, was nearly similar, very considerable difference was found in the nature of these substances; a proximate analysis gave—

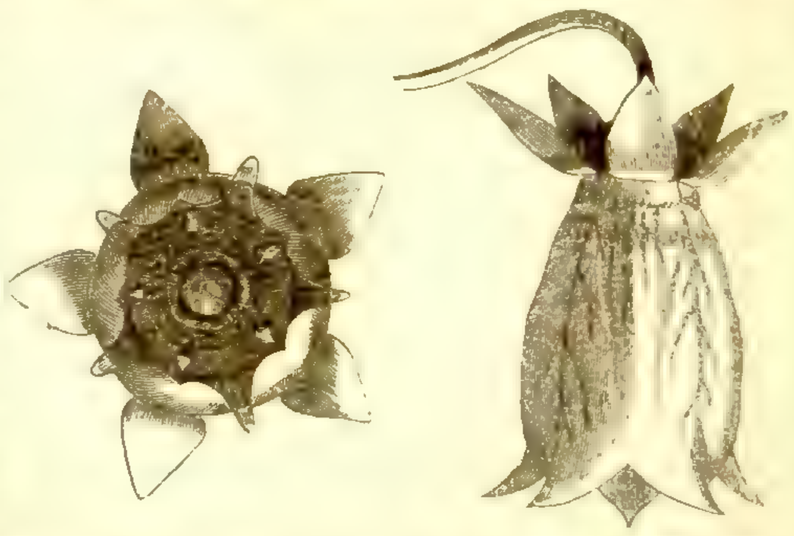
	Catasetum bulbs.	Bletia bulbs.
Alkaline salts	3752 ...	3792
Earthy phosphates	183 ...	222
Carbonate of lime	4281 ...	2850
Carbonate of magnesia ...	1315 ...	579
Siliceous matter...	428 ...	2596
	10000	10000"

It is to be observed, in connection with these figures, that although the Bletia had been grown suspended in the air, it had originally been produced and developed in earth, so that the earthy matters contained in it may have been, and probably were, obtained before the experiment of growing it in air was commenced. And this objection applies to all such experiments, which are necessarily made under similar circumstances. To have real scientific value the Epiphyte should have been born, grown, and wholly formed in air if that indeed were possible, which we greatly doubt.

New Plants.

179. GLOSOCOMIA OVATA; *aliàs* Codonopsis ovata *Bentham in Royle's Illustr.*, 253. *t.* 69. *f.* 3—*aliàs* Wahlenbergia Roylei, *A. D. C. Prodr.* 4. 425; *aliàs* Wahlenb. clematidea "*Schrenk enum. plant.* 38."

This is a half hardy herbaceous plant, with pretty nodding bell flowers, seated on long slender stalks, and accompanied by an intolerable hircine smell. The accompanying figure shows a side view of one flower, and the appearance presented by another when seen from above. Their general colour is a delicate milk



blue, but the colours within the base of the corolla are arranged in an unusual and extremely pretty manner. In the centre stands a pale blue circular stigma; beyond that, at the base of the corolla, is a deep chocolate-brown pentagon, the angles of which are opposite five bright orange-yellow curves. Between these curves and almost touching them are as many light green sockets, from which spread the same number of straw-coloured stamens. At a short distance beyond the orange-yellow curves is a ring of short delicate pale lilac rays, and still further off, corresponding with the points of the anthers, is a deeper ring of darker lilac rays. The whole forms an uncommon and beautiful pattern, of which artists might take advantage.

We cannot reconcile ourselves to merging this genus in Wahlenbergia; it is not the same as Codonopsis, and must therefore fall into D. Don's group called Glosocomia. The present species is not only Himalayan, as we learn from Dr. Royle, but is also found on the mountains of Soongaria, whence it was brought by the Russian traveller Schrenk. That it is the *G. clematidea* of that botanist is proved by the specimens, raised in the garden of the Horticultural Society, from seeds communicated by Dr. Fischer.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. I.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

EXPERIENCE has shown the efficiency of a plan I have followed in giving practical lessons in systematic botany to children in a village school. I believe somewhat similar lessons might be rendered effective in any school, or wherever students associate for the purpose of receiving instruction in this department of natural history. We must impress on beginners that they have to substitute strictly "scientific ideas" for whatever "vulgar notions" they entertain concerning all the parts of plants for which we have names in common use. The natural sciences have made great progress of late years, and it is high time that many vulgar notions, too often synonymous with vulgar errors, should be thus corrected. It is no uncommon mistake to fancy there must be some easy royal road to botany, where every technical term employed to facilitate the progress of this science may be avoided; and therefore, that strictly scientific ideas can be acquired without them. We might as well fancy we may conveniently reject the Arabic numerals, and dispense with the multiplication table, whilst grounding ourselves in the common rules of arithmetic. It is certainly advisable not to employ more technical terms than are really important; but no teacher should shun the use of such as are so. As soon as the scientific idea, embodied as it were in a technical term, is duly appreciated, there is no longer any difficulty about recollecting that term. Many botanical terms have been anglicized from the Latin, or Latinized Greek words employed by scientific writers, who use the Latin language in order to enable botanists of different countries to be mutually intelligible in their descriptions of plants.

We cannot too earnestly or too early inculcate upon students that they must begin by learning "how to observe" before they can expect to acquire any accurate knowledge of the structure of plants. Non-observers, content with such information as may be derived from books, will find themselves at a loss whenever they attempt to solve some of the simplest botanical problems.

In order that he may be able to deliver the description of practical lessons I am about to suggest, I suppose the teacher can ascertain (no matter how) the names of the flowering plants, and a few others, which grow wild, or happen to be commonly cultivated in the gardens of his neighbourhood. According to my own judgment, English names for our wild flowers, and an English terminology for their classification, are best adapted for the use of schools in which no Latin is taught, or in places where the children are not likely, in after life, to extend their observations much beyond their immediate neighbourhood. Wherever it may be

advisable, the teacher can employ the Latin terms and terminology.

PLANT LIST.—A list of the native plants which have been observed within a specified area, that of a parish for example, should be hung up in the school-room. If it be printed, each pupil should receive a copy. In 1850 I prepared and printed a list (in English) of such wild flowers as I had observed in this parish. In 1855 I reprinted it with above 50 additional species, chiefly added by my little village observers. The generic and specific names have mostly been selected from those given in Hooker and Arnott's British Flora. In the first list, the names of the orders were mostly adopted from Lindley's Natural System. I experienced an inconvenience in regard to these English names for the orders, in having to recal terms which had not been constructed on any general rule, and several of which bear no resemblance to the corresponding Latin terminology. On reprinting my list I thought it better to Anglicize the Latin orders, by substituting a common termination, "anths" (flowers), for that of the genitive cases of the genera regarded as more or less typical of each. An objection may possibly be made that I am burdening science with a fresh set of synonymes for the orders. A little reflection will, I think, show that this is not done to an objectionable extent. There is great difference between imposing a new synonyme which bears no relation to the classical terminology in common use, and substituting one which is merely the same word in an English dress. No botanist could foresee that the English terms for Ranunculaceæ, Berberaceæ, Papaveraceæ, Rhamnaceæ, Loranthaceæ, Apocynaceæ would be Crowfoots, Berberids, Poppyworts, Rhamnads, Loranths, Dogbanes. But every botanist may predetermine, by the rule laid down, that the anglicized terms for these orders would be Ranunculanths, Berberidanths, Papaveranths, Rhamnanths, Loranthanths, Apocynanths. In a few extensive and important orders, where the more usual Latin name is not taken from a typical genus, as in Cruciferæ, Leguminosæ, Umbelliferæ, Compositæ, it may be advisable to employ the synonymes Crucifers, Legumens, Umbellifers, and Composites, in addition to the terms derived by the general rule, viz., Brassicanths, Vicianths, Apianths, and Asteranths. The peculiar advantages of the plan proposed are twofold:—1st. It enables every botanist to predetermine for himself what should be the English synonyme for every order. 2d. It qualifies any one who may be taught systematic botany by means of an English terminology, to refer without embarrassment to authors who employ a Latin one. Why not then at once teach botany by the Latin terminology? Do so, whenever it can be done appropriately and conveniently; but in village schools at least, or wherever an English terminology may be most advisable, it is better to avoid all purely Latin terms for the classes and orders whilst using strictly English terms for the genera and species.

PLANT-STANDS.—Against the wall, at one end of the school, are ranged a set of plant-stands in rows one above another. All the wild flowers which can be procured in flower or fruit at the same time, are disposed systematically upon them. Each plant has the name of its class, order, genus, and species before it. The children are required to keep these stands replenished with fresh specimens as the old ones decay. Thus they have continually brought before them the position which each plant occupies in the natural system. This mode of classification gradually becomes so familiar that the more advanced scholars can readily separate a bundle of wild flowers into their natural orders, and group these in the exact sequence observed in the plant list and on the plant-stands. They also seldom err in referring a garden plant, if it happen to belong to any of these orders, to its right position among them. If they are unacquainted with its order, they will most probably place them in the right sections of the classes to which it belongs.

Any plant brought for the first time in flower during the season, is recorded in a separate list by the child who brings it. Thus in 1851, H. R. (aged 13 years) brought:—

March 21, *stinking* Hellebore	Cl. D,	Or.	Ranunculanths.
„ 24, common Polypody	A,		Ferns.
„ 31, *annual* Meadow Grass ...	M,		Grasses.
And so on to the 111th species.			
July 31, common Enchanter's Nightshade	D,		Onagranths.

Perhaps an exact description of the dimensions and construction of the plant-stands and labels may not be unacceptable, but this must be deferred to another communication.

(*To be continued.*)

Erratum at p. 454, line 56.—In Schedule No. 2, opposite the words *Pistils, Carpels*, there should have been a (?), not a (2). The comment of J. S. H. on this schedule requires this misprint to be corrected. Perhaps the word "affect" instead of "assume," at line 46 (in the *last question*), would better have conveyed the meaning of the questioner.

LONGEVITY OF THE PEAR TREE.

THE greater or less duration of life in a Pear tree depends—1st, On its natural constitution. 2d, On that of the stock upon which it is worked. 3d, On the nature of the soil and depth of the subsoil where the tree is planted. 4th, On the means taken to renovate it, such as moderate pruning, thinning, or cutting back, performed every two or three years. 5th, On manures suited to the nature of the soil, so as to preserve a moderate degree of vigour and a continuous bearing condition. It would be useless to enlarge upon these points, about which there can be no question. A variety of the Pear, to resist the severity of the climate where it is to grow and produce its fruit, should have a sufficiently hardy constitution. It is only by repeated sowings that the Pear tree can be sufficiently naturalised in our cold and variable climate.

Before making an extensive plantation as an orchard, it is important to know the constitution of the variety and its peculiar mode of growth. It is likewise prudent to ascertain by observing the vigour of the trees, whether the variety is worked upon a suitable stock or not. When the tree is planted attention is wholly directed to make it take an easy direction, one suitable to its manner of growth. The early pruning of its shoots and stems is performed with the view of establishing a harmony between the main branches. By removing superfluous shoots by summer pruning, and preventing bifurcations in the branches, a fine straight stem, with lateral branches growing in proper directions and at regular distances, is obtained. These operations are performed in the first year towards midsummer, or at the fall of the leaf. The slight wounds are at these periods more easily healed over, and the sap directing itself into the useful ramifications consolidates them.

In rearing varieties of the Pear tree which are very vigorous, and are at the same time possessed of all the properties requisite for orchard culture, it is advisable to choose free stocks, or wildings, which likewise present every appearance of healthy vigour and firm growth. In order to have stocks of this description, seedlings are planted and allowed to grow in the same place for two years. The best growers are then selected and planted out for being worked. In the following summer they are budded, not at 6 inches above the ground, but at 2, 3, or 4 feet high. On examining a large number of old trees, of great size, it is pretty generally found that the bud has been inserted about the middle of the space between the lowest branches and the ground, or at some point above that part, but seldom lower. Those trees so worked resist sunstrokes better than those worked too near the ground.

In a light free soil, with a rich deep subsoil, in which water does not stagnate in winter, the trees preserve throughout their individual existence a healthy degree of vigour, and bear abundantly. If the soil is rich in humus, or if it is a marly clay of some depth, resting upon an equal depth of silicious gravel mixed with brick earth, lying upon thicker beds of sand which absorbs moisture, the growth of the Pear tree will there be more compact, less luxuriant; but the tree will bear fruit of a finer flavour and will generally live longer. We found growing in such soil in an orchard in West Flanders a variety of Pear under the name of Poire de Froment (Wheat Pear), doubtless the descendant of a variety known among the Romans as the Pyrus hordeana, the fruit of which ripened about the same time as Barley. This majestic tree has two upright parallel stems, is 12 feet in circumference, and 45 feet high. In 1854 it produced 15 sacks of Pears. The bark is deeply rent in many places, indicating that the tree was of great age. The farmer, himself 85 years old, told me that his grandfather, who died 60 years ago at the age of 92, had frequently told him that in his early days he had measured it, and that it was then 6 feet in circumference. It is supposed that this tree is about 250 years old. It is still far from being worn out, having produced in 1854 15 sacks, as above stated, and in 1855 it yielded six sacks, and it is again pushing terminal shoots 6 inches long. Of another variety known by the name of Mansuette, an excellent kitchen Pear (the Mansuette of Duhamel is a table Pear), there is a tree which is not less than 200 years old, and it is as productive as the one already mentioned. Its branches, loaded with fruit, hang down like those of a Weeping Willow. These two trees, as well as several other large trees, presented the appearance of having been grafted at 2, 3, or 4 feet high. To keep them in good condition, all the care which they receive merely consists in pruning off every two or three years useless shoots tending to cause confusion, in spreading well decomposed manure over the ground before winter, and in applying every year at that season two or three casks of liquid night soil without disturbing the turf over the roots, excepting perhaps for 2 or 3 feet round the trunk.

These two instances, and others that might be given, prove that the Pear tree, when its constitution is strong and hardy, can sustain for a long period the severities of our climates, and that it can in a good soil, and with careful treatment, attain the age of 300 years. It is in the conditions of soil already pointed out, and more especially in ground sloping to the west that this result may be obtained. There is no doubt that among the modern varieties which have been obtained in the present century by the system of Van Mons, there are several sorts of excellent dessert Pears, ripening in long succession, the trees of which would live as long as the Poire à Froment or the Mansuette. This anticipation is founded on the observation of these varieties where they have been cultivated for 8, 10, 15, or 25 years or more.

The Urbaniste of Coloma becomes a fine tree; grown as a standard, it attains a great length, and its fruit preserves its qualities even in less favourable situations than that of Mechlin, where it was raised in 1786. It is now generally acknowledged that 20 years after this variety appeared, its name was changed in France to Beurré Piquery.

The Beurré d'Hiver du Printemps, or Suprême Coloma is more vigorous and hardy than the Urbaniste, as well as a more regular bearer. It is as long as that sort in coming into bearing, especially when worked upon vigorous stocks, and produces obovate fruit of excellent quality even in a less favourable soil than that required by the Urbaniste. This sort, as yet but little cultivated, is easily known by its thick olive green shoots, of a darker or lighter shade according to the stock upon which the tree is worked.

Colmar Neil, named by Van Mons after Dr. Patrick Neil of Edinburgh. Can a more vigorous or finer tree be seen? It has the appearance of a Poplar.

Beurré Kennes, Beurré Berckmans, Beurré Sterckmans, Conseiller de la Cour or Maréchal de la Cour (Duc d'Orleans?), Désiré Cornelis, Belle Julie, Madame Eliza, Souvenir d'Esperin, Triomphe de Jodoigne, in a light deep soil, Wilhelmine, named by Van Mons in honour of the Princess of Prussia, Queen of the Netherlands, and which has received in France the name of Beurré d'Amanlis, was considered by the late Van Mons as one of the most vigorous and finest of his fruits. We might swell this list with several other still more recent varieties, but which have not as yet been sufficiently proven. Well, these 13 sorts are worth more for orchard culture in our climates than all those which have been obtained in previous ages.

It is quite certain that these varieties will attain as great an age as the old sorts which still exist in our orchards, but which are allowed to die out because they are eclipsed by varieties which are better in every respect than the Poire à Froment, Mansuette, Figue, Merveille d'Hiver, Bergamotte ancienne, of which extremely old trees are found in orchards, and which have never borne any better fruit than that which they produce at the present time.

From what has been stated, it appears that the Pear tree, whether grown upon its own roots as a seedling, or worked upon another seedling, attains a great age, but that this age depends on its constitution, upon the soil in which it is grown, and upon the treatment which the tree receives. Its individual existence, like that of all living things, is limited. *J. De Jonghe, Brussels.*

VEGETABLE PATHOLOGY.—No. CXXIX.

516. PARASITÆ (*Ascomyces*).—*Ascomyces* is one of the simplest of fungi. It consists of an almost rudimentary mycelium producing at once without the intervention of any sporophores short clavate or obvate asci, each of which contains 8 or 16 ovate or subelliptic sporidia, which, as is generally the case with the whole plant, are of a pure white. It is evidently the simplest condition in which an ascomycous fungus can exist, and it is this circumstance that Montagne and Desmazières had in view when they proposed the name, which indicates a fungus composed entirely of asci, that is of hyaline sacs producing sporidia from the organisation of their grumous contents.* This however is not the whole structure which the plant presents. Besides the asci, there are very short necklaces of spores, consisting of from three to four individuals, and occasionally a spore is seen pullulating at the side exactly after the fashion of yeast globules. The question then arises, what is the nature of hese secondary bodies; are they a further development of the sporidia, or are they a secondary form of fruit like the *Oidium* which constantly precedes Erysiphe? I am inclined to the second opinion, because I do not know of a single instance in which sporidia germinate after the manner of these bodies. We have then, even in so very simple a fungus, a secondary form of fruit, but whether both are capable of germinating I am unable at present to say.

517. The genus was first proposed by Montagne and Desmazières in the place cited above from specimens collected in the South of France on the leaves of *Quercus coccifera*. It affects almost exclusively the under surface, and generally makes the leaves more or less bullate. This species is characterised by its blueish tint, inclining in age to yellow or tawny. A second species which still remains undescribed distorts the leaves and stem of *Trientalis Europæa* in Scotland and was sent to me many years since by Dr. Dickie and Mr. Gardiner. A third occurs very commonly on the under side of Walnut leaves, in which it makes little bullate patches. This is *Gymnosporium leucosporum*, Mont. It is however constructed just like the others, as I ascertained from specimens last autumn gathered by myself. Dr. Montagne had seen only the secondary form of fruit, and therefore considered it as belonging to a different genus. A fourth is described by myself in the eleventh volume of the Journal of the Horticultural Society of London. It formed shallow bullate spots on Pear leaves, and was referred by me to *Oidium* on account of the secondary fruit, as I had mistaken the nature of the asci, considering them merely as the transformed cells of the matrix. An examination of the species on Walnut leaves convinced me of my error, which I am glad to correct. A fifth species, perhaps the most curious of all, has been sent to me from various quarters during this and the past year. It forms enormous blisters on the leaves of Peach trees, which are strangely distorted and thickened very much in the same way the curled leaves are which are supposed to be produced by cold but dry and ungenial weather in spring, accompanied by a bad state of drainage, in consequence of which the leaves cannot get rid of their superabundant moisture, and therefore find a vent in the formation of new tissue.

518. It is doubtful whether any material injury is done

* From ασκος a vessel and μυκης a fungus. For the characters of the same see Ann. d. Sc. Nat. Sér. 3. Vol. xi. p. 344.

to the plant by these fungi except in the case of the *Trientalis* and Peach. In the former instance the plant is nearly destroyed, as it is not the leaves alone which suffer; in the latter there can be no doubt that the health of the tree must be more or less affected according to the urgency of the case. It is obvious that if danger or injury is anticipated, the best plan is to dust the leaves well with sulphur, or syringe them with some solution containing sulphur, which latter may be the better plan, as it is the under side of the leaves which is principally affected.

519. I should have been glad to have studied this in connection with the Peach blister, but I have found it impossible to procure specimens during the last two years, though it was formerly a very prevalent affection.* In the Peach leaves affected by the *Ascomyces* I find interposed between the cuticular stratum and the oblong cells which succeed it in healthy leaves eight or more layers of merenchymatous† cells. It is to these that the incrassation of the leaves is due. The under side does not seem to be much deranged, except perhaps that there are fewer and smaller intercellular spaces. The spores, both within and without the asci, were yellow with iodine, and were not altered on the application of sulphuric acid. Our figure, which is borrowed from the Transactions of the Horticultural Society of London, represents both forms of fruit in *Ascomyces bullatus*, Berk. *M. J. B.*

Home Correspondence.

Village Botany.—I am much pleased with an article in your impression of Saturday last on "Botany in Village Education." It is certainly a triumphant proof of the advantage of introducing other subjects than A B C and the Catechism into village schools, and botany, of all subjects, is the one most likely to interest the children. There is not a child who does not delight in wild flowers; why not take advantage of this preeminently children's taste, and introduce such a science as botany into every village school in the kingdom? To what perfection this can be carried the examination of "J. S. H." at his own school is a proof. It is an absurd error to suppose that the children in the so-called lower ranks of life have no talent for anything more elevating than what will just fit them for household servants. Many of them have just as much innate taste and talent for the fine arts as the most fashionable young ladies in the most fashionable boarding schools in Clifton; it may be, more. Where such talent exists it is a sin to repress it, especially now when, thanks to the liberal spirit of the day, any one talent, if made the most of, is sufficient to raise any one above the arbitrary distinctions of rank. Every one knows what Hullah's system of singing has done for village schools. No one now supposes that village school children cannot sing. Let us hope that a few years hence the same may be said for botany and every other useful science. *O. B. N. P., Brighton, July 7.*

Disease in Washerwomen.—I am a gardener and my wife takes in washing. She used to be a strong, bustling, active body, with no fault to speak of except a pain in her temper now and then. Well, she has been ailing for five or six years, and every day gets worse, temper included. Besides, she has got a great lump in her side. This has been coming on ever since she left off soap and took to using some stuff to make linen white without trouble. The doctor says that the stuff is slow poison, and will kill her in time. Do any of your numerous readers know whether it is the stuff or not? They say it is some vegetable; but I don't think so, for I never did smell any vegetable like it. *Market Harborough.*

Weston and other Country Shows.—"Somerset" seems to know something of the roguery practised in managing country shows; and perhaps he has also some idea of that pursued by some of the exhibitors at them. If not I can assure him that it is carried on to a shameful extent; so much so that it ought not to go unnoticed. I know many a conscientious good grower to give over exhibiting because he could not compete with his crafty and often-times indolent neighbour. At the time such shows as Cheltenham, Chepstow, Weston, Troubridge, &c., take place there is quite a stir amongst some of our Bath exhibitors, who "ransack about" to get sufficient, as they say, to make the thing pay them. If exhibitions are to be got up for the gratification of the public, I think it is quite a mockery to have a schedule requiring exhibitors to show plants, &c., of their own growth. It would be much more conscientious to allow persons to purchase plants for showing at such exhibitions. Then the honest man might purchase sufficient to go with his own to make up a collection of what might be required. If such a plan were adopted it would place it out of the power of dishonest persons to do as they now do. But such exhibitions will never, I fear, be carried on honestly. I however consider it to be every man's duty to expose all kinds of roguery to the uttermost of his power; and I can see no channel through which it may be done more effectually than through the *Gardeners' Chronicle. Robert Shackell, Locksbrook Nursery, Bath.*

Guano applied to Roses.—Mr. Rivers in his Rose catalogue says:—"For a neat surface dressing for autumnal Roses wood ashes and guano have proved excellent fertilisers, in the proportion of half a peck of guano to a bushel of ashes, applying a quarter of a peck of the mixture to each tree in a circle of 18 inches in diameter round the stem, and letting it remain undisturbed on the surface. The ashes retain the moisture from the dew and showers, and the effect in giving a vigorous growth with an abundant crop of flowers in the autumn has been very apparent. This dressing should be given in May." Will some one be so good as inform me whether he has tried this, and found it succeed, for I have been using it as directed and fear that its only result will be to kill my Roses, for I observe that the bark of the shoots which have come in contact with the mixture has turned black, and to all appearance many of my Roses are dying. *W. M. A. July 9.*

Quercus sessiliflora.—I beg to inform your subscriber "Diss" that he will find several fine specimens of Oaks, supposed to be sessiliflora, in Llanwrst Park, near St. Asaph. They have fine straight boles from 20 to 25 feet without a branch, and a girth of 15 feet, and a most magnificent spreading top in full vigour. I can procure acorns for "Diss" if he will not venture so far to see the trees. *A Welsh Subscriber.*

Frosts in Yorkshire.—Between the night of Monday, June 30, and the morning of Tuesday, July 1, a severe frost occurred here, which from its uncommonness at this season is worthy of record. I first became aware of the fact about midday on Tuesday, when I perceived the tops of some late planted Potatoes quite black. Some labouring men who were up very early on that day inform me that the Grass and fences were quite white at half-past 4 o'clock, and even at 6 o'clock the white frost was lying on the north side of fences, &c. Upon inquiry of Mr. Milner, surgeon to the convict prison, who keeps a day and night register of meteorological phenomena for Mr. Glashier, I learn that the minimum on the Grass in the prison was 33½° F., showing the influence of high walls and surrounding buildings in preventing the excessively low temperature which may occur in more open situations. It is remarkable that earlier planted Potatoes adjoining those so severely cut were quite uninjured. Both looked equally tender before the frost, but now the influence of ripeness is obvious. Persons who can spare the time would do well to collate the rain-fall, variations of temperature, and other atmospheric phenomena of the present season with that of 1848. The rain-fall here up to the close of June is in excess of every year since 1848, and I suspect the resemblances in other respects are unfortunately too many; so that it is not beyond the bounds of possibility that we may experience somewhat of the same results which at that period brought with them so much suffering. *W. R. Bowditch, St. Andrew's, Wakefield.*

Gardeners' Benevolent Institution.—The letters that have appeared on this interesting subject leave no doubt upon my mind that the interests of the charity demand a reconsideration of the rules. They show too that selfish motives are by no means confined to those who claim for a subscribing gardener a priority of rights over an unsubscribing one. When "T." says that he would not give his help because he knew nobody to benefit by it, he only says that he did not choose to spend a guinea a year without getting something for it. Narrow-minded feelings of that sort have no right to be called liberal. It stands to reason that a man who has done his best to help the charity while he could, ought to have a better chance of becoming a pensioner when he wants it than he who has done nothing. I cannot see what likeness there would be between this charity and a benefit club if such a rule were to be enforced. Why not do this? When the candidates are known, place them according as they have subscribed—in this way perhaps:—

T. J.	has subscribed	15	years.
X. L.	.....	13	"
M. P.	.....	7	"
R. L.	.....	2	"
S. K.	.....	0	"

Well, there is one vacancy. Then let the struggle be between T. J. and X. L. Or, if you like, let the first four go to the ballot; and let T. J. and X. L. count every vote double, M. P. and R. L. each single, and exclude S. K. It might perhaps be a rule that no difference should be made between a man who has subscribed only five years and one who has not subscribed at all, and then all who have subscribed between five and 10 years should have an equal chance, and so on with those who have subscribed from 10 to 15, and from 15 to 20, and from 20 to 30, and so on. Some such plan might, I am sure, be thonght of. There ought always to be some sort of competition. *One who thinks his own plans disregarded, but still a Friend.*

Bottled Fruit.—A. Z. has followed Mr. Lovejoy's plan of bottling fruit ever since his method was published and with perfect success until this year, when in the first lot done there were three dozen bottles of green Currants and Gooseberries, and out of that number all have failed excepting seven or eight. Thinking the fault might be that the fruit was gathered too young, a second lot was tried, and was followed by the same result, each lot going off in a fortnight after bottling, the fruit bursting through bung, bladder, and cement. The fruit was picked from A. Z.'s own garden and from the same trees as the preceding years, and done in every particular the same; the trees are beautifully healthy, and quite free from blight. Is the failing general this year or can Mr. Lovejoy account for it any way? A reply would be esteemed a great favour. *July 4th.*

* Since the above was printed I have obtained a good supply of curled leaves from the Chiswick Gardens. Their structure agrees with what I have described above, except that the intercalated cells are as often parenchymatous as merenchymatous, and that the oblong cells are occasionally quite obliterated with very few intercellular spaces on the under side. In one specimen the *Ascomyces* was just formed, and I am inclined to believe that the little fungus has quite as much to do in the matter as climatic conditions. One of the little asci burst under the microscope as I was observing it, and amongst the sporidia ejected was one with an additional cell. It is possible, then, that it may be necessary to modify the opinion expressed above as to the Oidioid fruit. I shall hope soon to have an opportunity of studying the matter with good specimens, and assisted by the new light which has been thrown upon the subject by the Chiswick specimens.

† Merenchymatous cells are not so closely pressed as parenchymatous, and therefore do not present flat faces. It is not, however, meant that the cells do not exercise any mutual pressure.

Societies.

Royal Botanic, Regent's Park, *July 9.*—This was this Society's last meeting this season. The day was cloudy, and one or two slight showers fell during the afternoon. Notwithstanding this, however, there was a fair attendance of visitors. With the exception of Orchids, which were scarce, the exhibition was on the whole a good one. Stove and Greenhouse plants were abundant, and generally in good condition. Cape Heaths were unusually well flowered; Pelargoniums and Fuchsias were scarcely less gay than they were in June; there were some admirable groups of Variegated Plants, and the display of fruit occupied two sides of a long tent.

In Collections of 20 Orchids, Mr. Keele, gr. to J. Butler, Esq., of Woolwich, sent Cattleya citrina with two handsome yellow blossoms; Miltonia spectabilis, with nearly 100 blooms on it; Anguloa Clowesi, with two large yellow flowers; the rich orange-scarlet Lælia cinnabarina; Cattleya superba, with three remarkably well coloured blossoms; and a fine specimen of Brassia verrucosa major. In Mr. Gedney's collection of 20 plants were some beautiful examples of Phalænopsis, Calanthe Masuca, the latter extremely well flowered, the White Phaius, and Galeandra Funcki. Mr. Woolley, gr. to H. B. Ker, Esq., sent the singular-looking Uropedium Lindeni, Cattleya crispa, beautifully flowered; Saccolabium guttatum, and Epidendrum verrucosum.

Of Groups of 12 Plants Mr. Clarke, of Hoddesdon, had the best. It contained two examples of the best variety of Cattleya Mossiæ, and Aerides affine and odoratum. These last were beautifully flowered.

In Mr. Carson's collection of 6 Orchids were Cattleya crispa with three noble spikes of flowers, Oncidium Lanceanum, Cattleya superba, and the singular Cycnoches Loddigesi. Mr. Morris sent Cattleya Forbesi and Stanhopea oculata, the last extremely well flowered. Mr. Deadman showed 3 finely-bloomed Stanhopeas. The new white Cattleya Wagneri was exhibited by Messrs. Backhouse, of York. Its flowers are large, slightly stained in the lip with yellow, and very handsome. Lady Dorothy Neville again showed Peristeria fuscata.

Of Collections of 16 Stove and Greenhouse Plants the best came from Mr. May, gr. to H. Colyer, Esq., of Dartford. It contained two handsomely flowered Allamandas, Dipladenia crassinoda, a large specimen of Ixora javanica, Gompholobium polymorphum, in the form of a bush; the White Ixora, one or two Everlastings, Rondeletia speciosa, and the showy Kalosanthes coccinea. Mr. Dods, gr. to Sir J. Cathcart, Bart., sent a well flowered Clerodendron, a magnificently blossomed Allamanda nearly 5 feet high and as much through; the yellow Relhania squarrosa, a useful plant at this season; and a good Rondeletia. The best specimen of the latter, however, we ever saw was in Mr. Green's collection; it was well grown, profusely flowered from bottom to top, and the blossoms were unusually well coloured. The last-named grower also had Stephanotis, Allamandas, Echites atro-purpurea, Kalosanthes, and Aphelexis in good condition.

Of Groups of 12 Stove and Greenhouse Plants the best came from Messrs. Fraser, who sent Kalosanthes, Heaths, Vincas, Allamandas, and a good Statice Holfordi. The last-named plant was also furnished by Messrs. Cutbush, of Barnet, from whom likewise came the pretty Hoya bella, Cyrtoceras reflexum, and a well-flowered Phœnocoma proliferum.

In Collections of 10 Stove and Greenhouse Plants Mr. Carson had two Allamandas, Dipladenia crassinoda unusually well coloured, Aphelexis macrantha grandiflora, Ixora javanica and coccinea, and Exostema longiflorum.

Of Groups of 6 Stove and Greenhouse Plants Mr. Rhodes sent Dracophyllum gracile, an excellent plant for cutting flowers from for bouquets, the White Ixora, Erica tricolor, and Dipladenia crassinoda. Mr. Williams furnished a huge Pimelea and the pretty Heath called E. ventricosa Bothwelliana.

A collection of Kalosanthes was shown by Messrs. Fraser. The plants were well grown and flowered. There was, however, nothing new among them.

Plants remarkable for fine foliage were contributed by Messrs. Veitch, Lee, Jackson, and others. In the first group were Palms, Crotons, Coleus Blumei, Dieffenbachia picta, with large pale green leaves spotted and splashed with white; Marantas of different kinds; Variegated Pandanus, Caladiums, Rhopalas, among which was R. Jonghi; and the variegated Arunda Donax.

Among what were shown as New Plants were Clematis lanuginosa pallida, with pale blue flowers quite eight inches in diameter, from Messrs. Standish & Noble; Achimenes "Vivid," a brilliant rosy scarlet sort with blossoms much larger than those of A. coccinea, from Mr. Parsons; Rondeletia anomala from Mr. Green;

Eucharis grandiflora from Messrs. Henderson; Philesia buxifolia, the new scarlet Delphinium Cardinale, Leptodactylon, the pink Rhododendron Princess Royal, the hardy Desfontainia spinosa with long bright red tubular flowers tipped with yellow, Wellingtonia, Rhopalas and other plants remarkable for fine foliage from Messrs. Veitch. The Delphinium just mentioned is a truly handsome plant, fully bearing out all that has been said of it, and it is one which as soon as it shall have become known must necessarily prove a universal favourite. The blossoms which are bright orange scarlet are produced in great profusion. In addition to the plants shown by him at the Crystal Palace, and mentioned in our report of that exhibition, Mr. Glendinning had Cerasus ilicifolia in flower, small plants of Chusan Palm, Mandirola Rozeli, and the white Lysimachia lineariloba, some further account of which we hope to give very soon.

Cape Heaths were exhibited in excellent condition. Among them was the new E. Spenceriana, from Mr. Glendinning, of the Chiswick Nursery. Its flowers are of a bluish lilac colour, and beautifully transparent.

Among Ferns, of which some fine collections were shown, were good examples of Hymenophyllum Tunbridgense, Woodsia ilvensis, and one or two other scarce kinds.

Fuchsias were in excellent condition. Six plants from Mr. Bray were all that could be desired, both in regard to growth and bloom. The best sorts among them were Honeybell, white with a scarlet corolla; speciosa, Pearl of England, and Perfection. Mr. Dobson sent of light kinds Queen of Hanover, England's Glory, and Clio; and of dark sorts, Glory (Banks') and Duke of Wellington. Mr. Gaines had Snowball, Psyche, Fearless, and Monarch.

Pelargoniums, as we have already stated, were numerous and well bloomed. Of sorts of 1854 and 1855, Mr. Turner had Wonderful, Meteora, Fair Ellen, Phaëton, Conqueror, and Una. Mr. Gaines sent a collection of remarkable looking French kinds, among which the following are especially worthy of notice, viz., Talma, pink with a dark top; Roi des Pourpres, crimson and spotted on all the petals; Dr. Andry, delicate pink, large and showy and regularly crimped round the edges of all the petals; G. Odier, spotted rosy lilac; and J. Odier, bright brown with a showy white centre. Messrs. Veitch had a variety named Clarissa, a cross between a Cape and a fancy. It had beautifully formed flowers with dark top and white under petals, and altogether appeared to be a step in the right direction. To blossoms of considerable beauty it added the perpetual flowering habit of the Cape kinds.

Calceolarias were tolerably numerous, more especially the shrubby varieties, which are evidently fast driving the herbaceous sorts out of cultivation. Of the former kind Mr. Turner sent good plants of Orange Perfection, Goldfinder, Dropmore, California, Lemonade, and King of Sardinia. The last has rich deep reddish brown flowers of good shape. Mr. Cole sent St. Alban's Gem, a half shrubby kind, with large flowers edged with yellow; Golden Cluster, Snowflake, white but indifferent in shape; Queen of Yellows, and Cassandra.

Among Petunias the most remarkable was the double white Imperial, which looks as if it would form a good plant for cutting flowers from for bouquets.

Of Verbenas there was a collection from Mr. Weatherill, and Mr. Turner contributed a pretty light sort called Belle of the Village, which has a fine truss of well formed flowers with crimson centres.

The display of fruit, as we have already remarked, was very extensive. The best collection came from Mr. Tillyard, gr. to the Right Hon. the Speaker. It contained well coloured Royal George Peaches, Murray and Violette Hâtive Nectarines, three Pine Apples, Trentham Hybrid and Cashmere Melons, Muscadine, West's St. Peter's, Mill Hill and Black Hamburgh Grapes, Sir Harry, Goliath, Bicton White, and other Strawberries, Brown Turkey Figs, Late Duke Cherries and Raspberries. Mr. Fleming, gr. to the Duke of Sutherland at Trentham, contributed four excellent Pine Apples, very fine Black Hamburgh Grapes, Keens' Seedling and Myatt's Strawberry, Coe's Golden Drop, Reine Claude de Bavay, and Early Orleans Plums, Noblesse and Early Magdalen Peaches, and Elruge Nectarines, Black Tartarian and May Duke Cherries, Brown Ischia Figs, and Trentham Hybrid and Hybrid Cashmere Melons. Mr. Constantine sent Black Hamburgh and Royal Muscadine Grapes, Hautbois and other Strawberries, Brown Turkey Figs, Stanwick Nectarines not very well coloured, Royal George Peaches, Fastolff Raspberries, May Duke Cherries, and a Melon or two. Mr. Watson, of Ealing, also showed a collection.

Pine Apples were good, more especially Queens, of which several magnificent fruit were shown by Mr. Barnes, of Bicton. The weights of these we could not ascertain, but they must have been upwards of 6 lbs. Mr. Jones had four most beautiful fruit, and good Providences were shown by Mr. Fleming and Mr. Dods. Many other Pines, in all respects excellent, were also exhibited.

Grapes were shown in abundance, but many of what should have been black were red, and some of the white sorts were unripe. Of boxes of 12 lbs., the best came from Mr. Henderson, gr. to Sir Geo. Beaumont, Bart.; and for Collections of 3 kinds the first prize was awarded to Mr. Glendinning, of the Chiswick Nursery, for beautiful bunches of Grizzly and White Frontignan and Black Hamburgh. Mr. Mitchell also showed good specimens. Black Hamburgh well coloured, and in all respects beautiful, were furnished by Messrs. Henderson, Forbes, Tillyard, Fleming, and others; and Black Princes from Messrs. Boyd, May, Turnbull, and Hill. Of Muscadines, Mr. Tillyard had the best; and large and fine bunches of Dutch Sweetwater came from Mr. Forsyth, of Gunnersbury. Muscats, admirable specimens and well ripened, came from Mr. Clarke; and Messrs. Turnbull, Dods, and Taylor had all likewise good bunches of this variety. Mr. Tillyard sent excellent Frontignans, and Mr. Forsyth finely fruited Vines in pots.

A seedling Black Grape, with a full Muscat flavour, was shown by Mr. Snow, gr. to Earl De Grey. The berries were oval in shape, and the bunches large and handsome. The seeds were perhaps a *little* too large; but altogether it is a Grape which cannot fail to be a favourite. Mr. Mitchell, of Brighton, likewise showed a new white Grape, with bunches as large as those of the Syrian, but different apparently from that variety. The berries were said to be well-flavoured. Mr. Carpenter, of Birmingham, also showed a new white Grape, which, however, appeared to be much inferior to Busby's Golden Hamburgh.

Though Peaches and Nectarines were shown in large quantities, there was not a dish of bad fruit among them. The best dish of Peaches came from Mr. Clarke; but Mr. Richards and Mr. Forsyth had also good fruit; as had likewise Messrs. Frost, Turnbull, Fleming, Booth, and Davis. Among Peaches the sorts consisted generally of Royal George and Noblesse, and among Nectarines the kinds were mostly Elruge and Violette Hâtive. Of the latter Mr. Munro, gr. to Mrs. Oddie, furnished a boxful or two of highly coloured fruit.

Plums Washington and Greengage were exhibited by Mr. Munro and Mr. Fleming.

Mr. Snow's Figs were large and uncommonly well ripened. The kind was the Brown Turkey, which was also shown in good condition by Mr. Ewing.

Mr. Munro exhibited a dish of Moorpark Apricots.

Of Cherries the best Black Circassians that were perhaps ever seen came from Mr. Taylor, market gardener, Brentford. They were black as jet and quite double the size of those of ordinary growth. Mr. Snow had a capital dish of some white kind.

The best Strawberries came from Mr. Tillyard. The kinds were Goliath, British Queen, Bicton Pine, and Sir Harry. Among other sorts were Keens' Seedling, Eleanor, Victoria, Myatt's Surprise, Early Pine, the Filbert, Prestoe's and Patrick's Seedling, and Alice Maude.

Melons: none of them were very well flavoured. Among green-fleshed sorts the Beechwood obtained the first prize.

BOTANICAL OF EDINBURGH, *May* 8.—The President in the chair. The following papers were read, viz:—1. On the Sexuality of the Algæ. By Dr. F. Cohn. 2. On the preparation of Sugar and Arrack from Palms in Ceylon. By A. Smith, M.D. Three Palms yield sugar in Ceylon: The Coco-nut Palm (Cocos nucifera), the Palmyra Palm (Borassus flabelliformis), and the Kittul or Jaggery Palm (Caryota urens). From each of these Palms the juice of the flowering stalk is collected under the name of Toddy, and from it sugar, known in the East as Jaggery, is regularly prepared; but it is from the Palmyra Palm that almost all the Palm sugar is obtained. It is from the sugar of the Coco-nut Palm that arrack is made in Ceylon. This Palm becomes productive in about six or seven years. In collecting toddy, the spathe is stripped off from the spadix before it has fully expanded: the spadices are afterwards beaten between pieces of hard wood, and slices are cut with a sharp knife so as to allow the juice to flow out. Each spadix continues to yield juice for about 40 days, at nearly the average rate of half-a-gallon in 24 hours. When it is intended to prepare jaggery from the toddy, great care is taken by burning pieces of wood in the small earthen vessels attached to the flowers, and rubbing their interior with charcoal, to remove any impurities likely to promote fermentation; and, as an additional precaution, chips of the bark of Vateria indica are placed in each, so as to retard fermentation. The jaggery of the central provinces of Ceylon is entirely made from the Kittul juice, which yields a much larger quantity of sugar than does that of the other two Palms, and of a quality much more highly prized by the natives. When toddy is collected for the purpose of making arrack, no care is taken to prevent fermentation, and as it is brought from the trees it is poured into wooden vats in which that process rapidly advances. If attention is not paid to the fermentation, acetic acid is formed, and this often causes the arrack to take up lead from any portion of that metal with which it may be brought into contact. Dr. Smith then entered into details as to the presence of lead in arrack, which was traced to the modes of preparation. 3. On the occurrence of Scalariform Tissue in the Devonian Strata of the South of Ireland. By R. Harkness, F.G.S. 4. Notice of some additions to the Cryptogamic Flora of Edinburgh. By Mr. W. Nichol.

Notices of Books.

The new number of the *Journal of the Linnean Society* is chiefly occupied with a learned paper on the natural order Loganiaceæ, by Mr. Bentham, who, we observe, completely adopts our suggestion that the true affinity of Desfontainia may be with Fagræa. Dr. Vinen has also an interesting paper on Oak galls, which we extract entire:—

"Much interest has been excited by the frequent occurrence in this country of the galls of *Cynips Quercus-petioli*, and they appear from a recent communication in the *Gardeners' Chronicle* to have increased to such an extent during the past season as to do vast mischief to the trees infested by them, rendering them unproductive of acorns, and even threatening their entire destruction.

"In a recent conversation with Mr. Westwood on this subject, he informed me that these galls had been used in Devonshire for the purpose of making ink, and at the same time suggested that it would be desirable to know whether they contained sufficient tannin to render them useful substitutes for the ordinary galls of commerce. At his request I undertook to ascertain this, and thought the result might be sufficiently interesting to communicate to the Society: the following is the result of my examination. By macerating 100 grains of Devonshire galls in æther and water, a residue was obtained weighing 26·74 grains: this contained 17 grains, or about two-thirds, of tannic and gallic acids. In order to estimate the comparative value of these galls with those of commerce, 100 grains of best Aleppo galls were submitted to the same treatment with æther and water. The residue weighed 58·50 grains, containing 56 grains of tannic and gallic acids. Of the superiority of the foreign galls there can of course be no doubt; but in comparing the results of these two analyses, it is necessary to observe, that the Aleppo galls operated on were very heavy specimens of the best kind of galls of commerce, and that they had not been perforated by the *Cynips*, while the Devonshire galls had all been perforated, and therefore contained a much smaller proportion of tannin than would have been the case if they had been examined at an earlier period. If we compare the published analyses of nutgalls, considerable difference will be found in the quantity of tannin obtained by different chemists. The following are the principal:—

Sir Humphrey Davy found...	26 per cent. of 'tannin.'
Pelouze	40
Leconnel	60
Guibourt	65
Mohr	72
Buchner	77

"However widely these results may vary, they are entitled to every credit; and high as are those of the two last-mentioned chemists, their well-known accuracy will ensure entire confidence in their statements. I am inclined to think that these great discrepancies are owing to accidental causes, among which the variable nature of the seasons, which influences so much the quantity and intensity of all vegetable secretions, may be a principal one. With the small amount of tannin found in the Devonshire galls I must confess myself much disappointed; but I hope in the ensuing summer to procure some of them at an earlier period, and before they have been perforated by the *Cynips*. I have no doubt that they would then be found to contain enough tannin to justify their being collected for commercial purposes, and if they were gathered at the proper season, before the *Cynips* has escaped, and when the gall is in its most vigorous and valuable state, another good result would follow. The insect would be prevented from increasing to what seems to be a mischievous extent, and a check would be put to the serious injury, if not entire destruction, with which the Oak plantations in some of our southern counties appear to be threatened."

We observe, contrary to our expectation, that the Society proposes to continue the publication of its 4to Transactions, the first Part of Vol. XXII. being announced for November.

A Practical Swiss Guide. Longmans. Small 8vo. Pp. 112.

Is this an innkeeper's puff? or what is it? Ostensibly it is something between a Murray and a Bradshaw. What to see and how to see it may be ascertained from its pages, and railway tariffs, fares, &c., are indicated in an intelligible manner. But as regards hotels, the information is most unsatisfactory, only one being often named in places where others ought also, in justice to travellers themselves, to have been mentioned. Thus the stranger is not apprised of even the existence of such places as the Hotel de l'Europe in Havre, the best hotel in the town; nor of the Hotel du Nord and Hotel des Bains in Boulogne; nor of the Hotel du Grand Monarque in Aix-la-Chapelle; although these are at least as deserving of recommendation as the places named in this practical guide. Another piece of practical information which a stranger constantly wants is the situation of the post-office, but this is not mentioned. We confess we look with great suspicion upon the practitioner who has got up this book when we find him coolly telling people how to cheat their companions. At p. vii., under the head Swiss Diligences, we have the following precious instructions:—"The sittings are numbered—1, 2, are *corners* of the coupé; 4, 5, *corners* of the intérieur, facing the route. No time should be lost in engaging those desired; *but if previously filled, a little gentle persuasion with the conducteur* (guard), *which a couple of francs may represent, will often effect a change.*"

With such a specimen before us of the author's notions of fair dealing he must not wonder if we decline recommending his book to public favour.

Temperance in the Camp (a penny tract, published by Tweedie, 337, Strand), is an excellent address to the troops before Sebastopol last Christmas, by Colonel Sir James Alexander, commanding the 14th Regiment, and should be circulated by everybody in districts where drunkenness prevails.

Miscellaneous.

On Deep Cultivation.—Were we to examine the depth to which the roots of many of our cultivated plants will penetrate a loose open soil in quest of food, we should be less sceptical as to the advantages which deep cultivation affords to the roots of plants. The market gardeners around London trench often and deeply, not only to change the surface, as some suppose, but to allow the roots of their crops to range as deeply as they please, and without this assistance the enormous crops of first-rate produce they get from their land could not be obtained If deep cultivation is requisite in the rich and deep alluvial soils of the Thames valley, how much more so is it on poor and shallow soils, which afford comparatively only a limited pasturage for the roots of plants. It is true, gravelly and rocky subsoils are almost beyond the reach of improvement; as the expense of breaking up the substratum would, in most instances, be too great to pay. But this is not always the case, for I have seen the brashy subsoil of some localities broken up with good results, as well as some gravelly subsoils, particularly where the layers of gravel are thin and mixed with clay or ferruginous matter, rendering them impervious to water, as well as to the roots of plants. By breaking through this crust, so as to admit a free passage for the water, a marked improvement follows. Clay subsoils, however retentive, are capable of being reclaimed; but this is a work of time, as all you can do, after thorough drainage, is to break up the clayey bottom to the depth of twelve or eighteen inches, according to its nature, each time the ground is dug or trenched. This bottom, when forked up, should be kept as open as possible, which will facilitate the passage of water through it, and the salts and ammonia carried down by the rains from the manuring, &c., of the upper soil will in time reduce its tenacity, assisted by the decomposing action of the air, which will now have better access to it; and in a few years, by practising this, you will find your land gradually increasing in depth and productiveness. Many calcareous and slaty rocks are likewise capable of improvement when broken up and exposed to the action of the weather, and when shallow soils rest on these descriptions of rocks, by all means break up a stratum of it yearly below the top soil. Many hard compact marls of the red sandstone and lias formations are as unfavourable for the growth of plants as rock or gravel, and yet when broken up and exposed to atmospheric influences, they make fertile soils capable of producing every kind of crop. I remember some 15 or 16 years back paying a visit to the garden of the late E. Davis, Esq., of Bath, whom many of your readers will recollect was the first amateur Dahlia grower of that day, and his plants were growing apparently in a mass of stones. The garden of this gentleman was situated on the side of one of the oolitic ranges which surround Bath, with barely a covering of soil over the rock; this Mr. Davis had broken up two feet in depth, and had mixed with it the surface soil and a little manure; the luxuriance of his Dahlias and general garden produce was remarkable, and may perhaps be remembered by those of your readers who visited Entree Hill at the time in question. To obtain a sufficient depth of soil for the roots of vegetables to penetrate is one means, and a very great one, of increasing their produce. Plants growing in soils made open for a considerable depth are much less liable to suffer in dry weather, as their roots are in a position to obtain moisture at a lower depth, and hence the suitability of deep soils for summer crops; the same soils are likewise warmer in winter. A soil from which the water passes through freely can never be very damp, and relatively never very cold; nor are they so dry in summer, for this reason, the action of the sun's rays on the surface soil causes the moisture therein to be given off by evaporation, and this produces an upward action of the moisture contained in the soil below, to supply that which has escaped by exhalation and the surface. We shall find, then, that in proportion to the power of the evaporating process on the surface there will be a corresponding rise of watery particles throughout the entire mass of soil below. This will positively keep the soil moister, because it is more open and porous, than a shallow soil with a compact subsoil, which would obstruct the progress of moisture from below, at the same time as it prevented its escape downwards. By all means then for vegetables have a mass of soil, if practicable, from two to three feet deep, sufficiently open to admit air and water to pass freely each way when needed. *X. Y. Z. in the Florist, Fruitist and Garden Miscellany for May.*

Peculiarities of the Sweet Potato.—In its raw state this vegetable has a slightly acrid taste; on boiling it becomes sweet. In its sound state it is almost without odour; when it is worm-eaten it acquires a perfume very like that of the hair-powder formerly in fashion called "The Marshal's," or that of the Vanilla Bean. The water in which it has been boiled has the taste of a weak animal broth. Besides starch, its principal ingredient, it contains a certain quantity of matter resembling gluten. When the Potato is cut, this matter exudes in a liquid milky state, viscid at first, diffusible through water, but soon becoming solid on exposure to the air. Under the microscope, when suspended in water, it appears in the form of granules of about $\frac{1}{5000}$ of an inch in diameter, which were rendered brown by tincture of iodine. Probably this matter is concerned in the production of the changes to which the Sweet Potato is subject, as well as conducing to its highly nutritious quality as an article of diet. *Dr. Davy in the Edin. New Philosophical Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now that many of the Camellias, Azaleas, and other plants will be removed to their summer situation, out of doors painting or other repairs required by any of the plant houses may be more conveniently done than at any other season. Meantime however the weather is rather unfavourable for painting, for to do this except when the wood is thoroughly dry is a very inconvenient and troublesome way of wasting money; but other necessary repairs may be done so as to allow of proceeding with painting whenever the weather will admit, without the hindrance of having other work to execute first. Where houses are painted sufficiently often to keep the paint always good—which is the cheapest method in the end—there will be no difficulty in getting the wood dry, but where the wood is allowed to become nearly bare before repairing is thought of, the house should by all means be kept dry inside, covering the outside with a tar cloth in the case of showers, and allowing a fortnight of bright warm weather to thoroughly dry the wood before the work is commenced. It is oftentimes very difficult to attend to this, but if the work is to stand it must be done at whatever inconvenience. STOVE.—If there are sickly or badly rooted specimens here, they must be frequently examined for red spider, otherwise they will become a nursery for this pest, from which it will soon spread to adjoining plants. Also guard against the increase of mealy bug, and keep black thrips and green-fly in check by timely applications of tobacco smoke. See that young growing stock is not allowed to suffer for want of pot room, and attend carefully to the watering, giving manure-water to all plants in free growth that enjoy it. Gardenias, &c., which have been removed to the conservatory while in bloom should be replaced in heat as soon as their beauty is over, in order to allow of getting their growth matured before the dull cloudy days of November. Give every attention to plants for winter blooming, affording them a moist warm temperature, and using every care to prevent their sustaining any check at the present season. ORCHIDS.—The growing stock will require the assistance of a little artificial heat while the weather continues wet and cloudy, if only to allow of admitting fresh air and preventing damp, &c Shading must be promptly attended to when bright sunshine occurs. Allow them however as much light as they will bear without injury, using a very light screen and only when absolutely necessary. Keep the foliage clear of insects, and dust by frequent syringings or spongings as may be necessary.

FORCING DEPARTMENT.

PINERIES.—Plants wished to show fruit at once, if backward in doing so, should, provided the growth has been well matured and checked, having been kept dry at the root for a time, have a good soaking of water, and be kept warm and moist. This treatment will induce an active root action, and if the plants have been properly treated they will seldom fail of showing fruit at once, but everything depends upon the growth being well matured and checked. Avoid syringing plants overhead that are in bloom, save on the mornings of bright days, and then but lightly, for syringing in the afternoon while the plants are in bloom is the principal cause of deformed fruit. Young stock will be growing very vigorously, and every care should be used to secure robust stocky plants; see that the plants are afforded sufficient room for the development of their foliage, and do not keep the atmosphere so warm and moist as to induce weakly growth; attend to repotting as this may be required by any of the stock, and see that all are well supplied with water at the root, whether in pots or planted out in the open bed, as any neglect in watering at the present season will probably result in the plants fruiting prematurely. VINERIES.—Give every attention to preserving the foliage in houses where the fruit has been cut, until the wood is thoroughly ripened. If red spider is at all troublesome, give the Vines a good washing with the engine, but do not injure the foliage by dashing the water against it too powerfully. Give abundance of air, keeping the house as cool as can conveniently be done in bright weather. Maintain a moist atmosphere where the fruit is swelling, sprinkling the passages, borders, &c., frequently. Look sharply after insects here, particularly where plants are grown under the Vines, and if black thrips or red spider be detected wash the infected leaves carefully, and look over them occasionally afterwards until the pest is fairly got out. See that the borders are not allowed to become too dry, and give strong manure water to plants bearing a heavy crop. Vines in pots intended for very early forcing next season should be in a forward state by this time, in order to permit of getting the wood well ripened, and allow them a period of rest. PEACHES. — Attend to former directions, using every means to keep clear of insects.

FLOWER GARDEN AND SHRUBBERIES.

Continue to clear everything away decaying and to introduce good things from pots in the reserve ground. A good reserve ground, if properly situated and systematically planned and conducted, would be one of the most useful plots of ground about a garden. Such a valuable adjunct would, however, require the constant attendance of a man possessing some little knowledge of flowers, and therefore could not be carried out where there is a stint of labour. Decayed patches of bulbs which are required to stand for early spring flowering may have dressy Verbenas or other things introduced from pots between them. Cuttings of Pansies should be got out in succession before the shoots are too much exhausted. All boundary or other hedges should be clipped forthwith.

HARDY FRUIT AND KITCHEN GARDEN.

Tomatoes must be regularly attended to, keeping the shoots thin and stopping them above a cluster of fruit, for if the plants are allowed to ramble and grow too freely there will be a poor chance in an unfavourable season of securing a good crop of fruit. Shallots, if left in the ground after the bulbs are matured, are apt to mildew and rot in wet weather, therefore these should be pulled as soon as the tops begin to decay, and spread out in an airy place to dry before storing them away. Get herbs in flower cut and dried for winter use. Where a sufficient breadth of Celery is not yet planted out, this must be attended to as speedily as possible, and must be well cared for with water, &c., until well established after planting, otherwise good sized stuff need hardly be expected. Earth up former plantings, and encourage rapid growth by occasional waterings with manure water. See that a good bed of some approved early variety of Cabbage is sown for spring use. Ply the hoe freely among all growing crops, both for the destruction of weeds and for loosening the surface of the soil after heavy rains. Look over all trained fruit trees frequently for the purpose of stopping and shortening any gross shoots, and keeping the growth nicely regulated; also get the young shoots of wall trees laid in where not already done.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 10, 1856, as observed at the Horticultural Gardens.

July.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temp. of the Air. Min.	Temp. of the Air. Mean	Temp. of the Earth 1 foot deep.	Temp. of the Earth 2 feet deep.	Wind	Rain.
Friday	4	2	30.160	30.022	78	48	63.0	65	60	N.W.	.01
Satur.	5	3	30.014	29.993	76	45	60.5	66	60	W.	.00
Sunday	6	4	30.002	29.943	77	49	63.0	65½	60	W.	.02
Mon.	7	5	29.769	29.342	62	44	53.0	65	60	S.W.	.55
Tues.	8	6	29.682	29.308	48	39	43.5	62	59	N.W.	.48
Wed.	9	7	29.851	29.745	64	37	50.5	59	58½	N.W.	.01
Thurs.	10	8	29.926	29.310	74	50	62.0	62	58	N.W.	.00
Average ..			29.966	29.752	68.4	44.6	56.5	63.5	59.3		.77

July 4—Fine; overcast; slight rain.
— 5—Fine; overcast; very fine throughout.
— 6—Very fine; cloudy; rain at night; lightning.
— 7—Cloudy; densely clouded; rain at night.
— 8—Boisterous; with cold, heavy, and constant rain.
— 9—Fine; slight showers; cloudy; cold at night.
— 10—Very fine throughout.

Mean temperature of the week 7 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 50 years, for the ensuing week, ending July 19, 1856.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13	74.9	52.0	63.4	11	0.92 in.	—	2	5	—	1	17	4	1
Mon. 14	75.5	52.1	63.8	13	0.64	—	1	3	2	3	10	10	1
Tues. 15	75.0	50.5	62.7	15	1.46	1	3	3	1	4	13	5	—
Wed. 16	76.1	51.0	63.5	10	1.60	2	3	3	—	2	13	6	1
Thurs. 17	75.5	53.2	64.3	11	0.56	2	—	2	2	4	11	6	5
Friday 18	73.3	51.3	62.5	14	1.22	—	—	1	—	5	12	8	4
Satur. 19	71.6	51.1	61.3	18	0.60	1	1	1	1	7	10	7	2

The highest temperature during the above period occurred on the 17th, 1854—therm. 94 deg.; and the lowest on the 18th, 1851—therm. 39 deg.

Notices to Correspondents.

BEES: *M D.* We should imagine the easiest mode of applying chloroform would be by putting a rag well wetted with it into an India-rubber ball fitted with a tube, which could be inserted into the hole by which the bees enter. Then by squeezing and expanding the ball a few times the chloroform would be driven into the hive. Or it might be introduced by any fumigating apparatus.

BOOKS: *David Robinson.* Patterson's Zoology and Lindley's School Botany.—*A Constant Reader.* You must consult your bookseller. We cannot undertake to search for the prices of books. Take Harvey's book by all means. We never recommend dealers. Any respectable nurseryman can procure Ferns for you if he does not keep them himself. All hardy Ferns are worth growing.

HOSE PIPING: *A Sub.* Vulcanized India rubber, *with a canvas foundation;* mind that.

LILIES OF THE VALLEY: *G M.* The reason why your Lilies of the Valley do not flower is possibly owing to their being grown, as you state, in a light sandy soil, and not having been removed or manured for some years. We should recommend you to thin your bed in autumn, and afterwards give it a good top-dressing of well rotted manure, or prepare a fresh border of rich loamy soil, and plant in October. *B.*

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Anon.* It is a form of M. sativa, often called M. rubra. M. pratensis of Sole is a different species.—*J McCallum.* It is Pentstemon Digitalis.—*C.* Gentiana lutea. Endogens are never pentamerous.—*H Howlett, Haverland.* It is the genuine Quercus sessiliflora. The Norfolk so-called sessiliflora is, as far as we have ever seen, a sessile-fruited Q. pedunculata.—*Ebor.* Cestrum nocturnum, a well known plant.—*R Symonds.* Mulligatawnia speciosa is a joke, not a plant.

ONION MAGGOT: *G M.* This is one of the most troublesome pests a gardener has to contend with, and unless means are speedily taken to check its progress it will soon spread and seriously damage the crop. We believe no certain remedy against its attacks is known at present; but good results have followed the watering with nitrate of soda, in the proportion of half a pound to a gallon of water. *B.*

WESTON FLOWER SHOW: *Somerset.* Is it possible that the accounts refer to only *one* show? We shall have something to say, but wish to be quite sure of the facts.

MISC: *Frome.* A subscriber is informed that the Paper is not folded at the Office; a complaint should be made to the *agent.*

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instructions in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

ANALYTICAL REPORT (CORRECTED).

THE UNDERSIGNED beg to call attention to Professor Voelcker's CORRECTED REPORT ON MANURES in the last Journal of the Bath and West of England Agricultural Society, from which the following is an extract:—

"Spooner & Bailey's Superphosphate for Turnips contains 41 per cent. of phosphate of lime, and is *decidedly the most valuable superphosphate* of the four manures analysed."

Their Turnip Manure, richer in ammonia than the above, is prepared expressly for those who require a manure to carry the plant alone through all the stages of its growth.

Peruvian Guano, Bone-dust, and every Manure of known value; also Linseed, Poppy, Rape, and Nut Cake.

Orders taken for Spooner's Patent Water Drill, and Spooner's Prize Essay on Root Crops.

SPOONER & BAILEY, Chemical Manure Works, Ealing, near Southampton.

BINN'S PATENT MANURE AND TOP-DRESSING for the Destruction of Fly, Wire Worm, and Slug, and promoting rapid Vegetation.—The Proprietors of this valuable Manure and Top-dressing are now manufacturing it at their Wharfs, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. The Top-dressing is particularly adapted at the present time for destroying the Fly on the Hop without injury to the vine, it being perfectly free from taste or smell, no sulphur being used in its preparation.

Orders addressed HALL & Co., at the Wharfs, the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

ROYAL AGRICULTURAL SOCIETY.
CHELMSFORD MEETING.

FOWLER'S STAND, No. 114.
LAND DRAINAGE BY STEAM POWER.

FOWLER'S STEAM DRAINING PLOUGH may be seen at work during the Chelmsford Meeting on the Crown Lands, Hainault Forest, three miles from the Romford or Ilford Stations, on the Eastern Counties Railway.

In consequence of the large demand for this Machine it is impossible to liberate one for a sufficient time to exhibit at the meeting, but parties interested will have a better opportunity of judging of its merits when in regular work than when worked for exhibition, and it may be easily seen on going or returning to or from Chelmsford, from 6 in the morning until 7 in the evening. Contracts for Draining undertaken in all parts of England.

Full particulars of prices, &c., may be obtained at Stand 114. Present address—JOHN FOWLER, Junr., Havering, near Romford.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—Extract from Report on the Implements exhibited at the Lincoln Meeting in 1854, in No. XXXIV. of the Society's Journal, page 367:—

"Fowler's Draining Plough was subjected to a severe trial. It laid the tiles with admirable precision. The drain was opened in several places; and the remark of an intelligent farmer was, 'If I stood by my drainers from morning till night I could not get it better done.'

"The Plough has been much improved. We were glad to perceive all reasonable obstacles overcome, and to testify, by our special commendation and the *award of a Silver Medal, our high approval of the Implement*, because it proved its adaptation to drain land *three feet six inches deep* with facility, and we trust that its usefulness will soon be abundantly proved in every part of the kingdom."

STEAM CULTIVATION.

FOWLER'S STEAM PLOUGH may be seen at work during the Chelmsford Meeting in a field adjoining the Show Yard during the week of the Show. This Machine received a Gold Medal at the last Paris Agricultural Exhibition. With it a farmer may use his ordinary Portable Threshing Engine for ploughing and scarifying his land. Price complete, exclusive of the Engine, 220*l.* Apply at Stand 114, or to JOHN FOWLER, jun., Havering, near Romford; or Ransomes & Sims, Ipswich.

IMPORTANT TO BRICKMAKERS.
BRICK AND TILE MAKING BY STEAM POWER.

FOWLER'S PATENT IMPROVED DOUBLE SCREW BRICK MACHINE.—By this machine the goods are delivered with certainty direct from the pug-mill. Attempts at making direct from the pug-mill have hitherto failed in consequence of the clay revolving with the screw, but this is entirely overcome in this machine by the patent cleaners; it is sufficiently strong to work the clay nearly dry, and will turn out from 20,000 to 40,000 bricks per day, at a less cost than any other machine. Parties attending Chelmsford Meeting may see this machine in constant work at the Tile Yard, Hainault Forest, as directed above. For price and particulars, apply to Stand No. 114.

EASTERN COUNTIES RAILWAY.
ROYAL AGRICULTURAL SOCIETY'S MEETING AT CHELMSFORD 15th, 16th, 17th, and 18th July.

NOTICE.—No carriages and horses can be booked by the ordinary Trains between Chelmsford and London on the above days. All horses and carriages from London for Chelmsford must be at the Bishopsgate Station by 7 A.M. They will be forwarded thence by special train. Carriages and horses from Chelmsford for London will be forwarded by special train only, leaving Chelmsford at 9 P.M. By Order.

Superintendent's Office, Bishopsgate, July 12.

EASTERN COUNTIES RAILWAY.
ROYAL AGRICULTURAL SOCIETY'S MEETING AT CHELMSFORD—15th, 16th, 17th, and 18th July, 1856.

WEEKLY TICKETS.—First and Second Class Return Tickets enabling the holders to travel between

LONDON AND CHELMSFORD,
IPSWICH AND CHELMSFORD,
COLCHESTER AND CHELMSFORD,

From the 14th to the 17th (inclusive). Can be obtained at the Ipswich, Colchester, and Bishopsgate Stations.

Tickets from London to Chelmsford can also be obtained at the Golden Cross, Charing Cross; and at 33, Regent's Circus.

Passengers holding these tickets will be admitted by a separate entrance to the London platform. By Order

Superintendent's Office, Bishopsgate, July 12.

EASTERN COUNTIES RAILWAY.—
NOTICE TO EXCURSIONISTS.

NOTICE is hereby given, that in consequence of the Meeting of the Royal Agricultural Society at Chelmsford on the 15th, 16th, 17th, and 18th of July, the Down Excursion Train from London *vid* Colchester to Yarmouth, Lowestoft, and intermediate Stations on Friday, July 18th, will not run on that day, but will run at the same hours and by the same route on Saturday the 19th.

Passengers who by the present arrangement would return by the Special Train on Friday the 18th inst. will be allowed to return by any of the Ordinary Trains, except the Express, on that day, or by the Special Train *vid* Colchester on the following day.

The Down Excursion Train from London *vid* Cambridge to Yarmouth, Lowestoft, &c., on Saturday the 19th will run as usual.

The Up Excursion Trains to London on Tuesday and Wednesday, the 15th and 16th of July, will not run.

Passengers who have taken Tickets by the Excursion Trains from London on Friday 4th, Saturday 5th, and Sunday 6th July, entitling them to return on Tuesday 15th, or Wednesday 16th, will be allowed to return by any of the Ordinary Trains, except the Express, from 13th to 16th inclusive. By Order.

Superintendent's Office, Bishopsgate, July 12th.

EASTERN COUNTIES RAILWAY.—
GREAT EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY AT CHELMSFORD, on the 15th, 16th, 17th, and 18th July, 1856.

The following ARRANGEMENTS will be made for the CONVEYANCE of PASSENGERS to and from CHELMSFORD:—

LONDON AND CHELMSFORD.

Special Express Trains will run from Bishopsgate to Chelmsford, commencing at 6.0 A.M., and from Chelmsford to London, commencing at 4.30 P.M.

Day Tickets—First Class	10*s.* 6*d.*
Covered Carriages	7*s.* 6*d.*

STRATFORD AND CHELMSFORD.

After 9.0 A.M. Special Trains in connection with the Tilbury Railway and the North London and Woolwich Lines, also with the Ordinary Trains on the Cambridge Line, will run at intervals to and from Chelmsford.

Day Tickets—First Class	10*s.* 0*d.*
Covered Carriages	7*s.* 0*d.*

CAMBRIDGE, HERTFORD, AND CHELMSFORD.

A Special Train will leave Cambridge at 8.0 A.M., stopping at all Stations to Broxbourne, and thence to Chelmsford, arriving about 11.30 A.M., returning from Chelmsford at 7.15 P.M., arriving at Cambridge about 10.15 P.M.

Day Tickets from Cambridge—First Class	23*s.* 0*d.*
Covered Carriages...	13*s.* 0*d.*

Reduced fares from intermediate Stations.

PETERBOROUGH, LYNN, &c., AND CHELMSFORD.

Peterborough, Lynn, Attleborough, and intermediate Stations to Ely, by the Ordinary Trains. Newmarket, St. Ives, Wisbeach, and intermediate Stations to Cambridge by the Ordinary Trains; and by SPECIAL TRAIN, leaving Ely at 8.40 A.M., and Cambridge at 9.35 A.M., direct to Chelmsford *vid* Stratford, arriving at Chelmsford about 12.30 P.M.; returning from Chelmsford at 6.15 P.M., arriving at Cambridge about 9.15 P.M., and Ely about 10 P.M.

Return Tickets from the above Stations to Ely and Cambridge respectively, available for the return journey on the day of and day after issue.

Day Tickets from Ely and Cambridge to Chelmsford, available by the Special Train and for the day only.

From Ely	First Class	25*s.* 0*d.*
	Covered Carriages ...	15*s.* 0*d.*
From Cambridge ...	First Class	23*s.* 0*d.*
	Covered Carriages ...	13*s.* 0*d.*

DEREHAM TO LYNN.

Return Tickets by the Ordinary Trains, available for three days, including the day of issue, will be granted for the return journey at all stations between Dereham and Lynn (both exclusive).

NORWICH, &c., AND CHELMSFORD.

Fakenham, Dereham, Wymondham, Yarmouth, Lowestoft, Halesworth, and intermediate stations to Norwich by Ordinary Trains.

From Norwich by a Special Train, leaving at 8.0 A.M., stopping at Tivetshall (for Harleston), Diss and Manningtree (for Harwich), arriving at Chelmsford about 11.30 A.M.

To return from Chelmsford at 6 P.M., and arrive at Norwich about 9.30 P.M.

Return Tickets from the above stations to Norwich will be available for the return journey on the day of and day after issue.

Day Tickets to Chelmsford available for the day and by the Special Train only.

From Norwich	First Class	25*s.* 0*d.*
	Covered Carriages...	15*s.* 0*d*
From Harleston, Tivetshall, and Diss	First Class	24*s.* 0*d.*
	Covered Carriages...	14*s.* 0*d.*
From Manningtree and Harwich	First Class	12*s.* 0*d.*
	Covered Carriages ...	8*s.* 0*d.*

BURY, IPSWICH, &c., AND CHELMSFORD.

Bury, Thurston, Elmswell, Stowmarket, Ipswich, and Bentley (for Hadleigh), and Colchester by Special Train, leaving Bury at 8.0 a.m., arriving at Chelmsford about 11.0 a.m.

To return from Chelmsford about 7 p.m.

Day Tickets available by this Train only on the date of issue.

From Bury, Thurston, and Elmswell	First Class	20*s.* 0*d.*
	Covered Carriages ...	15*s.* 0*d.*
From Stowmarket and Haughley	First Class	14*s.* 0*d.*
	Covered Carriages ...	10*s.* 0*d.*
From Ipswich and Bentley ...	First Class	12*s.* 6*d.*
	Covered Carriages ...	8*s.* 0*d.*
From Colchester...	First Class	7*s.* 6*d.*
	Covered Carriages ...	5*s.* 0*d.*

Passengers to and from stations not named above will be conveyed by the Ordinary Trains. By Order.

Superintendent's Office, Bishopsgate, July 12.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes Rakes, Trowels, Hammers, and all kinds of Horticultural Tools
Established 1738.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
SIR JOHN V. SHELLEY, Bart., M.P., *Deputy-Chairman.*

George T. Clark, Esq.	William Fisher Hobbs, Esq.
John C. Cobbold, Esq., M.P.	Edward J. Hutchins, Esq., M.P.
Sir William Cubitt, F.R.S.	Sir Samuel Morton Peto, Bart.
Henry Currie, Esq.	William Tite, Esq., M.P.
Thomas Edward Dicey, Esq.	William Wilshere, Esq.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—CHELMSFORD MEETING.

TUESDAY, July 15.—The Implement Yard open to the Public at Half-a-crown each person, from 10 A.M. till 6 P.M. Agricultural Implements and Machinery shown at work from 11 A.M. till 4 P.M.

WEDNESDAY, July 16.—The Implement Yard open to the Public at Half-a-crown each person, from 7 A.M. till 6 P.M. Agricultural Implements and Machinery shown at work from 11 A.M. till 4 P.M.

The Cattle and Poultry Yard open to the Public at Five Shillings each person, from 1 P.M. (or as soon after as the Judges shall have completed their awards), till 8 P.M.

THURSDAY, July 17.—The General Show of Cattle, Horses. Sheep, Pigs, Farm Poultry, and Implements, open to the Public from 6 A.M. till 6 P.M., at Half a-crown each person. The Pavilion Dinner at 4 P.M.

FRIDAY, July 18.—The General Show Yard open to the Public from 6 A.M. till 6 P.M., at One Shilling each person. General Meeting of the Members and distribution of the Foreign Prizes in the Shire Hall, at 10 A.M.

London, July 12, 1856. JAMES HUDSON, Secretary.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of Live Stock (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 7th; and on the previous day there will be a public Trial of Implements. Premiums to the amount of 694*l.* are offered, many of which are open to general competition.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool.

YORKSHIRE AGRICULTURAL SOCIETY.—OPEN TO THE UNITED KINGDOM.—The NINETEENTH ANNUAL MEETING will be held at Rotherham, August 6 and 7 next, when 800*l.* will be awarded in Prizes. The entry closes on the 23rd July.

Prize Sheets and Certificates may be had on application to JOHN HANNAM, Secretary.—Kirk Deighton, Wetherby, July 12.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL COLLEGE,
CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
PROFESSORS, &c.
Chemistry—J. A. C. Voelcker, Ph. D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics, ——
F. Armstrong, C.E.
Manager of Farm—G. Austin.

The next Session will begin August 11th. The annual fees for boarders vary from 55 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

SOUTHDOWN SHEEP.

MR. HENRY OVERMAN informs his friends and the public that his SOUTHDOWN RAMS are ready for Letting; he has also 120 SOUTHDOWN SHEARLING EWES for Sale.—Weasenham, Rougham, Norfolk. July 12.

The Agricultural Gazette.
SATURDAY, JULY 12, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	July	15	Great Meeting of the Royal Agricultural Society of England, at Chelmsford.
WEDNESDAY,	—	16	
THURSDAY,	—	17	
FRIDAY,	—	18	

THE meeting at Chelmsford next week promises by the entries both of stock and implements, and by all the preparations already completed, to be a useful and successful one. The implements selected yesterday for trial by the Judges are being tested in actual

operation this day, and the trials will be continued on Monday. The attention of the Judges is this year restricted to the class of tillage implements; prizes being, however, also offered for reaping-machines and steam-cultivators. The inspection being thus less crowded and less hurried will, we may hope, be proportionably efficient. In addition to the private trials before Judges, implements of all kinds will be exhibited at work upon the Tuesday when the yard will be opened at a charge of 2*s.* 6*d.* each person. This charge will be continued through Wednesday and Thursday, the cattle yard, however, being open on the former day after the Judges have made their award, at a charge of 5*s.* each. On Friday the yards will open on payment of 1*s.* apiece.

The whole of the yards and trial grounds are on the left-hand side of the railway as you arrive from London; the implement and cattle yards with the light land trial ground being almost close at hand; while the heavy land trial ground is a mile and a half away. The soil on this field is of a stiff though somewhat gravelly nature, and the field is surrounded by a first-rate promise of Wheat, Beans, and Vetches, all clay land crops, while Barley also grows luxuriantly close by. It is evidently a transported soil, and not due to the London clay on which it rests.

The visitor will be interested in seeing as he turns into this field, in the cutting through which the road approaches it evident sections of those furrows on the surface of the original geological formation of the district, to which Mr. TRIMMER has called attention. These furrows in the London clay have become filled with the more porous and even gravelly material constituting the subsoil of the present surface, and as seen here they illustrate very obviously the theory on which Mr. TRIMMER explains the success of the Keythorpe system of drainage. A drain cut across these gravel-filled natural ditches in the London clay at once converts them into drains, and gives them at little cost all that efficiency for draining the land through which they run, which is to be attained in the case of artificial cuttings only by a large expenditure in labour and material.

We may refer here to a very full and useful guide to the Chelmsford meeting which has been published in a Supplement to the *Essex Herald* of July 8, and which in its separate form is obtainable through any of the booksellers in the town.

THE following remarks are intended to meet the case of a correspondent whose breeding flock has got into bad condition, as may be gathered from the following sentence extracted from his letter:—"The lambs still keep dying from the tapeworm.* The ewes that survive seem better, though many are still miserable objects." Our remarks upon this case are given here as others may be circumstanced similarly to our correspondent. He writes as follows:—

"I shall not hesitate to adopt any advice you may have the kindness to afford me. I have tried everything that farmers and shepherds can suggest, but without arriving at a satisfactory result. My intention was to draft out carefully all the ewes that have been ill and that still show symptoms of indisposition, only retaining such as are indubitably healthy. It strikes me that the flock has been suffered by continued neglect on the part of worthless shepherds to get into a very low condition, that diarrhœa has been suffered to degenerate into dysentery, and that so many have fallen a victim to this and its accompanying fever. In some cases the intestines have appeared perfectly healthy, and yet the poor brutes have gradually wasted away and died. At all events this is a very serious disease, whatever it may be and wheresoever it may have come; and you may do me, and others similarly circumstanced, a very great service if you can suggest any means which may enable me and my fellow-sufferers to overcome it."

Amongst the many causes of disease affecting sheep and cattle, the administration of unwholesome or insufficient food, or food at irregular intervals, is perhaps the most prolific, for although the effects of the weather and undue exposure number many victims, yet the first-named class of causes, as connected with the food, not only produces *directly* many specific diseases, but also predisposes the animals to others, and by depriving them of animal heat and vital energy renders them peculiarly susceptible to the evil influence of atmospheric changes and incapable of resisting the influence of other morbid agents.

These natural laws were abundantly illustrated amongst our armies before Sebastopol. Insufficient and unwholesome food not only produced *Dysentery* and other diseases of the alimentary canal, but deprived the sufferers of the capability of resisting the effects of exposure to the weather, and thus rendered them susceptible to rheumatic affections and diseases of the chest. So whether we have an incompetent Commissary for our army, or an untrustworthy shepherd for our flocks, the effects are similar. It is in vain to say there is plenty of food at Balaklava if only half rations are given out on the heights, or that there is plenty of food coming forward for the flock if they are deprived of wholesome provender at the present time. This rule exists in full force amongst horses; if they are worked severely, or insufficiently fed, and particularly if both these causes are in operation at the same time, a favourable soil is at once afforded for the production of disease. One animal perhaps exhibits glanders or farcy, and quickly the disease spreads throughout the stud, and many are the victims which succumb. In a flock of sheep, either by the negligence of the shepherd or from some error of judgment, the sheep are kept for a long time without food, or it is unwholesome in quality or insufficient in quantity; the digestive organs become deranged, diarrhœa is produced, or dysentery follows, the animals become impoverished, and then, if exposed to wet or undue exposure, disease of the chest is produced; the membrane lining the chest and covering the lungs (*pleura*) becomes affected with inflammation, not of a violent kind (the animal has not strength for this), but slow or sub-acute inflammation, and thus adhesions take place; and when at length the animal succumbs to these complicated forms of disease it is found that not only do the *lights* (lungs) grow on to the sides and abscesses or watery effusions occur, but the bowels are diseased either with patches of inflammation or ulceration, or the coats become thickened and degenerated. When disease of the alimentary canal goes on for some time it is by no means unusual, particularly in young animals, for parasites to riot in the diseased tissues, and a countless number of minute thread-like worms (*ascarides*) are thus manifested after death.

When a disease of the character we have described breaks out in a flock of sheep it becomes a question for serious consideration as to what is the best course to pursue. The dosing of a flock of sheep is a tedious and troublesome and generally an unsatisfactory affair, for often before such means are had recourse to the disease has made such progress as to place many of its subjects beyond the reach of medicine. If diarrhœa or dysentery is present we should recommend small doses of calomel and opium, but we should place more reliance on a change of food and locality. Salt should be placed within reach of the sheep, and the best Linseed or Linseed-cake should be broken up and administered daily as food, in quantities varying from a quarter to half a pound. There should also if possible be one or two changes of the green food in the course of the day; our object should be to bring the animals forward for the butcher with all due speed, and we should be very cautious as to breeding from any that have exhibited the least trace of disease, for if the constitution of the animal has been impaired there is very great danger of the future offspring being sickly. *W. C. S.*

* It is evident that the disease is not the *Bot* or Cothe. Qy. The tape-worm is a long worm with many joints. It is somewhat rare. A small thread-like worm, Ascarides is much more frequently found. *W. C. S.*

THE relations of geology to the subject of land drainage deserve attention. The structure of the earth in its alternations of pervious and impervious strata is admirably adapted for the supply of springs, the issues of which augment our streams, and as these strata are seldom perfectly horizontal but dip at various angles of inclination, so naturally the waters in the strata would incline along these lines of dip and get their exit at such places where the strata have been exposed by deep valleys, the bottoms of which are mostly occupied by streams arising therefrom. Now in our own island the whole of the strata of which it is composed have a general dip from the N.W. to the S.E., and hence our larger streams take their rise from the S.E. side of mountain ranges: thus the Severn flows eastward from the mountains of Montgomeryshire, and the Thames from several sources along the line of dip of the strata of the Cotteswold hills. Rivers therefore may be viewed as the natural main drains of our country, and these act well or ill according as they are or are not cleared from obstructions. The smaller drains are dependant on these main drains, and should always be made with reference to the mains, for the former depend upon geological structure no less than the latter.

Rivulets are usually caused by the excess of water which constantly gushes out from a natural spring, such springs taking place from the top of some one or other of the impervious beds, and if these beds are so arranged that the water can thus run off as fast as it is collected upon them a perfect system of drainage is ensured; if, however, the stratum, as is mostly the case, has an undulating surface, water which falls as rain may be confined in basins of a greater or less size, which must be in effect broken at the edges in order to let out the water, and this may frequently be done most effectually by a deep cutting on one side, the side chosen in most cases being within the line of dip, because such basins are tilted to a greater or less extent acording to the amount of the dip, and therefore less work would be required on the tilted side.

Here then, where knowledge of this kind can be arrived at, our efforts at draining may be much facilitated, for, in the absence of this knowledge, it frequently happens that the most scientific drainer may be for a long time at fault as regards the structure and mode of the position of the substrata.

In draining, as in most other matters connected with rural economy, it is much to be regretted that our feelings and sympathies should be hedged in by our boundary fences, and that each man should act so much for himself regardless of his neighbour. If we study Nature we soon become aware that she has always a comprehensive plan of action which we explain as her law; and what we often find true with regard to a single field will be no less so for a wide district. That one drain applied according to the principles of science may be of more service than a hundred badly employed, may be no less true for a district than a field; but we must take care that while acting upon general laws we do not overlook those flexures and undulations in Nature's system opposed to the rigid straight-lined, stiff method of working which would reduce it to a merely mechanical case. Hence, if in draining we were capable of arranging a comprehensive plan to embrace a wide district our labour would be much simplified, as we should act in accordance with the geological structure of a country, whereas draining as at present carried out has reference to the mere mechanical structure of isolated patches of soil, each of which is gridironed in much the same manner, and according to some should present a uniformity in size of pipe, depth of drain, and nearness of the lines of work. Nature's system is one aiming at thorough drainage; its failures are owing to local hindrances which may in most instances be referred to geological structure, and a perfect knowledge of the science of geology is thus of vital importance in the proper conduct of draining on a comprehensive scale. Wanting this, each man pitches his own small pipe, which may or may not be in concert with that of his neighbour. Harmony of action, so essential to success on a great scale, is thus rendered impossible.

DIARY OF A DAIRY FARM.

JULY.

IT may be well to offer a few hints at this season when the weather becomes warm, upon the care and watchfulness requisite to be observed in all dairy operations. The attention necessary to be paid to the management of the cows, milking, &c., which was recommended last month should by no means be neglected now; the mischief occasioned by the milk being allowed to become heated before being brought to the dairy will be manifest in the quality of the cheese, and when a dairywoman suspects that care has not been exercised to prevent this, she will allow the milk to remain in the cheese tub before putting the rennet to it for 20 minutes to quiet any irritation in it that may have been caused by improper management, or by the cows running with the fly. There is a very injurious practice adopted on some farms, when the cows are milked in the fields, of using a dog to bring them to a certain spot for the convenience of the milkers, and to save them the trouble of walking round them; whereas if cows are treated quietly and accustomed to be called, they will generally obey the summons and be more disposed to stand until the process of milking is performed than if they had been previously hunted by a dog. It has been observed also that the cows are often driven away from the milkers by the dog before they are finished, and sometimes when this occurs two or three times, and the persons so employed do not feel the interest which they ought to do, they will allow the cow to walk off with a portion of milk which ought to have been left. This is not only a present loss but future mischief occurs; it does seem most desirable that no dog be admitted into a field where cows are to be milked on any account whatever. The use of saltpetre, which has before been recommended in cheese-making, should by no means be omitted now, it will have great effect in keeping the curd sweet, which is of importance. In cases where it is allowed to become sour the fat separates from it, and passes into the whey, where it may be seen swimming in large particles, very different to the appearance of the cream which rises upon it when the cheese is sweet; the difference is easily discovered by an experienced eye, and care should be taken to prevent the cheese becoming impoverished by neglect in this branch of management. When in the loft the sour cheeses are easily discovered, they become hard, and nothing will cause any blue coat

to rise upon them; therefore every sour cheese is discarded by the factor as inferior in quality.

It is requisite also to pay great attention to the management of the cream during the warm weather, the quality of the butter so materially depending upon the care thus exercised. When taken off the milk should be put in the coolest place that can be provided for the purpose: when the convenience of an underground cellar offers itself it is better for the cream than the dairy, where much heat is caused by the process of cheesemaking. Attention should be paid to frequent stirring, and changing the utensils containing the milk. The churn should be prepared by having a quantity of cold water allowed to stand in it some hours before the cream is put into it, and the operation of churning should now be performed very slowly, and either early in the morning or in the cool of the evening; if the latter, the butter should be worked and salted, and allowed to remain until the morning before being made up, when it will be sufficiently firm and in a proper state for making into any form desired. It is a very good plan to put a little saltpetre into each cream tin, about the size of a walnut, pounded; it will keep it cool and prevent fermentation.

The cows may this month get the advantage of a change to the aftermath in the newly cleared hay fields; and even should this Grass be short, it is young and fresh and tends much to milk, so that the yield of the dairy cows may be kept up to its former quantity some weeks longer by allowing the cows frequent change in these pastures. If the weather has been such as to allow of a rapid growth of this young Grass, so that the cows readily satisfy themselves, and they will feed eagerly, great care should be taken so that they can only have access to it a few hours daily at first, as they are very liable to suffer from hoven, which is often dangerous or even fatal in its consequences. Old pastures supply much the most wholesome food for the weaning calves, and high dry situations should be chosen for them. Old seeds is perhaps the most healthy food for them, and calves so fed have proved much less affected by the diseases most common, and from which most dairy farmers suffer greatly from losses by death in their stock of weaning calves, viz., the hask, which begins to show its symptoms at this season; a frequent cough, with loss of flesh and refusing food, are the too sure signs of the disease. Many remedies are resorted to, but none can be relied on as at all sure to effect a cure when the lungs have taken the disease. Every means of prevention should be carefully tried, and keeping the calves on dry old pastures has proved conducive to their health. The other disease among young stock which admits of no certain cure is the quarter ill, or evil; this generally seizes on those in the best and most thriving condition, and if calves are fed on very rich pastures this disease is often fatal to numbers of calves of the first or second year. If convenient they should be brought into yards at night, and fed on cut Clover or Italian Rye-grass, as keeping them from food while heavy dews are on the pastures has proved good for keeping them in good healthy condition. Care should be taken, as the weaning calves get their longer and thicker coats, to see they do not suffer from being infested with lice, which are chiefly found about the head, neck, and shoulders, and hinder the animals from doing well. A dry day should be chosen, when the calves should be well washed with butter-milk mixed with oil or grease; this simple remedy is quite effectual to destroy the lice and restore the coat and skin to a healthy condition, and avoids all risk from the use of poisonous applications, which many causes, the variable state of the atmosphere, &c., render highly injudicious for use, and from which the writer has witnessed most dangerous results.

A recipe is added here for making cream cheese, which has been found successful:—

Take a quart of cream, or if not desired *very* rich, add 1 pint of new milk; warm it in hot water until it is about the heat of milk from the cow. Add a table-spoonful of rennet, let it stand till thick, then break it slightly with a spoon, and place it in a frame 8 inches square and 4 inches deep, in which previously put a fine canvas cloth; press it slightly with a weight, let it stand 12 hours, then put a finer cloth in the frame—a little powdered salt should be put over the cloth. It will be fit for use in a day or two.

HOME FARM MANAGEMENT.—No. VI.

WHEN a farm manager has newly entered to a charge, and has secured the services of suitable workmen, he ought to determine the general course of management he is to pursue. I have indicated how he should care for the nighest interests of his workmen, but I have yet to refer to the system of managing them best calculated to keep forward the work and secure a fair profit on the farming operations. There is an immense difference between the various modes of laying out agricultural work as well as in the handling of workmen. One manager with 20 men under his care shall often get as much work performed in a given time as another will with 25 men. No matter though the gangs of workmen are in every respect equal to each other in skill and physical power, or are changed from the one overseer to the other, man by man, yet the result will remain the same. The fault is not to be charged against the 25 men, but against the person who has the laying out of their work and the handling of them. He may understand perfectly well how the labour ought to be completed, but if he fail to adopt the simplest means by which it might be so, the exertions of one or two of the men will soon be frittered away. Or should he simply fail in putting every man in his right place, and in consequence have each running in his neighbour's way from time to time, the labour of several individuals must speedily be squandered. Even should the duties for the day of each workman be assigned to him only on the spur of the moment—when from the fact that a number of them are standing waiting for orders some desire is felt to hurry them off as speedily as possible—the likelihood is that injudicious instructions will be given, and loss to the employer the necessary result. The planning out of work to the best advantage requires a good deal of thought, and the duties of every day should have been laid out systematically by the steward during the previous evening. Whatever some of the cool and easy managers may think or say, the fact is that the frequent losses met with in home farming are more generally to be accounted for in the immense amount of manual and horse labour thrown away by mismanagement than in low prices or poor crops. Take care of the small silver, says the money saver, the sovereigns will take care of themselves. To the farm manager it may be said, "Take care that the small money the workman gets is laid out to the best possible advantage; as for the quarters of Wheat they will not go far wrong unless the management is hopelessly bad." The philosophy of little things as bearing on great results has much need to be studied by the farmer, and particularly by those who manage land on account of others. Wherever it is practicable—and it is so in almost every case—the farm steward should have as much work as possible done by contract instead of by day's wages. If a fair rate is given for piece work it is not the good workman who will object to the arrangement; but the man who knows his inability, or has a disinclination to earn an ordinary wage by his own exertions. There are certain kinds of work of course on a farm that cannot be done except by hired workers, but a great many of the daily operations which are usually classed under this head might certainly be performed by contract. Everything connected with draining, fencing, and road-making, whether partially or wholly belonging to the tenant's share of improvements, ought to be contracted for invariably; but even such works as digging, hoeing, mowing, reaping, and in some cases threshing, forming of compost heaps, and lifting of root crops, which belong exclusively to the tenancy department, may be executed by special agreement with great advantage. It is the overseer's duty to determine in reference to the various works of the farm which of them might be let by the piece advantageously and which should be done by hired work. No doubt he must possess a comprehensive knowledge of the prices that ought to be paid for different kinds of labour, otherwise he may commit egregious mistakes, sometimes hurtful to his employer's interests and other times to those of the working-man, while between these parties he ought, as far as in his power, to do full justice.

There is one thing in reference to home farm work which should never be neglected, that is, always to keep the labour forward in its proper season. A farmer who is constantly behind with his work is in consequence both a great waster and a great loser. It is true that no greater error can be committed than that of hurrying forward the labours of a farm at unseasonable times; and there are some farmers who persist in ploughing strong clays when they are much too wet for the operation—who attempt to pulverise such soils when they are in a damp clammy state—and who even at harvest will not allow the crop to stand long enough in the field to fit it for being stacked with safety. These men may think that they are what are termed "pushing farmers," but they are nothing else than wholesale blunderers. That is not the way to keep forward farm work. As far as the weather will permit, it should be done just when skill says it ought to be so, but neither earlier nor later. It should be a universal rule with the farmer that nothing which can be well done one day ought to be delayed till the next. Let him by all means exercise patience when the weather is unfavourable for the prosecution of his labours, but when the reverse is the case not a moment should be lost. Those who have the charge of home farms are frequently more liberally furnished with extra hands when they are needed than tenant farmers are, and this is no inconsiderable advantage at certain seasons. Even in this we have a very good reason why home farming, if properly conducted, ought to be equally profitable with the farming of tenant farmers. True, the manager is not acting on his own account, but if he is a fully qualified man that will make no difference whatever. Certainly he has to work at greater expense in some cases than a tenant would need to do, but he has generally a better command of capital, workmen, horses, and implements; and if these are all properly applied, a fair profit under ordinary circumstances will be received as a matter of course. *J. Lockhart Morton, Lasswade, Mid-Lothian.*

THE COMPOSITION OF MILK.

THE chemical examination of milk discovers in it an oily matter, butter, and a saccharine substance, the sugar of milk, a nitrogenised flesh-forming compound, caseine—which has the same composition as the fibrin of Wheat, the phosphates, from which bone is built up, and the saline compounds which exist in blood. It is shown to be a store richly furnished with the raw material of beef and blood, fat and bone. The proportions in which these materials exist in the milk of different animals is found not to be the same, and, as is well known, both the quality and quantity of cows' milk are subject to considerable variation. The following analysis of cows' milk will show its usual composition. No. 1 gives the average composition of samples of milk analysed in France; Nos. 2 and 3, of milk supplied to the union workhouse, Belfast, and examined in my laboratory; No. 4 of cows' milk, and No. 5 of human milk, examined in Germany by Haidieu (*see* Table). The caseine in milk is held in solution by soda, but the butter is merely suspended through it in a finely divided condition; milk, in fact, resembles an emulsion, in which a thin, colourless, and transparent liquid is rendered opaque, and of a white colour, by the suspension in it of extremely minute particles of fatty matter:—

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Water	87.40	90.18	90.67	87.3	89.2
Caseine and Insoluble Salts ...	3.60	3.40	3.45	5.1	3.1
		0 37	0.36		
Butter	4.00	2.30	3.27	3.0	3 4
Sugar of Milk ...	5 00	3.51	2 08	4.6	4.3
Soluble Salts ...		0.24	0.17		

One of the most important constituents of milk, with reference to its value for human food, is the nitrogenised substance caseine. The proportion of this compound is found to be influenced by the kind of food supplied to the animal, and to be increased by substances rich in nitrogenised compounds. According to Boussingault, the average amount in cows' milk ranges from 3 to 4 per cent.; other observers have, however, given a much higher average, Playfair, in England, estimating it at 4·16, while Simon, in Germany, raises it to 7 per cent.

In milk, casein exists in two conditions, partly in solution, and in part forming transparent capsules which invest the globules of fat and keep them from coalescing, as occurs when they consolidate into butter. The existence of a delicate membrane investing the fat globules, which was asserted to exist by the French chemist Raspail, was not until lately demonstrated. If a thin layer of fresh milk be spread on a piece of glass, and examined by the microscope, it is observed, like blood, to be composed of minute capsules or globules, swimming in a colourless and transparent liquid. These globules consist of the oily matter of the milk, surrounded, as I have said, by a capsule of casein. The microscope, however, does not show us this transparent investing membrane until chemical means, as a few drops of acetic acid, are also employed in the investigation, when the globules become distorted, and drops of fat can be seen emerging from them.

The chief method adopted in this country for the examination of milk is by the measurement of the quantity of cream which it is capable of affording. For this purpose, a simple instrument, termed a lactometer, or milk gauge, is used, which consists of a table and narrow glass, usually about ten inches in length, and an inch in diameter, and graduated into 100 equal parts, the scale commencing at the top of the glass. When milk is poured into the glass to the first mark, and allowed to remain at rest for 24 hours, it will be found that the cream, at the expiration of that time, has separated, forming an opaque layer on the surface of the milk. The thickness of this layer, measuring from the division where the opacity commences to the surface of the cream, is ascertained by reference to the figures engraved on the side of the glass, and the number of degrees observed indicates the percentage of cream in the milk. A number of these tubes are required for use in the dairy, and may be conveniently placed in a wooden stand, so as to admit of the comparative examination of several samples of milk; they may be procured at the glass-house, or from any manufacturer of chemical apparatus. Though this form of instrument is recommended by its simple construction, and the apparent accuracy of its indications, yet to obtain perfectly correct results several precautions are necessary, and even when properly employed its results are to be regarded as only comparative. It affords us no information with respect to the proportions in which the casein and other constituents of milk are present, and gives us merely an approximation to the actual amount of cream which the milk contains. From the circumstance that the lactometer is at present very generally employed in this country, and that it has been adopted in estimating the quality of the milk supplied to the workhouses, it will be useful to consider the causes which influence the accuracy of its indications.

1. When milk is taken from the cow and placed in the collecting pans it has no sourness. But very soon it becomes slightly sour, and it is found that the production of acidity is promoted by whatever elevates the temperature of the milk. The quantity of acid gradually increases so much that it coagulates the caseine, and when the souring of the milk is quickly produced, from the vessels containing traces of sour milk, or from an elevated temperature of the season or of the milk-room, it will usually be observed that the amount of cream separated will not be so great as when the souring and consequent coagulation is retarded. The spongy mass which the coagulated caseine forms entangles some of the particles of cream, and prevents their ascent to the surface of the milk. The influence, therefore, which the slow or rapid coagulation of milk exercises in promoting or retarding the separation of the cream enables us to explain the discordance in the results obtained in the use of the ordinary milk gauge, and shows us how much

the percentage of cream, as indicated by the tube in a sample of milk, may depend upon the rapidity or slowness of its coagulation. It also explains the beneficial effects of the practice of keeping the milk in shallow vessels at a moderate temperature, so as to avoid its becoming too rapidly sour, and to favour the more easy ascent of the butter globules. You can readily understand from the statement just made, how it may sometimes happen that a sample of fresh milk placed in the tube immediately after milking will yield a larger percentage of cream than the milk from which it has been taken when examined after it has been carried for several miles and exposed to the action of the air, and also agitated in contact with the air contained in the milk vessels, and probably brought into contact with vessels containing some traces of acidity.

2. It is a fact well known to milkers that the last portion of the milk drawn from the udder is much richer in butter than that which is first drawn, while the other constituents maintain the same relative proportions. A merely mechanical cause is commonly assigned for this difference of composition by agricultural writers, and you will find it stated that it is to be ascribed to the fatty matter accumulating upon the surface of the milk in the udder, while the more dense watery portion will be collected in the under part, and consequently be first drawn away.

But this explanation is no longer admissible, as it has been found by experiment that the same thing prevails with respect to woman's milk drawn in fractional portions from the breast. As, however, the fact is certain that the milk which is last drawn is invariably richer in cream than that which is first drawn, it is obvious that in proceeding to estimate the amount of cream which the milk of a cow is capable of affording, our samples should be taken from the entire quantity of milk obtained, after taking care to thoroughly mix together the various portions.

From the observations which have been made, the following practical conclusions with respect to the use of the lactometer may, I conceive, be drawn:—1st. That it affords purchasers a very uncertain method of calculating the actual value of milk, as its indications are influenced by temperature, and also by the changes which the milk may have undergone when brought from a distance. 2d. As it is incapable of indicating the amount of the valuable muscle-forming caseine, or of the sugar and saline matters which are essential constituents of milk, it cannot be regarded as affording us information with respect to the actual value of milk as an article of food.

3. That as the thickness of the layer of cream which a sample of milk may throw up in a given time will be influenced by the length of the tube, the temperature to which it is exposed, the portion of the milk examined, and the influence of mechanical and chemical causes, it cannot be regarded as indicating correctly the actual richness of the milk in cream; and it follows that the purchaser is not entitled to consider a sample of milk as deficient in cream, even when it fails when tested in the workhouse to give the same percentage as when examined by the contractor.

The second method of distinguishing the value of milk is based upon the fact, that opacity of milk depends upon the corpuscles of fatty matter which are suspended on it, and that consequently the more cream it contains the greater will be the obstacle opposed to the passage of the rays of light. An ingenious, but rather expensive instrument, called a lactoscope, has been invented in Paris, by Donne, for the purpose of accurately determining the degree of transparency which the milk possesses. The lactoscope consists of two tubes, one of which may be pushed into the other like the joints of a telescope, and the end of each tube is closed with glass, so that when milk is poured into the outer tube by a small opening on the side, by pushing in the inner tube, a layer of milk of any thickness may be obtained.

The apparatus is placed on a stand, the value of the milk is estimated by the thickness of the layer of it through which the light of a small wax taper at a fixed distance can be observed, the value of the milk being in the inverse ratio of the transparency; the larger the amount of fat present, the greater, of course, will be the opacity. The thickness of the layer of milk is measured by a scale on the instrument, and a table sold with it shows the percentage of cream to which it corresponds.—*Journal of the Chemico-Agricultural Society.*

Home Correspondence.

The Cow Parsnip.—Seeing a long letter in the *Agricultural Gazette* on the Cow Parsnip, by Mr. Samuel Taylor, of Wotton Parade, Gloucester, I am induced to inform you that, at the first Root Show of the first Farmers' Club established (Ashbocking), a keeper of a lunatic asylum at Ipswich brought many roots and packets of seeds of the Cow Parsnip, which he recommended as being very prolific, and excellent food for cows and swine. The price of the plants was I believe 2*s.* 6*d.* each, and the packets of seed the same. I bought a root (anxious not to lose a season), and several others bought roots or seed. My plant took and produced a stem 6 or 7 feet high, with a spreading head as large as a moderate-sized umbrella, and an immense quantity of seed just like common Parsnip seeds. A gale of wind, however, scattered them over my garden, where they became a nuisance difficult to be got rid of; no cattle or stock would eat it, and I destroyed it as soon as possible. One seed had been blown over into a field, where it produced a large plant as no beast, sheep, or swine touched it. A rat-catcher coming past requested a portion of it. I gave him the whole, and he said it was worth 1*l.* to him to entice rats—whether he was aware what it really was or not I do not know. Mr. Masters, of the Folly Farm, Ipswich, bought either roots or seed and sowed it at the corner of a field and hurdled it round to keep the stock from it. When offered to them they refused to touch it, nor did they when the hurdles were removed; and such was the case with others. I believe it was at the same root show that the great Cow Cabbage seed was shown and distributed (the price in London was 1*s.* per seed). I had a few seeds given me, one of which I had planted on an old rotten-headed Pollard tree some 10 feet from the ground, and with this little assistance it did reach the height the vendor of this noble Cabbage said it would, even suitable for avenues to gentlemen's residences. I happened to pass the shop where this monster Cabbage was to be seen, and a sheep with wool some 6 or 8 inches long which had been fed with it, but escaped being duped for once.

"Makers of Almanacks suppose
An honest plodding farmer knows
Not when to sow, nor when to reap,
Nor make his hay, nor shear his sheep;
Or wherefore keep they such a chatter
Of sage advice about the matter?"—*Poor Robin.*

Charles Poppy. [It is within our personal knowledge that Mr. Taylor has no personal interest whatever to serve by his recommendation of this plant to the attention of farmers.]——Your correspondent Mr. Taylor in describing and extolling the "Heracleum Giganteum Sibericum" as a gigantic plant proposes it to be cultivated for the use of cattle food. It will be recollected that about three years ago we called attention in the *Chronicle* to this beautiful species of Heracleum, as a noble and ornamental plant, which was favoured to us by the Hon. Lady Matilda Moore, of West Iskesley, which she had grown to great perfection by the instructions given her by Mrs. Loudon. It grew with us with a shaft or stem 14 to 15 feet in height and as large as a man's leg, with beautiful umbulated white flowers at top some 12 feet in circumference, as large as the top of a bushel measure, and the plant leaves five feet broad [!]. We however recommend it not as fit, or relished by cattle, it being rancid and ill flavoured, and we had an idea that it was poisonous, though it is probable its medicinal properties are of some value if pointed out. The "Heracleum Sphondillium" however we recommend to be cultivated for pigs, cows, and rabbits; they are remarkably fond of it, and will thrive and fatten upon it with a very little corn as an accompaniment to a very remarkable degree. This is a very common indigenous plant to this country, and grows wild in most localities where the soil is not tenacious and cold. We again beg to repeat that it may be profitably and very much improved by cultivation, and the manner of growing it to perfection is to sow the seed in autumn in rows, on ground well trenched and dunged, 2 feet apart, and the plants 1 foot distant in the rows. Unless it is sown in autumn, the seed will not germinate for a twelvemonth, but will lie dormant all the summer months, and often perish by the sun; if sown in autumn the plants will appear in early spring, and will be fit to be cut three times a year, and will afford abundance of useful fodder for rabbits, pigs, and cows. It will be recollected that we recommended it to be grown in gardens for rabbits and pigs in large towns, as it will thrive in almost all localities. We should be happy to favour any of your correspondents and readers with a portion of its seeds, by their forwarding us a stamped envelope addressed to its destination, and a few stamps as a remuneration for our trouble. *A. Hardy & Son, Maldon, Essex.*

Stables.—"J. W.," of Peterborough, quite misunderstands "W. B. H.'s" cart-horse stables. "W. B. H." quite agrees with "J. W." in his ideas of equine predilections, but considers all "J. W.'s" requirements carried out in his treatment, and without any annoyance of one horse to another. "W. B. H." intends his five horses in each rectangular building of say 30 feet by 24 feet to see each other, and therefore also in two senses to be able to chaff with each other, by having the upper part of the divisions merely separated by railings. The height of the building should be sufficient to allow of large openings and grates of perforated zinc the whole length and width of the building, and open to the roof, thus securing perfect and abundant ventilation. The six divisions or boxes within the four walls may be made any size required, only leaving one of the middle ones as the entrance, by a little arrangement, for all the five boxes to open into, and also for the corn and chaff and the harness of the five horses. "W. B. H." finds his horses require but little exercise or amusement after work, except those of feeding and rest; thus he fancies his plan holds out comfort as well as economy in space, labour, and food, for each five horses under each man's care. As to food for horses, "W. B. H." believes the more food is prepared for digestion in the horse's stomach the better. Hence bread made from any ground corn, as he has experienced, is better than any unprepared or unground. *W. B. Hurnard, Gurney's Manor, Hingham, Norfolk.*

The Hay Crop.—Since the date when a short article appeared in the *Agricultural Gazette* upon this subject, the writer has witnessed the ricking of a prodigious quantity of hay, which so far as propitious weather was concerned has been made and housed in perfect safety. But the making has been performed indifferently by many persons. Much indeed has been effected, but a great deal of the vast crop still remains unmown. Most counties have their own peculiar method of haymaking, but the one practised upon the best Grass farms of Middlesex appears to claim pre-eminence. The writer having witnessed, and practically adopted it, ventures to request the attention of hay farmers to three or four rules, which, if followed, will not fail to bring to the rick hay as perfectly made as the character of the weather will permit. Choose sunny weather, if possible a time when the wind is north-easterly. Cut early in the morning, and till 9 o'clock let the forkers follow the mowers and shake or ted all the Grass cut most carefully, so as to detach or loosen every lump, not leaving a single knot, and strew it evenly over the ground. By such rigid tedding the hay will heat more regularly in the stack, and consequently will be less liable to fire; it will also be more in quantity when cut into trusses, and bring a greater price. It must be self-evident that regularity of texture will result from the earliest shaking out, whereas, when suffered to lie in swath (we always except a wet or dripping season), the under surface of the Grass will remain damp, the upper will become withered, and the interior or middle part will be rendered tough and flaccid without being dried, so that the forks cannot separate the knots, or bring the herbage into a regular and equable condition. Here it must be distinctly stated that we saw close at hand a vast crop, amounting to at least 2 tons per acre, so tedded; it was ricked in condition on the third day, that every fork bore the hay from the cart to the rick, light, and without a single knot. True it is that hands were in plenty, and no labour was spared. On the other hand, a great crop not half tedded was stacked; it was heavy, lumpy, and of varying colours or shades, destitute of that clear and beautiful pale verdure which characterises well made hay. These few hints, if favourable weather returns, may secure a crop of Grass, which, it is agreed on all hands, surpasses any that has been harvested during many years past. *J. T.*

Miscellaneous.

Seeding of Weeds.—One of the most fertile sources of the continuation of weeds is that of constantly allowing them to seed on the land. Now, the enormous increase which may result from seeding may be gathered from the following table of observations made upon a few of our common species:—

Botanical name.	Common name.	Number of Flowers		Number of Seeds each Flower may bear.		Number of Seeds on a single Plant.
Senecio vulgaris...	Groundsel ...	130	×	50	=	6500
Stellaria media ...	Chickweed ..	50	×	10	=	500
Agrostemma githago ...	Corn Cockle ...	7	×	370	=	2590
Lychnis dioica ...	Campion ...	25	×	137	=	25,137
Papaver rhœus ...	Red Poppy ..	100	×	500	=	50,000
Sinapis arvensis ...	Charlock ...	400	×	10	=	4000
„ nigra ...	Black Mustard	200	×	6	=	1200
Galium tricorne ...	Corn Bedstraw...	100	×	2	=	200
„ aparine ...	Clivers	550	×	2	=	1100
Sonchus arvensis...	Corn Sow Thistle	100	×	190	=	19,000
Carduus nutans ...	Musk Thistle ...	25	×	150	=	3750
Æthusa cynapium	Fool's Parsley ...	300	×	2	=	600
Ervum tetraspermum ...	Tare	60	×	3	=	180
Daucus carota ..	Wild Carrot ...	600	×	2	=	1200
Pastinaca sativa ...	Wild Parsnip ...	600	×	2	=	1200

Now, it is not likely that each individual plant would always perfect the quantities of seeds above tabulated; but the list gives a pretty accurate notion of the numbers of seeds which might be perfected under circumstances favourable to their development, and from it will at once be gathered the important practical fact that, allowing for the casualties to which seeds are constantly liable, yet enough would be left, where seeding is allowed but for a single year, to give trouble for many years after. It cannot be too earnestly urged that weeds be destroyed before their seeds are ripe, or indeed nearly ripe, as the ripening process is often completed by the juices in the stems, especially of pulled weeds: hence Groundsel and Thistles, when pulled and laid by, as we saw last year, yet ripened much seed; and their involucres, opening in the sun, were wafted on the breeze to an indefinite distance; and it should be recollected that one—the primary head—may ripen long before the rest, so that a tolerable weed-growth may follow from a delay which has allowed only this one head to perfect its seed. Each plant of Groundsel might in this way be increased 50 fold, each plant of Corn Sow Thistle 190 fold, and a single head of Musk Thistle may produce an increase of 150 fold. Hence then weeding should be done as early as possible, either with the horse-hoe, common hoe, or sometimes the Dutch hoe, and, when thus early cut down, may safely be left to wither on the ground; but it should be borne in mind that if any individual plants among them are shedding their seed at the time and are not taken away, the very hoeing ensures its safe plantation. It is precisely in this way that Coltsfoot is often much increased. The flowers of this plant appear in spring before the leaves. By the time the seed is ripe the leaves become conspicuous; the hoe is then set to work to cut down the latter, by which the ripened seeds are sown, when, if left, they might have flown away to a distance. Now it may be that the roots of the Coltsfoot—for it is not destroyed by the hoe—are forked out after the crop has been gathered, but the sown seeds will insure that the pest shall give us some more work to do at a future time. The patches of Coltsfoot flowers should therefore be

cut down as soon as they appear, and by this means we not only spoil the crop of seeds, but cripple the growth of the plant by cutting off the leaf-buds. Many other instances of a like kind might be adduced, tending to show that a knowledge of the natural history of weeds is of great importance in enabling us to subdue them. *Professor Buckman.*

Calendar of Operations.

JULY.

CHESHIRE.—The appearance of the grain crops has undergone a great change since our last communication, in consequence of a terrific storm on Monday night and early on Tuesday morning. Crops that we then spoke of as magnificent are now laid low and have an unsightly appearance, and it is much to be feared have received a considerable amount of injury, but to what extent it is at present impossible to say; of course a great deal will depend upon the weather for the next few weeks, and if it should be fine the result may not prove so bad as is generally anticipated. The early Potato fields have for the last fortnight been scenes of busy employment to the labourer from 3 o'clock in the morning until the afternoon, when the Potatoes are sent off fresh to the different markets; and the growers are now taking advantage of the change in the weather to transplant Mangel Wurzel and Swedes, or to sow the Green Melon Turnip, now so much in favour, or other kinds for a second crop. The hay harvest has been retarded, and in many instances mowing has been suspended for a time, to enable the farmer to bring all available power into the Mangel or Turnip field. There are great complaints of Mangel Wurzel having failed to a considerable extent, but we have heard of some excellent crops, and it has been our good fortune to have an abundance of plants to spare from our general crop, which we are now planting upon the early Potato ground. Grass is still plentiful, and cattle generally are doing remarkably well. The growth of Clover upon good land has been very rapid, and we have heard of cattle swelling, and healthy flocks of sheep "striking," from the effects of over luxuriant herbage. One case has come under our own observation, where a loss of 20 per cent. in a healthy flock of sheep has been sustained in about nine days. Cheese has lowered in price in consequence of the anticipation of a good make. *W. P.*

FARM NEAR HEXHAM, *July* 7.—On the 19th ult. we finished sowing Turnips, after one of the most difficult seasons we remember. From the 12th May till we finished sowing there were only 18 days on which we could venture upon the land, and some of our neighbours who have strong or wet land have been in a much worse case. The dry lands in the valley were all sown in good time last month, but on the stronger out-lying lands there is a considerable breadth which will remain unsown. Where Turnips have been got in they are generally looking well, though in some instances the flea has caused a second sowing. We finished thinning our Swedes on the 5th inst., and first-sown yellow are quite ready for the hoe. A good breadth of seeds has been cut, and the crop promises well. Corn has improved greatly in appearance since our last report. Wheat has not yet "shot," but the ear is just showing. Barley and Oats are also just shooting the ear, some early spots of the former being out. Rye, of which a good deal is sown mixed with Wheat, has been fully out for upwards of a fortnight. Potatoes look strong and healthy, and have every appearance of a full crop. Grass is abundant, and cattle and sheep have both done well since being turned out. Lambs are abundant and good. At Stagshawbank on the 4th inst. the show of short-horns was very poor. Galloways and Irish were more abundant, and quality fair. For all sorts there was a slow but dear sale. We have carefully examined our iron account for the past year, with the stock on hand, and find we have used exactly 1 lb. per acre, exclusive of cast-iron shares, the weight of which when new we did not ascertain.

WESTER ROSS, *July* 7.—The weather still continues unsettled, and to-day we have heavy and continued rain. The Wheat crop is now in a very precarious state, in regard both to its blooming season, and to its uncommon luxuriance. Much depends in any season on the weather we have for some weeks previous to harvest, but this year there is a double risk. Already patches of Wheat are lodged, which never can approach maturity, as the most advanced fields are not yet fully in ear, whilst the later and heavier fields, although now ranker than in ordinary seasons, are far from having reached their full height. It requires no uncommon amount of foresight to enable one to tell that our Wheat this year will be of a quality greatly inferior to our last year's crop. In 100 qrs. of Wheat of last year's growth we would scarcely have had 8 bushels of dressings, when to all appearance many of the heavier fields now growing will yield little else than dressings. Oats and Barley are looking well everywhere, and if not too heavy also will be abundant crops. We will not only have a full average of straw this year, but a surplus over and above, quite sufficient to make up for last year's deficiency. Turnip sowing has been completed, not so satisfactorily as we would have wished. It was impossible to get the ground, in such a wet state, made thoroughly clean, or where clayey, rightly pulverised. However, they are coming away as well as might be expected, for although Turnips well advanced will scarcely complain of too much rain, in their earlier stages their growth is easily impeded. The earlier sown Swedes have been singled, and as weeds of all shapes and sizes are making astounding progress, every hand that can wield a hoe will be much needed for some weeks. As our green crop lot this year lies alongside the highway, and the soil being good, we calculated on growing a Turnip crop at once surprising to passers by and highly advantageous to ourselves. No pains or expense were saved to prepare the soil, and supply the best manure; but unfortunately part of the seed we purchased was bad. A large proportion of it never came above ground, and those that did braird advance so slowly, that at their present step 12 months of summer weather would be needed to bring them to a decent size. This is surely tantalising enough. No seeds should be used without being previously tested, be the character of the seedsman from whom they are received what it may. The hay crop is more abundant than it has been for many years; very little of it is yet cut down, the weather being so unsuitable. Pasture Grass is abundant everywhere, and there is a great demand for stock.

Notices to Correspondents.

BONES ON PASTURE IN CHESHIRE.—*A Subscriber* says, "Having read an article in the *Agricultural Gazette* of the 28th of last month from Mr. Dutton, at Chester, respecting the application of bones to old Grass land, I would be obliged if he would state the sort of bones, whether bone dust or ground bones, the quantity per acre, and the proper time to apply, and if by themselves or mixed. [If Mr. Dutton will kindly give the information we shall be very much obliged.]

FOLDING SHEEP ON CLOVERS: *X Y Z.* It is much the best way to mow always a little in advance of the fold enough for a meal, and place it in troughs within the fold, repeating this until space enough for another fold is cleared and then shifting the hurdles. Nothing can be simpler, and no description is needed. The superiority consists in the entire consumption of the crop, and its entire conversion into mutton and manure.

SOCIETY OF ARTS.—We are reminded that not "two of four" but "three out of five" medals granted by the Society of Arts during the past session were given to the writers of agricultural papers; Mr. Humphrey Chamberlain, of Kempsey, near Worcester, having had one awarded to him for his paper on Brickmaking, which is properly an agricultural subject. To Mr. Chamberlain's treatment of it we hope hereafter to direct the attention of our readers.

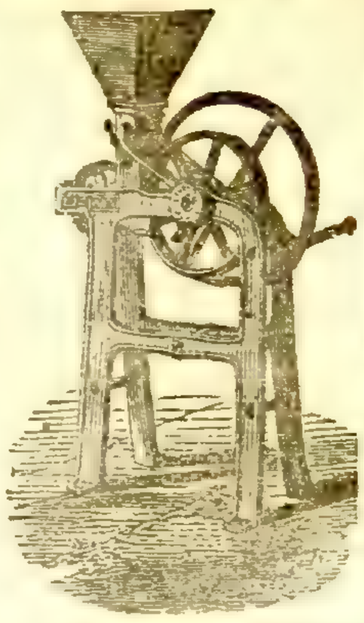
OAT-CRUSHING AND BEAN-SPLITTING MILL

(TURNER'S No. 5).

This Mill is recommended to the use of every person keeping a Horse, as superior for efficiency, durability, and ease in working to any manufactured. Two bushels of crushed corn afford more nourishment both to old and young horses than three bushels of uncrushed!

Price £5 15s. 6d.

Made and Sold by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2l. 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

STAND No. 19, ROYAL AGRICULTURAL SHOW AT CHELMSFORD.

B. SAMUELSON,

BRITANNIA IRON WORKS, BANBURY,

Will have pleasure in forwarding Post Free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S Patent Gardner's Double Action and Single-Action TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes 11 times at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the Provincial Societies' Meetings. Between 60,000 and 70,000 of these Machines have been made in and supplied from the above Works.

Moody's, Phillips', Gauntlett's, Bushe and Barters', and every other description of PATENT TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. SAMUELSON'S Cornes' Chaff Cutters of all sizes, varying in price from 6l. 10s. up to 14l.

CHAFF CUTTERS, for Stables and small occupations, and for exportation, 3l.

CORN BRUISING MILLS, adapted also for exportation, from 3l. 5s. up to 7l. 10s. each.

MALT MILLS, of various sizes.

LINSEED-CAKE BREAKERS, from 2l. 6s. up to 10l. each.

CHURNS.—SAMUELSON'S Registered Atmospheric and Anthony's Patent American, manufactured solely by B. SAMUELSON.

SAMUELSON'S Registered Budding's LAWN MOWERS, from 9 inches up to 30 inches wide. The registered improvement has removed all the difficulties attending these labour-saving machines, requiring only to be pushed along by an unskilled labourer to insure a perfectly level cut.

Kase's Patent Double-Action FORCE PUMPS; Galvanised Iron-barrel and other PUMPS.

Some of each of the above may be seen at Stand No. 19, Royal Agricultural Show, Chelmsford; and may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom.

ROYAL AGRICULTURAL SOCIETY'S SHOW AT CHELMSFORD.—STAND No. 19.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

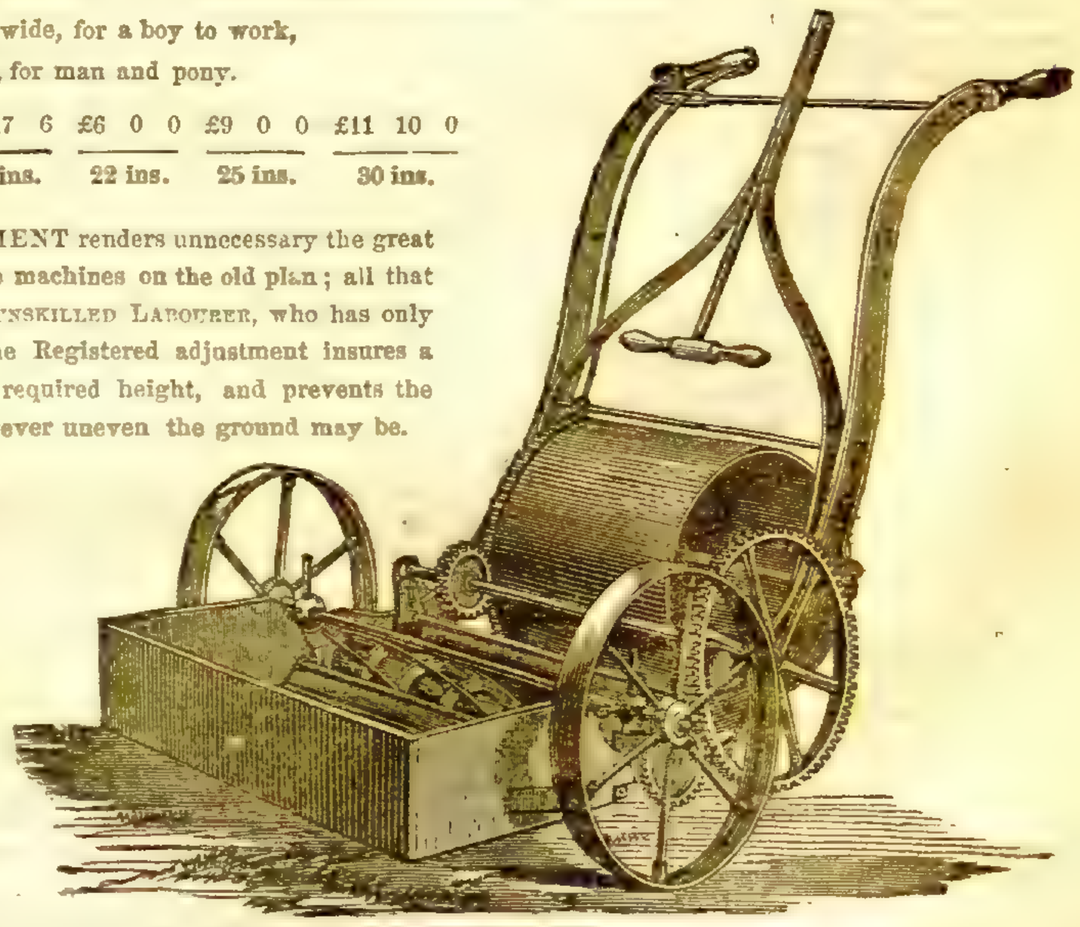
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 15 0	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.



B. SAMUELSON, Britannia Works, Banbury; and STAND No. 19, Royal Agricultural Society at Chelmsford.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

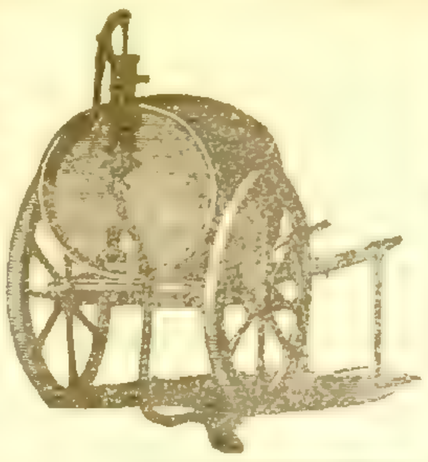
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto ditto	ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50s.

1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 6d. per foot.

1¼ Gutta Percha Suction, 1s. 9d. per foot.

THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.

BOYD'S PATENT SELF-ADJUSTING SCYTHE, complete ... ... 10s. 6d.

BOYD'S PATENT VULCAN SCYTHE, complete ... 6 6

BOYD'S PATENT VULCAN BLADES 4 6

May be had of all Ironmongers and Seedsmen; and Wholesale of WM. DRAY & Co., Swan Lane, London.

BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery. — Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
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Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20 inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

IMPROVED LAWN MOWING MACHINES.

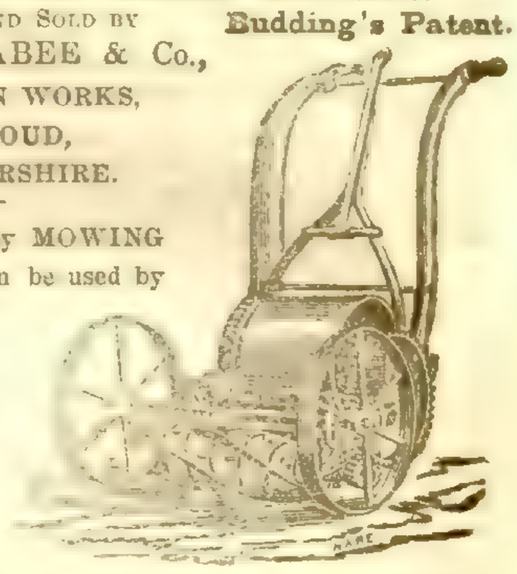
MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,

PHŒNIX IRON WORKS,

NEAR STROUD,

GLOUCESTERSHIRE.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10s. 0d.
Ditto for Man and Boy	„ 22 ditto	... 6	0 0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0 0
Horse Machine	„ 28 ditto	... 11	0 0
Ditto	„ 36 ditto	... 15	0 0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

RICHMOND & CHANDLER'S PRIZE-TOOTHED ROLLER CHAFF-CUTTING MACHINES are constructed entirely of Iron, and are therefore remarkably firm when in use. This important quality is wanting in all wood framed machines, which are, of course, liable to contraction.

RICHMOND AND CHANDLER'S IMPROVED PREMIUM CORN CRUSHERS are also constructed entirely of Iron and are not subject to the same contingencies as others. They are adapted for bruising Beans, Oats, Indian Corn, &c., and can be worked with less labour for the quantity crushed than any yet produced.

PATENT HAYMAKERS AND HORSE RAKES, which can be confidently recommended as capable of doing their work efficiently, expeditiously, and with economy.—Implement Works, Salford; Branch Establishment, South John Street, Liverpool.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.

JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

GLASS.

JAMES PHILLIPS AND CO. have the pleasure to hand their prices of the following articles:—

AQUARIA, WITH EBONY STANDS,

20 inch diameter ...	... 15s.	15 inch diameter ...	... 9s
19 " " ...	... 14	14 " " ...	... 8
18 " " ...	... 13	13 " " ...	... 6
17 " " ...	... 12	12 " " ...	... 5
16 " " ...	... 10		

Made of the shape suggested by Mr. SHIRLEY HIBBERD, and differing from the usual inverted Propagating Glass.

Tanks Glazed with Plate Glass, from 30s. each; Syphons for ditto, 2s. 6d.

CUCUMBER TUBES.

12 inches long, each ...	1s. 0d.	20 inches long, each ...	1s. 8d.
14 " " " ...	1 2	22 " " " ...	1 10
16 " " " ...	1 4	24 " " " ...	2 0
18 " " " ...	1 6	26 " " " ...	2 2

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	3s. 0d.	12 inch diameter, each...	8s. 0d.
7 " " " ...	3 6	13 " " " ...	10 0
8 " " " ...	4 0	14 " " " ...	12 6
9 " " " ...	5 0	15 " " " ...	17 0
10 " " " ...	6 0	16 " " " ...	22 0
11 " " " ...	7 0		

HARTLEY'S IMPROVED ROUGH PLATE GLASS, Sheet, and Rough Plate, Tiles, Milk Pans, Bee and Propagating Glasses, Wasp Traps, Preserve Jars with and without covers, Plate, Sheet, Crown, and Ornamental Window Glass; Crystal Glass Shades for ornaments.

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GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in. ...	...	...	12s.	0d.
6½ "	4½ "	7 "	5	...	...	12	6
7½ "	5½ "	8 "	6	...	...	13	0
8½ "	6½ "	9 "	7	...	...	13	6
9½ "	7½ "	10 "	8	...	...	13	6
10½ "	8½ "	11 "	9	...	...	14	0
12 "	9 "	13 "	9	...	...	14	0
10 "	10 "	10½ "	10½	...	...	14	0
11 "	10 "	11½ "	10½	...	...	14	0
11 "	11 "	11½ "	11½	...	...	14	0
12 "	11 "	12½ "	11½	...	...	14	0
13 "	11 "	13½ "	11½	...	...	14	0
13 "	12 "	13½ "	12½	...	...	16	0
13½ "	13½ "	14½ "	13½	...	...	16	0
15½ "	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
Ditto " 2 feet ... 3½ "

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

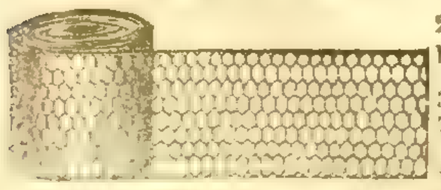
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½d. per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6d., 8d. and 11d. per yard.



Galvanized, 24 inch wide, 3-inch mesh, 4d., 5½d., and 7½d. per yard.

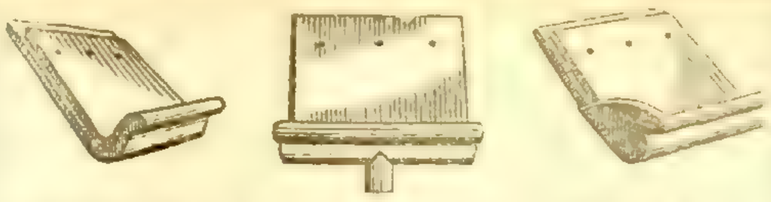
The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6s. 6d. to 12s. 6d. each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½d. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

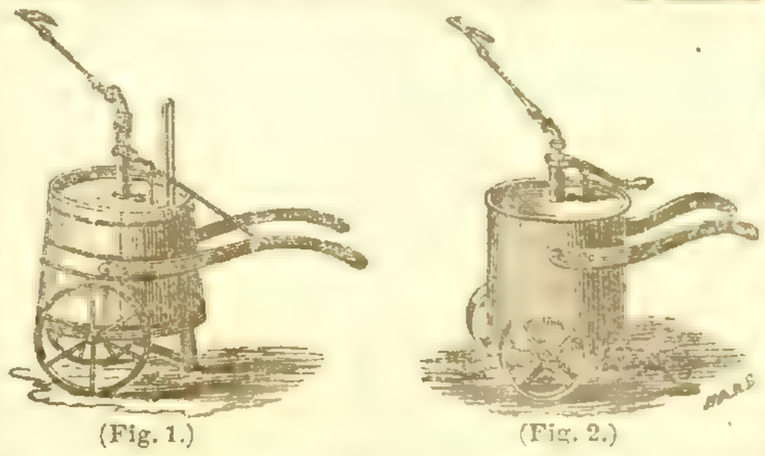
PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.



BEADON'S PATENT EAVES GUTTER TILE for Farm Buildings, Roofs of Houses (either old or new, whether of Thatch, Slate or Tile), and other structures. Sole Agent, J. B. LAWES, 1, Adelaide Place, London Bridge.

This is the cheapest kind of spouting known, and is especially adapted for Farm Buildings and Labourers' Cottages. It will last as long as the building without repair, requires no paint, and will bear the weight of a ladder against it without injury. Price of each Tile of about 13 inches long is 4d. Stop-ends and outlets 6d. each. Any mason can put them up. If 100 feet or more are required, a man will be sent to fix them at 5d. per foot. This price to include Tiles (delivered at Agent's yard) cement, labour. May be had in London, Gloster, Bridgewater, and Rugby.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4	10
No. 2 " 15 "	" 45 "	...	5	10
No. 3 " 28 "	" 45 "	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2	15
No. 13 " 12 "	" 30 "	...	3	5
No. 11 " 16 "	" 40 "	...	4	0
No. 12 " 24 "	" 45 "	...	5	0
No. 14 " 30 "	" 45 "	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with nose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order, the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

THE COMFORT OF A FIXED WATER-CLOSET for 1l.—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1l. Also Hermetically-sealed and inodorous chamber commodes, 1l. 2s. and 2l. 4s., and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S. & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

MALVERN SELTZER.

"MALVERN is not more celebrated for its glorious hills, pure air, and charming scenery, than it is for the sparkling freshness, absolute purity, and health-restoring properties of its mountain springs."

LEA, PERRINS, AND BURROWS,
GREAT MALVERN,
SOLE LOCAL AGENTS FOR
SCHWEPPE'S MALVERN SELTZER WATER.

The delicious Seltzer, manufactured at the Holy Well with the pure and pellucid water which flows from the granitic rocks of Malvern, is supplied direct from the place of manufacture by LEA, PERRINS, & BURROWS, Pharmaceutical Chemists and Mineral Water Agents, to whom orders for Malvern Soda, Potash, and Magnesia Waters, Malvern Lemonade, and Pure Malvern Holy Well Water, should also be addressed. Either as pleasant beverages, or as medicinal drinks, simply refreshing and antifebrile, or absolutely curative, in cases of acidity, heartburn, gout, &c., these Malvern waters are unrivalled.

TO MARKET GARDENERS, ETC.

TO BE LET, with immediate possession, one of the best MARKET GARDENS in the vicinity of Bath, now in the occupation of the owner, Mr. P. Lidiard, containing about 12 acres, and more land if required, with good Dwelling-house, Outbuildings, Yard, Barns 3-s all Stable, Washing-house, and Potato Store for about 1000 sacks, with large Melon and Cucumber Houses heated with hot water, two Greenhouses, and one Vinery and sundry Pits. The Goodwill of the Business, in connection with a Stand in the Bath market, will be included in the rent. The Property has been in the hands of the owner's family for 40 years, who have carried it on successfully, and have frequently taken Prizes at the Regent's Park and Chiswick Shows. It is in the highest state of cultivation. The Crops under stock to be taken at a valuation, and paid so as to suit the convenience of a tenant, as may be agreed upon. The owner gives it up on account of ill health. This is an unusual opportunity for obtaining a first-rate provincial business upon very moderate terms, and none but those giving good references as to character, capital, and ability, will be treated with.—For further particulars and to treat, apply to COTTERELL & SPACKMAN, Land Surveyors, 6, Terrace Walks, Bath.

Sales by Auction.

THE LODDIGES COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the Third Sale of this important collection of ORCHIDS is fixed to take place at his Great Room, 38, King Street, Covent Garden, on TUESDAY, 15th July.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

SNARESBROOK, ESSEX.

To EXHIBITORS, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS PROTHEROE AND MORRIS will Sell by Auction, without reserve, on the Premises, near the Eagle Inn, Snaresbrook, Essex, on MONDAY, July 21, at 12 o'Clock, by order of the Executors, the whole of the GREEN-HOUSE and other PLANTS, including about 100 fine specimen Erica ventricosa, Cavendishi, vestita, &c.; Epacris miniata, grandiflora, Leschenaultia, Baxteri major, Tetratheca verticillata, Pimelea, Chorozema, Hovea Celsi, Boronia pinnata, Azalea Indica, Camellias, Oranges, Pelargoniums, Fuchsias, Cactus, &c. &c.—May be viewed on the morning of Sale; Catalogues had on the Premises; at the Eagle Inn, Snaresbrook; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

PUBLIC SALE OF A RICH AND IMPORTANT COLLECTION OF PALMS, ORCHIDS, ZAMIAS, CAMELLIAS, AZALEAS, &c.

TO BE SOLD BY AUCTION, on THURSDAY, July 24, at the Chateau de Bierbais, the seat of Mr. Deman de Lennick, near Brussels, Belgium, a fine collection of Living Plants, including rare and magnificent Palms, as Chamærops tomentosa, Chamærops stauracantha, Diplothemium argenteum, &c., in fine and large specimens; Zamias and Encephalartos of first choice; a beautiful set of rare and well established Orchids, as Cattleya crispa (with 60 and 70 bulbs); C. Lueddemanniana (17 bulbs); Lælia elegans, very strong; Vanda caerulea; Sobralia macrantha, extraordinary specimen, with 120 stems, 20 feet circumference, &c. Several nice Ferns, amongst which a noble specimen of Angiopteris Wellincki, from Java, 15 yards foliar circumference; Camellias in large and strong pyramids; Azaleas &c.—Printed Catalogues can be obtained on application to Mr EDOUARD KEILIG, Brussels, Rue du Champ de Mars, 10.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of he most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, CAULIFLOWER AND CELERY.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Bedded Celery, 8*d.* per 100, 5*s.* 6*d.* per 1000; Drumhead or Cattle Cabbage, 4*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

SEEDS FOR PRESENT SOWING.

JOHN CATTELL respectfully informs his numerous customers and the public generally that he is now prepared to send out SEEDS of his superior CALCEOLARIAS, CINERARIAS, &c., at the prices annexed, post free.

The superior quality of the Calceolarias raised from the seed supplied by J. C. having been acknowledged by many of the Trade, also Gardeners and Amateurs, J. C. can with confidence offer the seed of this season.

Per packet.—	*s.*	*d.*
Anemone, fine mixed, single poppy	0	6
" fine scarlet poppy	0	6
Antirrhinum, superior, mixed	0	6
Calceolaria, from the two superior varieties sent out by J. C. last year, carefully hybridised	2	6
Cineraria, from finest varieties	1	6
Gloxinia, extra fine	1	0
Heartsease, from fine show varieties	1	0
" from new French, spotted and striped ...	1	0
Hollyhock, from fine show varieties	1	6
Mimulus, extra fine	0	6
Schizanthus retusus	0	6
Sweet William, very superior	1	0

Nurseries, Westerham, Kent.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. MARTIN, 14, Gough Square, London; C. TURNER, Royal Nursery, Slough; J. KEYNES, Nursery, Salisbury, and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. EDWARDS & Co., Inventors and Manufacturers, St. Paul's Square, Birmingham.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street Westminster.

BE PARTICULAR TO ADDRESS AT FULL LENGTH

BENJAMIN EDGINGTON,
2, DUKE STREET, SOUTHWARK.
MARQUEES, TENTS, AND RICK CLOTHS.

RICK CLOTHS.—A large quantity of CANVAS intended for the Crimea has been made into RICK CLOTHS, to be SOLD as second-hand, at greatly reduced prices. A list forwarded by post.—Address, in full,

BENJAMIN EDGINGTON, 2, Duke Street, Southwark.

ROSERIES, WITH KENT'S PATENT WEATHER-PROOF GLAZING.—Estimates forwarded for this new kind of House, as recommended in leading article of this Journal, June 14th. Direct, stating proposed length and width, to ALFRED KENT, Horticultural Building Works, Chichester. Illustrated Price Books of other Houses on receipt of four stamps.

GEORGE P. TYE'S REGISTERED HYACINTH BOTTLES in great variety. May be had wholesale at 107, Great Charles Street, Birmingham; and retail of all Seedsmen in the United Kingdom.

FLOWER POTS.—The cheapest house in the trade is Messrs. ROGERS & LINFT'S, Wholesale Flower-pot Manufacturers, Ouseburn Pottery, Newcastle-on-Tyne.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at AUSTIN & SEELEY'S Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.

N.B. Fountains from 10*l.* to 400*l.*

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.*; 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.

Union Joints, Branch Pipes and Jets are also supplied.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH (Hampstead Road, and King's Road, Chelsea), having erected 13 Horticultural Structures of various new designs in wood, iron, and his two patent principles, all who are about to erect Horticultural Buildings of any description would well repay themselves the trouble of calling at Granby Nursery, Mornington Place, Hampstead Road, and inspecting the different designs and principles that they are built on. 1*s.* 3*d.* per superficial foot charged for Horticultural Buildings complete, with glass of excellent quality and thickness, doors with brass locks, lines, pulleys, quadrants, &c. Price List sent on application, and references given to any extent, both for Building and Heating with Hot Water. Structures of all descriptions.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	Grape Gatherers and Scissors	Potato Forks
Bagging Hooks	Gravel Rakes and Sieves	Pruning Bills
Bills	Greenhouse Doors and Frames	" Knives, various
Borders, various patterns	Hammers	" Saws
Botanical Boxes	Hand-glass Frames	" Scissors
Brown's Patent Fumigator	Hay Knives	" Shears
Cases of Pruning Instruments	Horticultural Hammers and Hatchets	Rakes in great variety
Daisy Rakes	Hoes of every pattern	Reaping Hooks
Dibbles	Hotbed Handles	Scythes
Dock Spuds	Ladies' Set of Tools	Scythe Stones
Draining Tools	Labels, various patterns, in Zinc, Porcelain, &c.	Shears, various
Edging Irons and Shears	Lines and Reels	Sickles
Flower Scissors	Marking Ink	Sickle Saws
" Stands in Wires and Iron	Mattocks	Spades and Shovels
Fumigators	Menographs	Spuds
Galvanic Borders and Plant Protectors	Metallic Wire	Switch Hooks
Garden Chairs and Seats	Milton Hatchets	Thistle Hooks
" Loops	Mole Traps	Transplanting Tools
" Rollers	Mowing Machines	Trowels
" Scrapers		Turfing Irons
		Wall Nails
		Watering pots
		Weed Hooks
		Wheelbarrows
		Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

VENTILATION.

J. KITE, Patentee for Ventilating and Smoke-curing Operations.—Churches, chapels, schools, club-houses, public buildings, stables, &c., effectually ventilated, upon a new and economic system. Also, the New Patent Albert Chimney Cap, for the cure of smoke. Patronised by her Most Gracious Majesty; 200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Government buildings, &c. Wrought iron, 25*s.*; galvanised ditto, 30*s.*; cast iron, 35*s.* each, the latter as durable as the building itself. Illustrations and testimonials forwarded on receipt of two postage stamps.

Depôt, BARTON'S Ironworks and Manufactory, for the Patent Stable Fittings and enamelled Mangers.

Address, JAMES BARTON, 370, Oxford Street, London.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

TO DAIRY FARMERS.

KEEVIL'S PATENT CHEESE-MAKING APPARATUS (a new and important invention, the use of which will improve the quality and increase the weight of the Cheese, and save half the labour of making) will be exhibited on STAND No. 26 AT THE ROYAL AGRICULTURAL SOCIETY'S MEETING to be held at Chelmsford, July 15th to 18th next.—Full particulars may be obtained on application to the Manufacturers, Messrs. T. F. GRIFFITHS & Co., 68, Bradford Street, Birmingham; or at their Show Rooms, 27A, Bucklersbury, London; or at Messrs. BURGESS & KEY'S, 103, Newgate Street, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

H. WALKER'S NEEDLES, by authority, the "Queen's Own;" W. H. WALKER'S Alliance Needles, with patent oil-colour Portraits of the Allies, thread easily and work freely on any kind of work: 1*s.* value, posted by any dealer for 13 stamps. Removed to 47, Gresham Street.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

BUY OF THE MAKERS.

BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade, at the Manufacturers, J. & J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street). Warranted Tooth Brushes, 3*d.*; superior ditto, 4*d.*; the best that can be made, 6*d.* each.—N.B. The lowest price asked, and no abatement.

MARKING LINEN MADE EASY.—The Pen Superseded.—The most easy, permanent, and best method of Marking Linen, Silk, Cotton, Coarse Towels, Stockings, Books, &c., so as to prevent the Ink blotting, or the possibility of its washing out, is with CULLETON'S PATENT ELECTRO-SILVER PLATES. Any person can use them. Initial plate, 1*s.*; name plate, 2*s.*; set of numbers, 2*s.*; crest plate, 5*s.*, with directions. Sent post free to any part of the kingdom, by the Inventor and Sole Patentee, T. CULLETON, 2, Long Acre (exactly one door from St. Martin's Lane).—N.B. To prevent imposition it is necessary to write down the address.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, July 12, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 29.—1856.] SATURDAY, JULY 19. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street.—The next MEETING will be held on TUESDAY, July 22. The Chair will be taken at 3 P.M.

CRYSTAL PALACE.—THIRD HORTICULTURAL EXHIBITION.—To Amateurs and Cottagers.—The Directors of the Crystal Palace Company give notice that the THIRD HORTICULTURAL EXHIBITION of the present Season will take place on WEDNESDAY, THURSDAY, and FRIDAY, September 10th, 11th, and 12th. Besides the usual Prizes for Stove and Greenhouse Plants, and for Dahlias, Hollyhocks, and other Flowers of the Season and Fruit, Prizes will be given for Flowers, Fruit and Vegetables by Cottagers and Amateurs. The Rules of Exhibitors' Schedules of Prizes may be had on application to the Secretary.

The Prizes awarded at the three Shows of the Season will be paid after the third Show. G. Grove, Secretary.

Crystal Palace, July 19.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—The THIRD EXHIBITION of the above Society will take place at the Horns Tavern, Kennington, on TUESDAY, 29th July, 1856, when Prizes will be awarded to the following productions, viz., Miscellaneous Plants, Fuchsias, Carnations, Picotees, Verbenas, Seedlings, &c. Admission from 3 till 7 o'clock. Non-members by payment of Sixpence each. List of Prizes and the Rules of the Society may be obtained from John Bushell, Honorary Secretary pro tem.

Lower Kennington Lane, Lambeth.

BLISWORTH GARDENS.

NORTHAMPTON and NORTHAMPTONSHIRE FLORAL AND HORTICULTURAL SOCIETY.—The Committee of the above Society beg to announce that their next Exhibition will take place on THURSDAY, July 24, in the extensive and beautiful Gardens adjoining Blisworth Station, on the London and North-Western Railway, when Prizes to the amount of 60*l.* will be awarded, including the following extra Prizes (open to all England):—3*l.* for the best 24 Bunches of Cut Roses, distinct varieties, three flowers in each bunch; 2*l.* for the Second Prize; 1*l.* for the Third Prize.

By the kind permission of Lieut.-Colonel Lord Burghley and the Officers of the Regiment, the splendid Band of the Northamptonshire Militia will perform.

All Exhibitors must send a statement in writing to the Hon. Secretary, on or before Tuesday, July 22d, of the Classes in which they intend to exhibit.

Admission from 1 o'clock to 4, 2*s.*; from 4 o'clock till 7, 1*s.*; after 7, 6*d.* Subscribers and Children under 10 years of age admitted at half-price till 7 o'clock. The Gardens will be closed at 9 o'clock. John Macquire, Honorary Secretary.

Drapery, Northampton, July 19.

ROBERT HODGE takes the medium of the *Gardeners' Chronicle* to return his grateful thanks to those Subscribers to the Gardeners' Benevolent Institution who at the last election of Pensioners recorded 235 Votes in his favour. It is cheering to him in his misfortunes to think that he has so many kind friends whose exertions on yet one more occasion are so likely to make him successful.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

GEORGE TAYLOR, Junior, Growers' Salesman
For Choice Garden Produce,
St. John's Market,
Liverpool.
Terms—"Cash."

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to all parts of the world, upon application.

Primula, *choicest fringed* ... ... 1*s.* per packet.
Calceolaria, *choicest varieties* ... ... 1*s.* ,,
Cineraria ,, ,, ... 1*s.* ,,

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

James Carter & Co., Seedsmen, 238, High Holborn, London.

CONES OF ABIES DOUGLASI.

GEORGE ROBERTS begs to make known that he has lately received from the north-west coast of America a package of fine CONES of ABIES DOUGLASI. This noble tree attains in its native habitats on the banks of the Columbia River a height of from 150 to 200 feet, affording timber unequalled for masts, and remarkably free from knots and tendency to warp. From its beauty, rapidity of growth (having reached at Dropmore 60 feet in 18 years), and long-proved hardiness in Great Britain during the severest winters, it is recommended for extensive cultivation by the principal authorities on Coniferous trees.

32, Moorgate Street, London.

ROSES.

J. AND J. FRASER beg to announce that their collection of ROSES is now in Flower, to which they respectfully invite the attention of the public.

The Nursery is about 15 minutes' walk from the Lea Bridge Station, on the Eastern Counties Railway.

*** Trains from Shoreditch about 12 times a day.

The Nurseries, Lea Bridge Road, Essex.—July 19.

ROSES.

JAMES MITCHELL respectfully informs the Nobility and Gentry his unrivalled collection of ROSES is now in full bloom.

Piltdown Nurseries, Maresfield, Sussex, July 19.

ROSES.

H. LANE and SON, Great Berkhamstead, have the pleasure of informing their Patrons that their extensive collection of Roses is now in full bloom. Their Coniferæ, Rhododendrons, and a General Stock of Trees and Shrubs and Fruit Trees are remarkably fine, and well worth the attention of Planters. The Nurseries are within a few minutes' walk of the Station on the London and North Western Railway.

ROSES.

G. CLARKE respectfully invites admirers of ROSES to an inspection of his superb collection, extending over 12 acres of ground, which are now in great perfection. Plants can be selected now and orders executed in November.

All the newest Geraniums, Calceolarias, Azaleas, Epacrises, &c. Fine collections of Rhododendrons, Ghent Azaleas, Coniferæ, Evergreens, and Fruit Trees.

The nearest and most pleasant route from the West End to the Crystal Palace.—Streatham Place Nursery, Brixton Hill, four miles from London Bridge.

AZALEA INDICA.

J. IVERY and SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, July 19.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

DUTCH BULBS.

WM. CUTBUSH and SON beg to acquaint their Friends and the Public that their DESCRIPTIVE CATALOGUE of these interesting Spring Flowers will be ready for distribution on and after the 1st August. Post free on application.—Highgate Nurseries, London.

CHOICE CALCEOLARIA SEED.

JOHN HENCHMAN, Junior, is now ready to send out SEED of his choice and well known strain of CALCEOLARIAS, at 5*s.* per packet. Trade packets, 10*s.*

Edmonton, Middlesex.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.

WILLIAM BARNES is now prepared to send out Seeds of his beautiful and unrivalled CALCEOLARIA, CINERARIA, and SWEET WILLIAM, the two former 2*s.* 6*d.*, the latter 1*s.* 6*d.* per packet.

It is needless to say anything in recommendation of the above, as W. B. has received numerous testimonials in their praise from the many gentlemen and gardeners whom he has supplied. Payment by postage stamps.

Address—Camden Nursery, Camberwell.

NEW STRAWBERRIES.

STEWART and NEILSON will send out in September well rooted plants of their new and distinct varieties, having been well proved and pronounced by good judges to be excellent.

1. PRINCE OF WALES, equal to the British Queen in flavour, a good bearer, and well adapted for light soils.

2. MRS. D. NEILSON, fruit large, an abundant bearer, of good flavour, and forces well.

Price of each, per 100... ... ... £5 0 0
,, ,, 50... ... ... 2 15 0
,, ,, 25... ... ... 1 10 0

Single plants, 1*s.* 6*d.* each.

Nursery, Liscard, Cheshire, July 19.

WANTED, next October, for planting, DEODARA PINES, any size, and any quantity not exceeding 500.—Apply, stating price, to Mr. Browne, Hill House Farm, Ifield, Crawley, Sussex.

PINE PLANTS.—Good strong healthy Succession Plants of Ripley and Moscow QUEEN PINES, some of which will fruit next Spring.—Apply to F. Meredith, Brook Cottage, Garston, near Liverpool.

TO BE SOLD, some fine healthy PINE PLANTS.—Apply to Mr. W. Hudson, Gardener, East Hill, Wandsworth.

FRUITING AND SUCCESSION PINE PLANTS.

TO BE SOLD CHEAP, 100 FRUITING and 100 SUCCESSION PINE PLANTS, the former in 8 and 9-inch pots, in fine health and perfectly clean. All Ripley and Moscow Queens.—Apply to Mr. Glendinning, Chiswick Nursery, London.

GRAND SHOW OF BALSAMS.

MR. J. MILNER, Gardener to G. W. Tireman, Esq., of Loftus Hall, near Redcars, Yorkshire, will have his splendid collection of BALSAMS in fine bloom from July 19th to the last week in August, when he will, by permission of his employer, be happy to show them to any lady or gentleman who may honour him with a visit. They comprise the following colours:—Scarlet, Scarlet Mottled, Purple, Purple and White Mottled, Carnation Striped, Yellow, White, Lilac, Red and White Mottled.

Seed of the above nine distinct varieties will be sent to any address after November 1st, at 2*s.* per nine packets, assorted colours.

N.B. The flowers for size and doubleness not to be surpassed.

Loftus Hall Gardens, July 19.

GRAPE VINES FROM EYES.

ROBERT GLENDINNING has a large Stock of all the leading kinds of Grape Vines in fine condition, exposed to greenhouse temperature, and which may be safely transmitted to any distance. If planted now a season will be gained. A collection of the principal kinds is now in fruit at the Nursery, and an inspection of them is respectfully solicited.

Chiswick Nursery, London.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.

THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s.* per lb.—A liberal allowance to the Trade.

J. G. Waite, Seed Merchant, 181, High Holborn, London.

REIGATE SILVER SAND, PEAT and LOAM.—Sand, 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered to any London Wharf or Railway.—Peat and Loam of various kinds, in large or small quantities. Samples if required. Terms Cash.

John Kennard, Swan Place, Old Kent Road, London.

FLOWER POTS.—The cheapest house in the trade is Messrs. Rogers & Swift's, Wholesale Flower-pot Manufacturers, Ouseburn Pottery, Newcastle-on-Tyne.

GEORGE P. TYE'S REGISTERED HYACINTH BOTTLES in great variety. May be had wholesale at 107, Great Charles Street, Birmingham; and retail of all Seedsmen in the United Kingdom.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at Austin & Seeley's Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.

N.B. Fountains from 10*l.* to 400*l.*

BE PARTICULAR TO ADDRESS AT FULL LENGTH
BENJAMIN EDGINGTON,
2, Duke Street, Southwark.
MARQUEES, TENTS, and RICK CLOTHS.

RICK CLOTHS.—A large quantity of CANVAS intended for the Crimea has been made into RICK CLOTHS, to be SOLD as second-hand, at greatly reduced prices. A list forwarded by post.—Address, in full,

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RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1817. One Hundred testimonials sent first if desired.

EDWARDS'S REGISTERED EARWIG TRAP is an elegant, durable, and effectual instrument for the destruction of earwigs. It is highly recommended by the Editor of the "Florist," and other distinguished Horticulturists. Being ornamental in shape it must supersede the ugly inverted flower-pots in all tastefully kept gardens. Price 9*s.* per dozen. Sold wholesale at the manufactory and by the following agents:—S. Martin, 14, Gough Square, London: C. Turner, Royal Nursery, Slough; J. Keynes, Nursery, Salisbury; and retail by every Ironmonger, Nurseryman, and Seedsman in the United Kingdom. Descriptive drawings sent on receipt of postage stamp.

E. Edwards & Co., Inventors and Manufacturers, St. Paul's Square, Birmingham.

TO GARDENERS, ETC.

PATENT PREPARED GARDEN NETTING for covering Fruit Trees, Strawberries, &c., to be had in any quantity from A. Greig, Fishing and Garden Net Manufacturer, Dundee.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At Edgington & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

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WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1. Quality, Inches in Diameter and Price per Yard:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

Super Extra Stout Quality:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.* 2½, 1*s.* 6*d.*

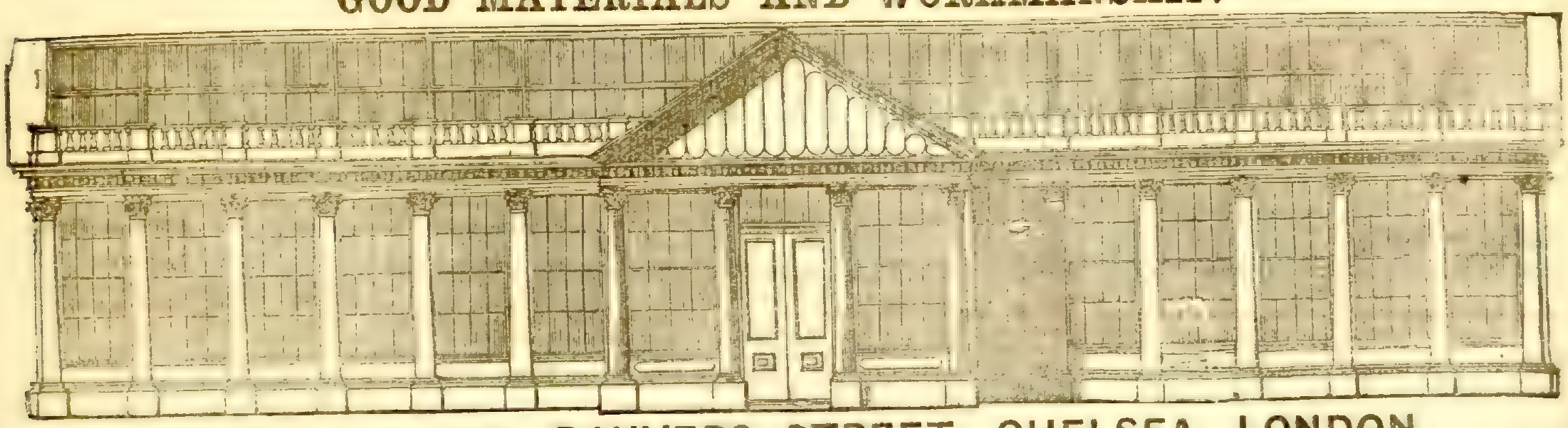
The Hose is Burnettised at an extra charge of 6*d.* per yard.

Union Joints, Branch Pipes and Jets are also supplied.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER,

AT THE LOWEST PRICES CONSISTENT WITH

GOOD MATERIALS AND WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order, the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons,	throws 30 feet high	...	£4 10
No. 2	15	45	5 10
No. 3	28	45	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons,	throws 25 feet high	...	£2 15
No. 13	12	30	3 5
No. 11	16	40	4 0
No. 12	24	45	5 0
No. 14	30	45	5 18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅝ inch, 12s.; No. 3, do., diameter of barrel, 1¾ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

WARNERS' SWING WATER-BARROW

(TO HOLD THIRTY GALLONS)

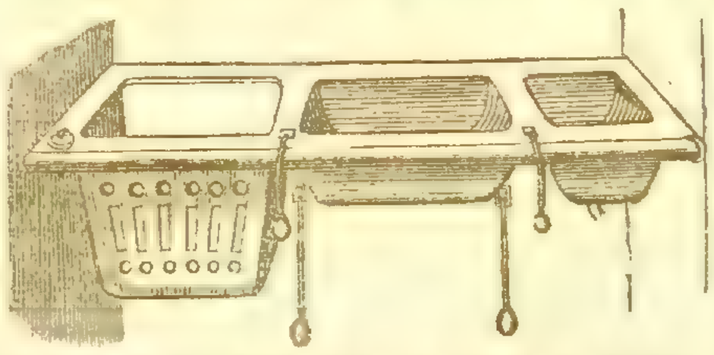
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3l. 3s.

Brass Syringes, 9s. to 18s.

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH (Hampstead Road, and King's Road, Chelsea), having erected 13 Horticultural Structures of various new designs in wood, iron, and his two patent principles, all who are about to erect Horticultural Buildings of any description would well repay themselves the trouble of calling at Granby Nursery, Mornington Place, Hampstead Road, and inspecting the different designs and principles that they are built on. 1s. 3d. per superficial foot charged for Horticultural Buildings complete, with glass of excellent quality and thickness, doors with brass locks, lines, pulleys, quadrants, &c. Price List sent on application, and references given to any extent, both for Building and Heating with Hot Water. Structures of all descriptions.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

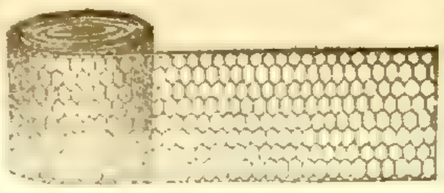
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½d. per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6d., 8d. and 11d. per yard.



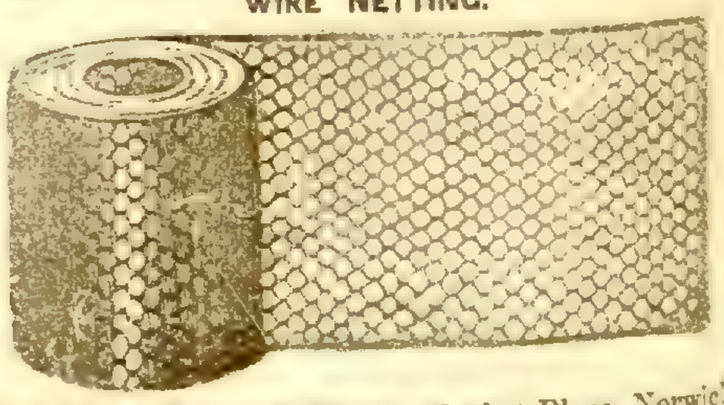
Galvanized, 24 inch wide, 3-inch mesh, 4d., 5½d., and 7½d. per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6s. 6d. to 12s. 6d. each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½d. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

			Galvanised.	Japanned iron.
2-inch mesh,	24 inches wide	... ...	5d. per yd.	4d. per yd.
2-inch	strong, do.	... ...	6 "	4½ "
2 inch	intermediate, do.	... ...	7 "	5½ "
2-inch	extra strong, do.	... ...	9½ "	7½ "
1⅝-inch	24 inches wide	... ...	5½ "	4½ "
1⅝-inch	strong, do.	... ...	6½ "	5½ "
1⅝-inch	intermediate, do.	... ...	7½ "	6 "
1⅝-inch	extra strong, do.	... ...	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½d. per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2d. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

SPLENDID NEW PLANT—
DELPHINIUM CARDINALE.

MESSRS. VEITCH AND SON having exhibited this beautiful novelty at the Regent's Park Exhibition on WEDNESDAY last (where it had the FIRST PRIZE for new and rare plants awarded it), and it having fully realised their expectation of its beauty, *particularly as regards the colour* of the flowers, they again beg to call public attention to it.

The Colour, *a clear and real* SCARLET (not a dingy red as was prognosticated by some parties), was thought by many persons to be improbable if not impossible in this genus; but the specimen exhibited on Wednesday last is an *an ample answer to all doubt and cavil.*

It being a perfectly hardy perennial it should certainly be in every garden.

Specimens in flower may be seen at either the Chelsea or Exeter Nurseries.

Strong Established Plants ... ... 10*s.* 6*d.*
Second size " 7 6

With one over on three to *the Trade.*

Special terms to the Trade for larger numbers on application.

Exotic Nurseries, Chelsea and Exeter.—July 19.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

CHOICE NEW ROSES OF 1856.

HENRY MAY has much pleasure in offering fine healthy Plants, in pots, of the following splendid new Roses.

HYBRID PERPETUALS.—Pelle Jardinière, Belle d'Orleans, Docteur Henon, Duc d'Elchingen, General Simpson, General Pelissier, Josephine Ledechaux, Louise Magnan, Madame Knorr, Marquise de Murat, Mathurin Regnier, Mrs. Standish, Madame Cambacères, President Menoux, Belle Lyonnaise, Madame Place, Ornament des Jardins, Pæonia, Pauline Lansezeur, Souvenir de la Reine d'Angleterre, Souvenir du Petit Caporal, Triomphe de l'Exposition, Triomphe d'Avranches, Prince Noir.

BOURBONS.—Marquis di Balbiana, Conde di Montejo, Impératrice Eugenie, Perpetual Moss, Alfred Dalmas, Moss, Captain Ingram, Bicolor, Madame E. Ory.

SCOTCH ROSE.—Souvenir de Henri Clay.

Purchaser's selection from the above, 3*s.* 6*d.* each.

NEW VERBENAS OF 1856.—Duke of Cambridge, Dr. McLean, Antagonist, La Stella, Blue Bonnet, Tranby, Eugenia, Mrs. Hosier Williams, Géant des Batailles, John Edwards, Impératrice Elizabeth, Standard Bearer, Victory, Imperialis, King of Sardinia, Crimson Perfection, Admiral Lyons, Sir Colin Campbell, Countess of Oxford, Dandy, Loveliness, Lady Camoys, Lady Kerrison, Moonlight, Mrs. Archer Clive, Nosegay, Pre-eminent, Viscountess Emlyn, Lord Raglan, Criterion, Cedo Nulli, General Simpson, King of Roses, Purple Defiance. Any of the above 4*d* each, and post free when more than 12 are taken.

Fine PETUNIAS, striped, &c.—Leon Lequay, Monsieur Loyre, Madame Eugène Lemichez, Prothe, Marquise de St. Innocent, Countess of Ellesmere, Hermione, picturata, Velasquez, Marquise de la Ferté, Amazon, Dryburgh Beauty. Any of the above 6*d.* each, and post free when the 12 are taken.

NEW ACHIMENES.—Dr. Hopf, Edmond Boissier, Sir T. Thomas, fimbriata violacea, Eduard Otto, Madam Haagnaur, Carl Wolforth, Warczewiczi. The above 1*s.* each free by post.

Cuphea eminens, 2*s.* 6*d.* each: Meyenia erecta, 10*s.* 6*d.* each: Locheria magnifica, 10*s.* 6*d.* each: Tydæa amabilis, 10*s.* 6*d.* each; Hydrangea hortensis pleno, 2*s.* 6*d.* each; Tropeolum elegans, 2*s.* 6*d.* each; Petunia imperial, double white, 4*s.* per dozen, 25*s.* per 100. All the above are fine strong healthy plants, and all the above can be forwarded through the post with the exception of the Roses.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. PER POST PREPAID.

	s.	d.
CINERARIA of the first quality ... ... per packet	2	6
CALCEOLARIA, from the handsomest spotted and blotched varieties ... ... "	2	6
MIMULUS, ditto ditto ditto ... "	2	6
GLOXINIA, ditto 30 varieties ... ... "	2	6
FUCHSIA, ditto 50 new ditto ... ... "	2	6
PANSY, saved from 100 of the best vars., by name "	2	6
POLYANTHUS, do. 50 ditto ditto "	2	6
VERBENA, do. 50 ditto ditto "	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do. "	2	6
DAISY do. 50 of the new Belgian do. ditto. "	1	6
ANTIRRHINUM, do. 20 best named varieties .. "	1	0
ANEMONE, from the most showy and brilliant kinds "	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

YOUELL & CO., Royal Nursery, Great Yarmouth, Norfolk.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	" Red Globe do.
Improved Green Round do.	" Long Red and Orange Globe Mangel
" Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42*s.*
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties ...	"	9
Gynerium argenteum (Pampas Grass) ...	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

SEEDS FOR PRESENT SOWING.

JOHN CATTELL respectfully informs his numerous customers and the public generally that he is now prepared to send out SEEDS of his superior CALCEOLARIAS, CINERARIAS, &c., at the prices annexed, post free.

The superior quality of the Calceolarias raised from the seed supplied by J. C. having been acknowledged by many of the Trade, also Gardeners and Amateurs, J. C. can with confidence offer the seed of this season.

Per packet.—	s.	d.
Anemone, fine mixed, single poppy	0	6
" fine scarlet poppy	0	6
Antirrhinum, superior, mixed	0	6
Calceolaria, from the two superior varieties sent out by J. C. last year, carefully hybridised	2	6
Cineraria, from finest collections	1	6
Gloxinia, extra fine	1	0
Heartsease, from fine show varieties	1	0
" from new French, spotted and striped ...	1	0
Hollyhock, from fine show varieties	1	6
Mimulus, extra fine	0	6
Schizanthus retusus	0	6
Sweet William, very superior	1	0

Nurseries, Westerham, Kent.

PLANTS OF CABBAGE, SAVOY, KALE, BROCCOLI, CAULIFLOWER AND CELERY.

JOHN CATTELL begs respectfully to inform the public that he has a plentiful supply of Plants of his superior true sorts of the above, which he will forward to order on receipt of postage stamps or Post-office order made payable here at the following prices, package included:—All the sorts of Early Cabbage, Savoy, and Kale, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000; all the sorts of autumn and spring Broccoli, 8*d.* per 100, 5*s.* 6*d.* per 1000; Early and Late Cauliflower and Red pickling Cabbage, 10*d.* per 100; Bedded Celery, 8*d.* per 100, 5*s.* 6*d.* per 1000; Drumhead or Cattle Cabbage, 4*s.* per 1000. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to London, and to the Edenbridge station of the South Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of CATTELL'S Early Dwarf Barnes and of his superior Dwarf Early Reliance Cabbage may be had as usual, in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

TO THE NURSERY AND SEED TRADE.

HORATIO BUNTING AND CO. beg to inform their Patrons and Friends that their collections of ROSES and ANNUALS (the latter extending over several acres) are now in bloom. An inspection is respectfully solicited. Open daily (Sundays excepted).

The Lexden Road Nursery and Seed Establishment is situated about 1½ mile from the Eastern Counties Railway Station, Colchester.

All correspondents are particularly requested to address—Lexden Road Nursery and Seed Establishment, Colchester.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

The Gardeners' Chronicle.

SATURDAY, JULY 19, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, July 22—Horticultural ..... 3 P.M.

DURING the months of June and July a handsome orange-coloured fly may be observed flying heavily about ROSE BUSHES. It is about the same size and general colour as the female of the Gooseberry saw-fly, but it is of a more robust figure, with shorter thicker limbs, and its colour is a much richer and brighter orange, with a black head and antennæ, the whole of the middle of the thorax and the thickened fore margin of the fore wings shining black; the legs also are orange coloured, with the tips of the tibiæ and joints of the tarsi ringed with black. The wings also are tinged with orange. It measures about two-fifths of an inch in length, and the expansion of the wings is about four-fifths of an inch. The male has a more slender body with the antennæ thickly covered in front with fine erect hairs, whilst those of the female are naked and rather clubbed at the tip. In its colours the male resembles the female. It belongs to the family of Sawflies, Tenthredinidæ, and to the genus Hylotoma, which differs from the genus containing the Gooseberry species in having only three joints to the antennæ, the third being very long and ciliated in the males or subclavate in the females. The species is named Hylotoma Rosæ, and is by no means rare. Cultivators of Roses will do well to keep a sharp look out for these sawflies and destroy every individual, which is a matter of no difficulty, because the insect is in the first place very conspicuous in its colours, and in the second place is by no means so active as some of the other species of Sawfly. If these precautions are not taken, the Rose bushes will very soon show the results of such inattention.

These results consist, in the first place, in the deposition of the eggs by the female, not upon midribs of the underside of the leaves, as in the case of the Gooseberry sawfly, but in the tender substance of the finest and most healthy of the young shoots. A small slit is made with the saw of the female in the longitudinal direction of the shoot, and an egg introduced, another similar slit is then made at the distance of about one-twelfth of an inch, and in this manner the shoot is sawed into to the extent of an inch or an inch and a half. Irritation immediately commences, the space adjoining each slit swells into a little convex spot, on opening which the egg is found beneath the surface below the slit. This process is moreover attended with the curling of the twig, which by degrees becomes black and shrivelled in its appearance, the extremities of the twig also dying off.

The eggs quickly hatch, and then the second result of inattention becomes manifest. The young grubs are very hungry and attack the young leaves with great vigour, as many as a dozen being sometimes found on a single leaf. These larvæ are full grown at the end of July and beginning of August: they so closely resemble the caterpillars of the Gooseberry bushes, that even an experienced eye would assert them to be identical, although producing perfect insects belonging to different genera. They are orange yellow on the back, the lower parts of the sides and two segments after the head pale greenish white. The head is yellow with a black spot on each side and a small black ring round the minute antennæ, the face with a triangular black spot divided down the centre by a pale line above the mouth. The segments of the body are covered with black dots, and it is in the arrangement of these dots that the chief difference exists between this insect and the Gooseberry caterpillar, each joint, in fact, has a large black spot close above the legs and another at the base of each leg; there is a transverse row of six small black dots in the anterior wrinkle of the segment followed by six larger spots, below which on each side is the sporacle or breathing pore, and another transverse row of eight spots across the hind part of each joint: besides the six legs attached in pairs

MESSRS. E. G. HENDERSON & SON'S
NEW CALCEOLARIAS

ARE the finest marked, best formed, and the richest in colour of any shown this season at the London Exhibitions. They obtained the Silver Medal at the Royal Botanic Society, Regent's Park, on Wednesday, June 18th, and are the most beautiful of any yet raised. Seed of these and the following Flowers, suitable for the present season's sowing, may now be had, also their unrivalled mixed Cineraria:—

No.	Per packet—	s.	d.
1.	Calceolaria, first quality	5	0
2.	" second ...	2	6
3.	Cineraria, choice mixed	2	6
4.	Primula sinensis fimbriata	2	6
5.	Hollyhock, 12 distinct colours	2	6
6.	Hollyhocks, mixed ..	1	0
7.	Geranium, Show ...	2	6
8.	Geranium, Fancy ...	2	6
9.	Antirrhinium majus, choice mixed	0	6
10.	Auricula Alpina, fine variety of colours ...	0	6
11.	Carnation, from stage flowers	2	6
11.	Dianthus Dunnetti superbus	0	6
13.	Ipomopsis elegans superba	0	6
14.	" " Beyrichi	0	6
15.	Mimulus variegatus ...	0	6
16.	Petunia, choice, equal to named flowers	1	6
17.	Pink, from named flowers	1	0
18.	Pansy, choice Show ...	1	0
19.	" Fancy	0	6
20.	Picottee, from stage flowers	2	6
12.	Stock (Brompton) in four colours	1	6
22.	" scarlet intermediate	0	6
23.	Schizanthus retusus ..	0	6
24.	" albus ...	0	6
25.	Auricula, choicest mixed, from named flowers ...	2	6

Directions for sowing the Calceolarias will be enclosed with each packet.

NOVELTIES.—PETUNIA "COUNTESS OF ELLESMERE." A bed of sixty plants of this striking variety can now be seen in flower at their Nursery; as also the NEW FUCHSIA "VENUS DE MEDICI." Messrs. E. G. H. & Son beg to mention that this Fuchsia is much improved when grown in a shady part of the house and not exposed to the power of the sun.

The Spring Catalogue may be had post free on application, or with Coloured Plate of Nine New Flowers, Price 1*s.*

Wellington Nursery, St. John's Wood, London.

to the first three segments following the head, there are five pairs of ventral and one pair of anal prolegs. These larvæ generally sit with their bodies much curved, so as to lay hold of the surface of the leaf, or twig, with the anal pair of feet, whilst they hold the anterior part of the body upon the edge of the leaf which they are in the act of devouring, placing the three legs on the opposite sides on the corresponding sides of the leaf, so as to stand edge-wise.

When full grown the larva descends to the ground, where it forms an oval cocoon of a strong silken texture among the leaves and bits of earth, and in which it remains until the following June, when the perfect insect appears just in time to allow its progeny to renew their attacks on the young leaves. *J. O. W.*

THEY are grand folks at WESTON-SUPER-MARE. In that happy spot money bears far less than its customary value. Guineas are thrown about like shillings, and hospitality is boundless; for all is joy and abundance. Even Horticultural Exhibitors are contented with but little, so few and simple are their wants.

It appears from papers on our table that in this Arcadia there is a Horticultural Society, well supported, and well attended. In the year 1855 it enjoyed an income of 220*l.* and held a show. Of that income, however, 15*l.* were specially contributed for cottagers' prizes and specially awarded; so that the otherwise available income was about 205*l.* That all this should have been contributed was what was to have been expected from the wealth of the place; that it should have been all spent and about 30*l.* more does honour to the genius of the Committee. The show would seem to have been held in a field; some tents were provided, a Yeomanry band and a Militia band were present, while a couple of county police protected the company from intrusion, and gave dignity to the scene. The Committee to whose hands the arrangements were entrusted being determined that nothing should be left undone on their part, applied themselves in earnest to their work. First of all they set apart a quarter of their money for the exhibitors, doubtless thinking that if half the expenses of a Chiswick Exhibition consist in prizes, a quarter must be enough for Weston-super-Mare, the gardening of which they regarded as only half as good. Then they had a Yeomanry band for which 21*l.* were paid, and a Militia band valued at only forty shillings, exclusive of the band-master who figures as costing forty shillings more. The Committee seem however to have felt that there was some thing shabby in the last arrangement, and so, by way of amends, they put both the bands together and spent 22*l.* in refreshing them. By this contrivance they brought the reward of the bands nearly up to that of the exhibitors, from which we learn the comparative importance in which the latter are held. If there were any doubt upon the matter it is removed by another charge of 9*l.* 11*s.* for refreshing "amateurs, nurserymen, gardeners, and censors," rather less than half what was felt to be due to the bands.

Such being the estimation in which the gardening part of the exhibition was held by the Committee, we rather wonder to find that they devoted 14*l.* to decorating the tents in which garden productions were placed, and 25*l.* more to decorating the streets through which folks passed to look at them. This trade of decoration must be in great prosperity at Weston-super-Mare; it looks indeed as if the meeting had been held for the purpose of admiring it, or else the county police, who must have been grand personages considering that each received forty shillings, the price of a whole militia band, for his distinguished services, or eight times as much as a London mounted inspector.

One other feature in the arrangements of the Committee seems worthy of especial notice, and that is the homage they paid to the fourth estate of the realm. Next after King, Lords, and Commons comes the Press, more than their equal, over each a viceroy. At Weston it is held in the deepest veneration, and the Committee testified their awe at approaching it by placing one-eighth of all they had at its disposal. Five-and-twenty pounds were laid before the shrine of the printer.

Strange to say some inhabitants of the place are nevertheless dissatisfied; call for accounts, consult together, talk of jobs, and other scandal about the Committee. Can any thing be more unjust? It is surely reasonable that gentlemen should be fed "as such." Bands want drink like other people, and as for the Militia there is no bottom to their throats. What is done in London is no rule for Weston-super-Mare; one Weston constable is worth a dozen London inspectors, and must be paid accordingly; printers at Weston are altogether of a superior class to those in London; it is all very well for the Horticultural Society to spend only 20*l.* upon their printing, but their tickets, and circulars, and placards are nothing to what is seen at Weston. It may as well be expected to give exhibitors their breakfasts at 2*s.* a-head, because that is GUNTER's charge; what have Weston purveyors in common with people keeping a shop in such a place as Berkley Square?

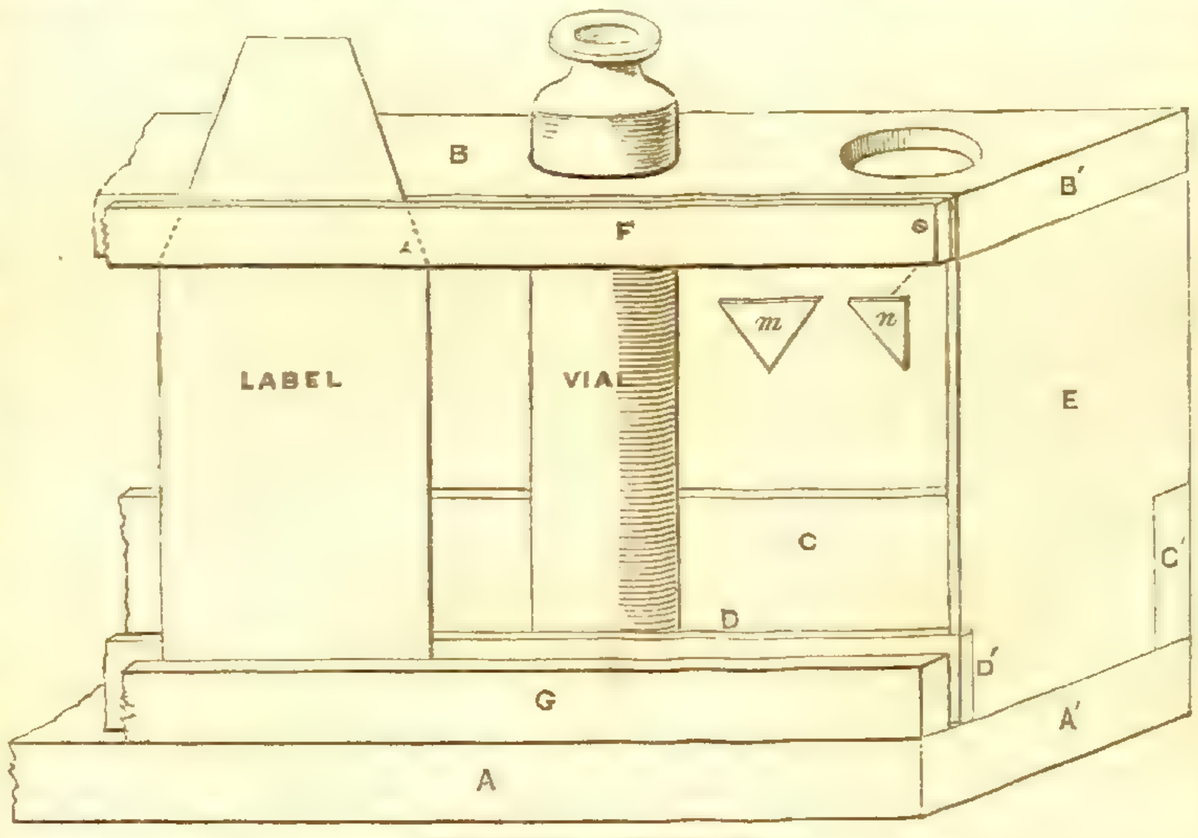
Certainly it is very disagreeable that contributors should murmur; the more ground, indeed, there is for murmuring the more disagreeable it is. But grumbling is a national peculiarity, and Somersetshire does not enjoy an immunity. For ourselves we greatly regret to hear such complaints, because they seem to indicate an impossibility of promoting Horticulture by exhibitions in country places. It is needless to say that doings like those at Weston must be fatal to associations of any kind; and unless some check can be put to them by the *gentlemen* of England provincial meetings will soon become a mere matter of history, as many have indeed become already. This is, however, a subject for adjustment on the spot. Those at a distance can only direct attention to what is wanted.

WE understand that there are still some packets of seed of Deodar, and two or three other kinds of Conifers, ready to be distributed to any Fellow of the Horticultural Society who may apply for them at 21, Regent Street. The meeting on Tuesday next, although not held for any specific purpose, will include very instructive specimens of the quality of most of the important varieties of garden Bean, and will show what their comparative value really is.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. II.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

THE plant stands are easily constructed (for 15*d.* each) of narrow strips of deal, cut from half-inch and quarter-inch planks (if required, they may be stained for 6*d.*, or painted for 7*d.* each). They are supported on two iron staples (2*d.* each) driven into the wall. Each holds 18 common draught vials (at 8*s.* 6*d.* per gross). As the vials are cast exactly 1 inch in diameter, the holes are bored with a centre-bit a little larger; 16 stands, therefore, hold 2 gross of vials, rather more than are likely to be wanted for such wild flowers as can be procured in blossom at one time. The labels are made up of card-board cut to a pattern, and slipped between two narrow slits contrived in front of the stands. The annexed cut represents one end of a plant-stand, and will satisfy any village carpenter as to the mode of construction. A is $\frac{3}{5}$ inch broader than B, to allow of the label-slit being $\frac{1}{10}$ inch wide, between G and D. To produce the upper slit, a thin slice (*m*) of wood for the middle, and another (*n*) for each end, are introduced between F and B. These slices are trimmed to the same angle as the labels, which allows of these standing accurately before the vials in the middle and ends. A small screw (as well as glue) is advisable for securing F at the places where the slices are interposed. The labels contain the name of the class, order, genus, and species. Those which may not happen to be wanted at the same time with the rest, should be methodically arranged for ready reference. This can be done by inscribing at the back and top the three figures which belong to the order, genus, and species in whatever author may be adopted for the names on the plant-list. Thus 62, 13, 7, indicates the position of the "*dark* Mullein" (*Verbascum nigrum*) in Hooker and Arnott's British Flora. If packed uprightly between partitions in a box the labels are easily sought for when wanted, or returned to their proper places. They should be varnished with a weak solution of shell-lac in alcohol or naphtha, according as the nose of the operator may be fastidious about smells or not. If a tumbler full of the varnish be prepared, the cards can first be dipped from the bottom up to the part where they are narrowed off. The undipped portion can then be inserted between the leaves of a book, to retain it in a horizontal position until sufficiently dry, which it will be in a few minutes. The upper end may then be similarly prepared. The junction line made by the successive dippings will be hidden behind the strip F. The labels should not be packed together for 24 hours after they have been varnished, else they will be apt to adhere. The varnish protects them from moisture, and admits of their being washed if they get dirty.



END OF PLANT STAND.

	Length—ft.	in.	Width—in.	Thickness—in.
A A′	3	0	$2\frac{4}{5}$	$\frac{1}{2}$
B B′	3	0	2	$\frac{1}{2}$
C C′	3	0	1	$\frac{1}{2}$
D D′	3	0	$\frac{3}{4}$	$\frac{1}{4}$
E	0	3	2	$\frac{1}{2}$
F	3	0	$\frac{1}{2}$	$\frac{1}{4}$
G	3	0	$\frac{1}{2}$	$\frac{1}{2}$

m, *n*, middle and end thin slices to insert between B and F.

During a botanical lesson, reference to the classification of the plants in the list and on the stands may be conveniently aided by a tabular view (in large letters) suspended on the wall above the plant stands. By inserting only the two or three first letters of the several words, an effort of memory is invited for recalling them. The *Italic* letters within the brackets would thus be omitted in this table:—

Cl(*ass*)	I. DI(*cotyledons*).						II. MON(*ocotyledons*).		III. A(*cotyledons*).
Di(*vision*)	1. An(*giospermous*)				2. Gym(*nospermous*).		1. Pe(*taloid*)	2. Gln(*macocous*)	1. Fl(*ical*)
Se(*ction*)	1. Th(*alamifloral*)	2. Ca(*lyciflora*l)	3. Co(*rolliflora*l)	4. In(*complete*)			1. Su(*perior*)	2. In(*ferior*)	2. Mu(*scal*)
	1	2	3	4	5	6	7	8	3. Fu(*ngal*) 4. Al(*gal*)

The orders of the flowering plants are here referred to one or other of eight columns or compartments, five of which belong to Dicotyledons and three to Monocotyledons.

BOTANICAL DIAGRAMS.—A slight experience, lately obtained with the first of a series of nine diagrams in course of preparation for the Government Department of Science and Art, has satisfied me that they will be found serviceable to both teachers and pupils. These diagrams are at present in the hands of the eminent botanical artist, Mr. W. Fitch. As he is anxious to prepare as many as possible of his own drawings from fresh specimens, the series will hardly be complete before the end of autumn. Each diagram illustrates one of the eight columns in the above tabular view of the classification, with the exception of the extensive group of Calycifloral Dicotyledons, which requires two. Common plants have been selected for the illustrations, as types of important orders. Their inflorescence and fruit are given of the natural size; and enlarged figures of the flower, fruit, seed, &c., are added, with dissections, the parts exposed being explained on the diagrams.

SCHOOL HERBARIUM.—It would afford amusement to the teacher, greatly aid diligent pupils, and secure an accurate record of the wild plants of a neighbourhood,

if a herbarium were prepared, and kept in a box fitted up as a cabinet in one corner of the school. A few memoranda may be made on the paper to which the specimens are glued, noticing the leading characteristics of genera or species. Thus, if the "*bulbous* Crowfoot" (*Ranunculus bulbosus*) were selected as a type of this genus, the following memorandum would be found instructive.

Pistils ∞ } A nectariferous pore, covered by a scale at the base inside each petal.
Stamens ∞ }
Petals 5 } Many of this genus acrid and poisonous.
Sepals 5 }

To "*pilewort* Crowfoot" (*Ranunculus Ficaria*) might be appended

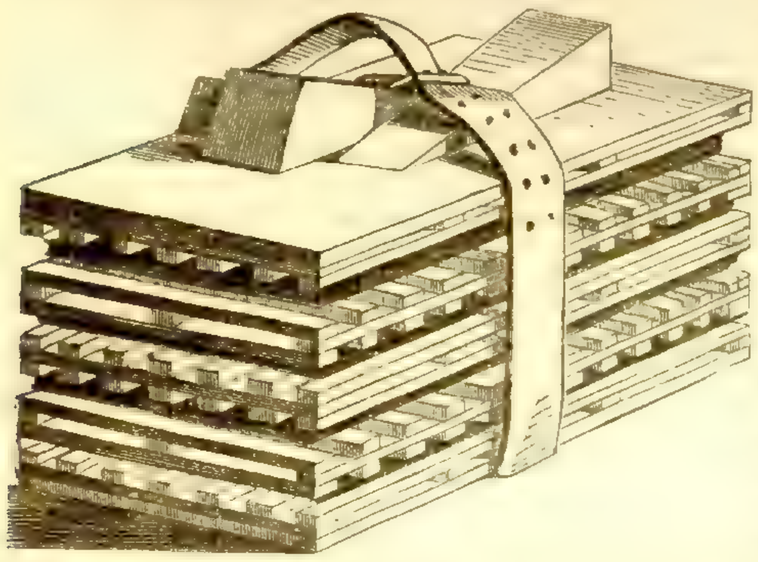
Petals about 9 } The parts of the perianth vary much.
Sepals about 3 } Root with numerous tuberous fibres.
Leaves heart-shaped (cordate), crenate.

To "*water* Crowfoot" (*Ranunculus aquatilis*).
No scale over the pore on the petal.
Floating leaves not much divided; but submersed leaves in numerous linear segments.

A few remarks on the preparation of such a local herbarium may not be unacceptable :—

1. Procure a good bundle of drying paper. Bentall's, manufactured for the purpose, is the best. But any, tolerably thick and bibulous, answers the purpose. For want of better, old newspapers will suffice. These drying papers will outlast a long life. There is much convenience in having them trimmed to a uniform size, say about 16 inches by 10.

2. The drying process is greatly assisted by introducing "ventilators" here and there between the papers. They may be made of the size recommended for these, and are constructed of strips of wood a quarter of an inch square. One set is laid in parallel lines a quarter of an inch asunder, and another set is placed in the same way upon and at right angles to the former. The outside strips may be half an inch wide, to serve as a sort of frame. The strips are tacked at their ends to these outside pieces, and the whole forms a kind of lattice-work through which is kept up a continued evaporation of whatever moisture has been imbibed by the drying paper. This simple plan obviates to a great degree the necessity of continually changing and drying the papers in the packets under pressure.*



3. Specimens selected for the herbarium should be as complete as possible. Small species can be dried entire. In larger plants we should select specimens with entire leaves, buds, flowers, and if possible with fruit. Mere scraps of plants are worthless. Where a specimen is too large for the paper, it may be divided into two or more pieces. The different pieces may be glued on one paper or more. The specimens selected in the fields should be brought home in a tin box, dignified by botanists by the name of Vasculum. They may thus be kept fresh even during the hottest weather for a considerable time.

4. A quart bottle containing a few ounces of corrosive sublimate may be filled up from time to time with one-half water and another half alcohol. This very poisonous solution may be laid on the dried specimens with a hair pencil, and greatly protects them from the attacks of insects. When a specimen is stiff enough, it may be dipped in the solution poured into a shallow dish. Specimens thus poisoned must be allowed to dry again between the drying paper, or their leaves will be apt to shrivel. A very slight pressure is now all that is required.

5. Stiff pale-coloured cartridge paper (about 19*s.* the ream) is, from its comparative cheapness, well adapted for an herbarium. It may be trimmed for general herbaria to 16½ by 10½ inches; but for a school herbarium of local British plants, 14 by 9½ inches will be quite large enough. The dried specimens should be attached to such paper by a moderately strong solution of common glue. A small copper glue-pot, kept hot over a night-light, will be found convenient for the purpose. Where a specimen is too flaccid to be held up with a pair of forceps whilst being glued on the under surface, it may be laid in a reversed position on the table, and after being touched here and there with the glue, the paper to which it is to be attached may be laid over it.

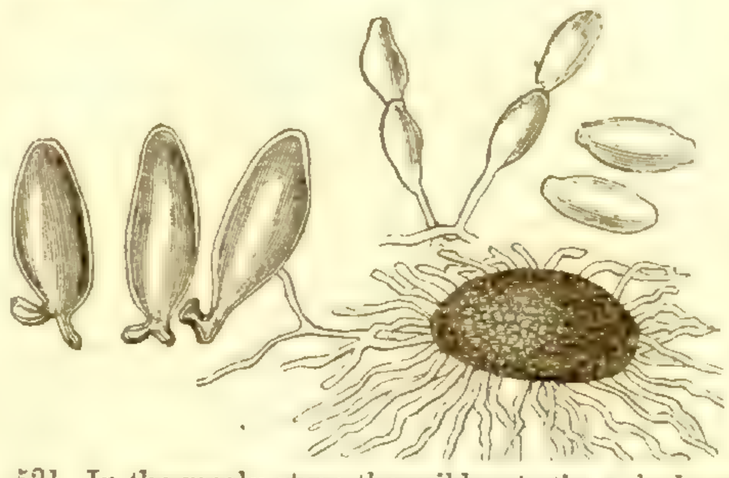
I have not thought it necessary to enter into details with respect to drying plants for the herbarium, but the above hints may be useful to some who already know the general process.

(*To be continued.*)

* The annexed cut represents a plan noticed in the *Gardeners' Chronicle*, vol. 1852, p. 164, for carrying ventilators on a journey. Those suggested above are somewhat simpler in construction, and would occupy one-third less space. *Editor.*

VEGETABLE PATHOLOGY.—No. CXXX.

520. PARASITÆ (*Erysiphe.** Mildew.) — The word mildew, which is derived from the German (*mehl thau* —meal dew), properly denotes those white and mealy fungi which infest the leaves of various plants in summer. They are familiar objects to every cultivator, but are widely diffused, and often so conspicuous that they cannot fail to attract the attention of all who are gifted with observant eyes. It is scarcely possible to walk in the woods in autumn without seeing many a young Maple bush as effectually powdered as if a quantity of flour had been dredged over it, and though this is perhaps the most conspicuous case, there are many other plants which suffer almost as grievously. The Hop, the Vine, the Rose, the Hawthorn, the Peach, the Strawberry, and various other plants, whether in the stove or in the open air, are often damaged by the little parasite, which may either advance no further than the white mealy stage as is the case with the Vine mildew, or may put on entirely new characters as the Hop and Pea mildew.



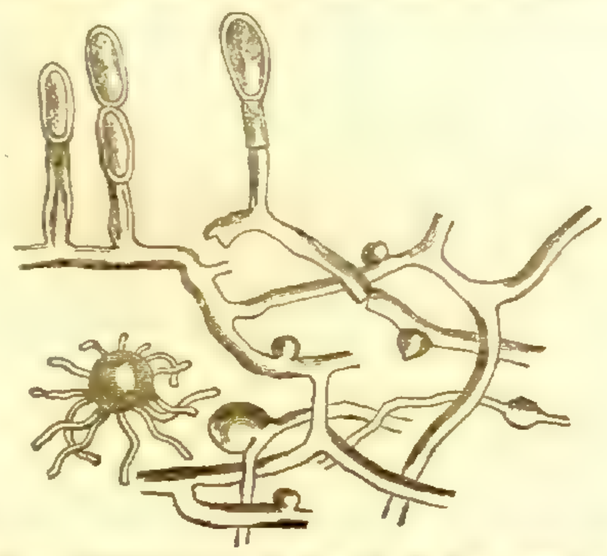
521. In the mealy stage the mildew to the naked eye, unassisted by magnifying powers, looks extremely like flour sparingly scattered. In some parts it is spread more thickly than others, and there are generally little white specks in which it is collected into little heaps. Examined under the microscope it is found to consist of necklace-like threads springing from a creeping mycelium which either clothes the surface, sending down little suckers which adhere firmly to the leaf and ultimately decompose its tissue, or else it crawls amongst the intercellular spaces, sending up the fertile threads from the stomata. This perhaps may depend in some measure upon the nature of the surface. Where there are few or no stomates on the upper surface of the leaves, as in the Vine, the habit may be different from what it is on the under side, which abounds in stomates leading to ample intercellular cavities. The effect in either case is the same. The mycelium in the one case as completely as in the other exhausts the leaf and diverts the nourishment which was intended for the plant.

522. The joints of the necklace-like threads or Oidium vary somewhat in form, being sometimes cylindrical, sometimes elliptic, and sometimes swollen like a tun, but there are no very striking differences. After a time the upper joints fall off and germinate, and thus propagate the plant with great rapidity. Nor is it very nice as to the object on which the spores fall. The Grape mildew, for instance, may be communicated to plants placed beneath the Vines, or on which the spores are thinly sprinkled.

523. Sometimes instead of the joint itself germinating, its endochrome, without any increase of size in the joint, becomes organised, and gives birth to multitudes of minute sporidia, each of which is capable of germination within the external cell, so that the original spore looks like a little hedgehog, in consequence of the germinating threads projecting from its surface in every direction.

524. Some of the joints, however, put on a totally different structure. They swell immensely without however losing entirely their original form, their outer coat becomes organised and cellular, in which case they are called pycnidia, and finally they give birth to myriads of little oblong bodies which are sometimes capable of germination. It is conjectured that they answer some end of impregnation. But this is very doubtful. They are entirely destitute of motion and external appendages, and are probably mere representatives of the spermatozoids of higher plants.

525. Some species never go beyond this stage, or have



not been observed to do so, as is the case with the Vine mildew; but more frequently little knots appear upon the creeping threads which gradually swell and form globose perithecia, surrounded by one or more whorls of threads which are often singularly beautiful in point of form and symmetry. These perithecia sometimes, like the pycnidia, contain nothing more than a mass of minute oblong bodies of doubtful character; but in other cases they increase in size, and contain a variable number of sacs or asci, each of which in its turn contains from two to eight sporidia, or some larger indefinite number. The asci are generally of large size, as are frequently the sporidia, which germinate readily.

526. We have then five different forms of fruit, three of which at least have the power of reproduction. We need not then be surprised at the immense rapidity with which they are developed, or the immense mischief which they cause by their parasitic habits. It is more especially in dry weather that they flourish, though when once established it is not a little adverse weather which effectually checks them. Indeed unless some remedy be applied at an early stage of growth they run their course, whether that is confined to the Oidioid stage as in the Grape mildew, or the parasite proceeds to form perithecia as in the Hop mildew, and the end is the more or less complete destruction of the plant on which they grow.

527. The cultivator, then, must carefully watch for the very first appearance of his enemy, and at once apply the prescribed remedies. A very slight degree of intelligence, without the aid of more than a common pocket lens, will suffice to show him what he has before him. Our illustrations represent—1. Erysiphe graminis in the Oidioid stage, with a perfect perithecium and the asci extracted from it. 2. The formation of the perithecia from the mycelium in Erysiphe Pisi. *M. J. B.*

* From ἐρυσίβη, a word more properly signifying rust.

Home Correspondence.

Vine Mildew.—Having the mildew very badly in my Grapes, could you advise me what to apply to them to eradicate the disease? I have kept my vinery perfectly dry, and have applied sulphur to the pipes and floors of the houses? I have also applied a composition, but neither has taken the desired effect. My Grapes are most of them late, so that few of them are colouring. The mildew has attacked the Vines in a small greenhouse when in bloom, and also the leaf; I have applied sulphur there as well as in the vinery. *S. W.* [It is perfectly useless, or something worse, to apply sulphur in the manner described in this letter. The only way to make it act is to syringe the leaves and berries, and, immediately, while they are wet, to dust the sulphur over the mildewed spots.]

Village Botany.—In your excellent article on this subject last week you allude to the difficulty of finding teachers to instil the science into the minds of peasant girls in village schools. It seems that this grave hindrance to the advancement of useful learning will always, in a great measure, exist till these subjects are introduced into the Government Training Schools, and form part of the instruction of pupil-teachers. These pupil-teachers are always selected from the cleverest girls in village schools, and those best qualified to impart their knowledge to others. Such a course as this must afford an opening as pupil-teachers to many girls who have no taste for other subjects, which according to the present arrangement are indispensable. I believe I can divine a reason for the outcry that is raised in certain quarters about "common things." It is that certain classes are beginning to be jealous of throwing open everything to the people, and think to stem the tide of popular education by erecting a barrier of their own. But no! It is too late. The eyes of the people are no longer closed to their best interests. Popular advancement will have its way, and it is more for the interest of those who wish their country well to run with the stream, than to excite animosity by vain efforts to stem it. *A Constant Subscriber.*

Royal Exchanges.—The two following anecdotes, I believe, have never been in print. Some few years ago a block of cottages apparently converted out of a barn and said to have a doubtful title were put up for sale by auction. The auctioneer threatened to knock them down for 100*l.*, when he observed a blacksmith of the name of Tiley nod his head; the price was advanced to guineas, and getting no other nod the property was knocked down to Tiley, who stoutly asserted he had not bid, but ultimately took them. A year or two afterwards her Majesty bought the ground on which her marine residence of Osborne in the Isle of Wight stands, and this block of cottages being within the ground proposed to form a park, Tiley was asked to sell it, and consented. No price was then named, but a few days after he was informed that it had been valued at 500*l.*, which sum he gladly received. He was very wrath with the auctioneer for making him take it, but has since quite forgiven him. The following is another royal exchange. Four cottages also stood within the lands proposed to be converted into a park for her Majesty's marine residence at Osborne. The owner was asked to sell them, and expressed a wish to have in exchange four cottages built elsewhere. His request being acceded to, he chose a plot of ground in Barton's village near Newport. The houses were duly erected, and in the centre of the front wall on a goodly sized stone he had cut in bold relief "The Royal Exchange." *H. W. Nunn, Broadlands, Isle of Wight.*

The Origin of Wheat is Ægilops.—The following passage occurs in a letter addressed by M. Gaillardot, a scientific traveller in Syria, to M. Puel, Vice-Secretary of the Botanical Society of Paris, and is printed in the Bulletin of that Society, vol. iii., p. 103. The letter is dated Saïda, Syria, 15th Sept., 1855:—"Amongst the

Grasses which are growing with the plants I have named to you, may be observed Andropogon halepensis, several species of Bromus, Hordeum bulbosum, and Ægilops triaristata, respecting which I must relate to you a fact which will probably surprise you as much as it has myself. Last year, when crossing the Anti-Libanus on my way to Damascus, I gathered some tufts of Ægilops above the village of Œta. Some peasants of this village, who had joined me that they might the more safely cross the Boghar-Jantha, and who had several times observed with surprise my gathering the plants I met with, began to laugh, and one of them, approaching me, said, 'Do you know what it is you have gathered? It is the mother of Wheat; if you do not believe it, open the spike and examine the grains, you will then be convinced.' Certainly the fellow knew no more of the labours of M. Esprit Fabre d'Agde than the latter knew of the popular traditions of the Syrian Arabs when he commenced his admirable investigations respecting the conversion of Ægilops into Triticum." *J. D. H.*

Giant Apple Tree.—There is at the present time a very remarkable Apple tree growing in an orchard in the occupation of Mr. Pitts, of Powderham, near Exeter. This tree has been known to produce seven hogsheads of cider in a single season. People now in the neighbourhood have assisted in gathering up 36 bushels of Apples from under it in a morning. Many of the inhabitants remember this tree about the beginning of the present century as a very fine one, with branches extending—they think—full 30 feet on every side and with an altitude in proportion. There is however no reliable data as to its dimensions 50 years ago, and time has considerably shorn it of its fair proportions; still its present appearance would argue that if it bore fruit in proportion to its size, its productive powers have not been over-rated. The trunk six feet from the ground gives a circumference of six feet four inches—another tree apparently of the same kind in the same orchard girts six feet two inches. Several others have arrived at nearly the same size. *Wm. Major.* [What is the sort?]

How to use Peashells.—It has been often said that the man is a benefactor to his country who makes two blades of Grass grow where one only grew before, and by parity of reasoning it ought to be a good work to show how wholesome and palatable food may be prepared from what is commonly thrown away. Soyer informed us some years since how good pottage might be made of very scanty materials, and his principles might be extended in many other directions. We have heard something lately of good soup made from the shoots of young Peas, but that can scarcely come under the head of economy. There is, however, an article which is almost universally discarded in this country as fit only for the pigs, which is really an excellent material for the formation of pottage. Those who have attended the French markets at a sufficiently early hour will have probably lamented over the misery of the people who carry off at a low price the Pea-shells for pottage, but they might reserve their sympathy, and would do so if they had partaken of such soup as at a very trifling cost may be prepared from the article. The following directions may be altered according to circumstances. They will, however, as they are produce a very excellent dish. Take three quarts of water in which meat has been boiled the previous day, and place it on the fire with a small teaspoonful of pepper and three larger of salt (if the broth has been made with fresh meat), taking care, however, that neither ingredient is predominant. Add the shells of half a peck of Peas, and a bundle of herbs, including a good quantity of Chives or sweet Leeks, and if possible a sprig or two of Tarragon—a small quantity only of the latter will be requisite. When the Pea-shells are sufficiently boiled pour the whole through a colander, and when the liquor is strained off, pound the Pea-shells and herbs in a mortar, returning them to the colander and rubbing through what will pass easily. Add now a small cup full of Peas, two Lettuces shred rather small, the more stalky the better, provided they are properly blanched, and a couple of sprigs of Mint, and you will have a soup which would not disgrace any table, especially if a little fried bread is added, and an ounce of white sugar. If a thick soup is preferred a little flour and butter or other thickening must be used. It is not necessary to have anything stronger than common broth as the foundation. No one who has partaken of this soup properly prepared will doubt so far of the wisdom of the people who habitually make the most of what Providence has placed before them. An attempt was made some time since in the Finchley schools at teaching matters which might be practically and economically useful in after life, and the manuals of industry which were published have the merit at least of being extremely amusing if they are not perfectly adapted to the end in view. It is encouraging to know that such matters are not altogether despised by the persons for whose benefit they are intended. Books on the subject are eagerly perused, and it is a fact that in a book hawking society with the proceedings of which the writer of these remarks is conversant, the book which has the greatest sale after Bibles and Prayer Books is a cheap Treatise on Cookery. A really good book on the subject, written by a person of sound sense and actually acquainted with the means and appliances of the labourer at ordinary wages and with a cottage allotment, would command a very extensive sale. Such a book should comprise what is commonly called Sick Cookery as well as that of Health, and should give a few hints as to what should be in the allotment to realise the "indications" of the writer. Above all it should give in a plain and simple manner the principles of the common culinary processes, without an attention to which the best materials will be thrown away. There is not one English cook out of ten who knows when to boil, and when to simmer, and without such knowledge the best meat which was ever produced will be hard and unpalatable. This is but one example out of twenty of the absolute necessity of such knowledge to form a tolerable plain cook. *M. J. B.*

Temple Gardens.—A gentleman writing in the *Times* from the Temple, complains of various nuisances which he is obliged to endure in his chambers, and doubts whether these gardens will be what I have represented them till certain works are removed. No one can say but that the smell from large gas works must be injurious to health and vegetation. The same writer refers to some fine old Hawthorns, as a proof of the injurious effects of the gas works. I beg to say that this unfortunate lot of trees has been visited by a locust, or what is commonly called caterpillar. They are committing sad ravages all over the garden; and I understand that the country is, in different parts, in the same condition. This, therefore, can have nothing whatever to do with the smoke nuisance. In this opinion I dare say you will concur. *Samuel Broome, Temple Gardens, July* 17.

Spiral Growth.—The specimen you have illustrated under this head at p. 452, and of which you have mislaid the particulars, was contributed by me. It was a piece of the common Spearmint which had found its way to market and thence into the hands of a friend of mine, from whom I obtained it; I am quite ignorant of the circumstances of its growth. It appeared to have been (in its early stages) encircled very closely by some Bindweed or other; both had had a desperate struggle for the mastery, the one growing outwards and upwards, the other pressing inwards like the death coil of a "boa constrictor" tightening its grasp every day, the other putting forth great vital power to overcome the same and thus forced into the unusual form which the specimen had assumed; the leaves also as will be perceived, had been forced into the alternative of developing themselves just where they could find an outlet between the coils of the encircling plant. *N. Burgess, Hackney.*

Country Shows.—I, one of the many, can corroborate the assertions of your correspondent, "Shacklewell," whose startling revelations of practices at Local shows are sufficient to disgust all who cherish the least principle of honour and honesty. I have ample evidence to show that they are more frequent at Cheltenham than in any other known locality. Being a competitor, I have had ocular demonstration of the system. Suburban growers, not satisfied with initiating themselves into the graces of the committee, and procuring a class expressly to suit their convenience, further violate the rules by purchasing, borrowing, and hiring, such plants as will obtain such and such prizes, so as to ensure a good return and profit: this must ultimately destroy the Society, whose prosperity is even now declining. Great Britain has no town more eligible for good shows, or where more liberal support would be afforded, than Cheltenham; but its reputation is so tarnished by the management to which it has been, and still is subjected, that it has become a by-word among those who would otherwise contribute largely towards its support. *J. R. T. Hucclecote, Gloucestershire.* [We have been obliged to curtail considerably this communication.]

Societies.

British Pomological, *July* 17, Mr. Turner of Slough in the chair. This meeting was specially convened for the purpose of testing the value of some of the newer kinds of Strawberries. First on the list was Carolina superba from Mr. Kitley of Bath. This is a most excellent variety with a flavour resembling that of the British Queen, or rather perhaps that of the old Pine which was stated to be one of its parents. It is an abundant bearer, has a rich bright colour, and as regards size we may mention that some of the fruit measured five inches in circumference. Its perfect hardiness, and whether it will force or not are the only points about it which have not yet been satisfactorily proved. Sir Harry from Mr. Underhill was next brought under notice; but as the flavour of the fruit was spoiled by its having been packed in Moss, it was recommended that it should be again brought forward on the 4th of August, when the Society next meets. Admiral Dundas was exhibited by Mr. Snow; it is large and showy, but too acid to be agreeable. It was suggested that it might, however, be a good sort for preserving. Some of the berries measured 5¾ inches in circumference. The same exhibitor also showed what was called Downton Improved, and another seedling, both of which were recommended to be reproduced in August. Unripe fruit of evidently a very late Strawberry came from Messrs. Stewart & Nelson, of Liscard, in Cheshire. Empress Eugenie from Mr. Knivett, of Isleworth, was shown. It is a very large kind, some of the finest fruit of it measuring 6¼ inches round. Its flesh is bright red and tender, and in flavour superior to that of most large fruited kinds. Mr. Snow again showed his new Black Grape with a Muscat flavour. It was pronounced by all present to be a first-class sort, and it was stated that it ripens satisfactorily, in the same house with the Black Hamburgh. It was named Snow's Muscat Hamburgh. A new French Grape came from Mr. Rivers. It had the flavour of the Sweetwater with a slight tinge of muskiness, and looked as if it would make a good sort for out-of-door culture.

Entomological, *June* 2.—W. W. Saunders, Esq., F.R.S., President, in the chair. The President announced that the Council had received the resignation of Mr. Douglas as one of the secretaries, and expressed the regret of the Society at the loss of so excellent an officer as Mr. Douglas had proved himself to be during seven years' service. He further announced that the Council proposed Mr. Janson to fill his place, the election to take place at the next meeting of the Society. Mr. F. Bond exhibited a remarkable monstrosity occurring in Biston hirtarius, the body and wings of which were female; but the antennæ were semipectinated. Mr. S. Stevens exhibited specimens of Petasia nubeculosa, Notodonta carmelita, and N. Dictæoides recently captured, together with larvæ since hatched from eggs deposited by the females; also a selection of beautiful Coleoptera and Lepidoptera received since the last meeting from the Amazons, captured by Mr. Bates. Mr. Douglas exhibited the case of a new species of Coleophora found upon Genista anglica, also Cryptocephalus Coryli, Lebia crux minor, and other rare beetles recently captured. Mr. Stevens exhibited drawings of the larva and pupa of the singular Lepidopterous insect, Agdistes Bennetii, found upon Statice Limonium on the Essex coast. Captain Cox communicated an account of the discovery of a chrysalis of the Lime Hawk moth under the bark of a Plane tree, inclosed within a cocoon formed of silk intermixed with particles of wood. Mr. Armitage exhibited various interesting Coleoptera recently captured in the South of France. Mr. Saunders read a notice of the transformations of various Lepidopterous insects observed at Natal by Mr. Plant. Mr. Westwood read a memoir on the Wing Veins of Insects, and a paper by Mr. White, containing descriptions of some new Homoptera from Borneo and the adjacent islands, was read. The annual excursion of the Society was fixed for the 21st June at Reigate.

Notices of Books.

Fruit Culture. Under this name Messrs. Groombridge have commenced the issue of shilling pamphlets upon the cultivation of fruits. The author is to be Mr. George McEwen, lately gardener at Arundel Castle, and one of our most intelligent cultivators. He takes the Strawberry for a commencement, and, trite as the subject is, has known how to give it practical interest. The way in which a successful man achieves success is always indeed a subject of legitimate curiosity. What Mr. McEwen's general views are will be gathered from his preface, and especially from the following extract:—

"I cannot but think that horticulture is as yet in its infancy, and seeing that the opinion of Bacon, that 'gardening is the purest of earthly pursuits,' is being endorsed by a growing host, who are entering with mind and capital on the patronising of the art, I am desirous to aid in giving a proper tone and direction to these efforts, to increase the taste, and so to enlarge the boundaries of human happiness, even in 'common things.'

"It will be distinctly understood, that whilst I intend to deal with practical details, rather than draw inferences, or trace causes, I have no sympathy with the idea expressed by some, that enlightened theory and sound practice are at variance; on the contrary, I am persuaded that, just in proportion as we advance in scientific inquiry, and penetrate into the mysteries of nature, in a right spirit, the more satisfactory become our daily toils; and that the closet and the field will yet unite in full harmony in giving utterance to certain sounds, telling of fixed principles, unvarying laws, and of the inexhaustible stores of wealth and nutriment in the atmosphere, on the earth, and under the earth, existing for, and waiting to be unlocked, and applied, and fashioned, by the minds and hands of inquiring and industrious men, for the grand purpose of enhancing the joys of all that live."

Three woodcuts, one of which is coloured, will render the number attractive to those who prefer exercising their eyes rather than their understanding.

Memorials of his Time; by Henry Cockburn. 8vo. Black.

For once reviewers are of the same mind. The delightful volume before us has been received with favour by men of all shades of opinion and all varieties of taste. It is pre-eminently the book of the season. Of a work that has been so largely quoted in all manner of reviews, journals, and newspapers, it would be superfluous to say more in this place were it not that the horticultural tastes of Lord Cockburn have been overlooked. It is evident that he was a lover of gardening; nor could it have been otherwise with a man with so highly cultivated a mind, and such eminently social habits. Even in his childhood, as he tells us, he loved "to stand and admire the blue and yellow buds of Crocuses rising through the clean earth, in the first days of spring in the garden of old Dr. Monro." And when writing down these gentle reminiscences of former days he remembered with pleasure the gardens where he passed his days.

"For many years almost all my Saturdays, Sundays, and holidays, were passed at Niddrie. I sighed over every holiday as lost that was not. Part of the house is very old, but it never had any architectural or much

historical, interest. But the garden! the garden! unseen and unseeing, it was a world of its own. That unwalled flat space, of only four or five acres, contained absolutely everything that a garden could supply for 'man's delightful use;' Peaches and Oaks, gravel walks, and a wilderness 'grotesque and wild,' a burn and a bowling green, shade and sun, covert and lawn, vegetables and glorious holly hedges—everything delightful either to the young or the old. Eden was not more varied. And Eden is well worthy of its reputation, if it was the scene of greater happiness. After a long and unbroken course of domestic security and pleasure, death began, about 1815, to extinguish, and circumstances to scatter, the gay and amiable family of which I was virtually a member; and I have since seldom revisited the generally silent walls. But the days of Niddrie are among the last I can forget.

"My father was a friend of the Sir William Dick of Prestonfield, who flourished when I was a boy; a great sportsman, handsome, good natured, and (which goes a great way with me) a first-rate skater. We were the only boys (and how we were envied from the hill-side!) who were always at liberty to play in his grounds, and to use his nice boat. So I knew the place thoroughly. The reeds were then regularly cut over, by means of short scythes with very long handles, close to the ground; and this made Duddingston Loch nearly twice its present size. All between the loch and the house was a sort of Dutch garden, admirably kept. Besides the invariable bowling-green, which formed the open-air drawing-room of all our old houses, it had several long smooth lanes of turf, anciently called bowling alleys, parterres and lawn interspersed, fountains, carved stone seats, dials, statues, and trimmed evergreen hedges. How we used to make the statues spout! There was a leaden Bacchus in particular, of whose various ejections it was impossible to tire. A very curious place."

What a striking sketch of an old Scotch garden!

The Lords of Session have numbered other lovers of gardening in their illustrious ranks, but not one more thoroughly its votary than Lord Cockburn. The language he uses in describing the establishment of the Horticultural Society of Edinburgh is a complete reflection of his mind:—

"The Horticultural Society was chiefly the work of Patrick Neill, a printer; a useful citizen, a most intelligent florist, author of an excellent Horticultural Tour in Flanders, of the article Gardening in the Encyclopædia Britannica, and of various other kindred works. The exotics in his little acre-garden at Canonmills put many a grander establishment to the blush. He was also an archæologist, which made him one of the few defenders of our architectural relics. This Horticultural Society was one of the first buds of that extraordinary and delightful burst of floral taste which has since poured such botanical magnificence over our great places, and such varied and attainable beauty round our cottages. It is not in our public establishments, or in our great private collections, that its chief triumph is to be looked for; but in the moderate place, the villa, and especially in the poor man's garden; in the prevalence of little flower societies; its interest as a subject of common conversation; and the cheap, but beautiful and learned practical works that are to be found in the houses of the humblest of the people. I cannot doubt its proving a great civiliser. In innocence, purity, and simplicity, the florist—not the scientific botanist, but the florist of his own little borders, is the only rival of the angler. I wish we had a good Flowery Walton."

At that time he had settled at Bonaly, in the parish of Colinton, close by the northern base of the Pentlands,

"I began," he says, "by an annual lease of a few square yards and a scarcely habitable farm-house. But, realising the profanations of Auburn, I have destroyed a village, and erected a tower, and reached the dignity of a 20-acred laird. Everything except the two burns, the few old trees, and the mountains are my own work, and to a great extent the work of my own hands. Human nature is incapable of enjoying more happiness than has been my lot here; where the glories of the prospects, and the luxury of the wild retirement, have been all enhanced by the progress of my improvements, of my children, and of myself. I have been too happy, and often tremble in the anticipation that the cloud must come at last. Warburton says that there was not a bush in his garden on which he had not hung a speculation. There is not a recess in the valleys of the Pentlands, nor an eminence on their summits, that is not familiar to my solitude."

We need not say that the charm of this book is its amiable and gentle, but most entertaining and valuable gossip about all manner of men and things that a long career brought the author acquainted with. Two horticultural bits are not unworthy of standing by the side of the legal, historical, municipal, and political scraps in which the work abounds. The first is a note upon the Royal Botanical Garden:—

"It was in 1823, I think, that the last fragment of our Royal Botanical Garden was removed from its situation on the west side of Leith Walk, and that the transplantation of the whole to its present site at Inverleith was completed. No garden could be made to walk a mile with less injury to its health. Scarcely a single plant or tree was lost, and after recovering from their first sickness, they looked fresher and prouder than ever. Dr. Graham, the Professor, was a respectable botanist, and a good teacher, and in his first lieutenant, Macnab, he had a most admirable practical man. That chair is one of the best botanical prizes in Britain. Few things of the kind are more enviable than a taste for that science, with such a garden, such funds, and such a class. It was nearly about the same time that 'The Horticultural Society,' which had been set up in 1809, opened its kindred and adjoining 'Experimental Garden.' Conducted, as it was at first, by such men as Ellis and Neill it could scarcely fail, and has always done as well as low funds allow. But Flora and poverty make but a bad match."

The second relates to markets of Edinburgh, and to the vegetable market in particular:—

"The opening in 1826 of an establishment called the New Town Markets at Stockbridge recalled some curious, though not distant, recollections of Edinburgh. It was only about 15 or 20 years before that our only fish market was in the Fish Market Close, a steep, narrow, stinking ravine. The fish were generally thrown out on the street at the head of the close, whence they were dragged down by dirty boys or dirtier women; and then sold unwashed—for there was not a drop of water in the place—from old, rickety, scaly, wooden tables, exposed to all the rain, dust, and filth; an abomination the recollection of which greatly impaired the pleasantness of the fish at a later hour of the day. Yet when the market was removed to its present situation below the North Bridge, there was an outcry as if hereditary nastiness, like other abuses, had been made, by time, necessary for comfort. I doubt if there was a single fish shop in Edinburgh so early as the year 1822. Our vegetables had to pass through as bad a process. They were entirely in the hands of a college of old gin-drinking women who congregated with stools and tables round the Tron Church. A few of the aristocracy of these ladies—the burgo-mistresses, who had established a superior business—the heads of old booths—marked their dignity by an awning of dirty canvas or tattered carpet; and every table had its tallow candle and paper lantern at night. There was no water here either, except what flowed down the gutter, which, however, was plentifully used. Fruit had a place on the table, but kitchen vegetables lay bruised on the ground. I doubt if there was a fruit shop in Edinburgh in 1815."

We wish we had, to borrow some of our author's words, a good gardening Cockburn.

Garden Memoranda.

MR. FRANCIS'S NURSERY, HERTFORD.—Those who are desirous of seeing Roses in perfection on Manetti stocks should lose no time in paying a visit to this nursery, where many thousands are grown in this way, and most of the finer kinds being now beautifully in blossom, an opportunity is afforded not only of judging how far this stock answers the purposes for which it has been recommended; but also of selecting from the many varieties cultivated here what sorts are wanted for planting next autumn. That Roses will not only grow and thrive, but also bloom profusely on the Manetti stock there is here ample proof both in-doors and out. Buds take well on it, but it should be remarked that the stocks are properly prepared to receive them, and that they are inserted so near the ground that it is expected they will ultimately root into it, and so in time render the tops in some degree independent of the stock. Immense quantities of Manetti are grown here for sale. We saw what was stated to be 200,000 in one quarter, which with Roses, fruit trees, shrubs, and evergreens, comprised the principal stock of the Nursery. To grow Roses well on the gravelly soil which constitutes the staple of this nursery Mr. Francis finds that he must transplant often, manure heavily, and fallow here and there, as ground becomes vacant, with Potatoes. The manure employed is laid up in a large heap to rot, and is freely mixed with road scrapings; the "house pail" is also poured over it every morning. In this way a compost is obtained which is lasting in its effects, and therefore the ground is always kept in "good heart," a condition which Roses above all things require, and in which lies the whole secret of successful Rose culture. Standards here as elsewhere are worked on the common Briar, but this season Mr. Francis is trying how far the Manetti may or may not be suitable for half standards. The Celine is also employed here as a stock; but, as has just been stated, dwarfs are all, or very nearly so, on the Manetti, on which most varieties seem to thrive, with the exception of La Reine, with which it does not appear to agree. Mr. Francis, however, says he does not despair of yet making even this grow on it.

A plantation of Géant des Batailles stated to contain 2000 plants, is at present all in full flower here, and presents, as may be imagined, a striking appearance. Jules Margottin, another charming Rose, large and full, is however quite as useful as the Géant, though not so brilliant. These two varieties being profuse bloomers and lasting long in beauty, would make excellent bedders, and should, we think, be largely employed for that purpose. Of good old sorts, such as Robin Hood, Baronne Prevost, Duchess of Sutherland, and flowers of that class, we need not speak; but of General Jacqueminot and Souvenir de Leveson Gower, too much can hardly be said. Both are large Roses possessed of glowing colours, very fragrant, and in all respects highly attractive. No good collection can be considered complete without them. Mrs. Rivers and Madam Vidot are two beautiful pale blush varieties, which require only to be seen to become universal favourites. Gloire de Dijon is also a fine Rose with a Noisette habit, large and double. Madam Domage is likewise well worth attention. Colonel Rougemont, in the way of Baronne Prevost, is a large showy variety, which cannot fail to find admirers. For fine form, few beat General Castellane. Leon des Combats is a good dark, velvety, crimson; Comte Bobrinski is a Rose of good colour: and Auguste Guinoiseau, is a beautiful large full red variety, good in shape, and altogether a desirable sort. The above are a few first-rate kinds; but among them Géant des Batailles, Jules Margottin, and General Jacqueminot are the varieties to which we would more particularly direct attention. The first, which is not only the earliest but the latest Rose of the season is now pretty well known, the second is not half so much cultivated as it should be, and to a delightful perfume, the third adds a brilliancy of colour which is seldom met with, and which will always recommend it. This and a very dark seedling named Victor Truillard, from Messrs. Standish and Noble, were the two Roses that appeared to be most admired at the last exhibition in Regent's Park.

As regards the cultivation of Roses, Mr. Francis says they should always be planted, if possible, in a compost of stiff loam, rotten dung, night-soil, and leaf mould. Where they have grown strong after three or four years' standing, they may be taken up, the ground well renewed, the roots closely pruned, as well as their shoots very much thinned, and then planted in the same situation—they will then produce as fine blooms as when first transplanted from the Nursery. This should always be done in the early part of November. Roses bloom well the first year after being transplanted, if carefully attended to. They should, when transplanted, have a strong stake attached to each standard to prevent the wind from moving them, and then well mulched round during winter. The ensuing spring and summer they should be plentifully supplied with liquid manure. For pruning, with the exception of Teas and Chinas, December and January are considered the best months; many sorts, such as Hybrid Chinas, Hybrid Bourbons, and some of the strongest growing Noisettes and Bourbons, require very little pruning; about every third year they should be pruned-in close, so as to make them produce new wood, and to prevent the plants getting old and ugly in appearance. The Persian Yellow requires merely to have just the top of the shoots taken off, it being found to flower only on the last year's wood. Another excellent plan for standard Hybrid Chinas, many of the Pillar Roses and Standard Climbers, is to prune them in quite close just after they have done flowering; they will then produce new shoots the same summer, and flower abundantly the next season. February and March are considered the best months for pruning Teas, Chinas, and Bourbons.

For protecting Roses, when planted out on their own roots, such as Teas, Chinas and Bourbons, dry Moss, Fern, or small Spruce Fir boughs, may be stuck round the plants, which will very much protect them from sharp frosts; also the crown of the roots should be covered with rotten manure early in December, which should be dug in the following spring.

Miscellaneous.

Influence of Soil on the Distribution of Plants.—In a memoir presented to the Imperial Academy of Sciences of Vienna, March 6, 1856, M. Stur, treating of the influence of the soil on the distribution of plants, gave the results of the observations made by himself in the Alpine region of Austria. The soil on which plants live is either rocky or disintegrated. The "rocky" or solid soil is either of calcareous or argillaceous and siliceous nature. The "disintegrated" or detrital soil is composed of fragments from the "rocky," agglutinated by mineral substances of tertiary origin; it contains therefore lime, silica, and alumina, in more or less equal portions. The rocky soil prevails in the higher elevations of the Alpine region; the detrital soil fills up the bottoms of the valleys and depressions. The first corresponds to the continents surrounding the tertiary sea, or to the islands emerging from it; the second indicates the extension of this sea itself, as formed by drift deposited on its bottom. The nature of the roots is an essential condition for the thriving of any plant on either of these soils. Species with annual fleshy, or with compound fasciculated roots, or with underground stems, can only live on detrital soil; those with woody roots with numerous ramifications are best fitted for the rocky soil. A comparison of the flora of the higher calcareous region with the mica-schist flora proves the plants of either of them, although equal in size, to differ so materially from each other in shape, that it must be admitted that the geological constitution of the soil has an influence on the vegetation covering its surface. Alpine plants carried down by the streams into the plain increase in size and grow more luxuriantly in their new station. Forest trees shrink more and more in size and shape as they reach greater elevations. Both these facts bear witness to the influence of climatal conditions on the development of vegetable life. Cereals occur exclusively on the detrital soils of the lower region. They follow the Alpine tertiary gravel in its variations of altitude; but are only able to produce a rich harvest where they grow on a detrital soil composed of lime, alumina, and silica mixed in nearly equal proportions. This same soil is likewise the most congenial to the non-cultivated plants of the lower region. If this soil be mixed with heterogeneous substances (as salts, on the sea-shore, on the banks of saline lakes, on plains with saline efflorescence, or above saliferous rocks), new genera and species, not occurring under ordinary circumstances,

make their appearance. The Pine (Pinus abies, L.) accommodates itself to every soil, and therefore ranges from the lower to the upper region, marking the limits between, and participating in both. Its vertical oscillations correspond to those of the cereals, and to the distribution of detrital soil accessible to atmospheric heat. New vegetable forms, together with new rocks, make their appearance in the higher rocky regions. Such are certain species peculiar to the calcareous mica-schist, as Artemisia nana, Sand., Lomatogonium carinthiacum, Rehb., Gentiana prostrata, Haenke, Herniaria alpina, L., Braya alpina, Hoppe, &c. Wherever a great variety of rocks near to, or interstratified with, each other appear within a comparatively narrow space, the plants pass from one of these soils to another, undergoing at the same time frequent alterations of form; species nearly allied to each other are peculiar to such spots, producing hybrid and intermediate forms. The distribution of genera and species in the upper region answers exactly to the geological constitution of the soil. Calcareous and mica-schistose Alps have every one their peculiar flora. Near Windisch-Matzey and Heiligenblut the mica-schist and the calcareous mica-schist floras appear side by side. At the "Tauern" of Radstadt, where nearly all Alpine rocks are heaped together, the floras of the calciferous rocks, of the mica-schist and of the calcareous mica-schist appear simultaneously. M. Stur appended to his memoir a catalogue of about 1000 species of plants collected by him within the Alpine region, and arranged according to their localities and to the geological constitution of their native soil. *Communicated by Count Marschall to Annals of Natural History.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Orange trees and other plants known to be liable to the attacks of red spider must be frequently examined for this pest, and well washed with the engine immediately it is perceived, taking care not to bruise or injure the foliage, and placing the affected plants so that every leaf may be reached. Also keep a sharp look out for other insects, and spare no trouble to keep these under. Go over the twiners frequently and keep the shoots nicely regulated, cutting out where necessary, to prevent their being too thick, and shortening any that hang down so low as to interfere with other things. Attend promptly to the removal of decaying specimens before they become unsightly; and also see to having plenty coming forward with which to supply their places. Cold pits. The stock here will probably require rearrangement about this time, as some of the specimens, having completed their season's growth, will be better in a shady situation out of doors, and their removal will allow of giving more space to those left. Young growing stock and late flowering plants that have yet to make their season's growth should receive the most careful attention, as if well treated they will make rapid and vigorous growth at this season, and nothing in the way of good soil, careful potting, or proper accommodation will compensate for the want of this. Indeed, there is no possibility of securing free growth from hard-wooded plants in bright hot weather, except by moderate shading and maintaining a moist atmosphere by sprinkling the plants overhead morning and evening, and air must be given liberally to keep the wood strong, avoiding as much as possible exposure to drying winds. Any of the specimens which require more pot room should be shifted as soon as possible, taking care to have the ball moist, and keeping them rather closer and the atmosphere moister than usual for a fortnight after potting. Get the young shoots tied before they begin to fall on the ground and injure each other. Cut down Pelargoniums as soon as the wood is properly hardened, and keep them very sparingly supplied with water at the root until they start into growth, but sprinkle them overhead frequently, which will cause them to break more strongly. Get cuttings of favourite sorts rooted, and attend to those that were struck early in the season. Continue to pot Cinerarias as strong suckers can be obtained, placing them in a close part of a cold frame until they get established in their pots; but avoid placing them in heat, where they speedily become a prey to insects, mildew, and never do any good. Let adequate precautions be used to protect the tender greenhouse plants, placed temporarily out of doors, from the effects of frequently recurring storms of wind and rain; screens may be advantageously employed; all stakes and supports should be proved, and the pots closely examined, lest the plants suffer from defective drainage or the presence of worms. The young reserve stock for filling blanks in the stove should be sedulously encouraged by progressive potting, and a warm equable temperature. Gesnera zebrina, Plumbago rosea, and Torenia asiatica, will amply repay attention bestowed on their culture; decayed Beech leaves, with a mixture of sharp sand, form a compost peculiarly suitable to the first-named plant. The stock of pot Roses should be looked over, useless wood and decayed blossoms removed, and the plants shifted; fibrous loam, night-soil, and burnt earth may be used effectually. Camellias which have matured their flower-buds may receive additional assistance either by soil or manure-water, as circumstances allow.

FORCING DEPARTMENT.

PINERIES.—Air should now be given liberally to young stock in dung pits, in order to secure strong stocky growth. The plants should not, however, be exposed to drying winds by giving back and front air liberally on drying days, for this would not serve the end in view; but a moderate circulation should be secured at night, giving no more during the day than may be necessary to prevent the temperature getting too high. This, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to strong stocky growth than exposing the plants too freely to hot drying winds, which would probably check and throw them into fruit prematurely. Use every means to afford plants swelling their fruit a thoroughly moist atmosphere, sprinkling passages, &c., frequently, and shutting up early on the afternoons of bright days, giving a gentle dewing with the syringe, and saturating the atmosphere by sprinkling every available surface; also give these plenty of clear strong manure water at the root until the fruit begins to change colour, when the soil should be kept rather dry, which will improve the flavour. VINERIES.—Attend to former directions as to thinning the fruit in houses intended to furnish a late supply, and see that the bunches are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where the fruit is swelling, be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use good strong manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp, which, despite every care in ventilating, is apt to settle on the berries and spoil the bloom. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire heat will probably be necessary occasionally in order to keep the atmosphere dry. PEACHES.—Expose trees freely to the air from which the fruit has been gathered, keeping the ventilators open day and night, and spare no attention which may be necessary to preserve the foliage in a clean healthy state until the young wood is well matured. Where the fruit is ripening, shading the house on the forenoons of bright days will prolong the supply, and will not injure the flavour as much as would be the case with most other fruits. FIGS.—Trees swelling their second crop must be well attended to with water, giving sufficient to moisten the whole of the border thoroughly, if this has been allowed to become dry while the first crop was ripening. Use the syringe freely on the foliage, shutting up early in the afternoon, and sprinkle paths, &c., frequently, in order to keep the atmosphere moist.

FLOWER GARDEN AND SHRUBBERIES.

After the plants have fairly covered the ground the great point will be to preserve that symmetrical appearance over the whole of the beds, which in a geometrical flower garden is absolutely necessary to render the effect pleasing. To do this will involve frequent attention and considerable labour for some time to come, as many of the plants will be inclined to grow much too strongly for others, and will also be continually encroaching upon the edgings and extending beyond their proper limits. Plants of a weakly habit of growth, as, for instance, the more slender growing varieties of Verbena, may be assisted in dry weather by an occasional watering with manure water; but for those that grow too strongly there is no help except thinning out and pegging down the shoots. In shortening back shoots that incline to extend beyond the edges of the beds, avoid the least appearance of formality by thinning out the under shoots and keeping all parts of the bed of equal depth or thickness, or allowing the plants, as it were, to die away at the edges according to the arrangement. Climbers on walls must be attended to as they advance in growth, keeping the young shoots neatly laid in, &c. The climbing Roses will also require to be gone over occasionally, for the purpose of cutting off decayed blooms and any weakly old wood should be cut out at the same time, to allow of laying in the strong young shoots which will bloom much finer next season than the old wood would do. Phloxes and other herbaceous plants must be neatly tied up; but avoid huddling the shoots together, as is sometimes done even about well kept places to save time. Any of the perpetual blooming Roses that have flowered very freely should be assisted by a liberal watering with manure water from the stable or farm-yard tank; indeed, too much of this can hardly be given to any of the autumn-flowering varieties.

HARDY FRUIT AND KITCHEN GARDEN.

Select a bit of open light ground and prepare it for winter Spinach by giving it a heavy dressing of manure, and trenching or digging it deeply. This crop should be sown at once, and in drills in beds, allowing wide alleys, so as to be able to gather the crop without trampling the ground, also provide ground for winter Onion, &c. Finish planting out Broccoli and winter greens as speedily as ground can be obtained, for, unless the autumn should prove very favourable, those planted after this time will not attain much size. Get Endive planted out on very rich soil, also Lettuce, to maintain the succession, and attend to other small salad herbs. See to securing a good supply of Parsley for winter use, which is always largely in demand. A good bed should be planted in some convenient place for protecting it during severe weather in winter. The soil should be of a light texture, deep, and thoroughly drained as a preventive against damp in winter. New plantations of Strawberries should be made at once, selecting the strongest young plants and keeping them well supplied with water until they get established. Attend to Celery and all recently-planted crops with water if the weather happens to be warm and dry.

COTTAGERS' GARDEN.

Savoys, Green Kale, and Cabbage plants may yet be planted with every chance of success. A good breadth of Turnips might be sown, and a few rows of winter Spinach would prove remunerative. We recommend a few ridges of Celery most particularly; its value as an ingredient in soup alone should recommend it.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 17, 1856, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 11	9	29.936	29.848	73	56	64.5	60	58	S.W.	.02
Satur. 12	10	29.874	29.790	70	42	56.0	62	58	S.W.	.01
Sunday 13	11	29.898	29.871	73	52	62.5	62	58½	S.W.	.00
Mon. 14	12	29.993	29.92[illegible]	73	52	62.5	62	58½	S.	.00
Tues. 15	13	29.991	28.834	77	52	64.5	63	58½	S.W.	.11
Wed. 16	14	29.992	29.757	68	43	55.5	62	59	S.W.	.08
Thurs. 17	○	30.104	30.080	71	40	55.5	62	59	W.	.00
Average		29.965	29.868	72.1	48.1	60.1	61.8	58.5		.2[illegible]

July 11—Cloudy and fine; slight drizzle; fine at night.
— 12—Overcast; cloudy and fine; slight rain.
— 13—Very fine; overcast; cloudy.
— 14—Very fine; overcast; fine.
— 15—Uniformly overcast; cloudy and fine; sultry; lightning and rain at night.
— 16—Rain; heavy clouds and showers; very fine; cold at night.
— 17—Very fine throughout; overcast and cold at night.

Mean temperature of the week 3½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending July 26, 1856.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	71.6	51.0	61.3	16	0.47 in	1	1	2	—	1	15	9	1
Mon. 21	72.8	50.9	61.8	12	0.54	2	—	1	1	3	11	9	3
Tues. 22	72.9	52.2	62.6	15	1.37	3	3	2	1	4	10	6	1
Wed. 23	73.7	53.1	63.4	14	0.70	1	3	5	1	3	7	5	5
Thurs 24	72.6	52.2	62.4	10	1.16	—	7	4	2	3	9	3	2
Friday 25	73.9	51.4	62.6	9	0.36	2	6	3	—	2	8	8	1
Satur. 26	72.8	52.2	62.5	16	1.22	2	1	4	2	4	9	6	2

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 22d, 1843, and 24th, 1838—therm. 40 deg.

Notices to Correspondents.

ANTIRRHINUMS: *Anon.* 1 is the best. The rest are not equal to sorts already in cultivation.‡

DISEASED APPLE TREE: *G, Clonmel.* Not received.

GLADIOLUS: *F L.* Brilliant and striking in colour, and apparently an improvement on insignis.‡

GREENHOUSE: *W M Ely.* There are no other objections to iron in the construction of such a building than that iron houses cost more than wooden, and require to be more freely ventilated.

HEATING: *Boiler.* It matters little what boiler you use provided it is thoroughly well set. The hollow conical patterns with the fire inside are very good ones; so is a waggon boiler; so is Weeks's, one of which in our own use behaves well.

MOSS ON FRUIT TREES: *K.* Having cleared the trees from Moss apply the following composition, viz., a peck of fresh cow-dung, half a peck of quicklime, half a pound of flower of sulphur, some wood-ashes and a quarter of a pound of lamp-black. Mix the whole together with as much urine and soap-suds in a boiling state as will form the ingredients into a thick paint, and lay it on with a brush.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*W W.* It looks like Basella rubra.—*Shem.* Campanula latifolia, and Geranium phæum.—*Anthon.* Eriophorum angustifolium, a Cyperaceous plant. The cotton has no value; it might be used but would not pay.—*X.* Galax aphylla.—*R S.* Jaborosa integrifolia, a plant nearly related to the Mandrake; and one of the numerous forms of Veronica maritima, which has been made the mother of as many bad species as Aconitum Napellus.

PHYSALIS EDULIS: *Delta.* We never heard of the least difficulty in growing this. Raise it in heat like a tender annual; get it forward under glass, and as soon as frosts are quite gone turn it out at the foot of a south or west wall.

QUERCUS SESSILIFLORA.—Will a *Welsh Subscriber* enable us to send him a letter?

RED WALKS: *Saligna* would be obliged by being told of the best material she can have for making a fancy red walk, and one if possible that will bind.

ROSES: *A New Subscriber.* Manure Rose trees after Christmas with good rotten cow-dung, or the remains of an old Cucumber bed. If you can add burnt clay and half charred wood so much the better.

SEWAGE: *Suburban.* Such an accumulation of fluid is not likely to be too strong. If it becomes offensive throw among it some powdered Boghead Charcoal, which you can obtain for ten or fifteen shillings a ton at the works.——*A Civil Engineer* must allow us to have an opinion as well as himself. He thinks no harm can come from confining London sewage in subterranean chambers, and there concentrating the gaseous emanations. We presume to think exactly the contrary.

SOLANUM JASMINOIDES: *J O E.* No uncommon Solanum should be allowed to bear fruit where children can pick it. The flowers do no harm.

TREFOIL: *C B.* As reported, the case looks very suspicious, and the verdict wrong. It is, however, impossible to say, in the absence of more evidence. Why did not the Clover seed grow? Did not the neighbours' Clover seed come up? What was the nature of that peculiar drought which killed Clover, and left Trefoil unharmed? Was the Clover seed "tried" before sowing? Was it Clover seed at all? All these questions require an exact answer.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY (Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

BINN'S PATENT MANURE AND TOP-DRESSING for the Destruction of Fly, Wire Worm, and Slug, and promoting rapid Vegetation.—The Proprietors of this valuable Manure and Top-dressing are now manufacturing it at their Wharfs, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. The Top-dressing is particularly adapted at the present time for destroying the Fly on the Hop without injury to the vine, it being perfectly free from taste or smell, no sulphur being used in its preparation.

Orders addressed HALL & Co., at the Wharfs, the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

THE PARIS AGRICULTURAL EXPOSITION.—In reference to this International Competition the attention of Agriculturists is drawn to the following circular:—

SPECIAL CIRCULAR.

Edinburgh, June 21, 1856.

We have the pleasure to announce, that, for the third time, we have the gratification of being the medium of securing for this country the First Prize for Agricultural Seeds, Grain, &c., at a General Competition of Nations.

The Jury of Produce of the Great Agricultural Show at Paris, just concluded, have awarded to us the SPECIAL GRAND GOLD MEDAL OF HONOUR* (the highest reward in their power to bestow), for our Collection, illustrative of the Agricultural Resources of the United Kingdom.

We consider this a matter of congratulation, not so much to ourselves as to the general body of Agriculturists in this country, to whom we were indebted for the greater number of samples in the Collection. Beyond the exercise of our judgment in the growth and origin of the stocks, and in the selection of the samples raised therefrom, together with the necessary expenditure of time and money, we take no credit.

The competition has been with countries possessed of equally good, if not better soils, and, certainly of more favourable climates; our success, therefore, must be considered as mainly attributable to the superior skill of the Farmers of this kingdom, as shewn, not only in the intrinsic value of the articles exhibited, but also in the care bestowed in cleaning and preparing them for the market.

We cannot, however, affect to overlook the rapid progress now making in Agriculture by our Continental neighbours, more especially the French. The systematic method by which they test all our theories, the indefatigable energy they exercise in developing the resources of their soil, the scientific aid they unceasingly invoke in elucidating the conflicting theories and practices of other nations—all tend to show that, to maintain the position this country now holds, still more energetic exertions must be made by all engaged in the cultivation of the soil and the improvement of the several varieties of our cultivated plants. With special reference to this (which is strictly within our province as Seedsmen) we wish to impress upon our friends the importance of preserving the *purity* of all our recognised species and varieties of Agricultural Plants: as upon these and the introduction of foreign kinds, we must rely for the means of increasing the number of *new* sorts of superior quality and productiveness. PETER LAWSON & SON.

* (*Extract from the Decree "Concours Agricole Universel de* 1856.")

"IIIe DIV.—PRODUITS AGRICOLES ETRANGERS ET FRANCAIS.

"ART. 19.—Des médailles d'or, d'argent et de bronze seront décernées aux exposants des produits agricoles dont le mérite aura été constaté.

"ART. 20.—De GRANDES MEDAILLES D'OR pourront être décernées, par le jury, à tout exposant d'un produit jugé très-remarquable, ou pour un ensemble complet de produits exceptionnels."

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

CHESHIRE AGRICULTURAL SOCIETY.

Patron and President for the year, Field-Marshal the Viscount COMBERMERE, G.C.B., &c.

ANNUAL MEETING at Nantwich, September 4, 1856. The following Premiums, the competition for which is not restricted to Members of the Society, will be given for the best Essays on the following subjects:—10*l.* (given by E. D. Broughton, Esq.) for the best Essay on the most advantageous way of Wintering a Dairy Stock.—5*l.*, or Plate of that value, or the Society's Silver Medal, for the best Essay on the most profitable way of Managing a Clay Farm of 200 statute acres, consistently with good husbandry and the due maintenance of the Freehold.—5*l.*, or Plate of that value, or the Society's Silver Medal, for the best Essay on the Construction of a Farmhouse, Outbuildings, and all other requisites necessary for a Dairy Farm of 200 statute acres, such Essay or Paper to be accompanied by a Plan or Model, together with a Specification and Estimate of the probable cost of erecting the same.

The Essays are to be sent to the Secretary on or before the 14th August next, and the writer of each Essay is requested to distinguish the same by a motto, and to enclose a sealed envelope therewith, containing a duplicate of the motto, and his name and address. These envelopes will not be opened until the Prizes are awarded by the Chairman of the Committee.

RICHARD T. BECKETT, Secretary.

Oulton Farm, Tarporley, July 19.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of LIVE STOCK (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 7th; and on the day previous there will be a public Trial of Implements. Premiums amounting to 694*l.* are offered, many of which are open to general competition. Entries close on the 26th instant.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool. July 19.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
PROFESSORS, &C.
Chemistry—J. A. C. Voelcker, Ph. D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics, ——
Manager of Farm—G. Austin.

The next Session will begin August 11th. The annual fees for boarders vary from 55 to 80 guineas, according to age and other circumstances; the fee for out students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. Prospectuses and information can be had on application to the Principal.

The Agricultural Gazette.
SATURDAY, JULY 19, 1856.

THE Chelmsford meeting of the Agricultural Society has been signalised by the enormous prices which the breeding stock exhibited have reached. This annual gathering is now rapidly acquiring for its live stock show what its implement department has long possessed, the character of a great annual market. In the one, too, as in the other, the real aware of merit is that given by the voice of those self-constituted judges—purchasing spectators. And it is no surprising thing that here as heretofore elsewhere the official awards and those of the public generally have not in every instance been the same. The importance of the official judgment is however not diminished in the least by the circumstance, that in the long run it is liable occasionally to be overruled. The need of accuracy here rests upon the fact that a large per centage of purchasers are necessarily guided by the opinions of others rather than by any confidence in their own; and the responsibility of the Society's judges is great just in proportion to the influence it thus possesses in effecting the distribution of particular kinds of stock.

There is thus need of anxious care that the office of judge should be conferred on men of experience in the particular class of subjects submitted for their decision; and no where is this more important than in the case where breeds of live stock have to be adjudicated on. Distinctions of a merely local character and prejudices founded on them are so liable to warp the judgment that the difficulty of obtaining the services as judges, of well qualified and experienced men who are not themselves exhibitors, is very great. For instance, South Downs, Hampshire, Wilts, and Shropshire Downs may all compete as short-woolled sheep, and a partiality for local characteristics will often incapacitate a man who may be otherwise well fitted for the office of juror on the merits of the breed. Whether the causes here suggested may have been in operation at Chelmsford or not, certain it is that the awards in the class of South Downs have been canvassed with unusual severity. It is stated on one side that Mr. JONAS WEBB's sheep which has received the second prize is not the best of those he shows, and that "the best sheep in the yard" is thus passed over unnoticed by the judges; while, on the other side, Mr. OVERMAN's ram to which the first prize has been awarded, is defended in its first place on the ground not only of its own undoubted merit, but also because of a recent award in its favour by the judges at the late Norwich agricultural meeting. We do not pretend to determine the controversy, or to say on which side of it the truth of the matter lies. Its mere existence is sufficient to call the attention of the Society most anxiously to the subject of the appointment of its judges, whose awards must command the respect of exhibitors if the Society itself is to be of any service to the country. That it is at present of great service both by determining merit in the stock exhibited and by bringing together buyers and sellers of it, was plain to any visitor at Chelmsford during the past week. Australian, American, French, and English breeders were present as buyers in the yard, and in short-horns more especially their demand was most imperfectly met by the supply. Prices thus ruled exceedingly high. Mr. TOWNELEY's prize bull "Master Butterfly" was sold, through Mr. STRAFFORD, to J. G. WARE, Esq., of Camperdown, Geelong, Victoria, one of the finest cattle districts of Australia, for the enormous sum of 1260*l.* Mr. AMBLER's prize bull calf was sold for 200 guineas. Lord WALSINGHAM's prize Southdown ewes, which received the first and second prizes in their class, were sold for 20 guineas and 17 guineas a-piece respectively. Three of Mr. OVERMAN's sheep were let for the season for 50, 60, and 80 guineas respectively. Mr. H. SCOTT HAYWARD's prize white sow of small breed, with which he won the prize in its class at Paris, was sold for 35 guineas. These are prices indicating remarkable activity in the market for all kinds of well bred stock—prices sufficient to maintain all the energy and skill and therefore the reputation of our breeders.

As to the Implement department of the show it is sufficient to refer to the report in the following columns, where the success of the reaping machine, the progress towards, we hope, an ultimate success of the steam plough, the competition among ploughs, clodcrushers and cultivators, which are the principal features of the meeting, are reported in detail.

On the general relation of the Society to exhibitors in this department, we merely refer to the two main facts of the matter, that a portion only of the machines exhibited were subjected to trial and examination by the judges, and that the rest were shown at work under the superintendence of their respective manufacturers. Both of these are steps in the right direction, the one ensures a fuller investigation and therefore a more trustworthy official judgment of the implements exhibited: the other recognises the unquestionable truth, that the personal interest of exhibitors is after all the true incentive to efforts after improvement, and that free and unconstrained competition will lead most rapidly to the success of those who heartily engage in it.

APPEARANCE OF CROPS.

RHINS OF GALLOWAY.—On the generality of the soils of the district the white crops of all kinds promise to be bulky, and with favourable weather will be fully an average. Still the critical time for the Wheat is just at hand; the weather for the last few days has been exceedingly wet and stormy for the season, and has done a good deal of injury to the farthest advanced Wheat, the Potato crop, and the Beans. Turnips do not look well, and many complaints have been made about the fly. Mangel looks very sickly, the weather being much too wet and cold for it. *A. H. M'Lean, Stranraer.*

SOUTHAMPTON.—Wheat thin on the light lands, pretty good on heavier soils; very good in some instances. Barley a good crop. Oats pretty good. Beans good. Peas pretty good. Grass crops good. Root

crops various; in many instances injured by the fly. *W. C. Spooner, Eling, Southampton.*

CAVAN AND LONGFORD.—Wheat little but very promising—no mildew. Oats over average. Turnips only late but safe. Potatoes very luxuriant, abundant, and as yet no blight. In this poor and wild district there is very little else than Potatoes and Oats, with a very few Turnips. Scarcely any Clover or Vetches. The meadowing generally on low lands not fit for tillage and in boggy soils, these are rarely if ever manured. There are reports of some appearance of blight on the Potato leaves, but nothing on which I can rely; there is a great breadth of them, and as they were for the most part early planted, there is every prospect of a greater supply of them than we have had since the appearance of the disease. For many years past the Wheat in Ireland has suffered severely from mildew, so much so as almost to cause its rejection; I think we are pretty free from it this year. I have for some five or six years grown a small patch, a very small one, of Mummy Wheat, which has suffered so much from mildew as to produce scarcely a plump grain, all wretchedly shrivelled and the ears not more than one-fifth filled; this year in my little patch there is not a rusted leaf. It is however a first trial on this land. *J. M. Goodiff, Scrably, County Cavan.*

NORTHUMBERLAND—Wheat, Barley, and Oats on free dry lands in the valley of the Tyne are looking well, and if the weather be favourable for blooming will be a full average crop. On some early spots the ear is fully out, and with a few warm days would be so generally. On strong and wet lands the crops look very indifferent indeed. There will be no general harvest till the last week of August at soonest. Of Beans and Peas there are very few grown. Hay and seeds cut up well; there is none yet stacked, and the weather is very broken. Potatoes look strong and healthy. Turnips on dry lands where well got in are growing vigorously, and look like being a full crop. On wet lands the crop will be bad and a much smaller breadth will be sown than had the season been favourable. *Thomas P. Dod, Anick Grange, Hexham.*

WETHERBY, YORKSHIRE.—Wheat on our limestone is very vigorous but is thin of plant. The crop must be only very moderate. Barley is very good. Oats better than usual. Beans very full crop. Potatoes good. Turnips are extremely promising. Hay the heaviest crop known for years. The wet weather has done mischief to the heavy crops of grain, especially Barley. Half the hay crop of this district is at the present moment undergoing saturation for the fourth or fifth time. The alternate sunshine and shower of the last week has caused great expense to the hay grower; unless we have settled weather very soon will produce an immense injury to the crops of hay. *J. Hannam.*

EAST LOTHIAN.—Though the harvest must be late, there is every prospect of an abundant crop. Winter Wheat is now in ear, and the earliest fields are blooming; there is generally abundance of bulk, and the ears are both large and close, the exception is where the crop is after plain fallow, which lost plant in spring, but happily plain fallows are now all but superseded. Spring sown Wheat is remarkably luxuriant, and in point of earliness little behind what was sown in winter. Oats, Barley, and Beans are all excellent, and the danger is that they will be too bulky. Potatoes are not so promising in appearance as they were a fortnight ago; there has been too much rain for them on stiff soils, and some fields have been considerably thinned of plants by the stems or roots having become rotten from the surface of the earth downwards. Turnips have been much damaged by the fly, and are now late and in rather a precarious situation, still with a favourable autumn they may ultimately prove a good crop. Hay is generally in the rick, and a heavier crop than it has been for some years. *July* 15, *George Hope, Fenton Barns, Drem.*

HANTS.—The crops of Grass are pretty good, hay crop good, and mostly well harvested. Swedes and Turnips very much injured by the fly. Potatoes good—some disease. Wheat promised well in April, since which time it has grown worse; the present prospect is not good; thin on the ground; very uneven, and considerably blighted. Barley promised well; but has fallen off very much of late; it has put on a white hue, very much like fermentation ripeness; some say it was the frosts of last week, and the week before, how that may be I do not know; but from personal observation from Alnsford in Hants, to Dorchester, where I have travelled this last week, I can say that the crops generally are not good; and the Barley, especially, has put on a very suspicious look. There is no distinction—chalk, gravel, and loam, seem alike affected. The Turnips in Dorsetshire are good. *James Eames, Beck Farm, Lymington.*

GREAT MEETING OF THE AGRICULTURAL SOCIETY OF ENGLAND AT CHELMSFORD.

THE celebrated apophthegm, that England could not bear an annual revolution, is quite as applicable to our agricultural implements as to our political and social institutions. To the journalist, who has to chronicle these annual meetings, it would certainly be more agreeable if he could announce annually some innovation on the processes of ploughing, sowing, reaping, and threshing, which, though now nearly 6000 years old, are only beginning to attain perfection, while according to some authorities, they are only in their infancy. It would be well perhaps for the cause of agricultural progress, if we could do this. For the pockets of the farmers it is certainly better that we cannot. We require time to digest as well as to eat, and our implement makers supply us with such profusion of material that the farmer is in a fair way of suffering from repletion. He requires, moreover, time to wear out one set of implements before he is compelled to purchase another under the penalty of being pointed out as quite out of date, and altogether behind the requirements of the age.

There was as usual, on the previous Saturday and Monday, a private trial before the judges of the implements competing for the prizes; which, however, were offered to one class, that of tillage implements, only, and to the implement field this year was added a department for the exhibition of implements in motion, to enable farmers to form a judgment on their comparative merits, as well as for the benefit of the sight-seers. If we might venture to suggest further changes, it would be that the farmers in some district—a fresh district every year—should be induced to make trial on their farms of certain implements during a whole year, and that the results should be reported by a jury—constructed on the grand jury principle as to numbers and verdict by the majority—one half to consist of the most active practical farmers of the neighbourhood, and the other half of some of the leading members of the Society most accessible to the district. The report should also contain a detailed account of the reasons for their decision. A trial of this kind would come, we should think, under the rule of the Society, which provides for the indemnification of farmers for any loss which they may sustain from experiments undertaken at the suggestion and under the direction of the Society. We are sure there are many farmers who would allow the experiments to be conducted on their land without compensation, so that the chief expense would be for the professional assistance which it might be considered necessary to associate with them. Let us proceed, however, to record what actually took place at Chelmsford in the department of implements in motion. The order of proceeding was this: There had been, as we have said, the private trials before the judges during the preceding week, and they were not wholly concluded on Tuesday. The cause of steam culture is certainly making an advance, but the time must be long before it will be able to adapt itself to varying circumstances in the same manner as is done by the plough worked by horse power, and with such beautiful Suffolk horses as we saw in the trial-field on this occasion we were almost tempted to wish that the day may be far distant. Still steam ploughing is making a certain amount of progress.

The reaping machine has attained success, the result of progress already made. There were three reaping machines at work on Tuesday on a piece of Rye, near the show-yard, Bell's, Dray's, and M'Cormick's, either of which cut this standing-up crop well, with a somewhat longer stubble certainly than mowing or fagging, but much closer than reaping, and whether like Dray's with the tilt delivery they laid the corn in separate sheaf-heaps, or like the others in rows, there was much less scattering, and much less necessity for raking, than in the case of mowing Wheat. It may be well to remark here that the main difficulty hitherto has been to effect a good delivery of the cut corn. M'Cormick's appears to place the swath less evenly than Bell's, which has been improved by the substitution of elastic belts for a revolving web. The corn in this machine falls directly backwards, parallel with the course of the machine, and it is delivered parallelly with this direction also, only a certain 'way' being on it as it leaves the web, the ear end falling on the land from a greater height than the root end, falls farther from the machine, and so the swath lies somewhat across the line of motion, enabling the binders to collect it easily. These reapers have now made such progress to perfection that no large farm should be without one, while, for the smaller farmers, there ought to be gangs of labourers going about from farm to farm reaping with them by the acre, like the itinerant drill-men of some districts, and the itinerant steam threshing machines of the present day. With Dray's, even in its unimproved state when it made its first appearance in England a few years back, we have seen the Wheat and Oats of a whole farm cut with it; and except where it was laid, it made even then very excellent work. Why these reaping machines are not more generally adopted we must confess suprises us. Their value consists not so much in the lower price at which they cut the crop as in the command over it which they confer on the farmer and the loss from the shedding of the grain which they prevent. On the eastern and the western sides of England, under the same conditions of climate, two practices prevail as to the period of cutting Wheat. On the western side they cut it while the straw is still far from dead, and the grain comparatively soft. The skin of the grain thus treated is thinner, and the grain is preferred by the millers. On the eastern side, on the contrary, it is dead ripe before being cut; there is more corn than the population of the district can harvest. The district is therefore dependent on itinerant harvest men, of some of whom it would be well rid. The farmers are often short of hands and large quantities of grain are shed from over-ripeness. On this latter point there can be no mistake, for the broadshare is in the field as soon as the sheaves are out of it. All the shed corn, therefore, comes up to tell how much has been wasted, and it proclaims in the plainest language that the loss has been sufficient to seed the ground, and in many cases much more than sufficient. It is there that the reaping machines would come into play, and the true way to render them popular is to enlist the sympathies of the men on their side, by putting the machines in the form of an advantage to them by the abridgement of their toils and by the larger wages which they can obtain by means of them rather than as a saving of money to the farmer in the cost of harvesting. Norfolk, again, is a level county with large fields in which reaping machines could be used with the greatest advantage. We have heard it alleged there against their use, that they can mow it cheaper. If they can, the quantity of rakings are very great, and the dirt in the quantity of damaged grain obtained from the rakings enormous. We cannot help thinking therefore, that even there, where labour is comparatively low, the introduction of the reaping machine into general use would be an advantage.

But we return to the implements in motion in the yard. Of these the most important are the threshing machine. What a change has taken place in the process of threshing during 30 or 40 years. Then the flail was the rule, the threshing machine the exception, and it was chiefly used in Scotland and the border counties. Threshing machines were to be found in some of our best cultivated English counties worked by horses. Now the uncertain water power, and the still more uncertain windmill are abandoned for the steam-driven threshing machine, even in the districts where the two former were most in favour, and the sole questions now are between the fixed and the locomotive steam engine, and which threshing machine to select out of all the perplexing variety exhibited on Tuesday and Wednesday. In the open field there were seven locomotive engines exhibited by the following makers. We take them in the order in which we passed them:—Tuxford, Brown, & May, Whitmore, Burrel of Thetford, Turner, Roby, and Scott. In their separate stands steam threshing machines were exhibited at work by the following makers:—Clayton & Shuttleworth had a complete set of fixed implements for threshing and dressing the grain for market at one operation, also a combined portable threshing, straw shaking, winnowing, riddling, chaff separating, and Barley horning machine; they also exhibited a portable machine: Hornsby, locomotive, Sparkes & Son of Norwich, locomotive; Barret, Exall, & Andrew, a stationary engine; Clayton & Shuttleworth, a combined portable threshing straw shaking, winnowing, riddling, chaff separating and Barley horning machine; also a set of fixed machinery for threshing and dressing the grain for market at one operation. Ransome exhibited the locomotive which obtained the prize at Carlisle; Garret & Son, a locomotive, and also their fixed engine and other agricultural machinery, including corn mill chaff cutter and cake crusher; Holmes & Sons, a locomotive threshing machine; Dray, a locomotive. This then was the variety of threshing machines and other cognate implements, with which the science, skill, capital, and enterprise of our implement makers have provided for the farmers.

The requirements in a threshing machine are that it shall thresh clean; that it shall not injure the grain. The injury done to the grain by threshing with machinery was formerly the grand argument of the adherents of the flail. The third requisite is, that performing these operations well the machine shall work cheaply; that is, with as little consumption of coal as possible. With regard to breaking the straw, that was formerly considered an advantage rather than a defect, as it was the sooner decomposed in the dungheap. The old Scottish threshing mills reduced it almost to the state of very long chaff. Now, however, when feeding with various mixtures in which straw cut into chaff enters largely, the more unbroken the straw comes from the threshing machine the better is it suited to the chaff cutter. As regards clean threshing, the different implements appeared nearly on an equality. We could scarcely find a grain of corn in the straw delivered by any of them. As regards breaking of the corn, that appears to be the point to which the makers of these implements pay the least attention; we observed several which bruised it considerably; when pointed out, there was always some excuse offered for it in the necessity for the clearing of the machine. Let us here advert to the question, whether to a farmer about to purchase a threshing-machine these exhibitions alone would furnish data for a decision, or whether the more protracted trial of a year's duration on the farm would not better meet the requirements of the case. It is worthy of consideration whether the furtherance of such more effective and protracted trials of the comparative merits of the different implements, be they ploughs, threshing-machines, chaff-cutters, or anything else, would not be an object well worthy the attention of the Society. After the passage in which this suggestion was thrown out had been written, we were gratified to hear a report that, in the case of one description of implement, something like this course is likely to be adopted. It is said that the award of the prize for the best reaping-machine is to be deferred till the harvest, when the trial will take place on the farm of Mr. Fisher Hobbs.

We must not close this brief enumeration of the steam-driven machinery thus exhibited at work without noticing Clayton's combined clay-preparing and brick-making machine, for working either by steam or horse-power, which claims to produce from 20,000 to 30,000 bricks per day, according to size, combining the pugging of the clay and the production of a continuous stream of

bricks, delivered alternately from each end. We remember when, some thirty years back, the very mention of a project for making bricks and tiles by machinery was looked upon as in the highest degree visionary by those best qualified, as was supposed, as practical brickmakers to form an opinion; now, these machines have reached such a point of perfection as greatly to have reduced the cost of draining, and no longer to require the offer of the Society's prizes as a stimulus to invention.

MONDAY, *July* 14.—The implement trials commenced on Friday afternoon with the heavy land ploughs of Messrs. Ransome, Howard, Ball, Busby, Hensman, Warren, and Goss and Peene. In ploughing 8 inches deep in a very hard and gravelly soil, the superiority of the iron ploughs over the wooden ones was strikingly manifested; and the long mould-boards particularly of Messrs. Howard, Ransome, and Ball, laid the very difficult work in a beautiful manner.

Early on Saturday morning the reaping machines were privately put through a preliminary trial, just to get all their working parts in order.

On the light land field the general purpose ploughs were tried, belonging to Messrs. Ransome, Howard, Bentall, Warren, Ball, Busby, Sheen, Carson, and Fowler and Fry. Sets of light iron harrows were also put into active competition, the exhibitors being Bentall, Howard, Ransome, Coleman, Hill and Smith, and Sanders and Co.

On the heavy land the ploughs were again tried at a depth of 9 and ultimately of 12 inches—the contest apparently being between Howard, Ball, and Ransome. Late in the afternoon the clod-crusher trials began, there being no less than 16 on the ground. Several novelties appeared in these implements, Crosskill's having been constructed to draw from the centre of the axle; and Utting's being on an entirely new principle, cutting deeply through the hardest clods, instead of merely pressing upon and abrading their surface.

On Monday the rollers and clod-crushers were subjected to further experiments; those worked belonging to Utting, Carson, Wallis, Cambridge, Cousins, Day & Son, Crosskill, Comins, Dray & Patterson, Barrett & Exall, and Coleman.

The light land ploughs were tried, and every precaution taken to obtain a fair test of draught by the registering dynamometer of Mr. Bentall and Mr. Amos. The Ploughs were those of Messrs. Ransome, Howard, Busby, Ball, Fowler & Fry, and Bentall.

In the afternoon the Reaping-machines were set to work upon a piece of Rye; but a heavier and more lodged crop of Wheat would be a much better test of their capabilities, so that an adjourned trial would have been more likely to satisfy the public than the immediate decision of merit which has been pronounced.

Five machines were set to work,—Crosskill's Bell; Crosskill's Bell with very important improvements; Burgess and Key's M'Cormick; Dray's Hussey; and Dray and Palmer's "Union." The latter has a curved platform of radiating rollers, by which the corn can be delivered sideways instead of behind,—a man raking, as with Hussey's machine. Dray's improved Hussey, with tipping platform to facilitate delivery; and skeleton knives to prevent choking,—worked exceedingly well. Burgess and Key's archimedean roller-platform delivered the corn in most excellent style.

Crosskill has introduced a most admirable improvement into his Bell's reaper,—consisting of three belts of vulcanised India-rubber, with wooden studs upon them, which passing from side to side across the front of an inclined boarder platform, deliver the cut corn with great ease and regularity.

The great object of interest, however, were the three competing methods of steam-ploughing, which on Saturday and Monday, and for some following days, exhibited their performances to the Society Judges and to the public.

Mr. Boydell's new engine, enabled by the inimitable "endless railway" to travel over any inequalities of surface, has shown that it can draw very great weights, and heavy tillage-implements in deep work behind it. Though of about 12-horse power, the engine advanced at the pace of two miles per hour, dragging behind it five common ploughs, although these were set so deeply into the ground that apparently three or four horses would have been required to draw one. Coleman's immense frame of eight ploughs rigidly fixed, seems to be unadapted for its purpose; though when several of the ploughs were removed, a much nearer approach was made to good working. No sufficient tests were applied to Boydell's locomotive, so that the actual draught-power it possesses cannot now be affirmed, but it is evident to all practical engineers that the wear and tear from travelling continually over arable land must prove a very heavy addition to the cost of the machine. One point however seems very clear, that for conveying farm engines from place to place, especially over soft ground, no better auxiliary can be desired than the endless railway, a stationary engine and hauling apparatus, promising fairest with regard to tillage operations by steam-power.

Mr. Smith, of Woolston, Buckinghamshire, accomplished some baulk-ploughing or ribbing, with a peculiar-shaped implement adapted to his own novel method of husbandry; but not having succeeded in "turning over the soil," according to the Society's condition, he can hardly be said to stand as a claimant for the large reward still awaiting adjudication. He uses a common portable engine and a fixed windlass, four "match-blocks" or anchored pulleys, and a wire rope in two lengths, extending along the ends and sides of the plot to be tilled. The anchors are set in holes dug for the purpose; and the implement is turned round by the ropes at each end of the work with very little trouble or loss of time.

Mr. Fowler's plan has several equally new contrivances. His anchorages, of which there are only two instead of four, are shifted along the headlands as required, without digging holes, thus economising one of the principal expenses hitherto encountered. The implement for common ploughing consists of a long frame mounted on large wheels, carrying eight ploughs fixed four at each end, pointing in opposite directions; and these sets are in work alternately. The experiments made seem to indicate that with about 10 horse-power from the engine 8 acres may be ploughed 6 inches deep in 10 hours, including the turnings at the end and other necessary stoppages. With a modification of Cotgreave's trenching plough constructed for this work, the hardest ground was turned up and completely inverted in a broken state 12 inches deep. As yet, we have only estimates and opinions to offer; but in a short time, we understand, longer experiments are to be made with the dynamometer, and the extent of ground ploughed in a day actually measured; and then we shall possess trustworthy data on which to rest our hopes of success for this ingenious mechanical combination. And on another occasion we shall endeavour to give our readers a clear idea of the two wire-rope ploughing schemes which were exhibited in operation at Chelmsford.

TUESDAY, *July* 15.—In the heavy-land trial grounds this morning Ransome, Howard, Busby, Carson, Warren, and others were pitted against one another in a last attempt to determine the merits of their respective ploughs. The land was a hardened clayey soil—here and there with gravel in it—in as unfavourable condition for ploughing as could be imagined, and yet some of the furrows turned over were as clean and squarely cut as if the soil had been perfectly fit for work. A furrow horizontal below, perpendicular on one side, and trending 45° from the perpendicular on the other, was opened, and the sides and edges of the mass turned over reminded one of the diagrams of the theorist.

We do not yet know the award of the judges, but cannot doubt that it will be received by Mr. Howard, whose plough, with a mould-board more than 5 feet long—a sole plate about a yard in length—and a mould-board rising from the sole at so small an angle as to remind one of the rig and build of a clipper yacht, performed its work more regularly, with less labour to the ploughman, and less jerk and unevenness for the horses than any other. The maintenance of excellence and merit is of great importance, even nationally, in the case of a firm manufacturing 5000 ploughs a year. To some of the adjustments of their plough we shall refer again.

Among the other implements shown to-day in this field was the trench plough of Mr. Cotgreave, drawn along by 12 horses. It opened two furrows, and out of each lifted two slices of subsoil, or rather *tore* two lower furrows, throwing the material so moved on the new surface of the ground. The land was in an extremely unfit condition for work, and the implement needed three men to hold it to its work while the twelve horses pulled it along. It adopts Mr. Fowler's plan of a second set of ploughs facing those at work, but carried in the air; the beam, in which both sets are built, being bent to admit of one being thus lifted out of work when the other is in operation. At the end of the field the set that has been carried is dropped and the other lifted out of the soil, and the trace chain being carried to the other end, the machine is drawn back again, a one-way turning of the furrows being the result; in this case attained without any attempt to turn so unwieldy a machine. It occurred to many looking at it when at work that so unwieldy an affair is altogether unsuitable to horse labour, an enormous waste of power occurring wherever so many animals are harnessed to one chain. In the Carse of Stirling many years ago Mr. M'Ewan, of Blackdub, introduced a trenching plough which did better work and was *calculated* to do better work than this implement seems likely to perform. But the process was done at twice. Four horses opened a furrow a foot deep and of unusual width, and four horses following pulled another plough along, which lifted 6 or 8 inches of subsoil from this furrow, and placed it on the surface of the ploughed land. The construction of combined implements in attempted adaptation to steam power is taking agricultural implement makers out of the reach of their customers and of agriculturists generally, who merely look wonderingly on as one monstrosity after another is brought forward to labour at its task of cultivation under circumstances which in July are entirely unadapted to its ability, whatever that may be. Thus Mr. Coleman's system of ploughs and grubbers, though *forced* along, could not make good work which it might have done elsewhere; and Mr. Smith's (Woolston, Bucks) grubber plough, which stirs and throws the land in ridglets over the stirred subsoil, hardly suggested by its rough performance what it actually does in favourable circumstances—as on the inventor's own farm, where 100 acres are thus annually cultivated with efficiency and success.

Among the successes of the more cumbrous machines exhibited must certainly be named Boydell's traction engine, to which we have already referred. At first its progress strikes with ludicrous astonishment. A pair of heavy wheels takes the greater portion of the weight of the machine (9 or 10 tons). A smaller pair in front takes a portion of the forepart of the weight, and carries the helmsman, who guides its progress by turning these fore-wheels very easily, thus guiding the machine along crooked roads and through narrow gates with great facility. It mounted into the field without difficulty, and had pulled Biddell's scarifier on the previous day 6 or 8 inches deep through the substance of that hardened soil, showing that but a small portion of its power is wasted in moving its great weight along. The great shoes which hang loosely to the circumference of its wheels are placed successively by their own weight so as to form a continuous railway for its passage. Even on dry ground they had the effect of bridging over furrows and inequalities, while in wet and soft land they hindered the sinking of the machine in the soil. Under such circumstances of a comparatively even and extremely hard surface as tried the machine to-day, they were of course for the most part merely a useless encumbrance. The pinion on the crank shaft to which the piston of the double cylinder gives motion, and through which the whole force of the machine is conveyed, gears into the driving wheels at the upper part of their circumference; and the draught chain being in effect fastened to the axle of the driving wheels, *i.e.*, pulled along at the rate of *its* motion over the ground, of course a double power may be brought to bear upon this draught chain, the whole diameter of the driving wheel being in effect a lever, the fulcrum at one end on the ground, the resistance or weight half-way between the two extremities, and the power at the other end where the leaves of the pinion successively push at the cogs upon the circumference of the wheel. But the advantage apparently gained by this position of the pinion on which Mr. Boydell insists with much confidence, is not real after all. The velocity of the pinion must be doubled to produce the same rate of movement onwards as if it were placed on a level with the axis of the wheel, and as much is lost as gained.

We may refer here to the trial of Bentall's and Coleman's scarifier on land exceedingly unfit for the operation either of stirring or of paring teeth, the superiority being with the latter tool.

Clodcrushers were exhibited at work in great variety and number, the discs, some of them in two rows, each clearing the intervals in the other, all of them running independently on a common axle so as to turn easily, differed exceedingly in the form of tooth or form of edge on which the teeth were placed. It is not, we believe, in practice a material question what particular pattern on the soil the machine shall leave behind it as it is drawn forward. All that is necessary is that considerable weight shall be brought to bear upon every clod over which the discs severally pass, and it must be broken.

WEDNESDAY was generally devoted to an examination of the implements in the yard. If we follow spectators in their tour around the several stands we shall be able to point out a few of the more remarkable notabilities exhibited, leaving till another week a more detailed account of those we now pass by. Mr. Lawes exhibits Beadon's patent gutter tiles, which appear in the roof erected as a specimen to be a cheap and efficient substitute for wooden or metallic spouting.

A large straw lifter shown by Mr. Hayes, of Elton, Oundle, attracts attention by its height even before you enter the yard; it is adapted to take the straw off the end of shaker when working with the threshing machine, and to carry it up 18 feet or more on to the stack. It is made with two octagon drums, their diameter 20 inches, and on this is worked a chain with tines, driven by suitable machinery to carry up the straw, and the slow motion of the elevator absorbing but very little power, the wear and tear is considerably reduced.

Mr. Sawney, of Beverley, attaches to his winnowing machine his apparatus for separating the rough seeds of hariff (clivers), which is a nuisance in samples of Wheat. The corn and clivers are received on an endless cloth as they leave the winnowing machine, and the former is delivered in front of the apparatus. The clivers which adhere to the revolving or endless cloth are carried forward until they come in contact with the cloth-cleaner, by which means they are deposited in a drawer fixed under the cloth.

Mr. Burrell, of Thetford, shows a model of a brick-kiln calculated greatly to hasten and to cheapen manufacture. It consists of a long building with two channels on the ground floor alongside one another, large enough to receive iron waggons loaded with the bricks running on a train. One of the channels is the chimney of the furnace. Successive waggon loads are introduced at the far end of this chimney and gradually pushed up towards the greatest heat, attaining ultimately a perfect red heat and then passing as gradually through the other channel where they gradually cool. Over both the channels drying sheds are erected so that the heat lost by the cooling bricks is all conveyed to where a preliminary artificial drying of the bricks is effected.

Several large Clover shelling apparatus are exhibited, all on a common principle of a rough conical drum with many beaters revolving in a conical cover, and rubbing, by its rapid motion, the seed out of the Clover heads, which are passed between the two. Mr. Huckvale, of Chipping Norton, continues to exhibit his patent Turnip thinner, in which, by a remarkably simple contrivance, the roughness of its operation, owing to the onward movement of the machine, is perfectly obviated. He also shows a horse-hoe for hill sides in which a second

pair of wheels placed so as continually aiming to ascend the slope successfully combats the downward tendency given to the horse-hoe by its weight.

Mr. Sparke, of Norwich, exhibits a good contrivance in a saw-bench calculated to facilitate operations with heavy timber. The revolving saw-band shown by Messrs. Barrett & Exall also deserves and receives the attention of spectators.

Messrs. Garrett showed Mr. Chambers' ingenious manure distributor and his drop-drill apparatus which attached to Spooner's water drill collects seed, manure, and water, and drops them mixed and all together at intervals along the row. Of course if it is an improvement to collect a general distribution of water on to the rows when the seed is sown, it is well still further to economise it by confining it to those points in the rows where it is desired the seed shall germinate.

Mr. Samuelson shows, among his other implements, a narrow Grass-cutter, adapted for Grass edging, and interesting therefore to our horticultural readers.

The cheapest cart, and really, we believe, as good as any in the yard, is shown by Mr. Eaton, of Twywell, Kettering. It has a tipping apparatus and a self-acting tail-board, and costs 9*l.* 9*s.*

An ingenious Barley hummeller is shown by Barnard & Bishop, Norwich, where a horizontal gridiron stamper is worked by crank movement, which makes it push the grains from it as the operation is completed by it. A root-rasper, where a perforated roughened disc for *cutting*, and a roughened disc for *holding* the roots rasped, revolve in two different directions, and form the two sides of the hopper in which the roots to be operated on are thrown, is shown at this stand.

We may here mention that a number of graters, generally on the saw-tooth principle of Mr. Philipps (Brandon), are shown by different makers. In one these teeth are arranged spirally upon a barrel, enabling a spiral worm revolving between the teeth to keep them clean.

An ingenious corn sieve, adapted by Mr. Burrell, of Thetford, to his threshing-machine, and exhibited separately, consists of a sloping riddle moving to and fro in its own plane. The wires are parallel, and rows of fixed buttons or discs, protruding in their intervals keep them clean, and force the grains of Wheat to jump over them in their passage downwards.

We may here refer to Mr. Bullock Webster's model of farm-buildings, constructed on the principle of a uniform shedding, capable of erection at 12*s.* to 20*s.* per foot run, according as timber is provided on the spot or not, and capable of subsequent adaptation to any purpose that is desired.

THURSDAY.—The cattle show opened to the public this morning is characterised by extraordinary number and excellence in the horse classes, considerable number and general merit in the classes of short-horns, a comparatively small but good show of Herefords, a numerous and very excellent (with some few exceptions) show of Devons, and a small and imperfect show of foreign cattle. Among sheep there is a wonderful exhibition of southdowns where Lord Walsingham carries off all the prizes for old sheep and for ewes, and Mr. Overman and Mr. Jonas Webb take the prizes 1st and 2d for breeding rams. The Leicester breed is represented by selections from the flocks of Messrs. Watkins, Paulett, Radmore, Cresswell, Borton, Simpson, Turner, Kingdon, Hannam; and that of Longwools is a small one contributed to as usual by Messrs. Browne, Garne, Hewer, Lane, and Walker. The show of pigs is generally good, more especially in the small breeds and sow classes.

As to individuals deserving notice among the general run of excellence, we may refer to Mr. Towneley's prize bull, Master Butterfly, Mr. Booth's beautiful yearling heifer, Queen of the May, Lord Berwick's prize Hereford Bull, H. R. H. Prince Albert's yearling bull, "Zouave," bred by Mr. Turner, of Barton. In Horses it is worthy of notice, that notwithstanding the number, and merit of those representing the Suffolk breed, the judges had the courage to award the first prize to a Clydesdale horse, the property of Prince Albert; of course the decision is indignantly condemned by eastern counties spectators generally, but the judges are men whose opinions may nevertheless safely be accepted. The Clydesdale does we believe unite activity and strength in the proportion best adapted to the farmer's purposes—and we believe the first prize animal to be a good specimen of its kind. We shall next week give a fuller account of the horses, as well as of other classes of stock.

On the sheep exhibited we may remark generally.

As we shall next week show by our tables the number of sheep exhibited this year falls far short of the standard of several previous shows, the South Downs, however, greatly exceeding the number either at Lincoln or Carlisle. Much of the explanation of course lies in the character of the district which is not given to the breeding of sheep, and exhibitors have an eye to business as well as to honour in bringing many specimens of their animals from long distances.

Next week we will give an outline of the principal excellencies and defects of the different animals of note, and content ourselves now with stating our opinion of the classes in general.

The Leicesters are certainly not so remarkable for excellence as on some former occasions, by which we mean that there is not so large a proportion of beautiful and first-class animals.

The Short-Woolled Sheep are very superior; and in this class everybody has been taken by surprise, and very general reflections have been verbally made upon the decision of the judges. It is not for us to set up our opinion against the carefully-considered awards of those whom the Society chooses for their known judgment and reputation as breeders; but we may be allowed to say that, while much admiring and commending the prize Rams, there are animals in competition which we would rather have preferred, not so much for their size and substance as for their greater perfection of symmetry, and other points of extraordinary merit.

The Long-Woolled Sheep are, in our view, generally superior in quality to those shown last year; though not coming up to the wonderful degree of size, and splendid proportions, characteristic of the Lincoln Show in 1854.

The foreign classes contain individuals of the Brittany, Normandy, and Charolaise breeds, the last beautiful both for symmetry and size, while their pure white colour and general merit indicate apparent relationship to our own breed of short-horns.

We append the award of the judges.

SHORT-HORNS.

JUDGES: Capt. T. Ball, Messrs. J. Grey, and T. Parkinson.

Class 1. Bulls over 3 and under 4 years old.—1st, Lieut.-Col. Towneley, of Towneley Park, Lancaster (Master Butterfly); 2d, Mr. Henry Ambler, of Watkinson Hall, Hallifax (Grand Turk).

Class 2. Bulls calved since the 1st of July, 1854, and more than 1 year old.—1st, Mr. F. H. Fawkes, of Farnley Hall, near Otley (General Bosquet); 2d, Mr. M. Barrowby, of Dishforth, near Thirsk (Mark Antony).

Class 3. Bull Calves above 6 and under 12 months old.—1st, Mr. H. Ambler (Napoleon).

Class 4. Cows in Milk or in Calf.—1st, Lieut.-Col. C. Towneley (Roan Duchess II.); 2d, Do. (Blanche VI.).

Class 5. Heifers in Milk or in Calf not exceeding 3 years old.—1st, Lieut.-Col. C. Towneley (Victoria); 2d, Mr. R. Stratton, of Broad Hinton, near Swindon (Marcia III.).

Class 6. Yearling Heifers.—1st, Mr. R. Booth, of Warlaby, near Northallerton (Queen of May); 2d, Mr. C. P. Grenfell, of Taplow Court, near Maidenhead (Bettine).

HEREFORDS.

JUDGES: Messrs. S. Bloxridge, W. Tindall, and J. Williams.

Class 1. Bulls calved previously to the 1st of July, 1854, and not exceeding 4 years old.—1st, Lord Berwick, of Cronkhill, near Shrewsbury, (Napoleon III.); 2d, Mr. E. Price, of Courthouse, Pembridge, near Leominster, (Goldfinder).

Class 2. Bulls calved since July 1, 1854, and more than 1 year old. 1st, Mr. W. Raester of Thinghill, near Hereford, (Favourite Chance); 2d, Mr. E. Williams, of Llowes Court, Radnorshire. (Radnor).

Class 3. Bull Calves above 6 and under 12 years old. 1st, Mr. W. Perry, of Cholstrey, near Leominster, (Cholstrey Boy).

Class 4. Cows in Milk or in Calf.—1st, Mr. W. Perry, (Carlisle Beauty); 2d, Mr. P. Turner, Leen, Pembridge, near Leominster, (Novice).

Class 5. Heifers in Milk or in Calf, not exceeding 3 years old.—1st, Lord Berwick (Carlisle); 2d, Mr. Raester.

Class 6. Yearling Heifers.—1st prize, 10*l.*, to Mr. Raester, (Young Sir David); 2d, Mr. W. Maybery, of Brecon, for Fatima.

DEVONS.

Class 1. Bulls calved previously to the 1st of July, 1854, and not exceeding 4 years old.—1st, Mr. J. Quartly, South Molton, (Sultan); 2d, Mr. W. M. Gibbs, of Bishop's Lydeard, near Taunton.

Class 2. Bulls calved since the 1st of July, 1854, and more than 1 year old.—1st, his Royal Highness Prince Albert (Zouave), 2d, Mr. C. J. Halse, of Molland, South Molton (Earl of Essex).

Class 3. Bull Calves above 6 and under 12 months.—1st, Mr. G. Turner, of Barton, near Exeter (Bosquet).

Class 4. Cows in Milk and in Calf.—1st, Mr. J. Quartley (Stately); 2d, Mr. W. Farthing (Fancy).

Class 5. Heifers in Calf or in Milk not exceeding 3 years old.—1st, Mr. J. Quartly (Nonpareil); 2d, his Royal Highness Prince Albert (Lubelia).

Class 6. Yearling Heifers.—1st prize, 10*l.*, to Mr. E. Pope, of Great Toller, near Maiden Newton (Fancy); 2d, Mr. J. Hole, of Knowle House, Somerset.

CATTLE OF ANY OTHER BREED.

Class 1. 1st, Lord Sondes; 2d, Mr. J. S. Turner, of Chynton Farm, Sussex.

Class 2. 1st, Mr. G. D. Badham, of Ipswich.

Class 3. Cows in Milk or in Calf.—1st, Mr. J. Gorringe, of Tilton Selmeston, Sussex; 2d, Mr. T. M. Hudson, of Castle Acre, Suffolk.

Class 4. Heifers in Milk or in Calf.—1st, Lord Sondes.

Class 5. Yearling Heifers.—1st, Mr. G. D. Badham, of Ipswich.

HORSES.

JUDGES: Messrs. P. G. Burns, W. Greaves, W. C. Spooner, and J. Warsop.

Class 1. Stallions for Agricultural Purposes, foaled previously to the 1st January, 1854.—1st, his Royal Highness Prince Albert; 2d, Mr. Manfred Biddell, of Playford, near Ipswich.

Class 2. Stallions for Agricultural Purposes, foaled in the year 1854.—1st, Mr. G. M. Sexton, of Earl's Hall, near Sudbury, Suffolk; 2d, Mr. G. D. Badham, Ipswich.

Class 3. Agricultural Stallions foaled in the year 1855.—1st, Mr. Samuel Claydon, of Little Linton, Cambridge.

Class 4. Mares and Foals for Agricultural Purposes.—1st, Mr. G. Carter, Chelmsford; 2d. Mr. N. G. Barthropp, Woodbridge, Suffolk.

Class 5. Fillies for Agricultural Purposes.—1st, Mr. S. Wrinch, Colchester; 2d, Mr. Samuel Clayden.

DRAY HORSES.

Class 1. Stallions foaled previously to January, 1854.—1st. W. Baker & Son, of Stapleford, near Cambridge (Young Inkermann.)

Class 2. Stallion foaled in 1854.—1st, Mr. C. Timm, of Nottingham (Great Northern.)

LEICESTER SHEEP.

JUDGES: Messrs. W. Hesseltine, R. Smith, and W. Torr.

Class 1. Shearling Rams.—1st, T. E. Pawlett, of Beeston, Sandy, Beds; 2d, do., do.

Class 2. Rams of any other age.—1st, T. E. Pawlett; 2d, R. W. Creswell, of Ravenstone, Ashby-de-la-Zouch.

Class 3. Pens of 5 Shearling Ewes.—1st. T. S. Watkins, of Woodfield, Ombersley, Worcester: 2d, Mr. G. Turner, of Barton, Exeter.

SHORT-WOOLLED SHEEP.

JUDGES: Messrs. G. Brown, H. Chamberlain, and P. Purves.

Class 1. Shearling Rams.—1st, Henry Overman, of Weasenham, near Rougham, Norfolk; 2d, Jonas Webb, of Babraham, near Cambridge.

Class 2. Rams of any other Age.—1st, Lord Walsingham, of Merton Hall, near Thetford, Norfolk, Merton; 2d, Lord Walsingham.

Class 3. Pens of five Shearling Ewes.—1st, Lord Walsingham; 2d, Lord Walsingham.

LONG WOOL SHEEP.

Class 1. Shearling Rams.—1st, Mr. James Walker, of Northleach, Gloucester; 2d, Mr. T. B. Brown, of Hampen, near Andoversford, Gloucester.

Class 2. Rams of any other Age.—1st, Mr. William Lane, of Broadfield Farm, near Northleach, Gloucester; 2d, Mr. William Garne, jun., of Kilkenny Farm, Bibury, near Fairford, Gloucester.

Class 3. Pens of five Shearling Ewes.—1st, Mr. William Lane; 2d, Mr. Lane.

PIGS.

JUDGES: Messrs. Arnold, Denman, C. Randall, and T. Trotter.

Class 1. Boars of a large Breed.—1st, Rev. C. T. James, of Ermington, near Ivy Bridge, Devon, for Emperor; 2d, Mr. John Harrison, jun., Heaton Norris, near Stockport.

Class 2. Boars of a Small Breed.—1st, Mr. Thomas Crisp, Chillesford Lodge, near Woodbridge; 2d, Mr. Richard England, of Arthington, near Otley, Yorkshire.

Class 3. Breeding Sows of a Large Breed.—1st, Mr. W. B. Wainman, of Carhead, near Crosshills, Yorkshire.

Class 4. Breeding Sows of a Small Breed.—1st, Mr. H. Scott Hayward, of Folkington, near Willingdon, Sussex.

Class 5. Pens of Three Breeding Sow Pigs of a Large Breed.—1st, Rev. C. T. James.

Class 6. Pens of Three Breeding Sows of a Small Breed.—1st, Mr. R. H. Watson, of Bolton Park, near Wigton, Cumberland.

SPECIAL PRIZES.

Class 1. Thorough-bred Stallions.—1st, Messrs. Robert and James Moffat, of Newton-of-Rockcliffe.

Class 2. Hunter Stallions.—1st, Samuel Adams, of Great Waltham, near Chelmsford.

Class 3. Coaching Stallions.—1st, George Rayson, of Highhea Castle Farm, Carlisle.

Class 4. Hackney Stallions.—1st, Mr. William Jex, of Hopton near Lowestoft, Suffolk.

Class 5. Hunter Mares.—No award.

Class 6. Hackney Mares.—1st, Rev. C. T. James.

Class 7. Geldings of any Age for Hunting Purposes.—1st, Mr. F. Barlow, of the Shrubbery, Hasketon, near Woodbridge, Suffolk.

Class 8. Geldings under Four Years Old for Hunting Purposes.—1st, the Earl of Darnley, of Cobham Hall, near Gravesend.

Class 9. Hackney Geldings of any Age.—1st, Mr. Francis Barker, of Westland, near Ingatestone.

Class 10. Hackney Geldings under Four Years Old.—1st, Frederick Barlow.

FOREIGN STOCK.

JUDGES: MM. E. Gareau, de Gingins d'Eclépins, and Hon. M. de Villers de Pité.

Bulls of any Pure Foreign Race.—1st, Comte de Bouille Villars, Nièvre; 2d, Mons. Cheradame; 3d, Mons. Allier, Seine et Oise; 4th, Mons. Eluard, Seine et Marne; 5th, Mons. Philippe, Aix.

Cows or Heifers of any Pure Foreign Race.—1st, Comte de Bouille, Nièvre; 2d, Mons. Eluard, Seine et Marne; 3d, Mons. Allier, Seine et Oise; 4th, Mons. Dutrône, Calvados.

JUDGES OF POULTRY: Messrs. J. Baily and G. J. Andrews.

IMPLEMENT PRIZES.

JUDGES OF IMPLEMENTS.—Mr. J. V. Gooch, Mr. T. Huskinson, Mr. C. Sewell Read, Mr. H. B. Caldwell, Mr. T. Hawkins, Mr. J. H. Nalder, Mr. W. Chalcraft, Mr. J. J. Rowley, Mr. J. Clarke.

AWARD OF PRIZES.—To J. & F. Howard, for plough best adapted for general purposes, 7*l.*; to Wm. Ball, for do. do, 4*l.*; to E. H. Bentall, for do. do., 4*l.*; to J. & F. Howard, for plough best adapted for heavy land, 5*l.*; to Wm. Ball, for do. do., 3*l.*; to Ransomes & Sims, for do. do., 2*l.*; to J. & F. Howard, for plough best adapted for light land, 4*l.*; to Ransomes & Sims, for do. do, 2*l.*; to Wm. Ball, for do. do., 2*l.*; to E. H. Bentall, for do. do., 2*l.*; to J. & F. Howard, for ridge plough, 3*l.*; to Ransomes & Sims, for turn wrest plough, 2*l.*; to Mr. John Whitehead, for pipe and tile machine, 5*l.*; to Mr. Thomas Scragg, for pipe and tile machine, 4*l.*; to Mr. Henry Clayton, for do. do., 5*l.*; to Messrs. Burgess & Key, for set of draining tools, 3*l.*; to A. Crosskill, for clod crusher for heavy land, 3*l.*; to W. Dray & Co., for do., 3*l.*; to W. Cambridge, for do., 2*l.*; to Ransomes & Sims, for do., 2*l.*; to W. Day & Co., for do., 2*l.*; to Ransomes & Sims, for plain roller, 2*l.*; to Hill & Smith, for do., light land, 2*l.*: to E. H. Bentall, for do. do., 2*l.*; to A. Crosskill, for heavy land crusher, 2*l.*: to Mr. Bentall, for subsoilers, 5*l.*; to Mr. Smith, for do., 4*l.*; to Messrs. Dray & Co., for do., 4*l.*; to J. & F. Howard, for do., 3*l.*; to Ransomes & Sims, for do., 3*l.*; to Barrett, Exall, & Co., for do., 1*l.* to W. Williams, for general purpose harrows, 3*l.*; to J. & F. Howard, for do., 3*l.*; to Ransomes & Sims, for do, 2*l.*; to J. & F. Howard, for drag harrows, 3*l.*: to W. Williams, for do., 2*l.*; to J. & F. Howard, for light or seed do, 3*l.*; to W. Williams, for do. do., 2*l.*; to E. H. Bentall, for do. do., 2*l.*; to E. H. Bentall, for do. adapted as a cultivator for heavy land, 3*l.*; to R. Coleman, for do. do., 3*l.*; to Ransomes & Sims, for do. do., 2*l.*; to R. Coleman, for do. for light land, 3*l.*; to E. H. Bentall, for do. adapted as a do. do., 3*l.*; to Phillips & Wood, for do. do., 1*l*; to R. Coleman, for scarifier or parer, 3*l.*; to E. H. Bentall, for do. adapted as a do. do., 2*l.*

SILVER MEDAL.—To T. F. Griffiths & Co., for a patent cheese-making apparatus; to Mr. Robert Boby, for a patent corn screen; to Mr. George Pye, for the preparation of Flax; to Messrs. Barrett, Exall, & Co., for a patent endless band saw; to Ransomes & Sims, for a Cotgrave's subsoil plough; to Phillips & Wood, for a poppy extirpator.

VERY HIGHLY COMMENDED.—Hill & Smith, for light or seed harrows; H. Carson, for cultivator for heavy land.

HIGHLY COMMENDED.—William Busby, for plough for general purposes; Ransomes & Sims, for drag harrow; E. H. Bentall, for do. do.; A. Crosskill, for cultivator for heavy land; Hill & Smith, for do. do.; A. Crosskill, for Norwegian Harrow; J. Comins, for clod-crusher; Mr. Utting, for do.; Mr. Carson, for do.; William Cambridge, for grooved roller; Mr. Fisher, for sheep-foot roller; Ransomes & Sims, for light land roller.

COMMENDED.—Messrs. Hill & Smith, for rick stand; Messrs. Dray & Co., for a patent tubular iron field gate; Mr. Henry Clayton, for pipe and tile machine; J. Comins, for general purpose harrows; Ransomes & Sims, light or seed harrow; Hill & Smith, for scarifier for light land; Ransomes & Sims, for cultivator on light land; Barrett, Exall, & Co., for clod-crusher; R. Coleman, for smooth-jointed roller; Mr. Fisher, for field roller.

FAVOURABLE MENTION.—R. Coleman, for general purpose harrows; James Comins, scarifier for light land.

B. T. BRANDRETH GIBBS,
Hon. Director of the Show and General Arrangements.

The Annual Dinner of the Society gathered a thousand of its members together in the pavilion, at 4 o'clock this afternoon. There was a good deal of excellent speaking. The president elect, Mr. J. E. Denison, in naming "Agricultural Societies at home and abroad," referred, of course, to the Paris Exhibition, and pointed out that amidst all England's numerous contributions to that gathering of breeds, there was an extraordinary deficiency in specimens of produce shown. To take an instance, a solitary cheese was the sole representation of our dairy districts!

The toast of the evening was given most eloquently and efficiently by M. De Trehonnais: and the chairman, the retiring president, Lord Portman, in an excellent address, gave a most

instructive review of Agricultural progress, referring in succession to live stock, implements and produce, and summing up with the declaration, that in the widening extent of their expectations, efforts, and application, "intelligent practical agriculturists know no horizon."

DRYING HAY AND CORN BY ARTIFICIAL MEANS.

You did me the honour to publish in your Paper of the 14th of June, some remarks, which I ventured to address to you on the subject of harvesting agricultural produce by the use of currents of dry heated air, originating, on my part, in the belief that very important objects might be thus attained, by means which would be efficacious, simple, and economical.

I have since continued to turn my attention to the subject, being still more convinced than at the outset that great benefits are attainable, and in some parts of the kingdom the wetness of this season has amply proved the existence of the evils requiring to be obviated. Hay-making and the curing of Oak bark have been much interfered with by the rains which have fallen at a season critical for those processes, and at any place at which an artificial system had been in action, all evils and risks could have been avoided under any and all circumstances.

But the object of the communication which I now presume to make, is to advert to higher authorities than my own on this subject. The views I stated had occurred to myself without a knowledge of the opinions of other persons, but I have recently referred to the article "Haymaking" in Morton's Cyclopædia of Agriculture, vol. ii., p. 15; and I there find observations amply confirmatory of the views and opinions which I had expressed in my former communication to you, Reference is made in this article to the work of Dr. Thomson, "Experimental Researches on the Food of Animals," pp. 71 to 79 (Longman & Co., 1846), and on a perusal of that work I have found abundant confirmation of the importance of the subject, and passages in the work which give great encouragement to the completion of such arrangements as shall artificially secure the perfect preservation of Grass and other farm produce, with all their valuable qualities unimpaired. I beg leave to subjoin a few extracts from Dr. Thomson's work, which give some idea of the import of his more extended statements.

"The great cause of the deterioration of hay is the water which may be present, either from the incomplete removal of the natural amount of water in the Grass, by drying, or by the absorption of this fluid from the atmosphere. Water when existing in hay from either of these sources will induce fermentation, a process by which one of the most important constituents of the Grass—viz. sugar—will be destroyed." "The only method which we have found to succeed in preserving Grass perfectly entire is by drying it by means of artificial heat. Rye-grass contains at an early period of its growth as much as 81 per cent. of water, the whole of which may be removed by subjecting the Grass to a temperature considerably under that of boiling water; but even with a heat of 120° the greater portion of the water is removed and the Grass still retains its green colour, a character which appears to add greatly to the relish with which cattle consume this kind of provender. When this dried Grass (as it may be truly termed by way of distinction from hay) is examined, it will be found to consist of a series of tubes, which, if placed in water, will be filled with the fluid, and in some measure assume the aspect of its original condition. In this form cattle will eat it with relish and prefer it to hay, which in comparison is blanched, dry, and sapless. The advantages obtained by this method of making hay, or rather of preserving Grass in a dry state, are sufficiently obvious. By this means all the constituents of the Grass are retained in a state of integrity; the sugar, by the absence of the water is protected from undergoing decomposition, the colouring matter of the Grass is comparatively little affected, while the soluble salts are not exposed to the risk of being washed out by the rains, as in the common process of hay-making. The amount of soluble matter capable of being taken up by cold water is, according to the preceding trials, as much as 5 per cent. or a third of the whole soluble matter in hay. We may therefore form some notion of the injury liable to be produced by every shower of rain which drenches the fields during hay harvest. It is not only, however, the loss which it sustains in regard to sugar and soluble salts that renders hay so much less acceptable than Grass to the appetite of cattle. The bleaching which it undergoes in the sun deprives it of the peculiarity which distinguishes the one form of fodder from the other; Grass deprived of its green colouring matter presents exactly all the appearance of straw, so that hay ought to be termed Grass straw." "Some improvement in the preparation of hay is imperatively demanded in such localities as are affected with a more than usual fall of rain." "In a moist climate, especially like that exhibited in Scotland during the last year, it appears highly desirable that farmers should possess on their premises a drying room, where hay, Potatoes, and even Corn might be dried."

Such being the object to be attained, I entertain a conviction that the apparatus of Mr. Hazard (No. 8, St. Martin's Place, Trafalgar Square, London) is admirably calculated, at a very moderate cost (whether the apparatus or the fuel in its use), to attain the ends desired; and I have reason to believe that Mr. Hazard would readily afford facilities to persons desirous to make practical experiments, at a very moderate expense—an expense which would be amply compensated if success should attend the experiments. That success would attend them, if carefully made, does not seem to admit of doubt. To render the process perfect, some simple arrangement would no doubt be eventually advantageous, in addition to the currents of heated air supplied by the heating apparatus, to secure its rapid action on the Grass; some simple machinery would be readily contrived, in the nature of a hay-making machine, to work under cover, and to act on one spot, the Grass being supplied to it; but in the first instance the end might be attained by the free use of the pitchfork in tossing the Grass while it was exposed to the heated air. The labour required would be less than the labour required in the field in the frequently abortive attempts to save hay—the process would be much more rapid than in the field, in proportion to the higher temperature employed in the action of the heated and dry air. *T. F. Kennedy, July* 9.

Home Correspondence.

Mr. Fowler on Dartmoor.—Of all the interesting, agreeable, and satisfactory reading that is to be found in your Paper, the few lines in a late number which describe the results of Mr. Fowler's experiments on the Mendip hills are, to my mind, amongst the most interesting and satisfactory. I never hear of the reclamation of waste lands, whether in England, Scotland, Wales, or Ireland, without experiencing the greatest satisfaction and pleasure. The importance of the subject cannot be over-estimated, and I shall therefore not apologise for asking you to endeavour to obtain, for general benefit, all the details you can respecting Mr. Fowler's experiments. If you could induce Mr. F. or his bailiff to write an exact history of his proceedings from 1847 to 1856, in a series of letters in your Journal, you would confer the greatest benefit on the greatest number. If you could merely obtain his general plan of working, with suggestions as to errors of practice which after-experience would have avoided, you will also obtain much for which your readers will warmly thank you. But if such letters as those which were afterwards published under the name of "Talpa" could be obtained from Mr. Fowler, it would be an immense advantage to others engaged in the same pursuit. The nature of the soil; the advantages or disadvantages of climate that he had; the vicinity or otherwise of lime, that most important agent in such a work; the kind of roads, steep, bad, or both!—the distance from his market: all these *pros* should be fairly stated. I will not detain you longer, having said enough and more if you see the subject as I do. *M. G. Y.* [In reply to this we have received the following:—"I cannot imitate 'Talpa' and write largely on my mode of cultivation here, but in a few lines I may impart the pith of all I could say if I indulged in a long history, and I may preface by observing, after nine years' experience, that had I to begin again I should proceed precisely in the same way I have done. The first step was to make the ground quite dry by stone drains. The next operation, either by trenching, ploughing and a subsoil plough following in same furrow, so as to completely stir and mix the soil 18 inches deep, and thus break the hard crust or pan; then the fields went through a course of cropping, that is, one or two crops of Oats and Turnips, the last well limed, say 4 tons per acre at a cost of 20*s.* per ton; then a good dressing of cattle dung made under cover, scarcely any artificial dressing applied; from 25 to upwards of 34 tons of Swedes per statute acre were the publicly attested yield, prizes having been awarded right and left by different local clubs. Afterwards with great care in obtaining perfectly clean ground and a fine tilth, about 25*s.* to 30*s.* worth of Grass seeds per acre sown mostly without a grain crop, and times of seeding May to August; the ground rolled before and after sowing with a light stone roller. In November a very heavy stone roller drawn over all the pastures, and this repeated about the middle of March, if weather is moderately moist—if not wait until it is. I let my improved Grass fields last from 12th of May to November 8, when, according to my custom, they will remain idle to next May. The hammer fixed the rent, the occupiers seem highly pleased with the condition of their stock, the Grass being abundant. I send you the *Western Times*, in which you will find my brief report of the Dartmoor Convicts' Farm." *George Wm. Fowler.* The following is the notice of the convict farm referred to:—"The pigs, about 100 in number, claim attention; they are all of a dark colour, and though not of large frame, are most symmetrical animals, evidently possessing great aptitude to fatten, and the number of choice quality, with scarcely a coarse one amongst the lot, clearly demonstrate the care and judgment exercised in producing such a stock, as nearly all have been bred inside the prison boundary wall. The next attractions were the haymaking and rickbuilding operations, each of which appeared to be progressing in a most satisfactory manner; the estimated quantity of hay thus secured, and in first-rate order, was 60 tons—40 to 50 more to get, in addition to which about 40 tons of the 1855 crop are in the yard, so that their stock of hay, when the remainder of the present cut is secured, will be little if any short of 150 tons. The Swede crop, like many others this season, is severely punished by the fly; the other crops, considering that they are chiefly growing on land just reclaimed, excite astonishment at the complete and signal change which convict labour has effected; they consist of about 19 acres Barley, 15 acres Oats, 15 acres Potatoes, 17 acres Turnips, 10 acres Carrots, Cabbage, and Parsnips. Thus not solely in a figurative sense may it be remarked, that the labour of what are generally designated 'the outcasts of society,' when judiciously managed, causes the 'desert to blossom like the rose.' The stock of cattle (young and old), about 75, are choice, and in gay condition, nearly North Devons—on the male side pure, as two first-class bulls of this breed are kept. Two other items, in justice to the prisoners, I ought to mention—one is the erection of the most magnificent stone walls round the fields that ever the eye of man rested upon as agricultural fences—the other consists of about 2000 tons of peat turf now drying for fuel, and which will be housed in the next two months; from part of this brilliant gas for the prison will be made, the remainder forms a valuable substitute for coal."

A Labour Gazette.—I have observed in your valuable Journal of the 28th June a very important suggestion in the leading article regarding communication between employers and labourers, and I do hope from your taking up the subject some plan will be adopted to complete that communication which is at present so imperfect as to be quite inconsistent with our existing means of locomotion, and a great hindrance to improvements. About three years ago I wrote to the Poor-law Commissioners on this subject, and recommended that there should be established in London a "Labour Gazette," in which capitalists in all parts of the world might advertise their demands for labour, and that a copy should be furnished to each "board of guardians" in Great Britain and Ireland; and that, in order to prevent a glut of labour in any given quarter, an office should be established in London through which all applications for labour should be made and from which all information should be given as to any demand being supplied or not; and then, as we know the poor labourers often have not the means of transit, and as before "the New Poor-law" the parish authorities frequently lent money to labourers to go away for employment, I recommended that the guardians of each union should be empowered to advance money to facilitate employment in this way, on the security of the employers, who would always communicate, either in the advertisement or else afterwards to the guardians interested, the amount of wages offered, and also the accommodation prepared for the labourers. I took up the matter from having been some time "guardian," and seeing that in my parish (being an open one under a dean and chapter, lords of the manor) we have about 25 able-bodied labourers more than the land of the parish demands, and hearing that frequently capitalists at various distances require labourers, and do not know how to obtain them. Guardians and overseers of parishes might be empowered to advertise labour, and to charge the expense of so doing on the poors' rates. *W. W. Malet, Ardeley Vicarage, Buntingford.*

Agricultural Maxims.—1. All plants, whatever be their nature, receive in the main the same kind of nourishment during the early part of their growth; therefore whatever gives nourishment to the plants we cultivate will also encourage the growth of weeds. 2. Two kinds of plants growing close together will necessarily rob each other of the nourishment which the soil is capable of giving; therefore if weeds are allowed to grow amongst the plants we cultivate, the food which the weeds absorb will just be so much nutriment withdrawn from the plants we cultivate. 3. Hence also the necessity of placing our plants at such a distance from each other that they may not rob one another of the nourishment each ought to have. 4. The nourishment which weeds receive from the soil would give life and nutriment to the grain or other plants we cultivate. Weeds ought, therefore, never to be allowed to produce their second leaves, they ought to be cut up as soon as they appear; and this is much easier done when they first appear than when they are two inches long. 5. No weeds should be allowed to blossom, or indeed to exist amongst any crop, as they not only keep the influence of the sun and air from the soil and the roots and leaves of the crop, but they absorb the moisture and nourishment of the soil and air, which ought to go to the production of the crops we cultivate. 6. By planting your seed in land that is full of the roots and seeds of weeds, you employ at least one half of your labour and capital in producing *them*, while only the remainder goes to the production of your crop along with a large crop of weeds, which, shedding their seed in the soil, will again produce another more abundant crop of weeds next year, and require an increased amount of labour and capital to clear the ground of them. 7. Decaying vegetable and animal matter in the soil increases its productiveness; therefore the soil should ever be producing plants (as they receive much of this nourishment from the atmosphere), if it were only for the purpose of being turned into the soil to be again decomposed and add decaying matter to it. 8. The soil which has produced a good crop of any kind of plant may again produce good crops of the same plant; if the land is in every respect under the same circumstances as at first—the state of cultivation, decomposing vegetable, animal, and mineral matter, heat, light, and moisture being the same. We see the weeds which are natural to the soil prosper in proportion to the cultivation and manure which they enjoy with our crops; and this they continue to do year after year; they never get tired of the soil, or require to be changed to make them more productive. 9. When a plant is natural to any particular soil it may be cultivated on

the same land year after year and produce abundant returns, if all the manure which the crop produced be returned to it and proper cultivation be given it. Cultivation improves all kinds of plants that are natural to the soil and climate. Weeds and their seeds come up as naturally and arrive at as great perfection now as ever they did, without any change of seed, whenever they receive cultivation. All soils having a dry and porous subsoil are most productive, and are much easier cultivated than those which have a retentive subsoil; therefore, if your land have not a porous subsoil naturally you ought to give it one artificially whatever the expense may be, as the additional produce and economy of labour will repay you with compound interest. *J. M.*

Calendar of Operations.

JULY.

SOUTH HANTS, *July* 12.—Since my last report of the crops of Wheat and other produce of the farm we have had on Monday and Tuesday, the 7th and 8th of this month, very severe gales and drifting showers of rain which has beat the Wheat crops about, and whilst in full bloom. The ears of Wheat are chafed, and the green husks stand projecting from the ears—the flags beaten into shreds, the soil beneath dusted with the bloom. Never have we seen Wheat in its green state so sadly knocked about as by these violent and long enduring gales. Barley and Oats have not suffered so much, these crops not being so forward in growth and maturity. The Turnip crops, especially Swedes, have been in every part of this county much injured by the fly, and in many places totally destroyed; during the last fortnight farmers are busy sowing afresh. The Mangel Wurzel is also very inferior as a crop, and particularly backward by reason of the very dry and hot weather. The dry-ground hay crops have been well secured in excellent condition, and lately the greater portion of the meadow hay has been got in in the best order. Much in places remains in swarth, and the rains have again set in, rendering the safety of these later mowings somewhat precarious. Markets had fallen, and factors had hesitated to purchase Wheat unless a reduction of 4*s.* per quarter was submitted to—double the fall in Mark Lane—the usual calculation in the provinces. The weather has fallen many degrees in temperature, and has become cold and ungenial. As to Wheat ricks, very few farms have any at all now; and the present Wheat crops are the thinnest on inspection throughout the country we have seen these three years past. *X. Y. Z.*

WEST SUSSEX, *July* 15.—We are still able to report all well. The crops, if we except Swedes, are all that can be wished for. In this immediate locality we have had but little rain, though it has been heavy not far off. We who live on the flat coast land often see with envy the fine showers that are falling along the range of hills behind us, as well as some that take to the sea. Often in the dry summer months we see the appearance of a heavy thunder storm gathering on the borders of Hampshire and looking as if it would pay us a visit, but a few drops from its outskirts are all that we get; but it has this year been a little more mindful of us, and we have had it sufficient to moisten the ground, and in some cases to bear down the heaviest of the Wheat; but the ear still stands up well, and may mature well enough, and if so will be a heavy crop. Barley is a fair crop; Oats are variable—some good, and some not up to last year's mark. Mangel grows well, and presents a strong contrast to Swedes, which have been struggling against the fly and (may be partly its cause) a too hastily prepared reception for the seed when the land was wet and cold. Some have failed in sowing Swedes, and many have had to sow twice, and even three times; but the worst case is where only part are taken, enough to spoil the crop, but not to induce us to plough them up. We have not heard of such a year for some time, but I believe that the cause is to some extent forcing work when the land was not in a proper state. We have finished hay making, and have had one of the best crops, and a good season to make it in, which was well, as it took so long to make, especially the Clover, which was not fit in less than a fortnight from the time it was cut, and as the second crop came up quickly with the heavy dews at night it made our days short for carrying, and many have had to move it again through carting too soon. The second cut promises to be heavy, and there will no doubt be an unusually large quantity of seed saved. Trifolium incarnatum seed is now fit to cut, and is likely to yield well. Here where we have to buy in lean stock we are not able to obtain the gain from our large supply of Grass that might be expected, although beef and mutton are very dear yet the price that is paid for the lean animals makes it all but impossible that they can pay. The Potato crop looks better than it has been for years. The prices paid for mowing Clover has been about 3*s.* 6*d.*, for meadows 4*s.* per acre. Our prices for fagging Wheat and putting it in stock for the past two years has been 12*s.*, and sometimes 13*s.*; mowing Barley and Oats, 3*s.*; but here, as everywhere else, chance hands get more, as they are discharged as soon as the work is done. Swede hoeing is just begun, and the price for singling is likely to be from 5*s.* to 8*s.*, according to the state of the land. Although day wages are higher here than in many places (being from 12*s.* to 15*s.* a week) piece-work is not much higher than elsewhere. *G. S.*

Notices to Correspondents.

ADDRESS: *Martin Doyle* would much oblige us by sending his address, which we have mislaid.

POULTRY: *J B N.* Your chickens have the "Gapes." Place them in a basket or large pan, covering it with a cloth, then introduce the stem of a tobacco-pipe, and by winding a silk handkerchief round the bowl, blow the fumes into the pan until the smoke begins to appear from the sides, then remove the cloth and turn the chickens out; at first they will appear to be dead, but in the course of a minute or two will recover both their legs and senses. This "smoke nuisance" is to be repeated about three times, when in almost every case which has come under our notice a cure has been effected. Out of 100 chickens which have suffered from the "gapes" this season we have only lost *one.*

RENNET: *A Correspondent.* The old belts serve for the season, brine being added at intervals as the stock is used. A large quantity is needed in cheese-making towards the end of the season of the weaker rennet thus made.

SMALL FARM: *X Y Z.* The answer to your question taken literally is—"Lay it all down to Grass." But we imagine that you have not fully stated your case. You must tell us how much permanent Grass you have in the 100 acres, and also give an idea, whether by stating the rent or otherwise, of the quality of the land.

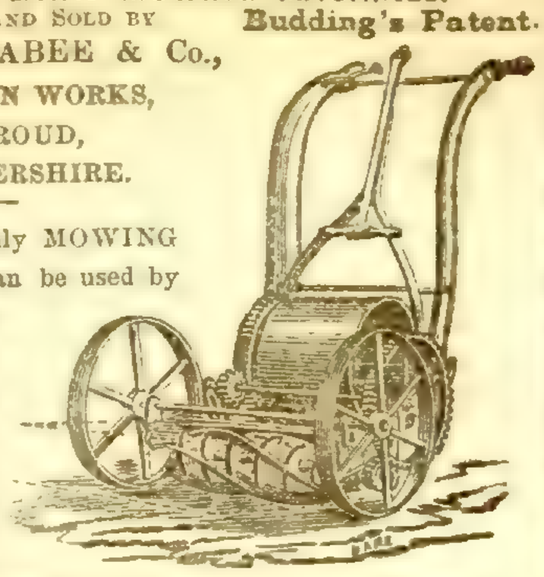
TIME FOR APPLYING MANURE: *G H P.* Apply manures of slow solubility in autumn, and of rapid solubility in spring. Thus, we would apply farm-yard manure, whether to Grass land or to arable (if we had it), in autumn, either to pastures or ploughed in with the stubbles. Guano we would put over our Wheat in February and March, and nitrate of soda at intervals in March and April.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

IMPROVED LAWN MOWING MACHINES.

MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5 10*s.* 0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6 0 0
Pony Machine (or Donkey)	„ 26 ditto	... 8 0 0
Horse Machine	„ 28 ditto	... 11 0 0
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London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in. short	1 ft. 7 in.	Fitted for lead,	1 10 0
2½ „ long	3 „ 3 „	gutta percha,	1 14 0
3 „ ditto	3 „ 6 „	or cast iron	2 8 0
3½ „ ditto	3 „ 6 „	flanged pipe,	2 12 0
4 „ ditto	3 „ 6 „	as required.	3 3 0

2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing 2 14 0

2¼ in. long ditto ditto ditto 2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

ROYAL AGRICULTURAL SOCIETY'S SHOW AT CHELMSFORD.—STAND No. 19.

B. SAMUELSON'S

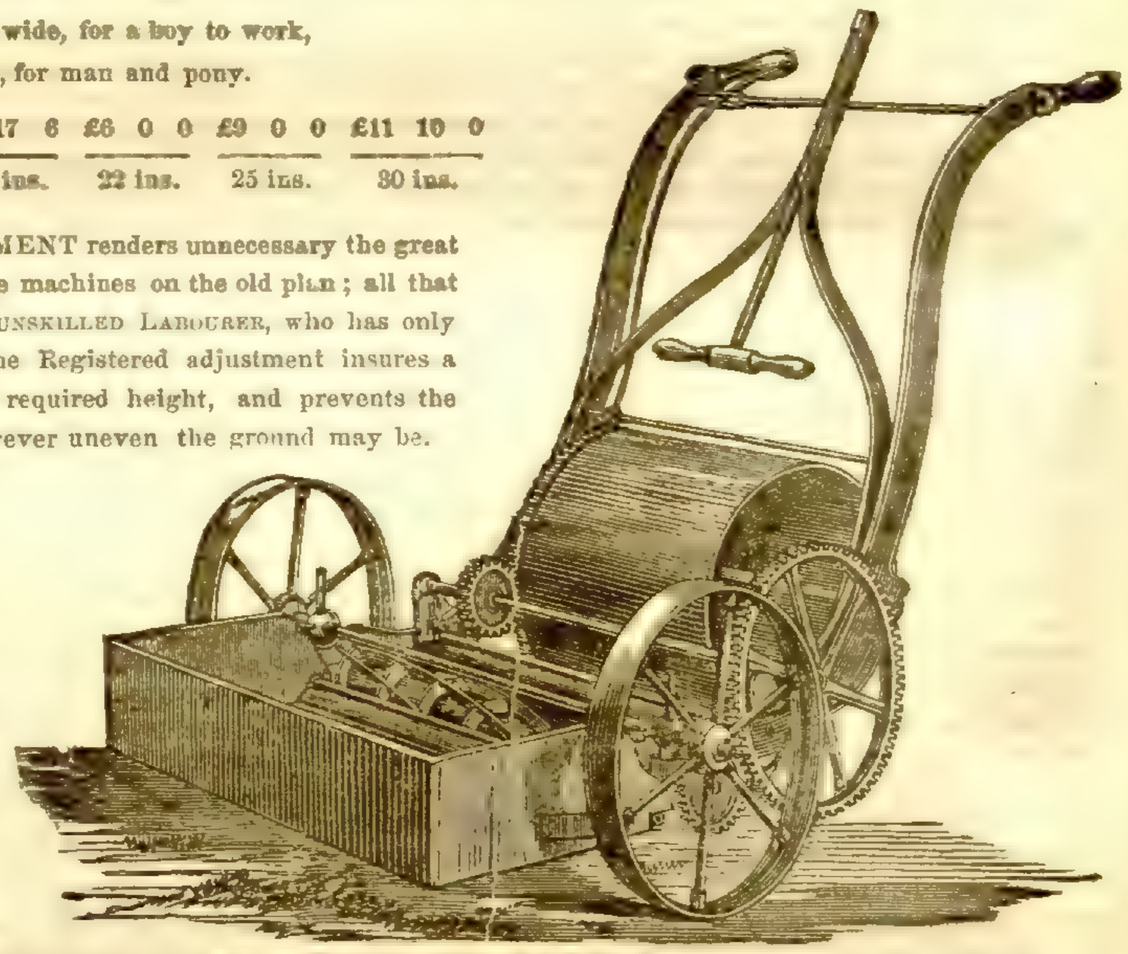
REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 15 0	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury; and
STAND No. 19, Royal Agricultural Society at Chelmsford.

STAND No. 19, ROYAL AGRICULTURAL SHOW AT CHELMSFORD.

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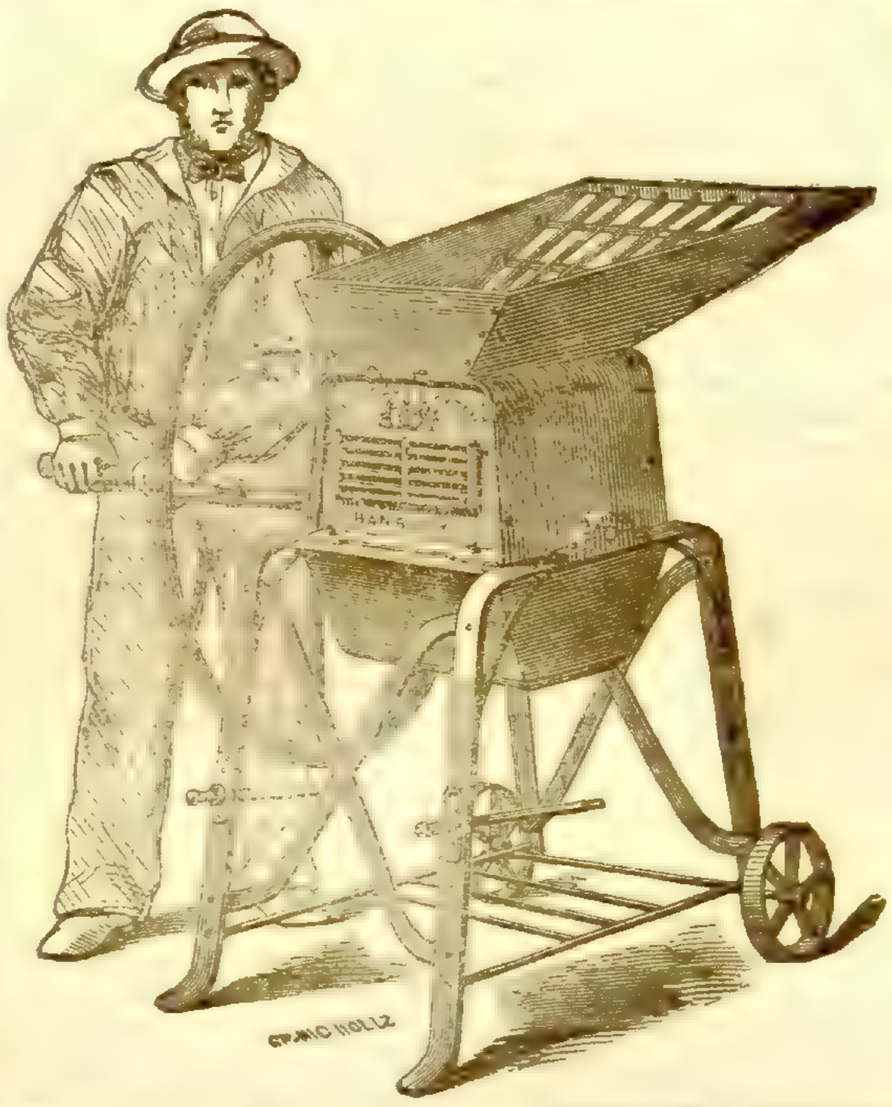
BRITANNIA IRON WORKS, BANBURY,

Will have pleasure in forwarding Post Free, on receipt of application, his Illustrated Priced Catalogue of Implements.



SAMUELSON'S Patent Gardner's Double Action and Single-Action TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes 11 times at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the Provincial Societies' Meetings. Between 60,000 and 70,000 of these Machines have been made in and supplied from the above Works.

Moody's, Phillips', Gauntlett's, Bushe and Barters', and every other description of PATENT TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. SAMUELSON'S Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for Stables and small occupations, and for exportation, 3*l.*

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CHURNS.—SAMUELSON'S Registered Atmospheric and Anthony's Patent American, manufactured solely by B. SAMUELSON.

SAMUELSON'S Registered Budding's LAWN MOWERS, from 9 inches up to 30 inches wide. The registered improvement has removed all the difficulties attending these labour-saving machines, requiring only to be pushed along by an unskilled labourer to insure a perfectly level cut.

Kase's Patent Double-Action FORCE PUMPS; Galvanised Iron-barrel and other PUMPS.

Some of each of the above may be seen at Stand No. 19, Royal Agricultural Show, Chelmsford; and may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL **LETTERS PATENT.**

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

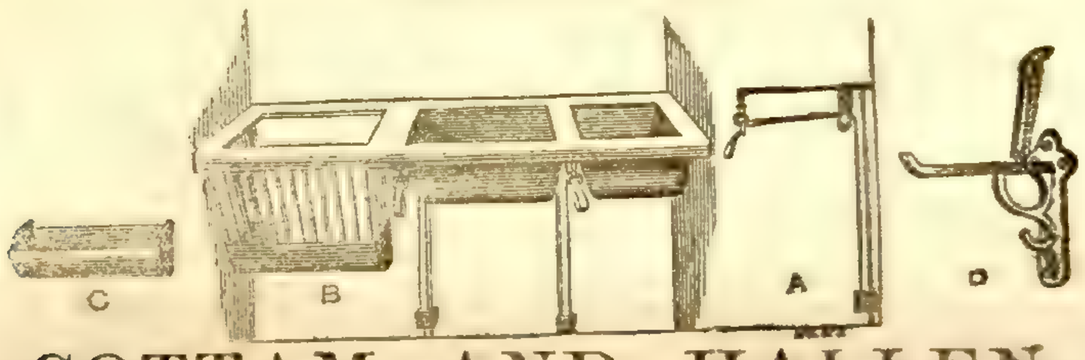
Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

CHASE'S

BEETLE POISON,

ENTIRELY FREE FROM DANGER TO HUMAN LIFE, AND PERFECTLY HARMLESS TO CATS AND DOGS.

A SAFE AND MOST EFFECTUAL DESTROYER OF BLACK BEETLES AND COCKROACHES; one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is, that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Sold in boxes at 1s. each, or sent free to any part of the kingdom for Twenty Stamps (or a case containing one dozen boxes sent carriage free on receipt of a post-office order for 12s.), by THOMAS CHASE, Chemist, 14, Holborn, opposite Furnival's Inn, London, and may be obtained through all Chemists and Medicine Vendors.

The following Testimonial has been selected from many others, too numerous to publish:—

"Hackney, 10th April, 1856.

"SIR,—I have great pleasure in bearing my testimony as to the efficacy of your 'Beetle Poison,' by the use of which I have destroyed the Cockroaches infesting my Orchid houses, and also the Black Beetles in the dwelling-house.—Your obedient Servant,

"Mr. Chase. C. LODDIGES."

TO BE LET, at Pawlett, near Bridgewater, a Large ARABLE FARM.—For particulars apply to Mr. HENRY SMITH, Pawlett, Bridgewater.

TO MARKET GARDENERS, ETC.

TO BE LET, with immediate possession, one of the best MARKET GARDENS in the vicinity of Bath, now in the occupation of the owner, Mr. P. Lidiard, containing about 12 acres, and more land if required, with good Dwelling-house, Outbuildings, Yard, Barns, 8-stall Stable, Washing-house, and Potato Store for about 1000 sacks, with large Melon and Cucumber Houses heated with hot water, two Greenhouses, and one Vinery and sundry Pits. The Goodwill of the Business, in connection with a Stand in the Bath market, will be included in the rent. The Property has been in the hands of the owner's family for 40 years, who have carried it on successfully, and have frequently taken Prizes at the Regent's Park and Chiswick Shows. It is in the highest state of cultivation. The Crops under stock to be taken at a valuation, and paid so as to suit the convenience of a tenant, as may be agreed upon. The owner gives it up on account of ill health. This is an unusual opportunity for obtaining a first-rate provincial business upon very moderate terms, and none but those giving good references as to character, capital, and ability, will be treated with.—For further particulars and to treat, apply to COTTERELL & SPACKMAN, Land Surveyors, 6, Terrace Walks, Bath.

Sales by Auction.

HAMPEN RAM SALE, 1856.

T. BEALE BROWNE, ESQ., has fixed MONDAY, July 28, for the Sale by Auction of about FIFTY COTSWOLD SHEARLING RAMS and Four or Five Older Sheep. Two or three will be Let. Hampen is eight miles from Cheltenham, and two from Andoversford. Sale at 4 o'clock. This Flock took 10 prizes and three gold and silver medals last year in Paris, in Ireland, and at Carlisle, Hereford, and in Gloucestershire.

TO BE SOLD BY AUCTION, at Wadley, near Faringdon, Berkshire, the latter end of August, the entire Flock of pure SOUTHDOWN SHEEP, consisting of Breeding Ewes, Theaves, and a few Rams, the property of T. M. Goodlake, Esq., who has let his Farm. To be seen on the premises by application. The Dairy Stock, Pigs, &c., will be sold at the same time. Further particulars will be duly announced.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, the 29th, and WEDNESDAY, the 30th inst., at 1 o'Clock precisely, the valuable collection of ORCHIDS, the property of A. Kenrick, Esq., West Broomwich; the mention of a few will be sufficient to show the character of the collection:—

Aerides Lobbi	Phalænopsis amabilis
" Schroderi	" grandiflora
" suavissima	Saccolabium guttatum
Cattleya labiata	" Blumei major
" sp. from Warsewicz	" retusum
Cymbidium eburneum	" ampullaceum
Odontoglossum Phalænopsis	Vanda Suavis (Veitch's)
" Piscatorea	" " (Rollisson's)

&c., &c., &c.

May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

SNARESBROOK, ESSEX.

TO EXHIBITORS, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS PROTHEROE AND MORRIS will Sell by Auction, without reserve, on the Premises, near the Eagle Inn, Snaresbrook, Essex, on MONDAY, July 21, at 12 o'Clock, by order of the Executors, the whole of the GREENHOUSE and other PLANTS, including about 100 fine specimen Erica ventricosa, Cavendishi, vestita, &c.; Epacris miniata, grandiflora, Leschenaultia, Baxteri major, Tetratheca verticillata, Pimelea, Chorozema, Hovea Celsi, Boronia pinnata, Azalea Indica, Camellias, Oranges, Pelargoniums, Fuchsias, Cactus, &c. &c.—May be viewed on the morning of Sale; Catalogues had on the Premises; at the Eagle Inn, Snaresbrook; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

PUBLIC SALE OF A RICH AND IMPORTANT COLLECTION OF PALMS, ORCHIDS, ZAMIAS, CAMELLIAS, AZALEAS, &c.

TO BE SOLD BY AUCTION, on THURSDAY, July 24, at the Chateau de Bierbais, the seat of Mr. Deman de Lennick, near Brussels, Belgium, a fine collection of Living Plants, including rare and magnificent Palms, as Chamærops tomentosa, Chamærops stauracantha, Diplothemium argenteum, &c., in fine and large specimens; Zamias and Encephalartos of first choice; a beautiful set of rare and well established Orchids, as Cattleya crispa (with 60 and 70 bulbs); C. Luddemanniana (17 bulbs); Lælia elegans, very strong; Vanda cærulea; Sobralia macrantha, extraordinary specimen, with 120 stems, 20 feet circumference, &c. Several nice Ferns, amongst which a noble specimen of Angiopteris Wellincki, from Java, 15 yards foliar circumference; Camellias in large and strong pyramids; Azaleas, &c.—Printed Catalogues can be obtained on application to Mr. EDOUARD KEILIG, Brussels, Rue du Champ de Mars, 10.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

GARDEN VASES, WIRE WORK, AND IMPLEMENTS OF HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory for aviaries, poultry houses, arbours, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to COTTAM & HALLEN, Iron Works, 2, Winsley Street, Oxford Street.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe	Pickaxes
Axes	[Scissors	Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills	[terns	„ Knives, various
Borders, various pat-	Gravel Rakes and Sieves	„ Saws
Botanical Boxes	Greenhouse Doors and Frames	„ Scissors
Brown's Patent Fu-		„ Shears
migator	[struments	Rakes in great variety
Cases of Pruning In-	Hammers	Reaping Hooks
Daisy Rakes	Hand-glass Frames	Scythes
Dibbles	Hay Knives	Scythe Stones
Dock Spuds	Horticultural Hammers and Hatchets	Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and Shears	Hotbed Handles	Sickle Saws
	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various patterns, in Zinc, Porcelain, &c.	Spuds
„ Stands in Wires and Iron		Switch Hooks
		Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and Plant Protectors	Marking Ink	Trowels
	Mattocks	Turfing Irons
Garden Chairs and Seats	Menographs	Wall Nails
	Metallic Wire	Watering pots
„ Loops	Milton Hatchets	Weed Hooks
„ Rollers	Mole Traps	Wheelbarrows
„ Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

DEANE, DRAY, AND CO. (Opening to the Monument) London Bridge. Established A.D. 1700.

THE BEST FOOD FOR CHILDREN, INVALIDS, AND OTHERS.

ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

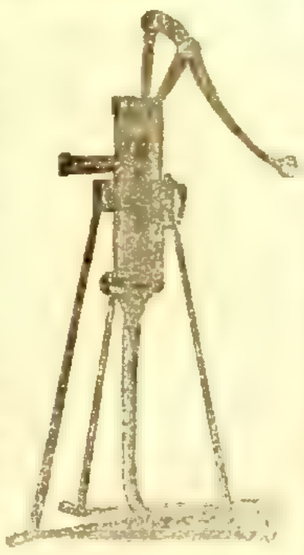
Prepared only by the Patentees, ROBINSON, BELLVILLE, & Co., Purveyors to the Queen, 64, Red Lion Street, Holborn, London. Sold by all respectable Grocers, Druggists, and others in Town and Country, in packets of 6*d.* and 1*s.*; and Family Canisters, at 2*s.*, 5*s.*, and 10*s.* each.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

RICHMOND & CHANDLER'S PRIZE-TOOTHED ROLLER CHAFF-CUTTING MACHINES are constructed entirely of Iron, and are therefore remarkably firm when in use. This important quality is wanting in all wood framed machines, which are, of course, liable to contraction.

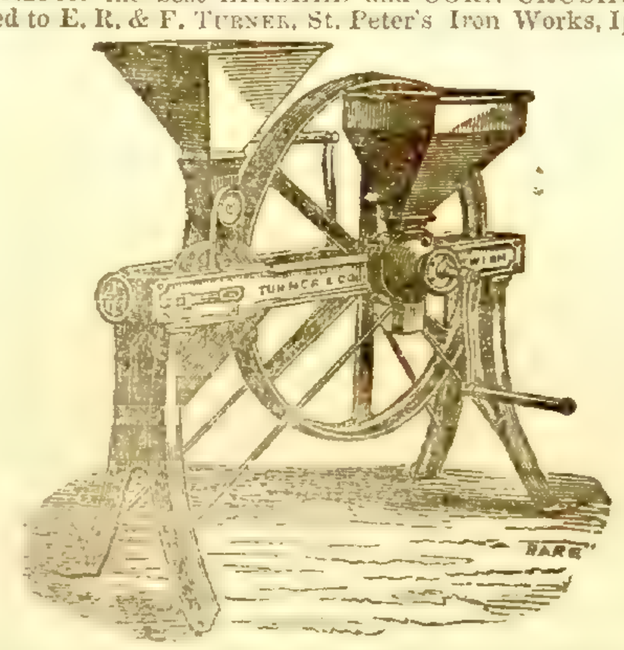
RICHMOND AND CHANDLER'S IMPROVED PREMIUM CORN CRUSHERS are also constructed entirely of Iron and are not subject to the same contingencies as others. They are adapted for bruising Beans, Oats, Indian Corn, &c., and can be worked with less labour for the quantity crushed than any yet produced.

PATENT HAYMAKERS AND HORSE RAKES, which can be confidently recommended as capable of doing their work efficiently, expeditiously, and with economy.—Implement Works, Salford; Branch Establishment, South John Street, Liverpool.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

AT THE NORWICH, GLOUCESTER, LINCOLN and CARLISLE SHOWS,

The Prize for the best LINSEED and CORN CRUSHER was awarded to E. R. & F. TURNER, St. Peter's Iron Works, Ipswich.



E. R. & F. TURNER invite the attention of Agriculturists and others to the following machines of their manufacture:—

ROLLER MILLS for crushing Linseed, Oats, Barley, Malt, &c., of various sizes, with or without Bean-mill combined. The numerous prizes awarded these Mills by the Royal and other agricultural societies render comment on their merits unnecessary.

PATENT COMBINED GRINDING and CRUSHING MILL for reducing Barley, &c., to a fine and soft meal, and crushing Oats, Linseed, &c., is strongly recommended for the variety of purposes to which it is applicable, and for its perfect and economic working.

CHAFF CUTTERS, for horse or steam power, cutting three lengths, with facility for changing the length of the cut almost momentarily, and other valuable improvements.

OILCAKE BREAKERS, made entirely of iron, with case, hardened teeth suitable for all descriptions of cake. Price 3*l.* 10*s.*

FIXED STEAM-ENGINES, on the horizontal direct acting principle. Long experience and attention to the practical working of steam-engines of every variety, have enabled the manufactures to offer these Engines as inferior to none—either for efficiency, economy, or durability—and at prices which will be found comparatively low.

Superior Portable Steam-Engines and Threshing Machines, Horse-Power Threshing Machines, Circular Saw Tables, One Horse Carts, and various other Implements, are also manufactured at the above Works.

Illustrated Price Lists sent free on application.

GLASS FOR CONSERVATORIES, ETC.

W. HICKSON, 46, Long Acre, Importer of Belgian Sheet (superior to English manufacture) is supplying 16 oz. at 16*s.* per 100 feet, box included, sizes from 20 by 12 to 24 by 16, or large ditto cut, at 2*d.* per foot up to 14 feet in length. Estimates forwarded, and Conservatories Glazed in any part of the country.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12*s.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ...	13*s.*	9 by 7, and 10 by 8 ...	13*s.* 6*d.*

11 by 9,	12 by 9,	13 by 9,	14 by 9 ...		
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...	14	0
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...		
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...	16	0
18 „ 12,	19 „ 12 ...	...	... ...		
16 „ 13,	17 „ 13,	18 „ 13 ...	... ...	18	0
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...		
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...	18	0
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...		

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ...	10*s.* 6*d.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ...	12 0	9 by 7, and 10 by 8 ...	15 0

For larger sizes, a full List of Prices will be sent on application.

FERN CASES, with Ferns complete, suitable for the Drawing Room, from 25*s.* each.

AQUARIUMS, with French polished stands, from 6*s.* each. Vase-shaped ditto and Tanks.

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Cucumber Tubes, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, Fern Shades, and every article in the trade.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE,

87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included. — Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in.	...	...	12*s.*	0*d.*
6½ „	4½ „	7 „	5	...	...	12	6
7½ „	5½ „	8 „	6	...	...	13	0
8½ „	6½ „	9 „	7	...	...	13	6
9½ „	7½ „	10 „	8	...	...	13	6
10½ „	8½ „	11 „	9	...	...	14	0
12 „	9 „	13 „	9	...	...	14	0
10 „	10 „	10½ „	10½	...	...	14	0
11 „	10 „	11½ „	10½	...	...	14	0
11 „	11 „	11½ „	11½	...	...	14	0
12 „	11 „	12½ „	11½	...	...	14	0
13 „	11 „	13½ „	11½	...	...	14	0
13 „	12 „	13½ „	12½	...	...	16	0
13½ „	13½ „	14½ „	13½	...	...	16	0
15½ „	13½	...	...	...	...	16	0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18*s.* per 100 feet.

21 in. glass, in boxes under 14 by 10, 2*d.* per foot.

Ditto, not exceeding 1 foot ... 2½ „

Ditto „ 2 feet ... 3½ „

HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, July 19, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 30.—1856.] SATURDAY, JULY 26. {Price Fivepence. Stamped Edition, 6*d*.

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BANBURY FLORAL AND HORTICULTURAL SOCIETY.—The Tenth Annual Show of this Society will take place on TUESDAY, August 26, when in addition to upwards of 200 Prizes offered for competition amongst Members of the Society, the following additional Prizes, open to all England on payment of an entrance fee of 2*s*. 6*d*., will be awarded:—For the best 6 Stove or Greenhouse Plants in flower, different genera, but not Fuchsias—first prize, 3*l*.; second prize, 2*l*. All exhibitors must, before 3 o'clock of the afternoon previous to the Show, send to Mr. H. Stone, the Secretary, a statement in writing of the productions they intend to exhibit.—Banbury, July 26.

SCOTTISH ARBORICULTURAL SOCIETY.—All ESSAYS intended for competition for the Prizes offered by the Society must be lodged with the Secretary not later than 1st August, 1856.—Further particulars may be obtained on application to James Alexander, Secretary.
6, York Place, Edinburgh, July 26.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

GEORGE TAYLOR, Junior, Growers' Salesman
For Choice Garden Produce,
St. John's Market,
Liverpool.
Terms—"Cash."

BALSAMS.
F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show of the Botanic Gardens, Regent's Park.
Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled.—Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

TO THE SEED TRADE.
JAMES NORRIS offers about 14 cwt. CABBAGE SEED, and 2 cwt. dark green COLEWORT, all saved from well selected stock, growth of 1856, at 10 guineas per cwt., in quantities of not less than 2 cwt. Terms cash, or Post-office order payable at Brentford must accompany orders. Sacks unmarked charged 3*s*. each. The Seed is not good coloured, but warranted to grow.—Sion Hill, Brentford End, Isleworth, July 26.

PRIZE CALCEOLARIA AND CINERARIA SEED.
WILLIAM B. JEFFRIES, Arboretum Nurseries, Ipswich, can now supply Seeds of his unrivalled collection of the above in packets at 5*s*. each, or second quality 2*s*. 6*d*. For briskness of colour, shape, and beautiful markings they are unequalled. In proof of their superiority they were this season awarded four first prizes and two first class certificates. Also a few packets of splendid Fimbriated Primula, 1*s*. 6*d*. each.
AZALEA INDICA.—W. B. J. offers a very choice collection, good plants, 9*s*. and 12*s*. per dozen; very fine do., in 48-pots, for flowering next spring, 12*s*. and 18*s*. Names on application.

NEW TURNIP.
WAITE'S "ECLIPSE," PURPLE TOP YELLOW HYBRID TURNIP.
THIS new and distinct variety is a hybrid between the Purple Top Swede and Purple Top Yellow Scotch Turnip; it possesses the properties of the Swede, and may be sown much later. Coloured Drawings of this splendid Turnip may be had on application, or may be seen at the principal Seed Establishments throughout the kingdom. The Seed can be obtained of all respectable Seedsmen, price 3*s*. per lb.—A liberal allowance to the Trade.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

New and Beautiful Hardy Coniferous Tree.
CUPRESSUS LAWSONIANA.
MESSRS. WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s*.; six plants, 4*l*. 10*s*.; 12 plants, 7*l*. 10*s*.—Knap Hill Nursery, Woking, Surrey.

FOR PRESENT SOWING.
SUTTON'S RENOVATING GRASS SEEDS *for improving Parks, Meadows, and Upland Pastures.*
Quantity required per acre 6 to 12 lbs., price 9*d*. per lb.
Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

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SUTTON AND SONS, Seed Growers, Reading, have a fine Stock of fresh NATURAL GRASS SEEDS for Permanent Pasture. August is a good season for sowing. Goods delivered Carriage Free by Rail. Prices moderate. Terms, Cash.
Royal Berkshire Seed Establishment, July 26.

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SUTTON AND SONS, Seed Growers, Reading, can supply fine new Seed in time for the August Sowing at reduced price (for cash payment), the crop of New Seed being good.—Goods delivered carriage free by rail.
Royal Berkshire Seed Establishment.—July 26.

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NEW TURNIP SEEDS FOR AUGUST SOWING
(Carriage Free).
SUTTON AND SONS, Seed Growers, Reading, have now harvested their new Turnip Seeds, and can deliver them immediately on receipt of order. Prices moderate. Terms cash.
Royal Berkshire Seed Establishment.

PRICES OF UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, for the Season of 1856. All orders (not less than 20) to be accompanied with a Post-office order on Birmingham:—

Twenty ...	... £0 12 0	Eighty ...	... £2 1 6
Forty ...	... 1 2 0	Hundred ...	... 2 8 0
Sixty ...	... 1 12 0		

Plants in Pots, not less than Ten, 1*s*. 3*d*. each will be ready in October next.
Mr. Underhill's "Treatise on the Cultivation of the Strawberry," price 1s.
Address—Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

CHOICE SEEDS.
J. DOBSON & SON beg to offer the following, their own saving:—CALCEOLARIA, from their unequalled collection, in packets, 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each.

FANCY GERANIUM, per packet	... ...	1*s*. 0*d*.
PANSY ditto	... ...	1 0
PRIMULA SINENSIS, fine, per packet	... ...	1 0

Woodlands Nursery, Isleworth; and High Street, Hounslow.
It is requested that all Seed Orders may be addressed to the latter place.

FLOWER AND VEGETABLE SEEDS.
JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed*	1*s*. per packet.
Calceolaria, *choicest varieties*	1*s*. „
Cineraria „ „	1*s*. „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.
James Carter & Co., Seedsmen, 238, High Holborn, London.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen.
Exotic Orchids ... ... from	42*s*.
Stove and greenhouse Ferns ... ... „	18
Hardy do. ... ... „	9
Selaginellas or Lycopodiums ... ... „	18
Geraniums, show and fancy varieties ... „	9
Gynerium argenteum (Pampas Grass) ... „	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

SEEDS FOR PRESENT SOWING.
JOHN CATTELL respectfully informs his numerous customers and the public generally that he is now prepared to send out SEEDS of his superior CALCEOLARIAS, CINERARIAS, &c., at the prices annexed, post free.
The superior quality of the Calceolarias raised from the seed supplied by J. C. having been acknowledged by many of the Trade, also Gardeners and Amateurs, J. C. can with confidence offer the seed of this season.

	Per packet.—*s*.	*d*.
Anemone, fine mixed, single poppy	0	6
„ fine scarlet poppy	0	6
Antirrhinum, superior, mixed	0	6
Calceolaria, from the two superior varieties sent out by J. C. last year, carefully hybridised	2	6
Cineraria, from finest collections	1	6
Gloxinia, extra fine	1	0
Heartsease, from fine show varieties	1	0
„ from new French, spotted and striped ...	1	0
Hollyhock, from fine show varieties	1	6
Mimulus, extra fine	0	6
Schizanthus retusus	0	6
Sweet William, very superior	1	0

Nurseries, Westerham, Kent.

CONES OF ABIES DOUGLASI.
GEORGE ROBERTS begs to make known that he has lately received from the north-west coast of America a package of fine CONES of ABIES DOUGLASI. This noble tree attains in its native habitats on the banks of the Columbia River a height of from 150 to 200 feet, affording timber unequalled for masts, and remarkably free from knots and tendency to warp. From its beauty, rapidity of growth (having reached at Dropmore 60 feet in 18 years), and long-proved hardiness in Great Britain during the severest winters, it is recommended for extensive cultivation by the principal authorities on Coniferous trees.
32 Moorgate Street London.

ROSES, ETC.
THE AUTUMNAL ROSES at Sawbridgeworth are now in fine bloom. The Orchard House culture will also be found worthy of a visit, as houses upwards of 100 feet in length are occupied with Apricots, Peaches, Figs, and Vines in pots. The Harlow Station, about one mile from the Nurseries, is the most convenient.
Thomas Rivers, Sawbridgeworth, Herts.—July 26.

ROSES.
J. AND J. FRASER beg to announce that their collection of ROSES is now in Flower, to which they respectfully invite the attention of the public.
The Nursery is about 15 minutes' walk from the Lea Bridge Station, on the Eastern Counties Railway.
*** Trains from Shoreditch about 12 times a day.
The Nurseries, Lea Bridge Road, Essex.—July 26.

ROSES.
G. CLARKE respectfully invites admirers of ROSES to an inspection of his superb collection, extending over 12 acres of ground, which are now in great perfection. Plants can be selected now and orders executed in November.
All the newest Geraniums, Calceolarias, Azaleas, Epacrises, &c. Fine collections of Rhododendrons, Ghent Azaleas, Coniferæ, Evergreens, and Fruit Trees.
The nearest and most pleasant route from the West End to the Crystal Palace. Streatham Place Nursery, Brixton Hill, four miles from London Bridge.

AZALEA INDICA.
J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, July 26.

DUTCH BULBS.
WM. CUTBUSH AND SON beg to acquaint their Friends and the Public that their DESCRIPTIVE CATALOGUE of these interesting Spring Flowers will be ready for distribution on and after the 1st August. Post free on application.—Highgate Nurseries, London.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S CATALOGUE of DUTCH BULBS is now ready, and can be had post free on application.—Royal Nursery, Slough.

TULIP CATALOGUE.
CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, will be ready by the 1st August, and can be had on application.
A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.
Now ready, very choice CINERARIA, 2*s*. 6*d*. per packet.
very choice CALCEOLARIA, 2*s*. 6*d*. „
Royal Nursery, Slough.

WANTED, next October, for planting, DEODARA PINES, any size, and any quantity not exceeding 500.—Apply, stating price, to Mr. Browne, Hill House Farm, Ifield, Crawley, Sussex.

TO GARDENERS AND OTHERS.
TO BE SOLD, 109,000 DOUBLE AND SINGLE SNOWDROPS. For price, &c., apply to Mr. Macdonald, Auctioneer and General Agent, Holbeach, Lincolnshire.—Holbeach, July 26.

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TO BE SOLD, by Private Contract, in one or more Lots, 700 to 800 Fruiting and Succession PINE PLANTS, very healthy, stocky, and clean. Gentlemen about to furnish their Pine Stoves are requested to inspect this first-rate stock. Very eligible for carriage by rail or water.—Apply to J. Lancaster Edward Street, Deptford.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.
WILLIAM BARNES is now prepared to send out Seeds of his beautiful and unrivalled CALCEOLARIA, CINERARIA, and SWEET WILLIAM, the two former 2*s*. 6*d*. the latter 1*s*. 6*d*. per packet.
It is needless to say anything in recommendation of the above, as W. B. has received numerous testimonials in their praise from the many gentlemen and gardeners whom he has supplied. Payment by postage stamps.
Address—Camden Nursery, Camberwell.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*.; sent post free, 1*s*. 2*d*. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d*. per packet. Catalogue on application.
DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d*. per packet.
Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

NEW FUCHSIAS AND VERBENAS.
MESSRS. FOWLE AND SON are now prepared to furnish the following new and magnificent Fuchsias and Verbenas at remarkably low prices, viz.:—
FUCHSIAS (Henderson's).—Charlemagne, Countess of Burlington, Donna Joaquina, Emperor Napoleon, Venus de Medicis, and Valcona di Aqua. The six varieties, 15*s*.
VERBENAS (Smith's).—Criterion, Sir Colin Campbell, Eugenie, King of Roses, Cedo Nulli, General Simpson, John Edwards, Dandy, Sultan, Portia, Admiral Lord Lyons, and Geant de Batailles (Henderson). The 12 varieties, 12*s*.
Holland Nursery, Holland Street, Brixton Road.
Post-office orders made payable at Brixton or Kennington.

MESSRS. E. G. HENDERSON & SON'S
NEW CALCEOLARIAS

ARE the finest marked, best formed, and the richest in colour of any shown this season at the London Exhibitions. They obtained the Silver Medal at the Royal Botanic Society, Regent's Park, on Wednesday, June 18th, and are the most beautiful of any yet raised. Seed of these and the following Flowers, suitable for the present season's sowing, may now be had, also their unrivalled mixed Cineraria:—

CALCEOLARIA, First Quality	5s. 0d.	per packet.
Ditto Second Quality	2 6	"
CINERARIA, Choice	2 6	"

FOR LIST OF OTHER CHOICE SEEDS SEE ADVERTISEMENT JULY 19.

The Spring Catalogue may be had post free on application, or with Coloured Plate of Nine New Flowers, Price 1s.

Wellington Nursery, St. John's Wood, London.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

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HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

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Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5s. 3d. each.

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SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

DEANE'S WARRANTED GARDEN TOOLS.—Horticulturists and all interested in Gardening pursuits are invited to examine DEANE, DRAY, AND CO.'S extensive Stock of GARDENING and PRUNING IMPLEMENTS, best London-made Garden Engines and Syringes, Coalbrookdale Garden Seats and Chairs.

Averuncators	Gidney's Prussian Hoe [Scissors	Pickaxes
Axes		Potato Forks
Bagging Hooks	Grape Gatherers and	Pruning Bills
Bills [terns	Gravel Rakes and Sieves	" Knives, various
Borders, various pat-		" Saws
Botanical Boxes	Greenhouse Doors and Frames	" Scissors
Brown's Patent Fu-		" Shears
migator [struments	Hammers	Rakes in great variety
Cases of Pruning In-	Hand-glass Frames	Reaping Hooks
Daisy Rakes	Hay Knives	Scythes
Dibbles	Horticultural Hammers and Hatchets	Scythe Stones
Dock Spuds		Shears, various
Draining Tools	Hoes of every pattern	Sickles
Edging Irons and Shears	Hotbed Handles	Sickle Saws
	Ladies' Set of Tools	Spades and Shovels
Flower Scissors	Labels, various patterns, in Zinc, Porcelain, &c.	Spuds
" Stands in Wires and Iron		Switch Hooks
		Thistle Hooks
Fumigators	Lines and Reels	Transplanting Tools
Galvanic Borders and Plant Protectors	Marking Ink	Trowels
	Mattocks	Turfing Irons
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	Metallic Wire	Watering pots
" Loops	Milton Hatchets	Weed Hooks
" Rollers	Mole Traps	Wheelbarrows
" Scrapers	Mowing Machines	Youths' Set of Tools

DEANE, DRAY, AND CO. are sole Agents for LINGHAM'S PERMANENT LABELS, samples of which, with their Illustrated Priced List of Horticultural Tools, can be sent, post paid, to any part of the United Kingdom. Also, Wholesale and Retail Agents for SAYNOR'S celebrated PRUNING KNIVES, used exclusively by the first Gardeners in the United Kingdom.

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HARTLEY'S PATENT ROUGH PLATE GLASS, (1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs; and 1-4th, or 4 lbs. to the foot), for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

In Squares Cut to Sizes Ordered.	⅛ s. d.	3/16 s. d.	¼ s. d.
14 by 10, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½
1½ ft. sup., 3 or if above 20 & not above 30 in.	0 7	0 8½	0 10
3 " 4 " 20 " 30 in.	0 7½	0 9	0 10½
4 " 5 " 30 " 35 in.	0 8	0 9½	0 11
5 " 6 " 35 " 40 in.	0 8½	0 10	0 11½
6 " 8 " 40 " 45 in.	0 9	0 10½	1 0
8 " 10 " 45 " 55 in.	0 9	0 10½	1 0
10 " 12 " 55 " 65 in.	0 9	0 10½	1 0
12 " 15 " 65 " 75 in.	0 10	0 11	1 0
15 " 20 " 75 " 90 in.	0 11	1 0	1 2
20 " 25 " 90 " 100 in.	1 1	1 2	1 3

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10s. 6d.	8 by 6, and 8½ by 6½ ... 13s. 6d.
7 by 5, and 7½ by 5½ ... 12 0	9 by 7, and 10 by 8 ... 15 0

Estimates forwarded on application.

London Agents: JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

CHEAP GLASS FOR HOT-HOUSES, AND CONSERVATORIES.—The best place in England for strong Glass is at the East London Sheet and Plate Glass Warehouse, 45, Leman Street, Goodman Fields. 100 feet boxes strong small sizes, from 8 to 6 down, only 6s., box included. All other descriptions of Glass equally cheap, and delivered free of charge to any of the Carriers in London. Estimates given for Plate Glass.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

FOREIGN AND ENGLISH SHEET GLASS WAREHOUSE, 87, BISHOPSGATE STREET, WITHOUT.

T. MILLINGTON supplies the above SHEET GLASS in any size or substance, packed in 100, 200, or 300 feet cases. Same as supplied to Mr. RIVERS and the leading men of the day. Reduced tariff, boxes included.—Per 100 ft.

6 in. by	4 in. and	6 in. by	4½ in. ...	...	...	12s. 0d.
6½ "	4½ "	7 "	5 ...	...	...	12 6
7½ "	5½ "	8 "	6 ...	...	...	13 0
8½ "	6½ "	9 "	7 ...	...	...	13 6
9½ "	7½ "	10 "	8 ...	...	...	13 6
10½ "	8½ "	11 "	9 ...	...	...	14 0
12 "	9 "	13 "	9 ...	...	...	14 0
10 "	10 "	10½ "	10½ ...	...	...	14 0
11 "	10 "	11½ "	10½ ...	...	...	14 0
11 "	11 "	11½ "	11½ ...	...	...	14 0
12 "	11 "	12½ "	11½ ...	...	...	14 0
13 "	11 "	13½ "	11½ ...	...	...	14 0
13 "	12 "	13½ "	12½ ...	...	...	16 0
13½ "	13½ "	14½ "	13½ ...	...	...	16 0
15½ "	13½ ...	...	...	...	...	16 0

20 by 13, 21 by 13, 22 by 13, 21½ by 13½, 16½ by 14½, 20 by 14, 21 by 14, 20 by 15, at 18s. per 100 feet.

21 in. glass, in boxes under 14 by 10, 2d. per foot.
Ditto, not exceeding 1 foot ... 2½ "
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HARTLEY'S Rough Plate, Sheet and Rough, Tiles, Striking and Bee Glasses, Milk Pans, Cucumber Tubes, and Wasp Traps, as Horticultural List.

Milled Sheet, White Lead, and Lead Pipe. Paints, Colours, and Varnishes, see Colour List, which can be had on application.

Established more than 100 years.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything as the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Air-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH (Hampstead Road, and King's Road, Chelsea), having erected 13 Horticultural Structures of various new designs in wood, iron, and his two patent principles, all who are about to erect Horticultural Buildings of any description would well repay themselves the trouble of calling at Graby Nursery, Mornington Place, Hampstead Road, and inspecting the different designs and principles that they are built on. 1s. 3d. per superficial foot charged for Horticultural Buildings complete, with glass of excellent quality and thickness, doors with brass locks, lines, pulleys, quadrants, &c. Price List sent on application, and references given to any extent, both for Building and Heating with Hot Water. Structures of all descriptions.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed any part of the Kingdom for cash, 42 feet long by 13 feet, 90l.; 21 feet by 13 feet, 50l.; 12½ feet by 10 feet, 30l. A first-rate Conservatory, 30 feet by 18 feet, 130l. A large assortment kept. Estimates for Heating, or any branch in Wood or Iron.

BE PARTICULAR TO ADDRESS AT FULL LENGTH

BENJAMIN EDGINGTON,
2, DUKE STREET, SOUTHWARK.
MARQUEES, TENTS, AND RICK CLOTHS.

RICK CLOTHS.—A large quantity of CANVAS intended for the Crimea has been made into RICK CLOTHS, to be SOLD as second-hand, at greatly reduced prices A list forwarded by post.—Address, in full,
BENJAMIN EDGINGTON, 2, Duke Street, Southwark.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at AUSTIN & SEELEY'S Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.
N.B. Fountains from 10l. to 400l.

GEORGE P. TYE'S REGISTERED HYACINTH BOTTLES in great variety. May be had wholesale at 107, Great Charles Street, Birmingham; and retail of all Seedsmen in the United Kingdom.

FLOWER POTS.—The cheapest house in the trade is Messrs. ROGERS & SWIFT'S, Wholesale Flower-pot Manufacturers, Ouseburn Pottery, Newcastle-on-Tyne.

TO GARDENERS, ETC.

PATENT PREPARED GARDEN NETTING for covering Fruit Trees, Strawberries, &c., to be had in any quantity from A. GREIG, Fishing and Garden Net Manufacturer, Dundee.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1d. per square yard, 200 yards, 14s.; 500 yards, 30s.; 1000 yards, 50s.; scrim canvas for wall fruit.—At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2d. per yard; 2 yards wide, 4d. per yard; 4 yards wide, 8d. per yard. Half-inch mesh ditto, 2 yards wide, 8d. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½d. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½d. per yard; 4 or 6 yards wide, 3d. per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9d; ¾, 11d.; 1, 1s. 1d.; 1¼, 1s. 3d.; 1½, 1s 5d.; 1¾, 1s. 7d.; 2, 1s 9d.; 2¼, 2s.; 2½, 2s. 3d.; 2¾, 2s. 6d.; 3, 2s. 9d.

SUPER EXTRA STOUT QUALITY:—2, 2s.; 2¼, 2s. 3d.; 2½, 2s. 6d.; 2¾, 2s. 9d.; 3, 3s.

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9d.; 1¼, 10d.; 1½, 11d.; 2, 1s.; 2¼, 1s. 3d. 2½, 1s. 6d.

The Hose is Burnettised at an extra charge of 3d. per yard.

Union Joints, Branch Pipes and Jets are also supplied.

MARINE AND FRESH WATER AQUARIA.

SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.

These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

THE COMFORT OF A FIXED WATER-CLOSET for 1l.—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1l. Also Hermetically-sealed and inodorous chamber commodes, 1l. 2s. and 2l. 4s., and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

AN ADDRESS TO THE PUBLIC BY THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON.

THIS SOCIETY was founded in the year 1804, by Sir Joseph Banks and other gentlemen, for the purpose of "collecting every information respecting the culture and treatment of all plants and trees, as well culinary as ornamental, and for giving premiums in Horticulture whenever it should be judged expedient to do so."

In the year 1809 the Society was created by Royal Charter a Body Corporate "for the improvement of Horticulture in all its branches, ornamental as well as useful;" by this measure personal liability for debts to be incurred by the Corporation was for ever extinguished, its power of action was largely increased, and it at once took its place by the side of the Royal, Linnean, and other Chartered Societies, formed for the promotion of science.

For more than half a century the Society has steadily pursued the path traced out by the Charter. It has minutely examined the qualities, and reduced to order the names, of fruit trees and of esculent plants; it has directed the attention of scientific as well as of practical men to the improvement of the arts of cultivation; it has introduced at much cost great numbers of exotic plants to decorate our gardens; it has published many volumes filled with important treatises upon almost every subject in which the gardener is interested; it has formed a very extensive Garden and Orchard, in which have been collected from time to time numerous plants, valuable for their utility or beauty; it has given a great impetus to cultivation by its public exhibitions of garden produce; it has been a school from which have sprung some of the most distinguished gardeners of the present century; and it has given away to its Fellows, and to public establishments, above a million and a half of plants, packets of seeds, and cuttings. In effecting all this about 250,000*l.* have been expended, of which 40,000*l.* have been consumed in the creation of the Garden, more than 2000*l.* in forming collections of drawings, models of fruit, &c., 13,000*l.* in the mere cost of procuring new plants and seeds, while above 20,000*l.* have been directly applied in the form of medals and money prizes for the encouragement of Horticulture.

In these great efforts it has exerted itself beyond its strength. Before 1830, a heavy debt of more than 20,000*l.* had been incurred; and the Corporation is still oppressed by about ten thousand pounds worth of liabilities, of which not more than 3000*l.* have accrued within the last twenty years. This late increase of debt has been caused by the combined action of unpropitious seasons, &c., which have rendered the Great Garden Exhibitions latterly unprofitable; and of diminished income, caused by deaths and other adverse circumstances.

It is obvious that such an accumulation of debt will, if unchecked, speedily destroy the Society; and it is to avert this calamity—for a public calamity it would really be—that the present Council have resolved upon endeavouring to effect certain changes in the organisation of the Society, calculated, as they trust, at once to extricate the Corporation from the debt which has of late years so greatly impeded its action, and to place it in a secure and advantageous position for the future.

The gentlemen who constitute the Council have gratuitously undertaken the task of reorganising a most useful institution surrounded by difficulties arising from early errors, for which no one now alive is responsible. They have no purpose whatever to serve beyond promoting what is by all admitted to be of great social importance—the advancement of the art and science of Gardening, out of which Agriculture itself has sprung. And they throw themselves upon the public for the means required to effect their object.

They have set on foot a voluntary subscription, which has been most liberally met by many of the Fellows, and even by gentlemen who are not Fellows of the Society; they have determined upon selling the lease of the House in Regent Street, and certain other corporate property which can be parted with without material inconvenience: and they are reducing the expenditure of the Corporation to the lowest possible point consistent with maintaining its efficiency. By such means they hope to extinguish the debt, or to bring it within such narrow limits that it will no longer be an impediment to freedom of action.

In carrying on the Society the Council propose to maintain the Garden, to put the introduction of Exotic Plants and Seeds upon a new and more convenient base, to hold the usual Monthly Meetings and Exhibitions in London, to renew experiments on the cultivation and quality of fruits and esculents, and if found advisable, even to revive hereafter, upon another plan, the Exhibitions in the Garden itself.

But to effect these objects the public must give its hearty support, by joining not only in the voluntary subscription which has been opened, but in *strengthening the Society by an abundant introduction of new Fellows.* For this purpose the Council offer all the facilities in their power. It has long been the opinion of some of them that an annual subscription of 4*l.* 4*s.* is too high in cases where members do not desire to avail themselves of the distribution of plants from the Garden; and that the sum paid before the year 1818, namely, 2*l.* 2*s.* a year, was more commensurate with the advantages to be derived from joining the Society. It is now determined that all members joining the Society from and after the present date shall have the option of paying 4*l.* 4*s.* a year, receiving their share of the plants and seeds distributed from the Garden, and holding a Transferable Ivory Ticket; or of paying 2*l.* 2*s.* a year, receiving such seeds or cuttings as it may be found possible to procure in sufficient abundance for distribution in the London Office, and not holding the Ivory Ticket. Of seeds and cuttings, a proper provision will be made by opening communications with our Colonial and other public Garden Establishments.

In no case in future will an Admission Fee be required, but all new subscriptions will be payable in advance, instead of retrospectively as hitherto.

Under these arrangements the privileges of the Fellows will consist:—

1. In a participation in the distribution of plants and seeds, and holding a Transferable Ivory Ticket, which shall give the bearer all the personal privileges of the Fellow except attendance at SPECIAL GENERAL MEETINGS of the Society, according to their rate of subscription.

2. In free personal admission with friends (the number to be fixed hereafter) to the House of the Society, the Library, the Garden, and all Public Meetings.

3. In issuing orders for the free admission of a limited number of their friends to the Garden and all public meetings. (The limit to be in future assigned to this privilege is under consideration.)

4. In purchasing at a lower rate than the public a limited number of tickets, whenever tickets of admission to special exhibitions in London or elsewhere shall be provided for sale.

Such advantages the Council believe to be an amply sufficient return for the annual subscriptions as now settled; and they present them to the public with an earnest hope that they will be so regarded by all sincere friends of Horticulture.

Should the present plan be supported strenuously, the future career of the Society may be productive of greater public advantages than ever, and the progress of the art of Gardening be still felt in every village in the kingdom. If, however, there should not be zeal enough among the lovers of Horticulture, the Council will be unable to render the Society further assistance, the Garden must be relinquished, and the career of this great national association be inevitably brought to a speedy close. They therefore appeal not only to the Fellows of the Society, but to the great public itself, for support in this their endeavour to uphold one of those most useful institutions by which this country has for half a century been honourably distinguished beyond all others.

By order of the Council,
J. FORBES ROYLE, M.D., Secretary.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. PER POST PREPAID.

		s.	d.
CINERARIA of the first quality	per packet	2	6
CALCEOLARIA, from the handsomest spotted and blotched varieties	„	2	6
MIMULUS, ditto ditto ditto ...	„	2	6
GLOXINIA, ditto 30 varieties	„	2	6
FUCHSIA, ditto 50 new ditto	„	2	6
PANSY, saved from 100 of the best vars., by name	„	2	6
POLYANTHUS, do. 50 ditto ditto	„	2	6
VERBENA, do. 50 ditto ditto	„	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do.	„	2	6
DAISY do. 50 of the new Belgian do. ditto.	„	1	6
ANTIRRHINUM, do. 20 best named varieties ...	„	1	0
ANEMONE, from the most showy and brilliant kinds	„	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

Postage Stamps or Post-office Orders received in payment of the above.

YOUELL & CO., Royal Nursery, Great Yarmouth, Norfolk.

GRASS AND AGRICULTURAL SEEDS.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have directed their usual attention to procure very superior stocks of Grass and Agricultural Seeds, and which they recommend to their customers with confidence. Mixtures of Grass Seeds for laying down land to permanent pasture or ornamental Grass, suitable for all kinds and conditions of soils. Foreign Italian Rye-Grass, and all other Forage and Herbage Plants, Turnips, Mangel Wurzel, Carrots and other roots of the most approved varieties in cultivation. Garden and Flower Seeds in every variety.

Priced Catalogues will be sent free by post on application.

27, Great George Street, Westminster.

TURNIPS, MANGEL WURZEL, &C.

PETER LAWSON AND SON, SEEDSMEN TO THE QUEEN, &c., beg to intimate that they have a very superior stock of the above of their own growth, including some highly improved varieties, which have been raised from roots selected for their fine shape and high specific gravity rather than their size. Among other excellent kinds they would recommend particularly their

Lothian purple-top Swede	Improved Pomerarian White Globe Turnip
Tweeddale purple-top Yellow Bullock Turnip	„ Red Globe do.
Improved Green Round do.	„ Long Red and Orange Globe Mangel
„ Red Round do.	

Priced Catalogues will be sent free by post on application, and lower rates charged when large quantities are taken.

27, Great George Street, Westminster.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, JULY 26, 1856

SOME weeks ago we received from a correspondent a complaint of which the following was the substance. It was represented that a practice has been recently adopted by Messrs. GIBBS, BRIGHT, & Co., the Liverpool firm of Messrs. A. GIBBS & SONS, agents for the Peruvian Government, which the writer regarded as being by no means creditable to a firm of their standing, if not a positive fraud on purchasers of guano in that market. It was said that when Messrs. W. J. MYERS & Co. held the agency, and for some years after the transfer of it to Messrs. GIBBS, BRIGHT, & Co., it was the practice to sell by auction, "with all faults," any portion of a cargo which happened to be damaged by leakage or otherwise. Recently, however, they have kiln-dried any wet and damaged guano, subsequently mixing it with the bulk of the cargo, in which process our correspondent was of opinion that a large portion of the ammonia must be evaporated.

No one can doubt our readiness to expose malpractices in the guano trade; but in this as in all other cases we feel bound to examine scrupulously the statements that are forwarded to us. This we hold to be the positive duty of all journalists, otherwise irreparable wrong may be sustained by the innocent. Such an inquiry has been instituted in the present instance, and our correspondent will find that although his information is partly correct, the inference he has drawn from it is wrong.

The facts are these: a large vessel in going into the docks at Liverpool with a full cargo of guano struck on the dock sill and broke her back; the guano could not be got out for several days, and was of course with every tide saturated with water. Now farmers cannot or do not like to use damaged guano, as there is a difficulty in putting it on the land unless dried and pulverised. Mixers, that is guano makers, however readily buy it, and in order to save the expense of drying, add to it a quantity of dust and rubbish, which they sell cheap!! So large a quantity of damaged guano as that in the case before us offered the importers an excellent opportunity for ascertaining experimentally whether the wet guano could not be dried without much injury, and Mr. NESBIT undertook to conduct the operation. It was evidently important, if practicable, to dry damaged guano and render it fit for use by the consumers instead of letting it pass into the hands of doubtful gentlemen. We find that Mr. NESBIT succeeded in getting an old kiln at Birkenhead, and his experiment was in all respects, except the cost, successful, nearly all the ammonia being preserved. The dried guano however turned out dusty, and was consequently subject to much waste, unless mixed with about an equal quantity of good undamaged guano. This was done; the mixture was then analysed by Mr. NESBIT's report, who found it of excellent quality. It was afterwards sold according to analysis.

In all this we are far from seeing anything to complain of; on the contrary we regard it as a new proof of the anxiety of the importers not only to secure the purity and quality of all the guano that they send into the market, but to impede the operations of the adulterators, to whom a lot of damaged guano is a perfect Godsend. To what extent, if any, the guano was injured by the process, Mr. NESBIT's analysis will show, and the selling price was fixed accordingly.

But although this supposed instance of mal-practice is thus shown to be a misconception, we feel it necessary to warn buyers against the doings of the guano mixers at Liverpool. There is now before us a sample of beautiful stuff, in appearance so exactly like fine Peruvian guano that the quickest eye would fail to distinguish it, and so soft, and smooth, and free from grit that the sense of touch is equally powerless in detecting it. This material is so largely prepared at Liverpool from clay that two great kilns are constantly at work in drying it, and the whole of it goes into consumption as guano. As a dryer of damaged guano it would be invaluable. Who the honest men are that are reaping a golden harvest off the negligence or simplicity of their customers we do not say; the situation of the works is well known, and it is for Lancashire purchasers, or honest manure agents to bring them to justice. It is pretended, indeed, that their pure and unadulterated guano is not for the English trade, but for the Irish and American markets. We, however, believe that it is for any market where it can be sold.

The public is therefore warned against buying Liverpool guano from any persons of doubtful character; and especially against paying for it until it has been carefully analysed.

WONDERS will never cease. All the great GRAPE GROWERS were beaten the other day by an interloper. Seldom have practical men received a more heavy fall. Great rules were violated; the wisdom of our forefathers was thrust aside like a piece of useless lumber; and maxims sanctioned by age, wisdom, and the most resolute routine disappeared like the sparkles of Captain BOXER's fireworks. About a hundred exhibitors of Grapes grown in Vineries in all parts of the country produced the evidence of their skill at the last exhibition in the Regent's Park, and, melancholy to relate, were beaten by fruit from a glass shed in a London nursery garden. It is incredible though true. The large silver gilt medal, the highest offered for Grapes, was awarded to——Mr. GLENDINNING, of the Chiswick Nursery—for three dishes of Grapes. Our pen shrinks from recording the event.

The business of a nurseryman is to grow Vines for sale, not Grapes for exhibition. If he grows Grapes at all it is only for the purpose of ascertaining that the Vines from which he propagates are correctly named. With this end in view the fortunate winner in the instance before us built a glass shed or lean-to, with a border and walk at the back and a tan-pit in front, hot water being added for the necessary heat. This back border is 2 feet wide; the walk, paved with flat tiles, is 2 feet more, and beyond this nothing is provided for the Vines to grow in. As to the composition of the border it appeared to us to consist of little more than the common garden soil of the nursery ground, and we understand that it is nothing else. Along this back border are planted the following Vines in the order in which they follow, and about 4 feet apart. 1, Black Hamburgh; 2, Muscat of Alexandria; 3, Grizzly Frontignan; 4, White Frontignan; 5, Black Prince; 6, Cannon Hall Muscat; 7, White Tokay; 8, Charlesworth Tokay; 9, Barnes' Muscat; 10, Mill Hill Hamburgh; 11, Reeve's Muscadine; 12, Black Frontignan; 13, Welbeck Tripoli; 14, a sort undetermined; 15, Black Barbarossa; 16, Royal Muscadine. This, we should say, is as pleasant a party of Vines with different constitutions as could be readily assembled.

They were planted in the narrow back border just

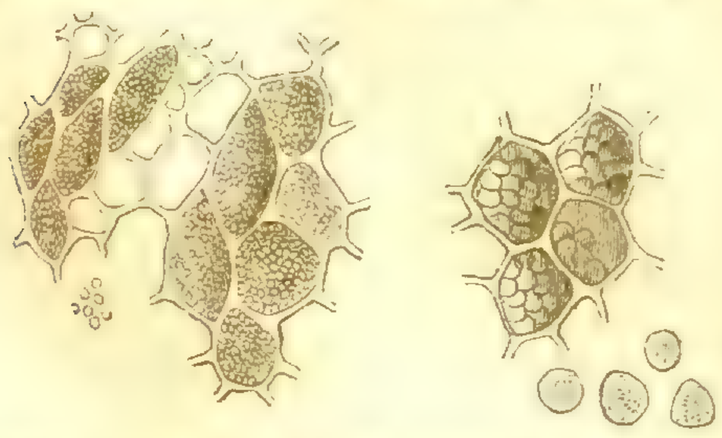
described, in June 1854. A single rod of each was led up the back wall and down the rafters; and laterals from these rods bore beneath the glass the fruit in question. Fires were, we understand, commenced last March.

We do not pretend to explain the history of the success of the glass shed. Excellent bunches were still hanging from its roof when we inspected it, and we have no doubt that the prize fruit was justly placed at the head of all others. Nor do we care to know why nothing better should have appeared in rivalry. Great parties past, present, or anticipated may have caused it. What we value the fact for is that it should teach the amateur the possibility of also growing, in his own small lean-to, Grapes fit to take their place by the side of the first in the country. The case is parallel to that of the Strawberries lately mentioned at page 356.

ALMOST every market gardener in the neighbourhood of London suffers more or less from a disease in different kinds of Coleworts, which is known by the name of clubbing. It is comparatively rare in many country districts, and where it is prevalent it is rather capricious in its visits, passing from one garden which it has infested for years to another which was previously free. Little is known of its cause, which is attributed variously to insects or to peculiarities of soil and cultivation, and though wood ashes appear to be a tolerably certain remedy, their mode of operation is not at present ascertained.

The subjoined sketch gives reduced figures of specimens selected from a large number, which will express the different forms that the roots assume under the influence of the disease better than any words. In one or two cases only the most careful search has detected the presence of larvæ, which appear therefore to have nothing to do with the

production of the malady. These larvæ however were in the soundest parts of the roots, and were not therefore—as asserted in the article Anbury of Morton's Cyclopædia—due to the putrescence which the disease soon generates. A microscopic examination has revealed two peculiarities which we have not met with before in our researches into the diseases of vegetables. Of the specimens forming the subject matter of this notice, those which were first transmitted were perfectly dry, and when divided their section resembled closely that of one of the brown-skinned Truffles. A thin slice submitted to the microscope exhibited detached patches of cells often more elongated and pointed than those with which they were connected, filled with a pale brownish mass of distinct globose granules, so as to



resemble very closely the cellular tissue, colour apart, of some of the red seaweeds, or perhaps more closely still a section of the fruit in some of those genera where the spores form numerous distinct groups,* separated by cellular tissue. Each granule, as far as I have seen, had a minute nucleus, and seemed to have a diameter of about $\frac{1}{6000}$ of an inch. The first impression was that they were starch granules, but iodine did not communicate any blue colour, and with sugar and sulphuric acid they assumed the beautiful rosy tint which is indicative of protein. Such were the appearances in dry specimens.

Still more curious matters, however, were exhibited by others which were perfectly fresh. There were still the same granules, though almost colourless, presenting the same reaction. In some, however, after treatment with strong sulphuric acid and chloride of zinc with iodine, two or more nuclei appeared. The granules were so abundant that the moisture on the cut surface appeared milky, and when this had dried up they were deposited in little curdlike patches which could be removed with the point of a lancet. Amongst them occasionally were larger starch grains, and myriads of extremely small particles endowed with Brownian motion. In other sections the patches had become brown, and the contents of the cells exhibited a very different appearance. Either the endochrome was grumous, contracting strongly on the application of the tests just mentioned, or it was organised in a very different way. The mass was divided into delicate globose or spherically triangular bodies $\frac{1}{1000}$ of an inch or more in diameter, filled with minute specks, which moved in every direction with the utmost rapidity, as if there were a swarm of animalcules within the sac. This motion was not destroyed by iodine, and was evidently molecular. The granular matter, when free, appeared identical with the brown granules found by PAYEN in the Potato disease, though when confined to the mother cells disposed in a different way.

From this it will be seen that the peculiar feature of the disease called clubbing is the condensation and organisation of the nitrogenous matters of the root. The whole energies of the plant are arrested here, and in consequence the leaves make no progress, and after a short time the plant dies. It is highly probable that the disease arises either from abundant nitrogenous matter in the soil, upon which some chemical influence is exercised either within or without the plant by the wood ashes, or from the defect of salts of potash. We are not in a condition at present to explain what that exact influence may be, but the fact of the cells being gorged in every part of the root, where there are not vascular bundles with such dense masses of nitrogenised endochrome, and the prevention of the disease by the application of wood ashes which contain several salts of potash, lead us to imagine that these salts are in some way requisite to prevent this accumulation, by entering into new chemical combinations, and at the same time supplying one of those ingredients which abound in Coleworts, and in the absence of a due proportion of which vegetation cannot proceed without disturbance.

Our second figure represents the two different modifications of endochrome. In the right hand figure the gorged cells are represented as subhexagonal. Such was the case with what we happened to sketch, but they are as often elongated as in the left hand figure. *M. J. B.*

* *Furcellaria* and *Gigartina* may be given as examples of this structure in the frond and fruit.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. III.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

HERBORIZING EXCURSIONS.—Occasional walks for an hour or two with the children of the first class afford important opportunities for awakening curiosity and imparting information. Sunday walks after divine service admit of the party being joined by some who have left school, but retain a desire for improvement. As a general stimulus to exertion, a pic-nic excursion or two during the summer should include all who have shown an interest in the pursuit, by regular attendance at the lessons and by obtaining a sufficient number of good marks for their botanical exercises presently to be described. The most out-of-the-way unintellectual neighbourhood need never feel lonely to those who have learnt to hold converse with the works of nature; and I do not envy the feelings of any opponent of popular instruction who could regard with indifference, much less with aversion or scorn, a party of village children actively engaged in examining the results of a half-holiday's research, appeasing good appetites with (to them) a little extra fare, and winding up a happy afternoon with a cheerful song, a thanksgiving hymn, and the national anthem. Such children are not likely to be worse prepared for the more staid proceedings of the morrow's school-room. Considering the desultory manner in which instruction has been given them, the knowledge which some children have obtained of our native plants is certainly remarkable. They soon learn to recollect what species may have been exhibited during a season and by whom, on the plant-stands. They generally know when they have found one new to the plant list. Walking one day through the village, I heard some one running after me, calling out "Mr. H., Sir, Mr. H." Turning round, I found a zealous little botanist (M. S., 12 or 13 years old) holding out a bunch of flowers, her features all animation—"A new plant for Hitcham, Sir." "So it is! to what order does it belong?" "Composites." "What genus of our Hitcham Composites does it most resemble?" After a slight examination, the reply was, "Coltsfoot." "You are quite right. But, as you have never been shown the actual genus to which it does belong, I must tell you it is called 'Fleabane.' I don't know the English name for this species of Fleabane, but I will find it out, and tell you more about it when I next visit the school." The plant was "Erigeron acris." Without dwelling on the peculiar advantages which I conceive children must derive from having their observant faculties thus early educated, I will instance a case where the possession of this description of knowledge would be useful. The position which this girl now occupies of under-nursery maid would enable her to awaken a love for natural history in children entrusted to her care, and to tell them the names and leading peculiarities in the structure of plants. Her's is no solitary instance of the interest which persons in her situation in life take in such pursuits. Other children who have left school (and alas! they are generally removed far too early,) have brought or sent me specimens which they considered might be interesting, frequently from presenting something anomalous in their structure. Some interesting monstrosities have been thus secured to me.

HARD-WORD EXERCISES.—With young children (perhaps with most beginners) it is advisable to devote a lesson occasionally to the express purpose of showing them how to master the orthography, as well as to obtain facility in the use and application of a botanical terminology. By selecting the most important terms, and showing how these may be employed adjectively, some in combination with the Greek, others with the Latin numerals, or with other terms expressing peculiar relations, the student will soon acquire a correct idea of the manner in which botanists employ many other words more or less technically, without his requiring any precise explanation of these. One of the first lessons of this description (and there need not be many) should show how the "floral whorls" may be expressed *botanically*, in regard to the number (whether actual or apparent) of their subordinate parts. As soon as the first lessons on the floral whorls have sufficiently impressed the fact, that a flower *may* consist of Calyx, Corolla, Stamens, and Pistils, the corresponding adjective terminations, "-sepalous," "-petalous," "-androus," "-gynous," may be pointed out. If the youngest botanical volunteers are told they must not expect to accompany the next pic-nic expedition, unless they shall have learnt to spell correctly these four terminations, their slates, in a day or two, will present an amount of orthography which would surprise persons unaccustomed to witness the facility with which children master difficulties of this character. A subsequent lesson may exact, within a specified time, correctness of orthography as well as accuracy in combining the Greek numerals with the same four terminations, and the three others named in the following table. Due explanations should be given of the circumstances under which two of them ("-adelphous" and "-dynamous") are to supersede the use of "-androus;" and the other ("-phyllous") those of "-sepalous" and "-petalous" together:—

Pi, Sty	-gynous			
St	-androus	f	-adelphous / -dynamous	
Co	-petalous	Pe	-phyllous	
Ca	-sepalous			

v.	c.	v.	c.	v.	c.
0 An-	A-	5 Pent-	a-	10 Dec-	a-
1 Mon-	o-	6 Hex-		11 Endec-	
2 Di-	-	7 Hept-		12 Dodec-	
3 Tri-	-	8 Oct-		20 Icos-	
4 Tetr-	a-	9 Enne-		∞ Poly-	—

In this table the abbreviations imply words of which they are the first letters. Pi. *Pistil:* Sty. *Style*, opposite to which "-gynous" is placed, because this term is employed in a compound pistil to express the number of free styles: St. *Stamens:* Co. *Corolla:* Ca. *Calyx:* f. *filament:* Pe. *Perianth:* v. *vowel* and c. *consonant*, to indicate the manner in which any prefix expressing a numeral is to be employed before words which begin with a vowel or consonant respectively.

The lesson embodied in this table can be much sooner mastered by young children than the multiplication table, or any considerable portion of it. I have never yet tried the plan, but I think our spelling books and copy books might be made to serve this cause. Such words as Plenipotentiary and Constantinople, to which will probably be added Sebastopol and Petropaulowski, are not more important than Dicotyledon and Angiospermous. Many vulgar errors and certain popular misdirections concerning botanical characters might thus be corrected, if a few such sentences in our copy books as "Virtue is its own reward" were replaced by some like the following:—

Cotyledon, is part of the embryo.
Hypogynous, inserted on the disk.
Perigynous, inserted on the calyx.
Epigynous, inserted on the ovary.
Thalamifloral, cor. hypogynous and polypetalous.
Corollifloral, cor. hypogynous and monopetalous.
Calycifloral, cor. perigynous or epigynous.
Angiospermous, seeds in a vessel.
Gymnospermous, seeds not enclosed.

Such sentences would be sufficiently near to a stricter definition, to serve the purpose of impressing a few leading and important characters on the memory. A botanical class soon becomes as familiar with these terms as with their own names; and the scientific ideas conveyed by them afford a grasp of the science far beyond any that can be attained by learning to group plants according to the Linnean system.

MEASUREMENT, AGE, &c., OF TREES, AT BLAIR-DRUMMOND, SCOTLAND.

BY JAMES DRUMMOND, GARDENER AT BLAIR-DRUMMOND.

In the year 1836 I measured the height, girth, and spread of the branches of a few of the trees growing in the park of Blair-Drummond, near Stirling, the property of Henry Home Drummond, Esq., the particulars of which are given in the following table, together with a statement of their age, as near as could be ascertained, soil, subsoil, exposure, &c. This year, 1856, now 20 years subsequent to the former date, I have again measured the girth of the most of these trees that are still standing, and have inserted the measurements in this table, showing the increase of the girth of their boles at 2 feet, and at 3 feet 6 inches from the ground. To my present measurements I have not added the height of the trees, the length of their boles, nor the spread of their branches, as I have no doubt the height of the trees and the spread of their branches are in some measure in proportion to the increase of the girth of their boles. My measurements in 1836 were taken for "Loudon's Arboretum Britannicum," in which work they were published, and also in his "Gardeners' Magazine."

Number.	Name according to Loudon's "Encyclopædia of Plants."	Age in years as near as can be ascertained.	Whole height of the tree in feet.	Height of the bole in feet and inches.	Girth at 2 feet above the ground in feet and inches.	Girth at 3½ feet above the ground in feet and inches.	Diameter of the spread of the branches.	Exposure.	Nature of the soil.	Nature of the subsoil.	Whether wet or dry.	Supposed age in 1856.	Girth at 2 feet above the ground in feet and inches.	Girth at 3½ feet above the ground in feet and inches.	Increase of bole in 20 years, at 2 feet from the ground.	Increase of bole in 20 years, at 3½ feet from the ground.
1	Oak (Quercus Robur)	120	86	20 0	14 0	12 8	60	North-east	Sandy loam	Cold till	Rather wet	140	15 8	14 4	1 8	1 8
2	" "	120	77	13 0	12 3	11 1	60	Free	Sandy loam	Rough gravel	Dry	140	13 11	11 3	1 8	1 4
3	" "	120	77	18 0	12 4	10 6	65	Free	Sandy loam	Rough gravel	Dry	140	15 5	12 2	3 1	1 8
4	Beech (Fagus sylvatica)	120	100	9 6	17 3	15 1	110	Free S., N., and E.	Sandy loam	Rough gravel	Dry	140	19 6	17 3	2 3	2 2
5	" "	120	90	20 0	13 10	13 4	60	Nearly free	Sandy loam	Rough gravel	Dry	140	16 6	14 6	2 8	1 2
6	" "	120	70	11 0	14 9	13 6	70	Free	Sandy loam	Rough gravel	Dry	140	18 5	15 8	3 8	2 2
7	" "	120	75	9 0	15 6	13 5	84	Between other 2 Beeches on the bank of Teith	Sandy loam	Rough gravel	Dry	140	16 9 / 8 4	14 9	1 3	1 4
8	Purple Beech (F. syl. atro-rubens) ..	50 to 60	50	6 0	6 7	6 3	62	South	Sandy loam	Cold till	Damp	70 to 80		8 1	1 9	1 10
9	Larch (Larix communis)	100	100	tapers to top.	8 8	7 7	20	Sheltered all round	Sandy loam	Cold till	Moist	120	9 5	8 4	0 9	0 9
10	" "	100	98		9 4	8 4	20	Sheltered all round	Sandy loam	Cold till	Moist	120	10 0	9 1	0 8	0 9
11	" "	100	98		9 9	8 11	20	Sheltered all round	Sandy loam	Cold till	Moist	120	10 5	9 8	0 8	0 9
12	Sycamore (Acer pseudo-platanus) ...	120	8	6 0	16 0	15 3	72	Free	Light free loam	Rough gravel	Dry	140	18 5	17 0	2 5	1 9
13	" " ...	120	55	10 0	11 1	9 9	50	Free	Light free loam	Rough gravel	Dry	140	12 3	11 0	1 2	1 3
14	Elm (Ulmus campestris)	60	7	10 0	7 0	6 7	50	South aspect	Sandy loam	Gravel	Dry	80	10 2	8 11	3 2	2 4
15	" (Ulmus montana)	120	79	11 0	9 5	8 7	48	South-east aspect	Light loam	Gravel	Dry	140	13 2	12 6	3 9	3 11
16	Ash (Fraxinus excelsior)	120	82	13 0	10 3	8 10	56	Free	Light loam	Gravel	Dry	140	13 4	11 8	3 1	2 10
17	Pine (Pinus sylvestris)	120	83	35 0	8 10	8 6	20	Free	Sandy loam	Gravel	Dry	140	9 11	9 2	1 1	0 8
18	" "	120	75	20 0	9 3	8 11	40	Free	Sandy loam	Gravel	Dry	140	11 2	10 5	1 11	1 6
19	" "	120	70	20 0	10 3	10 3	50	South-west	Sandy loam	Gravel	Dry	140	11 11	12 2	1 8	1 11
20	Lime (Tilia rubra)	120	60	10 0	11 6	8 0	48	Free	Clay loam	Gravel	Wet	140	14 2	10 9	2 8	2 9
21	" "	120	65	9 0	10 0	9 0	54	Free	Clay loam	Gravel	Wet	140	12 5	10 6	2 5	1 6
22	Silver Fir (Abies picea) ...	About 100	90	tapers to top.	9 10	8 10	36	NE. aspect	Brown clay loam	Red sandstone	Damp	120	11 8	10 10	1 10	2 0
23	" " ...		85		8 3	7 9	36	NE. aspect	Brown clay loam	Red sandstone	Damp	120	11 2	10 2	2 11	2 5
24	" " ...		86		7 7	7 3	30	NE. aspect	Brown clay loam	Red sandstone	Damp	120	10 2	9 4	2 7	2 1
25	" " ...		75		11 9	11 5	45	South aspect	Sandy loam	Gravel	Dry	120	13 11	13 4	2 2	1 11
26	Weymouth Pine (Pinus strobus) ...	22	37		2 3	2 1	12	Sheltered	Dead sand	Small gravel	Dry	42	6 2	5 11	3 11	3 10
27	Aspen (Populus tremula?)	60	106		10 6	9 9	51	SW. aspect, low ly.	Peat and sand	Sandy	Wet	80	12 8	11 4	2 2	1 7
28	" "	...	95	50 0	8 9	8 6	50	Low lying, free	Stiff loam	Gravel	Wet	...	12 2	11 0	3 5	2 6
29	Norway Spruce (Abies communis)...	120	95	tapers to	8 3	6 7	20	South L.	Light sandy loam	Cold till	Damp	Broken by winds. Measurements lost.				
30	" "	50 to 60	70	top and	9 0	8 4	45	Sheltered	Peat and sand	Sand	Wet	70 to 80	10 2	8 11	1 2	0 7
31	" "		60	branched to	7 6	7 0	35	Sheltered	Sandy peat	Sand	Wet	"	10 0	9 4	2 6	2 4
32	" "		67	the ground.	9 6	8 0	45	Sheltered	Sandy peat	Sand	Wet	"	10 11	9 5	1 5	1 5
33	White Birch (Betula alba)	100	67	20 0	9 3	8 6	48	North aspect	Sandy loam	Cold till	Damp	120	9 9	8 8	0 6	0 2
34	" " ...	60 to 70	60	12 0	11 2	10 4	55	Low and sheltered	Sandy peat	Sandy	Damp	80 to 90	13 5	10 10	2 3	0 6
35	" " ...		70	16 10	10 4	8 9	60	Low and sheltered	Sandy peat	Sandy	Damp	"	12 5	11 8	2 1	2 11
36	Spanish Chestnut (Castanea vesca	50 to 60	60	12 0	6 6	5 10	30	North aspect	Fine sandy loam	Sand	Dry	70 to 80	9 1	8 1	2 7	2 3
37	" "		65	14 0	6 3	5 9	50	North aspect	Fine sandy loam	Sand	Dry	"	8 11	7 11	2 8	2 2
38	Holly (Ilex aquifolia)	120	35	6 0	5 10	5 9	45	Free	Sandy loam	Gravel	Dry	140	6 8	6 7	0 10	0 7
39*	Walnut (Juglans regia)	?	70	6 0	12 0	11 7	45	Free	Rich alluvial	Clay	Damp	?	13 6	12 2	1 6	0 7
40	Scotch Fir (Pinus sylvestris) ...	?	75	50 0	9 9	9 2	45	Free	Rich alluvial	Clay	Damp	?	10 4	9 7	0 7	0 5
41	Sycamore (Acer pseudo-platanus) ..	?	60	24 0	13 0	12 0	36	Free	Free loam	Red sandstone	Dry	?	13 6	12 6	0 6	0 6
42	Ash (Fraxinus excelsior)	?	88	20 0	12 8	11 8	36	Free	Free loam	Red sandstone	Dry	?	14 2	12 5	1 6	0 9
43	" "	?	83	20 0	30 0	12 0	60	Free	Free loam	Red sandstone	Dry	?	32 0	12 10	2 0	0 10

The number of trees given in my table published in Loudon's "Gardener's Magazine" is 58, which, in the above table, I have reduced to 43, on account of a number of these trees being overturned and other ways destroyed by the winds, &c., between the dates of my two measurements. The Beech, No. 4, was also rooted out by the wind last winter, but was carefully measured since. It lost a very large limb a number of years ago, previous to which time it had a most picturesque head; but notwithstanding this curtailment, when laid prostrate last winter, it measured round the extremity of the branches nearly 300 feet. The Larches, Nos. 9, 10, and 11, with other two that grow near them, were sent from Dunkeld, about 120 years ago by the late Duke of Atholl, who received the first Larches introduced into Scotland in 1727. The Larches sent by the Duke were planted among other trees in the grove here, and have attained to a great height; but from former measurements, do not seem during the last 30 years to have added to their girths above 4½ inches in each of these ten years, while some of the Beeches, Oaks, Elms, &c., have added above 1 foot. The growth of these Larches, however, is not exactly a criterion, for much depends on soil and situation. Among a group of Larches more recently planted in an open situation, at a little distance from the above, I measured 2, one of which girths at 2 feet above the ground 13 feet 10 inches; and at 3 feet 6 inches—11 feet 8 inches; and the other 11 feet 3 inches, at 2 feet from the ground, and at 3 feet 6 inches—10 feet 6 inches. Larches here, planted between 70 and 80 years ago, measure 10 feet 5 inches, 9 feet 6 inches, 9 feet 11 inches, and 9 feet 8 inches, at 2 feet above the ground; and at 3 feet 6 inches—9 feet 3 inches, 8 feet, 9 feet, and 8 feet 10 inches. A Silver Fir of the same age, in the same sort of soil and situation, measures, at two feet above the ground, 10 feet 9 inches, and at 3 feet 6 inches—10 feet. "A Larch cut in 1839 measured at above a foot above the ground free of the swell of the roots, 9 feet 2 inches; having 49 rings of wood, of which 36 were red wood;" another of the same age, at the same date, at two feet from the ground measured "9 feet 10 inches." This tree was growing in dead sand, and contained above 100 feet of solid timber. The Norway Spruce, Nos. 30, 31, and 32, with a good number of others growing in sandy peat in a low moist valley between the house and the garden, are greatly admired by all who have any taste for trees. They are branched from bottom to top, the decumbent branches resting on the ground all round. A number of these have naturally struck roots, and formed fine trees round the mother plant, a circumstance which Loudon says, he had "often observed to take place with the black American Spruce in mossy soil, but never had observed it do so with the Norway Spruce till he saw it in Blair-Drummond." One of these Spruces produced 5 trees from natural layers, all as high as the mother plant. By the weight of a heavy rain last summer the mother plant gave way, but the motherless children are still standing, forming a beautiful group. These beautiful trees in this valley, and those in the park, which are perhaps not surpassed by any others of the same age for dimensions and beauty of outline, have had great attention paid to them by the proprietor in the way of "thinning and preserving them from injury, and on this account, no animal but sheep is admitted to the pasture, so that each kind of tree is allowed to display the peculiar beauty of its form and mode of growth, and to extend its branches near the ground." *From the North British Agriculturist.*

* Nos. 39 to 43 are trees growing at Burnbank, on the estate of Blair-Drummond, beyond the boundary of the park, and must have been planted before the visitation of 1647; as a large Walnut tree, No. 39, seemingly of the same age as those trees growing around it, overhangs the tomb of the then proprietor, Sir George Mushet of Burnbank, his lady, and three of their children; the tombstone bearing the above date. The Walnut tree divides into two trunks at 6 feet from the ground; one measured 8 feet in circumference, the other 7 feet, in 1836, and now they measure, in 1856, 8 feet 6 inches, and 7 feet 8 inches.

VEGETABLE PATHOLOGY.—No. CXXXI.

528. PARASITÆ (*Grape and Hop Mildew*).—Though perhaps as many pamphlets have issued from the press relative to the Grape mildew, as a year or two before its first recorded appearance were published respecting that other kindred pest which attacked the Potato, there has not been such a persevering opposition to the explanation which seems the least beset with difficulties, viz., its origin from the attack of a parasitic fungus. At the present moment there is scarcely a person of any weight who refers the Vine mildew to any other cause, though a few scattered notices, alleging the most different and improbable causes, appear from time to time in our journals, indicative of an utter ignorance of the subject on the part of those by whom they are put forth. The consequence has been that proper remedies have been perseveringly applied, and these so efficacious that the Vine-dresser will have himself only to blame if he suffers any longer from this troublesome pest.

529. The Vine mildew made its first appearance in the east of Kent in 1845, and was in 1847 recognised as a parasitic fungus, to which the name of *Oidium Tuckeri* was given, after the cultivator who first studied its growth. Amici, however, observed a short time later a transformation of the joints of which the little mould is composed, which seemed to indicate a higher affinity, and as this same transformation takes place in the Hop mildew, as noticed at a still earlier period by Dr. Plomley, it is more than probable that both belong to the same genus. The Vine mildew has not yet been seen to put forth that fruit which is normal in the mildew of the Hop.

530. As every species of *Erysiphe* in an infant state is an *Oidium*, and the supposed species of that genus are with great difficulty distinguished from each other, while very different species of *Erysiphe* may commence with a very similar *Oidium*, it is quite uncertain whether the mildew of the Vine is referrible to some old species, or whether it may not be a mere state of some species which fructifies on a different matrix. All that is certain is that Vines were not observed to suffer till the date above described; that the disease soon crossed the channel and made its appearance in the northern vineyards of France; that it spread from the original nucleus to the north and south, travelling however far more rapidly towards the warmer countries, and even crossing over to the United States with imported Vines, though the varieties of *Vitis Labrusca*, from which all the American Vines of better quality have sprung, whether in their own or in foreign countries are uniformly exempt.

531. Vines were attacked in Switzerland some years since by a white mildew, the spores of which were so abundant that the coats of those who passed through the Vineyards were as white as if they had been in a flour mill.* This fungus, too, consisted of necklaces of spores, but judging from the figures and description, which represent it as branched, it appears to have been different from the more modern plague. Should it turn out that the Vine mildew is a mere modification of some common form, we must look for the immense development of the parasite to climatic conditions, which, on close examination, may prove as remarkable as those which ushered in the cholera on its first appearance in England.

532. The more exposed the Vines are to prevalent winds and the higher they grow the more are they subject to attack. Vines which grow in the form of bushes are far less liable than those which are trained high on trellises. Under all circumstances the certain remedy is sulphur, either in the form of powder, or in solution of some of its combinations, in which sulphur is deposited in an impalpable powder, on the addition of an acid, and sulphuretted hydrogen given off. That portion of the sulphur which is precipitated, or which was applied in the form of a powder, combines, as it should seem, with the nascent oxygen, which arises from almost every vegetable process, to form sulphurous acid, which is destructive to

* See Duby, Note sur une maladie des feuilles de la vigne, &c. Mém. de la Soc. de Phys. et d'Hist. Nat. vol. 7.

the mould. If these methods are not approved, sulphurous acid may be generated at once in closed buildings from burning sulphur; but in this case care must be taken that the Vines themselves do not suffer.

533. The Hop mildew is so essentially the same with that of the Vine that the same observations in great measure apply to both. The same remedies may be used with the same good effect, a fact which is now appreciated by all intelligent Hop growers to their great benefit. The Hop factors were at first prejudiced against the practice, and refused to buy from those grounds in which sulphur had been used; but when it became generally known that Hops are always submitted to the fumes of sulphur in the ost* house, it was impossible to contend that injury was likely to ensue to the produce of the growing plant from the application.

534. Wherever white fungi appear, at least where the fruit is superficial, sulphur may be applied with great advantage. As regards the Peach mildew, practice had taught its value long before the Grape mildew was thought of, and it will be found equally efficacious in the case of Strawberries and other plants which suffer from similar attacks. *M. J. B.*

Home Correspondence.

Substitute for Samphire.—The enclosed specimen of Arenaria marina has been sent to me from Northumberland as a plant found at Alnmouth, and there gathered and sold to housekeepers as Samphire for pickling! Salicornia herbacea and Inula crithmoides I was aware were both in the market under the assumed name of Samphire, but this Northumbrian pretender is new to me. *Crithmum.*

Whole Meal Mills.—Mills for grinding Wheat cheaply are yet a desideratum. For house use I think the old quern would not be wholly inapplicable, at least in principle. A conical mill—they have such in India—might prove available. I possess a Wheat mill, consisting of two steel surfaces or plates rotating on different centres. It performs pretty well. Wheat mills, however, are made by different manufacturers, among the rest by George Fieldhouse, Wolverhampton. These mills are made of different sizes, for man, or steam, or horse power. The one I saw I found upon inquiry to be a two-guinea mill, but had been sold as a stock residue for 30*s*. However, a 30*s*. Wheat mill can be had, but I do not think it would prove so satisfactory as the two-guinea mill. I do not see why a common Oat bruiser, set close, should not answer, particularly if the Wheat were crisp and dry. The water might be added boiling hot, if so preferred. I should mention, while on the subject of whole corn bread, that muriatic acid may be had at 2*d*. per lb. wholesale, and baking soda at 2*d*. per lb. wholesale and 3*d*. retail. *Henry McCormac, M.D., Belfast.*

Cottagers' Shows.—We have an annual exhibition in our parish of horticultural products, and prizes for the best vegetables and fruits for cottagers, but of late years there has been much dissatisfaction, on account of a suspicion that some of the cottagers have purchased the articles they intend to exhibit, and thus have gained prizes for what never grew in their gardens. I think this is true, and wish to remedy it. We do, indeed, send round persons to examine the gardens of those who propose to compete at the show, but not with full success, and the only thing I can now think of is to give such persons liberty to measure the Carrots and Parsnips, and such other products as are intended to be shown. If any of your correspondents can give me any advice in this matter, very interesting to the honest exhibitor, they will greatly oblige me. *Spectator.*

Wellingtonia.—I have two plants of Wellingtonia, each upwards of two feet high. They are in excellent loam, and have made shoots nine inches long this year, but to my great distress they have lately begun to die off (as per samples sent). What is the matter? Is it the sun, or some disease? I am confident the roots are in perfection of health. They stand in full sun. *A Labourer, Hertfordshire.* [The twigs are dying in the same way as is so often observed in Cryptomeria. Nothing like it in Wellingtonia has before come under our notice. The plant is usually one of the most sturdy and healthy of the Coniferous race.]

Gigantic Lemon.—Is the Lemon of the dimensions stated below unusual? I never saw one half the size. It was grown against the back wall of a small Vinery, in strong rich soil. I can send more particulars if desired:—Girth from footstalk to the flowering point, 18½ inches; girth cylindrical, 14 inches; weight, 1 lb. 9 oz. *E.* [We should be very glad to hear more of this. So large a Lemon has, we think, never before been recorded. Its dimensions are rather those of a Shaddock. Is it a sweet or an acid Lemon?]

Large Apple Tree.—The Apples produced by the large tree at Powderham, described at p. 486, are simply a cider variety above the average size. In colour they resemble the Herefordshire Red Streak, and taste a mild sour. *W. M.*

Potato Disease.—This malady has reappeared within these last few days in this locality with all its usual virulence, the tissues of the leaf being first affected. The plant flags without exhibiting the least traces of an attack until after the lapse of a few hours, when a small dark spot may be seen upon the lamina of the leaf; it then speedily spreads to neighbouring parts. Upon being dug up immediately after the disease exhibited itself, I found the tubers affected both externally and internally, and some were in a state of complete decomposition. There is, however, a marked difference between crops grown on light and stiff soils, those in the former being badly affected, while in the latter the crops, with few exceptions, have escaped and as yet have a promising appearance. *J. R. T., Gardener to G. S. Wintle, Esq., Hacclecote, Gloucestershire.*

Aubrietia purpurea.—The beauty of this plant when rightly managed may not be known to everybody. My nursery is noted for spring flowers, but this plant attracts the attention of visitors more than any other. It commences flowering just as the Crocuses are going out, and continues one mass of blossom until the end of June. Its colour contrasts well with that of other plants of similar habit. The advantage it possesses over many other plants is that it is ornamental when out of bloom. With me it forms a tuft as round as if it were clipped, producing clumps of about 18 inches in height and as much across. The way I treat it is as follows:—About this time I pull away the under portion of the tuft; by so doing the middle keeps growing up until it forms beautiful "mounds." If left to itself it is a sprawling plant, the middle of which dies off and becomes ragged. It will not thrive well in wet ground, nor under the drip of trees. It however amply pays for a good situation. *Robert Shackell, Locksbrook Nursery, Bath.*

Bees.—As an important portion of the bee year is at hand I wish to name a matter which has just occurred. Wishing to unite two casts, both were fumigated with the fungus recommended in Taylor's book. Too much smoke was applied. The bees recovered, but the honey and comb, a portion of which became attached, acquired a most offensive smell and taste, and have retained both, so that the honey is unfit for use. Will some bee-keeper say if the effect would have been otherwise if the smoke had been properly applied, or suggest some mode of stupefying bees to which the objection does not apply? *An Inquirer.*

Judging Fruit and Vegetables.—If a prize is offered for the best 12 sorts of fruits am I justified in showing (as two of the 12) Cannon Hall Muscat and Black Hamburgh Grapes? [Yes.] A prize was offered for the best nine vegetables; in one of the lots shown 11 were staged: are the judges justified in picking the best nine out of the eleven and awarding them the prize? *Quiz.* [No.]

Societies.

HORTICULTURAL, *July* 22.—The Right Hon. T. F. Kennedy in the chair. S. F. Winterbottom, Esq., H. Conybeare, Esq., and Mr. Alderman Finnis were elected Fellows, and a certificate in favour of electing Mr. Barron, of Elvaston, a Fellow, was read for the first time. On this occasion subjects of exhibition were tolerably numerous. Messrs. Henderson of Pine-apple Place sent a Miscellaneous collection of plants, among which were Cattleya Leopoldi, a variety slightly different from C. granulata, the prettily spotted-leaved Maranta pardina, two pale coloured kinds of Achimenes, the two flowered Streptocarpus, three sorts of Begonias, Clerodendron fœtidum, Messrs. Veitch's Impatiens Jerdoniæ, and the two handsome hardy Conifers Thuja gigantea and Thujopsis borealis. Messrs. E. G. Henderson, of Wellington Road, contributed a group of plants remarkable for their beautifully variegated leaves, a hybrid Gesnera and the mule called Tydæa amabilis, one of whose parents was stated to be Achimenes picta. In this cross the orange scarlet of the parent has been converted in the offspring into a clear and beautiful rose, closely dotted over with minute dark spots. The same firm also furnished a collection of Gloxinias, comprising all the newer and better kinds; but from their having only numbers attached to them, we cannot more particularly refer to them. It is greatly to be desired that everything set up for exhibition should be properly named, a rule which cannot be too strictly adhered to. From C. Leach, Esq., came a faded flower stem of Buphane toxicaria, one of the most poisonous of all Cape bulbs. It has flowered perfectly with Mr. Leach this season at Clapham. Messrs. Veitch furnished six handsome specimens of Orchids, a beautiful plant of Wellingtonia gigantea, the section of whose gigantic trunk is now being exhibited at the Adelaide Gallery, and a spike of their new Larkspur (Delphinium cardinale) with the brilliant (not dull red) scarlet colour of which everybody was delighted. This is indeed a real acquisition, and the day cannot be far distant when it will be as common in gardens both of rich and poor as the ordinary blue forms of the genus. Mr. Glendinning, of the Chiswick Nursery, again showed plants of his new Larch (Abies Kæmpferi), which, in addition to its singular beauty, is destined to occupy an important position among timber trees; the white Lysimachia lineariloba; the Chinese green dye plant, stated to be a species of Rhamnus; a hardy variety of Limonia trifoliata, and the singular hybrid called Mandirola Roezli, of the history of which some account will be found at p. 45 of our volume for last year. Mr. Parker, of Hornsey, sent Epidendrum maculatum and Galeandra Stangeana, two of the less showy kinds of Orchids. Two sorts of Grass received from Buenos Ayres along with the Pampas Grass were furnished by E. Brande, Esq., of Turnham Green, to show that all of what is imported under that name may not be Gynerium. One was a species of Setaria, the other looked like a Sorghum or some great Panicum.

It was mentioned that the best way of securing the Pampas Grass true was to send out a spike of it for comparison, and then collectors of it knew what was wanted, and were more likely to send home genuine seeds. Mr. Wrench showed a few specimens of Myatt's Pine-apple Strawberry, the best flavoured of all Strawberries; but unfortunately so difficult to keep alive that most people have discontinued cultivating it. From the Garden of the Society came a large collection of plants, among which were Arduina bispinosa, an old-fashioned evergreen shrub, remarkable for its delightful fragrance. Veronica variegata, a charming hybrid raised by Mr. Anderson, of Edinburgh, and certainly one of the very handsomest greenhouse shrubs in cultivation; the Chinese Adamia versicolor and the Indian A. cyanea, the former pink, the latter blue, and decidedly the handsomest. The Garden also furnished Myrtus Ugni in fruit.

The extraordinary excellence of flavour of the fruit of Eugenia Ugni (which this new fruit bearing shrub is also called) has already been referred to in our columns, and the high character it then received it still maintains. So great an acquisition, therefore, cannot fail to receive general attention. Though not absolutely hardy it was stated that it was by no means difficult to cultivate, and that Fig houses and places of that description would possibly be found to suit it perfectly. A collection of yellow or rather straw coloured French Balsams also came from the Garden. They were beautifully grown and flowered, a condition into which they had been brought without the aid of artificial heat. They had been raised in a cold pit, and afterwards transferred to a common greenhouse. Dancer's Prolific White Gooseberry was also shown in a pot loaded with fruit. This was from the orchard house, and was produced to prove that, contrary to the opinion of many, Gooseberries will set and ripen under glass. Among vegetables there were capital specimens of White Paris Cos and Neapolitan Cabbage Lettuces, two first-rate kinds; Dancer's Cabbage, a fine variety of the Battersea; and Leyden Cauliflower, with heads large and good from plants raised from seeds sown in February last; excellent Cauliflowers may therefore be had at this season without the trouble of keeping the plants over winter. Finally, the Garden contributed a collection of Beans, among which Mackie's Monarch (by some called Sangster's Wonderful) elicited general attention on account of the length of its pods. The latter were very plentiful on the stalk, and each pod was 9 and 10 inches in length, and contained five Beans. The next sort worthy of particular notice was a singular pigmy whose stems did not rise above a foot from the ground. This was as full of pods as it could hold and appeared to be well adapted for cottagers and persons with small gardens. It was called Marshall's dwarf Prolific. Other sorts were the Mazagan common and early; Green Long pod, which is valued for its colour; Johnson's Wonderful, a good kind of Bean; and two varieties of Windsor. Of these, as we have stated, the two first mentioned were by far the best.

Notices of Books.

Walton's Complete Angler has just appeared in a new dress under the auspices of Mr. Jesse (8vo, H. G. Bohn, pp. 496); and certainly the favourite old gentleman never before put on a more becoming costume. Twenty-six excellent engravings on steel and 203 charming woodcut vignettes, extremely well printed by Bradbury & Evans, assist in giving life and novelty to the edition. Mr. Jesse has carefully collated the notes of all previous editors, selecting the useful, and rejecting the erroneous or obsolete; Mr. Bohn has added his own "notes on fishing waters," and the whole has an excellent index. Lovers of angling will doubtless regard this as the princeps of the many editions that have been previously published. The volume is accompanied by well executed portraits of Walton and Cotton.

A Popular History of British Lichens by Dr. W. L. Lindsay (square 12mo, L. Reeve) is the latest addition to Mr. Lovell Reeve's series of little volumes on "popular" natural history. If some of them are chiefly calculated to render science *un*popular, this at least is an exception, for it relates to an obscure subject little understood even among botanists, is extremely well done, and is illustrated by 22 excellent coloured plates from the pencil of Fitch. "The purpose of the writer," says Dr. Lindsay, "in laying before the public a familiar Natural History of British Lichens, is to open up a hitherto neglected, or at least little read, page of the book of Nature; to introduce to those who desire an object to lead them to our coasts or hills, or who require a pursuit combining healthful recreation with scientific interest, a somewhat new, attractive, and fertile field of labour; to offer to observers in Natural History an opportunity of contributing towards the filling up of a gap, hitherto very conspicuous, in British Botany, as well as towards the further development of the economical resources of our country. The Lichens may be said to be the only family of the Cryptogamia which has not met with its due meed of scientific or public attention, and whose natural history has consequently hitherto rested on a most insecure and unsatisfactory foundation. They have ever been the acknowledged *opprobria* of Cryptogamic Botany. The delicate waving frond of the Fern is anxiously tended by jewelled fingers in the drawing rooms of the wealthy and noble; the rhodospermous Seaweed finds a place beside the choicest productions of art in the gilt and 'broidered album; the tiny Moss has been the theme of many a gifted poet;

* Probably derived from the German Obst, a term applied to all kinds of fruit.

and even the despised Mushroom has called forth classic works in its praise. But the Lichens, which stain every rock and clothe every tree, which form

'Nature's livery o'er the globe
Where'er her wonders range,'

have been almost universally neglected, nay despised. This neglect is to us the more surprising when we consider the facility with which they may be collected, preserved, and examined even by the humblest observer. The lichenological student requires no cumbrous or expensive apparatus: an old knife and hammer, a few pill boxes or a tin case for collecting, a supply of cardboard and paper, with gum or glue for preserving, and a pocket lens and microscope for examining, constitute his whole *armamentaria*. Nor is it necessary, for the purpose of collecting, to run the risk or suffer the expense of foreign travel: the objects of his search surround him abundantly; from the sea coast to the mountain summit, he will find them on every tree or rock. Moreover they may be collected at all seasons, in all weathers and climates, at almost all elevations, and in all countries hitherto discovered. But their very familiarity—the very simplicity and inexpensive nature of their study—has doubtless operated in some degree as a cause of this neglect; for many minds are irresistibly attracted by the love of everything that is foreign, while others are fascinated by the possession of complex and expensive apparatus or instruments, which it is beyond the power of the humble observer to purchase. Our own investigations in the forest and on the mountain have too frequently called forth the look of surprise or smile of compassion to permit us to doubt that such studies are popularly regarded as at best profitless and harmless hobbies; that the collection or examination of 'Time-stains' or 'Crottles' is considered a wasteful disposal of time and energy. This feeling evidently originates in ignorance of the structural and utilitarian beauties of the family. We shall have occasion in the following pages to show that, in regard to its relative position in the scale of vegetable life, this group of plants, humble and insignificant though it appear to be—

'Holds a rank
Important in the plan of Him who framed
This scale of beings; holds a rank which, lost,
Would break the chain and leave behind a gap
Which Nature's self would rue;'—

that Lichens are of infinite importance as handmaids of Nature in operating her changes on the face of our globe—in softening down the pointed crags of our mountains—in covering with fertile soil alike the bare surface of the volcanic lava and the coral islet—in a word, that they are the basis of soil and consequently of vegetation; that a small section, which furnishes valuable and familiar dyes, gives rise to an import of the annual value of many thousand pounds; that many others, under the vernacular term 'Crottle,' have been for ages, and still are, used as household dye agents by the peasantry in many parts of our country; that in many parts of the world they furnish indispensable food not only to cattle but to man; that they play an important part in the history of Arctic enterprise, inasmuch as they have frequently saved the lives of Arctic travellers; and that they are celebrated in the history of medicine in this and other countries. If, in addition to these high recommendations, we consider that many species have a texture which, by readily imbibing and eagerly retaining moisture, renders them in a sense independent of all climatal changes, enabling them equally to brave polar cold and tropical heat; that many not only cling with such tenacity as to be inseparable from, but even corrode or disintegrate, the hardest and barest rocks, even pure quartz; that the most ample provision has been made by the great Author of all for their reproduction or multiplication, in spite of the most adverse external circumstances, and under conditions fatal to all higher vegetation, both by the multiplicity and abundance of their reproductive cells—which sometimes constitute almost the entire bulk of the plant—the extremely minute size and delicate nature of these cells, by virtue whereof they are disseminated by every shower or zephyr, and the readiness with which these germinate; and that throughout the family, both in structure and products, there are many analogies which bind them closely to the Phanerogamia, we cannot fail to increase our surprise that a curiosity has not been sooner awakened to become familiar with the natural history of plants which strew the path of man wherever he roams over the wide world—which constitute the most universally diffused type of terrestial vegetation. Whether we look upon the Lichens from a scientific or utilitarian point of view; whether we regard the universality of their geographical range,—their beautiful structural adaptations to the position which they occupy in the scale of vegetation, to the part they play in the economy of Nature as the pioneers of vegetable life,—the numerous links in structure and composition which connect them with the Phanerogamia—the importance of their products in our arts and manufactures—their celebrity in the past history of British and continental medicine—their connection with the history of Arctic enterprise—the abundance of nutritive species in the countries and under the conditions of season and climate where they are most required for the sustenance of man and the lower animals—and the curious combination which they present of essential simplicity of structure with infinite variety of form, we think we have a sufficient basis whereupon to found our plea for the study of Lichenology."

From this rather long extract it will be seen that the subject of the volume is one in which the author is unmistakeably an enthusiast as well as a proficient. He sees beauty in everything, and difficulties vanish before his eager step. We perfectly agree with him in recommending the investigation of Lichenology to young naturalists with good habits of observation, for they are most curious things, and up to a certain point examined without much trouble. Nor is there any great difficulty in understanding their classification or ascertaining the names of the common species, especially with the aid of Fitch's excellent figures. We must however observe that the plan of arrangement employed by the author would have been more easily understood by the learner had the distinctions of the orders and genera been expressed in some comparative tabular form, so that the eye might have taken in at a glance the essential characters by which they are known. It is not too late to provide this even now. Such a table, made to fold and face page 119, might be added to the copies in the hands of the booksellers, and given to those purchasers who already possess copies.

The following instructive account of Usnea barbata, the common Beard-moss, which infests old trees in damp places, gives a very fair average example of Dr. Lindsay's mode of dealing with the non-descriptive part of his subject.

"This species is very common on our older forest trees, especially Firs, coating them with a shaggy grey fleece. Along with various Ramalinas, Cornicularias, and Physcias, it constitutes the 'Beard-moss' or 'Tree-moss' of the poets—the 'idle Moss' of Shakspeare. Poets usually refer to filamentous and fruticulose corticolous Lichens as 'Moss;' hence they speak expressively of venerable trees being 'mossed with age.' In this sense the branches and stems of the trees in the Fir-woods which are common in this neighbourhood (Perth) are completely 'mossed' over. Branches thus adorned are usually selected for the purposes of the bird-stuffer, and must be familiar to all who have seen collections of stuffed birds in public or private museums. It is very widely distributed over the world. In India it is one of the most common species; it has also been found in Ceylon; on Chimborazo, and in Chili, in South America; in New Holland; as far south as New Zealand and Tasmania; and as far north as Lapland. It is said to be replaced in the Arctic and Antarctic regions by another species, Usnea melaxantha, which is interesting in a threefold point of view, but which may be considered a variety of U. barbata peculiar to a polar climate. It is one of the most handsome and arborescent Lichens, closely assimilating them to the Phanerogamia. Its cross section exhibits a structure resembling, on superficial examination, that of an exogenous stem, having a distinct axis and a separable cortical layer; and it is the only saxicolous species, for in the Falkland Islands, Dr. Hooker says, it covers 'the surface of the quartz rocks with a miniature forest, seeking the most exposed situations, and there attaining its greatest size and beauty.' Some varieties of U. barbata have a more limited geographical range than others: var. florida, for instance, is inferior in this respect to var. plicata; this is to be expected, when we consider that these varieties must depend greatly on differences in habitat and climate. What we now regard as varieties were by the older authors considered distinct species; but they are frequently found graduating into each other in such a way, that it is impossible to determine under which form or name to arrange them, and several of them may be met with growing in the same forest, nay, on the same tree. Of all the forms the most remarkable is that denominated var. articulata; it is said sometimes to be pendulous from old trees: our own specimens were prostrate, spreading over the sandy soil of Exmouth Downs; they are from the herbarium of Don. It differs from the others no less in the breadth and inflated character of the nodes, or articulations, into which its filaments are divided, than in its size; we have seen specimens attaining about two feet in one direction and one in the other. It has been familiarly termed *par excellence* the 'Necklace Moss,' but this name has probably been more commonly applied to less rare varieties, in which annular decortication is also frequent. The economical applications of U. barbata are not important, but they are numerous and varied. In some parts of the world it is eaten by wild animals, or is collected and preserved as winter fodder for domestic animals. Bartram states that in Pennsylvania it has been used to yield an orange dye, and Humboldt mentions its use as a dye species in South America. It appears to have enjoyed great celebrity in medicine, though certainly not from any real advantages which it possesses; it was at one time much used as an astringent, tonic, and diuretic; it became a favourite remedy in hooping-cough, and under the name of 'Muscus arborei, seu querni,' was even lauded as an anodyne! It was the basis of some hair-powders and perfumes, and was also supposed to possess qualities which rendered it serviceable in the manufacture of detonating or combustible mixtures. Ray states that it was boiled in beer and drunk in catarrh and dropsy; the Laplanders have used it in scald-head and other eruptions in children; and so early as the times of Dioscorides it is said to have been prescribed in diseases of females. Its central medullary thread has been recommended in paper-making; but even in these times, when substitutes for linen rags and Flax fabrics in the manufacture of paper have become matters of necessity, we fear such a substance will not be thought of by experimentalists, for one reason alone, that it contains no fibrous tissue. (For the minute anatomy and development of this species, vide Dr. Speerschneider in the 'Botanische Zeitung' for March 24 and 31, and April 7, 1854.)"

Garden Memoranda.

MR. SKIRVING'S, WALTON, NEAR LIVERPOOL.—This nursery, which contains about 100 acres, is situated on high lying ground on the north-west side of the town. It is wholly devoted to the growth of hardy stock, or at least very nearly so, for the glass houses are few, and their contents compared with those of London establishments unimportant, with the exception of one house of very well-grown young Vines, to the growth of which and the selection of sorts great attention seemed to be paid. Out-doors, however, the case is reversed; here we have one of the finest nurseries in the kingdom. It is divided into rectangular compartments by means of excellent hedges, chiefly Hornbeam, Yew, and Privet, which are necessary here in order to break the force of the sea breezes, which would otherwise prove very destructive. Between the hedges the grounds are traversed by well made walks into the borders, along the sides of which are gathered together choice shrubs and Conifers, which are left there to grow into specimens. In this way persons desirous of purchasing are enabled to select what they want without being even compelled to leave the walks, a great advantage, especially in unfavourable weather, and the places of the shrubs removed can afterwards be supplied with facility from quarters behind the hedges. These borders are thus continually kept well stocked. Deodars and Araucaria imbricata may be found here in thousands, more especially the former, which, until lately, owed its distribution in this country chiefly to Mr. Skirving, who at a enormous expense, through the instrumentality of the late Lieut. Waghorn, introduced the seed in quantity, at a time when the supply through other sources was quite inadequate to the demand. People will therefore not be surprised when we state that acres of this fine Conifer may now be seen in this establishment in all stages, from plants 10 inches high to trees of as many feet. Equally numerous is Araucaria imbricata, the seeds of which are sown here in thousands. They are raised in cold pits, where they are sown broadcast on a bed of loam. Of this Conifer there are here large plantations of beautiful plants.

The export trade connected with this nursery is very great. It is in fact a gigantic manufactory from which all parts of the world are supplied. America alone takes annually from it immense quantities of hardy trees and shrubs, more especially two-year transplanted Spruce Fir, and Larch, Elm and Oak, in the rearing of which Mr. Skirving is more successful than our transatlantic friends, who find it cheaper to buy them here than raise them themselves. The Mount Atlas Cedar is another plant for which there is a very large sale, and great quantities are also sold of Black Austrian Pine, which stands salt spray well, and therefore forms excellent sea-side shelter. Rhododendrons are cultivated in this nursery by the thousand for underwood, for which nothing answers so well; for in addition to their gaiety when in flower they form a thick and good cover, and game will not eat them. The sorts cultivated for this purpose are of course not high-coloured fine kinds, but a race of common varieties, which can be sold by the thousand at a cheap rate.

Mr. Skirving, as is well known, is a great farm seed grower as well as an extensive nurseryman, and this affords him a better opportunity than many have of keeping his land in "good heart" and attending to a rotation of cropping. Thus when a piece of ground is cleared of its stock of trees it is cropped with Swedes, Mangel Wurzel, or Potatoes, a change which is found to be extremely advantageous; for in addition to the benefits it otherwise confers, it brings these important food crops more completely under Mr. Skirving's notice. To this department he pays very great attention, knowing it to be of the utmost importance to the farmer and to the community at large that every acre in the kingdom that is cropped with corn, or Grass, or roots, should be cropped with the most valuable variety of its kind for quality and quantity. Every improvement gained in this way is clear gain; for it costs no more to grow the best sort than the worst, and between the one and the other there is often from 10 to 20 per cent. difference at least. He goes through these crops carefully day by day, marking and making himself intimately acquainted with their differences, not only as respects earliness or lateness, productiveness or the contrary; but also as regards their general adaptability or otherwise for the purposes for which they are intended, and thus by close observation, and always "improving on last best sorts," he has brought these roots to something like perfection, and therefore it is not to be wondered at that we find Skirving's varieties of field crops of this kind everywhere cultivated. He knows what he is sending out, for he has previously thoroughly proved their value himself. We wish all dealers were equally careful. The value of the Fluke Potato was early discovered here, and now Mr. Skirving has acres of it. Though scarcely horticultural, we may mention that we saw a Bearded Wheat here which sown in April was in ear on the 1st of July; some of the same sort had also been sown in the middle of May, with a view to ascertain whether or not it will ripen this season.

In an out-of-the-way corner was what may not in

aptly be termed a manure manufactory, where many hundred tons of excellent fertilising material are made up everyyear as follows :—A piece of ground the required size is levelled, and covered over with a Macadamised or concrete bottom which is surrounded by low earthen embankments or walls, also made water-tight inside. Within these is prepared the manure, which consists of two loads of common loamy soil to one load of town dung, sewage, and road scrapings. These are laid up here to rot, and by the time they are wanted they are in good condition for use. In this little corner, therefore, may be said to lie the main-spring of success. To use Mr. Skirving's own words, "it is the gasometer which lights up all."

Around Mr. Skirving's house—a commodious new building—is a prettily arranged lawn ornamented by a piece of rockwork and some good examples of purple Beech, Weeping Elm, and other trees, which in spite of the sea breezes already alluded to, and which blow here at times very strongly, have attained a good size. Leading to the house is also an avenue of fine old Sycamores, whose comparative paucity of branches on their windward side unmistakably point out the kind of treatment to which they are there subjected.

Although in the preceding report attention has only been directed to a few things that are grown by the thousand, yet there is to be found here an excellent collection of general nursery stock, including fruit trees, Roses, Ghent Azaleas, Dahlias, Hollyhocks, and Herbaceous plants. To the latter indeed a considerable amount of space has been devoted.

As regards keeping, it should be mentioned that everywhere the ground was beautifully clean, the walks in good condition, and the hedges, which were said to reach nearly 20 miles in extent, very neatly clipped.

Connected with this nursery is a very extensive seed business, the agricultural department of which is entirely under Mr. Skirving's own direction, from the rearing of the seed to its despatch to the farmer. For the growing of good healthy seed of Turnips or Mangel, Mr. Skirving prefers a change of ground every year, and for this purpose selects land and climate in various parts of England and Scotland to the extent of hundreds of acres, 150 of which were last year required to grow sufficient seed of his celebrated Swede.

Miscellaneous.

The late Mr. Hislop.—One of the best of our old gardeners has quitted the scene. John Hislop, a most worthy man and experienced cultivator, died on Sunday, July 13, at Ashtead Park, near Epsom, where he had been gardener for 35 years. Under the name of Quercus he was an occasional contributor of excellent practical articles to our columns. No one knew better how to secure the respect of acquaintances or the affection of friends and relations, and his death is a heavy loss to the little circle in which he moved. Mr. Hislop was aged 70; for many years he had been a corresponding member of the Horticultural Society.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—While flowers out-of-doors are plentiful nothing should be brought here at present that is not a fair specimen and well bloomed, nor should any plants be allowed to remain here that are at all shabby, for it seems a waste of means, and certainly betrays bad management somewhere to occupy glass structures with plants of interior interest to such as are plentiful in the open air. It is not desirable in our opinion, however, to crowd the house with flowering plants, but the aim should rather be to have a moderate number of handsome specimens effectively arranged, which, while flowers are so plentiful out-of-doors, will be vastly more interesting and pleasing than a larger amount of floral display from plants of no individual interest or merit. This kind of display may be agreeable enough at a season when flowers are scarce, but it is useless to hope to maintain the interest of a house at this season by this kind of management. A thin arrangement of the pot specimens will also be advisable on account of the permanent occupants of the beds or borders, which at this season should be allowed plenty of space in order to secure strong well-ripened wood, for unless this is obtained they will not bloom finely. Look over former directions, and use every means to keep insects in check, and to make order and neatness conspicuous in the management of this house. Stove.—Such of the inmates here as are intended for the decoration of the conservatory in autumn and early winter should be carefully looked over, shifting such as are likely to want more pot room without unnecessary loss of time, so as to get the pots well filled with roots before their flowering season. Also keep the shoots tied out rather thinly and expose the plants to as much sunshine as they will bear without scorching their foliage, in order to promote stocky growth. Give clear weak liquid manure water to young growing specimens, and repot any of these that are intended to have another shift this season, so as to get the pots well filled with roots before winter. Maintain a moist growing atmosphere and apply the syringe vigorously upon any plant at all infested with red spider. Orchids.—The growing season is far advanced, therefore encourage any backward plants with plenty of heat and moisture while this can be safely done. See that plants growing on blocks and in baskets are properly supplied with moisture at the root, and to prevent any mistake handle every plant at least once a week, and immerse those found to be dry in tepid water until the material about the roots is well soaked. Syringe lightly morning and evening, and sprinkle the floors, &c., frequently, so as to keep the atmosphere thoroughly moist.

FORCING DEPARTMENT.

Pinery.—Attend carefully to growing stock, keeping the bottom-heat regular, and the atmosphere warm and moist, and use every means to secure rapid vigorous growth. This will not be obtained, however, unless all is right at the root, therefore attend well to watering, and never allow any of the plants to become pot-bound. Give air moderately to young stock, and shut up early in the afternoon, giving the plants a gentle wipe with the syringe, and the house a good steaming by wetting every available surface. Continue to pot a few suckers, as they can be obtained of sufficient strength, and do not allow too many to be produced by one plant, as they weaken each other. Indeed we never allow a sucker to grow to any size that is not likely to be wanted for stock, and, unless in the case of any scarce sort, never more than two on a plant. Plants growing in beds of soil must be very carefully attended to with water, giving enough at each application to moisten the whole body of soil; for unless this is attended to, the bottom of the bed will sometimes get quite dry, while the surface is moist. Vineries.—The inside borders of houses intended to furnish a late supply of Grapes should be well soaked with manure water as soon as convenient, so as to allow of their becoming dry before the damp cloudy days of autumn set in, for damp will be most injurious then, and anything likely to cause it should be avoided. Muscats beginning to ripen should be assisted with fire heat, for it is hardly possible to ripen these properly at any season without artificial heat; and those for late use should be pushed on, so as to get them right by the end of next month at the latest; for those ripened later in the season are seldom of good quality, and we have always found them to hang better when ripened early in autumn than those that were ripened later in the season. Figs.—The second crop on the earliest trees will be fast advancing towards maturity; as soon as the fruit begins to ripen the atmosphere should be kept dry and rather cool, giving air freely every fine day, and using a little fire on wet cloudy days, to prevent damp and allow of a gentle circulation of air. Use every care to keep the foliage clean and healthy, and clear of insects, and do not crowd the young shoots. Melons.—Plants on which the fruit is ripening should be kept dry at the root, and freely exposed to air on fine days, avoiding moisture in the atmosphere as far as can be done without injury to the other plants. Do not allow the bottom heat to decline where the fruit is setting, which is a frequent cause of the young fruit dropping off. Keep a watchful eye on the foliage, and guard against red spider, which, if once allowed to establish itself, can hardly be removed without greatly injuring the tender foliage.

FLOWER GARDEN AND SHRUBBERIES.

Proceed with Rose budding without delay, keep down all suckers and clear the stems of wild shoots. Strong shoots of Chrysanthemums may now be layered in pots to produce dwarf and compact bushes. Those in pots may soon receive their final shift. Layering Carnations and Picotees may now be proceeded with. Much of next year's success depends on early attention to this matter. All seedling plants should be marked and layered, noticing their various properties as to form, colour, and texture, &c.; should any seedling otherwise fine have serrated petals, it will be advisable to propagate it, as growing it in another situation may to a certain degree remedy this defect. Continue to plant out rooted pipings of Pinks on beds of well prepared soil; but not too rich. A second crop of pipings may also be inserted where an increase of stock is required. Gather seed, and when dry hang it up in paper bags till wanted.

FLORISTS' FLOWERS.

Carnations and Picotees.—In some localities these favourite flowers will be getting fast into bloom; the plants in pots should be removed under an awning similar to that used for Tulips. Here they may be arranged on a raised platform or not, according to the taste of the amateur—the Picotees grouped on one side, the Carnations on the other, taking care that the tallest plants are behind, and at the same time contrasting the colours as much as possible. Pipings may be put in on a gentle hotbed, the grass or shoots are usually layered at a somewhat later period; but where there are small ones, and in a position that cannot well be brought down to layer, it is a good plan to obtain plants struck from cuttings. Plant out in showery weather Pink pipings as above directed; or, should the weather prove dry, cover the bed with any light awning, keep them moderately moist, and they will speedily establish themselves. Ranunculus roots may be taken up as soon as the foliage turns yellow, for should rain ensue, they would emit fresh fibres, and, if then taken up, their destruction would be certain.

HARDY FRUIT AND KITCHEN GARDEN.

A considerable breadth of Endive may now be planted without delay. High manuring is necessary to produce this salad in perfection. In planting succeeding crops keep raising the beds higher as the season declines. Keep the succession beds of Horn Carrots duly thinned. Let a good breadth of ground be prepared for Winter Spinach forthwith by thoroughly trenching and burying a good coat of half rotten manure in the bottom. It generally succeeds best in beds slightly raised. Continue getting out Cape and other Broccolies, and also some late Cauliflowers. An autumn Mushroom bed may now be made; throw the dung together to ferment for a few days; when half dry, mix one-third of loamy soil with it to keep in check any further fermentation, and tread or beat hard while making the bed, forming the spawn holes immediately it is finished to assist in keeping down the heat. Strawberry runners should be procured for new plantations without delay. Those who cannot spare ground for a new plantation may prick them out in prepared beds about 6 inches apart, and remove them with balls in October or in the early part of February. For main crops Keens' Seedling, British Queen, Cuthill's Black Prince, and Elton are invaluable. One of the best of the new sorts we have seen is Kitley's Carolina superba.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 24, 1856, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind.	Rain.
Friday 18	16	30.030	30.009	77	49	63.0	60	58½	S.W.	.01
Satur. 19	17	30.005	29.979	76	61	68.5	62	58½	W.	.0
Sunday 20	18	29.997	29.941	71	57	64.0	63	59	N.W.	.14
Mon. 21	19	29.891	29.849	75	60	67.5	62	59	N.W.	.07
Tues. 22	20	29.939	29.833	83	47	65.0	64	59½	S.W.	.00
Wed. 23	21	29.730	29.604	86	57	71.5	65	60	S.E.	.00
Thurs. 24	[illegible]	29.653	29.607	77	54	65.5	64	60	S.W.	.01
Average		29.911	29.846	77.8	55.0	66.4	62.8	59.2		.13

July 18—Overcast; slight drizzle; fine.
— 19—Fine; overcast; mild at night.
— 20—Slight drizzle; overcast; rain at night.
— 21—Very fine; overcast; cloudy; rain.
— 22—Very fine; sultry; very fine.
— 23—Slight fog; very hot and sultry; much sheet lightning at night.
— 24—Slight shower; very hot; fine throughout.

Mean temperature of the week 4½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending August 2, 1856.

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	74.3	51.9	63.1	13	0.98 in	1	3	4	2	3	8	6	3
Mon. 28	75.9	53.4	64.7	14	0.32	2	2	2	3	1	10	7	3
Tues. 29	75.4	51.5	63.4	13	1.31	1	3	4	1	3	10	6	3
Wed. 30	74.1	51.3	62.7	16	0.88	3	3	3	1	2	8	8	2
Thurs. 31	74.2	51.3	62.7	13	0.66	2	3	2	1	3	9	8	2
Friday 1	75.4	51.8	63.6	16	1.23	1	2	5	2	3	10	6	1
Satur. 2	75.1	53.4	64.2	15	1.03	1	4	2	—	7	9	4	3

The highest temperature during the above period occurred on the 1st, 1846—therm. 92 deg.; and the lowest on the 28th, 1854—therm. 38 deg.

Notices to Correspondents.

Ants: *F M.* Boiling water offers the best means of driving them out of flower beds. Find their nest and pour it there. A rag dipped in turpentine and pushed into their nest will drive them away.

Diseases: *G. Clonmel.* The Apple trees are affected with the common canker, which frequently destroys whole branches in the way you describe. Such affections may arise from different causes, as weakness of constitution, bad draining, or infection from decayed fruit hanging on the tree through the winter. I should conceive your case may be referrible to the last cause, which I have seen destructive in gardens otherwise not subject to canker. The yellow spots are due to an affection of the bark called *Hypophlœa*, and not to a parasitic fungus. *M. J. B.*

Flies: *May Rook.* Stretch gauze across the openings of the windows. Catch them with sheets of paper made adhesive with paste and molasses.

Ginger: *J T.* It must have a rich soil, well drained, and plenty of heat and moisture while growing, therefore your conservatory will not suit it; it only does well in a hotbed, Pine pit, or warm stove. As it ripens, gradually withhold water, till at last you give none at all. After the crop is gathered, the oldest tubers may be wintered in dry sand for planting again.

Grapes: *J H G.* There is no difficulty whatever in having fresh ripe Grapes at table every day in the year. All that is wanted is houses enough and skill.

Insects: *W H.* The grubs which have burrowed into your Rose buds are distinct in habit from the insects described in our leading article of last week. They appear to belong to the genus Cephus (one of the saw-flies) and are quite new to us. We shall be much obliged for more specimens, sent so as not to be crushed, to Mr. Westwood, Hammersmith.

Lemons: *E.* See Home Correspondence this day.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*G W.* 1, Torilis Anthriscus; 2, Ethusa Cynapium? very young; 5, Carex intermedia; 6, Phleum pratense.

Orchard House: *J H D.* We do not see the necessity for the side glazing, especially since the ventilators must be always open in fair weather. Besides, if you glaze the sides, the glazing must be on the ventilators themselves. To glaze below the ventilators would be absurd; to ventilate below the glass would be useless. The house is unusually narrow.

Stove and Greenhouse Plants: *Ignotus.* We would willingly furnish the lists you ask for if they would be useful. But in all probability you would have to apply to several nurseries before you obtained the plants named in them, one person keeping one sort of plants and one another. Our advice is to apply for names and prices to any of the great nurserymen, who will we doubt not immediately and fairly meet your wishes. Or if you obtain one of their lists and send it to us we will, from that list, furnish you with the names recommended. In that case however we must beg you to repeat your question.

Woodlice: *Reader.* A toad or two kept in your frames will help to thin their numbers, and quantities may be killed by pouring boiling water along the sides of the pits inside, if that can be conveniently done. A trap may also be formed by placing two tiles or boards over each other, between which they crawl as morning approaches to conceal themselves. Tiles laid over Cabbage leaves form good traps, as do also dry hollow stalks of any kind.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

MANURES FOR ROOTS AND TOP-DRESSING CORN CROPS.

THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

Their celebrated SUPERPHOSPHATE OF LIME (see Royal Agricultural Society's Journal, Vol. 6, Part 2.).

NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to MARK FOTHERGILL & Co., 204A, Upper Thames Street, London, Agents for the Peat Charcoal Company.

BINN'S PATENT MANURE AND TOP-DRESSING for the Destruction of Fly, Wire Worm, and Slug, and promoting rapid Vegetation.—The Proprietors of this valuable Manure and Top-dressing are now manufacturing it at their Wharfs, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. The Top-dressing is particularly adapted at the present time for destroying the Fly on the Hop without injury to the vine, it being perfectly free from taste or smell, no sulphur being used in its preparation.

Orders addressed HALL & Co., at the Wharfs, the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for the "best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a very superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER, Ipswich.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

THE PARIS AGRICULTURAL EXPOSITION.—In reference to this International Competition the attention of Agriculturists is drawn to the following circular:—

SPECIAL CIRCULAR.

Edinburgh, June 21, 1856.

We have the pleasure to announce, that, for the third time, we have the gratification of being the medium of securing for this country the First Prize for Agricultural Seeds, Grain, &c., at a General Competition of Nations.

The Jury of Produce of the Great Agricultural Show at Paris, just concluded, have awarded to us the SPECIAL GRAND GOLD MEDAL OF HONOUR* (the highest reward in their power to bestow), for our Collection, illustrative of the Agricultural Resources of the United Kingdom.

We consider this a matter of congratulation, not so much to ourselves as to the general body of Agriculturists in this country, to whom we were indebted for the greater number of samples in the Collection. Beyond the exercise of our judgment in the growth and origin of the stocks, and in the selection of the samples raised therefrom, together with the necessary expenditure of time and money, we take no credit.

The competition has been with countries possessed of equally good, if not better soils, and, certainly of more favourable climates; our success, therefore, must be considered as mainly attributable to the superior skill of the Farmers of this kingdom, as shewn, not only in the intrinsic value of the articles exhibited, but also in the care bestowed in cleaning and preparing them for the market.

We cannot, however, affect to overlook the rapid progress now making in Agriculture by our Continental neighbours, more especially the French. The systematic method by which they test all our theories, the indefatigable energy they exercise in developing the resources of their soil, the scientific aid they unceasingly invoke in elucidating the conflicting theories and practices of other nations—all tend to show that, to maintain the position this country now holds, still more energetic exertions must be made by all engaged in the cultivation of the soil and the improvement of the several varieties of our cultivated plants. With special reference to this (which is strictly within our province as Seedsmen) we wish to impress upon our friends the importance of preserving the *purity* of all our recognised species and varieties of Agricultural Plants; as upon these and the introduction of foreign kinds, we must rely for the means of increasing the number of *new* sorts of superior quality and productiveness. PETER LAWSON & SON.

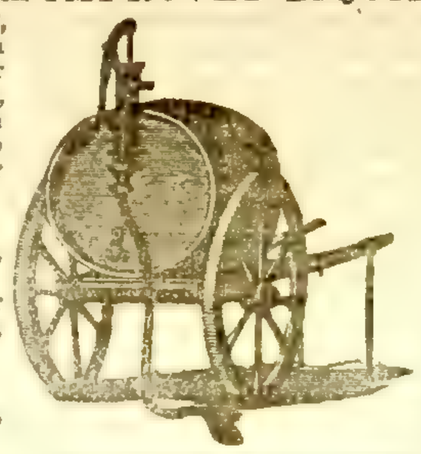
* (*Extract from the Decree "Concours Agricole Universel de* 1856.")

"IIIe DIV.—PRODUITS AGRICOLES ETRANGERS ET FRANCAIS.

"ART. 19.—Des médailles d'or, d'argent et de bronze seront décernées aux exposants des produits agricoles dont le mérite aura été constaté.

"ART. 20.—De GRANDES MEDAILLES D'OR pourront être décernées, par le jury, à tout exposant d'un produit jugé très-remarquable, ou pour un ensemble complet de produits exceptionnels."

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „	long 3 „ 3 „	gutta percha,	1	14	0
3 „	ditto 3 „ 6 „	or cast iron	2	8	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	12	0
4 „	ditto 3 „ 6 „	as required.	3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto ditto		2	18	0

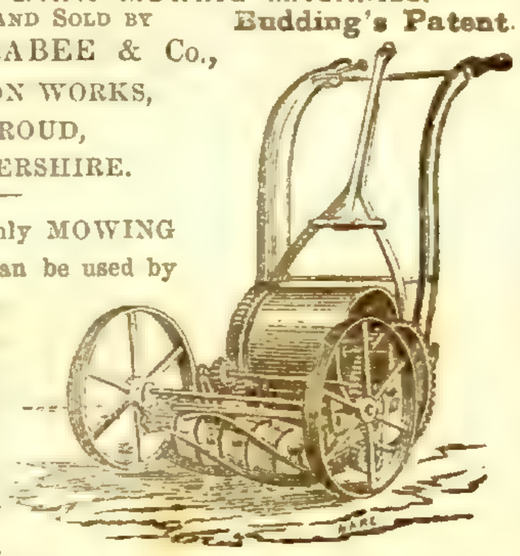
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

IMPROVED LAWN MOWING MACHINES.
MANUFACTURED AND SOLD BY **Budding's Patent.**

JAMES FERRABEE & Co.,
PHŒNIX IRON WORKS,
NEAR STROUD,
GLOUCESTERSHIRE.



These are the only MOWING MACHINES that can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower beds, on Bowling Greens, Cricket and Pleasure Grounds; 5000 of them have been sold.

Price List, *including* the carriage to any Railway Station south of York.

Hand Machine, for One Man, cutting	16 inches wide	£5	10*s.*	0*d.*
Ditto for Man and Boy	„ 22 ditto	... 6	0	0
Pony Machine (or Donkey)	„ 26 ditto	... 8	0	0
Horse Machine	„ 28 ditto	... 11	0	0
Ditto	„ 36 ditto	... 15	0	0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

BRIDGNORTH ANNUAL POULTRY SHOW will be held on THURSDAY, October 9th, when Prizes of 1*l.* 10*s.* and 10*s.* will be awarded, and also a Silver Cup of the value of Five Guineas for the best collection of not less than Eight Pens of Poultry. All communications to be addressed to Mr. R. TAYLOR, the Secretary, Bridgnorth, of whom Forms of Entry may be obtained.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.

All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.

Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by

G. J. ANDREWS, Honorary Secretary.

Dorchester, July 26.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1856.—The Annual Show of LIVE STOCK (including Poultry), Implements, &c. &c., will take place at Wigan, on THURSDAY, August 7th; and on the day previous there will be a public Trial of Implements. Premiums amounting to 694*l.* are offered, many of which are open to general competition. Entries close on the 26th instant.—Prize Lists and Rules may be had on application to T. B. RYDER, Secretary, 2, Elliot Street, Liverpool. July 19.

The Agricultural Gazette.
SATURDAY, JULY 26, 1856.

THE very successful gathering of the English Agricultural Society at Chelmsford terminated on Friday of last week with the formal meeting, when the thanks of the members were very properly voted to the office-bearers and others who during the past year have contributed to its efficiency, and especially to its utility at this the concluding labour of its session. The occasion was more than usually interesting from the circumstance that the prizes to foreign competitors and the medals to the foreign jurors were then presented by the retiring president, Lord PORTMAN.

Those mainly interested in these meetings are for the most part arrangeable in two classes, viz., buyers and sellers. And we have every reason to believe that whether in the implement department or in the cattle-yard the Chelmsford meeting has been satisfactory to both. Implement exhibitors as well as cattle-breeders and flock-masters have found a good market, and those who came to buy have had ample scope from which to make their choice. Besides these, however, there are a large number who, though attending the gathering no doubt with an ultimate eye to business, are yet merely spectators during the week of meeting. It is in its influence on these that the utility of the Society is chiefly seen.

They come to compare their own means and results, whether in machinery or stock, with the best specimens of both that the present day affords; and they go home so far assisted and urged to self improvement that they at any rate know now at what models to aim, and how far from the mark they are at present. That a national society, visiting successively the several districts of the country, is well fitted to serve the purpose of instructor in this way is plain from the fact that at every meeting of the Society exhibitors resident in the locality have been but a small minority of the whole body of contributors to the exhibition. At Chelmsford, of the thirty-nine exhibitors in sheep only four belonged to the locality of the Show, and as the show of sheep at these meetings is a very fair illustration of the stock department generally, we give a table showing the number of counties represented, the total number of exhibitors, and the number of the exhibitors from the localities visited at several of the last annual meetings; facts which

are interesting as displaying the local benefits conferred by the Society in this way.

Place of Meeting.	Number of Counties Represented.	Total Number of Exhibitors.	Number of Exhibitors from the District of the Show.
Northampton	23	45	
York	18	45	
Norwich	16	35	
Exeter	19	41	
Windsor	32	65	8
Lewes	18	37	16
Gloucester	18	63	42
Lincoln	16	75	34
Carlisle	28	78	20
Chelmsford	15	39	4

While referring to the sheep stock shown at Chelmsford, we may add another table showing the influence of locality upon the number of each class exhibited, and the general increase of the Society's influence.

Meeting.	Leicesters.		South Downs, &c.		Long Wools.		Other Breeds, &c.		Total Sheep.
Northampton, 1847	85		71		29		4		189
York, 1848	134		46		37		11		228
Norwich, 1849 ..	102		79		29		7		217
Exeter, 1850... ..	79		80		30		8		197
Windsor, 1851 ..	136		132		29		19		316
Lewes, 1852	55		88		15		25		183
Gloucester, 1853 ..	64		95		80		53		292
Lincoln, 1854 ..	102		67		96		38		303
Carlisle, 1855 ..	119		51		63		97		330
	Rams.	Pens of Ewes.	Rams.	Pens of Ewes.	Rams.	Pens of Ewes.	Foreign Rams.	Foreign Ewes.	
Chelmsford, 1856 ..	57	3	91	14	40	12	1	1 pen.	219

Our illustrations of the other feature in the character of these meetings—that which they present as a great annual market for live stock and for implements—must be taken from the sheep stock also. Mr. OVERMAN, who received the prize for the best shearling South Down ram in the yard, sold the prize sheep to M. YVART for the French Government for 150 guineas; and the influence of the award of the Society's judges may be seen in the fact that during the meeting 40 ewes and rams were sold from this flock, at prices for the latter varying from 50 to 100 guineas, to Germany, France, Prussia, as well as to Sussex and other counties in the United Kingdom. The sum of 150 guineas was offered and refused for another ram shown by Mr. OVERMAN at Chelmsford, and 30 guineas were refused for a single ewe. We mention these facts both as indicative of the extraordinary demand for well-bred stock at the present day in almost all parts of the world—as well as to the credit of an independent flock of the South Down breed descended from ewes purchased 60 years ago in Sussex—the first of their breed that were brought into Norfolk. We have to add on this subject that Lord WALSINGHAM was offered 250 guineas for his first prize old ram, and that Mr. RIGDEN refused 15 guineas each for his beautiful pen of shearling ewes, which according to many ought to have stood higher in the estimation of the Society's judges.

If we almost confine our illustrations to the South Down stock it is because the number and quality of this breed were really the principal feature of the show yard—the other main point requiring notice was the show of horses, of which a report is given below. We have already referred to the show of short-horns and the prices for which some of the animals were sold—that of Devons was good, notwithstanding the absence of Lord LEICESTER's stock owing to the recent existence of disease in his herd. That of Leicester sheep was deficient in number, and we had to notice the absence of Mr. SANDAY, of Holme Pierre-pont, who had on previous years figured successfully. That of Pigs, which was very good, no doubt suffered in a similar way from the absence of Mr. FISHER HOBBS' stock, which have but recently recovered from an attack of distemper.

THE SHOW OF AGRICULTURAL HORSES AT CHELMSFORD.

THIS was expected to be good, and whether we consider the number exhibited or the good qualities of many there are few preceding meetings of the Society in which they have been excelled. In Class 1, viz., agricultural horses of any age above 2 years, no less than 47 animals were entered—a larger number, if we mistake not, than ever were entered before. The 1st prize was awarded to a brown Clydesdale horse, No. 228, the property of Prince Albert, an animal possessing in our eyes all the qualifications of a first-rate agricultural horse—a compact form, good loins and quarters, capital fore legs, and splendid action.

The second prize was given to a splendid Suffolk 4-year old horse, No. 202, belonging to Mr. Biddell, of Playford, near Ipswich, an animal belonging to a race of prize winners and possessing in himself great qualifications.

No. 241, a remarkably fine and powerful grey cart-horse belonging to Mr. T. B. Hildyard, was highly commended; and a very superior chestnut horse, the property of Mr. Barthrop (216), was deservedly commended; as well as a strong and handsome bay horse, the property of Mr. Rust, and a coal black 4-year old horse belonging to Mr. Blewitt. It is somewhat singular that although black is the most prevailing colour amongst cart-horses this was almost the only animal of this colour exhibited.

Class 2.—If in the 1st class the Suffolks had to contend with all England and met with worthy and successful competitors, in the younger classes they almost enjoyed a monopoly of merit, and consequently succeeded as younger animals in carrying off the greater number of honours. This of course may partly be attributed to the proximity of their native county, whose reputation, however, they well sustained. Thus the first prize was awarded to No. 271, a remarkably promising Suffolk colt, owned by Mr. Sexton, of Earl's Hall, near Sudbury, whilst No. 258, a scarcely inferior colt, the property of Mr. Badham, gained the 2d prize. A very fine brown colt, belonging to Messrs. Spencer, was highly commended; and several others received commendation. There were no less than 28 horses entered in this class, of which the majority were Suffolks.

The next class, for agricultural stallions foaled in 1855, was not so numerous. The prize was awarded to Mr. S. Clayden, Suffolk, of considerable merit, whilst a black Gloucester colt, No. 281, was highly commended.

The mares and foals for agricultural purposes, class 4, brought together no less than 24 mares with their foals, the majority Suffolks and worthy specimens of the breed. The prize mare, No. 290, was a very fine mare, though perhaps somewhat less compact than some other specimens; she was owned by Mr. Carter, of Danbury, whilst the 2d prize was awarded to an old mare belonging to Mr. N. G. Barthrop, No. 297. A similar prize was bestowed on this mare at the Exeter meeting, and right well has she worn her honours since. We regard her as one of the best specimens of the best qualities of the Suffolk breed. This opinion was evidently shared by others, if we may judge from the fact of her having realised, although 15 years old, no less than 150*l.* with her foal. She had remarkably good forelegs. Mr. C. Cordy's mare and foal, 287, was highly commended. No. 288 was commended, and other mares rivalling the prize animals were no doubt passed over for specific reasons.

Class 5, of fillies for agricultural purposes, was also rich in excellence and in numbers. The prize animal, No. 311, belonging to Mr. S. Wrinck, possessed considerable merit; she was, if we mistake not, related to the old mare alluded to in the last class. The second prize was given to Mr. S. Clayden, filly No. 313, an animal though less in size than some others yet very compact, with remarkably good forelegs. Prince Albert's Clydesdale filly, No. 316, was highly commended, and well did she deserve the compliment. With her and the prize horse in the first class we may expect in a few years in the south of England to rival the north in the best specimens of this breed. The finest filly in the show, looking at her in her box alone, we consider was No. 314, the property of Mr. John Ward. A Gloucestershire bay filly, 318, belonging to Mr. Holland, was also worthy of commendation.

We will conclude by merely observing that whilst the first and second classes were probably the principal feature in the Show, other classes, such as the mares and fillies, presented specimens of considerable excellence. We cannot, however, forbear observing that the Suffolks have of late years much increased in size, and though this is a point by no means to be lost sight of, which is that in attaining this object care should be taken by means of careful selection (for no Suffolk mare will cross with other breeds) that the bone and sinews below the knee, as well as the action, should keep pace with the increased size of the animal. With regard to the special prizes they brought forward animals of much excellence, but there was not the same amount of competition as with the agricultural horses. *W. C. S.*

A NEW MANURE.

ELIJAH SMITH, gardener at the Wakefield Union Workhouse, tried a load of the new manure from the Wakefield Gas Works in 1854. He applied it alone to 1, Early Turnips; 2, Onions; 3, Broccoli; 4, Cabbage.

1. The Turnips were particularly fine, having tops upwards of 2 feet 6 inches high, with leaves broader than a man's hand. 2. Onions killed by excess of manure. 3. Broccoli became, a short time after planting, as blue as if painted, but still the plants grew freely. Gradually the blue changed to a dark luxuriant green; and the quarter was the admiration of all who saw it. The severe winter of 1854-5 killed much of this Broccoli, as it did of all in the neighbourhood. What was alive was considerably hurt, but as spring advanced it became luxuriant, and produced as fine heads as could have been obtained by any manuring whatever. 4. Cabbage planted very late and bad plants. Looked badly all the winter of 1854-5, but when the growing season commenced in spring it looked quite as well as a neighbouring quarter, well manured with stable dung, and hearted as well, though about three weeks later. Soil a hungry sandy loam upon poor sandstone gravel.

John Turner, farmer, Stanley, used a single part of a load (from Wakefield Gas Works) upon Grass, applied early in January, 1855. Patches of Grass were killed where the manure was put on too thickly, but all around the dead spot the Grass grew in the most beautiful manner. On the 1st of May, 1855, the Grass on the manured spots was 6½ inches high, while, owing to the dry weather, the rest of the field was bare. The enormous difference of colour and crop was visible to every one. Patches of the finest green Genoa velvet upon an old brown frieze coat is no inapt picture of the difference. At mowing time there was more than three times the quantity of Grass where this manure was put than there was in other parts of the field. Encouraged by this result he dressed the whole of a 9½ acre field in 1856 save three lands in the middle, which were manured with "short muck." Remarked all through the spring the beautifully dark green colour of the dressed portion, and that where most of the manure was put the Grass looked best. The field is now open to inspection, and in the third week in June where the new manure was properly put on the Grass measured on an average, maximum 42½ inches, minimum 27 inches. The part not dressed with this manure was, maximum 24½ inches, minimum 14 inches. Soil here a strong cold undrained clay, in many parts wet.

John Thompson, farmer and assistant overseer, Outwood, near Wakefield, obtained two small loads from the Wakefield Gas Works, and mixed it with about an equal amount of soil. This was applied to about 2 acres of Grass. Against it were used—1, farm-yard manure mixed with soil; 2, lime and soil compost. In this instance the colour has been throughout better with the new manure. It continues to have the same marked difference in colour, it is thicker in the bottom and very much stronger than either of the other plots against which it was tested. I visited this field in company with a friend, and we were both struck with the great superiority of the Grass grown with the new tillage. I have made several experiments with it myself. In October, 1854, I applied about a ton to half an acre of land for Cabbage. The severe winter killed a considerable portion of the crop. Windsor Beans were therefore planted among part of the Cabbage in the spring of 1855. These produced largely, and the Cabbage which was not killed did well. Another part of the Cabbage crop was destroyed, and the ground planted with long red Mangel Wurzel in April, 1855. The extremely dry season rendered root crops in the neighbourhood very deficient, but notwithstanding the drought, this Mangel looked well and grew freely, and when topped and tailed and weighed at the public weighing machine the crop was found 24 tons 4 cwt. per acre. A crop of White Wheat is now growing upon this half acre, and could not look better. The leaf is broad and almost black green. The straw is particularly strong, and all who have inspected it unhesitatingly pronounce it the best Wheat they have seen this year.

Besides this, an acre of the same kind of White Wheat is growing in the same field. This was sown after Potatoes, manured with part of the heap mentioned in my essay on the Fermentation of Manure, in the Journal of the Royal Agricultural Society, page 11—12, experiment 5, and in note page 12, experiment 2. This crop is very fine; but the former is decidedly superior in three respects. 1. The increased darkness of colour, owing to the more highly nitrogenised manure. 2. The broader leaf. 3. Stronger straw, due to the soluble silicates in the manure when applied, and also, I think, to the silica rendered soluble by the ammonia produced (in the presence of silicates) from the nitrogen which exists in the clay principally in combination with carbon and sulphur. Perhaps I ought to add, 4thly, the rather short straw, which renders the crop less liable to lodge. The Potato Wheat averages 40½ inches in height; and that grown with the new manure, 37½. Seed, two bushels per acre, sowed broadcast and ploughed down. Since sowing time, nothing whatever has been done to either crop, that no disturbing element from culture might vitiate the comparison.

A very instructive though unintentional experiment was made in this field. The load of manure from the gas works was shot up and allowed to remain in a heap for a few days, owing to wet. When spread it was carefully shovelled up, and nothing was supposed to be left. On this area nearly every plant of Wheat died as soon as it sprung up; and the few plants which were not killed are so dwarfed and injured by the excess of manurial substance, that it is doubtful whether they will ever bear anything. But around the margin of the heap, where a relative excess of manure was scattered, but where there was no drainage from it, the crop is extremely luxuriant. Oct., 1854.—This manure was applied at the rate of more than 5 tons per acre to a piece of land containing about 300 square yards. Every crop sown or planted on this land was killed, or so stunted as to be worthless, till some Cabbages were planted in 1855, which have stood the winter and are extremely dark in colour, but smaller than others of the same kind growing on adjacent land manured in the ordinary manner. Potatoes, interlined between Cabbage, grow freely and are very dark in colour. The known excess purposely applied in this case is only just beginning to expend itself sufficiently to do good instead of harm.

A ton of the manure was mixed with a manure heap, and applied to three acres of Potatoes planted this spring. Planting began April 22d, and finished May 5th. Part of the sets were sprouted, and set with the spade. The rest were set by the plough in the usual manner. All grow fast, and look well. Unless

dry weather comes soon, those which were sprouted will produce too much top.

In the spring of 1856 a plot of bad Grass, which I know has not been manured for ten years, was freely dressed with this manure. The dressing was as large as can safely be given. This plot was mowed five times by a man in the neighbourhood, to whom the Grass was given for his horse. Each time the swathe was close and heavy; while on an unmanured portion adjoining, the Grass would hardly stand against the scythe. At one mowing, when about a foot high, the Grass was beginning to rot at the bottom owing to its thickness. This is a particularly favourable result, when the extreme dryness of 1855 is remembered. *W. R. Bowditch, in the Wakefield Journal.*

HOME FARM MANAGEMENT.—No. VII.

ONE of the first improving operations of a newly established home farm is that of laying out the land into proper fields. In some respects it is rather a landlord's than a tenant's improvement, but inasmuch as the tearing out of old fences usually pays tolerably well, this undertaking will at least belong to the tenancy department. There can be no greater nuisance on a farm than numerous old wide spreading earth banks, surmounted by gnarled hedgerow trees and scraggy plants of almost every species indigenous to the district, for they harbour both winged and burrowing pests that interfere with the farmer's profits. And they are also the means of obstructing the circulation of atmospheric air and the diffusion of light, without a maximum amount of which cultivated plants cannot attain a perfect development. Then even in the mere working of the small fields into which numerous hedgerows cut up the land there is another very considerable drawback to be encountered. The frequent turnings in ploughing and other field operations consequent on the shortness of the lands render the labour to a large extent unproductive of practical results. Hence the laying out of the ground in the very outset of home farming, is a work of great importance to the after success of the operations. It is well not to make the new fields either too large or too small. If these range from 12 to 20 acres they are of a better size than they would be if either much larger or much smaller. The fences whether dead or alive should be as nearly as possible straight and run at right angles to each other. In some cases it is advisable to plant shelter clumps and belts of wood, and in these instances the curved line of fence can be united to the straight line with advantage. Though the fencing is a proprietor's improvement, it is one which the tenant ought to have performed to his mind, and the farm manager to some extent representing the latter should have his say in everything connected with the division of the land. By his taking care as far as the nature of the ground will admit of it, to have the fields laid out in oblong forms—rectangular parallelograms—he will be taking the best possible measures to ensure the conservation of labour in coming years. It is for this reason that the curved line of fence is inferior to the straight line in the fencing of cultivated land.

When a home farm manager enters on a new charge he should endeavour to make such improvements on the old fences as may appear advisable and be consented to by his employer. But if the land has already been for a number of years in the proprietor's hand and been laid out in fields, he would require to be very cautious in either making or altering fences. An improving landowner does not like his works to be improved upon even though they should be less perfect than he himself could wish, and the zeal of a person newly entrusted with the care of his farming interests, if not controlled by great prudence, may in this matter give very serious offence.

Between the laying out of a farm into fields and determining its rotation of crops there is necessarily a very close connection. And no doubt the success of farming is in every case to a large extent dependent on the system of cropping that may be adopted. In one sense the term "rotation of crops" might be expunged from our agricultural vocabulary, but in another we should neither desire such a deletion nor think lightly of the evil results which would inevitably spring from it if carried into practice. At one time it was supposed that some of the particular mineral ingredients required for any species of plant, could only be supplied to it by the soil being allowed to rest for a time in fallow, or being kept under a different kind of crop. Cereals after green crops or fallow, and not in succession, became the perfection of farming in the eyes of many, and to speak of growing Wheat year after year the most objectionable of rotation systems. Well, in all this there was a great deal of sound common sense, but the limitations it entailed on the farmer were often serious in their nature. He could not grow an extra breadth of Wheat in any season, except the land had been under some kind of cleansing crop during the previous year. Now, however, that science has come to his aid the case is very different. He may grow Wheat after Wheat, or Barley after Barley for 20 years if he chooses, or indeed any length of time, provided he simply keep down weeds and supplies the chemical ingredients the crop requires. This he may partially do by pulverisation of the soil on Tull's principle, and partially by the application of suitable manures. On argillaceous soils the latter may even be dispensed with, for a time, provided the culture be very complete. And in almost every case the yield of any particular cereal crop, whether the first or the fiftieth after the green crop break, is limited under a certain point simply by a limitation in the mode of culture and in the application of artificial fertilisers.

It is something to know that rotation systems are no longer indispensably necessary, and if still adhered to in a great measure by the best farmers in the kingdom they are so simply because of expediency. Rotation of crops therefore is not abolished, but may be improved upon by the discoveries of science. And as a general rule both in the management of home and let farms that system of cropping which under given circumstances will afford the largest returns at the least possible expense, is the one which should be adopted in its main features. According to marketing or climatic peculiarities modifications of any system may be made from time to time, and it is the part of a judicious farmer to study the circumstances under which he is placed. *J. Lockhart Morton, Lasswade.*

Home Correspondence.

Common Things in Agriculture.—However unnecessary it may appear to reiterate the same opinions, without throwing much additional light on the subjects discussed, yet it may not be altogether a waste of time on the part of the writer, or too great a trial of the reader's patience, to return occasionally to common things, which are, after all, most important features in agriculture, and embrace more than mere mechanical operations. The chief objects a farmer has in view in the cultivation of his land are to produce abundant crops and to insure their being of the best quality. To obtain these results he must step out of the usual routine system, and inquire and think for himself; he cannot follow the example of others in every particular, though he may take hints and avoid errors. A knowledge of the geology of the neighbourhood is essential to the successful management of a farm, both with regard to draining and the crops likely to be most remunerative. No decided plan can be recommended to meet the wants of every description of land coming under the hands of the farmer; rules may be laid down on principle, but cannot be arbitrary without producing mistakes and loss. John may sow a fine breadth of Turnips on his 12-acre field, and his neighbour William on a similar piece of ground not be able to perfect roots enough to feed a single beast, though at the time of sowing his treatment was the same. Why was this? The previous preparation was in fault. John knew that Turnips required different tillage from Wheat, and benefited by his experience; William only had half his lesson learnt, and like an idle schoolboy was punished. Without draining many farms would be comparatively barren; in such cases the aim would be to carry off the superfluous water, but the means to be adopted would differ according to the nature of the soil, whether stiff or light, as well as with regard to the fall to be obtained. If dogmatical rules were to be strictly observed on all occasions, the drains might be too near, too far apart, too deep, or too shallow; even the springs might require to be tapped, thus saving great expense. The next step in advance is moving the soil to the depth of 12 or 14 inches, for the purpose of admitting air and destroying annuals; the perennial weeds whose roots lie far below the surface, out of the way even of the long fork, must be kept under during the growing season at any cost, not for one year, but for three or four. This can only be accomplished by sowing grain and roots wide enough apart in the rows to work amongst them deeply at first, and on the surface as the crops attain growth. Manuring heavy land undrained and surface-ploughed is throwing money away. When it can be obtained after the two first years' residence tenants should have a good supply; there is nothing superior to farm-yard muck well looked after, once turned over with alternate layers of burnt weeds and rubbish, ashes, road dirt, &c., to which a certain quantity of salt may be added. A third of the holding should be dressed with this each year. To do this stock should be kept, and the farm not left with scarcely an animal, because provision has not been made for winter consumption—one of the main points to be attended to. Farmers may say, "We know all this; tell us something new." There are some more common things to refresh your memories with, which you shall have, too, another day. Time enough for theories. *Falcon.*

A Cheap Substitute for Guano.—About the middle of the month of May I procured from the gas works six gallons of ammonical water, or gas-tar water, or the water which floats on the surface of the tar. I diluted it in six times its amount with water from a pond, and applied it in the morning to about twenty square yards of the middle of a meadow field. The day turned out sunny, and I went to look at the place in the evening, when lo! every blade of Grass was scorched as brown as though it had been burned. I thought it was all over for seeing any further what effect it had upon the crop. However I chanced to go over the same place again this day, and to my surprise found the Grass of a dark green, almost black, and as glossy and luxuriant as though it had been highly manured in the winter. I could tell to half an inch where the water had been put, and I consider that there is as much more Grass. I can confidently assert that it will rival guano for Grass and corn if applied in a judicious manner. I think that it requires ten times its quantity of pure water to use it safely, and to be applied in the winter season or in dull showery weather; do not choose sunshine. If the water has so much of the manuring principle in it why not the tar itself?—and if mixed up with a compost, &c., and applied in the winter I think great benefit will be derived from it, but care must be taken to let it lie a few months before carting it on the land. *Henry May, the Hope Nurseries, near Bedale, Yorkshire.*

Boydell's Traction Engine.—Allow me to draw your attention to an oversight in the concluding remarks of your report on the above engine last week, where your reporter says, "The velocity of the pinion must be doubled to produce the same rate of movement onwards as if it were placed on a level with the axis of the wheel and as much is lost as gained." The uniform velocity of the gearing teeth of the pinion around its axis is only half the velocity of the onward movement of the top of the carriage wheel, as is the case of the generating point in the vertex of a cycloid. It is equal to the uniform or rotary velocity of the periphery of the large wheel, it is true, but your reporter appears to overlook the fact that the rotary velocity of the periphery of the carriage wheel and its onward movement at the top are two different things, for the latter is the sum of two equal velocities as in the case of the cycloid already mentioned, the one being the uniform velocity around the axis, and the other the translatory velocity of the wheel rotating over the ground. On a level with the axis you will perceive that the uniform velocity is downwards across the path of the carriage wheel and not onwards, and at the bottom of the wheel in the opposite direction from what it is at the top; hence the reason why there are two velocities (or double velocity) at the top of the wheel or in the vertex of the cycloid, and only one at the bottom or base. Such then being the facts of the case, the important question at issue is this? Does Boydell gain the translatory velocity by the peculiar position of the pinion, the two gearing teeth each gearing in the vertex of a cycloid? Or, as he himself expresses it, does he gain double effective power without losing speed? At present the rule is, as you are aware, that "power is gained at the expense of space by the lever," of which the wheel in question is an instance, as your reporter justly admits; but you will perceive that Boydell's proposition is not strictly speaking an exception to this rule—for his power is gained at the expense of space—but half this space he gains, which is quite a different question, although we are apprehensive this is the stumbling block of his opponents. We have all along advocated that the proposition was a new one in mechanics, with presumptive data in its favour, but that it could not be admitted into received science until solved by experiment, and the experiments at Woolwich by the Board of Ordnance—the hauling of Biddell's scarifier and the five ploughs in the heavy land field at Chelmsford fully bear out the accuracy of our conclusion that Boydell has even more than theoretical data in his favour. In other words they (the experiments) prove his opponents wrong, although they do not solve his proposition satisfactorily. Of the importance of the proposition in the application of steam to agriculture there cannot be a doubt, were there nothing else introduced than the self-locomotion of a portable engine; and we must beg to express our regret that something more was not done at Chelmsford to test its accuracy by properly conducted experiments. As a mere scientific question it merits more unprejudiced attention from the Royal Agricultural Society than it has yet received consistently with its golden motto—"Practice with Science." *W. B.* [We have further letters on this subject, to appear next week.]

Mr. Mechi's Gathering at Tiptree.—I went as usual to Mr. Mechi's gathering this year but did not perceive any particular improvement either in his system of farming or in increased produce from the land, when compared with last year. His system of cultivation continues high and expensive, though no doubt in the right direction, and those who had not seen it before would gather many useful hints, from the cleanliness of the land and the heavy crops produced, that are calculated to impress upon them the good effects of enterprising perseverance. The gathering was much larger than I have seen it before, thus showing its increasing interest, but there appeared to me to be many uninvited guests; however, be that as it may, the hospitality of "mine host" was freely distributed to all, and the warm generous reception given was only a repetition of former years. Indeed nothing could exceed the cordiality of his reception, the bounty of his hospitality, and the patriotic desire to benefit the agricultural interest of his country. Although I do not go the whole length with Mr. Mechi, there can be no question that the farmers of England are greatly indebted to him, and though they may not acknowledge the full force of his remarks during his life, the time will arrive when it will be generally admitted he had a very clear perception of the future progress of agriculture. The principal object of attraction at Tiptree this year was the "Great Steam Plough," which may be termed the future "leviathan of the soil;" and all that Mr. Mechi said in its favour is likely to come true when scientific knowledge reduces its cumbrousness, improves its applicability, and lessens its cost. Mr. Mechi's idea of England becoming not only self-supporting but an exporting country of the products of the soil is by no means visionary; for when once the spirit of our commercial and manufacturing interest is directed to the cultivation of the soil, either in the shape of amusement or occupation, neither wealth nor enterprise will be wanting to turn the barren waste into a smiling field. It is true, as Mr. Mechi said, the land does not increase

with the population of a country; but it is equally true that energy, wealth, enterprise, and science, can restore the hidden treasures of the soil, and produce abundance where nothing but sterility is seen. That Mr. Mechi has done good and deserves well of his country for his enterprise and perseverance in developing the capabilities of the soil no one will deny; but that his system can be pursued altogether with advantage is a question that agricultural science and time have yet to determine. *Observer, July* 21.

The Cow Parsnip.—I am not aware of any expression in my letter on this plant that could be construed into a recommendation of it; least of all of any pecuniary motive that could by possibility have actuated me in introducing the subject to the attention of your readers. An acquaintanceship of more than 40 years ought, one would imagine, to have been ample protection against any such insinuation as that indirectly thrown out by my old friend Charles Poppy. What have I to gain by it? Nothing! I occupy no land; and of the few plants growing in the garden the seeds are at the service of any one who wishes for them, I have given away many, but never sold one in my life. My letter after all was but a suggestion as to the merits or demerits of a plant of which I know little more than its extraordinary size and rapid growth. I thought, and still think, it a pity that such exuberance of vegetation should be suffered to run to waste, and that if cattle would eat it (the main point I wished to ascertain), it might be rendered a useful addition to our green crops. Messrs. Hardy & Son seem to agree with others in rejecting it as cattle food. On this matter I give no opinion, for on this I know literally nothing. This I do know, that no correct judgment can or ought to be passed on this or any other novelty, without a patient and impartial investigation into the best time for cutting it. Many a plant if suffered to run to seed may be unpalatable and even hurtful to cattle, whilst the same plant given in an earlier and more suitable stage may be eaten with avidity and advantage. On this point I solicit information, for, as

"A man convinced against his will,
Is of the same opinion still,"

I hope I may, without any undue feeling of doubt or discourtesy, insist that it have a fair trial, and this it cannot have without various experiments as to the best season for cutting it. As to its being poisonous I cannot for one instant harbour a suspicion; its very name, Cow Parsnip, one would think is sufficient to refute any such idea; but this is a matter of no very difficult solution. After all, my object is rather to obtain than impart information, and to this end I shall feel obliged to any one who will think it worth his while to make trial of a few of the seeds, which I shall have pleasure in forwarding as soon as they are ripe, on receipt of a stamped envelope and address. I only demur to the slightest insinuation as to quackery, which I detest and abjure as heartily as Charles Poppy or any other man can do. *Samuel Taylor, Wotton Parade, Gloucester, July* 19.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WE will continue the walk round the implement yard commenced last week, and point out any implements that appear to us to deserve attention.

In No. 1 stand Messrs. Burgess & Key, and in 110 Messrs. Deane, Dray, & Co., as commission agents, have large collections of implements of all kinds; the former exhibit M'Cormick's and the latter Hussey's reaper. The saw-edge of the former of these reapers is now adopted in Bell's reaper by Crosskill, and in connection with the latter there are two contrivances for delivery, both of them very promising, viz., the tipping platform, which gives the cut corn off in bundles in the wake of the instrument, these needing to be tied and cleared out of the way before the machine can come round again, and the system of rollers radially arranged, invented by Mr. Palmer, of Stockton, by which the corn is carried to one side and delivered without much labour to the man who superintends the operation.

At No. 2 Messrs. Humphries exhibit steam-engines and threshing machines. There is here one of the new contrivances in riddling machines which this year's exhibition contains. This riddle is made of mahogany; and the perforations are inclined to the plane of the riddle, which will not allow the short straws or Pulse to pass through; for they come in contact with the inclined space of the perforation, and by the motion of the riddle are displaced and carried over the hole. At No. 3 Mr. Bigg exhibits his sheep dipping apparatus in full operation, stuffed animals being shown in process of undergoing it. To Mr. Lawes's Beadon's tile spouting we have already referred as cheap and efficient. When fixed, they are as firm, and will last as long as the building itself. They require no paint, and will bear the weight of a ladder against them without injury. Well-burnt clay is one of the most durable substances known; and this system of spouting is, therefore, practically everlasting, and, from its great strength, is not liable to accidents. Each tile is about 13 inches long, and the price of each plain tile is 4*d.*; of each stop end or outlet, 6*d.*; or, if the purchaser prefers, a man will be sent to fix them at the rate of 5*d.* per foot.

At No. 5 Messrs. Warner exhibit a number of pumps, fire-engines, &c., for which, as our advertising columns testify, they are already well known. Messrs. Wood & Son, of Chelmsford, exhibit a large assortment of agricultural implements, including one of the many forms of clodcrusher which are to be seen in the yard.

Machinery for washing and wringing clothes is shown by Mr. Pearson, of Leeds, at stand No. 7. At 8, Mr. Crosskill exhibits his well-known clodcrusher, carts, waggons, corn mills, Archimedean root-washer, Bell's reaper, &c.

Messrs. M'Neill & Co. at 9 show specimens of their felt for roofing houses, flour mills, and cottage ovens. A very good assortment of mills is shown by Mr. White, of 266, High Holborn. Messrs. Hornsby & Son exhibit their threshing machine, steam-engine, and all other barn implements, their drills, &c., at stand 11. Messrs. Day & Co., exhibit new land rollers. The improvements in these rollers consist in making use of narrow edged parts or discs, so arranged as to work side by side with other broad faced parts or presser wheels; the latter having the centre holes made larger than the others, thereby combining the crushing action with an immediate abrading and self-cleaning motion in rolling the soil.

Root graters, chaffcutters, &c., are exhibited by Messrs. A. & T. Fry, of Bristol, the former chiefly on the principle of Bushe & Barter's grater.

A very interesting collection of fleeces is shown at 14; it illustrates the efficiency of Long's non-poisonous sheep and cattle dressing composition.

A number of articles of kitchen furniture are shown by Messrs. Ransome, of Essex Street, Strand. An ingenious sausage machine, capable of mincing 1 lb. of meat in half a minute and filling it into skins, is shown by Mr. Nye, of Wardour Street. Mr. Read, of Regent Circus, competes with Messrs. Warner in water engines; and Samuelson shows a large collection of Turnip cutters, pulping machines, chaffcutters, corn-crushers, mowing machines, &c. Busby, of Bedale, shows his excellent ploughs and horse-hoes, carts, &c.; also an ingenious topping and tailing machine, or rather for loosening Turnips in the ground and cutting off the tails, the tops having been previously cut off by a light steel hoe with two blades. Churns and chaffcutters are shown by Cornes, of Walbrook, City. Mr. Hayes, of Elton, Oundle, shows an elevator for straw. It is made with two octagon drums, diameter of which is 20 inches, and thereon is worked a chain with tines, driven by suitable machinery to carry up the straw, and the slow motion of the elevator absorbing but very little power, the wear and tear is reduced to the lowest amount. Can be driven by any machine, and the straw taken three different ways as may be required, being a great saving of labour to the usual way of men carrying the straw up ladders. Price 40*l.*

Mr. James's liquid manure distributors, advertised in our columns, are exhibited at stand 23. Messrs. Tuxford show steam-engines and threshing machines; for the former they attained at the last official trials a very high reputation. Mr. Clayton, of the Atlas Works, Dorset Square, exhibits a large collection of his machinery for the manufacture of bricks, tiles, &c. Farm harness is shown at stand 33, by Mr. Dunlop, of Haddington; and from the extreme west, Haverfordwest, in Pembrokeshire, we have machinery exhibited by Messrs. Marychurch. Wirework in the various forms of fencing, aviary work, &c., is shown by Mr. Standing, of Fishergate, Preston. Cart Turnip-cutting machines for carrying and cutting roots, spreading them over the land carted on, are shown by Messrs. Caldow & McKinnel, of Dumfries. Messrs. Ransomes & Sims show an immense collection of ploughs, grubbers, harrows, chaffcutters, rollers, Bean mills, besides barn implements, threshing machines, steam-engines, &c. Among the ploughs we noticed a light one for one horse, price 30*s.*!

Smith & Ashby exhibit horse rakes, haymaking machines, and chaffcutters. Mr. Chamberlain's brick-making machine is shown at stand 40. An ingenious boring, mortising, tenoning and drilling machine is shown by Mr. Coulson, of 36, Fetter Lane, York, price 27*l.* Clayton & Shuttleworth show a number of their well-known steam-engines and threshing machines.

Richmond & Chandler, of Salford, have a large and well filled stand occupied chiefly by their well-known chaffcutters with the characteristic toothed feed rollers, lately improved by diminishing the size of the teeth, chaffcutters, corn-mills and crushers, in which two rollers of equal size revolve against one another at different velocities. Fisken's steam plough is exhibited at stand No. 49, by Roger, of Stockton-on-Tees.

Barrett and Exall, of Reading, show steam-engines, threshing machines, and all other barn implements. Their improvements in the concave to their threshing machine, and their compact horse-power are shown here.

Mr. Boby's (Bury, Suffolk) corn-dressing machine, to which we referred last week, is exhibited at stand 51.

A portable covered homestall is shown in the adjoining stand by Mr. Beadel, of Chelmsford. This building is so constructed as to be readily taken to pieces and removed, and re-fixed when required. It is large enough to contain 12 bullocks, besides affording accommodation for a large quantity of roots or other food. Buildings of this description would be found to be of great service upon farms where the tenant wished to increase his accommodation without erecting permanent buildings.

The remaining stands we shall resume and describe next week.

HIGHLAND AND AGRICULTURAL, *July* 9.—At the half-yearly general meeting of this society 45 gentlemen were admitted as members.

Agricultural Education.—Sir John Stuart Forbes of Pitsligo, Bart., said:—The petition of the directors for a supplementary charter to enable them to extend their efforts towards agricultural education, had been formally reported on to the Government, and he had great satisfaction in congratulating the society on this further step of practical progress in this important department.

Agricultural Statistics.—Sir John M'Neil reported that:

The position of the inquiry is more advanced than on any former occasion. Out of 43,500 schedules issued, fully 40,000 have been returned, while only three positive refusals have been received; and it is anticipated that the society will be in a position to comply with the desire of Government with reference to an early publication of acreage.

Paris Show.—Mr. Hall Maxwell submitted the report on this show. Prizes for Scottish breeds had not been offered until February:—

No time was lost in making an appeal to the public spirit of the principal breeders; circulars were addressed to them, and meetings were held in different places by the Secretary, and the result exceeded the most sanguine expectations of the Directors, for Scotland, though small and far removed from the scene of the show, compared with many other countries, and with but one-third of the notice given elsewhere, was, after France, the greatest exhibitor of stock at Paris, having entered 51 bulls, 121 cows and heifers, and 182 sheep: while the award of 109 premiums established the quality of what she produced. In vegetable products she was equally distinguished—thanks to the magnificent collection shown by Messrs. Lawson, to the enterprise of Mr. Mackintosh, and to the contributors from East Lothian and other quarters. With regard to implements, it is right to explain that on account of the great cost of carriage, the society did not attempt to induce makers to come forward. Stock was carried free on the different railways, but as the usual rates were charged for machinery, the expense attaching to so long a transit operated as an exclusion.

The Chairman said the Society must feel what a great debt of gratitude was due to the Secretary, Mr. Maxwell, for his organisation of this great work and the ability with which he had carried it out. All who were in Paris must be aware of the immense amount of labour which he had to undergo while there. The society undoubtedly owed a deep debt of gratitude to their Secretary.

Sir R. K. Arbuthnot moved that the thanks of the society be voted to Mr. Maxwell for his invaluable services in connection with the Paris Show. The motion was agreed to by acclamation.

Mr. Hall Maxwell said he felt extremely gratified at this vote, but he could only repeat that whatever his wishes might have been, or whatever his exertions were, they would have failed but for the assistance of those mentioned in the report. They would like to know how Scotland stood, as compared with other countries, in reference to the honours that she carried off. The report had informed them that Scotland was limited in her exhibition to sheep and cattle. They sent no swine, because they were difficult to carry, and the distance was great, and they were necessarily limited to cattle and sheep. In these classes Scotland had 100 prizes, England 77, and Ireland 24. Switzerland had been referred to as being the greatest exhibitor. He was not prepared to say whether she was or not, but if they took the cattle, it would be found that she had obtained 58 prizes against the 62 which were gained by Scotland. In sheep she had no prizes, while Scotland had 38. Austria had also been spoken of, but Austria included Austria Proper—Bohemia, Hungary, and other places—and represented a union of countries not so united as the United Kingdom of England, Ireland, and Scotland. Austria gained 47 prizes for cattle, and 45 for sheep—total 92, against 100 gained by Scotland; so that in point of fact, if France was excluded, the exhibition being on her own soil, Scotland had gained a greater number of prizes than any other country, and it should farther be kept in mind that the Scotch exhibitors had but three months' notice, while those elsewhere had a year's. For products Scotland obtained 9 prizes, including the great gold medal obtained by Mr. Lawson; England 2; and Ireland 5. He did not wish to make invidious comparisons, but in justice to the gentlemen who had enabled the society to make such a report as this, and who had carried off these honours, he thought that the facts ought to be made known.

Inverness Show.—Sir R. K. Arbuthnot gave in the following report:—"The Directors beg to report that the whole arrangements for the Inverness meeting have been satisfactorily arranged. The entries show a diminution in the number of cattle, and an increase in that of sheep, as compared with 1846. According to the arrangements, implements will be placed and judged on Tuesday, 5th August, and tried and exhibited on the following day. The general exhibition of stock will take place on Thursday the 7th, to be followed by the public banquet, and prize stock will be brought back for examination on the 8th.

The Chemical Department.—Dr. Anderson said that there was one department which varied very little—viz., the department of getting analyses for the members of the society. In the spring half-year these were generally the most numerous, and this year they had exceeded the average, a very large number having been made, and very interesting results having been obtained. There was one thing he might notice, and it was of importance to general agriculture, that there had been a very decided improvement in the quality of superphosphate during the last few years.

MR. MECHI'S ANNUAL GATHERING AT TIPTREE took place on Saturday last with even more than the usual *éclat.* Upwards of 500 gentlemen of the agricultural and commercial classes united to testify their sense of the liberality, frankness, and energy of Mr. Mechi's personal and professional character.

The processes, extraordinary some years ago, now

more commonly to be met with, of liquid manuring by underground pipes and hose, of Italian Rye-grass growing on this system, and of feeding on boards under cover, which are the principal points deserving notice in the Tiptree management, occupied successively the attention of the visitors.

The original poverty of the soil as contrasted with its present fertility, and the corresponding contrast between the listlessness of landowner and tenant in former days, and the activity and energy of Mr. Mechi, who is himself landlord and tenant now, was as usual insisted on, and illustrated by more than the usual force in the crops which the land this year exhibits.

When the visitors had assembled Mr. Mechi, accompanied by them, made the tour of the farm. Proceeding first to a field of Italian Rye-grass, he explained the operation of his system of irrigation with liquid manure which was then at work. One of his labourers was standing in the field holding a gutta percha tube attached to a stand-pipe, connected in its turn with the system of subterranean pipes which are spread like arteries over the whole farm. From this pipe, which he held in his hand like a fireman, and turned at his pleasure in every direction, a stream of liquid manure issued, at the rate of from 80 to 90 gallons a minute, and was thrown over every part of the land round a considerable circuit. This done, he would fix his hose to a pipe in another part of the field, and repeat the process until the whole of it was completely irrigated. The liquid with which it was so drenched consisted of the ordinary sewage from the farmhouse at Tiptree, together with the solid manure made by the cattle in the farm buildings, and any decayed vegetable or animal matter, after having been collected in a reservoir on the premises, and there properly diluted with water for the purpose. The field of Rye-grass, which grew Wheat last year, had been fed off three times during the present summer, and now for the fourth time bore a luxuriant crop. The underground pipes for conveying the liquid manure over the farm are 3 inches in diameter, and laid at such a depth from the surface as not to interfere with the cultivation of the soil. He calculates he shall have five feedings and one good crop of hay from this field in the course of the season. The sum of his experience of irrigation is that he has always plenty of food and manure on a very limited space of soil, and that he can sell hay and roots when it pays to do so, and yet keep plenty of stock. Besides, the fertilising effects of the irrigation continue to be felt for years after, when other crops than Grass come to be grown on the land. He had no hesitation in saying that if all the farms in the kingdom were cultivated after his method they would be able to supply food for the whole community without recourse being had to importation, and he urged the immense benefit that would result from the application by irrigation of the sewage of towns, in the shape of liquid manure, to the land of the country. An adjoining field of Mangel Wurzel which had been drained and irrigated like the rest of the farm elicited the admiration of the company. Mr. Mechi said the cost of his liquid manure works, including engines, tanks, pipes, and everything else connected with them, was 4*l.* 5*s.* an acre. Iron was cheap when he laid down his mains, and probably they would now have cost him about 6*l.* an acre. At 7½ per cent., with which he charged himself, it was a most profitable operation. Adverting to the subject of drainage, he said he had drained a bog on his farm which, before wholly useless, was now the best part of his land; and with the large quantity of water obtained from that source principally he was enabled to keep up his system of irrigation. He advised his visitors to drain deep, for he anticipated the time when the application of steam would produce a cultivation of the soil 2 or 3 feet deep, and what then would become of all the 18-inch and 2 feet drains? On passing a fine field of Wheat he said his experience taught him that by laying out 2*l.* extra in manure he got 4*l.* worth of corn, or 1 quarter of Wheat more an acre. This field had been alternately Tares and Turnips one year, Beans between the two next crops of Wheat, and then a heavy crop of Mangel Wurzel. After that he manured it with 2 cwt. of guano and 1 cwt. of sulphate of ammonia per acre, which was washed in by the rains, but he preferred ploughing it in. It had been further improved by the application of a manure manufactured by Dr. Ritterbandt, from the common "clinker" produced in large steam furnaces, and which, on being submitted to a chemical process, yields large quantities of potash of great value as a manure. The next was a Bean field affording promise of an abundant crop, all of which, he said, he should consume on the farm. This field was Wheat last year, after Mangel Wurzel. He manured it well for the Bean crop, and he meant to sow it next with spring Wheat. The farmer who did the least to his land, and purchased the smallest quantity of artificial food and manures, was precisely he who produced his corn at the dearest price per quarter, and was in no condition to compete with successful men who adopted the opposite principle. This was a landlord's question quite as much as a tenant's, and it was the duty of the landlords to take the initiative in reference to it. If landlords were to have men of skill and ample capital for their tenants they must tempt them by suitable houses for their families, good buildings for their stock, machinery for the conversion of their produce, and a sufficient security for their unexhausted improvements. Touching mechanical appliances, he said, these they must have if they meant to farm cheap, and they ought never to use a man if they could get an instrument to do the work required at less cost. He then pointed attention to a magnificent crop of bearded Wheat, nearly six feet high, the land for which he manured with 2 cwt. of guano in the spring. He stated that last year he had 50 acres of Wheat which yielded on an average five and a-half quarters an acre, and the year before 70 acres which yielded five quarters all but a bushel.

Mr. Mechi next conducted his visitors over the covered sheep and cattle sheds, the barn containing threshing machines and other appliances worked by steam, and the large reservoirs in which the liquid manure to be used on the farm is accumulated. He explained how, by putting thin layers of straw over the manure from time to time in the sheep shed, without removing the wet layers beneath for months the health of the animals was strikingly preserved, as a proof of which he stated that of 1200 sheep which he had had in three years he had only lost one. Fowler's steam plough, exhibited at the Chelmsford meeting, was at work in a field on the farm during part of the day, as were also some of the more ingenious implements of Garratt and of Bentall, all of which excited considerable interest.

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. July, 1856. W. Blackwood and Son, Edinburgh and London.

THE current number of this Journal is full of useful and instructive matter on the theory and practice of agriculture. We shall elsewhere refer to the important introductory paper by Mr. Russell on the Lawes and Liebig controversy, and in another section of our Paper we shall give extracts from some of the other contributions to its pages; at present we give a paper by Mr. Hunter, of Haugh, West Lothian, on Finger and Toe in Turnips:—

"Finger-and-Toe in Turnips needs unfortunately no description; its ravages are but too well and too widely known, and are now exciting general interest and alarm. The extent of knowledge regarding the disease, however, is very limited, having been hitherto almost confined to an acquaintance with its effects; in so far as regards its cause or its cure, it is as yet involved in almost as much uncertainty as the Potato disease. In 1852 the subject was remitted by the Highland Society to Professors Anderson and Balfour for investigation, and queries were circulated for the purpose of obtaining information. The facts observable in different districts were thus obtained; but the learned gentlemen by whom the inquiry was undertaken expressed themselves unable to throw much light upon it. At a late monthly meeting of the Society for discussing the cultivation of Mangel Wurzel, the subject was alluded to by most of the speakers, and the importance of some fit substitute for the Turnip was dwelt upon as a consideration that would force itself upon public attention, unless some method were discovered to counteract the progress of the disease. In these circumstances, having been a sufferer myself to a great extent, and having pursued a mode of treatment which has proved effective, at all events on my own farm, I willingly accede to the request of the Secretary for a statement of my experience, believing it to be the duty of every one to communicate whatever information he may possess.

"For the sake of precision, I shall confine my remarks chiefly to the treatment followed and the effects observed on one field containing 16 acres, but which was formerly subdivided, as is important to note, by a wide fence, consisting of a hedge and ditch, now removed.

"In 1846 this field was under Turnips; the variety was Swedes, and, up to the month of August, they looked unusually promising and forward. Unhealthy-looking spots at this date began to be observable up and down the field, and gradually extended till I believe there was scarcely a sound root to be found north of the old fence line, and the crop was a dead loss. Of course I was very much puzzled by this novel invasion, but fortunately in the small portion of the field south of the fence line I found no disease existing. Lime had been applied to this part about 10 years previously; the north side had probably never been limed, certainly not during my occupancy; so here were at least indications of the course to be pursued. I may mention that I was at this time convinced of the fallacy of the idea, now pretty much exploded, that the presence of disease might be attributed to the too frequent recurrence of Turnip crops on the same soil, by observing that all along the line of the old fence, where the soil was of course new, the disease *first* appeared, and the plants completely vanished. Abundant confirmation on this point has since been found in the occurrence of disease after old pasture, and on fields never before under Turnips.

"The field then went through the usual rotation on the four-shift course, and Potatoes were substituted for Turnips, excepting on a portion reserved for experiments, which were conducted in the following manner: I had applied to part of it on the Grass, in autumn 1848, lime at the rate of about 14 tons per acre. Preparatory to sowing the Turnips I applied lime to another portion; with the seed in the drills I applied on another portion phosphates of lime, natural and artificial; and I also tried hot lime round some of the young plants after thinning. I had chosen for trial a portion of the field where the destruction formerly had been most complete; and the result I found to be as follows: lime applied to the young plants was quite ineffective; phosphates in the drills equally so; lime worked in whilst preparing the land very slightly beneficial; but lime applied on the Grass was a thorough cure. I have since that time gone on applying lime to all the fields affected, at the rate of from 14 to 16 tons per Scotch acre, and with uniform success, excepting in one instance, where accidentally a few carts of lime had been 'drowned' before it could be spread, and consequently was applied in the state of mortar. The effect was most marked; all around the crop was perfectly healthy, but wherever a shovelful of the cold lime had been thrown, the roots were not worth lifting. The field I have alluded to was under Turnips last year. It was limed on the Grass in 1853, and accident afforded a striking confirmation of the propriety of the course I follow. The hay crop had been stacked on the ground, and the lime was applied while some of the ricks were still there, consequently the spaces occupied by them were unlimed. Two years afterwards there was an untainted crop, except on those very spaces, where there was scarcely a sound root. The effect to the eye was striking even at a distance, so great was the difference between these spots and the rest of the field, and no predetermined experiment could have been more decisive or satisfactory than was the result of this accident.

"Of course it is impossible on such a subject to lay down rules for the guidance of others, the experience of different individuals in different localities being so various, if not contradictory. My own experience, however, has led me to the following conclusions: on this farm, and I think I may venture to say in this district, lime is a complete cure, and, so far as I know, the only one. The best period for applying it is to have it ploughed in with the lea, or I should rather say, applied at that point in the rotation which will admit of one crop intervening before the Turnips are sown, thus securing a thorough incorporation with the soil, and allowing sufficient time for a beneficial effect being produced. Applied immediately after harvest, where Turnips are to be sown, I have found it suitable enough, but generally noticed that though the crop appeared healthy, on examination the presence of disease could be detected, and I therefore much prefer an earlier application. It is essential to have the lime ploughed in in a caustic state. I have always followed the system of applying one good dose of lime in preference to two smaller ones applied at intervals, and would recommend not less than 12 tons per Scotch acre as about a proper quantity. The opposite method is, I am aware, advocated by many whose opinions are entitled to respect; but I am not aware that any experiments have been made by others with a view to settle the point; and not having instituted any myself, I cannot pretend to solve it. In these days, when lime is so expensive, and so difficult to be had at any price, it certainly interests all of us to have some more explicit information on the subject."

Miscellaneous.

Blood Manure.—Chemists and farmers, I believe concur in understanding by this name a manure composed chiefly or entirely of dried blood, and it bears the highest price of any manufactured manure. It is right, therefore, that it should be known that a manure is sold under that name, which is no more than a superphosphate of rather low quality, and contains an extremely small quantity of ammonia. Its analysis gave—

Water	13.25
Organic matter	12.26
Soluble phosphates	10.35
Insoluble phosphates	16.27
Sulphate of lime	35.41
Sulphuric acid	7.87
Alkaline salts	0.59
Sand	4.00
	100.00
Ammonia	0.20

If this substance had been sold as a superphosphate, it would have been correctly named; to call it a blood manure is to mislead the purchaser, and either to induce him to pay a higher price than the actual value of the substance justifies, or to buy a manure which may not be suited to the crop to which he applies it. *Prof. Anderson, in the Journal of Agriculture.*

The Flat and Ridge System of Turnip Culture.—The comparative advantages of growing Turnips on the flat and on ridges have frequently been discussed; and as the main strength of the argument has generally consisted in showing that the flat system of growing roots was indebted for any superiority it might possess to its better retention of moisture in the soil, I make no apology for entering into the matter here. I have had nearly 20 years' experience in Turnip growing, and sometimes it has seemed more advantageous to follow the flat system than the ridge, and *vice versâ.* In moist climates ridges, when formed, leave a kind of watercourse or channel between the artificial heights, which acts most conveniently for carrying the superfluous moisture away, and not only that, but the ridges are left, in the intervals of dry weather, in a proper state for working the land, for horse or hand hoeing, as the case may be. Where, as in Ireland and Scotland, 40 inches of rain fall in a year, with a much less average temperature than in the south and east of England, ridges are decidedly preferable, as the flat surface would usually be a puddle; but the case is completely reversed in the dry districts of England, where little more than 20 inches of rain fall annually. The summer heat is also greater, and of course the

evaporation is far more than in Scotland or Ireland. The ridge system of growing roots in any country has the merit of permitting of a better and cheaper cleaning of the land when foul than when roots are grown on the flat. The flat system, however, has a decided superiority in a dry climate by retaining on an average of seasons sufficient moisture in the land to grow a good crop, and for this reason we give the preference to the growth of Turnips on the flat generally in England. *Journal of the Royal Agricultural Society of England.*

Calendar of Operations.

JULY.

ESSEX: *Appearance of the Crops.*—Since the late storm of thunder and heavy rain last week, the crops here are benefited by it in a general point of view; and the Potato has hitherto manifested signs of vigorous growth. A humid atmosphere, however, has since prevailed with too little sun for a summer's month, and consequently disease prevails to some extent, and it is visible in the Potato leaf again. Another week will no doubt prove it true, for although it may extend to a very slight degree at present, yet it will soon manifest itself by the rancid scent of the leaves when passing them on the road side. Some kinds of the Wheat, too, in this neighbourhood have undergone no change for the better, especially the crowded plants, which generally suffer more or less from some disease or other: and we allude particularly to the variety called "rough chaffed" (and why it should be designated thus we are yet at a loss to know, for we would have it "fluff chaffed" or "satin chaffed," and we think that "smooth" is a more suitable word for it than rough). It is "red gum" which prevails in it to rather a fearful extent here, because it is cultivated on our heavy clay lands more particularly. It is so much so, that on looking over some of it by the way side it has the appearance of many lady bugs of an orange colour sticking on the ears. *Hardy and Son, Seed Growers, Maldon, Essex.*

FIFESHIRE: *Appearance of the Crops.*—Wheat—good, but very late; Oats—various; Barley—good; Beans—luxuriant; Turnips—backward; Potatoes—indifferent; hay—heavy crop. *R. Russell, Kilwhiss, Cupar, Fife, July* 16.

LINCOLNSHIRE FENS: *Appearance of the Crops.*—The present promise of Wheat is very good; Oats light; Beans full crop; perhaps not more than an average of corn; Peas good; Mangel not an average; Rape not good; Swedes a failure; Grass very short; a good crop of hay well got. With fine weather the Fen crops of Wheat will be quarters per acre better than last year. *Thomas Aitken, Pinchbeck, Spalding.*

WESTMORLAND: *Appearance of the Crops.*—So far as my observation enables me to report, the crops in this neighbourhood may be classed, Wheat and Barley a full, or rather an average crop; Oats below, and all apparently rather later than usual; Potatoes a full crop, and up to this day perfectly healthy: Turnips a sufficiency of plant, but small and puny from the long continued cold and gloomy weather; it is doubtful whether they will attain a full growth. The hay crop good, and much well secured.

HAMPSHIRE: *Appearance of the Crops.*—If this fine ripening weather continues another week we shall have a large produce on much of the Wheat; it is well "chessed" and filling remarkably well. The crop is however very various, but on the whole certainly an average—perhaps more. We are sadly in want of rain; all the showers which we read of in the papers having missed us since June 20. Our Potatoes are at a critical point; they would be good if rain came immediately, but longer delayed I fear they will give up on the chalks and thin lands. Turnips cannot be good, and with longer continuance of dry weather will be a failure. *J. T. Twynam, July* 24.

Notices to Correspondents.

BEETROOT: *G T.* There is no duty on the growth of Beet—that which you refer to is paid by the manufacturer of sugar from it. It is very questionable whether Beetroot sugar makers can afford to pay a profitable price for English-grown Beet. It is not the heaviest crop that contains most sugar per acre. In some districts of Ireland where the process has been attempted they give, we think, 15*s.* a ton, a price at which it may be profitable to grow it under a watery sky.

CONCRETE: *Anti-Oxeye.* The Portland cement has been recommended to us as able to resist the snout of a pig.

HAMPSHIRE CROPS: *Mr Eames, Lymington,* tells us, The Potatoes are sadly diseased since he wrote us last week, and the Turnips are being fast eaten up with the black palmer. All things are suffering very much for want of rain. [In the report lately published from Lymington it was "premature ripeness" that was complained of.]

POULTRY: *G R.* In judging Cochin China Fowls, the outer colour is the point with which the judges have to do. If a case arose where every other point was equal, which of late never happens, we hardly think, even then, the judges would be justified in making the under colour a point of decision, as they have to judge the birds on their present merits, and not looking into the future for their probable produce. If we wished to breed light birds, we would prefer those without dark under-feathers; but it is undeniable that all have more or less of dark blood in them, and also that the old-fashioned dark birds were heavier and more 'symmetrical than the light ones. The ridiculous stickling for uniform colour, and clear hackle, has robbed birds of the qualities formerly found in them, as regards weight and shape. *Bow.* Clean-legged game bantams are the best for gold pheasants' eggs, as they are light, and the shells of the eggs are delicate; an ordinary game hen is the best for silver eggs, as they are stronger in the shell and a larger egg. The twist in the tail of a fowl is generally the result of a curve or deformity in the back bone; but it is sometimes the case where no apparent cause accounts for it. We have known it to proceed from long confinement in a small basket or coop, which would not admit of the tail being properly carried; a very slight injury will cause it.

TO RAISE WATER: *T G, Clitheroe* says:—Can you or any of your correspondents inform me whether the hydraulic ram is ever applied to the raising large bodies of water, say 300 or 400 cubic feet per minute, and if so, is it economically applied? I only know it as a philosopher's toy, but if it can be advantageously applied to large bodies of water, it seems to me there are many situations where it might be so employed, and I should be glad if you could give me replies to the following questions:—1. Can it be applied to variable streams; say, if it were adapted to raise 100 feet of water per minute, could it be equally applied (without incurring any expense or loss of time) to the raising of 50 feet? 2. Supposing I have a fall of 20 feet, delivering on the average 500 feet of water per minute, how great a per centage of that supply may I calculate upon raising 40 feet above the head of my fall? 3. Supposing I am able to raise 100 feet per minute, how large ought the pipe to be which carries the water from the air chamber to the higher elevation, and will the water in this pipe rise equally well at any angle? 4. What would the cost of a ram calculated to raise this quantity of water—I mean merely the valves—and air chamber, and their fittings, but not including the pipes necessary to carry the water down to the machine, nor those for conducting it back into the elevated cistern? 5. Where is there a machine of this kind in successful operation? [The ram is of use, we believe, only when a large body of water and a little fall is at command. It is, under these circumstances, able to throw a little water to a great height.]

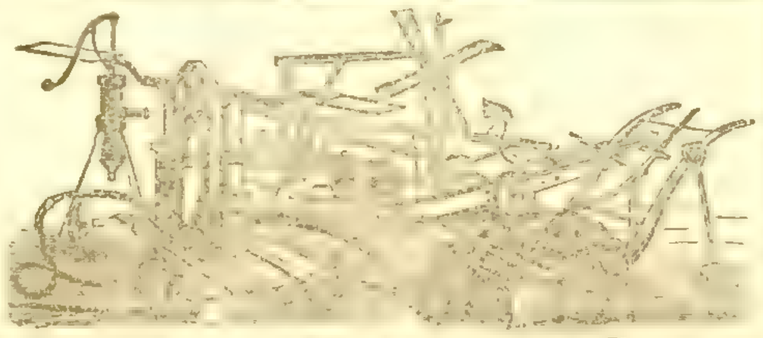
THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery. — Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps

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PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others: will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

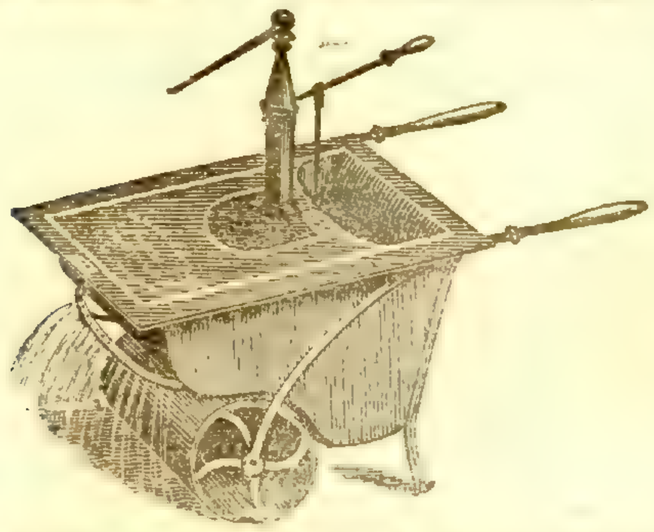
Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

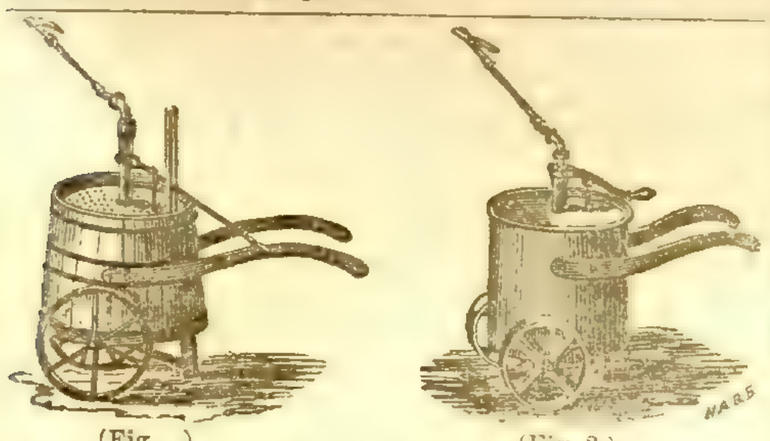
THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,
is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.



(Fig. .) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high	...	£4	10
No. 2	„ 15	„	„ 45	„ ...	5	10
No. 3	„ 28	„	„ 45	„ ...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high	...	£2	15
No. 13	„ 12	„	„ 30	„ ...	3	5
No. 11	„ 16	„	„ 40	„ ...	4	0
No. 12	„ 24	„	„ 45	„ ...	5	0
No. 14	„ 30	„	„ 45	„ ...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

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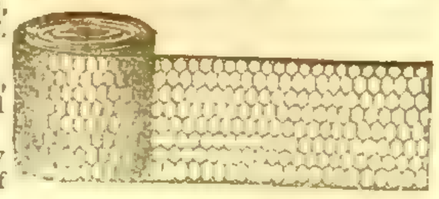
GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

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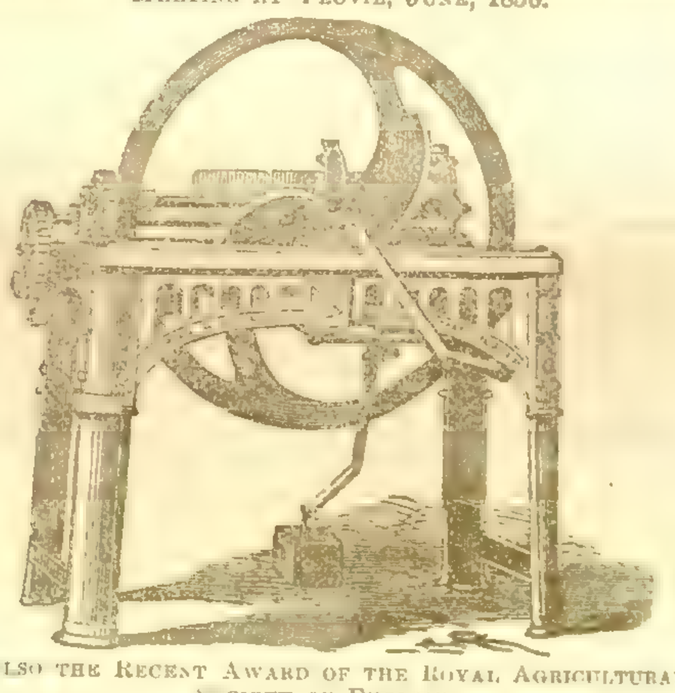
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.

JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade, in most of the counties in England.

THE PRIZE CHAFF CUTTING MACHINES OF THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY'S MEETING AT YEOVIL, JUNE, 1856.



ALSO THE RECENT AWARD OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

RICHMOND & CHANDLER, having been awarded the special and only Prizes for Chaff Cutting Machines for Hand and Power at the recent Yeovil Show, beg to inform Agriculturists and others that they may be immediately supplied with these Machines, which, by their intrinsic merit, have achieved the highest character in the trade, together with the confidence of the public.

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AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Common Iron Bedsteads, from 16*s.*; Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d* to 15*l.* 15*s.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1	4	6
Chintz furniture	0	17	0
Paillasse, wool mattress, bolster, and pillow ...	1	13	0
A pair of cotton sheets, three blankets, and a coloured counterpane	1	5	0
	£4	19	6
A double Bedstead, same	£6	15	9

If without Half-tester and Furniture—

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ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

HUGH LOW AND CO. will send post free to any person making application for it, their GENERAL PRICED CATALOGUE of PLANTS, TREES, SHRUBS, &c.; also a CATALOGUE of DUTCH FLOWER ROOTS.
Clapton Nursery, London.

TO THE SEED TRADE.
TRUE STOCKS of Chivas's ORANGE-JELLY TURNIP, NONPAREIL CABBAGE, ENFIELD MARKET Do., and EARLY DWARF YORK Do. for August sowing.
Samples on application at A. Hardy & Sons, Seed Growers, Limbourne Brook and Knowles's Farms, Maldon, Essex.

GROOM'S BULBS.
H. MATTHEWS, Son-in-law and Successor to the late Henry Groom, Florist, Clapham Rise, Surrey, begs to call special attention to his beautiful and unrivalled collection of the following Bulbs, &c.:—Amaryllis, Vallotas, Lilium lancifolium, Japonicum (true) rubrum, roseum, speciosum, punctatum, album, &c., Tritonia aurea, Ranunculuses, Anemones, best mixtures, and Auriculas. The above will be offered at remarkably low prices, H. M. being desirous of making room for other stock.

PRIZE CALCEOLARIA AND CINERARIA SEED.
WILLIAM B. JEFFRIES, Arboretum Nurseries, Ipswich, can now supply Seeds of his unrivalled collection of the above in packets at 5*s*. each, or second quality 2*s*. 6*d*. For brightness of colour, shape, and beautiful markings they are unequalled. In proof of their superiority they were this season awarded four first prizes and two first class certificates. Also a few packets of splendid Fimbriated Primula, 1*s*. 6*d*. each.
AZALEA INDICA.—W. B. J. offers a very choice collection, good plants, 9*s*. and 12*s*. per dozen; very fine do., in 48-pots, for flowering next spring, 12*s*. and 18*s*. Names on application.

FRUIT TREES IN POTS.
H. LANE AND SON, the Nurseries, Great Berkhampstead, have still fine ripe Fruit on their Trees, in pots of Peaches, Nectarines, Plums, Cherries, &c. Plants for the coming season are very fine.
The AUTUMNAL ROSES will continue blooming throughout the season.
Their General Nursery Stock is very fine. Flys from the Kings' Arms Family Hotel meet every Train.

TO THE SEED TRADE.
JAMES NORRIS has still a large quantity of CABBAGE SEED left, and will accept any reasonable offer.—For particulars see last week's Advertisement.
Sion Hill, Brentford End, August 2.

AZALEA INDICA.
J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, August 2.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen.
Exotic Orchids	from	42*s*.
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties	"	9
Gynerium argenteum (Pampas Grass)	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

TULIP CATALOGUE.
CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.
A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.
Now ready, very choice CINERARIA, 2*s*. 6*d*. per packet.
very choice CALCEOLARIA, 2*s*. 6*d*. "
Royal Nursery, Slough.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.
WILLIAM BARNES is now prepared to send out Seeds of his beautiful and unrivalled CALCEOLARIA, CINERARIA, and SWEET WILLIAM, the two former 2*s*. 6*d*. the latter 1*s*. 6*d*. per packet.
It is needless to say anything in recommendation of the above, as W. B. has received numerous testimonials in their praise from the many gentlemen and gardeners whom he has supplied. Payment by postage stamps.
Address—Camden Nursery, Camberwell.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s*.; sent post free, 1*s*. 2*d*. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d*. per packet. Catalogue on application.
DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d*. per packet.
Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

FERNS FOR SALE FROM MADEIRA.
MR. SAMUEL STEVENS, Natural History Agent, &c., 24, Bloomsbury Street, London, begs to announce that he has just received from Madeira in good health the following FERNS; viz., Polypodium drepanum, Woodwardia radicans, Davallia Canariense, Nephrodium molle, Adiantum reniforme, Acrostichum squamosum, Asplenium palmatum, Gymnogramma Lowei, Asplenium monanthemum, Gymnogramma lanuginosa, Nothochlæna marantæ, Nephrodium elongatum, Pteris arguta, Allantodia umbrosa, Aspidium frondosum and Balantium Culcita; they are for Sale at most moderate prices. Early application is requested. Also a Ward's Case filled with Orchis foliosa, Price 5*l*.

WANTED, next October, for planting, DEODARA PINES, any size, and any quantity not exceeding 500.—Apply, stating price, to Mr. Browne, Hill House Farm, Ifield, Crawley, Sussex.

PINE PLANTS, CHIEFLY QUEEN AND JAMAICA,
TO BE SOLD, by Private Contract, in one or more Lots, 700 to 800 Fruiting and Succession PINE PLANTS, very healthy, stocky, and clean. Gentlemen about to furnish their Pine Stoves are requested to inspect this first-rate stock. Very eligible for carriage by rail or water.—Apply to J. Lancaster, Edward Street, Deptford.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

GARDEN VASES, WIRE WORK, AND IMPLEMENTS of HORTICULTURE.—COTTAM AND HALLEN have arranged in their SHOW ROOMS, for the Season, a Select Assortment appertaining either to the Cottage or a Nobleman's Mansion, comprising garden chairs, vases, and fountains, from the cheapest to those of a more expensive and ornamental character; garden rollers, garden engines, lawn mowing machines, garden bordering, garden stakes, flower trainers, garden arches, hand glass frames, every description of garden tools, and a complete collection of articles, in plain and ornamental wire work, for the protection of fruit trees, the adornment of the conservatory for aviaries, poultry houses, arbours, &c. Builders of conservatories and greenhouses, and manufacturers of every variety of fencing and gates.—Illustrated catalogues and drawings, free, on application to Cottam & Hallen, Iron Works, 2, Winsley Street, Oxford Street.

REIGATE SILVER SAND, PEAT AND LOAM.—Sand, 16*s*. per ton, or 1*s*. 6*d*. per bushel, delivered to any London Wharf or Railway.—Peat and Loam of various kinds, in large or small quantities. Samples if required. Terms Cash.
John Kennard, Swan Place, Old Kent Road, London.

VASES, &c.—About 200 different shaped Vases, and a great variety of other Garden Ornaments may be inspected at Austin & Seeley's Artificial Stone Works, 1 to 4, Keppel Row, New Road, Regent's Park, London.
N.B. Fountains from 10*l*. to 400*l*.

GREENHOUSES.
HENRY FREEMAN, Hothouse Builder and Hot-Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed any part of the Kingdom for cash, 42 feet long by 13 feet, 90*l*.; 21 feet by 13 feet, 50*l*.; 12½ feet by 10 feet, 30*l*. A first-rate Conservatory, 30 feet by 18 feet, 130*l*. A large assortment kept. Estimates for Heating, or any branch in Wood or Iron.

HOT-WATER APPARATUS.
J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson and Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

KENT'S PATENT WEATHER-PROOF GLAZING for HORTICULTURAL BUILDINGS and GLASS ROOFS in general. Exhibited at the Great Exhibition, 1851. Honourably mentioned. Illustrated Price Books on the receipt of four stamps, or estimates sent.
Horticultural Building Works, Chichester.

CHEAP GLASS for HOT-HOUSES, and CONSERVATORIES.—The best place in England for strong Glass is at the East London Sheet and Plate Glass Warehouse, 45, Leman Street, Goodman Fields. 100 feet boxes strong small sizes, from 8 to 6 down, only 6*s*., box included. All other descriptions of Glass equally cheap, and delivered free of charge to any of the Carriers in London. Estimates given for Plate Glass.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.
The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.
Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

MARINE AND FRESH WATER AQUARIA.
SANDERS AND WOOLCOTT, 54, Doughty Street, Foundling, London, Manufacturers of the Glass Tanks in the Zoological Gardens, Regent's Park; in the Royal Zoological Gardens, Dublin; in the Conservatory of His Grace the Duke of Devonshire, Chiswick; and various Museums throughout the kingdom, have constantly on hand and in operation GLASS TANKS of all sizes for the Marine and Fresh Water Aquarium.
These Tanks can be safely forwarded to all parts, and lists of prices may be had on application at the above address, where also the tanks may be seen.

TO GARDENERS, ETC.
PATENT PREPARED GARDEN NETTING for covering Fruit Trees, Strawberries, &c., to be had in any quantity from A. Greig, Fishing and Garden Net Manufacturer, Dundee.

THE FINEST FRUIT IN ENGLAND will be secured from WASPS, FLIES, BIRDS, &c., by using HAYTHORN'S HEXAGON GARDEN NET, to be seen in most Gardens, and recommended by all the principal Gardeners.—Patten's Prices and Testimonials free by post. Orders to be directed to Mr. Haythorn, Nottingham.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d*. per square yard. 200 yards, 14*s*.; 500 yards, 30*s*.; 1000 yards, 50*s*.: scrim canvas for wall fruit. At Edgington & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

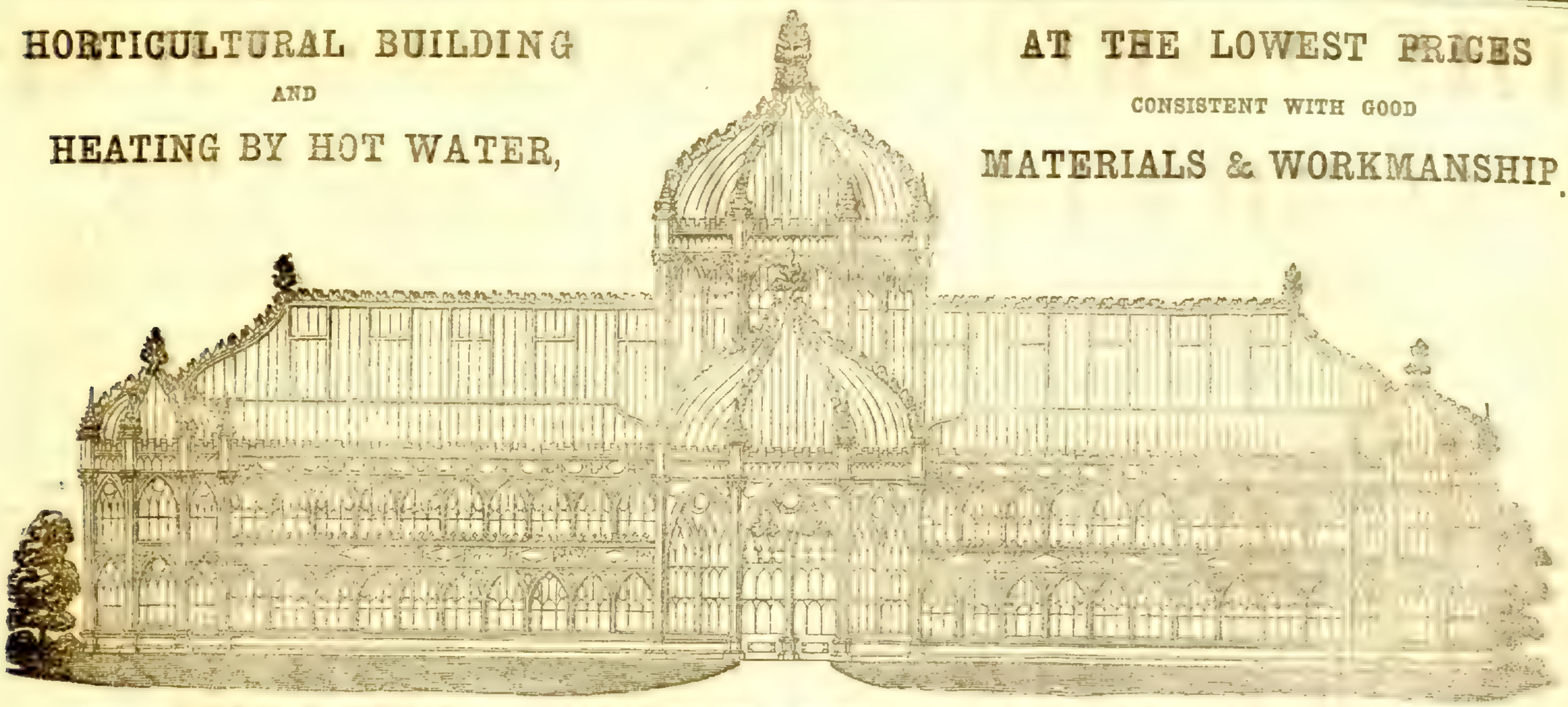
NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d*. per yard; 2 yards wide, 4*d*. per yard; 4 yards wide, 8*d*. per yard. Half-inch mesh ditto, 2 yards wide, 8*d*. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d*. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d*. per yard; 4 or 6 yards wide, 3*d*. per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.
*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

POULTRY, &c., SHOWS.—IMPROVED PORTABLE WIRE PENS for Poultry and Pigeons, furnished on hire by Thos. P. Hawkins, General Wireworker, 27, Dale End, Birmingham.
WIRE GAME and POULTRY NETTING and WIRE GOODS of every description.

IRON FENCE, HURDLES, ETC.
J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 1*s*. 9*d*. each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 2*s*. 3*d*. each.

HORTICULTURAL BUILDING
AND
HEATING BY HOT WATER,

AT THE LOWEST PRICES
CONSISTENT WITH GOOD
MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

PATRONIZED BY HER MAJESTY.

WILLIAM SHAKESPEAR,

(SUCCESSOR TO CLARK AND JONES),

Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,

55, LIONEL STREET, BIRMINGHAM.

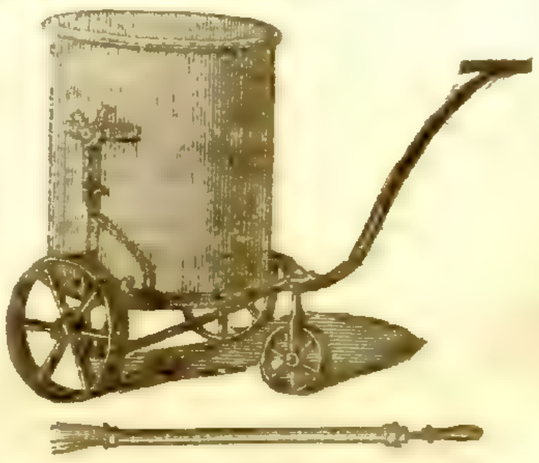
WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c. for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the superior mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship. *Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.*

ESTABLISHED IN THE YEAR 1818.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*



Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

BEEHIVES.

Prize Medal Awarded to G. Neighbour & Sons, for Bee-Hives and Honey, at the Paris Exposition of 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.

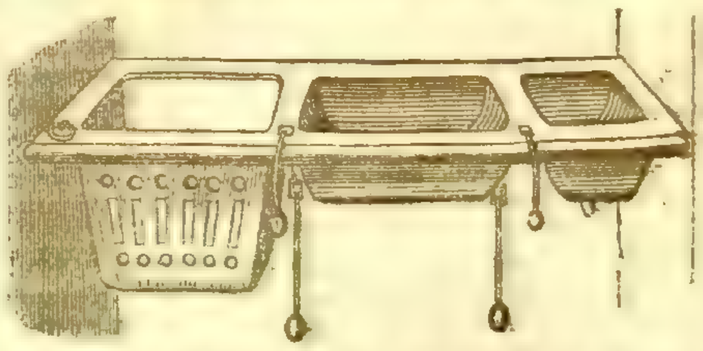
This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to George Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

Agents:—Liverpool, James Cuthbert, 12, Clayton Square; Manchester, J. Wilson, 50, King Street; Glasgow, Austin & M'Aslen, 168, Trongate; Brown & Austin, 33 and 34, Argyll Arcade; Dublin, J. Edmondson & Co., 61, Dame Street; Chester, J. Dickson & Sons, 102, Eastgate Street.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

James Barton, Iron Founder, &c., 370, Oxford Street, London.

MESSRS. E. G. HENDERSON & SON'S
NEW CALCEOLARIAS

ARE the finest marked, best formed, and the richest in colour of any shown this season at the London Exhibitions. They obtained the Silver Medal at the Royal Botanic Society, Regent's Park, on Wednesday, June 18th, and are the most beautiful of any yet raised. Seed of these and other Flowers, suitable for the present season's sowing, may now be had, also their unrivalled mixed Cineraria:—

CALCEOLARIA, First Quality ...	5s. 0d.	per packet.
Ditto Second Quality ...	2 6	"
CINERARIA, Choice ...	2 6	"

For List of other Choice Seeds see Advertisement July 19.

The Spring Catalogue may be had post free on application, or with Coloured Plate of Nine New Flowers, Price 1s.

Wellington Nursery, St. John's Wood, London.

BALSAMS.

F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show of the Botanic Gardens, Regent's Park.

Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled. —Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed* ...	1s.	per packet.
Calceolaria, *choicest varieties* ...	1s.	"
Cineraria " " ...	1s.	"

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

James Carter & Co., Seedsmen, 238, High Holborn, London.

New and Beautiful Hardy Coniferous Tree.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21s.; six plants, 4l. 10s.; 12 plants, 7l. 10s.—Knap Hill Nursery, Woking, Surrey.

CHOICE NEW ROSES OF 1856.

Hybrid Perpetuals.—Belle Jardinière, Docteur Henon, Duc d'Elchingen, General Simpson, Pæonia, Josephine Ledechaux, Louise Magnan, Madame Knorr, Marquise de Murat, Mrs. Standish, President Menoux, Belle Lyonnaise, Madame Desirée Giraud, Marquis Balbiano, Comte de Montejo, Triomphe d'Avranches, Souvenir de la Reine d'Angleterre, Mathurin Regnier, Souvenir du Petit Caporal, General Pélissier, Prince Noir, Madame Cambacères, Lord Raglan, Impératrice Eugenie, Lafontaine, Madame Place, Gloire de Dijon (Tea), 1s. 6d. each; Léon Haiman, 2s. 6d. each; Folichonne, 2s. 6d. Purchasers' selection from the above, 3s. 6d. each.

New Fuchsias, 1856.—Conqueror, Donna Joaquina, Vénus de Medici, Charlemagne, 2s. 6d. each; Cuphea eminens, 1s. 6d. each; Meyenia erecta, 5s. each; Tropæolum elegans, 1s. 6d. each; Hydrangea hortensis pleno, 2s. 6d.

H. M. begs to add that he has a few more sets remaining of the splendid new Verbenas of 1856, as advertised by him July 12, at 4s. per dozen, post free. Also the fine striped Petunias, at 6s. per dozen, post free.

Henry May, The Hope Nurseries, near Bedale, Yorkshire.

CUTHILL'S STRAWBERRY PLANTS for 1856 and Spring of 1857 will be sent out August 25th.

Cuthill's EARLY BLACK PRINCE, 5s. to 7s. 6d. per 100.

Cuthill's PRINCESS ROYAL.—Early, very hardy, medium size, superior flavour. Name suggested by Sir Jasper Atkinson on account of its superiority. Price 1l. per 100; 50 for 12s.; or 25 for 6s. (See the *Illustrated London News* of July 12th, for a drawing of Cuthill's Princess Royal Strawberry.)

Cuthill's PRINCE OF WALES.—Splendid colour and shape, fine size, the greatest bearer of all other sorts, first rate for table and preserving. Price 10s. per 100, for 50 or 6s. The average of days in bearing of these three sorts is over 55; the average weight about 17001bs. to three-quarters of an acre.

Cuthill's BLACK SPINE CUCUMBER, 1s. per packet.

Green's LADY ANTROBUS WINTER CUCUMBER has been in his possession 20 years. Per packet, 2s. 6d.

Cuthill's NEW LONG WHITE SPINE.—Great bearer, fine form, 12, 16, and 20 inches long, 2s. 6d. per packet.

J. Cuthill's Pamphlet on the Potato, Strawberry, &c. 2s.
J. Cuthill's Market Gardening Round London. 1s. 6d.
J. Cuthill's Pamphlet on the Vine Disease of Spain and Portugal; containing also a Plan for the Total Destruction of Woodlice in Cucumber Pits, &c. Price 1s.

Orders payable to James Cuthill, Camberwell, London.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and SHRUBS of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c., all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

John Weeks & Co., King's Road, Chelsea.

The Gardeners' Chronicle.
SATURDAY, AUGUST 2, 1856.

That Orchard Houses answer their purpose under good management is sufficiently proved by the numbers that are springing up all over the country. They were wanted. With our deteriorated springs the acquisition of a fruit crop had become too much a matter of chance, and with the chances against us. An amateur struggling with cold earth in spring and hailstorms in May was like a gambler playing against the bank. He might win, but was sure to come off in the long run a heavy loser. Orchard Houses put the small grower at his ease as to a crop, and furnish him with much amusement into the bargain. It is something to be able to watch the expanding flowers and mark their setting, and assist at their first attempts at swelling into ripeness without the probability of catching a catarrh; it is more to feel that whatever time, patience, and money are expended will be certain to bring their reward.

For this we have to thank Mr. Rivers. His "Orchard House"* was soon made an amateur's guide, and notwithstanding failures here and there arising from negligence, ignorance, or inexperience, steadily maintained its ground. We, therefore, see with no surprise that a fourth edition has been called for. It is a compliment for the author to be proud of; for it is a public acknowledgment of valuable advice and instruction having been rendered. In the present edition two new topics are introduced; one the cultivation of Plums in such houses; the other a recommendation to apply the method to tropical fruit trees.

To the first of these proposals we heartily accede. The crops of Plums obtained last year in the Orchard House in the Horticultural Society's Garden were abundant and excellent, while unprotected trees yielded little or nothing. A reference to our columns of 1855, page 612, will show that Denniston's Superb, Huling's Superb, Reine Claude de Bavay, and a late Plum without a name were the gems of the remarkable exhibition there described. Upon this point Mr. Rivers makes the following new statement:—

"It is well known that Plum trees in our climate bloom so early in spring as rarely to escape the effects of spring frosts; it may safely be asserted that a fair crop of Greengages, away from walls, is realised but three years out of seven, even in the south of England, but two years out of seven in the midland counties, and seldom or never in Yorkshire. Now, I propose that for those who wish to grow a crop of Plums regularly, and yet not incur a heavy expense, rough-built lean-to orchard houses should be erected in some corner of the premises, so as not to be obnoxious to the eye, of Larch poles, rough half-inch boards, with two or three sliding shutters for ventilation; in fact, merely a glass-roofed shed on purpose for Plum trees in pots while in blossom and setting their fruit. It is surprising with what vigour and beauty Plum trees blossom even in the rudest glass structures, and as the trees need not remain in the house longer than the end of the first week in June, when all danger of severe spring frosts is over, they may be placed close together, so that a house 20 feet by 12 with a path in its centre will hold 96 trees, 48 on each border. The trees may be potted into 13 or 15-inch pots, and treated exactly as recommended for other orchard house trees; with this difference—all the trees with their young fruit on should be removed from the house on the 7th June, and placed in rows or otherwise in the garden to ripen their fruit in the open air. The pots may be plunged in the soil to the extent of one-third, but not more; for if the roots are too cold, the fruit will suffer in flavour, and if the soil be wet and cold, it should be drained or made porous, so that the water passes from the pots rapidly, and the top-dressing of manure must be most abundant. As I have before stated, the very late Plums must be ripened under glass; but all the varieties that ripen in the open air before the end of September may be grown in great perfection in this way, and regular annual crops insured, if care is taken to thin the fruit properly, for if too large a crop is extorted, the tree *will* have a year's rest. It is quite astonishing how prolific these bushes become in a few years, and by merely pinching off the ends of exuberant shoots, about the end of June, to within 3 or 4 inches of their bases, they soon form themselves into compact round-headed trees quite as ornamental as Orange trees in pots and tubs, and far more gratifying as regards utility; for one would not like to place a dish of English Oranges—cultivated as they are at present—before one's friends, but English Greengages are always acceptable."

In the views entertained by Mr. Rivers concerning the ripening of tropical fruit trees in heated Orchard Houses we cannot concur without considerable qualification. In the first place very few tropical fruits are worth cultivating; in the next place few are cultivable. Mr. Rivers himself says:—"An orchard house for tropical fruits has long been with me a favourite idea, and recently, from my having had a daughter return from a nearly two years' residence in the West Indies, it has received a fresh stimulus. The variety of tropical fruits seems almost endless; some of them, if I may judge from description, are too rich, others too insipid for English palates, and of the greater part the trees that bear them would require a house far beyond the means of the amateur not blessed with a large fortune." That is very like the fact. What are not too big are worthless; what are good are too big. The Cherimoyer is as tall as a large Pear tree; Guavas, Sapodillas, Water Lemons, and Rose Apples may be attractive in the pages of Paul and Virginia, but would be turned away from an English dessert. Who cares to taste twice the Loquats that now come from Madeira; they are about as good as the worst Apricot that ever ripened. Mangosteens can never be had out of palatial gardens; and as to Mangoes they find no favour by the side of a Nectarine. It may be safely asserted that beyond the Pine Apple, the Orange, the Banana, the purple Guava, the Litchi, the Mangosteen, and the Chirimoyer, there is little to be hoped for among tropical produce fit for a dessert. The four first we have, the three last are all but unattainable.

But while we are obliged to express our want of faith in the merit of the greater part of the fruits still unintroduced, there is one application of a heated Orchard House to which Mr. Rivers draws attention, and in which we agree with him. The Orange tree and all its kindred might really repay the cultivator. In England we hardly know what a good Orange is; but there is no reason why we should not ripen them as well and as easily as Grapes. A heated Orchard House offers the means.

"As an ornamental greenhouse and conservatory tree, the Orange is an old friend; and perhaps no tree in the known world has suffered, and does suffer, such vicissitudes of treatment, yet living and seeming to thrive under them. It *glories* in a tropical climate, and yet *lives* and *grows* after being poked into those cellar-like vaults used for its winter quarters on the Continent; it gives flowers in abundance under such treatment, and would even give its fruit—albeit uneatable—if permitted. Nearly the same kind of cultivation has been followed for many, many years in England: it has rarely had heat sufficient to keep the tree in full vigour, and its roots in pots or tubs must have suffered severely from having been placed out of doors in summer on our cool damp soil, and in winter on a stone floor still more cold. If roots could make their complaints audible, what moaning should we hear in our Orangeries all the winter! In cultivating the Orange for its fruit, the first consideration is to procure some of the most desirable varieties; those delicious thin and smooth-rinded Oranges we receive from St. Michael's; the Maltese Blood-oranges, and the Mandarin would be most desirable: with the present facilities of transport, young trees of these could be procured. There are also some sweet Oranges cultivated in France, of which trees could be readily procured; but the first-named varieties seem to me most worthy of the careful cultivation to be given them in the tropical orchard house. The first matter of import is the soil best adapted for the Orange; there are many recipes given in our gardening books, but the most simple compost of all, and one that cannot fail, is the following: two parts sandy loam, from the surface of some pasture or heathy common, chopped up with its turf, and used with its lumps of turf about the size of large Walnuts, and its fine mould, the result of chopping, all mixed together, one part rotten manure at least a year old, and one part leaf mould; to a bushel of this compost

* The Orchard House, or the Cultivation of Fruit Trees in pots under Glass. By Thomas Rivers, of the Nurseries, Sawbridgeworth, Herts. Fourth Edition. London: Longmans, 1856.

add a quarter of a peck of silver or any coarse siliceous sand—calcareous sand and road sand are injurious—and the mixture will do for all the fruit trees of the tropical orchard house, as well as for Oranges. In potting the Orange it is better to commence with a pot too small rather than too large; for, unlike the Peach or the Plum, it does not feed rapidly and at once fill the pot with roots. Thus a tree two or three years old may be potted into a 9-inch pot, suffered to remain for one year, and then removed to a 13-inch pot, perforated as for other orchard-house trees, in which it may remain (unless the house is very large, and a large tree is wished for) six, seven, or ten years; a portion of the surface soil may be removed, as directed for other orchard-house trees, but not deeper than from 3 to 4 inches, early in February, and the pots filled up with the above compost; and about the beginning of March a surface-dressing of manure should be given. I have observed that the French cultivators strew fresh sheep's manure on the surface; they also place their trees in pure peat earth. I have not seen this mode of culture in England, but it may be tried where peat is abundant."

Such is the method proposed for this branch of Orchard House cultivation, and we hope to see the recommendation carried out. Gardeners must, however, recollect that there are Crab Oranges as well as Crab Apples, and that the fruit of most of the sorts in cultivation is quite unfit for the table. We should not attach much importance to the Blood-red. It is among the sorts grown in Italy, in Malta and Portugal, and in the Western Islands that search must be made for the fine varieties that are likely to repay the trouble that may be taken to grow Orange trees for their fruit. If this is not done nothing can come of the proposed experiment except disappointment.

If bushes of the Eugenia Ugni, perhaps the richest in flavour of all the uncommon Exotic fruits, were mixed with the Orange plants they would give variety to the appearance of a house, and enhance very materially its value. In our own opinion the Ugni, when properly ripened, ranks with the Vine and the Pine Apple. Its fault is that the berries grow singly, and are no bigger than Black Currants; but on the other hand it produces its fruit in abundance.

Some years since we stated, upon the authority of French reports, that while the Vine Disease was producing infinite mischief among European Vines, the American varieties growing amidst them were untouched. Upon this fact we ventured to suggest the possibility of preventing the mildew here by working our cultivated sorts upon American stocks. It is to be feared, however, that this suggestion has not met with encouragement; for no account of such a trial has reached us. And yet it deserved attention better than many a proposal at which gardeners have eagerly caught.

The French statement is now confirmed upon evidence that can hardly be disputed. Mr. Chorlton, in a useful little work which has just arrived from the United States,* makes the following statement:—

"In the United States the different varieties of the native *Vitis Labrusca*, as Isabella, &c., and those of the native *Vitis vulpina*, as Scuppernong, &c., with ordinary treatment flourish and ripen their fruit in the open air; while those of the exotic *Vitis vinifera*, as Chasselas, Hamburgh, &c., have, excepting in a few solitary instances, proved a complete failure from their tendency to become mildewed. In most parts of the Union there is sufficient light and heat to bring the different varieties of the latter species to maturity, and they are hardy enough to resist the cold, but unfortunately, when the disease (allow the expression) attacks them, the free action of growth is checked, the energy is impaired, and instead of well-hardened wood, there is nothing but an unripened, sappy substance, to withstand the severe winters. The fruit also is rendered worthless from the same cause; and although many attempts have been tried with the most sanguine expectations, they have been as often abandoned."

In these few words an experienced practical Grape grower substantially confirms the French account, and we trust the subject may now be thought worthy of European attention. Not that we would limit the proposed trial to mere grafting on American stocks. On the contrary, the process of hybridizing seems also to promise advantages, notwithstanding the bad quality, as we think, of the native American Grapes. Their mucilaginous pulp, and strong musky or foxy flavour render them unpalatable here; but suppose they were crossed! Suppose that such insipid kinds as the Syrian, White Nice, and Black Sweetwater were touched with the perfumed races of the United States, or *vice versâ*, there would be fair promise of good and hardier kinds being the result; and if the first generation were crossed again with the Black Hamburgh or White Sweetwater or Muscadine, some further improvement would be almost certain.

We are told by Mr. Chorlton that "two of the best in America at present are Isabella and Catawba, both of which are only natural seedlings; the former from the species Labrusca, and the latter, which is the famous Wine Grape of the West, most likely an accidental cross between Labrusca and Vulpina." It must be owned that those sorts, although the best, have little merit; and he gives a very unflattering character to other sorts. On this account, and because of the invincible tendency to disease among the European kinds, he also strongly urges the expediency of trying hybridism, concerning which he speculates thus:—"For producing a fine table Grape, perhaps no better varieties can be chosen than Isabella, or Concord, fertilised with Black Hamburgh, for a black; and Diana, crossed with Chasselas Fontainebleau, for a light-coloured class. For this purpose, it is not advisable to make use of the Frontignans, or Muscats, for the natives have already too much of the musky flavour, and by introducing the sweetness of the Hamburgh and Chasselas, we shall be most likely to produce a Muscat flavour, with the size or beauty of berry, and form of bunch of the two paternal kinds." The opinions of a practical man upon such a point seem to us deserving of consideration.

In connection with the present subject it is not a little curious to see how the American gardeners are in a state of complete confusion as to what is the true Vine Mildew, arising from the attack of Oidium. Mr. C. says there are two diseases in the States, one appearing in the form of brown spots, which eat through the leaves; the other like "a fine and delicate hoary mouldiness." The first he supposes to be the European mildew, while his account shows unmistakeably that it is the second. Let us hope that when Mr. Chorlton sees this remark he will make the American public aware of the mistake.

* The American Grape Grower's Guide. Intended especially for the American Climate. Being a Practical Treatise on the Cultivation of the Grape-Vine in each department of Hot-house, Cold Grapery, Retarding-house, and Out-door Culture. With Plans for the Construction of the Requisite Buildings, and giving the best methods of Heating the same. Every Department being fully Illustrated. By William Chorlton, author of "The Cold Grapery," &c. New York: C. M. Saxton & Co., Agricultural Book Publishers, 140, Fulton Street, 1856.

New Plants.

180. Lysimachia lineariloba. *Hooker in Beechey's Voyage*, p. 268.

Mr. Fortune has sent this from China to Mr. Glendinning. It had been previously found only by the naturalists attached to Captain Beechey's Expedition when it visited the Loochoo Islands. It forms a very pretty little herbaceous (?) bush, and is said to be quite hardy. The specimen before us is about 2 feet high, with a perfectly smooth shining red erect stem, branched from the base, and terminating in quadrangular twigs. The leaves are sessile, spatulate near the base, oblong-ovate upwards, shining, leathery, convex, with a very

slight tendency to crenatures at the edge. The upper part of the stem is covered by innumerable white starry flowers, on long stalks in the axil of deep green leafy bracts. The corolla is divided below the middle, and has its segments slightly revolute when fully expanded. They are larger than in L. Ephemerum, and perfectly destitute of colour. The stamens are half as long as the lobes of the corolla. None of the translucent coloured dots that are so common among Lysimachias are to be found in this species except in the lobes of the calyx where they are oblong, and stand in a row or row and half on either side of the midrib. To us this seems as nice a novelty as more showy flowers. It ought to look well in the narrow trim beds of a well kept parterre. Whether it is really perennial we do not know. It seeds freely.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. IV.

By the Rev. J. S. Henslow, M.A., Rector of Hitcham, Suffolk.

Examinations and Prizes.—Subject-matter for an annual examination may be suggested under the following heads:—

1. A few questions *vivâ voce* on the general characteristics of the more prominent orders, and remarkable deviations from them.

Ex. gr. The ordinarily didynamous condition of the stamens of Labiates, contrasted with the unusual diandrous state of some of them, as in Sage (*Salvia*), Gypsey-wort (*Lycopus*), &c.

2. Blank schedules attached to about a dozen or more specimens of wild flowers, to be filled up according to the example here given by the words in Italics.

Slit for inserting the specimen.	Cl.: *D.* Div.: *An.*
	Sec.: *Calycifloral (monopetalous).*
	Ord.: *Composites or Asteranths.*
	Gen.: *Plume-thistle.*
20th July, 1856, by *Jane Finder.*	Sp.: *Woolly-headed.*

N.B. It has occurred to me since my former communication that these label schedules might be useful, instead of keeping lists of the plants first found by each child in a season. If each were required to put down all it found, and a good mark allowed for every label correctly filled up: references both to the plant stands for names, and to the plant list for orthography, would be vastly increased, and the results would be more rapid among those who are not so anxious as others to find themselves improving. I have ordered a box with pigeon-holes in which these records of industry may accumulate in future, till the day for investigating them shall arrive. Three marks instead of one will be allowed for every plant brought in flower for the first time in the season.

3. Blank schedules for the flower, fruit, leaves, &c., to be filled up for two dicotyledons and one monocotyledon. The forms of these schedules will be given when I explain how lessons are to be carried on by means of them. Garden specimens may be selected, provided they are of the same orders, though not necessarily of the same genera, as the wild flowers of the neighbourhood. Lenses, forceps, vasculums, and penknives, are coveted prizes. Books on natural history I need scarcely allude to, as they will be sure to be held in estimation wherever means are forthcoming for procuring such.

Educational and Instructional advantages of Botany.—As these notices profess to be intended for beginners of all classes, perhaps I may be allowed to express my opinion of the advantages to be expected from accepting botany as a branch of a general liberal education.

Many persons are interested with the theories and speculations of botanical physiologists, who are nevertheless disinclined to attend to systematic botany. Under this term I include morphological investigations, because the modern philosophic systematist has constant recourse to these in deducing the laws by which he determines the affinities of plants. The slow and cautious steps by which the natural system is advanced are not so generally inviting, or capable of being so readily appreciated, as the discoveries of the physiologist. So far as physiological botany enables a teacher to convey interesting instruction to his hearers, this department of the science holds an important advantage over systematic botany; but for purely educational, and indeed for practical purposes also, the advantage is greatly, I had almost said exclusively, in favour of the latter. Botanical physiology in its present state forms a very small branch of botany. Some eminent botanists have remarked to me that the great improvements which of late years have been introduced into microscopes have brought these important instruments into such general favour, that the examination of minute orgasms and elementary vegetable tissue, inducing speculations almost entirely of a physiological character, have seriously prejudiced the just claims of systematic botany to a better attention than it is commonly supposed to merit. This has proved unfortunate to the general progress of the science. As well might astronomers expect to perfect their theories without paying due attention to mathematics, as botanists hope to mature their physiological researches without making proportionate progress towards perfecting the natural system. But I am now endeavouring to substantiate the educa-

tional uses of systematic botany rather than to maintain its claim to the better attention of botanists generally.

A classificatory science has higher aims than the sufficiently important one of training the observant faculties. Correctly pursued it will certainly tend to strengthen the reasoning powers. The observant faculties may be trained by paying attention to the multiplicity of natural objects which surround us, the majority of which escape the notice of the many. The mere collector of specimens cannot duly arrange his cabinet without experiencing some advantage in this respect. But if he stop here and content himself with depending upon others for the lists by which he groups his acquisitions, he will obtain comparatively few scientific ideas concerning such minerals, plants, or animals as he may have been at much pains or cost in procuring. He will know nothing of the general principles which have induced others to group and classify such objects as he finds in his lists, or in the brief descriptions of systematic writers. But in observing differences and in striving to detect resemblances, and then deducing results from his own investigations, his mind will be occupied in a way which closely approximates, if it be not strictly identical with, the method pursued by a medical practitioner in framing a diagnosis of disease from the symptoms he detects in his patient. The skilful physician takes into consideration every symptom he can possibly notice; his tact and patience are then rewarded by the solution of difficulties which might not even have suggested themselves to a less careful investigator. The power of eliciting truth from circumstantial evidence appears to me a mental qualification of the same character. If I am correct in these notions, how useful may systematic botany be made in early training the future medical or legal practitioner how to observe, and how to draw just inferences from the facts before them.

A little experience, and no great amount of intellectual capacity, suffice for the detection of those external differences by which one organized being is distinguished from another. A garden labourer acquires great tact in discriminating numerous varieties among the fancy flowers which the florist confides to his care. The naked savage of Australia recognises by his touch, even in the dark, certain minute shades of difference, by which he distinguishes one gum tree (*Eucalyptus*) from another, it has been said more readily than an experienced botanist could do so by day! But there is greater difficulty in learning how far we are to neglect superficial or trivial differences (often very imposing to the eye) in searching for those less obvious resemblances which denote a greater or less degree of affinity between the individuals which make up the several groups to which botanists assign the terms "species," "genus," "order," and "class." The various differences and resemblances we detect are the data by which we recognise the operations of those hitherto undiscovered laws by which the Creator exposes to our admiration the wisdom and goodness of his conceptions. Accurate observation, patient research, cautious inference, close reasoning, are all needful to the successful progress of every branch of natural science; and assuredly systematic botany is in no respect behind any other in the results which have been legitimately attained by the steady application of such means and methods as are needed for eliciting truth.

In many respects systematic botany (including morphology) possesses great advantages over all branches in whatever kindred sciences might be adopted for the purposes of general education. In chemistry there is the insuperable difficulty of obtaining a sufficiency of apparatus and the requisite re-agents for enabling individual students to perform experiments for themselves. In mineralogy a few small fragments will indeed suffice for acquiring the use of the blowpipe, and comprehending the agency of chemical tests. But most mineral species are rare, and consequently costly; many are very ill defined. Moreover, no one can strictly claim the title of a scientific mineralogist who is unacquainted with the amount of mathematics requisite for solving problems in spherical geometry and optics. In some departments of zoology the facilities for giving practical lessons as well as for private study are greater; but are not without drawbacks. In entomology we meet with the objection, serious to many, against teaching children to be regardless of taking animal life, even where the interests of science require and justify it. The entomologist indeed feels convinced he inflicts little or no pain upon the objects he impales, but the unscientific cannot appreciate his reasons for believing this. It is more difficult to appreciate those external and internal characters by which insects are systematically grouped, than is the case with plants. There would also be difficulty in securing a steady and requisite supply of specimens adapted to class teaching of the kind here advocated, which does not apply in regard to botany. If these difficulties stand in the way of entomology, they exist to a greater extent in other departments of zoology. I have heard this regretted by accomplished instructors. Now, for practical lessons on systematic botany, there is a free Museum on the grandest scale to which the children of every village may resort, and from whence, by very simple arrangements, the children of every town might be abundantly supplied. The trifling cost of apparatus needed for collecting, preparing, and preserving botanical specimens, is no mean consideration where the many are concerned. After the lessons have served their purpose as an educational instrument, the knowledge imparted need not be cast aside, as we find mathematics to be by the bulk of those who have been educated at Cambridge. A groundwork once laid by systematic botany, great facility is afforded for securing pleasurable information from all departments of this science in after life. Few who have fairly mastered the little technical difficulties which beset them in the outset, are likely to regret whatever time they may have spent in doing so.

Many illustrations could be offered of the advantages that might attend the possession of botanical knowledge. For instance, with what different feelings will the poorest emigrant to a distant colony look upon the forests that surround his new home, if he have only learnt to distinguish the principal natural orders of plants. He then knows that some are characterised by peculiar properties, noxious or beneficial to man. He determines at a glance there can be no fear of death in the pot from his trying whether a Crucifer he never saw before is adapted to make him a palatable dish. Without hesitation he tests the flavour of whatever fruit he finds upon a Rosanth; but he prudently avoids the most tempting berry of some unknown and possibly poisonous Solananth, and passes by till he shall have obtained proof that he may eat with impunity the fleshy tap-root of a suspicious Umbellifer. How valuable would have been the information that might have accompanied many specimens in those large collections of vegetable productions transmitted by our colonists in 1851 and 1855 to the two great exhibitions of England and France! As it was, they mostly arrived without names or clue to guide the botanist to the affinities of the plants which afforded them. Perhaps I have dwelt too long on preliminary matters. It is time to enter on the first practical lesson adapted to the comprehension of the youngest of botanical volunteers. *J. S. Henslow.*

(*To be continued.*)

ON THE DURATION OF THE VARIETIES OF THE PEAR TREE.

Some authorities maintain that the varieties of fruit trees have only a limited period of existence, dating from the time the seedling first comes into bearing, and that after this period has elapsed they degenerate, and ultimately disappear. An average duration of from 150 to 250 years is even assigned to a variety. This idea is doubtless an error; for before it can be admitted to be correct it must be supported by sufficient proofs, and these proofs are wanting. On the other hand, there are many facts which support a contrary opinion.

When the supposition first took its rise, what were the varieties of fruit trees which existed in our gardens? In general they were natives of much warmer climates than ours, or varieties equally tender with those obtained in our own latitudes. These varieties could only succeed in a good aspect, when trained in certain ways, or against a wall. When grown as Quenouilles, or as Pyramids, in not very favourable situations, such varieties as the Bezi de Chaumontel, Saint Germain, Virgouleuse, Doyenné Blanc, Bergamotte de Pâques, and Bergamotte ancienne, &c., were no longer so healthy as trees grown on walls in good situations, and ceased to produce fruit at all comparable in size, form, and quality to that obtained in favourable years from trees grown in that manner. The vigour of these trees no longer answering to the descriptions made in other latitudes, and their fruits not possessing the forms and qualities ascribed to them, was it therefore to be concluded that the varieties were degenerating? These old varieties, when properly propagated, and when planted in a suitable soil and situation, have preserved up to the present time the same degree of vigour and the same state of health which they enjoyed of old, and produce fruit of the same form and quality as they did at the time of their first coming into cultivation. If all these varieties are no longer to be met with in gardens, is their disappearance to be attributed to their becoming extinct through age? We should be more inclined to believe that they have ceased to be propagated because they required a particular mode of management, and peculiarly favourable situations, which could not be afforded to them by every one. It will be the same with some varieties of modern origin as soon as they shall have been eclipsed by others in respect to their hardiness, productiveness, as well as in the beauty and quality of their fruit.

At the end of the last century our orchards were, as they are now, planted with Pear trees, the produce of which was intended for market. Many summer, autumn, and winter sorts were to be found, but very few trees bearing good long-keeping fruits for the dessert. If these comparatively worthless varieties are no longer propagated, but are allowed to become extinct, their disappearance cannot be attributed to the age of the variety.

Sometimes in going through these orchards we cut strong shoots from the upper part of very old trees, supposed to be seedlings, and yielding fruit which was esteemed by their possessors. These scions, worked upon strong and healthy stocks, are as vigorous at the present day as the trees from which they were taken. If in 50 or 100 years another person take scions from the trees which I have grafted, and work them under the same favourable conditions, and so on, there will be no reason why these varieties should not remain in cultivation until replaced by others, better in every respect. But this replacement will be the effect of the will and understanding of man, and not of the variety becoming exhausted and incapable of reproducing itself by the graft. It is known for certain that the existence of every individual tree is limited by its own constitution and other causes. It has also been demonstrated that every variety of fruit tree when propagated at the proper time and planted in a suitable soil and situation retains all its properties for an unlimited period.

It should be well ascertained in what manner, and on what kind of stocks, each of the species and varieties should be propagated; in what soil and in what aspect it succeeds the best; and in what way it should be trained, whether against a wall or as a pyramid.

When a fruit tree appears to be in a declining state, or produces bad fruit for two or three consecutive years, the able cultivator does not seek for the cause in the age of the variety, but in the constitution of the individual tree, and that of the stock which influences it more or less favourably, in the soil, in the subsoil, in the situation where the tree is planted, and in the form in which it is trained. Further, he will observe whether the fibrous roots and spongioles have or have not been destroyed by the spade of the gardener who is ignorant of the elementary principles of fruit-tree culture.

In conclusion, the question as to the duration of a variety of fruit tree possesses but little interest. The only point which engages the attention of the amateur is to know with certainty what are the varieties which he can successfully cultivate in the garden and in the orchard. After all that has been written on pomology, it will in fact be the most complete monographs of the culture of select varieties that will henceforth be possessed of the greatest interest. *J. De Jonghe, Brussels.*

VEGETABLE PATHOLOGY.—No. CXXXII.

535. Parasitæ (*Cyttaria*,* *Rhytisma*,† *Dothidea*,‡ &c.).—Besides the ascigerous parasites last described, which in their perfect state are entirely superficial though in an early stage of growth the mycelium traverses the large intercellular spaces on the under side of the leaf, there are many real parasites which are truly innate. Of these a portion are mere botanical curiosities, others are so frequent or so conspicuous as readily to attract the eye by their scarlet, tawny, or jet black patches; others are intolerable pests, while others attain a considerable size, and are useful or even indispensable articles of food to the savages who live where they grow.

536. *Cyttaria* is not only remarkable for its large size, its comblike aspect, its frequently tufted habit, and its affording for many months of the year a valuable article of food to the Fuegians, but also because a fresh crop of fungi grows on the living branches from the same mycelium year after year. A similar habit occurs in *Podisoma* and its allies, and the parasite flourishes till the branch is finally exhausted. *Cyttaria* is confined to species of evergreen Beech. Faint traces of mycelium are visible where the fungus has fallen off, but not to such an extent as might be imagined in a plant of such enduring habits. The genus is confined strictly to the southern hemisphere.

537. *Rhytisma* is equally a true parasite, but of very different habits. It is intimately united with the tissues of the plant on which it grows, sometimes affecting the bark, sometimes the leaves. Species occur on the perennial leaves of *Andromeda* and *Ilex*, as well as on the deciduous leaves of *Acer*, *Vitis*, and *Salix*, or the herbaceous foliage of *Aster* and *Solidago*. The species are seldom of such size as to be really detrimental. Those on the leaves of *Aster* and *Salix* are the most conspicuous, and that on the bark of the latter the most destructive. Fries observed that, in spring, the sporidia are discharged in a visible smokelike cloud from the fallen leaves, just as the new and tender leaves are expanding, and are thus enabled to establish themselves on the opening foliage. In *Salix* there is a thick white stroma, and the fungus is so highly developed that it must make important demands on the strength of the plant. *Dichæna*, which is very nearly allied, infests the living bark of Oak and Beech in England, but is not confined to those genera. I have it on *Cyrilla* and other trees from the United States. It is one of the plants which oscillate between Lichens and Fungi, and which show their intimate relation. Some of these species at first insinuate themselves between the true and false cuticle. In some cases the true cuticle is not ruptured till a very late period, or may remain intact so long as the parasite flourishes.

538. *Dothidea* also contains numerous species which live at the expense of previously healthy tissues; but in general they are so small as to be unimportant, except in the case of some exotic species. An exception, however, must be made as regards *Dothidea typhina* Fr., which is, however, now referred to *Hypocrea*. It lives upon the flowering stems of various Grasses, preventing altogether the evolution of the spike, and presenting instead an orange-coloured cylinder surmounted by a portion of the stem, so as to resemble a Bullrush. It is fortunate that cereals are never attacked by this fungus, or the destruction might be very serious, for where it occurs it is generally in great abundance.

539. One of the most destructive of the group is perhaps *Sphæria morbosa*, Schweinitz. This is extremely common in Pennsylvania, but scattered about in other states, as in South Carolina, and is most injurious to native Plums, but never in them producing actual death. Cultivated Cherries, especially the Morella or Amarella, fare, however, worse. Schweinitz relates that this variety 40 years before he wrote was common in Penn-

* From κυττάρος a bee-cell, because of the comb-like habit.
† From ῥυτίς a wrinkle, because of the wrinkled surface.
‡ From δοθιήν a tubercle, and εἶδος resemblance.

sylvania, but a few years after the variety died out partly from its attacks and partly from those of a Cynips, its companion. The Greengage and some other Plums never suffered at that time, but at a later period they also failed. Meanwhile the swellings produced on the branches, which were at first small, acquired a foot and a half in length, but were never loaded so thickly with perithecia as when growing on the Cherry. I have numerous specimens of this species from different parts of America all presenting the same gouty aspect, and rough with innumerable perithecia. This species has not yet made its appearance in England, but should it once arrive, there is little reason why it should not establish itself like some other exotic parasites.

540. Many other cases of minute fungi belonging to the same series and infesting living leaves might be adduced, as, for instance, on the pods of Cruciferæ and on the leaves of Cabbages, but their effects are so trifling that they are not worth adducing in a series of papers which is intended rather to have a practical than a theoretical bearing. *M. J. B.*

Home Correspondence.

Wellingtonias.—Your Hertfordshire correspondent speaks of the branches of his Wellingtonias dying off; the same thing happened with a plant which I had from Messrs. Veitch, in the autumn of 1854. I kept it in the greenhouse during the winter; in the spring following I potted it in a 10-inch pot, it grew very strongly for two or three months, I then noticed a spot on one of the lower branches; I placed it out of doors in the sun, but still the lower shoots continued to damp off one after another, so much so that I thought I should have lost the plant. Those who have seen it said hat it was Potato disease. In August I planted it out in a moderately rich yellow loam, and since that there has scarcely a leaf dropped from it, and the plant is more than two feet high, and as much in diameter, the stem at the surface of the ground being two and a half inches in circumference. Mr. Charms, from the Exeter Nursery, saw it a few days since, and said it was one of the largest plants he had seen. Two or three plants in this neighbourhood have suffered in the same way, but now they are growing vigorously. *W. H. D.*

Quercus sessiliflora (see p. 470).—I enclose you some leaves of the Oaks I mentioned for your inspection. I cannot discover any peculiarity in the leaves, but the general appearance of the trees is different from most Oaks that I have seen, especially in the straightness and regularity of growth. I send the measurement of one, which is I think of much more than average dimensions:

		Feet.	In.
Girth,	1 foot from ground	21	6
,,	6 feet from ground	14	6
,,	14 feet from ground	12	2

Above that it rather increases up to the spring of the branches at 22½ feet from the ground. Total height about 85 feet; diameter of spread of branches about 90 feet. *A Welsh Subscriber.* [The leaves are those of Qu. sessiliflora.]

Victoria Regia.—I have had this noble Water Lily remarkably fine this season. I planted it out on the 30th of April in the usual manner in a mixture of loam and river sand, in a brick tank heated with hot water. The tank is 22 feet square. The plant had at first only three leaves out on it, which were 4 inches in diameter; it then made from three to four leaves each week, and increased rapidly in size, until now it has six fine leaves on it in the most perfect condition imaginable, each measuring from 6 feet 6 to 6 feet 9 inches in diameter. It is expected to produce flowers in a few days. Hearing that the Victoria has not succeeded at all well in the neighbourhood of London this year, has induced me to send you this notice, and as soon as the plant shall have flowered farther particulars respecting it shall be furnished. *W. May, Gardener to Josiah Spode, Esq., Hawkesyard, Rugeley, Staffordshire.*

Family Mills for grinding Wheat for whole meal bread are no longer the *desideratum* which Dr. M'Cormac supposes them to be. Economic and satisfactory steel mills can be had at Horsell's, 492, Oxford Street, London, at prices varying from one to ten guineas; also instructions for preparing the Wheat and using the mills. *J. Burns, Hampton Court.*

Radford Kidney Potato.—In getting up a piece of this Potato I found amongst them four roots with larger and rougher leaves than usual, and in flower. In taking them up I found that one root contained 103 tubers, one ditto 105, one ditto 123, and one ditto 157. These numbers may appear wonderful; but I can vouch for the truth of them. The Potatoes were counted both by my men and myself. *J. Hudson, Gardener to Geo. Moon, Esq., Appleby Hall, Atherston.*

Gardeners' Benevolent Institution.—I have just read the various articles which have appeared in your pages relative to this charity, and, looking at the matter discussed dispassionately, I cannot help thinking that there has been "much ado about nothing." The claims of those who have or have not subscribed to the Institution have nothing to do with me; I am quite convinced that many who have been and are now pensioners of the charity are mere nurserymen or seedmen's nominees, whose claims as gardeners are for the most part of a very questionable description. For my own part, on looking the list of pensioners carefully over, I can only recognise two who could be considered gardeners in the full sense of the word; men who made themselves heard and appreciated in their own day; and these two men are Mearns and Blair. Poor Mearns (now no more) for many years enjoyed something like a world-wide reputation, and perhaps no man of his time did so much to promote and inculcate a knowledge of the first principles of horticulture. Blair was a botanical collector, a man of experience and enterprise, and, withal, a man of first-class gardening skill. In fact, these two men were enthusiasts, and lived for their country, not only practising the Tullian principle of making two blades of Grass grow where one grew before, but by their example they endeavoured to make others "go and do likewise." On the reverse of this picture how easy it would be to point to a man palmed upon the Institution almost at the commencement of its existence by a lady of title after a year's subscription; of another elected by trade influence a year's pensioner, and then, when it was ascertained he had a competency, withdrawn from very shame by his proposers and promoters; and of others whose claims were not much better. Away then with this discussion about subscribers and non-subscribers. Let us first know that a man has been a gardener in the full sense of the word, and that he is really deserving of the support of the subscribers, and then let him have it. Such a man is in my estimation, if overtaken by difficulties in his old age, quite as deserving as others who, supported by Lady A., Mrs. B., or Mr. C., become annuitants of 16*l.* per year for 15 annual payments of a guinea each; not a bad investment, or an expensive way of providing for a decaying servant. That many subscribe to the Institution with no other view than that of becoming at the expiration of their subscriptions claimants of the pension is too true, and one cannot blame them, the investment is a good one, and avarice takes advantage of it. I should like to see the charity, or at any rate the committee, pitch a higher standard, an intellectual standard for pensioners, and then I think the candidates would be much reduced in numbers, and we should have more real merit rewarded. From the commencement to the present time the committee has been much too easy in its admission of candidates for the pensions, and such will be the case until a higher standard of admissibility can be erected. The Institution is a noble one and must be properly supported, but the committee should be held responsible, and the paid servant must be the servant and not the director of the charity. He must not have the power of receiving the proxies of subscribers and using them as he pleases. No; he must be the servant of the charity, and if proxies are returned without being filled up, let them be at once cancelled. As an old member of the Institution, and for many years a working member of committee, I make these remarks, and I warn country subscribers, that if they intend the charity to be properly managed, they must to a great extent manage it themselves. It must no longer remain a matter of patronage in the hands of two or three who have little sympathy with any but their customers; but candidates must stand upon their own merits and claims, and then, and not till then, "right will prevail." *An Old Member of Committee.* [Of course we must admit a reply to this letter: and we hope it will be furnished by the Committee. With that reply the subject must drop as far as we are concerned.]

Suburban Gardens.—I saw a pretty effect the other day at Wells (Somerset) which is worthy of imitation; it is that of making the flat roof of the porch a platform for a low stage for plants in flower. Those I saw looked exactly as if a huge bouquet had been placed on the porch, no part of the stage being visible, if indeed there was any, or merely plants arranged according to their height. The flowers are easily watered from the staircase window. *Somerset.*

Roses.—I am glad to see that you select for admiration Roses which are really distinct in colour and character, so many being now introduced with but the fraction of a shade of difference between them. That fine Rose, Jules Margottin, comes occasionally very like William Jesse, Colonel de Rougemont like Baronne Prévost, but they are distinct. Sir J. Franklin seems a good deal like a moderate flower of Paul Dupuis. In my opinion Prince Lear is the best and most distinct Hybrid Perpetual since the Géant. How beautiful and erect in habit, and what fine foliage. What a treat it would be could our French neighbours send us over a good shaped yellow or blue Hybrid Perpetual; those are the only two colours in which there is a good opening. General Jacqueminot is brilliant in colour, is a strong grower, and has luxuriant foliage, but would be a more perfect flower if a little more double. Sometimes he has not many more petals than his near relation the Gloire de Rosomènes. If amateurs were to make your columns the medium of occasionally comparing notes, they might afford themselves and others much amusement and instruction, and save themselves much disappointment. Some Roses have their good and bad years; La Reine and William Jesse have flowered remarkably well this season; William Griffith I have not had so good this year as last. Out of the 200 and odd Hybrid Perpetual Roses in the catalogues I think I could name 30 hard to improve upon. *Paul Ricaut.*

Club.—The gardens which supply Montpellier with vegetables suffer much from what is called the "club-foot." It is there believed to originate from an insect, and accordingly it is a regular practice with market gardeners to examine the root previous to planting out, and to cut out the insect. This mode of proceeding has invariably been found to succeed. *M. S. Bentham.*

Peashells.—In addition to the useful hints which "M. J. B." has given respecting these at p. 354, allow me to add that economical French housekeepers prepare them for winter use by first drying them thoroughly in a slow oven, then browning them (not burning them) under a sharper heat, and storing them in paper bags. A three-fingers' pinch of these baked peashells not only improves the flavour of any broth with which they are boiled, but adds richness to its colour. For this purpose the shells of any ordinary pods will serve, though of course the more sweetness they contain the better. The peashells that are served as a vegetable to be eaten together with the Peas they inclose are produced by a distinct set of varieties of Pea, rather numerous. They are called Sans Parchemin, or skinless, and Mange-tout, or eat-all; there is the white-podded, the yellow-podded, the ram's-horn, the red-flowered, &c. *E. S. D.*

Strawberries.—I have some Strawberries in pots on the front border of an orchard house. The first two or three fruit produced on each plant were large and full of flavour; but the remainder as they come on are small, vapid, and oftentimes disagreeable to the taste; and numbers of them are rotten before they are quite ripe. They are allowed to root in the prepared border, and have every appearance of healthy plants. I have watered them occasionally with guano water. Can you inform me what is the cause of this disappointment in what I had hoped would have been a good crop of finely-flavoured fruit? *G. H., Camden New Town.* [Rank manure? Was your guano made with "Blue Billy?"]

Wild Bees.—Can you or any of your correspondents suggest a means for the extermination of wild ground bees? I am surrounded by them in such numbers that the Grass of my lawns is perfectly obliterated. *G. H.* [Will not rags dipped in turpentine and pushed into their holes drive them away?]

Blasting the Stumps of Trees.—On Monday last Captain Norton practically proved the efficiency of his "Percussion Blasting Cartridges" for blasting the stumps of trees, in a timber yard in Church Street. Having bored a hole with an auger rather more than half way down into the most knotty part of a large Elm stump, one of the cartridges having a wooden head was inserted, and an iron bar of the same diameter as the auger, having a cavity or hollow in its lower end to receive the small percussion appliance, was then put in over the cartridge, so as to reach within about two inches of the head of the cartridge, the bar being kept in this position by a clip as well as by its fitting tightly in the hollow bore of the stump; a long plank of timber with one end on the ground and the other end held over the bar by a long rope, was then allowed to fall on the upper end of the iron bar, and the cartridge was instantly fired, and the stump rent asunder. This method of splitting the stumps of trees when other means have failed may be beneficially put in practice for procuring fire-wood instead of allowing the stumps to go waste. The iron bar being of the same diameter as the auger, it necessarily fits air tight in the hollow above the cartridge and allows of no escape of the elastic gas when the charge explodes, thus concentrating the whole force of the explosion upon the solid stump, and no tamping is required, and the percussion appliances obviate the necessity of any fuse. Captain Norton, therefore, very appropriately pronounces this means of blasting to be on the "Highest pressure, no safety valve, steam-boiler exploding, gun-barrel bursting principle," and as the percussion appliance is separate from the cartridge and only brought in contact with it when required, there can be no fear of any accidental explosion. The shattered appearance of the blasted stump shows what the effect of his rifle percussion shell would be in the hull of a man of war, when fired from a 68-pounder rifle cannon. *Gravesend, July 26th.*

Societies.

Caledonian Horticultural: *July 5.*—There was on this occasion a marked improvement in the cultivation of specimen plants, and the number brought forward was greater than ordinary. Prizes were awarded as follows:—Silver Medal to Mr. Smith, Melville Castle, for Tetratheca verticillata and Polygala Dalmaisiana. Stove or Greenhouse Plant, not shrubby: 1st, Mr. Falconer, Canonmills Cottage, with Oncidium pulvinatum, trained in a balloon form; 2d, Mr. Lockhart, Arniston, with Gloxinia magniflora alba. Cape Heaths: 1st, Mr. Smith, with Erica ventricosa and E. ventricosa superba. Pelargoniums: 1st, Mr. Forrest, Glentarkie, with Mochana; 2d, Mr. Henderson, Cargilfield, with Stella. Ditto, in 6-inch pots: 1st, Mr. Forrest, with Forget-me-Not and Carlos; 2d, Mr. Henderson, with Stella and Fair Ellen. Fancy Pelargoniums: 1st, Mr. Forrest, with Lady Hume Campbell; 2d, Mr. Cameron, gr. to S. Hay, Esq., with Princess Marie Galitzin. Ditto in 6-inch pots: 1st, Mr. Forrest, with Othello and Bride; 2d, Mr. Henderson, with Celestial and Madame Van der Weyer. Fuchsias in 8-inch pots: 1st, Mr. Henderson, with Prince Albert and Queen of Hanover; 2d, Mr. Walker, Rosehall, with well-grown plants of the same varieties. Roses: 1st, Mr. Wemyss, Springwood Park, with the following varieties:—Count de Montalivet, Baronne Prevost, Madame Zoutman, Comtesse Molé, Madame Laffay, Cloth of Gold, La Ville de Bruxelles, Elise Sauvage, Napoleon, Géant des Batailles, Adam, and Duchess of Sutherland; 2d, Mr. Buist, Tyningham, with Géant des Batailles, Jules Margottin, Devoniensis, Baronne Prévost, Mrs. Bosanquet, William Jesse, Adam, Paul Ricaut, Duchess of Sutherland, General Jacqueminot, Lanei, and William Griffiths. Phloxes in pots: 1st, Mr. M'Farlane, Barnton, with Antagonist, Masterpiece,

and a Seedling named Rival; 2d, Mr. Mitchell, Ravelston, with Colonel Dundas, Antagonist, and Masterpiece. Herbaceous Plants, cut spikes: 1st, Mr. Hally, Hermiston, with Aconitum uncinatum, Lilium bulbiferum var. umbellatum, Delphinium Barlowi, double Rocket, and an unnamed species of Salvia from Cashmere; 2d, Mr. Pender, Moredun, with Iris germanica, Spiræa Aruncus, Delphinium grandiflorum, Dictamnus Fraxinella, Lychnis viscaria (double-flowered), and Lilium bulbiferum. Ferns: 1st, Mr. Lockhart, with large plants of Lygodium scandens, Asplenium viviparum, Aspidium exaltatum and dilatatum, Adiantum cuneatum and A. pubescens; 2d, Mr. Smith, with Adiantum formosum, cuneatum, and speciosum, Cyrtomium falcatum, Anemidictyon fraxinifolium, and Niphobolus chinensis; 3d, Mr. Falconer, with Lygodium scandens, Osmunda regalis, Pteris rotundifolia, Asplenium septentrionale, Lastrea Oreopteris, and Polypodium Billardieri. Turnips: 1st, Mr. Porterfield, Upper Hermitage, with Orange Jelly Turnip; 2d, Mr. Mitchell, with Early Dutch White. Fruit: 1st, Mr. Pender, who produced Black Hamburgh and White Muscadine Grapes, Royal George Peaches, Stone Pippin Apples, in good preservation, and Murray Nectarines. The following prizes offered by office-bearers of the Society were awarded:—For the best collection of Fruit, One Sovereign, to Mr. Pender, for Peaches, Nectarines, Apples, Red Currants, White Muscadine and Black Hamburgh Grapes, and Melon, tastefully arranged in a round tray. Variegated Plants, One Sovereign, to Mr. Lockhart, for Cissus discolor, Coleus Blumei, Maranta bicolor, and Musa maculata. Stove or Greenhouse plants, Two Sovereigns, to Mr. Smith, for Erica elegans, ventricosa superba and minor, Savilleana, Cavendishi, Bergiana, and spuria; Epacris miniata, Tetratheca floribunda, Polygala Dalmaisiana and acuminata, and Aphelexis Barnsi; 2d, One Sovereign, to Mr. Blair, Mavisbank, for Gloxinia alba sanguinea, Epacris miniata, Begonia Ingrami, Coleus Blumei, Achimenes Marguerita, Erica breviflora, cubica and tricolor dumosa; Stanhopea Wardi and oculata, Mitraria coccinea, Maranta bicolor, Allamanda neriifolia, Pimelea decussata and Hendersoni, Hoya bella, Leschenaultia formosa, and Stephanotis floribunda. Two Sovereigns to Mr. Reid, Broomfield, for the following fancy Pelargoniums in 6-inch pots, viz., Decora, Carlotta Grisi, Annette, Madame Sontag, Lady Downes, and Lady Hume Campbell. Of extra productions, Messrs. J. Dickson & Sons sent Gloxinias, Heaths, and Geraniums. From Messrs. Downie & Laird came a seedling Phlox named Addisoni, a variety of excellent form and substance, flowers white, with purple eye, for which a Certificate of Merit was granted; also, a promising seedling fancy Pelargonium, named Miss Trotter. From Messrs. P. Lawson & Son were Pimelea Hendersoni and decussata, Roses, and Pelargoniums. From Messrs. Dicksons & Co. Tropæolum edule, Pelargoniums, Heaths, Gloxinias, Pansies, &c. From Mr. Stark Alpine Plants and Ferns, including Darea odontites, Cenopteris vivipara, Platyloma ternifolia, Doriopteris pedata, Viola stipularis, &c. From Mr. Douglas, Rosepark, the new Petunia imperialis, a fine double white variety. From Messrs. Cunningham, Fraser, & Co., Ranunculuses and Roses, which were large and fine, especially Souvenir d'un Ami, of which there was one large tray. From Messrs. Ballantyne & Sons a stand of Pelargonium blooms, including fine new French varieties.

Notices of Books.

The Englishwoman in America (8vo. Murray, pp. 464) expresses the opinions of an English gentlewoman upon the manners, customs, and country of the United States. Whether it will meet with the entire approval of our friends on the other side the Atlantic is doubtful; and yet it seems to us to do their undoubted merits justice, and to be blind enough to some of their peculiarities. They must not expect travellers accustomed to the refinements and comforts of Europe to admire the insolence of domestic servants or the expectoration of their masters. It must also be admitted that our authoress shows no favour to the sulky pride of her own ill-bred countrymen, as the following story proves:—

"The cars were very full, and were not able to seat all the passengers. Consequently, according to the usages of American etiquette, the gentlemen vacated the seats in favour of the ladies, who took possession of them in a very ungracious manner as I thought. The gentlemen stood in the passage down the centre. At last all but one had given up their seats, and while stopping at a station another lady entered. 'A seat for a lady,' said the conductor, when he saw the crowded state of the car. The one gentleman did not stir. 'A seat for a lady,' repeated the man in a more imperious tone. Still no movement on the part of the gentleman appealed to. 'A seat for a lady; don't you see there's a lady wanting one?' now vociferated several voices at once, but without producing any effect. 'Get up for this lady,' said one bolder than the rest, giving the stranger a sharp admonition on the shoulder. He pulled his travelling cap over his eyes, and doggedly refused to stir. There was now a regular hubbub in the car; American blood was up, and several gentlemen tried to induce the offender to move. 'I'm an Englishman, and I tell you I won't be browbeat by you beastly Yankees. I've paid for my seat, and I mean to keep it,' savagely shouted the offender, thus verifying my worst suspicions. 'I thought so!—I knew it!—A regular John Bull trick! just like them!' were some of the observations made, and very mild they were, considering the aggravated circumstances. Two men took the culprit by his shoulders, and the others, pressing behind, impelled him to the door, amid a chorus of groans and hisses, disposing of him finally by placing him in the emigrant-car, installing the lady in the vacated seat. I could almost fancy that the shade of the departed Judge Lynch stood by with an approving smile. I was so thoroughly ashamed of my countryman, and so afraid of my nationality being discovered, that, if any one spoke to me, I adopted every Americanism which I could think of in reply."

We believe the following picture to be very much more like truth than tales we have heard of American ladies doing nothing from morning to night, except lying on sofas to be talked to:—

"The ladies in the United States appeared to me to be extremely domestic. However fond they may be of admiration as girls, after their early marriages they become dutiful wives, and affectionate, devoted mothers. And in a country where there are few faithful attached servants, far more devolves upon the mother than English ladies have any idea of. Those amusements which would withdraw her from home must be abandoned; however fond she may be of travelling she must abide in the nursery; and all those little attentions which in England are turned over to the nurse must be performed by herself, or under her superintending eye. She must be the nurse of her children alike by day and by night, in sickness and in health; and with the attention which American ladies pay to their husbands, their married life is by no means an idle one. Under these circumstances, the early fading of their bloom is not to be wondered at, and I cannot but admire the manner in which many of them cheerfully conform to years of anxiety and comparative seclusion, after the homage and gaiety which seemed their natural atmosphere in their early youth."

Familiar as we all are with descriptions of Niagara and its wonders, the following adventure there will probably excite surprise:—

"After depositing our purchases at the Clifton House, where the waiter warned us to put them under lock and key, I hoped that sight-seeing was over, and that at last I should be able to gaze upon what I had really come to visit—the Falls of Niagara. But no; I was to be victimised still further; I must 'go behind the great sheet.' Mr. and Mrs. Walrence would not go; they said their heads would not stand it, but that, as an Englishwoman, go I must. In America the capabilities of English ladies are very much overrated. It is supposed that they go out in all weathers, invariably walk 10 miles a day, and leap five-barred fences on horseback. Yielding to 'the inexorable law of a stern necessity,' I went to the Rock House, and a very pleasing girl produced a suit of oiled calico. I took off my cloak, bonnet, and dress. 'Oh,' she said, 'you must change everything, it's so very wet.' As, to save time, I kept demurring to taking off various articles of apparel, I always received the same reply, and finally abandoned myself to a complete change of attire. I looked in the mirror and beheld as complete a tatterdemallion as one could see begging upon an Irish highway, though there was nothing about the dress which the most lively imagination could have tortured into the picturesque. The externals of this strange equipment consisted of an oiled calico hood, a garment like a carter's frock, a pair of blue worsted stockings, and a pair of India-rubber shoes much too large for me. My appearance was so comic as to excite the laughter of my grave friends, and I had to reflect that numbers of persons had gone out in the same attire before I could make up my mind to run the gauntlet of the loiterers round the door. Here a negro guide of most repulsive appearance awaited me, and I waded through a perfect sea of mud to the shaft by which people go under Table Rock. My friends were evidently ashamed of my appearance, but they met me here to wish me a safe return, and, following the guide, I dived down a spiral staircase, very dark and very much out of repair. Leaving this staircase, I followed the guide along a narrow path covered with fragments of shale with Table Rock above and the deep abyss below. A cold, damp wind blew against me, succeeded by a sharp pelting rain, and the path became more slippery and difficult. Still I was not near the sheet of water, and felt not the slightest dizziness. I speedily arrived at the difficult point of my progress: heavy gusts almost blew me away; showers of spray almost blinded me; I was quite deafened and half-drowned; I wished to retreat, and essayed to use my voice to stop the progress of my guide. I raised it to a scream, but it was lost in the thunder of the cataract. The negro saw my incertitude and extended his hand. I shuddered even there as I took hold of it, not quite free from the juvenile idea that 'the black comes off.' He seemed at that moment to wear the aspect of a black imp leading me to destruction. The path is a narrow, slippery ledge of rock. I am blinded with spray, the darkening sheet of water is before me. Shall I go on? The spray beats against my face, driven by the contending gusts of wind which rush into the eyes, nostrils, and mouth, and almost prevent my progress; the narrowing ledge is not more than a foot wide, and the boiling gulf is 70 feet below. Yet thousands have pursued this way before, so why should not I? I grasp tighter hold of the guide's hand, and proceed step by step holding down my head. The water beats against me, the path narrows, and will only hold my two feet abreast. I ask the guide to stop, but my voice is drowned by the 'Thunder of Waters.' He guesses what I would say, and shrieks in my ear, 'It's worse going back.' I make a desperate attempt: four steps more and I am at the end of the ledge; my breath is taken away, and I can only just stand against the gusts of wind which are driving the water against me. The gulf is but a few inches from me, and, gasping for breath, and drenched to the skin, I become conscious that I have reached Termination Rock."

And thus the lively authoress tells the tale of her journey in N. America from Halifax to New York, and back again by Halifax to Liverpool. Her work is something more than a counterpoise to the gossip of Madame Ida Pfeiffer, who found merchants at St. Louis making molasses into refined sugar.

The Stereoscope; its History, Theory, and Construction, with its Application to the fine and useful Arts, and to Education. By Sir David Brewster. London, Murray. Small 8vo; pp. 235.

The title explains sufficiently the object of this treatise, in which the student of optics, the artist, and general reader will find every information relating to the stereoscope and its uses. We are sorry, however, to find that the author has introduced a long and angry attack on Professor Wheatstone, and has endeavoured to convince the public that he is not entitled to the honour of the invention of the instrument in question. Such disputes if—as is unfortunately the case here—carried on in an uncourteous manner, spoil books in the eyes of most readers, and redound little to the credit of the writers.

Plain Instructions for the Management of the Aquariam (Dean & Son, 12mo., 1s.) is an unsafe guide to the ignorant; for if some of its advice were taken a tank in a drawing-room would soon become a marsh. The object of the little contrivances called aquaria or aquavivaria is to preserve in health certain aquatic plants and animals, so that their habits, colours, and singular motions may be watched conveniently; for this purpose everything introduced into them requires to be selected from the smallest of its race. One would hesitate before recommending a turbot, or a turtle, or a dolphin as suitable objects for living in such places. Nor does the compiler of this guide do so; but he does what amounts to the same thing. He tells his readers that among suitable plants may be selected the great white Water Lily, the Anacharis, for which a Cambridge fen is not capacious enough, and Stratiotes aloides, the common Water Soldier, which takes up as much room as a Pine Apple plant, and propagates twice as fast. Such an aquavivarium should be as broad as the Serpentine. It is the more necessary that this should be pointed out, because if such plants are really selected for these tanks a very pretty, interesting, and instructive ornament will speedily be cast aside and forgotten. No plant larger than Hydrocharis, or the pretty Hottonia palustris should on any account be selected We dare say the instructions for managing aquaria are better than those for stocking them with plants.

The Joint Stock Companies Act, 1856. By Edward W. Cox, Esq., Barrister-at-Law. Law Times Office, 29, Essex Street, Strand. 12mo; pp. 83.

This, we believe, is the first work on the above important statute. The statute is given at length, with short observations as to the probable effect of its clauses. The whole is in a convenient form, and is fully indexed.

Garden Memoranda.

Gunnersbury Park.—The improvement in the garden scenery of this place by the introduction of fine specimens of all the rarer and better kinds of Conifers has already been favourably alluded to in our columns. What we would now therefore more particularly direct attention to is the garden buildings, in which within the last few months great alterations have been effected. Instead of the low pits in which Pine Apples were wont to be grown here, two new houses have been built for their accommodation. These are each 66 feet long, 16 feet wide, and have what are termed half-span roofs 10 feet in height. A shelf on the back wall affords accommodation for Vines and Strawberries in pots. In the centre of each house is a plunging bed supported by brick walls, and heated by means of hot water in 4-inch pipes. The latter are laid among brickbats, over which is placed a layer of coarse gravel, and above that is the soil, a good loam well enriched with manure, in which the fruiting Pines are planted out after the fashion of those in the Royal Gardens at Frogmore. They are not managed on the Hamiltonian principle, and therefore when they have fruited they are removed and thrown away, and their places filled with the most promising plants from among those in the succession pits, where they are kept in pots. These Pine stoves, as well as two new span-roofed houses devoted to the cultivation of Orchids and ordinary stove and greenhouse plants, were erected by Messrs. Gray and Ormson. A house here with brick walls which had fallen greatly out of repair has been made to look almost as well as new by plastering the walls with Roman cement, and then giving the latter a thin facing of Portland cement. The last, when properly set and dry, has a colour like that of grey stone and is almost as durable. Finally, an excellent range of new sheds, including rooms for the use of the young men employed in the gardens, and a small room for making bouquets in, is just being completed. The last is neatly and conveniently fitted up with a table, or rather bench with

drawers in it, for keeping the appliances in for making the bouquets, for which there is here a constant demand, and behind the table and running its whole length is a shallow tank which is to be covered over with open wire-work through which the stalks of the bouquets and flowers will be kept in the water and thereby preserved fresh. The men's rooms also contain an unusual amount of accommodation both for cooking and sleeping, each man being furnished with a good bed for himself and other improvements in this department which we should like to see universally adopted.

As regards glass walls, if Mr. Ewing's have failed to become fashionable, to them at least must be ascribed the merit of having revolutionised our glass structures, and many an excellent contrivance for employing glass usefully and economically has been the result of their advent. An example confirmatory of this statement exists in the gardens now under notice, where Mr. Forsyth has faced 125 feet in length of ordinary wall with glass as follows. He made no expensive Peach borders, but merely took things as they originally stood. The piece of wall selected for experiment was at the time well covered with Peach and Nectarine trees. The latter were unfastened; the wall—an old one—was faced with Portland cement and wired. The trees were then retrained and covered with glass in the shape of a case with upright front about 6 feet in height set 5 feet out from the wall, from the top of which to the top of the front was placed a sloping roof with sliding sashes. The lights in the front were also swung by their middle on pivots, so as to secure at will abundant ventilation, and below that, in about a foot in height of brickwork, ventilators were fixed immediately opposite a flow and return hot-water pipe, with which the whole could be heated. These ventilators, owing to their position, are found very useful in winter, the air from them getting partially warmed in passing over the pipes before it enters the house. Inside this long narrow Peach house, for so it may be called, have been ripened annually for the last two or three years full crops of finely coloured and well flavoured fruit which may be had in perfection early, and by dividing the range into compartments and having the pipes furnished with "stops" so as to have a succession of fruit, a good supply may be kept up till that on open walls is fit for table. This year immense crops have been ripened on every tree. The advantages of a contrivance of this kind will therefore be apparent. The earliest crops of Peaches and Nectarines are here obtained from trees grown in pots.

As regards the culture of Vines in pots Mr. Forsyth is acknowledged to stand pre-eminent, his plants managed in this way having invariably carried off first prizes at our different exhibitions both this year and last. Those which bore the first crop are now being repotted and placed against a south wall to thoroughly ripen the wood. From these an early crop of Grapes will be taken next year, and by means of a second and third batch of plants introduced into heat in succession, ripe fruit may be had long before it could be got from the permanent plants in Vineries.

We may mention in conclusion, that we saw here an excellent specimen of Wellingtonia. It measures nearly 3 feet in height, well branched, and in luxuriant health, with a stem 3 inches in circumference at the base. It is in a pot, and has made a leader with offshoots 8 inches in length this season.

The plants out of doors in vases and in beds were very gay, the lawn neatly mown, and the walks in excellent condition.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Carefully examine the stock of pot plants here, in order to see that none of them are suffering from want of pot room, or other attention necessary to assist them in making young wood for flowering next season. Also see that proper care is bestowed on late growing plants in the borders, for while in active growth more water will be necessary, and insects will be more troublesome than in the case of plants that have completed their growth. Look after Luculias and keep them clear of their great enemy black thrips, giving them plenty of water at the root, and an occasional supply of weak clear manure water to old plants that may not be growing freely, until they have made plenty of wood to ensure a good display of flower. Manure water must not, however, be given to young specimens in vigorous health, as it is apt to induce too gross a growth, a condition in which they seldom flower profusely. In order to secure fine heads of bloom from this plant it should be allowed a few weeks of comparative rest after, say about the middle of next month, keeping the roots rather dry, and exposing the plants as freely to air as can be done without injury to the foliage or the health of their neighbours. Brugmansia sanguinea is also a useful plant for winter and early spring flowering when managed so as to have it pruned, rested, and starting into growth about this time. See that large specimens of Camellias are not allowed to get too dry at the root after they have set their buds; for shedding of the latter is often due to this cause. Young vigorous plants, however, frequently require to be watered rather sparingly at this period to prevent their making a second growth. Cinerarias for early flowering should now be growing freely and should be shifted when necessary; for if they are to form large specimens for flowering in winter they must not be permitted to sustain any check; remove suckers whenever they can be obtained and pot them for spring flowering. Calceolarias will now be beginning to demand attention; get cuttings of favourite sorts rooted as soon as possible; seed may also now be sown.

FORCING DEPARTMENT.

PINERIES.—Plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Attend to previous directions on this point, and continue to select the most promising plants, keeping them dry at the root, and fully exposed to light so as to check their growth, and induce a comparative state of rest for a few weeks. And those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November, they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. Attend to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again, and in either case the check which the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that they may be well established in their pots before winter. VINERIES.—Should the weather become cloudy or wet it will be unfavourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature, it will be advisable to cover with something to throw off heavy falls of rain; but where the soil is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where the fruit is colouring, with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In dull weather fire heat will also be necessary where fruit is swelling. The wood will probably be well ripened in the early house, and the foliage turning brown, and in this case it will be desirable here also to prevent the border getting saturated with wet. If this house requires painting or any other repairs, this should be attended to while the house can be thrown open, and such work done more conveniently and much better than at any other season. PEACHES.—The wood will probably be ripe in the early house by this time. Give therefore all the air possible. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust, &c. MELONS.—Plants in dung frames will require considerable attention. Keep the bottom-heat as regular as possible, and endeavour to secure sufficient warmth from the linings to allow of giving a little air to prevent damp. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

FLOWER GARDEN AND SHRUBBERIES.

Propagation of stock for next season must now very soon be commenced and carried on with expedition, so as to secure strong well established plants before winter, and without the necessity of keeping them so close or warm as to induce weakly and watery growth. To be able to winter bedding stock safely with ordinary care, the cuttings should be put in sufficiently early in the autumn to allow of having them well established and fit to be exposed to the open air by the end of next month. Begin with such as are found to be the most tedious to propagate and prepare for winter. Hollyhocks are general favourites, but they do not afford cuttings freely, and are in general not over plentiful about most places. These should therefore be examined often for any cuttings which they may afford, as those rooted about this time will make strong plants for next season. Attend to the tying up of these and Dahlias, and go over the masses of Verbenas, &c., frequently for the purpose of regulating the growth, so as to keep it orderly and neat. Sow Ten-week or Intermediate Stocks for spring flowering; transplant Brompton and Queen Stocks, and if the situations in which they are to flower are not at liberty, prick them out in nursery beds, allowing them plenty of space to prevent weakly growth.

HARDY FRUIT AND KITCHEN GARDEN.

Winter Onions may now be sown, also Cauliflowers for the early crop next season, a small bed of pickling Cabbage, Brown Cos, and some hardier sorts of Lettuce to stand the winter. The tops of the main crop of Onions had better be laid down if they are inclined to be too rank, going over the bed with a wooden-headed rake, and pressing the tops down sufficiently to check further growth. Plant out a good breadth of Endive on well enriched soil of a light dry nature; also see to providing a good supply of Lettuce, &c., for autumn use. Attend to Celery, keeping it well supplied with water in dry weather, giving it as much manure water as can be spared for it, and keep the early crop rather closely earthed up. Vacant ground or that which can be cleared of early crops may still be planted with winter stuff, first giving it a good dressing of manure and a good deep digging. Stir the surface of the soil among growing crops. Cut Box edgings, and keep every corner clean and neat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending July 31, 1856, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind.	Rain.
Friday 25	23	29.953	29.801	76	40	58.0	63	60½	S.W.	.00
Satur. 26	24	30.060	30.010	76	41	58.5	64	6	S.W.	.02
Sunday 27	25	30.103	30.022	77	50	63.5	64	60	S.W.	.22
Mon. 28	26	30.064	29.980	79	50	64.5	62	59½	S.W.	.08
Tues. 29	27	30.194	30.146	82	51	66.5	65	59½	S.W.	.00
Wed. 30	28	30.244	30.213	87	50	68.5	65	60½	W.	.10
Thurs. 31	●	30.227	30.161	90	52	71.0	66	61	S.	.00
Average .		30.121	30.047	81.0	47.7	64.3	64.1	60.1		.52

July 25—Very fine; exceedingly fine; cloudy at night.
— 26—Very fine; rain.
— 27—Very fine; overcast; cloudy; rain.
— 28—Cloudy; very fine; heavy rain after 6 P.M.
— 29—Slight fog; very fine throughout.
— 30—Uniformly overcast; hot and sultry; very fine.
— 31—Slight fog; excessively hot and sultry; clear at night.

Mean temperature of the week 1 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending August 9, 1856.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	73.7	51.4	62.5	16	0.50 in.	3	4	3	1	3	11	4	1
Mon. 4	74.7	52.0	63.3	16	0.85	2	3	2	3	3	12	4	1
Tues. 5	73.1	52.5	62.8	14	0.43	1	3	4	2	4	10	3	[illegible]
Wed. 6	72.3	52.1	62.2	13	0.58	—	6	2	1	5	7	7	2
Thurs. 7	74.2	51.1	62.6	10	0.57	1	4	2	—	5	16	2	—
Friday 8	75.2	49.8	62.5	11	0.50	2	5	2	—	4	12	5	—
Satur. 9	75.0	50.6	62.8	10	0.40	1	5	1	—	5	12	6	—

The highest temperature during the above period occurred on the 9th, 1835—therm. 89 deg; and the lowest on the 6th, 1833—therm. 36 deg.

Notices to Correspondents.

AXIS: *Edward Griffin.* The adjective of this is *axile*, having a totally different meaning from axillary. The axis in botany is the centre round which organs are arranged; and therefore axile signifies anything placed in or on that axis. Axil is the angle formed by a leaf or other organ and the part which bears it; therefore axillary means that something grows within or near that angle. A bud is axillary to a leaf.

BOOKS: *C R C.* Hoare on the Vine; Sandars on the Vine in pots; Roberts on the Vine; but disregard this author's advice about putting garbage into Vine borders, which is a grand mistake.—*L Gr.* Loudon's Encyclopædia of Gardening, or M'Intosh's Book of the Garden. Both very extensive and complete works.

BOTANY: *Wykeham.* You will not understand this science by looking at plants or picking up their names, more often wrong than right, from ignorant informants. You must study them. Take for example the common Canterbury Bell, Campanula Medium, and compare it with what you find in Lindley's School Botany, which you say you have. Look to p. 88. Firstly compare it carefully with the character of Campanulaceæ, p. 87; next with the description of Campanula at p. 88, and then with that of C. Medium. If you do not understand all the technical terms, seek in the index for the page at which such terms are explained. Having done this, consult p. 20 for the difference between Exogens and Endogens, and page 23 for the difference between Thalamifloræ, Calycifloræ, Corollifloræ, and Monochlamydeæ. Finally, acquaint yourself with the reason why Campanula belongs to Corollifloræ. This is one way of studying; there are twenty other ways. If you were to spend a week in the operation it would be time well bestowed, and would save you much time in the step next to be taken in the same way.

CUCUMBERS: *B R.* Your leaves are attacked by mildew. Try sulphur upon them. We have no means of forming an opinion as to the cause.

FUCHSIA: *A B.* The first Fuchsia was F. coccinea, introduced to the Royal Gardens, Kew, in 1788. It is figured in the "Botanical Magazine," vol. 3, p. 97, where it is stated that Messrs. Lee of Hammersmith were the first London nurserymen who had it for sale.‡

GLOBE AMARANTHUS: *J R.* The statement is very curious. Pray send up by post some of the "tendrils."

GOOSEBERRY TREES: *A Subscriber* asks if any of our correspondents can inform him the reason of his Gooseberry trees dying away or at least parts of them. They first curl in the leaf, and then the branch altogether dies. He is almost inclined to think that it is blight, but is doubtful whether it is that or the dry weather we have had. Any information on the subject will therefore oblige him.

GOSSIP: *Spade.* You should wash your dirty linen at home, as the French say.

MEXICAN SEEDS: *E C T.* Sow them in a hotbed, and afterwards treat the produce like tender greenhouse plants.

MOWING MACHINES: *Thos. Cope.* There are very great differences of opinion as regards these. We therefore cannot take upon ourselves to advise you.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*A B.* The plant so abundant round about the camp at Aldershott is Senecio lividus.—*W Cooper.* Stelis ophioglossoides; Eugenia Jambos; Myrtus or Eugenia apiculata. Delphinium cardinale is really scarlet.—*E M R.* Myrica Gale. The tumour on the stem of Hieracium is a gall; produced by some insect. It is full of grubs.—*Herbalist.* Galium verum.—*Sub.* Mussænda frondosa.

NICOTIANA GLUTINOSA: *C R.* It is a hairy-leaved tropical plant with great yellow and purple ugly bell-shaped flowers. We do not recommend it.

OAKS: *Diss.* It is Quercus sessiliflora.

PEAS. We cannot insert anonymous statements respecting the qualities of plants. Your memorandum is very like a puff. In our opinion both Harrison's Glory and Perfection are inferior to Fairbeard's Champion.

POTENTILLA: *J P.* Pretty enough, but deficient in size.‡

ROSES: *Sub.* Your seedling "Lancastrian" is deficient both in size and doubleness. There are many better sorts with the same colour, or very nearly so, now in cultivation.‡

TESTUDINARIA: *H.* On no account divide its great woody root-stock.

THE HORTICULTURAL SOCIETY.—The letter of *Progress* will be laid before the Council.—*B R.* If you will write to the Secretary, 21, Regent Street, you will get the information desired.

VEGETABLE PATHOLOGY: *B R.* We cannot at present answer your question. Perhaps it will be—perhaps not.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. Nesbit, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. Inglis Carne, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. Lawes' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

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40, Bridge Street, Blackfriars. Edward Purser, Sec.

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THE undersigned beg to advise Agriculturists they are now prepared to deliver the under-mentioned Manures, viz.:—

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NITRO-BI-PHOSPHATE, or BLOOD MANURE for Cereals, Roots, and Hops.

Also NITRATE OF SODA, GUANO, BONEDUST, and ½-INCH BONE; SULPHURIC ACID, GYPSUM, and all other Manures of known value.

Apply to Mark Fothergill & Co., 204a, Upper Thames Street, London, Agents for the Peat Charcoal Company.

BINN'S PATENT MANURE AND TOP-DRESSING for the Destruction of Fly, Wire Worm, and Slug, and producing rapid Vegetation.—The Proprietors of this valuable Manure and Top-dressing are now manufacturing it at their Works, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. At the present time, in consequence of the ravages of the Fly, &c., on the Turnip, this Manure is strongly recommended as a Top-dressing for those Turnips above ground, and to be drilled or broad cast for seeds not yet in. It may be also used, with the greatest safety, as a Top-dressing to all crops infected with any description of Fly.

Orders addressed Hall & Co., at the Works, the City Offices, 3, Leadenhall Street; or to Mr. Samuel Fowler, West End Agency, 9, Pall Mall East, will be immediately executed.

MAPPLEBECK and LOWE, Birmingham, having made arrangements with W. A. Lyndon for a regular supply of his celebrated and much improved solid

STEEL DIGGING, HAY, and other FORKS, SPADES, DRAINING TOOLS, &c.,

are now prepared to supply these valuable Implements at the following reduced prices for cash:—

Lyndon's Improved American-pattern Solid Cast steel Digging Forks, three prong, 3*s.* 4*d.*; four prong, 4*s.* 3*d.*; five prong, 5*s.*; and six prong, 6*s.* each.

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S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

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May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

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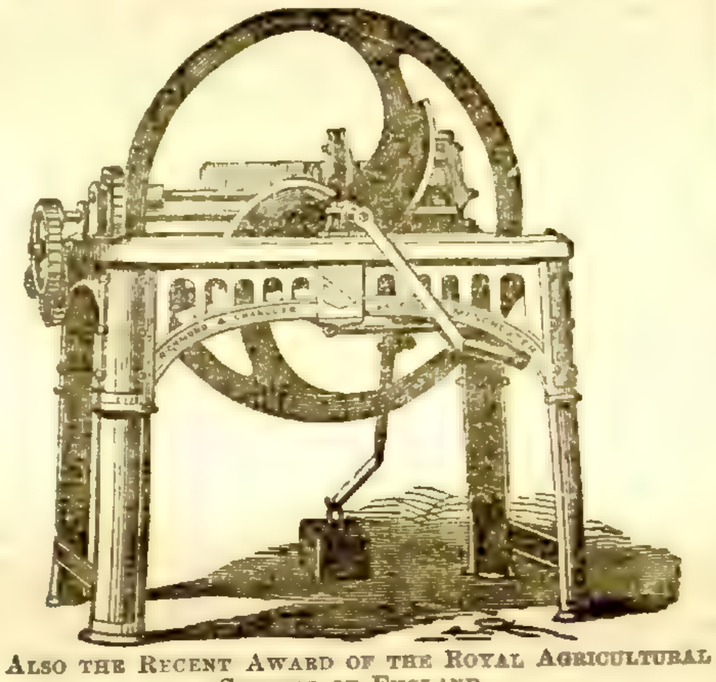
Of the Bath and West of England Agricultural Society's Meeting at Yeovil, June, 1856.



Also the Recent Award of the Royal Agricultural Society of England.

RICHMOND & CHANDLER, having been awarded the special and only Prizes for Chaff Cutting Machines for Hand and Power at the recent Yeovil Show, beg to inform Agriculturists and others that they may be immediately supplied with these Machines, which, by their intrinsic merit, have achieved the highest character in the trade, together with the confidence of the public.

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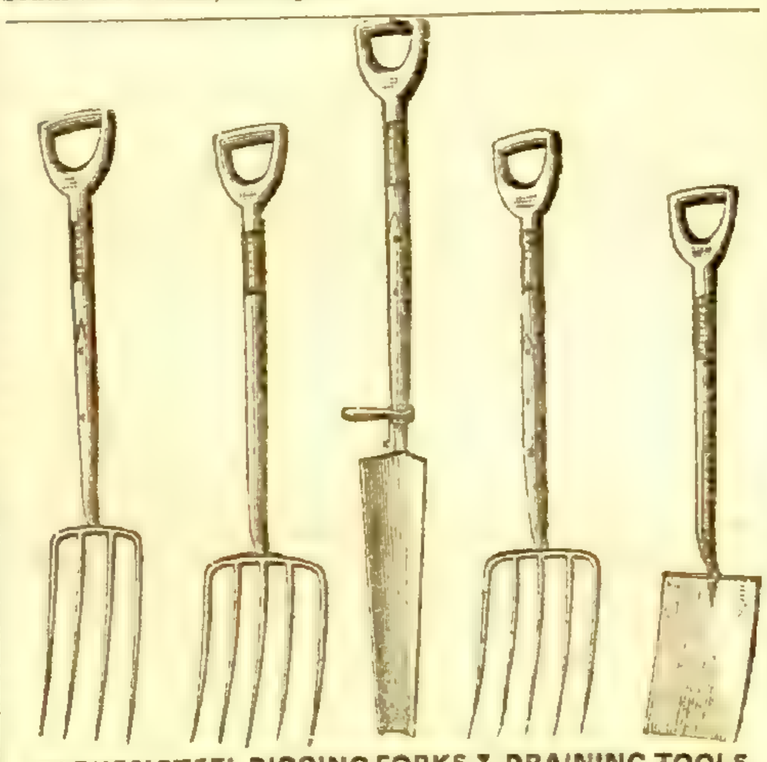

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MESSRS. BURGESS and KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

BRIDGNORTH ANNUAL POULTRY SHOW will be held on THURSDAY, October 9th, when Prizes of 1*l.* 10*s.* and 10*s.* will be awarded, and also a Silver Cup of the value of Five Guineas for the best collection of not less than Eight Pens of Poultry. All communications to be addressed to Mr. R. Taylor, the Secretary, Bridgnorth, of whom Forms of Entry may be obtained.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.

All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.

Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by

G. J. Andrews, Honorary Secretary.

Dorchester, August 2.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT MEETING AT ROTHERHAM.
PROGRAMME.

TUESDAY, August 5.—Trial of Reapers and Ploughs.

WEDNESDAY, August 6.—Trial of Implements continued. Show yard open at 10 o'clock A. M. to Members, and at 12 o'clock to the public. Tickets 2*s.* 6*d.* each.

THURSDAY, August 7.—GREAT SHOW DAY.—Yard open at 8 o'clock A. M. Tickets 1*s.* each.

Return tickets, available for two days, will be issued by the Railway Companies. John Hannam, Sec.

Office, Rotherham.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. Nesbit, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. Nesbit is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, AUGUST 2, 1856.

The influence of circumstances is necessarily always secondary to that of sort. In the feeding-stall and cattle-yard it is a common thing to say that the half of what is called breed "goes in at the mouth;" but let any sceptic as to the real cause of precocity of growth try his plan of two nurses to a mongrel calf, or see how Linseed in the milk and meal with Mangel Wurzel afterwards tells upon the fatness of a calf bred anyhow, as compared with one, similarly treated, from any pure bred short-horn herd, and his experience will force him to admit that, in the explanation of it, sort comes first and circumstances afterwards in the order of their influence.

And this is just as true of plants as it is of animals. Good drainage, liberal manuring, and skilful tillage will induce under an ordinary English sky abundant vegetable growth, but it depends upon the choice of seed whether this abundance be valuable or not. At any time, then, it is desirable to press upon our readers "the importance of preserving the purity of all our recognised species and varieties of agricultural plants," and such a subject is especially seasonable when our harvest fields and green crop fields themselves are eloquent upon it.

The address which Messrs. Lawson and Son have just issued on this subject is thus exceedingly well-timed. Their advertisement demands more than ordinary attention. It announces an honour done to England through them for which, notwithstanding their modest disclaimer, England is greatly indebted to their exertions; and, sanctioned as their statement is by the award of the Jury of Produce at the great international show at Paris, it is a most forcible appeal to English cultivators and seedsmen.

The difference to the former of mixed and impure as compared with true and well grown seed cannot be exaggerated. The one produces a crop all of the best and all ripe together; the other a crop of various quality, ripening at various times—and, in the very aspect of it, teaching a lesson of carelessness and irregularity to every labourer upon the farm.

And as regards the latter, no one need look for a better lesson in true self-interest here than in the example set by Messrs. Lawson themselves, or in

that of Mr. Skirving, who we were told last week, p. 503, pays very great attention to this subject, knowing it to be of the utmost importance to the farmer and to the community at large that every acre in the kingdom that is cropped with corn, or Grass, or roots, should be cropped with the most valuable variety of its kind for quality and quantity. Every improvement gained in this way is clear gain; for it costs no more to grow the best sort than the worst, and between the one and the other there is often from 10 to 20 per cent. difference at least.

One of the most important papers in the current Number of the Quarterly Journal of Agriculture is that by Mr. Russell, of Kilwhiss, in which he criticises the contributions of Messrs. Lawes and Gilbert to the recent controversy between Liebig and themselves on the growth and food of plants.

Mr. Russell has all along confidently worked out of the merely chemical track of research in his inquiries on this subject, and he is now gaining a hearing for his views on the meteorological conditions of the locality, and the physiological conditions of the plants, cultivated, as furnishing, in connection with the natural conditions of soil and air, the true explanation of agricultural experience as to natural and artificial fertility.

We shall give our readers in this Paper a short account of his argument, leaving them, for the full understanding of it, to consult the article he has contributed to the current number of the Quarterly Journal. Mr. Russell states that the need of supplying ammonia to plants is, since Liebig's discovery of its presence in the air, practically limited by the degree of their ability to draw upon this natural storehouse of it, and he illustrates this position by reference to Lois-Weedon and to Rothamsted. The "axioms"—"Nitrogen for Wheat and phosphorus for Turnips," justified according to the editor of the English Agricultural Society's Journal by ordinary agricultural experience, seem to be reversed by that of Mr. Smith, of Lois-Weedon. Lois-Weedon is directly opposed to Rothamsted, for in the former case *all* the manure is applied to Turnips and *nothing* is applied to Wheat. This contrariety, as stated thus by Mr. Russell, is reconciled by considering the different conditions of growth imposed upon the plants by the plans of cultivation respectively adopted at the two places.

Mr. Russell's statement on this head is as follows:—

"Mr. Smith, at Lois-Weedon, dresses his Turnips heavily with nitrogenous manures, and sows them in 5 feet rows, and afterwards singles them out 9 inches apart. This is scarcely 2½ plants to the square yard. But Mr. Lawes sows them in narrow drills, and even when he dresses heavily with the richest manures, he allows eight plants to the square yard. To sow so thickly, and to dress so heavily, are the chief reasons of nitrogenous manures being theoretically, but not practically, unpopular as a dressing for Turnips in England. Those who condemn nitrogenous manures for Turnips should take a leaf out of Mr. Smith's book. This is the plain and practical statement of the subject."

As to the theoretical part of the question, that is discussed farther on; and we must give an extract or two from Mr. Russell's paper so that on this point he may speak for himself. He says:—

"The whole discussion centres itself in the questions—1st, Why should ammonia be required for crops, since the atmosphere contains it in inexhaustible quantities? 2d, Why should Turnips require phosphates when the soil contains abundance for Wheat, while Wheat actually requires more phosphates for its growth than Turnips? The whole discussion, then, turns upon the mere facilities which plants have of obtaining phosphates from the soil and ammonia from the atmosphere."

"We have already seen that while 16 to 17 bushels of Wheat can be raised year after year at Rothamsted without ammonia or phosphates, only a few cwts. of Turnips could be got unless phosphates were added. These results show that Wheat can produce this amount without phosphates, but Turnips cannot do so; and why cannot they do so, since the Wheat plant actually requires rather more phosphates than the Turnip to produce that amount of grain? Because Turnips have less facilities of abstracting the quantity of phosphates that are necessary for their growth.

"This view of the question will be very evident, if we reflect for a moment on the different natures of the two plants, and the circumstances in which they are placed. The comparatively large seeds of the Wheat are sown in autumn, and the plants grow little for six or seven months. During this time there is no great demand for phosphates; and when the growing weather returns in spring, the roots of the Wheat, being in full possession of the soil, are able to thrive in a soil where the supply of these necessary substances is somewhat scanty. Grass will also be less dependent on phosphates than Wheat, simply because the vast number of rootlets in possession of the soil can very readily extract phosphates from soils, in which they exist in comparatively small quantities.

"With a Turnip it is very different—its seeds are very small, and its growth is very rapid. The minute seed of the Turnip cannot supply the young rootlets which it sends into the ground with much nourishment; it is thus early thrown upon the soil for a supply of matter to grow its roots as well as its leaves. For it must be borne in mind that no cells, either in the roots or the leaves, can be formed without phosphates. Seeing, then, that the Turnip must obtain a ready supply of phosphates before it can grow at all, need we wonder that there should be some truth in the recipe 'phosphorus for Turnips?'

Our next extract makes use of passages from Mr. Lawes' writings in "Rendle's Farm Directory," and from those of Mr. Russell in our own columns, for the purpose of claiming the former as a convert to the views long urged by the latter. They illustrate Mr. Russell's powers as a controversial writer, as well as his foresight and intelligence at a time when agricultural writers generally had their minds bent exclusively on the chemistry of vegetable growth:—

"In the same volume in which the perplexing and misleading axioms—'Nitrogen for corn, phosphorus for Turnips'—are once more reiterated to the confusion of science and practice, a foot-note appears which I regard as the herald of a brighter day for science. The following is the foot-note, which ought to have been honoured with a more prominent place in Professor's Way's paper on the 'Value of Artificial Manures:'—

"'The more recent experiments of these gentlemen (Mr. Lawes and Dr. Gilbert) on Barley and Oats, induce them to believe that soluble phosphate of lime has, in some cases, a beneficial action on these crops.' It is certainly rather too bad to introduce this heretical doctrine without one word of comment. I was very much surprised to find a complete clue to the 'some cases' in which superphosphate of lime was beneficial to corn in another quarter altogether. Some other writings on the same subject are given to show how antiquated 'the creed of the British farmer' must be who merely consults the Journal of the Royal Agricultural Society.

"'I think Dr. Daubeny slightly reverses the principle upon which the action of superphosphate is hinged. He says, 'It might require a certain vigour in the plant to extract a certain amount of phosphate and alkalies from the soil. By the application of ammoniacal manures this increased vigour may be imparted to the cereal crops, but not to the Turnips.' In my opinion, it is the existence of vigorous and rapidly-growing climatic conditions that demand a ready supply of the essential element phosphorus; for it is seen that phosphoric manures are most marked in these circumstances, inasmuch as the slow-growing and less vigorous Turnip and Barley crops of early spring, are not much benefited by the application of phosphoric manures, but under the more genial conditions of May and June these substances tend to put the plants in full possession of the soil, by promoting the rapid growth of roots and leaves, and they are thus enabled to turn the riches of nature to the best account. The Wheat at Rothamsted grows slowly, and obtains its phosphates and alkalies as fast as it requires them. The increase of a crop by the application of phosphates is pre-eminently seen in Turnips, but this is chiefly in consequence of the smallness of its seed and rapidity of its growth. Those plants which are in full possession of the soil, such as Clover or Grass, are not benefited by phosphates unless the soil is deficient in them.' - *R., Agricultural Gazette, January* 24, 1852.

"'Barley, as one of the cereal (!) crops, requires ammonia or nitrogen in some form for its growth. Being sown so much later than Wheat, it has less time to extend its roots in search of the minerals contained in the soil; and, for this reason, ammonia alone is a less effective manure for Barley than Wheat. For the same reason, Barley sown in April requires more minerals than Barley sown in February. I have introduced superphosphate of lime as a Barley manure, on account of its effect in my experiments, where Barley is grown year after year upon the same field. In combination with ammonia, it not only produces very favourable results with regard to the produce, but it brings the crop very early to maturity—a point of great importance when Barley is sown late in spring. I hope very shortly to make these results public; in the mean time it will be advisable that others should ascertain the merits of this combination.'—*Mr. Lawes, Rendle's Price Current*, 1856.

Mr. Russell goes on to say that the greatest increase he ever obtained in a cereal crop from the application of artificial manures was from superphosphate of lime applied to Barley sown as late as the middle of May on light sandy soil. With this fact, so corroborative of his doctrine that, in all speculations on the relations of manures to plants, regard ought to be had to the ability of the plant to forage for itself, and to the rapidity of growth for which, owing to climatic circumstances, provision has to be made, we must conclude.

We have not room for more at present, but our readers will see in the passages extracted a very important truth, very skilfully enunciated and illustrated, and one, too, which has never had that place in theoretical discussions of this subject which Mr. Russell and its own importance have all along demanded for it.

FURTHER NOTES ON THE CHELMSFORD SHOW OF HORSES.

Horses.—The dray horse class by no means presented so many specimens as might have been expected in a county in which heavy land so much prevails, and one so near the metropolis, where a market for dray horses is always open. Only six animals were entered. The prize was awarded to a dark iron grey horse, only three years old, but of great weight, substance, and activity, No. 327, belonging to Messrs. Bakers, of Stapleford, whilst his neighbour belonging to Mr. Robert Whitefield, a somewhat bigger horse and yet very active, closely approached the prize winner in excellence. They were both capital specimens of a valuable breed. There was also a fine Suffolk shown in this class, No. 322, a promising horse, but rather too leggy. In the class for two-year-old dray stallions only one horse was shown, but that a very useful animal. In addition to the foregoing list, which embraced no less than 130 horses and mares, there were special prizes offered for lighter horses, the money, we believe, proceeding from a local fund.

Class I. was for thorough-bred stallions, of which there were however only eight exhibited. We presume it was understood, but if intended it should have been expressed, for thorough-bred stallions best calculated for getting hunters. The prize was awarded to a well-known old Yorkshire bred horse belonging to Messrs. Moffat, near Carlisle. The horse possessed great merit, having plenty of substance with good symmetry, and his legs were very good for his age (16 years). No. 668, a 5-year old bay horse belonging to Mr. Waller, was highly commended. There were several others of merit, as for instance No. 671, called the Lion.

Class II., for hunting stallions, possessed more collective merit than Class I., although the number was the same. As, however, there was a distinct class for thorough-bred stallions from which of course half-bred horses would have been excluded, so we think that in this class for hunter stallions thorough-breds ought to have been debarred from showing. The prize was taken by No. 673, a thorough-bred 12 to 14 years old, called Tom Moody, a dark brown horse of great substance and excellence. We find he is the sire of the prize hackney stallion No. 693, also of 679, a very good and powerful hunting stallion, deservedly commended. No 675, a fine grey horse, possessed much merit; as well as a 4-year old horse by Fire King.

Class III., coaching stallions, was by no means a good class, whether as regards excellency or numbers. The prize was given to No. 686, a 5-year old coaching bay, a very good animal, against whom there was little competition. No. 682 is a promising 2-year old half-bred roan colt. We presume, as coaching days are over, "carriage horse" would be a better understood term.

We next come to a better filled class, having 10 in number, amongst which there were some very nice animals. The prize winner, No. 693, Sebastopol, the son of Tom Moody, rivalled his sire in excellence; he is 5 years old, and though a little short in the neck possessed a good deal of quality as well as substance. He belonged to Mr. Jax, of Suffolk. No. 695 was highly commended, and his merits well deserved the mark of distinction, although there were several other very clever hackneys shown, three of whom possessed Phenomenon blood. Norfolk is still the best county in England for clever hackneys, and we hope it may long retain the unrivalled forehand and action which distinguishes the breed. Let the Norfolk breeders beware of the low action belonging to the thorough-bred. We certainly think that more attention ought to be given to the encouragement of the breeding of good hackneys. Prizes should invariably be given to this animal at every meeting of the Royal Agricultural Society, for what is so necessary to farming comfortably, when hunting days are past and gone, as the possession of a good hackney? If, in addition to this, prizes were given to the heavier or stronger hackney, understood under the definition of a "cavalry horse," much would be done towards preserving an animal every year becoming more and more difficult to get. We would respectfully suggest to some of our cavalry officers now returned from the Crimea, that if blessed with wealth they could scarcely employ it more patriotically than by offering annual prizes for the stallions and mares best adapted for breeding cavalry horses.

Class V., for hunting mares, only afforded four animals, of which No. 699, a chesnut mare by the Colonel, gained the prize.

Class VI., hackney mares, was much better filled, having 10 in number, and amongst them some capital animals. 707, the prize mare belonging to the Rev. C. T. James, was a picture, though she would have been truer to her class if she had had more substance. Mr. A. Hammond's 12-year old roan trotter deserved a prize, as well as the Rev. W. H. Beever's No. 705, one of the best animals we have ever known under the designation of a Welsh cob. Mr. Rose's Norfolk hackney, No. 711, also possessed great merit; and a 4-year old mare belonging to Mr. George Creed was a very neat and compact little animal.

Class VII., for hunting geldings, was not numerous, there being only six entered. Of these Mr. Barlow's 717, a 5-year old hunter, the son of a well known horse in Suffolk (Robinson) gained the prize. Mr. Bullock's grey (Game Boy), a nice horse, was commended.

Class VIII., for hunting geldings under 5 years old, brought forward eight animals, No. 725, a 2-year old colt, by John o'Gaunt, gaining the prize; and 724, a 3-year old, by a British Yeoman, was highly commended. The former was owned by the Earl of Darnley, and the latter by Sir Wilfred Lawson, Bart.

Class IX., for hackney geldings of any age, had only three animals entered, the prize horse being Mr. Francis Barker's (Safety), No. 728; whilst the next best was the Rev. C. J. James's Student.

Class X., hackney geldings under 4 years old, con-

tained two animals of fair merit. We see no advantage in having four distinct classes for hackney geldings; one would have been we consider sufficient. If horses are good enough to win prizes as geldings they were no doubt of sufficient merit to earn reputation as stallions, and if so the breeders deserve censure rather than reward for ruling it otherwise. We have now gone through the 17 classes of horses exhibited at Chelmsford, embracing nearly 200 animals, of which no less than 130 belonged to the agricultural breeds. Taking the show altogether and comparing it with previous exhibitions, we should say that though it was much surpassed by the York show as regards the various kinds of lighter horses, it has never been excelled in the agricultural classes by any preceding exhibition, not so much on account of the individual merit of a few animals as by the great amount of excellence belonging to a large number. We find in the course of our inquiries that within the last few years the best class horses have greatly increased in value. As an illustration we may observe that the old mare, which with her foal gained so deservedly the second prize, sold for 150*l.*, whilst seven years ago when she gained a similar prize at the Exeter show she would scarcely have realised half this sum. This fact speaks volumes in favour of the assertion as to the enhanced value of these horses, and which may in part be attributed to the meetings of the Society.

We cannot conclude without observing that, however excellent the arrangements might have been with regard to the transfer of stock and implements, the same praise cannot be bestowed on the arrangements with regard to the transmission of passengers. The writer, wishing to go on to Colchester on Friday evening on business, was obliged to stand the greater part of two hours in the open air incumbered with his luggage amidst a crowd of people having the same object in view, the heat and pressure from which crowd were almost beyond endurance. Many females were also exposed to this dangerous pressure till a sense of shame compelled the officials to lift them over the barriers to the ample space within. The tickets were sold at a miserable box scarcely fit for a dog kennel, and after they were procured and the time advertised for the train had elapsed admission was still refused either to the holders of tickets or their baggage; and not only so but all information was denied as to the time that admission would be given. It would be well if editors of newspapers were to inform the managers of railway companies, for the comfort of those attending future meetings, that by refusing admission to their platform or premises after tickets have been sold and the time for the departure of the train has arrived, they are acting illegally as well as churlishly, and that if any broken limbs were to occur they would be responsible for the consequences. It is to be hoped that at future meetings the managers of other railways will avoid the blundering arrangements of those of the Eastern Counties. *W. C. S.*

ON THE SHEEP SHOWN AT CHELMSFORD.

Leicesters.—Class I. Shearling Rams.—The first and second prizes were both awarded to Mr. F. E. Pawlett, of Beeston, Beds., for two rams possessing very wide and deep frames, good backs, outspringing chines, good wool, fine bone and beautiful countenances; their sire was the prize sheep at Lincoln. Mr. R. W. Cresswell, of Ravenstone, Leicestershire, showed some pretty good animals in this class, one receiving a commendation. Those of Mr. G. Radmore, of Court Hayes, Devonshire, and Mr. J. Barton, of Barton House, Yorkshire, comprised among them some superior and well-formed rams; and we more especially approved of the character of sheep shown by Mr. S. Kingdom, of Lynch, Devonshire, and Mr. F. Hannam, of North Deighton, Yorkshire.

Class II. Rams of any other age.—The first-prize sheep of Mr. Pawlett, 40 months old, has a beautiful back, full plaits, hanging cushion, a wide forequarter, good scrag, fine head and excellent wool. The second-prize ram of Mr. Cresswell, 28 months old, is very symmetrical, of fine quality, with good neck, back, loin, and rump, in fact a very superior animal. We did not much admire the sheep exhibited by Mr. W. Simpson, of Kirby Grindalyth, Yorkshire, which, though large and possessed of other merits, had too little meat in front of the shoulder, and showed several other defects. One shown in this class by Mr. F. Hannam is much more like the ideal form of excellence, and has besides a very good fleece.

Class III. Pens of five Shearling Ewes.—Mr. G. Watkins, of Woodfield Ombersley, Worcestershire, takes the first prize for a pen of very beautiful ewes; and the second prize ewes, shown by Mr. G. Turner, of Barton, Devonshire, are very pretty, compactly formed, and covered with curly wool.

Short-Woolled Sheep.—Class I. Shearling Rams.—This year we have an illustration of the saying that "times go by turns," for instead of Jonas Webb, or Lord Walsingham, or even of Rigden or Sainsbury, we find a new first-prize name—the highest honour being carried off by Mr. Henry Overman, of Weasenham, Norfolk. We admire the six rams exhibited by Mr. Overman in this class for their great size, beautiful form, and good feeding qualities; but we must be allowed to point out a defect in the first-prize animal which we think ought to have left the premium to be bestowed elsewhere. It has a large frame, great girth, chine and forequarter very superior, and fine quality of bone and character of countenance, but the hand carefully applied along the loin and back detects a very common deficiency, and for a straight even back, loin not too high, and firm good meat, we certainly prefer the second prize sheep, and indeed several beside. Mr. Jonas Webb, of Babraham, obtains the second prize for a remarkably well-formed compact sheep, with beautfully straight back, outspringing ribs, thick neck, and very fine quality of head and bone, and also a good fleece of superfine wool. Yet the other shearlings exhibited by Mr. Webb are so beautiful that the Judges must have had considerable difficulty in selecting this one for distinction. The Duke of Richmond has some very fine specimens of his own breed, widely made, compact, and with plenty of wool.

The rams of Mr. Rigden, of Hove, Sussex, are straight, wide, with good rumps and fine heads, certainly very superior animals, but having rather too much of that unsightly defect—a protruding body.

Mr. Lugar, of Hengrave, Suffolk, shows some good sheep; but some of them have a little of the defect common also to some other sheep in the yard, of too much wool on the shoulder and too little upon the loin.

Lord Walsingham's rams have some meritorious points, but some of them are not at all satisfactory respecting their fleeces. Those of Mr. Sainsbury, of West Lavington, Wilts, we much approved.

Class II. Rams of any other age.—Lord Walsingham obtains both the prizes, the first-prize sheep, 27½ months old, having very great substance, firm good meat, thick neck, good chine and loin, and a plentiful fleece; the other of the same age, of great length, height, and girth, and admirably formed in almost every respect. Mr. Lugar exhibits in this class a 40 months' old ram of superior excellence, symmetrical and of beautiful quality. The 28 months' old rams shown by the Earl of Chichester are beautiful animals, compactly formed, loins not too high, with good necks, rumps, and fine heads and bone. Mr. H. P. Hart, of Beddingham, Sussex, shows some very good animals, having plenty of wool. The rams of Mr. H. Overman are large and wide, with good necks, loins, and beautiful meat. A striking feature in this class was the presence of two pure Merinos, bred by Mr. F. Sturgeon, of the Elms, near Romford, which though of inferior form, and not likely to win the favourable notice of breeders of mutton, were admired for the wonderful fineness and beautiful quality of their fleece.

Class III. Pens of Five Shearling Ewes.—Lord Walsingham's first-prize ewes are a very beautiful and level lot, very large and widely formed, with fine bone, and a superior quality of wool. The second prize is also awarded to his lordship for a pen of very symmetrical and beautiful animals. The other lots which more particularly struck us as very superior both in form, quality, and wool, are the Duke of Richmond's and those of Mr. Overman. The Shropshire rams, shown by Mr. E. Holland, we hardly admired, because of their want of mutton before the shoulder and their defective rumps.

Long-Wool Sheep.—Among these sheep we observed too many indications of uneven clipping, by which the defective points of the animals can only be detected by the hand—all appearing level or well thrown out to the eye.

Class I. Shearling Rams.—Mr. J. Walker, of Northleach, Gloucestershire, takes the first prize for a ram of great size and fine proportions, with a splendid forequarter, plaits and rump. The second prize to Mr. Beale Brown, of Hampen, Gloucestershire, for a ram having a first-rate back, good loin, chine, neck and forequarter, and also a good curly fleece. Mr. George Fletcher, of Shipton, Gloucestershire; Mr. W. Hewer, of Northleach; Mr. Lane, of Broadfield Farm, near the same place; and Mr. E. Hardy, exhibit some magnificent shearlings from flocks differing much in character from each other, but all of very superior merit.

Class II. Rams of any other age.—Mr. W. Lane obtains the first prize for a ram 28 months old, of immense height and width, with remarkable neck and chine and beautiful hand. The second prize to Mr. W. Garne, jun., of Bibury, Gloucestershire, for a 39 months' old ram of very great length, girth, and splendid proportions, together with a fine quantity of offal and a good fleece. Mr. John Garne, of Filkins, Gloucestershire, obtains a commendation for a 39 months' old ram, a very good animal with a particularly good loin and rump. Mr. Fletcher also receives a commendation for a 21 months' old ram, having a famous chine, neck, and a good quantity of curly wool.

Class III. Pens of Five Shearling Ewes.—Mr. W. Lane takes both the first and second prizes; but we think other pens shown in this class are somewhat superior to the second prize lot, though these are very beautiful, and of good form and quality. Mr. Beale Brown's ewes are very good indeed, both for their backs, loins, forequarters, and fleeces. Mr. Walker's ewes are very deservedly commended, their meat being first-rate. The Cotswold sheep made altogether a very good show, though not equal to what they were at the famous Lincoln meeting.

HOME FARM MANAGEMENT.—No. VIII.

Amongst the very first duties devolving on a manager appointed to the charge of a home farmery, the particular rotation course to be followed will demand attention. He ought to take a plan of the farm, and looking at the subject in its every aspect, fix on the order of cropping which in the case will be most likely to give good returns. Few farm stewards would wish to do this on their own responsibility alone. A little reflection may show the propriety in every instance, and in most cases the absolute necessity of making the principal or his agent fully acquainted with the intentions of the overseer in regard to the management of the land under his care. Of course were the agent of a property to possess a comprehensive knowledge of agricultural matters theoretically and practically, he might himself give sound directions for the guidance of the person in charge of the proprietor's farm; but unfortunately many agents or factors are mere counting-house men, and in practical details are wholly dependent on their subordinates. Assuming that on first-class home farms the manager is a man of such attainments that the fixing of the rotation of crops will be in a great measure left to himself, there will still be advantages derived from his consulting his superior in every undertaking of importance. To give the latter a proper opportunity of judging of the proposed modes of cropping brought under his notice, the steward ought to furnish him with various estimates of a practical nature. These would require to include a statement of the acreage of each species of crop—its probable value at harvest—the purchased manures necessary for the whole farm under one system of cropping compared to another—the quantity of straw available for consumption on the farm under each rotation system—and in most cases a rough comparative estimate of the gross profits of the various modes of laying out the land in crop. With anticipatory calculations such as these submitted at the beginning of every winter by the farm steward, the proprietor or agent of an estate will be in a favourable position to give an intelligent consent to any judicious proposals that may be made on practical points. If a farm manager finds himself intrusted with important calculations of this kind he will naturally do his utmost, not only to select the course of cropping most likely to prove profitable, but to carry out his own views at the least possible expense. Well, in aiming at these results there are certain general principles which according to circumstances should regulate his judgment and control his practice. For example, on strong good soils under a favourable climate, he will grow large quantities of Wheat, while on light land Barley will be the principal cereal crop. On medium soils a fair proportion of both will be raised, and if the climate is inferior Oats will occupy a greater breadth than either of the other white crops. Then, if the ground is of a light alluvial quality, well adapted for the production of Potatoes, and a ready market is obtained for this root, of course it should be extensively grown. On the other hand, a farm situated inland, and not very accessible, ought perhaps to be more a Turnip than a Potato growing one, even though the soil is suited for either crop. It is much easier to transport a root crop to a distant market in the form of fat beasts than in any other manner. In populous districts dairy stock may prove more profitable than fattening beasts, just as a cut hay crop may be more remunerative than pasturage in these circumstances. Is a farm a Wheat, a Barley, an Oat, a Bean, a Potato, or a Turnip-growing occupancy? Then it is the duty of the farmer to find out its properties and defects and to make the most of it accordingly. It would occupy too much space to enter fully into the question of rotation of crops, but I may state one course of cropping suitable for medium land and another adapted for the clays.

For a green cropping and Wheat farm extending to say 360 acres, the following rotation system may be adopted with advantage:—

1. Turnips	...	40 acres.	5. Wheat	...	40 acres.
2. Potatoes	...	40 „	6. Turnips	...	40 „
3. Wheat ...	...	40 „	7. Barley ...	...	40 „
4. { Beans ...	20 }	40 „	8. Grass ...	...	40 „
4. { Mangel ...	20 }		9. Oats ...	...	40 „

This will give annually of Turnips, 80 acres; Potatoes, 40; Wheat, 80; Barley, Grass, and Oats each, 40; Mangel Wurzel and Cabbages, 20; and of Beans, 20 acres. By making the Turnip break which begins the rotation a preparatory crop for Potatoes, the soil is not only easily wrought for the latter but by the Turnips being partially eaten off with sheep only a light dressing of artificial manures is necessary to give a very fine yield. Then if the land happen to be foul it is got properly cleaned under this system, and is put in the best possible condition to produce superior crops during the remainder of the rotation. A nine-shift course may be thought rather too long for general adoption, but it has very important advantages connected with it. The various crops are so extended over this series of years that the least possible expenditure—in manure and labour—is required to give very large returns. Experience has proved the fact, that with a given outlay common to various rotation systems the eight-shift leaves the largest profits. And the above order of cropping being simply a modification of the eight-course with a crop of Turnips taken before Potatoes it has at least all the excellencies of the latter if it is not an improvement upon it.

For a clay farm which, though well adapted for the growth of Wheat, Beans, and Turnips, is scarcely so well fitted for Potatoes and Barley a different course of cropping should be followed. A seven-course rotation of a farm of 350 acres will stand thus:

1. Beans		...	50 acres.	5. { Turnips	20 }	50 acres.	
2. { Wheat ...	35 }	50	„	5. { Potatoes	15 }		
2. { Barley ...	15 }			5. { Mangel	15 }		
3. Turnips		.	50 „	6. Wheat		...	50 „
4. { Wheat ...	15 }	50	„	7. { Grass ...	40 }	50	„
4. { Barley ...	15 }			7. { Oats ..	10 }		
4. { Oats ...	20 }						

The extent in acres of the different crops by this rotation course will annually be of Turnips, 70; Pota-

toes and Mangel, 30; Wheat, 100; Barley and Oats each 30; Beans, 50; and of Grass, 40 acres. According to this arrangement part of the Bean crop will be sown after Grass, but if the ground is lightly manured, it will in most cases give a very excellent yield. This saves the resources of the land to some extent by rendering it unnecessary to take Oats after Grass. In laying out a farm for the different crops under either this or any other rotation system, great care should be taken to have the piece of land best adapted for a particular kind of crop put as far as may be practicable under that crop. For Potatoes or Barley the lightest parts of the farm will require to be selected; but this can be very easily done without the general rotation order being deranged. According to the state of the markets, as I have already indicated, a modification of any course of cropping may be made from year to year; but it is well to have a system which in the main will be adhered to. There are many farms no doubt on which neither the seven nor the nine-shift course, as stated above, would be found altogether applicable. Yet there are very few home farms in the United Kingdom for which these systems might not be altered so as to meet the variations resulting from peculiarities in soil and climate. *J. Lockhart Morton, Lasswade, Mid-Lothian.*

Home Correspondence.

Boydell's Locomotive Steam-engine.—In your report of the Chelmsford Meeting of the Royal Agricultural Society you allude to my traction engine, and as some parts of that allusion are not in accordance with facts, I feel sure you will do me the justice of inserting this. In the first place you say the engine is of 12-horse power, and you call that used by Mr. Fowler 10-horse power. My engine has two cylinders of 6½ inches each, and is worked with 60 lbs. pressure of steam. That used by Mr. Fowler has two cylinders of 8 inches each, and when I saw it at work on the heavy land field it was worked with 95 lbs. pressure of steam. Thus if our engine is 12-horse power, the one used by Mr. Fowler is 28. In the next place you say it is evident to all practical engineers that the wear-and-tear of my engine from hauling continually over arable land must prove a very heavy addition to the cost of the machine. In answer to this I have to say that we have worked one engine for six months on all descriptions of land and over all kinds of obstacles, and we have never damaged the machinery or the boiler in the least, which are apparently as good now as when they were made, and the wheels and shoes show very little wear—this engine can be seen here. In another part of the report, speaking of the shoes, "under the circumstances of a comparatively even and extremely hard surface they were of course for the most part merely a useless incumbrance." Without the shoes on the driving wheel we could not even have got on to the field, and upon the hardest and perfectly level ground the engine would not draw one-fifth part as much without the shoes as with, as the cycloidal bars attached to them form in effect a cogged railway. The last part of the report I have to observe on is—"but the advantage gained by the position of the pinion on which Mr. Boydell insists is not real after all; the velocity of the pinion must be doubled to produce the same rate of movement onwards as if it were placed on a level with the axis of the wheel, and as much is lost as gained." This is certainly not the fact, and is very easily shown not to be so. The driving wheel is driven by a pinion of 10 teeth working on a wheel of 96 teeth, and at whatever part of the wheel the pinion works, whether on the level of the axis or the apex, 10 teeth working on 96 must perform the same number of revolutions in the same time; and although the upper part of the wheel moves twice through the same space as the axle and fulcrum on the ground, that is made up by the rectilinear motion of the wheel which is entirely independent of its rotary motion, carrying the pinion through the space it progresses, and this without reacting upon the forward movement, as the pressure upon the back of the cylinder counteracts the pressure upon the carriage on which the shaft of the pinion works. *James Boydell, Camden Works, Camden Town, July* 22, 1856. [In reference to this communication we at present only say that the "velocity of the pinion" referred to by our reporter, is not its angular velocity, but its velocity with reference to any fixed point over which the machine may be passing. Whether the thrust of the steam in the boiler be applied, by means of piston rod and pinion, at the extreme end of that lever which is represented by the double radius of the driving wheel (its contact with the ground being then the fulcrum, and the tow-rope attached to the axle-tree representing the power and position of the resistance to be overcome), or be made by another position of the pinion to act as if pushing at a point on that lever nearer to the resistance, and therefore less effectively, does not matter when the object is to produce movement. In the one position it corresponds in effect to gearing into a large spur-wheel, and in the other to gearing into a smaller one. The latter may require double the force to work it; but in the former case double the rate of movement will be needed to effect the same quantity of work—so that, as our reporter stated, "as much is lost as is gained." This is the state of the matter as it at present appears to us.]

White Clover.—Can you suggest any cause for the very unusual quantity of White Clover which appears in all the pasture fields and on roadsides and places where it cannot have been sown? I have observed it, and so have many others. *R.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

We will resume our walk round the stands of implements. Mr. Cornes at No. 45 exhibits his simple and well-known chaff-cutter, which has won many prizes.

Gibson, of Newcastle-on-Tyne, at the next stand shows several tillage implements, a revolving cultivator and a clod-crusher, consisting of two rows of discs one cleaning the other—a principle originating with them, we believe, though now very generally adopted.

Mr. Huckvale, of Choice Hill, Chipping-Norton, shows his Turnip thinner and horse hoe at No. 60. It consists of a revolving circular edge which would clear the whole row as the machine proceeds were it not for breaks in it by which untouched intervals are left. The thinner can be instantly raised where the Turnips do not require thinning. The plants are left at regular distances, and singled by children where they require it. The great advantage of this implement is that the Turnips, &c., can be cut out at the proper time, at a much cheaper rate than by hand, and the crop saved from injury by not being singled at the proper time. Price 5*l.* A patent horse-hoe for hill-sides, shown at this stand, exhibits an exceedingly ingenious contrivance for meeting the downward tendency of the implement when working along the side of a hill.

At stand 62 Messrs. Reeves, of Bratton, near Westbury, Wilts, exhibit Chandler's liquid manure drill.—Spooner's water drill is shown at stand 71, by Messrs. Tasker and Fowle, of Andover.—Sparks, of Norwich, exhibits steam-engines, circular saw bench, &c.

Messrs. Garrett and Son have a large stand with threshing and other machinery, drill machines. We have already referred to Mr. Chambers' improvements in drills shown here.

An exceedingly ingenious hummelling machine by R. R. Holben, of Barton, Cambridge, is exhibited by Barnard and Bishop, of Norwich. This machine consists of an elevating apparatus, which supplies the corn direct from the dressing machine without assistance, and a breaker, which makes nearly 300 beats per minute, under which the Barley passes in a thin layer. It is perfectly efficient, delivering freely from 10 to 12 quarters per hour, and requiring but very little power to work it. It can be used with any dressing machine, the quantity being regulated by four adjusting nuts; the arrangements being so extremely simple render it nearly an impossibility for it to get out of order. It occupies the space of one square yard only. Price 5*l.* 10*s.* At this stand, too, there is a good rasping machine for Turnips. This machine consists of a strong cast-iron disc, to which are attached 10 indented steel plate cutters, which can be adjusted to cut Turnips, Mangel Wurzel, Carrots, &c., into narrow strips, varying at pleasure from 1-16th to ⅛ of an inch in thickness, at the same time separating the dirt and small pieces of rind from the strips, which are delivered quite clean into a basket or tray. These strips when mixed with dry food are found to be an economical method of feeding cattle or sheep. Price 4*l.* 10*s.*

Mr. Bentall at 78 shows his celebrated broadshare, which however has this year had to divide the prize with Coleman's This implement has three shares, preceded by three points, arranged parallel with each other, the centre point being so much longer than the side ones as to project beyond them in front, while the share connected with it is as much behind the side shares. This arrangement of the points before the shares is essential, as it is this that enables the implement to penetrate the hardest soils, and gives it a remarkable steadiness in its work, and a capacity of adhering to the land in a degree not to be attained by other means. There are other advantages, too, in this peculiar construction. By means of the long point a share 18 inches wide can often be used in hard ground, when without it even a 6-inch share could not be used. The chance of weeds slipping by it is thereby greatly diminished; and, fewer tines being required, the implement is less liable to choke in foul land. It goes on three wheels, which are merely to regulate the depth of the work, and consequently do not require to be large. In the centre is a strong beam of wrought T iron, to which is attached the frame. To the side arms are fixed two tines, one on each side, which can be regulated either vertically or horizontally. The frame carries the centre-share and point, while the tines carry the side ones. The handles are convenient to enable the man to assist the plough round at the ends of the land. The head and hake are of the ordinary construction, allowing of adjustment when required, as in ploughs generally, to enable the horses to walk in the furrow. The width of land covered by the implement (as usually sent out) is 3 feet 6 inches; but it can be altered to cover more or less.

Mr. Coleman's tool, on the other hand, is thus described:—A patent drag harrow, cultivator, or scarifier; invented and manufactured by the exhibitor. This implement is known as the "Norfolk Prize Cultivator." It is admirably adapted for the various purposes of harrowing, cultivating, or paring land. There are seven prongs, to which shares or spuds, varying from 10 to 2 inches wide, may be attached. These prongs are so arranged as to cut the land 8 inches apart. The depth of penetration is regulated by a lever, and may with great facility be accommodated to the required depth.

Holmes & Sons, Norwich, at 86 show a large collection of machinery, steam-engines, threshing machines, drills for corn and manure, &c. We extract their description of their manure distributor:—It has important improvements in the delivery barrel, which is entirely of wrought iron, is very light, and not liable to breakage or disarrangement; the deliverers are of such a form that a scraper is most conveniently made to pass over each one as it comes to its delivery point; and another important point is, that the scrapers are fixed above the delivering barrel, so that it is impossible that any manure can by any means get to them to prevent their working, as is the case with those which are placed under the barrel; another advantage in these scrapers is, that being hung from the top, the dead-weight of the whole scraper is rendered effective when acting on the deliverers, and by each scraper being made in length so as to scrape or clean four of the deliverers, each one separately has the whole weight of the scraper, thereby saving one-third the weight in iron that would otherwise be required. Small weights can be placed on each scraper when required. The whole machine is considerably lighter and of easier draught for the horses; and the delivering has been pronounced perfect. The exhibitors' semi-lateral stirrer is found the most simple and practically useful, the lateral motion being given without any extra gear wheels or crank motion; the slides can be regulated as the machine is at work. It can be fitted with the exhibitors' improvements for hill sides at an additional cost of 1*l.* 10*s.* Price 13*l.* 10*s.*

At stand 97 Mr. Phillips of Brandon shows his patent root pulping machine. The cutting principle of this machine is a beautiful adaptation of the circular saw; a number of segment saws are fitted into a round cylinder, and bolted together so as to work in a perfect circle; on the spindle of the cylinder is a bevil wheel, driving another, which works an oscillating plate at the back part of the hopper while the cylinder is revolving. The result of this is, that the teeth of every saw cut the roots in different lines and places; thus producing a perfect pulp without bruising or smashing the root and destroying or losing the juice. One great feature of this machine is its indestructibility. The saws, being of tempered steel made expressly for the purpose, will last a number of years without wearing up; and if from any mishap one is broken it may always be replaced, without sending to a machine maker, by a labourer at a cost of a few pence. It is well known that for cutting wood no way is so economical as the circular saw, and that a saw constantly cutting hard wood will last a great many years; it may then be easily understood how long the steel saw will last in pulping roots. It is superfluous to add that the employment of steel for cutting has a great advantage over the cast-iron plates used by other makers, which, although a trifle cheaper in the first cost, prove dearer before many months, from the great tendency to wear, and extreme brittleness in cold weather, when the machines are most required. This machine may be worked by one man or two lads. A great recommendation in this machine is, that the state of the roots does not affect the cutting; their being frozen, or clung in the latter part of the season, not proving any obstacle to mincing them. Price 6*l.* 10*s.*

At 99 Mr. Utting, of Wisbech, shows one of the many new contrivances in rollers. It consists of two sets of discs on two parallel axles, the one set clearing the other, the one set narrow and the other wide, and the two sets can be set relatively to one another in different positions, so that either the narrow or the broad edges can have the heavier work to do, according to the state of the land.

Mr. Carson, of Warminster, exhibits yet another form of roller, which he calls the Cross-cut Wheel Roller and Clod Crusher (No. 1). The wheels are 26 in. in diameter, and are of an improved form; having, in addition to the thin edge, a number of cross-cutting projections at right angles to it, to give the implement greater facility in reducing clods, or in pressing Wheat, &c.; and these outer edges being all rounded, prevents any injury being done to the corn or plant over which they pass. The roller is made of a number of these wheels placed together on a round shaft, thus allowing them to revolve independently of each other; the frame is of wrought and cast iron, and the shafts of wood. These rollers are made of four different sizes, and of any length suitable for the numerous purposes to which they are applied, a few of which may be thus mentioned:—Reducing clods to a fine soil suitable for receiving the seed. For rolling Wheat in the spring after frost; and thus, by strengthening the roots, to prevent the partial loss of the crop, and for putting a stop to the destructive effects of wireworm, grub, &c. In a great measure to supersede harrowing, by being used before and after sowing, which ensures a more equal and complete covering of the seed. For rolling Grass lands to destroy Moss improve the herbage, &c. Price 16*l.*

Messrs. Howard, of Bedford, have as usual a large and most interesting collection of ploughs and harrows, in the former of which arrangements for altering the position of the share relatively to the other parts have been patented. We may refer here to a Turnip fly destroyer exhibited by Mr. Comins, of South Molton, the idea of which we suppose he obtained from the *Gardeners' Chronicle*, for he describes it as the invention of Dr. Lindley. It is made of planed board about 1 foot wide and 4½ feet long, but it may be made longer if ordered; there are two wheels in front which may be set to any width required. The board can be raised to pass over ridges or lowered so as to pass as close as possible to the Turnips when sown on the flat. There

are two light handles to it so that a boy of 10 or 12 years of age can work it. The bottom of the board must be gas-tarred as often as may be required; the shade of the board will cause the flies to jump, and in so doing they will stick to the tar.

Messrs. Hill & Smith, of Brierley, Dudley, have a large collection of tools, and work in wire; we describe one of their entries for fencing. The silver medal of the Royal Agricultural Society was awarded to these fences at the Southampton, and again at the Shrewsbury meeting. From their construction they possess many and decided advantages over iron hurdles, especially for permanent fencing, both as regards economy and strength. The set consists of eight kinds, as follows:—

	No. in Exhibitors' Catalogue.	Height.	Number of Bars.	Intervals of Standards.	Price per Yard.
		ft. in.		ft. in.	s. d.
For sheep or light cattle ...	1	3 4	5	3 0	2 5
Cattle...	2	3 6	5	3 0	2 9
Oxen	3	3 9	5	3 0	3 3
Oxen	4	3 9	5	4 0	3 4
Oxen	6	3 9	4*	4 0	3 9
Deer park	7	6 0	8	3 2	4 9
Deer park	8	6 0	8	4 0	4 9

These fences are, for permanent fencing, far superior and cheaper to anything yet introduced. The deer-park fencing is much cheaper than anything that could be used for such a purpose, and has been much adopted. The exhibitors are now erecting about 10 miles of it for his Grace the Duke of Portland, for surrounding the deer park at Welbeck Abbey.

(* No. 6 has four bars and chain top.)

Tiptree Meeting.—A very excellent address was given at the gathering last week, by Mr. Mechi, for which we had not room in our report. We now give an extract from it:—

"The object I have in view is one connected with an important purpose, embodying the great question, whether the British stomach is to be sufficiently filled to enable it to maintain its independence. It is a very serious affair, that of the stomach. Just imagine what would be the result of giving a fortnight's holiday to the British stomach. You laugh at the idea, but it is a fact that every now and then you are on the verge of scarcity. You have wheat at 20*l.* a load, and is not that a war price? And why is it? Why is wheat dear—why is food dear when you have open to you all parts of the world, and all the corn markets of the world? You go into those markets and bid the highest price, and you ought, it would be said, to command the most ample supply. But still food is scarce and dear. That is not to be denied. And why is it? It is because England has not done her duty. Without referring in a spirit of vanity to anything of my own, I am prepared to tell you that if all the lands of England were cultivated in the manner that this farm, and thousands of other farms are, you would not only have food enough to feed your own people without the aid of foreign importations, but you would have some to spare. This will be proved if you take the acreage of the country, as far as we know it, though I am sorry to say we do not know it correctly enough. I thought when we called on the Hon. Mr. Cameron he would have told you that while England has no agricultural statistics they have in the young and comparatively new colony of Canada most correct statistics of every bushel of corn grown, and know what they are doing, for they have got over the old prejudice on this subject. And I believe the agricultural fear about the mischief of disclosing their affairs is a perfect phantom and delusion. Recollect this,—you cannot do away with the farmers of England—you cannot do without them—you cannot keep them in an humble position. Every day they are increasing in knowledge and intelligence—every day they are bringing the resources of science to bear with greater effect upon the cultivation of the soil, and better means of communication are being opened to them. Do not let us, then, be afraid of letting the world know that we are making a profit; for if we say we are all bankrupt nobody will believe us. Now on looking round this large, intellectual, and influential meeting, I see that we have lots of doctors here, and I wish that amongst them I could get a physic that would cure prejudice. When I say this I do not intend to imply that prejudice is confined to agriculture. I hope my agricultural friends will not think that I look on them as singular in this respect, and as being the only class that entertain and cling to their prejudices. I recollect that it was said that steamboats would never do, and would never cross the Atlantic; that railways were impossible, and the electric telegraph was madness; and these are all evidences that prejudice is not solely an agricultural complaint."

Reviews.

Proceedings of the Wakefield Farmers' Club for the year 1855, *with the Report of the Annual Meeting.* W. T. Lamb, Northgate, Wakefield.

The Wakefield Farmers' Club issues reports of its discussions and resolutions for the benefit of its members and of the general public, in this showing an example of public spirit and frankness which might be adopted with advantage by more powerful institutions of the kind.

Exclusiveness of any kind, such as some societies present, can never tend to their prosperity. Some have rules preventing any communications at their meetings excepting through a member. We cannot think of anything less likely to advance a club, either in public estimation or in that of its own members, than the operation of such a rule as this. Members join professedly and really not to give but to receive instruction, and when at any of their meetings a stranger who can give information on the subject that is being discussed finds himself silenced by such a rule as we have mentioned, every person present is injured by it. The way to increase the membership of a society of the kind is by increasing its usefulness and activity—information should be welcome from whatever quarter, and when contributed, the more generally and permanently it can be circulated the better.

The Wakefield Farmers' Club does good service to agriculturists generally, and therefore to itself by the annual publication of its proceedings.

From the present annual report we extract an account of the discussion on mowing and reaping grain crops.

Mr. Hislop opened the debate. He said:—"In the year 1825 I introduced mowing on the home farm of Sir John Scott Douglas, Bart., of Springwood Farm, Roxburghshire. Finding it to answer my expectations, I continued the use of the scythe, and for a great number of years past have practised no other mode of reaping the various grain crops under my superintendence. I may notice, by the way, that there are various sorts of scythes used for mowing grain; there is the common scythe and bow in regular use in England; the cradle scythe, used to a considerable extent about Newcastle and various parts of Northumberland and the county of Durham; the Aberdeen scythe with its peculiar handle, in use in Scotland; and the Hainault scythe, used in Flanders, and which I have seen used in Scotland by sons of Flemish farmers who were brought over for the purpose of exhibiting it (by the Highland Agricultural Society of Scotland) about 28 years ago. The above are all useful in the hands of those who are particularly acquainted with them, but few labourers could use them all skilfully. I will in the first place make a few observations relative to the expense of mowing and shearing; in the second place consider the advantages and disadvantages arising from either mode of reaping; and then sum up my observations by showing which mode will be most conducive to the interests of the farmer. First, the expense of mowing and taking-up, binding, swathe-raking and heaping the rakings, of a fair average crop of Wheat, Barley, or Oats, upon a farm will cost 10*s.* per acre. On the other hand, the expense of shearing, binding, and stooking the same will be 15*s.* per acre, being a difference of 5*s.* per acre in favour of the scythe. Second, the advantages derivable from mowing are the following, viz.:—The farmer gets a greater quantity of straw to be converted into manure and returned to the land, which is preferable to leaving it in the ground, especially on light soils; the saving in this case will be about 3*s.* per acre at least. The swathe ought to be mown inward instead of outward, as it enables the mower to lay it down better, and his assistant to take it up with less liability to injure the grain. It also tends to the safer and more speedy harvesting of the crop, as the corn does not stand so compact and closely compressed in the sheaf, and allows the wind to pass through with greater facility, and in most instances it will be fit for carrying three or four days earlier, which is of great importance to the farmer. I remember about 16 years ago, having a field of Wheat shorn, being remarkably heavy in the ear; when stooked the sheaves formed a broad table-like top, and although well hooded, and would have been fit for carrying on the Monday, in the course of the Sunday, in consequence of a very high wind, nearly the whole of the stooks were levelled with the ground. The following morning being very wet, the rain so penetrated the sheaves that before they could dry through the Wheat sustained much injury from sprouting, which would not have been the case had they been mown, as it would have been secured three or four days earlier. I am aware that certain objections are advanced against mowing, such as the grain being of an inferior quality, or rough in the hand in consequence of clods being collected by the swathe-rake; and also that, by mowing, the weeds are all collected and the seeds get into the manure. To obviate the former objection keep the rakings separate and thresh them by themselves. My own experience is that I can sell mown grain at as high a price as that which has been shorn, presuming the quality to have been equal when growing. With respect to the latter objection, I have to observe that were the weeds not cleared from the ground along with the crop, the seeds would shake and grow in the soil, so that nothing would be gained by that mode; but as the seeds of weeds generally come from the threshing machine along with the grain, they can be burned up after being separated by the winnowing-machine, which would obviate that objection also. Notwithstanding what I have said in favour of mowing standing crops, there are cases where shearing would be found advantageous, as will be found this year, as the crops are so much lodged by the continual rains; and by the use of the sickle crops of this description may be reaped with less loss than by the scythe. I have now to observe, in conclusion, that by mowing the various grain crops there is a saving in the expense of at least 5*s.* per acre; and where straw is valuable the increased quantity may be taken at 10*s.* per acre, or where only available to convert into manure, at 3*s.* per acre, which would be a saving of from 8*s.* to 15*s.* per acre—an item of great importance to the farmer. I have also attempted to show that the quality of the grain is not deteriorated by taking the precautions I have named; and that I am of opinion there is a considerable advantage to the farmer by adopting that mode of reaping without which the grain crops of the kingdom could not be cut down before the best of the corn had been shaken out by the wind."

Mr. Scholey agreed with the former speaker that in dry weather the scythe would have the advantage over the sickle. He believed they were getting more acquainted with the scythe, and that it would come into more general use than the sickle. During an inclement season they ought to take the most speedy means to get the work done; and there was no doubt that more work could be done with the scythe. The scythe he used was the common one; he preferred that to the one with the bow. For his part, if he had a quantity of grain that wanted cutting, he would use the scythe, for he would get a greater amount of work done. He believed that a man accustomed to cut corn with a scythe would do it better with one without the bow.

Mr. Johnson was an advocate for mowing instead of shearing. When it was a thin crop it was much better to mow than to shear. Flour used for manufacturing purposes might be preferred harvested with the sickle; but upon the whole he thought mowing the best. When being cut down with the scythe it was raised partially up again, the wind could get better through it, and it saved more stubble. He thought sufficient attention was not paid to raking. He thought the raking ought to be done every morning; but when the corn was mowed the raking was generally got altogether. When the corn lay very close and hard, as when cut by the sickle, it did not dry soon. Certainly corn cut by the sickle had the neatest look—mowing generally looked rather slovenly; but, notwithstanding, he would rather have the corn mown than sheared.

Mr. Nicholson said he had mown some 10 or 12 years; but he considered it impossible to mow some crops, and in others there were a great many of the ears cut off. Sometimes after mowing a strong lot it would be found that they had a short yield. He believed it took more power to mow with the long-bladed scythe. When the corn was standing he believed the use of the scythe was better than where it was laid; the ears were not so liable to be cut off. His plan was when he had any strong Wheat he had it shorn, but upon the whole he preferred mowing to shearing. He thought it possible to mow a strong crop of corn, but it must be with the short-bladed scythe. When he farmed in the south of England he had had the corn "fagged." It was not a sickle, but a heavy and wide-bladed hook that was used; it was struck into the standing corn, and very good work it made. The farmers of the south of England prefer "fagging" to any other method. The cost was less than it would be by shearing. Strong crops he sheared, and others he mowed.

Mr. Tweedale declared in favour of mowing. He believed there was more straw got by mowing, and that was of consequence when the straw had to be saved for cattle. When the corn was mown the wind got through it sooner, and it was ready in one half the time than when shorn, and by getting all the rakings together what was withered was seen, and the sample of corn was not spoiled. By mowing finer samples of Wheat were produced. Mr. Tweedale said he could not get his men to use the Aberdeen scythe; but he had been told that there were men who could mow with it much easier than with the common scythe.

The Chairman said mowing did not look neat. But they might have neatness without economy. Certainly, as far as economy went, mowing was the best. He thought a short-bladed scythe better than a long one. He did not think the one with the bow and cradle did the work well. It seemed out of the question that it should throw the corn; it wanted something else to assist. He granted the wind would blow through it better; but then it could not be bound up so tight. Upon the whole he thought mowing the best principle. He considered the Aberdeen scythe would do the work better than any other. Many men preferred having a long pull, which counterbalances the weight of the blade; but mowing with the short blade did not require such a great swing. Work-people, however, had a prejudice against any new invention.

Calendar of Operations.

JULY.

Appearance of the Crops.

Berkshire.—The present appearance of the growing crops in this neighbourhood is good. Wheat, Oats, and Barley all promise to be above an average. Beans and Peas about an average. The Turnips, Swedes, and Mangels are a regular plant and look healthy. Potatoes are free from disease and prolific. *John Adnams, Thatcham, Newbury, July* 25.

Devonshire.—All grain crops—Wheat, Barley, and Oats—in this neighbourhood promise well, at least a full average; some little damage may have arisen to Wheat in very exposed situations from a heavy storm of wind about a fortnight ago; but that seems partial. Hay is a good crop, and much was saved in capital condition, though along our hill sides there are considerable quantities not yet cut, as the whole of this month has been very uncertain for haymaking. I apprehend there is a prospect of Mangel being a good crop. Turnips are not promising; flea, wireworm, and weather have all been against them, and many have been put in too late. Potatoes begin to show disease in the leaf, though as yet the tubers do not seem to be affected. *John Benson, Tavistock.*

Essex.—I have sent you a report of the crops in my immediate neighbourhood. The Wheat I think is more than an average crop, and is dying off of a good colour, and will be ready to begin harvesting in 10 days. The Barley is an average crop, not more than two-thirds the usual acreage sown. The Oats upon the mixed soils are good, upon the heavy lands very moderate. The Beans and Peas are a great crop, and are very healthy at this time. Potatoes I have heard no complaint of. The hay crop is very large, and for the most part well got in. Swede Turnips are very bad; I have ploughed up 40 acres, and sown the land with white Turnips. Mangel Wurzel is very good. *Wm. Hutley, Witham, July* 25.

Glamorganshire.—I beg to inform you that the crops of corn are all looking very well, but not so heavy as I have seen them in this part of the country. The harvest, under any circumstances, cannot commence before the middle of August. I see a great deal of smut in the Barley and Oats. No disease as yet in the Potatoes. *J. Burnell, Llanelly, July* 26.

Gloucestershire.—Wheat, average; Barley, good; Oats, average; Beans, good; Peas, very good; Potatoes, very good; Mangel Wurzel, very good; Swedes, good. Harvest general, about 18th of August. *Josiah Hunt, Almondsbury, July* 28.——Hay and Clover better than I remember, with splendid weather to secure them; Mangel good; Swedes and Turnips backward, having in many instances suffered from the fly—now doing well;

Beans very good; Barley, of which the breadth sown is unusually small, a very heavy crop; and Wheat (as extensively planted as Barley is the reverse) promising at least a full average crop: with a continuance of dry weather it will certainly exceed an average; Oats and Peas can scarcely be said to be grown in this neighbourhood. The healthy state of all crops, combined with the abundance of food for cattle of all kinds, will, should we be blessed with favourable weather for the harvest, mark 1856 as one of the most propitious seasons we have known. *C. Randell, Chadbury, Evesham, July* 28.

Huntingdonshire.—The crops in this county promise to be a full average. Wheat has improved much since it came into ear, and Barley on the well-drained and well-farmed land is a good crop. Beans and Peas generally are very fine. Turnips have been sown two or three times, from the ravages of the fly, and are within the possibility of being a crop, but the chances at present are decidedly against them. Potatoes are splendid. With average weather we may expect general harvest by the middle of August. *Brampton, Huntingdon, July* 25.

Leicestershire.—The Wheat is an average crop; Barley, light; Oats, average crop; Beans, good; Potatoes, promising; hay and seed crops, very good; Turnip and other root crops are looking well. The Wheat, where thin, is a good deal storm broken (not laid); Oats and Barley are unusually thin, but being all standing, and the ears pretty good, we think they will prove an average crop. Harvest will not be general here until the end of August. *Edw. Darby, Greetham, Horncastle, July* 28.—Wheat, good but blackened; Barley, very good; Oats, good; Beans, remarkably good; Potatoes, pretty good; Turnips, average; Hay, heavy crop. *T. Spencer, Knossington, Oakham, July* 28.

Lincolnshire Fens.—A few partial showers have been of service to the corn, which is now ripening fast, many pieces of Barley being nearly ready for the scythe, and a good deal of Wheat has assumed a bright yellow tint. The Wheat is generally thin of plant, but the extremely favourable weather we have had has filled the ears with weighty kernels, so that we may expect an average yield of unusually good quality. The Barley crop promises well, excepting upon very thin soils, where the dry hot weather induced it to ripen prematurely. Oats are also good, excepting in the fens, where they suffered much from the spring frosts. Beans and Peas will turn out productive. Potatoes will not be a heavy crop. Harvest is expected to be general about the 11th of August. *John Whitwell, Peterborough.*

Norfolk.—The Wheats in this district, which promised a fortnight since to be a very fine crop, have been seriously injured by the Wheat midge; scarcely an ear can be found but what is more or less affected. It would be difficult to form an estimate of the damage, but I fear along the sea coast we have suffered to the extent of one-fourth or one-fifth of the whole crop, many of the ears on one side being completely destroyed. A much greater breadth of Wheat is however sown than usual, and the deficiency of yield will probably be counterbalanced by the extra number of acres. Barley and Oats promise to be a fair crop, but a less acreage sown than usual. Harvest will be ready in about three weeks or a month from this date. Our hay crop was pretty good, and most of it secured in fine condition. The Turnips have suffered from the fly, but not to injure the crop materially. They are now attacked by the black caterpillar, and whole fields are completely stripped of their leaves. *R. Cubitt, Bacton Abbey, North Walsham, July* 25.—Wheats are looking well; Barleys stout, and a heavy crop; Oats, the same; Potatoes, at present free from disease; Beets, doing uncommonly well; Turnips, very indifferent, having suffered much from the fly, and are now in some places from the canker.—*Rougham, July* 28.

Wester Ross, *July* 28.—After an unusually protracted rainy season we have now had a week of dry breezy weather, advantageous alike to grain and green crops, and fortunately these fine days came when most needed, so that we hope the blooming season has been got over without much damage. The greater part of the Wheat that was laid has got up again, and should the weather now continue dry less loss might be sustained than was some time ago anticipated. The small proportion of Barley this year sown has also a promising appearance, and although some of it be now laid that has not yet reached its full length, there is not the same danger of its filling as there is of Wheat. From its scarcity it will in all likelihood be dearer comparatively than it has been for many years. Oats, although by no means too heavy, are looking well also. Beans and Peas have quite a luxuriant appearance. Never perhaps in this quarter was the farmer's prospect of an abundant crop better than at this moment. The few dry days we have had have been taken advantage of for cutting and securing the hay crop, and much has been accomplished. The earliest of it has been carted home in safety, the greater part of it remains in cocks in the fields, and seldom have we seen the fields more thickly studded with them. Green crops of all descriptions have been making satisfactory progress, and as Turnips have got a fair start we look for an abundant crop. Docks and Thistles by dykesides and hedges have been demanding attention, for, forget to grow what may, these certainly never do. For some time we have been busily occupied, hoe in hand, and will be similarly engaged for a few weeks to come. Our men and horses are busy collecting all the manure we can get for love or money, for next year's Wheat crop, as our desire is that never, in any coming year, should we have a crop lighter than that under which the fields now groan. For some time the price of cattle has been a shade lower, from the fears that were entertained of the rain damaging the Turnip crop. Dry weather has seldom been more needed.

Worcestershire.—Wheat on the gravel and loamy soils very good; on the clay and also on the very light land thin of plant, and by no means so good as last year; but I hope on the whole we shall come near, if not quite, an average. Barley on the real Barley soils very good; but on the clays and mixed soils very bad indeed; the cold and wet in May took such an effect on it that it never recovered. Beans and Peas good. Oats, fair crop. Swedes and Mangels good. Potatoes moderate, some disease appearing. Hay crop great and never got better. Fruit little or none. *F. Woodward, Pershore, July* 25.

Yorkshire.—So far as my observation enables me to report, the crops in this neighbourhood may be thus classed:—Wheat looks healthy, with a good ear, but generally thin on the ground; a heavy thick crop quite the exception; a very small proportion of lodged up to this date. When earing the white Wheats were very full of black (or slane ears). The Wheat crop upon the lighter soils is very full of red Poppies. Barley a good crop, a good deal lodged by the late rains, had a great many black ears among it. A small amount grown. Oats partially good, and very bad. Beans a splendid crop, and well podded. Turnips and Mangels very promising. Hay crop large and generally well secured. Potatoes not very vigorous, but no appearance of disease. The weather showery, but still very fine. *P. Stevenson, Bainton, near Thirsk, July* 29.

Notices to Correspondents.

Agricultural Statistics: *Clitheroe.* We have been unable to ascertain the date. Can any one say by whom the machinery of the Poor-law establishment was first suggested as the best agency for the collection of national agricultural statistics?

Canons: *Correspondent.* We shall perhaps be able to answer you next week. A small tract, of which we have not a copy, was published on the subject several years ago by a Portuguese gentleman, since deceased, who then contributed articles on Poultry Management to our columns.

Tolls for Manure: *F H S* They cannot be legally demanded. In practice great difficulty arises from the want of a satisfactory definition of manure. A variety of decisions have accordingly been made by magistrates as to the liability of different substances to toll. Sand at a recent Petty Sessions at Weston-super-Mare has been held to be exempt.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS and SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

Illustrated Price Lists forwarded on application.

N.B. A. Shanks & Son finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. Shanks & Son also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

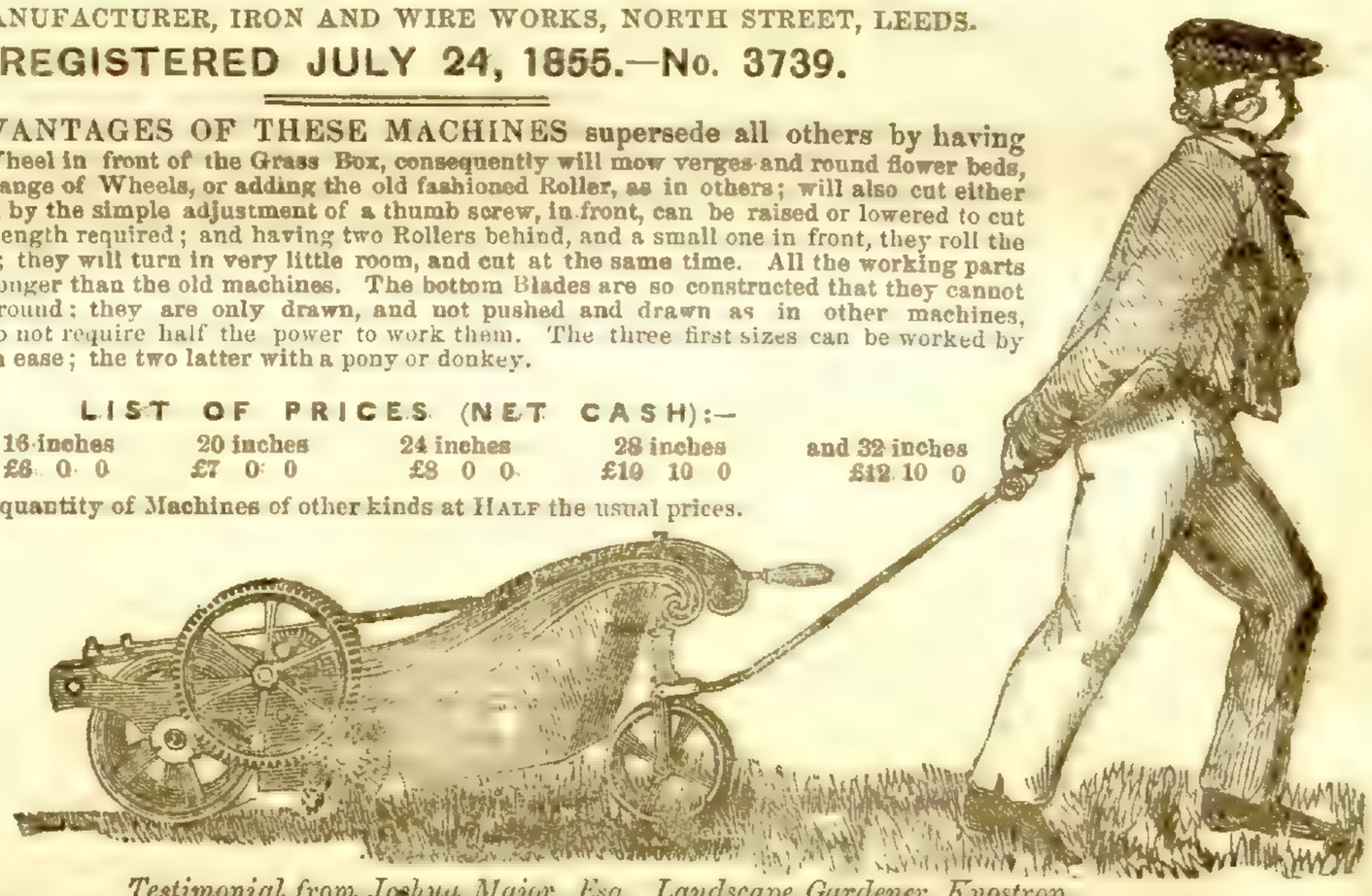
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at Half the usual prices.



Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

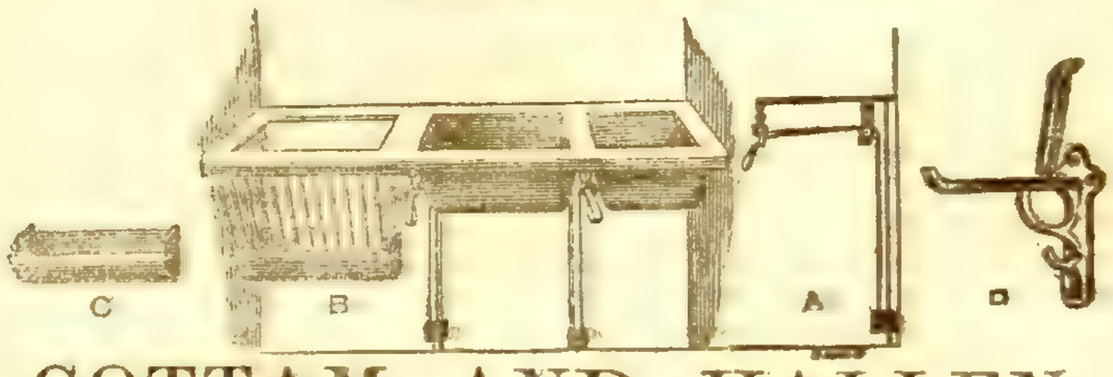
To Mr. Green, Leeds.—Sir, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, Joshua Major.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. Charles Garrood, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

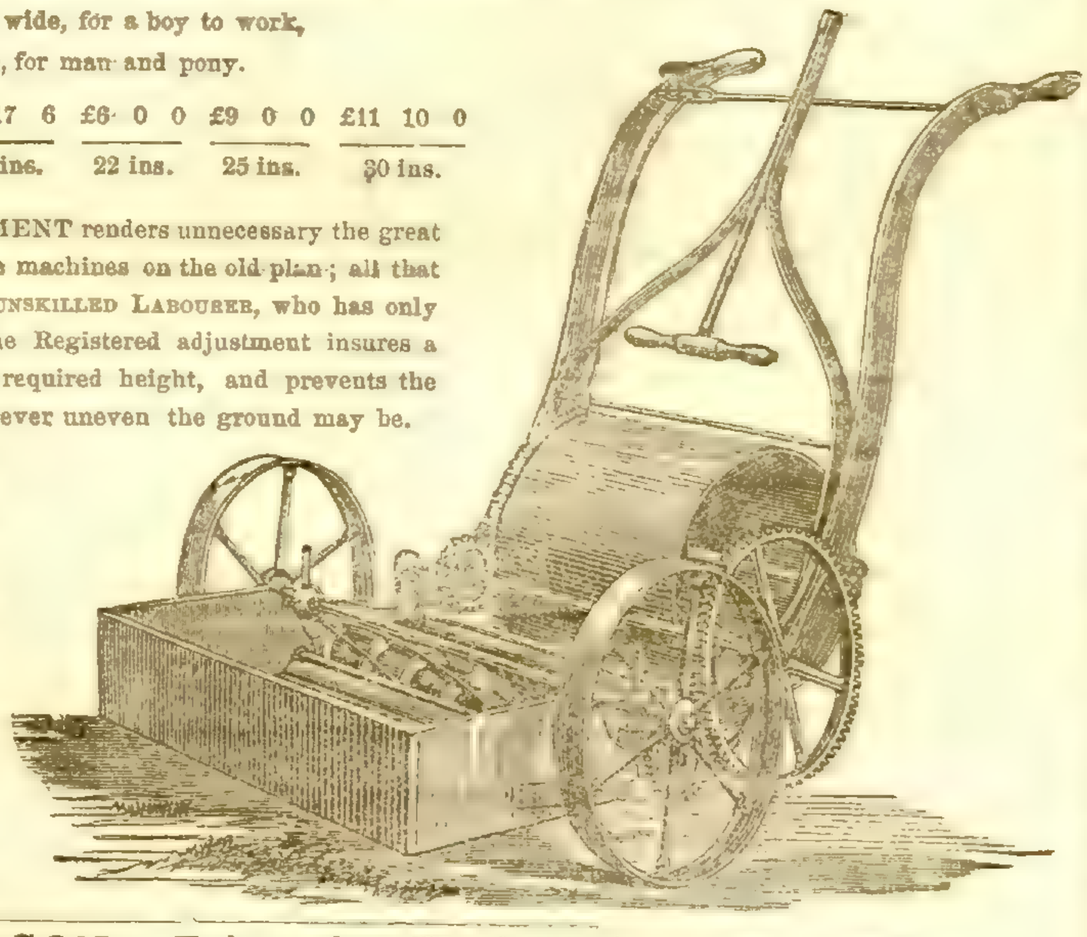
WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

ROYAL AGRICULTURAL SOCIETY'S SHOW AT CHELMSFORD.—STAND No. 19.

B. SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 15 0	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



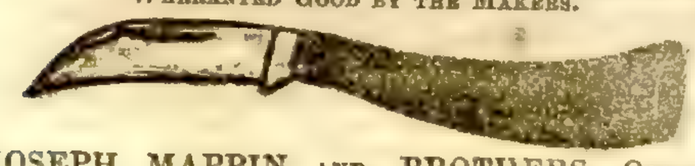
THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury; and STAND No. 19, Royal Agricultural Society at Chelmsford.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.



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Drawings forwarded by post.

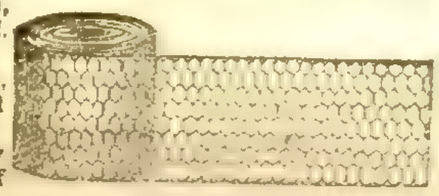
H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



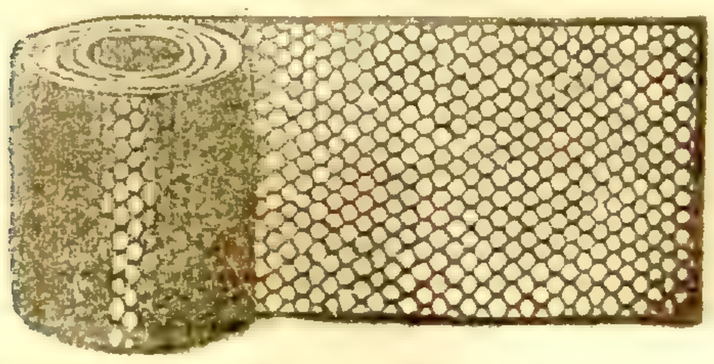
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4½ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5½ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

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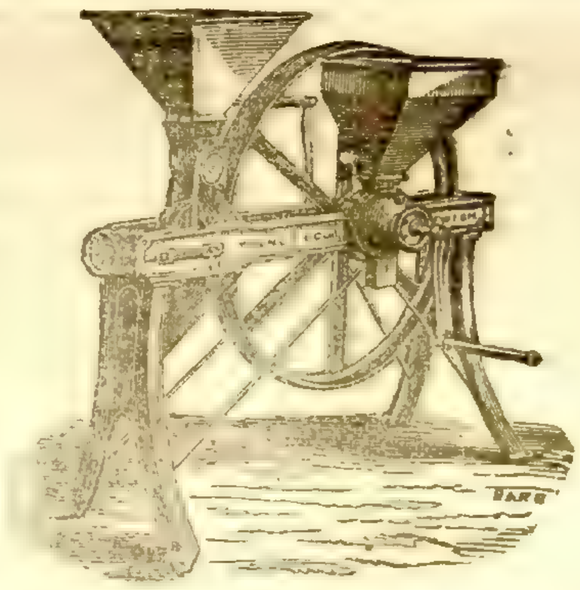

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11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	14	0
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...		
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...		
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...	16	0
18 „ 12,	19 „ 12 ...	...	... ...		
16 „ 13,	17 „ 13,	18 „ 13 ...	... ...	18	0
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...		
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...	18	0
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...		

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8½ „ 6½	„ 9	„ 7	...	...	13	6
9½ „ 7½	„ 10	„ 8	...	...	13	6
10½ „ 8½	„ 11	„ 9	...	...	14	0
12 „ 9	„ 13	„ 9	...	...	14	0
10 „ 10	„ 10½	„ 10½	...	...	14	0
11 „ 10	„ 11½	„ 10½	...	...	14	0
11 „ 11	„ 11½	„ 11½	...	...	14	0
12 „ 11	„ 12½	„ 11½	...	...	14	0
13 „ 11	„ 13½	„ 11½	...	...	14	0
13 „ 12	„ 13½	„ 12½	...	...	16	0
13½ „ 13½	„ 14½	„ 13½	...	...	16	0
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Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED to THE EDITOR.—SATURDAY August 2, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 32.—1856.] SATURDAY, AUGUST 9. {Price Fivepence. Stamped Edition, 6*d*.

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SEAHAM HARBOUR FLORAL SHOW.—The FLOWER SHOW advertised to take place on the 14th inst. at Seaham Harbour will not take place till THURSDAY, the 28th of August. Full information respecting the Show, together with a List of the prizes, which will consist of Silver Cups, Electroplate and Glass Vases, and Money Prizes, to the aggregate value of 50*l*., may be obtained by application to the Secretary, Mr. H. W. Smith, Seaham Harbour.—August 9.

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*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

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J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, August 9.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

TULIP CATALOGUE.
CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.
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Now ready, very choice CINERARIA, 2*s*. 6*d*. per packet.
very choice CALCEOLARIA, 2*s*. 6*d*. „
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P.S. Stamps taken in payment for the seeds.

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Saffron Walden Nursery.

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Twenty	£0 12 0	Eighty	£2 1 6
Forty	1 2 0	Hundred	2 8 0
Sixty	1 12 0		

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HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... 4*s*. 9*d*. each.
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GARDEN CHRONICLE NEWSPAPER

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Warranted Good by the Makers.

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(Fig. 1.)

(Fig. 2.)

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No. 1 holds 10 gallons,	throws 30 feet high	...	£4	10
No. 2 „ 15 „	„ 45 „	...	5	10
No. 3 „ 28 „	„ 45 „	...	6	18

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No. 10 holds 8 gallons,	throws 25 feet high	...	£2	15
No. 13 „ 12 „	„ 30 „	...	3	5
No. 11 „ 16 „	„ 40 „	...	4	0
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No. 14 „ 30 „	„ 45 „	...	5	18

A large assortment of every description of Garden Syringes Pail Engines, Conservatory Pumps, &c., kept in Stock.

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Read's Syringe, with two roses and one jet, 19*s.*

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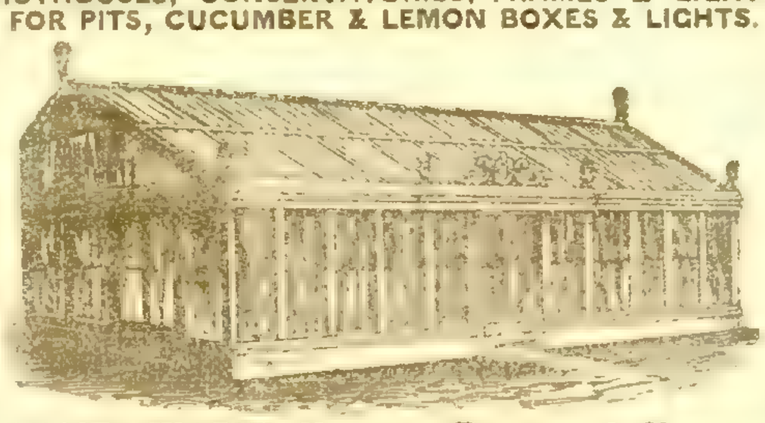

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This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

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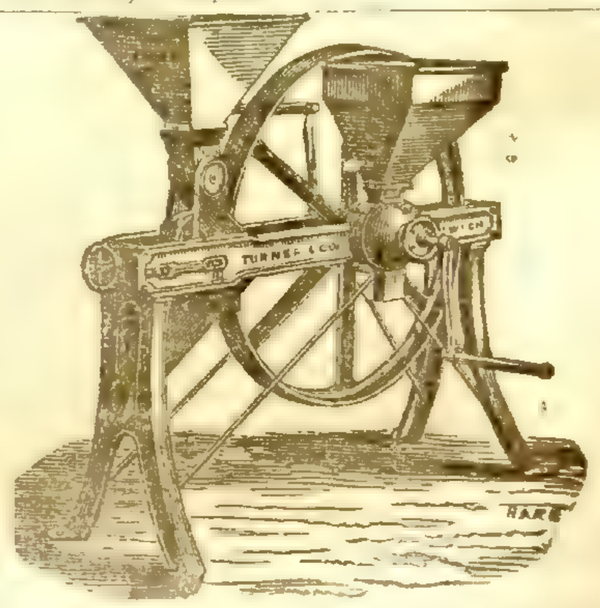

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E. R. & F. Turner, Ipswich.

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MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21s.; six plants, 4l. 10s.; 12 plants, 7l. 10s.—Knap Hill Nursery, Woking, Surrey.

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MITCHELL AND CO., of the Bristol Nurseries, Kemp Town, Brighton, are prepared to supply good strong plants well established in 60-sized pots of the various Novelties of the present season.

HENDERSON'S FUCHSIAS OF 1856.—The collection of eight for 6s.

SMITH'S OF 1856.—General Williams, Admiral Boxer, Conqueror, Gloire de Neisse, Epps' Wonderful; the collection for 5s.

BOUVARDIA LONGIFLORA, the true white flowering variety.—Too much cannot be said in praise of this beautiful plant. Our stock is one of the largest in the trade, which enables us to offer at 12s. per dozen. Trade price on application.

VERBENAS.—Henderson's Collection of 1856, 4s. per dozen, well established in 60-sized pots.

Smith's and Turner's varieties of 1856, 6s. per dozen, ditto.

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CAMELLIAS.—Well set with flower buds, our splendid collection stands unrivalled; we offer good bushy well-grown plants from 15 to 18 inches high, 21s. per dozen; from 18 to 24 inches high, 30s.; from 24 to 30 inches, 42s. per dozen.

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WHITE FAIRY ROSE—M. & Co. possess a large stock of this useful plant, which is well adapted for winter flowering; good plants, 9s. per dozen.

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Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

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The Gardeners' Chronicle.

SATURDAY, AUGUST 9, 1856.

A CURIOUS discovery is said to have been made by a French gentleman whose garden was most inconveniently invaded by ANTS. They swarmed at Rambouillet in his flower baskets and among his flower beds to such a degree that it was impossible to attack them with boiling water without killing the plants. M. DU RIBERT therefore took another course. After stirring well up the ant heaps and removing the "eggs" he scattered over them a few handfuls of guano; and with such success, as he states, that his whole garden was presently cleared.

This gentleman regards guano as an ant poison, and he declares it to be his conviction that under all circumstances its action will be the same. He found it useful to water the guano slightly after having applied it, but it does not appear that this was of so much consequence to the ants as to the plants.

In order to test this statement we have made a few experiments with the following results:—

1. A nest of the small black ant, formed among a tuft of Aubrietia, was well stirred up, and the eggs exposed. A small handful of guano having been scattered over it, the ants were immediately thrown into confusion, the business of removing the eggs came to a stand still, and by degrees the ants disappeared. Water was added, and the nest once more stirred up. At noon next day the eggs were found deserted, and the ants were gone.

2. The same with a smaller nest in the hard dry clay of a lawn. Same result.

3. A large hill of the small red ant, very strongly entrenched among *Sedum populifolium*, was disturbed, and a handful of guano thrown over it; astonishment, commotion, confusion, scamper, helter skelter, immediately ensued; eggs again abandoned; the army of ants quickly disappeared. A pan was then half filled with earth from the same ant hill, mixed with a swarm of ants and numberless eggs; guano being applied the result was similar. The eggs were instantly abandoned, and the ants endeavoured to escape. Water was added; and the earth and guano mixed with a trowel. Next day at noon there was no trace of life in the mixture. The eggs were untouched and becoming brown. Whether the ants had escaped or run away could not be ascertained.

4. At 3 P. M. a pint wide-mouthed clear glass bottle was filled with some hundreds of red ants, eggs, and the earth from another hill; guano was added, muslin was tied over the mouth of the bottle, and the proceedings watched. As before, the eggs were abandoned, and the ants ran rapidly backwards and forwards as if in much distress. The winged ones behaved like the others, making no attempt to fly away. The bottle was left all night in a warm room. At this moment, 10 A.M., the ground is strewed with ants motionless and apparently dead; the eggs remain mixed confusedly with the earth, without an attempt having been made by the insects to collect them. One winged and four wingless ants are crawling over the surface. Beyond this no signs of life are apparent.

Hence it seems that guano is fatal to the vitality of ants. How does it act? In the samples of guano employed the smell of ammonia was inconsiderable, owing to long keeping.

IF we were to tell some of our gardening friends that the difference between a PEACH and a NECTARINE is little more than that which distinguishes a person with a Crimean beard from one to whom Nature has denied such an appendage, they would probably doubt the correctness of our statement, and be apt to infer from it that we knew little or nothing about the matter. But however incredible it may seem, the fact is no less certain that the Peach and the Nectarine are only varieties of one another, and were it possible to trace their origin we should very likely find that they themselves were merely different forms of the Sweet Almond improved by cultivation and the art of man. The late Mr. KNIGHT, the distinguished President of the Horticultural Society, entertained the notion that the Common Almond and the Peach constituted only a single species, and that the Almond might by proper culture through many successive generations be ultimately converted into a Peach or Nectarine. So impressed was he with this idea that he determined to ascertain by actual experiment how far his opinion was borne out by facts. Accordingly he fertilised a Sweet Almond with the pollen of a Peach, and the result was a variety which produced fruit that retained the form and character of the Peach in every respect, with flesh perfectly soft and melting. (Trans. of Hort. Soc., Vol. iii., p. 1.) From this it would appear as if we were justified in the conclusion that the Almond bears about the same relation to the Peach that the Crab bears to the cultivated Apple.

In the first volume of the Transactions of the Horticultural Society several instances are recorded of Nectarines having been produced on Peach trees, showing in a striking manner how closely the two kinds of fruit are allied. The earliest notice we have of this remarkable freak of Nature is contained in a letter from PETER COLLINSON to the great LINNÆUS, dated April 3, 1741. He says, "Lord WILMINGTON has a tree that produces Nectarines and Peaches without any art, but quite accidentally. The fruit does not mix together, but complete Peaches and Nectarines, both distinct, are on the same tree." (Corresp. of LINNÆUS, vol. i., p. 7.)

We have ourselves witnessed some curious sports of this kind. We once saw at Carclew, in Cornwall, a fruit on a Nectarine tree that was half a Peach and half a Nectarine—that is to say, one side had the velvety coating of the Peach, while the other was perfectly smooth and shining like the Nectarine. The tree was raised from the stone about 20 years ago, and was never worked. It still exists, and is a delicious little early Nectarine deserving of being better known. On another occasion this identical tree produced a perfect Peach, a circumstance we believe to be of rare occurrence—the sport which is more frequently met with being that of a Peach tree producing a Nectarine. A beautiful example of this sort of transformation was lately communicated to us by JOHN HENRY LANCE, Esq., of the Holm Wood, Dorking. It was on the branch of a Têton de Vénus Peach, which contained a perfect fruit of that variety so remarkable for its prominent point, and a Nectarine rather smaller but well formed and quite round. It agreed so well in almost every particular with a similar production described in one of COLLINSON's letters to LINNÆUS, dated Sept. 25, 1766, and published in the work already mentioned, that we think our readers will excuse us for making the following extract. "Some time ago," writes Mr. COLLINSON, "I saw what I think a surprising curiosity. On a large Peach tree full of fruit there was a branch which on one side had a Peach and on the other side a Nectarine. They grew so close together that they touched each other. I stood long with admiration viewing this wonder. The Nectarine had the shining smooth surface with a red complexion, the Peach was rough and downy as Peaches are. We have had two more remarkable instances of Peach trees naturally and without art producing Nectarines; so I reasonably conclude the Peach is the mother of the Nectarine. Where this *lusus naturæ* has happened, ingenious men have improved the accident by budding or with grafting from the Nectarine branch; and thus the race of Nectarines began."

Here a wide field opens up for inquiry. We know nothing for certain about the origin of the Nectarine, and although it is possible to have been obtained by budding in the way suggested above, still we think if the Peach and Nectarine are as closely related as we consider them to be, it is

quite as likely that the Nectarine may have come from the stone of an Almond or Peach, which would be no more wonderful than that the Ribston Pippin should have sprung from a Crab or some other variety of Apple. On this subject, however, facts are thought to be wanting, and we are curious to know whether there are any recent well authenticated instances of a Nectarine having been raised from the stone of a Peach—or a Peach from the stone of a Nectarine. *B.*

New evidence upon this subject has become the more interesting now that our learned friend M. Alphonse De Candolle has declared himself in favour of the specific diversity, not only of the Peach and the Almond, but even of the Nectarine itself. To the cases already on record of Nectarines being raised from Peach stones, such as the Boston Nectarine, and Mr. Calver's Peaches and Nectarines borne on the same seedling tree, M. De Candolle objects that such instances rest upon the recollections of gardeners, and not upon direct experiment carefully recorded. And he suggests that the trees which sport into Nectarines from Peaches may be hybrids between the Peach and the Nectarine, with the same tendency to throw sometimes one sort sometimes the other as happens in the common Cytisus Adami, which sometimes bears the flowers of the Laburnum, sometimes of the purple Cytisus, and sometimes of its own intermediate breed.

This is evidently mere hypothesis; and it is also to be remarked that neither in the case of the Peach nor the Nectarine can any proof be adduced that they are found in a wild state. It does not indeed appear certain that Nectarines were known before the Middle Ages, when they were called *Nucipersica*, because of their resemblance to the fruit of the Nux or Walnut, whence came the modern Italian name *Pescanoce;* for M. De Candolle regards it as extremely questionable whether the Tuberes of the Romans were Nectarines, as some have thought. Then as to the Peach itself, after examining critically all known authorities which treat of supposed wild Peaches, M. De Candolle is driven to the conjecture that the native country of that fruit must be the North of China; which strikes us as seeking to pass from the known to the unknown. A more probable locality seems to be that mentioned by Pallas, who says that he found on the banks of the Terek apparently wild Peaches, of small stature, bearing velvety, austere fruits of little succulence, and not bigger than a Walnut, which the natives called *Scheptala.* (Dr. Royle says that *Shuft-aloo* is the Persian name of the Nectarine.) Pallas' account reads so like a description of Almonds in a state of transition into Peaches that we should so interpret his evidence; and we own ourselves wholly unable to believe that the Peach has had any other origin. It is clear that the Almond has a great tendency to vary, as is proved by its varieties being sweet or bitter, hard-shelled or soft-shelled, and so on. It is also known that these peculiarities have now become so hereditary and fixed that the seeds of the Sweet Almond regularly produce Sweet Almonds, &c. This fruit then has—1, a tendency to vary; and 2, the power to perpetuate its varieties by seed. That being so, the difficulty of understanding how a Peach can have been derived from the Almond by successive changes in the course of ages seems to vanish. Some Peaches indeed of the clingstone race are, in a bad climate, little better than Almonds even now; the Italian *melocotons*, for example, which in this country are uneatable, although they acquire a tolerable degree of flavour and succulence in the hot climate of the Mediterranean. If we might be permitted to speculate upon this curious subject, we should say that the changes undergone by the Almond must have been of this kind:—

1. Almond became more fleshy=Bad clingstone.
2. Bad clingstone became more fleshy=Good clingstone.
3. Good clingstone became more pulpy=Our soft Peaches.
4. Soft Peach sported, receding towards the original fleshy type and lost its wool=Nectarine.

There is nothing more improbable in this than what we know must have occurred in the production of Cauliflowers from the wild Cabbage of our English coast, or of Muscat Grapes from the small-fruited wild Vine of Baidar, or of Wheat from Ægilops, which last case we presume may now be regarded as beyond reasonable contradiction.

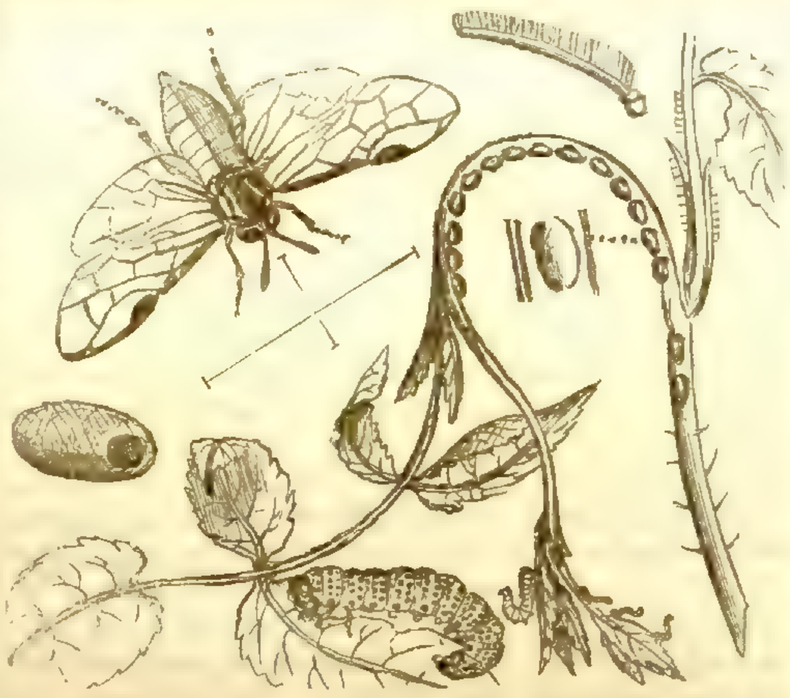
While the news from Portugal tells us that the Vine Mildew is producing more mischief than ever, and that from Spain is not much better, it is satisfactory to find that in central Europe it is beginning to disappear. We had already heard that the "Currant" crop of the Ionian Islands was recovering, and we now see that Tuscany is materially improved. According to Baron Mortemart de Boisse the disease had begun last year to exhibit unmistakable signs of disappearing, and he now reports it to have almost wholly ceased in the greater part of Tuscany. The vales of Arno, Chiuno, Serchio, and the slopes of Pietra-Santino now exhibit few traces of its presence. The leaves are not now in a sickly state, the white efflorescence is gone, there is no longer any offensive smell; all that remains is but a sort of languid vegetation. From the vast plain which commences at the lake of Porto, on the Modenese frontier, as far as Maremmes, the same happy change has manifested itself, especially on the hill sides where the cure first began to be perceptible.

On the other hand we learn from M. Montagne that near Montpellier a new disease has declared itself, and with such intensity as to threaten the loss of a third or even half the crop. This new affection, called *Anthrachnosis*, broke out between the 5th and 15th of June, and is described as a sort of smut (charbon). It is said to be caused by the action of cold dew and fogs followed by a hot sun. The same affection is reported to have appeared near Bordeaux.

ENTOMOLOGY.

Rose Sawfly Larvæ.

A week's absence from home during this hot weather has allowed the development of great numbers of the larvæ of the Rose sawfly, Hylotoma Rosæ, described in a leading article of this Journal on the 19th ult. Under these circumstances, supposing others will be suffering equally with myself from this cause. I have thought it would be useful to publish a woodcut representing the transformations of the species, which is accordingly here supplied.



The cut represents a young Rose sprig with 16 swellings caused by the deposition of the eggs, an enlarged sketch being given of one of them showing the small dark slit on the upper edge where the egg was inserted; on the end of the twig several of the minute larvæ are feeding together with one nearly fullgrown, all of the natural size. At the left hand side is one of the cocoons with the circular hole made by the perfect insect in effecting its escape. The fly represented magnified is a female, distinguished by the thickened antennæ, the natural size represented by the crossed lines. In the upper part of the cut one of the fringed antennæ of the male is given. *J. O. W.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. V.

By the Rev. J. S. Henslow, M.A., Rector of Hitcham, Suffolk.

[Suggestion to the Editor.—Any of your readers desirous of instituting practical lessons of the description here recommended can refer to such elementary works as your School Botany, &c., for figures of the plants I propose noticing. Still I would suggest your inserting a few of your woodcuts as I proceed, since they will tend to make the articles more generally useful.] With this suggestion we have endeavoured to comply.

Flowers.—Our vulgar notions do not qualify us for recognizing either roots, stems, branches, leaves, flowers, fruits, or seeds, under the forms they assume in certain plants. As the parts of flowers are most important in systematic botany I begin by describing these.

So far as local opportunities and the seasons may permit, a teacher may commence with flowers possessing a general resemblance to such as I shall presently notice, and he should introduce them (as nearly as possible) to his class in the order in which they are here described. This will assist in preventing a confusion of ideas not unfrequent in beginners as to the limitation of some of the terms employed.

N.B. After a lesson, the beginner may be required to detach for himself one part of each floral whorl, place it on a slate or paper, and write its name under it, stating also the number of such parts in the whorl to which it belongs.

The morphological considerations to which allusion will be made under the heads of a few N.B. may be omitted at first. When the technical terms have become a little familiar, and their application understood, it will be advisable to show the difference between their merely descriptive uses, and their higher significance in relation to structure. Ex. gr. When petals are described as "inserted on the calyx," the fact involved is the partial adhesion of two whorls of the perianth, leading possibly to the conclusion that in certain cases the perianth essentially consists of corolla and calyx combined.

Example 1. White Lily (*Lilium candidum*).

This is well adapted, from its size, for showing the "essential parts" (*pistils and stamens*) of flowers, in contrast with the "perianth" surrounding them.

The Pistil

Pistil.—A green column in the centre is called a "pistil." The upper extremity of this is its "stigma." The lower portion (which contains three cells or cavities) is its "ovary." On cutting the ovary transversely (*directly across*), a set of small flattish bodies are seen attached along the inner angle of each cell. These are the "ovules," destined to become "seeds." The long solid portion of the pistil between the ovary and stigma is its "style."

N.B. In some plants the pistil has no style, and then the stigma is seated immediately on the ovary, and is said to be "sessile." In others the style is relatively very long compared with the ovary.

Stamen.—At regular distances round the pistil are ranged six "stamens," each of which consists of two parts. The lower portion forms a sort of narrow stalk or support to the upper, and is called a "filament." The upper portion is an "anther," composed of two long cells filled with a very fine powder, the "pollen." When the anther is ripe, the two cells burst by a slit which opens longitudinally (*lengthwise*) down the middle of each, and the pollen escapes.

N.B. In some plants there is no filament to the stamens, and the anthers are then "sessile."

Perianth.—Six "leaves" of rather fleshy consistency and pure white, are placed at equal distances around the stamens, and form the outermost parts of the flower. Collectively these leaves are called the "perianth."

Floral whorls.—Like parts disposed in a circle (or nearly so) constitute a "floral whorl." In the Lily, therefore, we have three such, reckoning from within outwards. These are—1st, a pistil; 2d, six stamens; 3d, six leaves. Close inspection will show the leaves of the perianth to be ranged in two whorls of three leaves each; those in the inner whorl alternating (*lying between*) in position with those of the outer. The six stamens are similarly disposed in two whorls. The three outermost are opposite the outermost leaves of the perianth, and the three innermost opposite the inner three.

N.B. The three cells of the ovary indicate the pistil to be formed of three parts (*carpels*) combined. We may therefore represent this flower as composed of 15 parts, symmetrically arranged in five circles, each containing three parts alternating with those in contiguous circles. In speaking of the different kinds of floral whorls, those of the same kind are often alluded to collectively as forming a single whorl, without noticing the subordinate whorls of the same series.

N.B. The Common Tulip (*Tulipa Gesneriana*, the Crown-Imperial Fritillary (*Fritillaria imperialis*), and other Lilianths (*Liliaceæ*) offer similar conditions in the structure of their flowers.

Ex. 2. The Wood Anemone (*Anemone nemorosa*).

The innermost floral whorls contain numerous small pistils; numerous stamens surround them, and round these are six leaves forming the perianth.

N.B. Other species of Anemone, common Marsh Marigold (*Caltha palustris*), common Traveller's Joy (*Clematis vitalba*), and others of the same genus have more than one pistil, with numerous stamens, and a variable number of leaves to the perianth.

N.B. When there are more than one pistil in a flower, each is regarded as a separate "carpel," the name given to the subordinate parts composing the innermost kind of floral whorl. In these cases, therefore, the terms pistil and carpel mean the same thing. But in flowers where the carpels are combined or grafted together (as in the Lily), they form the subordinate parts of a single (yet *compound*) pistil. A flower may, therefore, have a single and simple pistil, consisting of only one carpel; a single and compound pistil, consisting of two or more carpels; or it may have two or more simple pistils, each also a single carpel.

Ex. 3. Bulbous Crowfoot (*Ranunculus bulbosus.*)—

Many pistils—many stamens. Perianth composed of 2 kinds of leaves in 2 separate floral whorls of 5 leaves each.

Corolla.—The five inner leaves, of a bright shining yellow, are called "petals" (pronounced *pettals*), and collectively constitute a "corolla," or inner whorl of the perianth. Each has a little scale or gland at its base.

PETAL OF CROWFOOT.

Calyx.—The five outer leaves, of a greenish yellow, alternating with the petals, and differing from them in form, are called "sepals" (pronounced *seppals*). Collectively they constitute a calyx.

N.B. The separation of a perianth into two whorls of different kinds of leaves, is extremely common. In some cases the term perianth is employed where there is only one kind of leaves present, whilst in others, for reasons that will hereafter be mentioned, the term calyx is preferred. But in such cases the term corolla is never employed by modern botanists, though it was formerly used in a vague manner if the perianth happened to be highly coloured.

(*To be continued.*)

BEURRÉ CLAIRGEAU.

(Supplementary notice to that given in the *Gardeners' Chronicle*, 1854, p. 805.)

OF all the varieties of the Pear raised in our time, the Beurré Clairgeau appears to be the hardiest in its bearing. For five years this variety, which first produced fruit in 1846 or 1847, has borne in my garden, not only on the Quince stock as a dwarf Quenouille and pyramid, but also on the Pear stock as a dwarf and tall pyramid. When flowers are seen it is a sure sign that a superabundance of fruit will set. On the Pear stock, it is as a half standard pyramid and with the assistance of a moderate pruning that the finest and best fruit is obtained. Further it is on half standards that the best wood is produced. This variety is not particular as to soil, provided the latter is not too heavy and moist. These facts have been proved in fifty gardens. An affinity is observed between this variety and the Beurré de Capiaumont, the relationship between which and an old variety of the Calebasse form, the one which is hardiest in our climate, is generally admitted. Being in possession of the original tree of the Beurré Clairgeau, and having observed its good properties, in respect to bearing and the beauty of its fruit, I appeal to all amateurs who have possessed trees for three years to make known the results of their experience. Thus in less than ten years we shall obtain one of the most complete and best established monographs which it is possible to have, whilst other meritorious varieties which have been in bearing for a quarter of a century are still without such. *J. De Jonghe, Brussels.*

ON THE HEAT OF THE SOIL:

WITH REFERENCE TO ITS EFFECTS UPON VEGETATION.

(From ALPH. DE CANDOLLE'S Géographie Botanique.)

IT has been shown, both by observation and by experiment, that heat acts locally upon the organs of plants, much more energetically than by transmission from one part to another. The best proof of this is afforded by the fact that if a branch of a tree that is growing in the open air be protected, or introduced into a stove, it will develope its leaves before the other branches do. So also in the Polar regions the warmth of the air causes the plants to leaf and flower when the ground is still extremely cold. Nevertheless, since all plants pump up their sap from the ground, the temperature of the latter is an important element; during great heats it is cooler than the air, during great cold it is warmer, and the more variable a climate is, the greater the importance of this phenomenon to the gardener. The heating or cooling effect of the soil will be most sensibly felt in those organs that are nearest the root, in those to which the sap flows rapidly and copiously, and in those which are bad conductors of heat. Thus the temperature of the interior of the Cocoa-nut probably differs little from that of the earth around its roots, because of the thickness of the husk, which conducts heat badly; whilst on the other hand the young shoots and flowers of trees acquire the temperature of the surrounding air. Plants whose roots penetrate deep into the soil will resist vicissitudes in the temperature of the surrounding air better than those whose roots are superficial, because the temperature of the earth varies less the deeper we penetrate it.

Many interesting observations have been made on the temperature of the soil at various depths, but for our purposes it is sufficient to consider only such as extend to about 3 feet from the surface, for the roots of most plants do not penetrate so deep as that. Those which do are chiefly plants that affect a very light soil, and even great trees have more root-fibres near the surface than at the depth of 3 feet. It matters little to our investigations, that in our temperate climate a stratum of unvarying temperature occurs at from 20 to 30 feet deep, that this stratum is found at 3 feet beneath the surface in some very uniform climates, and at much greater depths in such excessive climates as Siberia. Nor does it concern us that there is a thick stratum of perpetually frozen soil in some countries where the mean temperature is above 32°; we shall consider only the monthly variations of temperature in the upper 3 feet of the soil.

That the temperature of the soil at this depth is less variable than that of the air, is proved by M. Muncke's observations at Heidelberg, which show that the diurnal variations are not propagated beyond 3 feet, nor the monthly variations beyond 5 feet. At Brussels M. Quetelet has shown that the annual variations present the following progressive decrease in descending from the surface of the soil to a depth of $3\frac{1}{4}$ feet:—

Air in the shade at the surface	62°
" at a depth of 8 inches	56°
" " 2 feet	$54\frac{1}{4}$°
" " $2\frac{1}{4}$ feet	$52\frac{1}{2}$°
" " $3\frac{1}{4}$ feet	$51\frac{1}{4}$°

It further took 19 days for the maximum and minimum of the year to penetrate $3\frac{1}{4}$ feet, or in other words the march of the temperature at that depth was 19 days behind what it was at the surface. Professor J. Forbes has shown how much the rapidity of transmission and amount of heat transmitted are modified by the nature of the soil; and that in the case of sand the variation was 3° greater and five days more rapid than in sandstone (terrain de grès). M. Quetelet, on comparing the results obtained on the north and south sides of his observatory, found that the vicissitudes were greatest on the south side, where the thermometers were exposed to the sun and the rain.

The roots of most plants are found within a foot of the surface of the soil, and it is the temperatures at this depth that should be compared with those of the external air. The Brussels observations supply us with the necessary data for every month of the year, and the following table exhibits the differences between two thermometers, one hung in the shade $2\frac{1}{2}$ feet above the surface of the soil, and the other sunk a foot below it—both on the south side of the observatory.

	Degrees.		Degrees.
January	+ $4\frac{1}{4}$	July	— $2\frac{1}{4}$
February	0	August	— $3\frac{1}{2}$
March	— $3\frac{1}{4}$	September	$0\frac{3}{4}$
April	— $4\frac{1}{4}$	October	+ 2
May	— $2\frac{1}{2}$	November	+ 4
June	— $2\frac{1}{2}$	December	+ 4

Mean of the Year	$0\frac{3}{4}$	degrees
Winter	+ $2\frac{3}{4}$	"
Spring	— $3\frac{1}{2}$	"
Summer	— $2\frac{3}{4}$	"
Autumn	+ $1\frac{3}{4}$	"

Comparing in the table of observations taken on the north side of the observatory, the mean temperature of the air at 11 feet above the surface of the soil with that taken at a depth of 8 inches and 1 foot, we find the following differences:

	At 8 ins.	At 1 ft.		At 8 ins.	At 1 ft.
January	+ 2 deg.	+ $3\frac{3}{4}$ deg.	July	— 5 deg.	— $5\frac{1}{2}$ deg.
February	— $0\frac{3}{4}$ "	+ $0\frac{1}{4}$ "	August	— $4\frac{1}{2}$ "	— $4\frac{1}{4}$ "
March	— 2 "	— $1\frac{1}{2}$ "	Sept.	— 3 "	— $1\frac{3}{4}$ "
April	— $2\frac{3}{4}$ "	— $2\frac{1}{4}$ "	October	— $2\frac{3}{4}$ "	+ $0\frac{1}{2}$ "
May	— $4\frac{3}{4}$ "	— $5\frac{1}{4}$ "	Nov.	+ $0\frac{1}{2}$ "	+ $2\frac{1}{2}$ "
June	— $5\frac{1}{2}$ "	— $6\frac{1}{2}$ "	December	+ $1\frac{3}{4}$ "	+ $3\frac{3}{4}$ "

	At 8 ins.	At 1 ft.
Mean of the Year ...	— $2\frac{1}{2}$ deg. ...	— $1\frac{1}{2}$ deg.
Winter	+ 1 " ...	+ $2\frac{1}{2}$ "
Spring	— $3\frac{1}{4}$ " ...	— $3\frac{1}{4}$ "
Summer	— 5 " ...	— $5\frac{1}{4}$ "
Winter	— 1 " ...	+ $1\frac{1}{4}$ "

Hence it appears that from the middle of autumn to the end of winter the temperature of the soil is warmer than that of the air at the mean depth attained by roots; and that, on the contrary, at the season when the plant is at its greatest vigour, it is colder than the air. In the one case the maximum difference between the air and soil occur in January, and in the other case during one of the summer months. In no case does it exceed $6\frac{1}{2}$°. At the end of winter and beginning of autumn periods occur when there is no difference between the temperature of the air and soil. This fact, combined with that of the resuscitation of vegetable life in spring and its withdrawal in autumn, seems to indicate some direct adaptation of the cooler soil to the wants of plants at that season of the year. The difference is always greater in summer than in spring, and vegetation is not then more active than in April or May, in the latitude of Brussels. During winter a difference of 4° or 5° can have but very little influence in diminishing the effects of cold, for the sap scarcely moves at that season, and the effects of conduction from the roots to the branches must be extremely small. It might indeed be neglected altogether were it not that conduction at right angles to the direction of the fibres of the wood being still less than conduction in the direction of their fibres, the joint effect of these causes is that the tree resists the effects of external cold, and receives some little heat from the earth. Under any circumstances, however, in the case of a tall tree, or of long-continued cold, the amount of heat derived from the soil must be absolutely insignificant.

On the other hand, during summer, a mean monthly difference of 5° and even 6° is of considerable importance; and even supposing it to be reduced to half that amount by the time the sap has reached the leaves, it still lowers very sensibly the temperature of the whole plant. This effect is increased by that evaporation from the leaves which results from the descent of the sap during the day, so that the hotter the air is the greater are the resources that the plant finds within itself, and in the earth it grows in, for diminishing the effect of the external heat.

Before, however, abandoning on this account the use of mean temperatures of the air, it is necessary to examine whether the disturbance due to the coolness of the soil in summer varies much in different climates, or whether it varies slightly and according to the local conditions that occur in almost every country, as the mechanical and chemical composition of the soil, &c. In the first case, if proved, all the summer mean temperatures must be modified, and isotheral lines of another kind must be constructed, in order to apply the facts of the temperature to the limits of species and to such phenomena as the flowering and fruiting of trees in different countries. In the second case we must select for comparison plants growing in an average soil possessed of an average amount of conductibility, and compare their vegetation with the temperatures expressed by the common methods.

Comparing thus observations made at Upsala with others at Brussels, at 2 feet depth, it appears (1), that from October to March the earth gives a higher temperature at Upsala than at Brussels; (2), that the months during which the earth is colder than the air are reduced to the three of April, May, and June, instead of the seven from March to September; (3), that during the months when the soil is coolest as compared with the air, the difference is less at Upsala than

at Brussels. Since the months included between April and September are those whose temperature exercises most influence upon the plant, it is less necessary in the latitude of Upsala to correct the mean temperature of the air by that of the soil than it is in the latitude of Brussels.

During the winter the soil is warmer in proportion to the air at Upsala than at Brussels; but during the summer it is colder, amounting to a difference of 9½°, or double what it does at Brussels.

From observations made at Trevandrum (in the Peninsula of India), it appears that in southern regions, where the temperature varies but little, the temperature of the soil at 3¼ feet is always 5° to 7° warmer than that of the air;* a result opposed to all preconceived ideas, for it might be supposed that the rain would cool the soil, either by evaporation or from its temperature being below that of the air, during at least some months of the year.

It is essential to distinguish between the two causes which heat the earth in summer, viz., the temperature of the air and the power of the sun's rays, and the latter will be treated of separately in a forthcoming article. *J. D. H.*

Home Correspondence.

Wellingtonia gigantea.—There must be something wrong in the management of your correspondents who complain that their specimens of this noblest of trees grow spindling, or die in places, or look otherwise badly. It is as hardy as an Oak, and as sturdy. This is my case; in 1854 I received from Messrs. Veitch one of the wee wee plants they were then sending out. In July or August, I forget which, it was planted on a heavy clay lawn, not many feet above the level of the Thames, in a hole containing an inverted garden pot, and filled with burnt clay, bits of charcoal left among the clay while burning, and leaf-mould. Over the bottom of the inverted flower-pot the roots of my Wellingtonia were nicely arranged; so that the stem rested exactly on a few inches of mould lying over the hole in the flower pot. This secured complete drainage. In the winter of 1854-5, the plant was covered with a hand-glass as a protection against accidents, to which its smallness exposed it. Cold evidently did it no harm whatever. In 1855 it grew famously. In the winter of 1855-6 it had no shelter at all, having become big enough to take care of itself. This year it has dashed off once more into wonderful growth; and upon measuring it this morning I find it has the following dimensions. From the ground to the point, 3 ft. 6 in.; from tip to tip of the lowest branches, 3 feet; it has this year alone grown 16 inches. How stiff it is will be seen from the fact that it girths 4½ inches next the ground, and 2½ inches half way up. Your correspondents have coddled and spoiled their specimens. *Acton, August* 5. ——Permit me to inform you that two plants of Wellingtonia which were standing with others in our nursery (all from the same source) have suffered in a similar manner to those complained of by your correspondent; not only have the ends of the laterals died, but in one case the leader also. The soil in which they are growing is a sandy loam with a little peat in it. Might they not have been over potted, or forced on in the first instance beyond their strength? Your correspondent does not say whether his are in pots or not: ours are in 8-inch pots, and the roots have reached the bottom but not the sides, and appear in one instance to have lost the ends of their fibres. The height of the plants is a little over a foot. If any remedy or preventive could be discovered and made known through your columns, others who may be so unfortunate as to get a touch of this disease (if such it be) might perhaps be able to save their plants. *Thos. Bunyard, Junr., Maidstone Nursery.*

The Potato Disease.—Since we were visited with a thunderstorm accompanied by heavy rain on the 15th of July, the weather has been unusually dry and warm, and in this neighbourhood (Ealing) within the past week symptoms of disease are apparent among the Potato crops—the haulm having become withered in several places, whilst on closer inspection the stems are found to be more or less covered with large black patches. The roots, however, do not seem affected, but are large and of excellent quality. *W. B. B.*

Gardeners' Benevolent Institution.—I have just read in your columns a letter on this subject subscribed "An Old Member of Committee," in which, amongst other matters, the secretary of the Institution is charged with receiving "the proxies of subscribers and using them as he pleases." This charge is made anonymously, and therefore I have no hesitation in saying to your country subscribers, to whom this communication is more particularly addressed, that I believe the charge to be wholly unworthy of credit. At the request of the secretary I attended the last dinner of the Institution for the first time, scarcely knowing the objects of the charity; but I was prompted by my love for flowers to lend a hand in helping those who at some time or other had contributed to my pleasure, and who in their old age might require assistance from the funds of the Institution. I gave a small donation, and in a few days received a voting paper from the secretary, containing the names of candidates for election. A stranger to the Institution and its members, I called upon the secretary to ask who was the most worthy object amongst the candidates, when he replied to my inquiry by saying "that he never solicited a vote or in any way influenced the election of a candidate; that he had always endeavoured to hold an independent position amongst the members; he believed all the candidates worthy of support;" but positively refused to assist me in my selection, and from inquiries I have since made I have no reason to doubt this to be his usual practice. Your correspondent's suggestions, if worthy of consideration, should be submitted to the committee, but I do not think he is in any way justified in making these personal attacks upon the secretary, although he is the paid servant of the Institution. *H. Winfield Crewe*, 19, *Buckingham Street, Strand.*——As the only paid servant of this Institution, permit me to answer the allegations contained in a letter signed "An Old Member of Committee," in your Paper of last week. I am not in the habit of answering or acknowledging anonymous correspondence; but as that letter materially affects my character, I depart from my usual rule. In the first place I am accused of being the director and not the servant of the committee; to this I reply, that as secretary it is my duty to put the committee in possession of the facts of any subject under discussion, and to give my opinion when asked without fear of offending either this or that party. In the second place I am accused of receiving proxies and using them as I please; the last part I most emphatically deny. As secretary I receive such proxies as may be transmitted to me; I open, examine, and arrange them for the scrutineers on the day of election, but as to using them to my own purposes, this is impossible, as very few have not been previously filled up in favour of some of the candidates; and such as are not filled up if there be time I return to the subscribers with a request that they will exercise their privilege. During the time I have had the honour to hold office, now 15 years, I can conscientiously assert that I have never in any one way influenced an election, and in all cases where I have been asked to assist candidates my invariable answer has been that I never interfere, and in this many subscribers will bear me out. When I have been asked which is the best candidate I have never ventured an opinion. In conclusion I beg to say that I have always endeavoured to discharge the duties required of me to the best of my ability and to give satisfaction to the members at large, and I have every reason to believe that my services have met with their approval. *E. R. Cutler, Sec.*

Chrysanthemums.—Several gardeners have called and others have written to me respecting their Chrysanthemums looking so sickly and bad; they complain of them losing their bottom leaves and wish to be informed of the cause. In the squares and other little sunny spots about town they are all affected in the same manner. Now, the cause of the evil is not attending to the following rules:—When hot dry weather sets in the plants should be well mulched with rotten dung or other material of that kind, no matter what, provided it keeps the hot sun from drying up the fibres that traverse the surface of the soil; for I find that you cannot remove the smallest quantity of top-mould without meeting with roots, and when these are exposed to the burning rays of the sun, the plants flag and lose their bottom foliage, and will, as may be expected, flower indifferently; this is easily avoided by mulching and watering three times a week—a practice which keeps the plants growing, preserves their leaves, and renders them ornaments to the garden as far as a healthy green is concerned, which in towns is looked upon as a boon where nothing else will grow. Pompones in pots should be kept in shady places till September, and well stopped two or three times in the course of the season; they should also have a plentiful supply of water, taking care if the mould should open or crack round the inside of the pot to fill up the gap with a little finely sifted earth. If this is not attended to water when applied passes off between the soil and the pot and leaves the middle dry; also do not allow the plant to get too high before it is stopped, or it will not break at the bottom or throw out laterals low enough to give it a geod bushy habit, with foliage down to the top of the pot. Mildew, they tell me, is very prevalent this year; this I easily manage to stop by sprinkling the plant with water, and then powdering it with flowers of sulphur. I have in my borders and in pots upwards of 20,000 plants, and not one of them has lost a single leaf, and they never looked better or healthier than they do at the present time. The only pests with which I am annoyed are earwigs; but these I hope now to keep in check by means of Edwards' earwig traps. They eat out the heart of the plant. The moment laterals break they attack them. I have tried sulphur, tobacco-water, snuff, Deadly Nightshade, India rubber dissolved, oil, tar, and various other applications, but all without effect. Another circumstance appears to me worth mentioning. I had last year some Intermediate Stocks, which I purchased of Mr. Dancer, of Fulham. I sowed them on July 12 under two hand-glasses. As soon as they were ready for putting into pots I took them up, put five in a 6-inch pot well drained in meadow loam from the new cattle market. They filled the pot with roots by December. I kept them in a cold frame through the winter till the 1st of March, when they got so overgrown I was obliged to put them into the borders; to my great disappointment nearly all came single. A portion of the same seed, the remainder of the packet, I sowed in the above way; on the 15th of August these I potted in Norwood loam mixed with a little rotten leaf-mould, and found some difficulty to keep them from damping off in the winter, although I never gave them a drop of water from November till the beginning of February; they were planted out the 2d of April. Now, nearly all these are double and the finest I ever grew. How is this difference in plants raised from the same seeds to be explained? *Samuel Broome, Temple Gardens, August* 7.

Bees.—One of the species of fungus named in Mr. Taylor's book as suitable for stupifying bees, the Byssus cellaris, always discolours the combs; from the other, the Great Puff Ball, the discoloration is very slight, and the unpleasant scent soon disappears on exposing the combs to the air. They are equally efficacious and safe in attaining the object desired where the combs are not required for use. It is not usually necessary to stupify bees in order to unite swarms or casts, as under these circumstances the families assimilate readily when merely perfumed with a puff or two of tobacco smoke. A family of "driven bees" scented in this manner and placed in a hive, and then reversed under that to which they are to be joined, will be hospitably received, if their hostesses have been similarly prepared for their reception. The previous removal of the queen will further insure an harmonious union. *A.*

Potato Disease and Electricity.—I earnestly request your readers to watch vigilantly the effect of the next thunderstorm on Potatoes. For five years my attention has been steadily directed to the subject, and I now unhesitatingly declare my fixed conviction that the immediate cause of the Potato disease is electricity acting upon wet tubers. So certain of this have I been for a long time, that I have been able to predict again and again the day of its appearance, always within three days of a storm. If the weather continue damp, the tubers become extensively affected; if hot and dry, as now, then only a few are touched. But I want others to be convinced as well as myself; hence this appeal. A curious illustration occurred the last storm we had. The haulm was struck diagonally across a plot I have, about 50 feet long by 6 wide; all outside this space escaping injury. Two years ago I planted iron rods at the corners of the ground, and connected them by wires. The Potatoes so protected were none of them affected. I have communicated my thoughts to Messrs. Mechi, Lawes, and others, but a wide-spread scrutiny is I think to be best obtained by publishing them in your journal. Supposing I am right, it has been asked, what benefit will accrue? I reply, knowledge is power; and although there is still an important question to solve, viz., the reason why Potatoes were not susceptible of this malign influence before 1845, yet it will be something to emancipate ourselves from a multitude of erroneous theories, and the first truth being established the second will probably soon follow. In the mean time, dry planting, dry manures, and lightning conductors are all indicated as likely in some measure to arrest the evil. *James Quilter Rumball, Surgeon, Harpenden Hall, St. Alban's, Herts.*

Garden Mechanics (Mowing Machines).—The purpose of machinery we are told is to lessen and aid human labour, and as machines cannot reason or act arbitrarily in stopping, moving, or altering their process according to circumstances, they proceed in a blind routine whether right or wrong—mechanically as it is called—and in every case less or more require the superintendence of reasoning beings. A machine, by being composed of inanimate matter destitute of feeling and unsusceptible of fatigue, proceeds unswervingly in its assigned duty, and may be forced to accomplish tasks which it would be both inhuman and impolitic to demand from living creatures, and yet many human beings are employed as the moving force of very ill-constructed machines intended to lessen and aid human labour. We are told by those who have studied the subject that the muscular energy of men forms the most insufficient or the weakest of all the prime moving forces. Human labour is very limited in its compass, and is the least to be depended on for regularity. The power exerted by one man is comparatively small, and it is both inconvenient and expensive to cause a large number of individuals to unite their powers in a continued or concerted effort. The mowing machines of the present day, intended to be worked by human labour, I consider to be an accumulation of mechanical blunders, and ought to come under the cognisance of the legislature or the Society for the Prevention of Cruelty to Animals. The contrivers of these machines have apparently collected nearly all the obstacles to motion within their reach, combined them together, and offered them to the gardening world as playthings, or toys for ladies to work with. Those who use them will find that there is an abundance of friction connected with them; and we learn from works on mechanics that friction acts as a retarding influence in the action of all mechanical contrivances, and a due allowance must in every case be made for it. In many instances it destroys more than a half of the power employed and seldom destroys less than a third. However small it may be, it sooner or later causes the wearing down and destruction of mechanism, and therefore forms an insurmountable obstacle to the lasting duration of bodies and the perpetuity of motion. Friction is found to depend on the following circumstances. 1st, the degree of roughness of the surface. 2d, the weight of the load to be moved. 3d, the extent of surfaces in certain bodies presented to the action of

* The same result has been arrived at in our own country. According to the careful observations recorded by Mr. Thompson, at Chiswick, the mean annual temperature of the soil is there 1.06 above that of the air at 1 foot, and 1.49 at 2 feet. As also in the mountains of India. See "Hooker's Himalayan Journals."

rubbing. 4th, the nature of the bodies. 5th, the degree of velocity of the motion. 6th, the manner of the motion. If these circumstances are properly examined, it will be found that there is much room yet for the improvement of lawns as well as mowing machines. The following good advice has been for some time before the public, and may be repeated. One of the first considerations on the part of contrivers of mechanism should be how to provide for and diminish the effects of friction in their machines. For want of forethought on this important point, thousands of ingenious schemes which seemed perfect in the form of models and drawings on paper have been completely frustrated when attempted to be brought into use. When we bear in mind the weight of the mowing machine, set upon low broad wheels, its line of draught, the resistance to be overcome, and that we have to travel with it at the rate of four miles an hour, it will be found in practice that a large quantity of muscular energy is necessary to work it, and that the convict on the treadmill, and the ass drawing water at Carisbrook Castle, are less to be pitied than the gardeners and garden labourers who are condemned to work the mowing machines of the present day. *P. Mackenzie, West Plean, Stirling.*

Ground Temperature.—The following ground temperatures appear to me sufficiently remarkable to be worth recording. Thermometers sunk in a Peach border about 4 feet from the wall indicated at 1 foot, 72°; 2 feet, 71°; 3 feet, 63½°. The holes in which they are sunk are covered over with tiles. The temperature during this fine weather does not vary perceptibly at night. To obviate any doubt of the instruments several different thermometers have been tried in the holes. The soil is the porous stratum of Kentish rag, known in some places as malm rock, and in others as hassock, and of a very pale colour. The garden has been for very many years famous for the Peaches produced in it on the open walls, of which this ground temperature (which I have only lately begun to observe) seems to afford some explanation. The thermometer in the shade has been from 80° to 87° at its maximum. It would be interesting to know the temperature of borders similarly situated on other soils. *J. Rogers, River Hill, Sevenoaks, Aug. 4.*

Climate.—In your leading article on orchard houses occurs the following expression—"our deteriorated springs." This opens up a most important and interesting question, namely, whether and in what sense a change of climate has taken place in this country? Many old persons declare that "in their young days when George the Third was king" winters were colder and springs milder than they now are. I generally find, however, that when one questions them rather closely on the subject, their recollections are very vague, and do not bear out their assertion of a change of climate. Improved cultivation, clearing of forests, and extensive drainage ought to have improved our climate. If they have not done so, can you suggest the reason why? *D. C. L.* [This is a very difficult question. Barometers and thermometers may not correspond with notorious facts for several reasons. But the continual loss of spring crops in the neighbourhood of London cannot be denied.]

Societies.

Entomological, *July* 7.—W. W. Saunders, Esq., F.R.S., president, in the chair. This meeting was a special one for the appointment of a secretary in the place of Mr. Douglas, who had resigned, and upon ballot Mr. Janson was elected in his stead; a vote of thanks was thereupon passed to Mr. Douglas for his services during the past seven years; as also another to the president for his liberal entertainment of the members on their annual excursion to Reigate. A numerous list of donations to the library was announced, including the fine work on amber insects, by the late Dr. Berendt, of which an account was given by Mr. Westwood, who especially dwelt upon the value of this illustration of the primeval insect world, so much more satisfactorily preserved in amber than in stone; and trusted, as the collection would shortly be for sale, that it would be secured for the British Museum, where it ought to form portion of the zoological rather than the palæontological series. Mr. Douglas exhibited four new British species of minute moths belonging to the family Tineidæ from Boxhill and Brighton. Mr. S. Stevens exhibited various interesting Coleoptera from Scotland and Wales, collected by Mr. Foxcroft, including Uleiota flavipes and Chrysomela cerealis, also Lebia Crux minor alive, and Agdistes Bennetti (the plumeless plume) reared from the larvæ, and Limacodes Asellus from the New Forest; also full grown larvæ of Notodonta carmelita and Petasia nubeculosa, and a box of beautiful Brazilian butterflies recently received from Mr. Bates. Mr. Augustus Shepherd exhibited a fine specimen of the rare Gastropacha Ilicifolia, and other rare moths; and Mr. Westwood brought for distribution among the members specimens of Porrectaria Laricella from the Larch, and P. Hemerobiella from the Pear. The latter also exhibited some leaves of Wheat, the tips of which had been rolled up by the caterpillars of some species of Tortrix; also a beautiful new species of Saturnia from California, with its cocoons, which had been attempted to be employed for the production of silk. Mr. A. White and Mr. Bowring gave an account of various interesting and new insects collected by the latter at Hong Kong, Siam, and Java. Mr. Wilkinson exhibited a number of living specimens of the splendid firefly Elater noctilucus of the West Indies: although the insects were in a weakly condition, having been brought from Havannah by the way of New York, which had occupied six weeks (during which time they had fed upon moistened sugar), they yet emitted a lovely pale greenish light, which became vivid on their being excited, both from the spots of the prothorax and the membrane at the base of the abdomen. Dr. Calvert exhibited some larvæ of Noctua cubicularis which had proved very destructive to his crops of rare Grasses, devouring the seeds in a growing state when nearly ripe. They were, however, very partial in their attacks, as they would not touch one of the species of Festuca, although they devoured the other. Mr. Stainton read a notice on the study of Microlepidoptera on the Continent.

Notices of Books.

The Language of Specifications of Letters Patent for Inventions. By John M'Gregor, Esq., Barrister-at-Law. London: Butterworths. 8vo., pp. 133.

All who have been in the habit of watching the fate of patents when their validity is disputed in a court of justice are aware that the language of the specification is of the utmost importance. An invention may be new and useful, and the patentee may be the true and first inventor, the infringement may be clearly made out, and yet the patentee may fail simply because the title of his patent does not correspond with his real claim; or because he has not performed the condition imposed upon him of particularly describing and ascertaining the nature of his invention, and in what manner the same is to be performed. The fact that judges have been, and may be in future, rather astute against a patentee than inclined to give him the benefit of any doubt, only renders it of greater importance to inventors to avoid those rocks and shoals which have so often proved fatal to others. Mr. M'Gregor in the work before us has done good service by pointing these out. The collection of instances where a patent has been held bad for some defect in the specification shows how important it is for a patentee to be honest and full in his disclosures, and not to take for granted that because he understands his own description other people will do the same. In the appendix will be found valuable suggestions for describing machinery; those who propose to patent new agricultural implements of any degree of complexity will do well to make themselves acquainted with the methods shown by experience to be the best, and before preparing their specifications to study with care the principles which guide judges in construing those documents. For the attainment of these objects the learned author's essay will be found of considerable utility.

The Lost Solar System of the Ancients Discovered. By John Wilson. 2 vols. 8vo, Longmans.

What the ingenious author may have discovered we are unable to say; for ourselves we have found nothing in his volumes except a prodigious quantity of calculations, geometrical problems, and speculations founded upon what is known or reported respecting obelisks, needles, temples, castles, labyrinths, sculptured stones, Druidical circles, pyramids, and similar ancient remains. The book seems to have no other beginning or end than such as pages give it, and if there is theory buried amidst its figures we at least have not the skill to disinter it. Mr. Wilson has given birth to a great psychological curiosity, and that is all we can glean from his volumes.

A twelfth edition of *Black's Picturesque Tourist in Scotland* (Black, Edinb.) has appeared just in time for summer travellers. The reputation of the work as a minute, faithful, and well arranged guide-book is so firmly established that it is needless to say more of the present issue than that it is very considerably extended, and in many places wholly rewritten from the personal observations of the editor. Excellent maps, good woodcuts, and characteristic views of striking places in the beautiful scenery of Scotland, place the present volume in the foremost rank among travellers' manuals.

Garden Memoranda.

Mr. Smith's Nursery, Dulwich.—Balsams, beautiful varieties of all shades of colour, red, white, and mottled, and of unusual size, are most successfully grown here, and every year about this time Mr. Smith has a grand display of them. Some account of his mode of cultivating them may therefore not be uninteresting. In sowing the seed he prefers the method of putting one seed in a 3-inch pot, especially if the object aimed at is to exhibit at shows. This should be done about the beginning of March for flowering in June or July. Place them on a gentle hot bed or hot-water tank as near the glass as possible, and the latter should face the south, in order that the plants may be well exposed to light. The precaution of letting all superfluous moisture escape at the highest part of the frame must be adopted by opening it about a quarter to half an inch on bright sunny days if the wind be not too cold or strong; a little more air may be given as soon as the plants have begun to form their first leaves. When the latter have become fully developed the plants should be shifted into larger pots. If plenty of convenience exists greenhouses or intermediate houses with a tan or hot-water pit should be chosen for them, and if it is intended to grow the plants to a large size, they may be shifted into 6-inch pots at once and plunged half-way in a bottom-heat of from 50° to 55°. Thus situated the roots soon appear at the sides of the pot, and before they turn half way round the ball the plants should be again shifted for the last time into 8 or 9-inch pots, according to the size that may be desired. Thus far size of plant has been the object kept in view; but those who have not the above named conveniences must be content to sow a fortnight later; still, however, following the plan just laid down. In this case the first shift ought to be into 5-inch pots, and if the help of a hot-bed can be obtained the plants may be plunged in it, using, however, due precaution to ascertain that the heat at this stage is not too great. Another plan presents itself, and one which Mr. Smith frequently adopts: it is to plant in a pit heated at night from 60° to 65°, by means of hot-water pipes, allowing an increase on bright days of 10 additional degrees. The plants should again be shifted into 8-inch pots as before for the last time.

These matters as to raising and shifting being now settled, attention must be directed to protecting the plants from sudden chills, either from cold air or falling off of bottom-heat; for if once stunted by cold first-class plants and flowers need hardly afterwards be expected. Plenty of light and air, however, judiciously administered is indispensable, and care must also be taken to give them plenty of room; to do them justice they should as a rule stand as far apart as they are high. Having now stated the method of raising, potting, and general management, there yet remains to be explained the kind of compost to be used. This should be the top spit about 4 inches thick from a meadow of rich light loam a year old. If this is not to be had take the same quantity of fresh soil and after paring off the turf from the loam, char the former so as to reduce it to a state fit for breaking up and mixing with the loam. Add to this an equal quantity of manure from a spent hot bed; if it be turned over to sweeten and dry before mixing so much the better. This compost should then be thrown together and well chopped and turned (not sifted), so that incorporation may be as complete as possible. In potting always endeavour to sink the plants low enough for the soil to reach the first leaves. If that cannot be done the first time it should be accomplished at the second shift, and it is necessary in order to obtain firmness in the pot, and also fresh surface of stem from whence to obtain more roots. The pots should be drained increasingly as the plants are shifted, and over the drainage should be placed 1 or 2 inches of fresh manure from the stable. This will be found very useful to the plants as they increase in size. As regards manure water the larger the plants are required to be, so in proportion should this be used; but its application must be left to the discretion of the grower, who will be the best judge how often or how strong it ought to be given, for unskillfully administered it sometimes produces great mischief. In general Mr. Smith has found the compost above recommended and pure water to answer every purpose. His plants are grown in 8-inch pots which have been found to answer every purpose perfectly.

The above results may also be obtained by sowing in the first or even as late as the third week in April on a slight or nearly spent hot bed, transferring the plants at once to pots of the last-named size, and placing them in a cold pit in the middle or end of May. These bloom in August and September, and will be found to well repay any trouble bestowed on them by an excellent display of finely coloured blossoms.

Miscellaneous.

The Use of Looking at Plants Geographically—It remains to say a few words upon the general subject of Botanical Geography. It is no fault of M. de Candolle's work that we lay it down more impressed than ever with the vagueness of its principles, the inexactness of its methods, the puzzling complexity of its phenomena, and the purely speculative character of those hypotheses upon which all inquirers base their efforts to explain its facts and develope its laws. Much stress is laid upon the value of meteorological observations, but there is no method of tabulating these that offers a prospect of their being applied to the solution of any one general question in the distribution of species. Certain plants will not survive temperatures above or below a given number of degrees; or in other words, certain sums of temperatures are necessary to the fulfilment of their functions: this is all the world knows; but the tabulation of these temperatures has hitherto led to no general laws, for not every family of plants, nor every genus, nor even every species, but often every variety of race, must have its own sum of degrees to ensure its continued existence. Nor is this all: the sum of degrees must extend annually over a certain definite period of the year, and must be accompanied with so many favourable conditions of soil, light, moisture, and purity of air, that the mere question of temperature becomes a very subordinate element, however accurately ascertained. So far, then, as meteorological observations are concerned, we must consider that, however accurate they be, they have hitherto admitted of no exact practical application with reference to the distribution of species, nor have they even indicated a theoretical approximation to it. Next with regard to the limitation of species, genera, and families, within certain areas; this again is subject to no appreciable laws; plants are no doubt governed

in their diffusion by conditions of climate and soil, and are dependent for their diffusion on their own powers of endurance, on the time that has elapsed since they first existed as species, on the elements, on the motions of animals, and on geological changes; but we not only know nothing in any case of the time elapsed, and next to nothing of the geological changes they may have survived, but all our attempts have failed to regulate their distribution in elevation or latitude or longitude, by climate, or soil, or other external conditions. Species, genera, and orders stop, we see not why, and often reappear where we least expect them. Under this head too must be noticed the fact that there is none of that recognizable relation between structure and function, or structure and external conditions, in the vegetable kingdom that there is in the animal, and which often enables us to account for a fact in the distribution of an animal by another in that of a plant. We see the limit of some animal's distribution coinciding with that of the plant it lives upon or under, or that nourishes a third animal it preys upon; but we never see the plant stopped by or for the animal. There are comparatively few evidences of plants being structurally better suited to one situation than to another, with the exception of a few conspicuous classes, as water-plants, epiphytes, parasites, etc.; and hence our power of accounting by physical causes for the facts of botanical geography is extremely limited. If, again, we turn from those branches of the subject, in reasoning upon which we make use of facts and observations however inexact or difficult of application, to the fundamental principles upon which the study is based, and from some of which we must start in all our investigations, we enter at once into the regions of pure speculation. Nor can there be better proof of the facts and hypotheses advanced being insufficient to explain geographical distribution, than is afforded by the circumstance that even M. de Candolle, with all his philosophy and desire to arrive at exact conclusions, is compelled to resort to the unphilosophical proceeding of demanding the operation of two laws to account for each of the two primary phenomena connected with the creation of species. Thus, with regard to their origin, he considers that most are special creations, but that some are the offsprings of transmutations; and with regard to the number created and place of creation, that some are created as solitary individuals or as a plurality of individuals in one place only; and that others are (simultaneously ?) created in several more or less distant localities. We are told that the majority of species were created such as they now exist, but there is not a shadow of a proof of this. No amount of acute observation or critical disquisition throws real light upon this subject, upon which men of science are completely at issue; nor is there in the present state of science any prospect of naturalists agreeing upon it. There are, as it appears to us, two broad facts, and only two, to which all naturalists must turn who seek some foundation for an opinion as to the origin of species, and these lead to diametrically opposite conclusions. They are, on the one hand, that a great number of specific forms are hereditary in as far as our experience allows of our judging; on the other, that a great number are extremely variable and that races with characters as strongly marked as those of species are constantly being produced under our eyes. *From Hooker's Journal of Botany.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—All kinds of soil used in potting should now be laid in without delay before the ground gets sodden with autumn rains. Store them up neatly in narrow ridges, so as to be safe from wet and yet exposed as much as possible to the action of the air, and as success in plant growing very much depends upon having suitable soil for potting, no trouble or expense that may be necessary to procure this should be spared where well grown specimens are expected. Loam of moderately good quality may be obtained in most neighbourhoods, but good peat is not so easily got; this is absolutely necessary, however, for the growth of choice hard-wooded plants, and should be procured at the proper season, so as to have it in a fit state for use at the right time. Stove plants flowering in the conservatory will require attention, especially Achimenes and things of that sort, which should be gone over every day in cloudy weather, carefully picking off decayed flowers, &c. Any of the twiners on the roof which have done flowering may be thinned out, so as to prevent their shading the house too much, for after this season permanent shade should be avoided as much as possible. Young stock in cold pits intended to flower next season should be exposed to sunlight in order to ripen the wood, taking care, however, not to do this so rashly as to injure the foliage.

FORCING DEPARTMENT.

Pineries.—Those who intend commencing the culture of Pines on the open bed system cannot begin at a more favourable season than the present. The bed should be from 18 inches to 2 feet deep, and should consist principally of good rich mellow turfy loam, well broken up, and carefully intermixed with a liberal sprinkling of clean sand, and a small proportion of leaf soil or good rich fibry peat; for when rough turfy soil is used and the bed is ever, from any cause, allowed to get thoroughly dry it is very difficult to moisten it again, as the water passes off through the lumps without penetrating them. But if the loam is well broken up and mixed with some leaf soil, or peat and sand, it will be found to take water freely enough, and the roots will be almost as much under command as when the plants are grown in pots. Persons commencing this method of growing Pines should also endeavour to avoid planting out pot-bound plants, for these, whether young or old, seldom strike freely into the fresh soil, and are very apt to fruit prematurely; but if such plants must be turned out, then care should be used to make the soil firm about the balls, so as to prevent the water passing off without moistening the balls. Vineries.—Every possible attention must be afforded young Vines planted this spring where strong rods are expected. Let a vigorous root action be secured and endeavour to get the wood well ripened. Give air freely and early on fine days, so as to avoid any risk of scorching the foliage, but shut up early in the afternoon, sprinkling the floors, &c., so as to cause a genial moisture in the atmosphere, which will be of great service in strengthening the Vines. If plants are grown in the house, see that they are not infested with black thrips, and on no account be induced to regulate the temperature, &c., of the house for the plants, but remove these to other quarters, or make them succumb to the treatment most suitable for the Vines. Keep a sharp look-out for the appearance of red spider in houses where the fruit is ripening, and coat the pipes or flues with sulphur on the first appearance of this enemy. Indeed it is well to do this occasionally by way of a preventive, which, in this case as in most others, is vastly preferable to a cure. Vines in pots intended for early forcing will require attention to get the wood properly ripened, and this should be effected by exposing them freely to light and air.

FLOWER GARDEN AND SHRUBBERIES.

In some neighbourhoods green fly has been troublesome to Verbenas, &c. Where such is the case, tobacco water and soap suds may be used with success. The strength of the mixture should be tested by dipping some of the shoots worst affected into it, and used sufficiently strong to kill the insects, but not so strong as to injure the leaves. It should be applied in the evening when there is a prospect of a dry night, using a fine syringe or fine rosed watering-pot, and giving enough to moisten the whole of the foliage. Go over the beds frequently, and remedy any defect that may be perceptible without loss of time, for the bedding out plants are enjoyed but for a comparatively short season, and now that they are in beauty every means should be used to render them as enjoyable as possible by maintaining the most perfect order and neatness. Where the stock is clean, and growing vigorously, this will involve considerable labour, and it will be necessary to go over the beds frequently, pegging down where necessary, removing decayed flowers, and cutting back such of the shoots as may incline to encroach upon the edging of the beds. Keep herbaceous plants neatly tied up, and cut off the flower-stems of any that are becoming unsightly. Take advantage of leisure hours to put in cuttings, and use every possible despatch with this work until there is a good stock in a fair way for rooting of such things as are known to be difficult to winter, except in the shape of well-established plants. Keep gravel walks perfectly clean and smooth by weeding, sweeping, and rolling, as may be necessary. Keep climbers on walls within due limits.

HARDY FRUIT AND KITCHEN GARDEN.

It may be advisable to go over such trees as are over luxuriant, and stop about half the shoots, beginning of course with the strongest, for a general stopping at this time would probably be of little farther service than to induce the production of a mass of useless spray, whereas stopping the stronger shoots or those which incline to grossness will divert the sap into the weaker ones, which will be strengthened, while the buds on the shoots that have been stopped will become full and plump without starting into growth. The only effectual method, however, of curing a gross habit of growth when this is the case in ordinary seasons is root-pruning or keeping the roots within proper limits by means of shallow well drained borders. Should it be found that the shoots, after stopping, incline to start into growth, it will be advisable as soon as the fruit is gathered to open a trench at a moderate distance from the stem of the tree, cutting the stronger roots. This will be of the greatest service in checking growth, and will probably do more towards securing ripe wood than anything else that could be adopted. Get the Strawberry plantations intended to stand for next season trimmed as soon as convenient, cutting off and clearing away the runners, so as to afford the leaves plenty of room. Attend to providing plenty of Lettuce, Endive, &c., for winter salads; also see that there is a good bed of Parsley provided in some sheltered spot where it can be readily protected in severe weather.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 7, 1856, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Friday 1	1	30.149	30.093	88	56	72.0	66	61	E.	.00
Satur. 2	2	30.152	30.0[illegible]9	92	52	72.0	65	6[illegible]½	E.	.00
Sunday 3	3	30.066	30.022	89	55	72.0	67	63	S.E.	.00
Mon. 4	4	30.181	30.117	87	44	65.5	67	63½	E.	.00
Tues. 5	5	30.216	30.19[illegible]	84	44	64.0	66	63½	N.E.	.00
Wed. 6	6	30.171	30.016	78	41	59.5	66	63½	E.	.00
Thurs. 7	7	30.009	29.874	88	42	65.0	65	63	S.W.	.00
Average		30.120	30.053	86.5	47.7	67.1	66.1	62.8		.00

August 1—Slight haze; very hot; fine throughout.
— 2—Slight haze; excessively hot; fine at night.
— 3—Hot and sultry; very hot, with brisk S.E. wind; very fine.
— 4—Overcast; very hot; cool at night.
— 5—Cloudless and hot; very fine.
— 6—Cloudy; dry slight haze; cool at night.
— 7—Clear; very hot and sultry; cloudless; very fine; cool at night.
Mean temperature of the week 4 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending August 16, 1856.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 10	75.1	52.5	63.8	13	1.06 in.	1	5	2	—	2	14	6	2
Mon. 11	75.0	51.9	63.4	14	0.78	1	—	2	1	5	12	8	1
Tues. 12	74.1	51.2	62.6	11	0.47	2	2	1	1	5	9	6	[illegible]
Wed. 13	73.1	50.1	61.6	14	1.14	1	3	2	2	4	11	2	5
Thurs. 14	71.9	51.2	61.5	9	0.68	—	6	5	1	2	9	4	[illegible]
Friday 15	72.8	5[illegible].3	61.5	11	0.61	4	4	4	1	3	5	4	5
Satur. 16	75.1	52.1	62.6	12	0.58	—	3	3	1	4	7	8	4

The highest temperature during the above period occurred on the 16th, 1842—therm. 93 deg; and the lowest on the 13th, 1859—therm. 32 deg.

Notices to Correspondents.

Bearded Globe Amaranth: *J R.* You are right; the plant is attacked by some kind of Dodder, not yet in flower. The drawing you sent is very nicely executed.

Bees: *An Apiarian* will be obliged by some of our correspondents informing him whether in the uniting of bees it is absolutely necessary to kill one of the queens, and asks what would be the consequence if both queens were permitted to remain.

Cooling Drinks: *Tantalus.* The following reprinted from our volume for 1852, p. 409, may possibly answer your purpose. A 6*d.* pamphlet, published by D. Francis, contains receipts for 30 cooling summer drinks, and a similar one for 30 winter drinks. One of the most simple, wholesome, and delicious drinks is as follows Cream of tartar 1 oz., ¾ lb. of lump sugar, or less of moist, half the rind of a lemon cut thin, 1 gallon of boiling water poured on it: when cold it is fit to drink. Corked and bottled it will keep three days. Any flavouring can be added. *Lemonade:* 1 oz. of citric acid, 1 lb of loaf sugar, ½-pint of water; boil till clear, and when cold add a few drops of essence of Lemon. Put one tablespoonful in a tumbler of cold water; a little sherry will improve it. 1st. Gooseberry wine is a grateful and pleasant drink in the shape of half a tumbler-full filled up with cold spring water. 2d. Pour seven quarts of boiling water on 2 ozs. of cream of tartar; juice and parings of two Lemons; stir it and cover close. When cold sweeten to the taste, and add a gill (quartern) of rum. Bottle in quart bottles. This will keep the year round. To make this into an effervescing draught put a little carbonate of soda into the glass: then pour the above on it. 3d. The following is cheap, cooling, and not to be despised. To 10 quarts of water put a bottle of stout or porter; 1 lb. of brown sugar; a spoonful of powdered ginger (if approved). Mix all together, and after standing a few hours bottle in quart bottles: in two or three days it will be fit for use. This is a good substitute for table-beer, which soon turns sour. *Imperial:* To 1 oz. of cream of tartar add the juice and rind of three Lemons, and six quarts of boiling water; let it stand till cold. This may be made in a larger quantity, and set to work with a little barm (yeast), when it will keep for a length of time. *Beer Cup:* Infuse a handful of Balm leaves (or Borage), and add a large wine-glassful of the liquor to one pint of beer, two glassfuls of sherry, and three pints of spring water iced; sweeten to taste. *Sherry Cobbler:* Two large glassfuls of sherry poured upon a slice of Lemon and sugar, the tumbler filled up with pounded ice. This compound must be imbibed through a straw, when its soothing effects will be found to exceed expectation. In Soyer's "Modern Housewife" there are several receipts. *Cool Cup:* A drink made of cider, water, ice, sugar, and sliced Lemon, is said to be very good. *Cardinal*, made of sliced Pine Apple (West Indian will do for home use), sifted sugar in layers, hock, and ice, and allowed to stand for some hours, is excellent.

Dried Vegetables: *Anon.* Some account of M. Masson's mode of drying and preparing vegetables for winter use will be found in our volume for 1855, p. 151. Potherbs, we presume, should be treated exactly in the same way.‡

Erineum: *Fungophilus.* It is a mere anamorphosis of cellular tissue. See *Lindley's Vegetable Kingdom, p.* 31.

Gardeners' Benevolent Institution. In addition to two letters upon this subject printed in another column we have one from Mr. Coster, of Streatham. That the committee had a good answer to the "Old Member of Committee," who although anonymous is not unknown to us, we quite believed. But it is equally true that the "Old Member" stated what many think true, and therefore explanation became desirable. If Mr. Cutler has incurred undeserved obloquy, he must recollect that people are apt to judge from appearances.

Grapes: *P T B.* They are what is termed "blebted," a disease which is thought to arise from the roots not being drained, too deeply planted, or some other unfavourable circumstance in their condition. There is no fungus about them. ‡

Insects: *A M.* (N. B) Your Scotch Pines are infested with the larvæ of one of the sawflies (Lophyrus Pini). They have now done all the damage they are capable of this year, being ready to assume the chrysalis state, which they do among dead twigs, &c. All such should therefore be carefully collected and burnt. The cocoons are easily distinguishable, being oblong-oval, nearly white, and five-twelfths of an inch long.—*W H.* The Rose twigs arrived safely, but being from home for a few days the very hot weather has dried up both them and the inclosed larvæ. If you could send a few more to Mr. Westwood he would be much obliged. *W.*

Names of Fruits: *C. Crow.* Your Peaches are—Nos. 1 and 3, Royal George; 2, Noblesse; 4, Grosse Mignonne. The Nectarine is the Violette Hâtive.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Ferrarius.* Griselinia littoralis. *Rev. J M T.* Composite plants cannot be named from their capitula alone. We must have a complete specimen. It is a Santolina, or something near it.—*A B.* 1, Juncus bufonius; 2, Scirpus maritimus; 3, Juncus uliginosus; 4, Urtica urens.—*John Ferme.* Tephrosia grandiflora.—*W B. Smith.* It is Bromus unioloides.—*J B.* 1, Pilea herniarioides; 2, appears to be a bit of Ixora parviflora.—*X.* Such morsels cannot be named; there is no "round leaf" in your letter. The flowers seem to belong to some Justicia.—*C. Crow.* The leaf belongs to Bauhinia racemosa.—*Herbalist.* 1, Lotus major; 2, Inula dysenterica.

Peat Charcoal: *B.* There is none to be had in London at a reasonable price. ‡

Wood from China: *R W.* The examination will take some hours. You shall have an answer next week.

Misc.: One shilling will be given for No. 42, 1853.—*W K.* Mr. Joseph Sabine died in January, 1837.—*R S G.* We cannot notice it at present; possibly we may do so hereafter if it should appear desirable.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).

The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

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WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent cheaper than the leather hose pipe.

Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1. QUALITY, INCHES IN DIAMETER AND PRICE PER YARD:—½, 9*d.*; ¾, 11*d.*; 1, 1*s.* 1*d.*; 1¼, 1*s.* 3*d.*; 1½, 1*s.* 5*d.*; 1¾, 1*s.* 7*d.*; 2, 1*s.* 9*d.*; 2¼, 2*s.*; 2½, 2*s.* 3*d.*; 2¾, 2*s.* 6*d.*; 3, 2*s.* 9*d.*

SUPER EXTRA STOUT QUALITY:—2, 2*s.*; 2¼, 2*s.* 3*d.*; 2½, 2*s.* 6*d.*; 2¾, 2*s.* 9*d.*; 3, 3*s.*

No. 0, a cheaper Hose, to bear a low pressure for Garden and Agricultural purposes, at greatly reduced prices:—1, 9*d.*; 1¼, 10*d.*; 1½, 11*d.*; 2, 1*s.*; 2¼, 1*s.* 3*d.* 2½, 1*s.* 6*d.*

The Hose is Burnettised at an extra charge of 3*d.* per yard.
Union Joints, Branch Pipes and Jets are also supplied.

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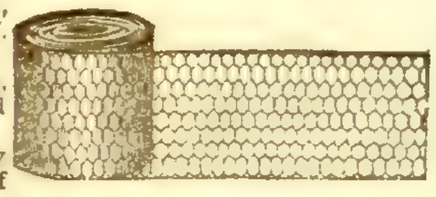
2, Basinghall Buildings. Leeds.

GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

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CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

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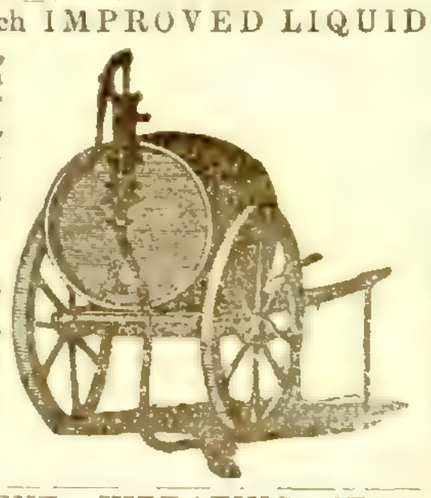
PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

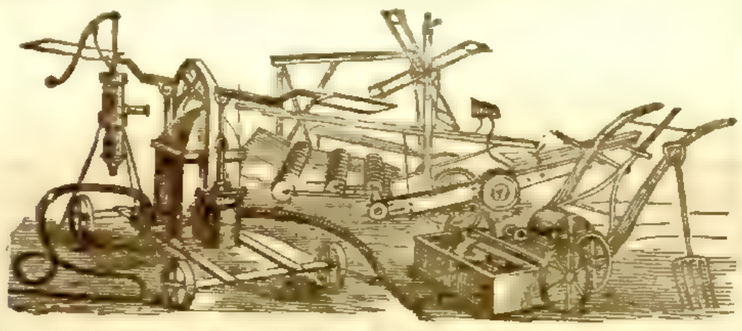
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.



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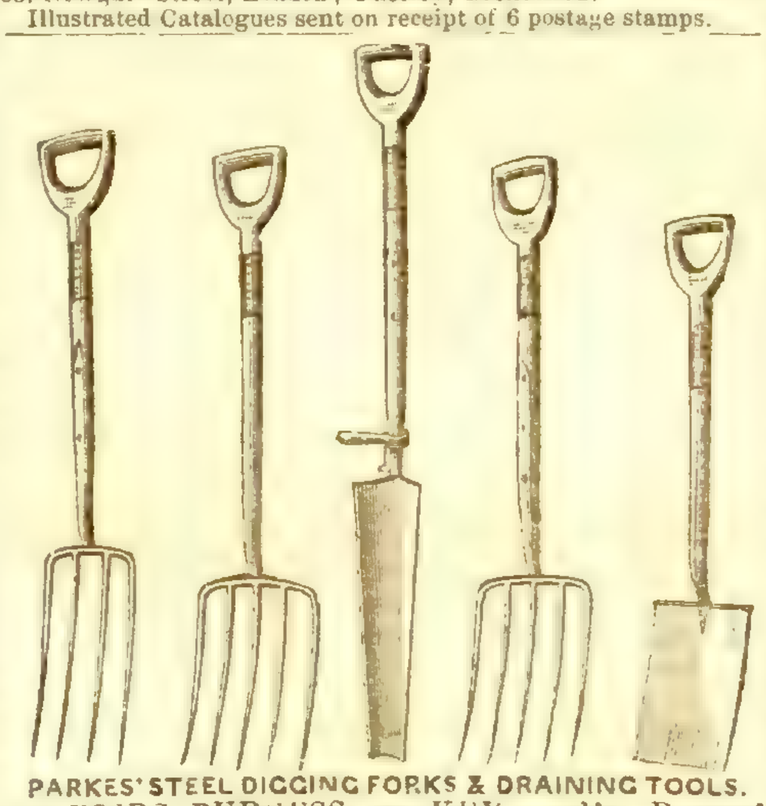
Illustrated Catalogues sent on receipt of 6 postage stamps.



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MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

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WM. DRAY AND CO.'S REAPING MACHINES are compact, inexpensive, and suitable for all countries. They are beautifully made, with all the exactness and truth of steam-engine work. No less than Sixteen Prizes have been awarded to the Manufacturers by various Agricultural Societies. These Reapers are designed upon Hussey's Model, but have been vastly improved, and adapted to the requirements of the British Farmer. The price is 25*l.*

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DRUMMOND'S IMPROVED REAPING SCYTHE.—This well-known Scythe continues to give the greatest satisfaction, and is now extensively used both at home and abroad. An ordinary hand at the scythe can readily cut down from 1½ to 2 statute acres per day, laying the swathe so as it can be easily gathered into well-arranged sheaves. Price 9*s.* each. The Scythe is packed into small compass, and may be sent any distance with perfect safety. When three or more go together the carriage is very moderate.

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THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

Hose Pipe of every kind for watering Gardens.

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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.

All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.

Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by

G. J. ANDREWS, Honorary Secretary.

Dorchester, August 9.

The Agricultural Gazette.
SATURDAY, AUGUST 9, 1856.

MR. CARR, a manure dealer of Colchester, supplies Mr. BARNARD, of Earl's Colne, with guano, and until the delivery of the last 50 cwts. ordered and received, the latter has been perfectly satisfied with the material sent to him by the former. As regards this last quantity, however, it appears that the men who sowed it knew it was not guano, but thought it was something else their master was trying. Mr. BARNARD on finding out how different this "guano" was from the last received, sends a sample of it to Mr. CARR, who replies with regard to it, that there appears little reason to find fault with it; he has made experiments upon it and finds that it contains both phosphates and ammonia; he proposes, however, to pay for a full analysis provided Mr. BARNARD will share the expense if the result should prove it to be genuine Peruvian. All this was in the month of March.

In May the guano is returned to the merchant, who replies to his customer, "You have kept it two months and exposed it to the air, and the ammonia, its fertilising quality, has escaped—therefore I refuse to take it back." An action is accordingly brought by Mr. CARR against Mr. BARNARD for the amount due, namely, "29*l.*" for 2½ tons of "best Peruvian guano." Mr. BARNARD pays 9*l.* 3*s.* into court, and pleads that that is the full value of what was sent to him. To prove his case, the evidence of Professor WAY and of Mr. LANDELLS is obtained. These gentlemen agree in their analyses, which prove that the sample they received contained less than 2 per cent. of ammonia, less than 8 per cent. of phosphate of lime, more than 16 per cent. of gypsum, and more than 50 per cent. of sand and clay; in fact, that the material analysed was grossly adulterated guano.

On this Mr. Justice ERLE sums up and says:—"If that sample represented the bulk it would settle the question; but the case on the part of Mr. CARR is that it was not an honest sample because the guano was objected to in March, the bulk was returned on the 29th of May, and in July this sample without any particulars as to how it had been kept was sent to Professor WAY. The bulk was in Mr. CARR's yard, and if Professor WAY had been sent there to obtain a sample for analysis it could have been decided to a dead certainty, but this sample came from some part kept back, and how it had been used or where kept they had no information."

The jury, after a brief consultation, found a verdict for the plaintiff for 19*l.* 18*s.* beyond the sum paid into court.

Such is the history of a trial at the assizes last week at Chelmsford. The defence of Mr. Barnard to the demand of Mr. Carr does not throw any imputation on the character of the latter. It is suggested by the defendant that his misfortune has been altogether accidental; but he says he has not got the thing he bargained for; and it seems plain therefore that it is certainly his own fault that he has lost his cause. The defect in his case was the entire absence of evidence to prove that the sample analysed fairly represented the bulk complained of.

The lesson which his experience teaches must be plain to every one.

We are glad to say that in answer to our invitation, p. 457, we have received several sets of replies to the questions of the Agricultural Examiners at the late annual examination of the Society of Arts. We shall be able within a fortnight to name the author of the most perfect among them.

What is a Manure?—This question seems to puzzle those whose business it is to attach a meaning to the word as it occurs in various Turnpike Acts. The object of the exemption from toll which these confer upon "manure" certainly was to encourage every effort to obtain an increased produce from the land. And in this view, therefore, we must contend that the words "manure" and fertiliser are exactly alike in meaning.

This question was argued before the magistrates lately at Weston-super-Mare. Some farmers at Worle had been previously summoned to show cause why they did not pay toll for loads of sand hauled from Weston-super-Mare beach to be used as a fertiliser on the heavy lands of that district. It was then held that if used in its raw state for spreading on the land sand was not liable to toll, but if first used as bedding for cattle and then put on the ground it was liable. This decision seems to us perfectly correct. It was not, however, satisfactory to the turnpike authorities, who again demanded toll, and so Joseph Bishop, the collector of the Worle turnpike toll, was summoned by Henry Welsh for unlawfully demanding a toll from him for a load of sand, which he was employed to haul upon the lands of Mr. Moses Stabbins. Mr. Millard appeared on behalf of the collector. He contended that sand is not a manure at all. What is sand? Is it not a collection of small particles of stone? What is manure? It consists of any quantity of animal or vegetable matter used as a fertiliser of the soil. Now, he contended that sand is not a fertiliser; sand consists of small portions of rock which by no process could be changed. If you mix it with animal or vegetable matter it remains sand still. He produced some numbers of the *Justice of the Peace*, which he said was regarded as an authority by magistrates, in which it is decided that sand is not a manure.

On the other hand Mr. Stabbins, the complainant, stated that he and many of his neighbours had used sand as a manure, and had found it very efficacious on the heavy clay lands round Worle; it served to lighten the soil. He had used it without any admixture, and it was sometimes used as bedding for cattle and then put upon the land.

The various Turnpike Acts were referred to, and the magistrates were divided in their opinion.

It is plain, if the words of the Act are to be construed in the spirit of it, that sand, used for the purpose to which Mr. Moses Stabbins was applying it, is a manure. It seems that the Act enumerates "dung, mould, marl, compost," and if Mr. Millard had confined himself to a discussion of the terms employed, we should have no right to argue the matter with him; but his argument was not founded on sand being neither "dung, mould, marl," nor "compost," but upon its not acting as a manure. He was willing apparently that the spirit and not merely the letter of the Act should guide the decision; and hence he had to prove that sand was not a fertiliser. To this it was a sufficient reply that Mr. Stabbins and his neighbours had used it as a manure, and had found it efficacious. But apart from actual experience in any particular instance it may be shown that sand is in every respect fitted to act as a fertiliser. A manure acts among other ways (1) in furnishing the building material of plants; (2) in opening the soil to the influences of air and moisture which tend to the activity of what fertilising material may already be present in the land—it is on this ground that much of the difference between long and short manure has to be debated; and (3) in itself acting on material in the soil, which if not so acted on is comparatively useless. Now it is quite possible that in every one of these particulars sea-sand may be operative as a manure. Sand, according to Mr. Millard, consists of "small particles of rock which by no process can be changed." It is evident that Mr. Millard is no disciple of Tull; the thorough tillage which he recommended owes its influence in very great measure to the changes which are thereby effected on the small particles of rock of which the soil consists. Small particles of limestone rock, or what is their equivalent the particles which comminuted sea shells present, are soluble in rain-water, and thus (1) furnish in a soluble form matter which the plants require as food. But (2) sand on clay land such as Mr. Moses Stabbins cultivates confers porosity, and so enables the action of rain-water and of air on matters in the soil which if not so acted on would be useless to the growing plant. It is plain that even though sand were small particles of rock incapable of change, it would be an extremely fertilising agent when applied to stiff clays, whose fault as compared with fertile loam is very often simply a deficiency of the sand which Mr. Millard here condemns as useless. And (3) we have little doubt that a calcareous sand such as that of Weston-super-Mare yields to rain water that which not only feeds the plant itself, but by its action on other matters in the soil provides food indirectly.

In all these particulars sand is the fertiliser which Mr. Moses Stabbins has found it to be; and we hope therefore that the decision of the magistrates, though postponed till another session, will be as much in the interest of agriculture as the Act intended it should, and as on the previous occasion it was, when the question was discussed before them.

They write from Rouen that some losses have been sustained by feeding foals with Trifolium incarnatum in flower. In their stomach were found pellets, at first supposed to consist of hairs, but which a careful examination has shown to be nothing more than Trifolium blossoms on which the animals had been feeding. When out of flower (we presume before coming into flower) no such balls are caused by the plant.

DIARY OF A DAIRY FARM.

August.

This is a good time to commence making leaf or truckle cheeses, which are made from six to nine inches deep and about nine across. It being rather difficult to fill vats of this description, it has been found more convenient to have the vats made of small staves in the same manner as a pail or bucket with white hoops round them, and without bottoms, a piece of board rather larger than the vat being provided to place at the bottom when the cheeses are being made, and kept underneath until they are turned out; this being apart from the vat makes it much easier for taking the cheese out for the convenience of turning and salting, the shape of the cheese therefore will be much improved by this plan. These cheeses if not made with great care are very apt to bulge in the sides, and thereby lose their beauty; and not only is the appearance affected, but the quality also is inferior when the cheeses do not retain the proper shape of straightness on the sides, and flatness on the top; the shape consequently marks the quality; sometimes broad bandages are kept round these cheeses for a time when first placed on the shelves to prevent their getting out of shape, but this is seldom necessary when the cheese is well made. When the vat is about half full a small tablespoonful of fine salt should be put into the middle of the cheese, and well rubbed into the curd, taking care that it does not spread to the outside, which would cause it to separate and be of injury to the cheese. In making truckle cheeses the curd should be quite sweet, thoroughly crumbled, and made as dry as possible before filling the vats, and it should be pressed very firmly in with the hands, and allowed to remain in the press four or five days, turning them every day, and salting them three times. Truckle cheeses after being kept 12 months are fit for use, they always bring a higher price than other cheeses, and are recommended as the most convenient size for the table, and when the top is carefully cut off in one piece, it can be used as a cover to the cheese, which will keep it from becoming dry during the time of consumption; exposure to the air invariably deprives all cheese of its original freshness of flavour. This form of cheese is in some dairies made throughout the whole season, and in others none but these truckle cheeses are ever made. There is however a risk under ordinary management of their bulging and heaving during the extreme heat of the summer, owing to fermentation; and this difficulty does, therefore, in most dairies confine the making of this sort of cheese to the autumn months, when less heat interferes with the ripening of it. The fact is that few people know how to make good "truckles;" the difficulty being, however connected with the quality of the pasture as well as with the skill of the dairy-maid. Whereas on almost any pasture good thin cheese may be made, yet truckle cheeses seem to require a peculiar quality of Grass.

A word or two may be added on Devonshire cream:—In making Devonshire cream for the table and also for butter, the method is to set up tins of milk for 12 hours, then place them either upon a stove or upon an iron stand in a furnace of boiling water, the milk should be heated until quite scalding and a skin appears to form over the surface of the cream; but it should not boil. It should then be carefully taken back to the dairy and allowed to stand 12 hours longer before it is skimmed, when the cream will be found of great thickness, and can readily be made into butter by merely beating it in a bowl with the hand; half an hour is generally a sufficient time for this operation. This plan of course only allows of the milk being once skimmed; butter made thus is generally very sweet and good, and it is imagined there is no loss of cream, the extra thickness quite making up for the loss of the second skimming of the milk. The Devonshire method of butter making may be practised with advantage in a small dairy, but would not be so serviceable as a churn in a large one.

Any of the herd of dairy cows not expected to calve next season should now be dried and turned off as grazers, as the flesh they will gain before winter is of more value than their milk for the remainder of the season; and by giving them a good run of Grass, they will have made considerable advance towards fatness, so that when the keep in the Grass field becomes short, they will be in such condition as to be sold at once to advantage, or by giving them some early Turnips and a little hay they would soon become very good beef, if their room is required for other fattening stock, or if it should not be thought that this dairy stock would pay for a greater consumption of winter food.

HOME FARM MANAGEMENT.—No. IX.

Nothing is more necessary in high farming than a correct knowledge of the natural peculiarities of cultivated plants, and an acquaintance with the general mode of treating them best calculated to ensure a maximum produce. The adaptation of particular plants to the soils on which they flourish with the greatest success, is always a point of much practical importance to the farmer. To render his discrimination as perfect and complete as possible he would require to have an extensive acquaintance with vegetable physiology, and should take every means to observe the circumstances under which the various species of field plants are, or are not, predisposed to disease. It is not to be expected of course that a farm manager can have more than a general knowledge of scientific principles connected with either the physiology or nutrition of plants, but if he is really possessed of this, he will be in a favourable position to lay hold on sound experimental facts, as they are brought before him from year to year in the course of his management. On practical experience the farmers of the United Kingdom have already erected some of the noblest systems of management of which the agricultural art can boast. Step by step they have proved the actual value in practice of every mode of farming which is now recognised as belonging generally to the agricultural systems of the country. And if they have sometimes been over-cautious in admitting into their favour improvements in farm management suggested by men of science, there can be no doubt that *good* as well as evil has been the result of this procedure. All farm practice is necessarily founded on theoretical principles. The latter may not be understood by the mere practical man, even when he is from day to day unconsciously dependent on their action for his success in his calling. He takes care to sow his seeds at the time and in the way which experience dictates—apply manures because he knows they do good though he cannot give the exact reason why—and altogether the rules of good farming common to the district keep him right in a great measure in practice, while he is notwithstanding perfectly unable to give theoretical reasons in detail why they should do this. It is my intention in this and a future letter to refer to the best modes of raising root crops, but before proceeding further I think it may be of advantage to state with the greatest possible brevity the leading principles which are called into action in the development of plant life.

Beginning with the germination of seeds, we shall find that here science bears a very intimate relation to practice. When a seed is deposited in the soil, its integuments and cells are softened by moisture, and part of its carbon being slowly converted into carbonic acid by absorption of oxygen from the atmosphere, a slight evolution of heat takes place. By this partial fermentation a portion of the albuminous or azotised matter of the seed is liberated in the form of ammonia, and another portion is converted into *diastase*, a vegetable acid (either the acetic or lactic acid), which, acting on the starch and gum present, change them into sugar. On the sugar so prepared the embryo in ordinary cases is nourished until its rootlets are extended far enough to draw on the resources of the soil. Now it will be observed that this process can only be effected in a proper manner when the management of the farmer is what it ought to be. The seed must be covered with moist soil; but if it is too far below the surface, or is imbedded in wet plastic clay, the chemical agency of the sun's rays and the influence of the oxygen of the atmosphere will not have their due effect in promoting a speedy fermentation, and of necessity the germ will rot. Or if the temperature of the soil is below a certain point germination cannot take place, and accordingly few of our common seeds germinate in the dead of winter. All these peculiarities indicate how necessary it is that the farmer should sow his more delicate seeds

only at the right time and in the right way if he wish to have a promising braird.

Then if we are to manage field crops to the best advantage we must know something of the nutrition of plants. When a plant sends out its roots it obtains nourishment from the soil, and in consequence becomes larger in size. But how does this happen? Is it possible that small particles of soil are drawn up by the roots, and after undergoing a change are deposited in the interior of the vegetable structure? Well, whatever the means may be by which the development of either our root or grain crops is effected, everything connected with it should be understood by the bailiff of a home farm, otherwise he is not likely to set an intelligent example to the numerous tenant farmers who are watching his every movement. Of course a full notice here of the physiology and nutrition of plants would open up the whole question of manuring in its relation to practical farming, but I shall endeavour to confine my remarks to a mere outline of the general principles which relate to these important matters. It may be stated as an undoubted fact that the soil of itself is as incapable of producing a crop, as either the sea or the atmosphere is. The elements supplied by even the richest soil are simply the dry bones from which the framework of plants is derived. The life, the vigour, the colour, and the nourishing principles which they contain are all to a large extent obtained from the atmosphere. Yet, there is such an intimate connection between the soil and the atmospheric elements of nutrition that the farmer cannot add fertilising ingredients to the former without increasing the action of the latter. This becomes very obvious when we consider for a moment, that the ingredients which plants receive from the soil are only to a very small extent really nourishing in their nature, till they are exposed to atmospheric agency in the leaves of the plants. If the various inorganic substances which the roots assimilate are supplied to them in proper proportions, they give an impetus to the growth of the plants by first giving an impetus to the leaves in absorbing carbon from the carbonic acid of the atmosphere. But to do this with the greatest advantage the manures must be applied not only in the right quantities, but the various substances of which they are composed should bear a well proportioned relation to each other. Suppose, for example, that a home farm manager is determined to have a very heavy crop of Turnips on some light piece of land, and in his ignorance both of chemistry and vegetable nutrition he applies a large quantity of purely ammoniacal manures—well! what would be the result in this case? Why, a very rapid growth would carry the young plants into full leaf at an early period — the organic or atmospheric elements would be largely absorbed, but unless the soil could naturally supply a due proportion of inorganic ingredients the development of bulbs would be very defective indeed. Talk of finger and toe disease in Turnips, and similarly hurtful diseases in other kinds of cultivated plants. But could anything be more likely to predispose our field crops to disease than a disregard in this manner of everything like proportion in the preparing of manures by which they are to be nourished? Every species of plant consists—in addition to its organic elements—of certain mineral substances, and in providing it with a manure we should take care that the composition of the inorganic should bear a right proportion to that of the organic substances. Notwithstanding all that has been stated in the discussion between Baron Liebig and Mr. Lawes on the so-called "mineral theory," the principle always insisted upon by the former is a fact and will ever remain one —that if *soluble inorganic substances* are applied to the roots of plants in *proper proportions*, these plants will obtain from the atmosphere the ammonia and carbon necessary to give them a *normal development*. The necessity for ammoniacal manures in the quantities we now apply them arises from the fact that we have not yet found out the right mode of using inorganic manures, and that we wish extremely heavy crops within a given time. But Jethro Tull and the Rev. Mr. Smith have both proved the soundness of the great principles referred to. It may be a question of *expediency* to apply ammoniacal manures to the soil instead of having recourse to thorough cultivation to draw out its latent resources, but certainly it is not one of *necessity*. What does a salt of ammonia do when applied to the soil but effect a decomposition of the insoluble double silicates it comes into contact with? In the absence of thorough pulverisation and complete exposure to atmospheric air, it is the only agent capable of liberating sufficient inorganic matters to afford nourishment to the crop about to be grown. Have we not in this fact a satisfactory explanation why it is that in ordinary practice far more ammonia is required in a manure for a particular crop than can afterwards be found in that crop? Professor Way considers that much ammonia is lost in supplying the straw of a Wheat crop with its coating of silica, and this may possibly be the case. But it is also very probable that a good deal of the ammonia supplied as a manure remains locked up in the soil for years in the form of an insoluble double silicate. On this subject there is certainly a very wide field of investigation to enter upon, and whoever cultivates it rightly is sure to reap a rich harvest.

There is one thing which under any circumstances should never be forgotten by the agriculturist, and it is this—that the development of all kinds of plants is directly dependent on the amount of solar influence they receive during their growth. Herein lies a great truth which thick-sowing farmers would do well to ponder. If they insist on growing 1000 plants where only 600 should be grown, then they must not expect to have a larger aggregate yield from the former than they might have from the latter, and at the same time they ought to be contented with produce of inferior quality. A full exposure to atmospheric agency is always productive of good results in the elaboration of any species of cultivated crop, provided that that exposure is not inconsistent with a due amount of shelter. *J. Lockhart Morton.*

Home Correspondence.

Destructive Birds and Vermin.—As the time is again approaching when corn of all kinds is generally most devoured and destroyed by predatory birds and vermin of various descriptions, particularly by the sparrows, pigeons, and rooks, it behoves all to be upon the alert with guns and traps and bird-nets for their destruction. All manœuvres of chasing them off or frightening them, and other expedients of this kind, generally prove fruitless, though very expensive. When once they become inured to noises and to strings with feathers attached, &c., all endeavours of this sort are of but little use. The best prevention we have ever discovered of this kind is to kill some and hang them up as examples, and as a terror to the living. Another is a stuffed cat's skin, which however will answer only for a time, as we have ourselves seen chaffinches plucking off the fur to build their nests with. We have also seen birds frequently perching upon the head of a mawkin, though it had been ingeniously contrived so as to imitate a human body. We say townspeople should bestir themselves in this matter as well as farmers, for it is to the interest of the one as to the other—all must be fed. Supposing only one peck of corn per acre of Wheat, Barley, and Oats (to say nothing of seeds), to be devoured and spoiled by those depredators in England, Scotland, Ireland, and Wales it would amount to some millions of bushels more for our use of what we do really grow; and if we would we might grow an immense deal more. Just form the idea, which is a true one, that one sack of Peas would starve a pair of pigeons in a year, were they allowed to feed upon them as they pleased. The writer has often seen many pigeons and rooks, the property of other people, feeding on corn with impunity belonging to himself and others, when they were not at all welcome. As to the rooks, disputes often arise whether they do us more good than harm. We answer this question negatively. A neighbour of ours who has a large rookery maintains it positively, forgetting or not caring for the circumstance that 10*l.* would not repay us and one of our other neighbours for damages done by rooks to various crops of garden Peas, which we have cultivated this year only. He contends that were it not for rooks eating the larvæ of insects, &c., very little corn could be grown. Our reply to him was, "Neither can there be as it is, as on one acre of spring Wheat sown by us as an experiment, at half a bushel per acre, at least three-fourths of the seed corn was destroyed by his rooks; and had not 'thin seeding' been very much in our favour, at least 10*l.* loss must have been incurred to us thereby, and as it is we really do severely feel it, as the entire crop supposed not to be lost is worth 12*s.* per bushel." This gentleman has great notoriety for growing great abundance of crops of all productions in his garden, and we asked him very politely and good humouredly if all this is occasioned by his gardener allowing all his rooks to enter his garden when they pleased to destroy the larva of insects? Or could he name any other gentleman who encouraged rooks and sparrows in his garden for this purpose? "Surely not," he said, "though we do grow the finest crops imaginable." He felt confused at this reasoning, and bowed respectfully to our remonstrances, and said that he did not wish to keep them to annoy his neighbours. We contended that whoever kept rooks and pigeons ought to maintain them, as much as if they were domesticated poultry, &c. If any of our able statists will take the trouble to get a supposed estimate of what rooks, pigeons, birds, rats, and mice consume and destroy annually, it will appear immense and astonishing to unthinking minds, and we trust will lead to a partial annihilation at least of such pests to the future well-being of not only ourselves but of our countrymen at large. *Hardy & Son, Seedgrowers, Maldon, Essex.*

Crops in the North of England.—I have recently been over a considerable portion of the counties of Durham and Lancaster, and of the North and West Ridings of Yorkshire. I do not mean that I have performed a railway journey through the districts, but, in the discharge of my professional engagements as land agent, I have been over a good deal of the land, and carefully examined the crops. The following is the opinion I have formed after this inspection. The hay harvest is now about, and in consequence of the dull weather up to last week, only just about over. The crop has not been a large one; but it has nearly all been secured in capital condition. Wheat.—Upon good land, under fair cultivation, Wheat has shot into ear better than was expected; in some fields it is thinner on the ground, when you are among it, than it looks from the outside, but on the whole I consider on this description of land it will prove a full average crop. On inferior soils, wet clays, and farms in bad cultivation, the crop is considerably below an average. This summer, until very recently, has been a dull one, and for want of sunshine Wheat on this sort of land has shot into ear very slowly, and the ears are small. Barley is most promising everywhere. I do not think I ever saw finer crops of this useful grain than those now growing upon real Barley soils. Oats vary much; on good land well cultivated the crops are magnificent, while on wet neglected soils many of them will never shoot into ear; but I think on the whole the crop will be an average one. Beans are not a great length in the stalk, but bloomed unusually well; I find, however, on examination that no useful pods have been formed on the upper part of the stalk; this is attributed to the effect of the frosty night we had last month. Turnips.—Swedes sown early have done well, and now cover the ground; those intended to be sown in the latter end of May met with a very wet season; on much land Swedes could not then be got in, and Yellows had to be substituted. These and the Whites have brairded fairly, but they are late, and I do not consider the general crop of Turnips by any means safe yet. Potatoes have been planted to an unusually great extent this year; guano has been freely applied, and thus far the crop is exceedingly promising. To show how expensively this crop is now prepared for, I may state that a gentleman of high standing and farming his own property in the West Riding told me that his Potato crop stood him, on a moderate estimate, in manure, sets, and cultivation, to 13*l.* per acre; but he last year sold his whole crop at 21*l.* per acre, and the purchaser had to take up the Potatoes. This may be taken as a fair specimen of the high farming many of these spirited agriculturists are now following, and when it is added that not a weed is to be seen on the land, there can be little doubt of beautiful and abundant crops being the result. *Roaldus.*

How to Preserve Turnips from the Fly, &c.—I have this year growing in a field of 10 acres a crop of dibbled Swedes that have come up very thickly, not one plant of which appears to have been attacked with the fly, nor have birds apparently molested them, whereas, in another field on the same farm, at some distance therefrom, these pests have done much mischief. Along the headlands of the former field were deposited, about the end of April, in a heaped row, the weeds and other rubbish taken out in cleaning it. This heap, after being covered over with a layer of sods and earth, was ignited along its entire length, and it has kept smouldering ever since, emitting all the time a good deal of smoke, which, as the wind has been generally from that quarter, has almost constantly hovered over the field, so that to this circumstance I have no doubt may be attributed the complete preservation of the plant from the ravages above mentioned; and, moreover, instead of the smoke doing any injury, it appears to have afforded benefit by causing the foliage of the plants to assume a darker colour, as well as their growth to be stronger. The land was manured in the common way with farm-yard dung, and nothing else. *C. T., South Wales, July.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Monthly Council, *Aug.* 6.—Lord Portman, Trustee, in the chair. Thirty-three new members were elected.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, reported that the current cash-balance in the hands of the Society's bankers in London was 2781*l.* He laid before the meeting the usual quarterly statements connected with the different branches of income and expenditure. He reported the recommendation of the Finance Committee that the best thanks of the Council should be given to Messrs. Sparrow, Round & Co. for the great courtesy and exactness with which they had acted as the local bankers of the Society during the period of the Chelmsford meeting. This recommendation was unanimously adopted by the Council.

House.—The report of the House Committee in reference to the repairs required in the Society's House, was read and adopted.

Reaping Machines and Steam Cultivator.—Reports having been read from the stewards and judges at Chelmsford, the following decisions were made:—

"The Council authorise Sir Archibald Macdonald and Mr. Gibbs to direct the repairs of injuries caused by some accident since the Chelmsford Meeting to be made, before the trial at Boxtead Lodge, in the reaping machine of Messrs. Burgess & Key. The application of Messrs. Dray & Co. to remove an impediment, caused by the alleged neglect of their workman, so as to enable their reaping machine to work as intended, to be acceded to, provided Mr. Amos is of opinion that it is not an alteration of the principal works of the machine rendered expedient in consequence of the trial at Chelmsford.

"That the days for the adjourned trial at Boxtead Lodge be the 13th and 14th of August.

"The Council consent to sanction the attendance of Mr. Amos, the Society's consulting-engineer, to witness a private trial of Fowler's steam plough at such place as Mr. Amos may arrange. That the Council expect that the steam plough will be ready for work at Boxtead Lodge on the 13th of August: and that Mr. Amos, Mr. Caldwell, Mr. Gooch, Mr. Chalcraft, Mr. Sewell Read, and Mr. Huskinson, be requested to attend. The Council cannot accept any report that may be founded on such trial as an award, but will take such further proceeding for future trial, as, after receiving any report from Mr. Amos and the judges, may seem to be advisable. That Mr. Amos be authorised to adopt the dynamometer for the purpose of such trial."

Protests and Recommendations.—Protests connected with the Chelmsford Meeting, and recommendations in reference to points connected with future country meetings, were referred to the Stewards for respective reports.

It is understood that the trials on the first day, namely, on Wednesday, the 13th of August, will be *strictly private*, in order that the judges and consulting-engineer may have full and uninterrupted opportunity

of testing the actual character of the machinery at work.

Country Committee.—The general Country Committee for next year was duly appointed; Lord Portman being the chairman of it, and Mr. Cavendish the Vice-Chairman.

Communications from the Earl of Clarendon on the progress of the Polish cattle murrain and the German wool fairs were announced as referred to the Journal Committee; Prof. Way laid before the Council his analysis of the bat guano forwarded on a previous occasion from the Foreign Office; his Excellency Lord Cowley transmitted from France a work on the cultivation of Wheat; and Mr. Whiting, of Beaufort House, specimens of the new fish manure, manufactured by the London and West of Ireland Fishing and Fish-manure Company.

The Council having granted to the Secretary and the Clerks of the Society the usual vacations, adjourned over the autumn recess to the first Wednesday in November.

Highland Society.—At the Inverness meeting of this Society, which is too late in the week to enable us to give a report to-day, we understand that the entries of live stock, implements, &c., are much larger than they were at the same place ten years ago; 240 cattle are shown against 219 in 1846; 204 sheep against 133; 331 implements against 59. One thousand pounds are given away in prizes, and the complete management of Mr. Fisher Hobbs, who is furnished with all the appliances that ample means and intelligence can supply, furnish the materials of a very interesting paper, the substance of which we shall probably transfer to our columns another day.

Yorkshire Agricultural.—The annual meeting of this Society has taken place during the past week at Rotherham. A large show of live stock including no fewer than 170 entries in the horse class, a good show of poultry (300 pens), and an excellent collection of implements, to which most of the agricultural machine makers of the country contributed either directly or through their agents, rendered the gathering particularly interesting and successful.

We have space for little more than the prize list, but must first allude to a very fair and excellent trial of the reaping-machine. Two only of the several forms of reaper competed for the Society's award—Hussey's by Deane and Dray, and Palmer's Union Reaper, with his patent side delivery. The trial was not so interesting as that at Chelmsford, from its not including representations of all the reapers now in use, but from being later in the season when the efficiency of the machine can be better tested, it was more perfect so far as it went. The prize was awarded to Palmer's Union reaper. The following is the award of prizes to cattle and sheep; that for horses is not made till later in the week.

Short Horned Cattle.—*Old Bulls.* 25*l.* to Mr. Ambler, Halifax, for Grand Turk; 10*l.* to Lord Feversham, for 5th Duke of Oxford.—*Yearling Bulls.* 20*l.* to Mr. Fowkes, Otley, for General Bosquet; 10*l.* to Mr. Bland, Coleby Hall, Lincoln, for Lord Raglan.—*Bull Calves.* 10*l.* to Mr. Douglas, Drem, N.B.; 3*l.* to Mr. Clarke, Bilton, York.—*Old Cows.* 10*l.* to Mr. Towneley; 5*l.* to Mr. John Booth.—*3-year old Cows.* 10*l.* to Mr. Towneley.—*2-year old Heifers.* 5*l.* to Mr. Towneley: 5*l.* to Mr. Douglas, Drem.—*Yearling Heifers.* 10*l.* to Mr. Richard Booth; 5*l.* to Mr. Douglas.—*Heifer Calves.* 5*l.* to Mr. Towneley.—*Fat Oxen.* 10*l.* to Mr. L. Thompson, Sheriff Hutton Park; 5*l.* to Mr. Ambler.—*Fat Cows.* 5*l.* to Mr. R. Booth.

Cattle of any Breed.—*Dairy Cows.*—5*l.* to Mr. W. Stead, Owleston; 2*l.* to Mr. Camm, Southwell.

Extra Stock.—1st, Mr. Rd. Booth; 2d, Mr. Towneley.

Leicester and Long-woolled Sheep.—*Shearling Rams.* 15*l.* to Mr. J. Borton, Malton; 5*l.* to Mr. S. Wiley, Brandsby.—*Old Rams.* 15*l* to Mr. Borton; 5*l.* to Mr. Wiley.—*Pens of 5 Ewes.* 5*l.* to Mr. Simpson, Spofforth Park; 3*l.* to Mr. W. Jordan, Bridlington.—*Pens of 5 Shearling Wethers.* 5*l.* to Mr, Smith, Kirkby Moorside.—*Pens of 5 Shearling Gimmers.* 10*l.* to Mr. Abraham, Ulceby; 5*l.* to Mr. Beale Browne, Hampen.

Southdown Sheep.—*Old Rams.* 10*l.* to Mr. Foljambe, Worksop.

Mountain Sheep.—*Old Rams.* 3*l.* to Mr. Hawksworth, Penistone; 1*l.* to Mr. Taylor, Penistone.—*Pens of 5 Ewes.* 3*l.* to Mr. Hawksworth.—*Pens of 5 Wethers.* 3*l.* to Mr. Ferrand, Bingley; 1*l.* to Mr. Ferrand.—*Extra Stock Sheep.* 1st to Mr. Fullerton, Rotherham; 2d to Mr. Abraham, Ulceby.

Pigs.—*Large Boars.* 5*l.* to Earl Fitzwilliam; 2*l.* to Mr. Smith, Normanby.—*Large Sows.* 5*l.* to Mr. Wainman, Carhead; 2*l.* to Mr. Wilkinson, Leeds.—*Small Boars.* 5*l.* to Mr. G. Mangles, Ripon; 2*l.* to Mr. Mangles.—*Small Sows.* 5*l.* to Mr. Mangles; 2*l.* to Mr. Mangles.—*Other Sows.* 5*l.* to Earl Fitzwilliam; 2*l.* to Mr. Palmer, Skipton.—*Other Boars.* 5*l.* to Mr. M. Gavin, Leeds; 2*l.* to Mr. J. Knowles, Rotherham.—*Three Store Pigs.* 5*l.* to Mr. Wiley, Brandsby; 2*l.* to Mr. Fullerton, Rotherham.—*Extra Stock.* 1st to Mr. Mangles; 2d to Mr. Towneley.

County of Cork.—At the late meeting of this society Sir Richard Kane made the following remarks on the relations of science to agricultural improvement:—

"The agriculture of this country must, like the other departments of industry, base itself upon not merely the casual and ordinary results of our mild and favourable climate, and the exuberant fertility of our soil, but in order to keep pace with agricultural improvement in other countries, in order to hold our place in a financial and industrial point of view with the farmers in other lands, it will be necessary that we should apply to the cultivation of our soil the same modes of amelioration—the same improvements in manures, in implements, and in the rotations which the agriculturists of England and Scotland, and now of the continent, are most ardently and energetically availing themselves of. In this respect the researches of science will prove to the agriculturist of incalculable value. The most eminent scientific men of Europe are applying themselves to the examination of the conditions upon which the successful growth of crops depend. There is nothing of more importance to the practical improvement of agriculture than the development and inculcation of those scientific principles upon which the success of agriculture like the success of any other department of industry, must depend; for agriculture is a manufacture—the manufacture of food—as perfectly as there is a manufacture of cotton or iron, and it depends upon the principles of physiological science precisely as the others depend upon their respective sciences; but it is necessary to take into account that the class of individuals that have to deal with the scientific improvement of agriculture in its higher and true department must be persons already fitted by education for the reception and appreciation of scientific laws, and that by attempting to force scientific expressions and scientific language into the mouths of a class who are not already prepared by education to receive and understand them, you prejudice them against the practical results which these scientific truths are intended to convey: you embarrass them by a language which they do not perfectly understand: and you run the risk of doing them more harm than good. It is, therefore necessary to separate the promotion of scientific agriculture, which involves a thoroughly educated class of gentlemen or farmers prepared to receive it, from the spread of the practical results of that scientific agriculture, which may be permeated and should be made to permeate among every class, and even the lowest class of our agricultural population."

Chemical Agricultural Society of Ulster.—We extract from the report on artificial manures, presented by Dr. Hodges, the following passages:—

Valuation of Manures.—The following are the prices per ton at which, at the present time the chief ingredients of manure, in a state of purity, may be estimated. These prices, it must be recollected, will be influenced by the fluctuations in the rates to which the compounds upon which the calculation of their value is based are subject. They, however, may readily be corrected, and will enable farmers to obtain a close approximation to the money value of manuures:—

Value per Ton of the Ingredients shown by Analysis to exist in Guano and Artificial Manures:

Water	£0 0 0
Organic and ammoniacal nitrogenised matters	Dependent upon the amount of ammonia which they are capable of yielding.
Organic matters destitute of nitrogen, and not capable of yielding ammonia by their decay	£0 10 0
Ammonia	56 0 0
Phosphate of lime	7 0 0
Phosphate of lime rendered soluble	25 0 0
Alkaline salts when chiefly soda compounds	1 0 0
Potash	20 0 0
Common sulphate of lime, gypsum unburnt	1 0 0

The above prices, which have been carefully calculated from consideration of the rates at which the various fertilising ingredients mentioned can at present be obtained by farmers in this country, will afford the purchaser of manures the means of judging how far the substances which a manure is shown by analysis to contain, is worth the price demanded for it. It will be perceived that the price which we have affixed to phosphate of lime rendered soluble differs considerably from that which has been adopted in the excellent paper which Mr. Way some time ago published in the Journal of the Royal Agricultural Society of England,—viz., 32*l.* 13*s.* 4*d*; but Dr. Ritchie, from his experience as a large purchaser of bones and manufacturer of manures, agrees with me that the value per ton which I have given—viz., 25*l.*—fairly represents the price at which that substance could be prepared by the farmer from bones.

How Farmers may detect the Adulteration of Guano.—As it may occasionally be useful that farmers should be enabled to test the qualities of guano, I have, from a careful consideration and examination of various methods proposed for this purpose, devised the following simple plan of proceeding, which, in the absence of facilities for a more extended chemical analysis, may be adopted:—1. Weigh 50 grains of the sample, and dry it completely, by placing it in a paper before the fire, or over the water bath (a simple apparatus for this purpose is readily contrived, by placing a common saucepan containing water on the fire, and inverting the lid, upon which the substance to be dried spread on a piece of writing paper is to be supported and exposed to the heat of the water in the pan kept boiling until it ceases to lose weight). The loss of weight which is produced by drying the sample, multiplied by 2, will represent the amount of water present in 100 grains; of course, the less water present the better the sample. 2. Weigh 20 grains of the dried sample, and spread it upon a piece of thin glass, the size of half-a-crown, broken from the bottom of a Florence oil-flask, and support the glass by means of a piece of iron wire, bent so as to form a tripod over the flame of a spirit lamp, or when a spirit lamp cannot be obtained, place the guano in a metal spoon, and expose it to the heat of a clear fire. Heat the specimen either over the lamp or fire until the blackness which is at first produced by the charred organic matter has entirely disappeared. If the residue, after being strongly heated for half-an-hour, is greyish white, the guano is probably genuine; if it assumes a reddish colour, it has been mixed with earthy matters. Ascertain the loss of weight, which multiplied by 5, will, after subtracting the amount of water found by operation No. 1 to be contained in 100 parts of the guano, represent the percentage of organic and ammoniacal matters. 3. Place a teaspoonful of the guano in a bottle, add to it about a tablespoonful of quick lime, made into a cream with water. Shake the mixture, and observe the intensity of the ammoniacal odour. The stronger the smell of head salts produced, the better the guano. 4. Introduce the matter which is left on burning the sample of guano (*operation* 2) into a tumbler, and add to it a teaspoonful of spirit of salts, and about half a glass of water. If a brisk escape of gas, shown by the bubbling up of the liquor, is observed, the guano is adulterated (by limestone, chalk, or marly earth). Pour the mixture upon a filter formed from a piece of blotting paper, or allow it to remain at rest for some minutes, and decant off the clear liquid portion, and wash it from the acid by pouring water over it two or three times. Dry the solid residue thoroughly before the fire or on the water bath, and ascertain its weight, which, multiplied by 5, will represent the sand and earthy matters contained in the sample. By means of these simple operations, which any person of ordinary intelligence may successfully perform, the character of a sample of guano can readily be discovered. If the purchaser has reason to conclude that the manure sold to him as genuine be adulterated, he should at once forward a sample of it to a chemist, that its actual value may be ascertained. For this purpose about two ounces of the guano will be sufficient, which may be enclosed in a double covering of stout paper, and forwarded by post. The cost, for a complete analysis, to a member of the society, is only ten shillings. Farmers should be aware that the sum paid to a merchant, beyond what the analysis shows the manure to be worth, may be readily recovered.

Reviews.

Brickmaking. By Humphrey Chamberlain, Draining Engineer. Kempsey, near Worcester.

This is a pamphlet reprinted from the Journal of the Society of Arts, and it deserves a wider circulation than it has yet received. Any one about to erect kilns and machinery on his estate would do well to read the very full and detailed instructions which Mr. Chamberlain gives. His paper received one of the few honorary distinctions which the Society of Arts awards during their session, and that it well deserved this mark of their approval will be admitted by all its readers. The pamphlet contains two essays, in one of which the making of bricks is referred to, and in the other the art of drying and of burning them. We shall refer shortly to a few of the facts which Mr. Chamberlain adduces in illustration of his subject.

"The quantity of bricks made per annum in this kingdom is about 1,800,000,000. Of this quantity Manchester alone makes about 130,000,000 per annum. What are termed the London makers produce about the same quantity, but bricks are sent to the metropolis from a circuit of 100 miles; it is, therefore, impossible to give exactly the consumption. Taking bricks at the low average of three tons per 1000, the annual make exceeds in weight 5,400,000 tons, and the capital employed must be upwards of 2,000,000*l.* sterling."

The process of brick-making near London is described as rough and imperfect, so that it pays to purchase the better quality made elsewhere, so far away as 100 miles.

The number of patents taken out connected with the manufacture of bricks exceeds 200, the main object of the machinery as patented being the imitation of the manual operation of moulding:—

"The art of the brickmaker, or moulder, is the knack with which he throws, or drops, the soft clay into the mould, so as to fill up every corner. This is apparently a very simple process, the accomplishing of which by machinery has caused a vast expenditure of time and money, and occupied the attention of many leading mechanics for some years."

The description of brick clays, of the principal machines for working it—viz., the pug-mill, the wash mill, and the rolling mill—and that of the machinery employed in moulding, occupies the first of Mr. Chamberlain's papers. The object of this machinery is to manufacture "a rectangular block of clay about 10 inches long, 4¾ inches wide, and 3¼ inches deep, containing some 154 cubic inches, into as compact, hard, and durable a material as a block of stone. There are four principles on which these machines effect this. 1st. By moulding the dry clay (that is, clay containing only sufficient moisture to allow its particles to adhere when subjected to considerable pressure) by powerful machinery; 2d, by imitating the old process of hand-making, filling moulds with soft-tempered clay like mud; 3d, by forcing clay in a stiff plastic state through dies or apertures the size of a brick, endways or edgeways (a die is a plate with a hole cut in it of the shape which is desired to be given to the clay); and, lastly, forming a stream of clay to the desired shape by rollers."

The difficulties which have attended all attempts hitherto to accomplish any of these operations are enumerated, and Mr. Chamberlain then describes his own machinery for the purpose:—

"The clay is fed into a pug-mill, placed horizontally, which works and amalgamates it, and then forces it off through a mouth-piece or die of about 65 square inches, or about half an inch deeper and half an inch longer than is required for the brick, of a form similar to a brick on edge, but with corners well rounded off, each corner forming a quarter of a 3-inch circle, for clay will pass smoothly through an aperture thus formed, but not through a keen angle. After the clay has escaped from the mill it is seized by four rollers, covered with a porous fabric (moleskin) driven at a like surface speed from connection with the pug-mill. These rollers are two horizontal and two vertical ones, having a space of 45 inches between them; they take this larger stream of rough clay, and press or roll it into a squared block of the exact size and shape of a brick edgways, with beautiful sharp edges, for the clay has no friction, being drawn through by the rollers instead of forcing itself through, and is delivered in one unbroken stream. By hanging a series of mandrills or cores between these rollers, or by merely changing the mouth-piece, we make hollow and perforated bricks, without any alteration in the machine. The pulley which drives the belt working these rollers is not of sufficient diameter to be able to draw the clay away from the mouth-piece, if the man feeding the machine should neglect his work. This small pulley runs loose in its strap, leaving all the details of the machine stationary until more clay is fed into the mill, when it again immediately resumes its functions. The bottom roller carries an endless belt, on which the stream of clay is delivered to the cutting-frame. This carries a wire, which is constantly traversing at a compensating angle, while the clay is in motion, and thereby makes a square cut. After it has divided one brick, it changes its action and cuts off the succeeding one at

the opposite angle to that which it had previously traversed. This wire is put in motion from gearing in connection with the rollers, which press the block of clay into the shape of a brick, and thereby acts with mechanical correctness. For if the smallest portion of clay escapes from the mill, motion must be given to the rollers or rotating die by the driving strap, and from them to the cutting wire. The bricks, as fast as made, are passed on by the machine to boys in attendance, who receive them on pallet boards, and remove them to the drying floors or hacks."

The remainder of Mr. Chamberlain's paper is devoted to the consideration of the plans of drying and burning bricks, and we have not room for more than to say that the great source of economy in this department of the manufacture will be in using the heat from the cooling bricks in order to dry those that are unburnt.

The whole pamphlet is exceedingly interesting and instructive, and deserves publication in a separate form.

Miscellaneous.

A Plant needs Manure in Proportion to the Rapidity of its Growth.—"The greatest increase of cereal crops that I ever obtained from the application of artificial manures was from superphosphate of lime to Barley that was sown about the middle of May on light sandy soil. A very considerable quantity of superphosphate of lime has been applied to late-sown Barley in Fife with the best results. I would 10 times rather trust my late-sown Barley with superphosphate of lime than I would my early-sown Swedes with the same substance. I have, therefore, no reverence for the recipe, 'phosphorus for Turnips, and nitrogen for corn.' I shall have a few words afterwards on the ammonia question; and in the meantime I think my readers will now perhaps concur as I do with Liebig, that 'it requires all the courage derived from a want of intimate acquaintance with the subject, to assert that certainly ammonia is peculiarly fitted for grain, and phosphorus for Turnips.' But the recommendation that Mr. Lawes has given in Rendle's Price Current, as to the manures sufficient for growing a full crop of Barley, points to a most important principle for which I have long contended. I knew perfectly well the authors of the Rothamsted papers, who really do know a thing or two about manures, were gradually drifting towards its recognition, although the current is still setting strongly in towards the soil-absorbing theory. The recommendations which Mr. Lawes has given in Rendle's Farm Directory are contained in a table. The quantity of ammonia required by the Barley crop, according as it may be late or early sown, is curious. I extract his allowances for a crop of Barley from the first and last columns of his table:—

"'Barley (early sown) after a grain crop, or when the whole of the roots are taken off the land—3 cwt. of Peruvian guano per acre.

"'Barley sown very late in spring—1 cwt. of Peruvian guano, and 2 cwt. of superphosphate of lime per acre.'

"These are the results of the 'recent experiments,' and very curious they are. Mr. Nesbit, in his lectures on Agricultural Chemistry, tells us that the whole amount of ammonia and nitric acid which descends with the rain in the neighbourhood of Paris, is only equal to a dressing of 2 cwt. of guano to the acre—just equal to the difference in the quantity of ammonia that a crop of Barley requires when it is sown very early, instead of being sown very late. Mr. Lawes gives no theory for this remarkable difference. The explanation of this fact will afford a key to an important principle in the theory of rotations. One would be very naturally led to believe, that as Barley, which was sown late, had 'less time to extend its roots in search of the minerals contained in the soil,' as Mr. Lawes writes, it would also have less time to search for the ammonia contained in the soil. The early-sown Barley or autumn Wheat has far more time to search for both; but while it finds plenty of the one substance, phosphate, it fails to find the other. The facilities which the Barley has of finding ammonia are vastly greater when it is sown late in spring. The objections are legion to the supposition that it has anything to do with the kind of soil with respect to its ammonia-absorbing properties. After thinking a good deal over this question, I know of no objections to the supposition that the late-sown Barley can absorb, directly from the atmosphere, a much greater amount of ammonia than what early-sown can do. I cannot yet give a better explanation of this, and hundreds of other parallel facts, than I gave years ago: 'When the physiological characters of plants are somewhat similar, the amount of ammonia required in manures is in the inverse ratio to the amount of heat and moisture in the atmosphere during the time the primary organs of plants are developed.' The higher the temperature and the greater quantity of moisture in the atmosphere, the greater facilities have the leaves of plants of absorbing ammonia from the air. Less manure thus serves for late or summer sown crops. This law is a universal one. Wheat, Barley, Oats, Rye, Turnips, Tares, Potatoes, can all be raised with less manure (ammonia) when sown late in the season, when the temperature is high. Thus many of the cereals alter their natures altogether when sown at midsummer; they will all put forth three or four leaves at that season for one they would put forth in March. Indeed, it appears to me that in all cases in which crops are increased by superphosphate of lime, when the soil contains a considerable quantity of phosphates, it indicates a power on the part of the leaves to absorb ammonia from the air. There seems no other way of explaining the action of this substance. For example, superphosphate, as I have long ago pointed out, is of little or no benefit as a dressing for early spring-sown Turnips, Barley, Oats, or Tares, but it is so far an effective manure for all these crops when they are sown late in the season. In beautiful conformity with this principle, I learned while I was travelling through America, that Maize, Millet, Buckwheat, although almost identical in composition with Wheat, are largely benefited by phosphates and ashes, from the fact that these crops are all sown in summer, and grown in summer. I should be glad if any one would suggest another theory for these facts than that leaves have greater facilities during warm weather of fixing ammonia from the atmosphere. I have lately found that a great observer distinctly states this principle, and at the same time comprehends others also—

'Gardeners do with ordure hide those roots
That shall first spring, and be most delicate.'
Henry the Fifth.

It is almost needless to say that *ordure* signifies putrifying matters yielding ammonia. Shakespeare could not have selected a better word for the purpose of drawing the distinction between the requirements of early and late springing crops. Guano is but Peruvian *ordure.*" *Mr. Russell in the Quarterly Journal of Agriculture.*

Red Sulphate of Ammonia.—Under this name a dark red powder, smelling slightly of gas water, has come under my notice. It is acid to test paper, and gives off a comparatively feeble smell of ammonia when mixed with lime. Its composition was—

Water	20.02
Organic matter	18.85
Sulphate of ammonia	14.67
Peroxide of iron	6.11
Sulphate of lime	24.94
Alkaline salts	4.74
Sulphuric acid	4.36
Sand	6.31
	100.00
Ammonia	3.78

To name a substance which contains 14 per cent. of sulphate of ammonia as if it consisted entirely or mainly of that compound, is an obvious deception, by which no doubt many persons have been taken in. It is not worth more than 2*l.* 2*s.* per ton. *Professor Anderson in the Journal of Agriculture.*

Calendar of Operations.

JULY AND AUGUST.

APPEARANCE OF THE CROPS.

BORDER OF THE FENS, *July* 29.—One of the main characteristics of the season is the many instances of failure of Turnips, nearly every field giving evidence of the ravages of the fly, and a serious loss this will be, for although when abundant they may be not worth more than 8*s.* or 10*s.* per ton, yet when scarce what can be substituted for this cheap and wholesome food for either sheep or beasts? Mangel Wurzel has also partially failed, but wherever there is a plant now it grows very fast, and as there is an increasing breadth grown every year, we trust a sufficient quantity will be available for the exigencies of the ensuing winter. We believe that, compared with former years, a larger breadth of green crops is taken, and therefore quite a proportionate quantity of artificial manure is used. No wonder the price of the best guano is enhanced, or that there is some difficulty in getting supplied with superphosphate from respectable makers; almost every farmer is anxious to purchase a little addition to the straw-yard heap of his own making; nor need we be surprised at the readiness with which any decent compost finds customers, when we read in your last week's Paper that such a man as Skirving prepares his "gasometer" by mixing "two loads of common loamy soil to one load of town dung, sewage, and road scrapings." If this is the receipt for "English guano," which is more than probable with some merchants, they can find a tolerable margin for profit at 3*l.* 10*s* per ton, the advertised price here for very middling stuff. Mr. S. is perfectly right to obtain effective manure at a moderate cost, and we could only suggest as a probable improvement upon his compost, to mix a portion of lime with it as is our own practice, but we have a further resource which he perhaps has not at command, viz., the parings and bottoms of dikes, a given quantity of which is required to be excavated every year: and it is our intention, as indeed it has been for some time the practice of a neighbour, to stifle-burn these hassocks or turfy spits of mud and vegetable matter combined, which make capital ashes to be used for the next fallow crop of Turnips or Coleseed, the overplus, if any, to be added to the compost before alluded to. We have not had so large a share of rain as has fallen in other districts, consequently the Grass is getting very scant, and there are complaints of Potatoes being few and small, though healthy at present. There now occurs an interval before harvest that is generally devoted to all kinds of odds and ends of work, mending and oiling harness, levelling bye-roads, cleaning hedges and corners of Nettles and Thistles, deepening ponds, carting out the remainder of the manure for Wheat or Beans, then what is to spare upon any poor piece of eddish that requires dressing, selling wool, dipping lambs, mending fences, repairing carts, waggons, &c. Labourers are plentiful, and will be for another week or two, then if the weather continues warm and dry, there will be a great demand for hands of all ages. *J. W., Peterborough.*

FARM NEAR CHELMSFORD: *Aug.* 1.—The crops of Wheat and Barley upon this farm will be ready for the sickle on the 4th inst.; a forward piece of Talavera Wheat has been commenced reaping this day. The straw is free from blight or mildew, and the grain plump and even, and will undoubtedly be a yielding crop. The White Wheat consists of Talavera, Hopetown, and Taunton Dean; the whole are promising, but much is lodged and will be expensive to harvest. The Red Wheat consists of Clovers, Bristol, and Nursery; these are mostly standing crops and will be a full average crop, some pieces will be a great crop, and upon the whole we think them better crops than those of 1855. The sample will undoubtedly be better. In our remembrance we never recollect having seen them more free from blight or mildew. As regards the Barley it will be a full crop, and will be ready to cut at the same time as the Wheat. Oats are also good, and Peas and Beans an excellent crop. The Rye is cut but not carried; the stooks, however, are placed closely together, and the intervening spaces are planted with Cattle Cabbages and Coleseed. These, with the Rye that is shed, will form excellent spring feed for ewes and lambs. Our Mangel Wurzel is excellent, we never recollect having had it so fine; the Long Red and Globe Red, however, are superior to the Long Orange and Globe Orange varieties. Upon that portion manured entirely with guano, Stevens's manure, and salt, but few have started for seed, but upon that portion manured with farmyard dung and guano, and a like quantity of salt, many have run to seed. These are pulled out daily and given to the live stock; it is useless leaving them to form roots, and they are very unsightly. Our early sown Swedes are excellent, the later sown very deficient, as they are generally found to be throughout the district. The common Turnips have planted well, and the early planted Cattle Cabbages are now thriving well; the rain that took place on the 15th came very opportunely for them, but it beat down all our best pieces of Wheat level with the earth. We contemplate having Wheat ready to thresh in ten days, and the opportunity will not be lost. If the weather holds fine and hot as at present, so as to bring the Wheat into good marching order, prices must recede greatly, but we contemplate Barley will maintain its value; it will be a deficient crop in many districts and a small breadth only has been sown. Potatoes show symptoms of disease slightly, but at present but few tubers have been found attacked. The prevailing state of the weather is very favourable to them, and we consider that they will in a short time be out of danger. The green crops generally are deficient throughout this district, with the exception of Mangel Wurzel, which is excellent.

FORFARSHIRE GLENS, *July* 30.—The crops are all late, the weather for the most part having been ungenial, wet and cold. All the cereals bulk well on the ground; the Barley is in bloom, Oats and Wheat are just showing the ear. A cold and rainy summer is not unfrequently followed by a dry and warm autumn; should the present season prove to be such a large crop will be secured, but at this date it is about 14 days in arrear of average seasons. Hay-making is progressing, the crop is a full one, and the weather for the last 10 days not unfavourable. Turnip fields are in full plant, not early but equal; some distant murmurs of finger and toe disease, but nothing apparent. Potatoes are healthy and growing, but seemingly less vigorous than last year, and indicate a smaller produce per acre. Pasture Grass has been abundant throughout the season, and animals making satisfactory progress. Graziers calculate upon their rents and expenses as already secured, and look to the remaining part of the season for profit. The Angus Agricultural Association has this season, for the first time, awarded prizes for black-polled cattle bred in the highland district of the county, as a separate class. Our glen farmers would do well to attend to this; few of them may gain prizes, and still fewer profit by them, but all are sure to profit by keeping pure the kind of stock best suited to the soil and climate of the district which they occupy, a kind of stock which has always commanded the highest price in the market, and which is now likely to be in greater demand than ever, both on account of the high estimate in which the breed is held, *per se*, and also for its value as a cross with the short-horns, with which it has generally got hopelessly mixed in the lower districts of the county. An average weight of superior wool has been shorn and sold, the price is 9½*d.* per pound for black-faced washed, being a shade higher than last year. The crop of lambs is a fair average, both as to numbers and quality. The flocks are all now dispersed through their native glens, in the full enjoyment of freedom and quietness, with the food and temperature best suited to their nature, and are progressing accordingly. Every pair of able and willing hands in the district find full employment and full remuneration, and the native poor are well cared for and do not need to beg from door to door, but during every summer and autumn we have an influx of vagrants, which come in streams from the towns and spread through the glens, avoiding as far as possible the lower districts of the country, partly on account of the police, and partly and chiefly because they meet a more kindly reception among the hills, where the benevolent feeling has not yet been petrified by the influence of a legal assessment. *S.*

GLOUCESTERSHIRE.—The following observations as applying generally to the light dry soil on this range of hills (from 600 to 700 feet above the Severn) may not be unacceptable. Hay crops—good and well got up on my own property and in the immediate neighbourhood in the first week of July. Some farmers cut late and have not yet finished carting. My Barley is short in the straw—a middling crop, but ripening fast; will be ready to cut in about a week. Wheat looks well and Oats splendid. The roots of every description have made a good plant, but are much in want of rain, from the absence of which we are also very short of Grass; the absorption upon the sandstone soil which prevails here to a great extent is so rapid and complete that we seldom complain of having too much rain, and the present season has been unusually dry, with much wind. Our temperature on this range of hills, unless there is a decided change, is particularly even, and shows little fluctuation in the 24 hours, either night or day. At a lower level I have no doubt the fluctuation would be many degrees. Thermometer to day 74° in the shade, which is the highest point it has reached this summer. *St. Briavel's, Aug.* 1.

LANCASHIRE.—I cannot give you any reliable information respecting the crops in this neighbourhood for at least two or three weeks yet. The harvest must be a late one; there is plenty of straw in the white crops, but from the sunless summer we have had, I am afraid the Wheat and Barley will turn out deficient in grain. The Oat crop I expect will be good. The hay crop is a fair average, but has been a very expensive one to save. Much of it is yet out. Potatoes look well, but there are a great many diseased ones. Early sown Swedes grow very slowly, and there are a great many bunchy tops among them. Late sown common Turnips look well. We have had two days rain, with the barometer rising. *G. Drewry, Holker, July* 30.

NORTH HANTS, *July* 31.—The present beautiful weather is rapidly bringing the crops to maturity, and the prospect of the coming harvest is generally very good. On the forward farms Wheat cutting will commence on Monday next, and, with a continuation of fine weather, by the following Monday harvest will be general. With the exception of partial blight—rotted grain to be seen here and there, from which I have never known this district to be entirely free—the Wheat crop promises a good yield, the number of acres being also above the average of years. Barley is very heavy upon the ground, and with a fine harvest be unusually productive and of fair quality. Oats also are looking fairly, although the breadth of both these crops have this season been encroached upon by a great breadth of Wheat. An abundant hay crop has been well secured. Potatoes are in some places showing the disease, but not to the same extent as in former years. Early in the season the Turnip crop suffered much from the fly, and many fields have been re-sown. The black caterpillar is now showing itself very destructively on some farms, and this, combined with dry weather, renders the prospect for a Turnip crop an indifferent one. The chief animal produce of this district, sheep and lambs, have however sold at very remunerative prices, and altogether we can report favourably of the agricultural prospects of this neighbourhood. *H. R.*

NORTHAMPTONSHIRE.—I think that the whole of the corn crops in this neighbourhood are quite an average, and, with fine weather, I think the prospect of the coming harvest is a favourable one. About the 12th of August harvest will commence, but not a general one. *Wm. Gray, Courton Hall, Northampton.*

SURREY.—Wheat: favourable, backward, much affected by Wheat midge. Barley: a large crop, forward, every way favourable. Oats: average, short straw. Peas: unusually productive, plenty of haulm, no disease. Beans: mean crop, well podded, short straw. Potatoes: large crop, great breadth, no appearance of disease. Hay: heavy cut, well got up. *E. J. Lance, Frimley, July* 25.

Notices to Correspondents.

COST OF BRICKS: *Worcester.* Mr. Chamberlain gives the following answer to your question:—"To attempt to give the cost of manufacturing would only mislead. The largest item is labour, the cost of which varies so much between manufacturing and agricultural districts. The next is coal or fuel for burning, which ranges from 3*s.* to 20*s.* per ton, according to the district of country. Again, one clay requires a large expenditure of fuel to be used, in order to attain the most intense heat; while another will burn sufficiently hard at about 10° Wedgwood. The consumption of coal for burning bricks varies with the clays, from 3 to 20 cwt. per 1000.

EARLY LAMB: *E A.* Where there is a good market it is probably the most profitable of all management. Large sums have been

made this year in this way. Take as an illustration a case mentioned last week in the *Dublin Farmers' Gazette*:—"During the present year Mr. Atkinson has realised more money for his lambs than we ever heard of being done under the circumstance. From 48 ewes purchased in Ballinasloe in 1854 he had 62 lambs, there being 14 pairs of twins. These were lambed between January 20th and February 12th, and out of the 62 he sent 59 to Liverpool, which realised the gross amount of 109*l.* 7*s.*, or an average of say 1*l.* 17*s.* 1*d.* each. The sales were made between March 20th and April 24th. Neither ewes nor lambs were forced in any way whatever."

Gas Tar: *X.* In reference to Mr. May's paragraph on a cheap substitute for guano, at p. 507, it must be observed that however fully his experience of gas water may have corroborated that of many others during many years as to its fertilising effect, it cannot be properly urged as a recommendation to the use of gas *tar*. The two things are of course entirely different, as any will find who shall try them. Gas tar has, nevertheless, been used with good effect ultimately (though injurious at first) on Grass land, but it must be applied with great caution, and if at all as part of old compost.

Influence of Machinery on Working Men: *F R S.* One important consideration to which you do not advert is the uniform character of work done by machinery. Hand labour is in many particulars dependent on weather and season. Men have a flush of work and a flush of means, alternating with idleness and starvation. Their improvidence leads to misery. Machinery, which enables work in all weathers, provides uniform employment, and induces uniform industry and constant comfort. Take brickmaking as an illustration. Mr. Chamberlain in his paper before the Society of Arts referred to this very point. He says, "I cannot refrain here from mentioning what an injurious effect the present system of hand-making has on the habits of the men. The brickmakers (that is the moulders and their attendants) men and lads, are throughout the kingdom employed at their trade only during six or seven months in the year, except where bricks are artificially dried, in the neighbourhood of collieries. In the winter season the bricks would be destroyed by frost, neither could they then be dried. They therefore work early and late; and from their having no winter occupation, and on account of their dirty and laborious work, they have such a price per thousand as to compensate them. The result is generally, among this class of men, that although they are so well off in the summer time, they spend all they earn, leaving the winter to provide for itself. At that season, when they require most to sustain both themselves and their families, as well as fuel, they have nothing to fall back upon, and in too many instances no employment; for as they earn so good wages in the summer, they do not willingly come down to the price of ordinary labour. These are the men whom the introduction of machinery will affect."

Lime: *T T.* If you apply it, it should not be left exposed for weeks and then ploughed under. It should be slaked and ploughed in at once. We think that 80 bushels of hot lime per acre on land which has been in Clover and is to be in Wheat is a good dressing applied just at the right time. The patches of dead corn are a mystery. If they are over the clay portions of the moor you might burn some of the soil there with advantage. But they are more likely where the soil is light and moory, and in that case a dressing of clay will be advantageous.

Milking Cows: *T Barrow.* The attack is certainly unusual. We imagine they have taken some deleterious substance in their Grass or other food. I should recommend their bowels to be relieved by means of Linseed oil and Linseed gruel. *W. C. S.*

Progress of Ireland: *Michael.* Facts illustrative of this are given tersely and forcibly by Lord Fermoy at a recent meeting in the South of Ireland. He says that 2,000,000*l.* of Government money, and probably 10,000,000*l.* besides had been spent of late years in drainage and other agricultural improvements in Ireland; and thanks to the system of Agricultural Statistics, he could say that in 1841 there were of horned cattle 1,863,116, and in 1854 they had increased to 3,497,901. In sheep, there were in 1841, 2,166,189; in 1854 they had increased to 3,722,219; so that, in point of fact, they were nearly doubled in that number of years. Let them now take the Ballinasloe fair. In 1849 the number of sheep sold was 60,256; in 1855 it was 79,311. Of cattle, there had been sold in 1849, 7844, and in 1855, 18,533; that was an increase of more than double. The average price of first-class wethers at Ballinasloe in 1849 was 2*l.* 2*s.*; in 1855, the average price was 3*l.* In 1849 the average price of first-class ewes was 1*l.* 14*s.*; in 1855 it was 3*l.* In 1849 the price of first-class oxen was 14*l.* 10*s.*; in 1855 it had increased to 21*l.* 17*s.* 6*d.* The price obtained for first-class heifers in 1849 was 13*l.* 10*s.*, and in 1855 it was 21*l.* As to the stock, whilst they had nearly doubled in number in six years, they had also nearly doubled in the value of each beast. And was he not justified in saying that they were getting prosperity in the land? They had now a contented people—a people willing to give a fair day's work for a fair day's wages.

Spade Husbandry: *M G.* The following is the plan which Mr. Kelly adopts in the cultivation of green crops:—"The ground is dug and levelled immediately before Carrots, Parsnips, Mangel Wurzel, or Turnips are intended to be sown: then marked out into beds or ridges (for Carrots or Parsnips) of 3 feet 6 inches wide, with furrows 15 or 18 inches wide, according to the depth of the soil, always making the furrows wider in shallow soils, and narrower in deep soils. For Turnips and Mangel Wurzel the beds are marked 4 feet 6 inches wide, with furrows 18 or 20 inches wide. The dung is then spread evenly on the ridges, and the furrows dug and shovelled on the dung. The dung for Carrots and Parsnips should be applied in winter when the ground was being trenched or digged; but if not, and that it must be applied at sowing time, it must be well prepared and well decomposed. For Carrots and Parsnips the surface of the beds must be made fine by a garden rake, and the seeds then dibbled in—three rows lengthways in each bed, viz., one row in the middle and a row within 4 inches of the edges of the beds on both sides, or the beds may be made wider and the seeds dibbled in rows across the bed 18 inches asunder. The Mangel Wurzel and Turnips must be dibbled in lines lengthways in the beds, three rows in each bed, and at the same distance in the rows as already recommended for drills."

Spring Feed for Sheep: *M G Y.* Rye is the earliest spring food. St. John's Day Rye is the earliest sort of Rye. "Rowen" is properly, we believe, the aftermath of Clover. It is bad management to leave an aftermath unstocked till spring. If you sow Rye early enough, or Italian Rye-grass, you will have food enough for your sheep early in spring. A few Mangel Wurzels and straw chaff during winter on the Grass fields, and then Rye or Italian Rye-grass, with good Clover-hay after lambing, is as good management as possible.

Waltonian Propagating Case: *A Novice.* It is a small portable one-light glass case, the heat and moist air derived from a small lamp beneath a shallow tank underneath the floor on which the pots are arranged. The whole affair is something like 30 × 15 inches, and 2 feet or 30 inches high. We believe it answers very well.

Wireworm: *F F.* If the land is heavy clay we would try burning a good deal of it. The ashes being spread the land should be ploughed thoroughly and deeply and exposed to the winter, and in February try Beans in preference to Wheat and Mangel Wurzel among root crops: the principle of this advice being that strong and vigorous growths should be used after such means as mere tillage affords. Pressure is said to be useful when the wireworm appears among corn.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

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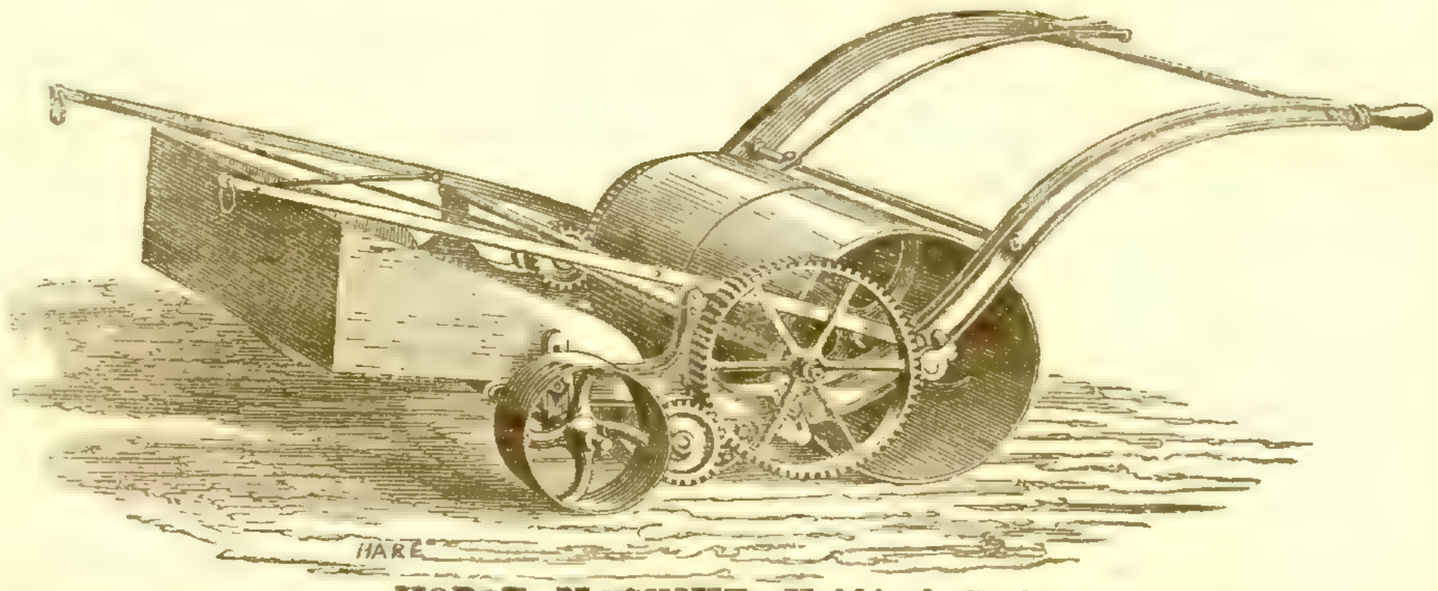
JAMES FERRABEE & CO.,

Phœnix Iron Works, near Stroud, Gloucestershire.



HORSE MACHINE—Half-inch Scale.

J. FERRABEE AND CO. and their predecessors have manufactured and sold between 5000 and 6000 of these Machines since they originally introduced them; and they have from time to time made all the important improvements in their construction which now render them so efficient. The accompanying engraving represents the large Machines as made to be worked by a stout pony or a horse. They are made very strong and durable, and will cut the longest and coarsest Grass usually met with on lawns and pleasure grounds, executing their work in an expeditious and superior manner, producing a more even and uniform surface than the most skilful mower—they will foll w the inequalities of the surface without cutting into the soil, and can be readily adjusted to cut various lengths. The Hand Machines are made on the same principle, and may be either pushed or pulled by unskilled labourers with equal facility on lawns, hedges, between flower beds, bowling greens, cricket and pleasure grounds.

The Price List below *includes the carriage* to any Railway Station in England and Wales; and for a small additional sum they are sent *carriage free* to any Railway Station in Scotland or Ireland.

PRICE LIST.

Hand Machine, for One Man,	cutting 16 inches wide	...	£5	10	0
" for Man and Boy,	" 22 "	...	6	0	0
Pony Machine (or Donkey)	" 26 "	...	8	0	0
Horse Machine	" 28 "	...	11	0	0
"	" 36 "	...	15	0	0

London Agency—Manager of the Agricultural Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the country.——N.B. Every Machine bears the name J. Ferrabee & Co.

ROYAL AGRICULTURAL SOCIETY'S SHOW AT CHELMSFORD.—STAND No. 19.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

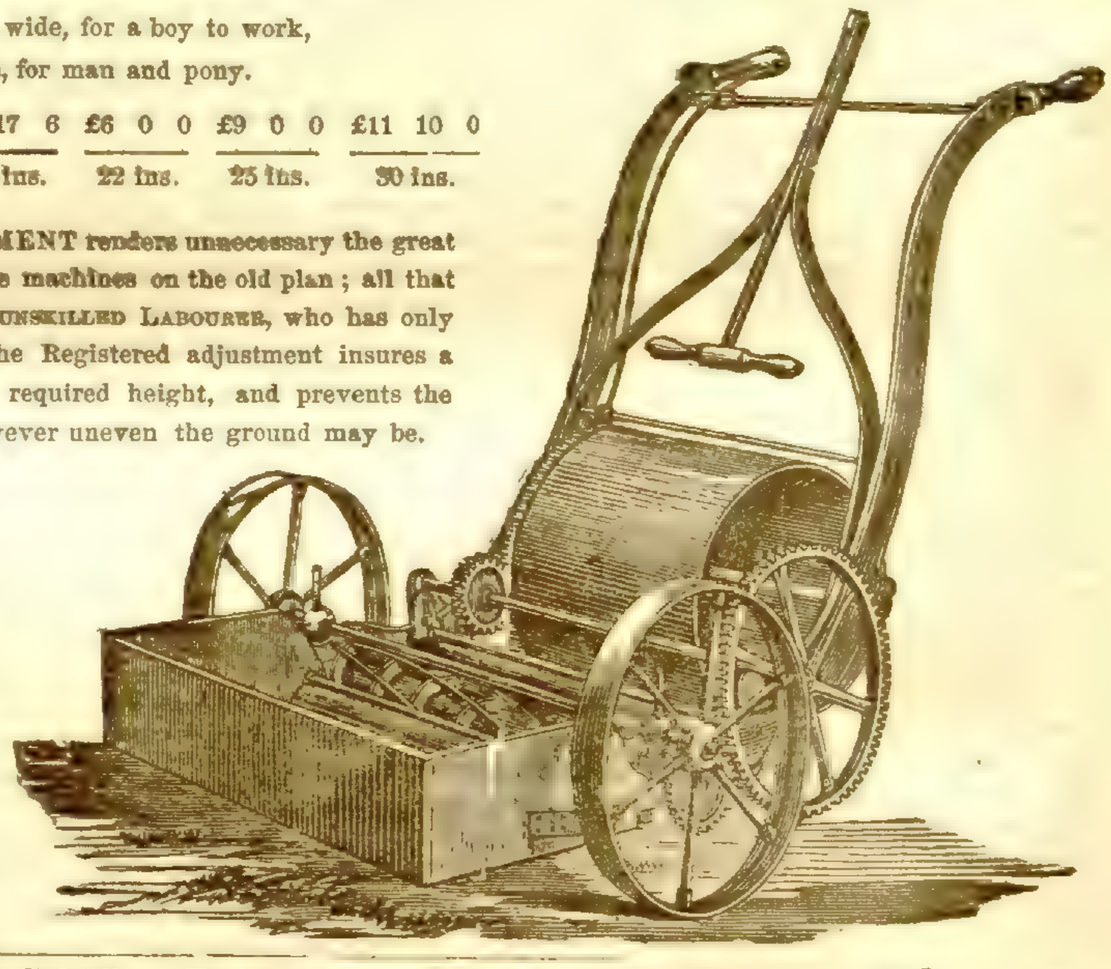
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 15 0	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width Cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

THE REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; and of all respectable Ironmongers & Seedsmen in the country.



B. SAMUELSON, Britannia Works, Banbury; and
STAND No. 19, Royal Agricultural Society at Chelmsford.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. Mappin's celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Manufactory, Queen's Cutlery Works, Sheffield.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. Roberts (late Army Surgeon), Greencroft Villa, Gateshead High Fell, Newcastle-upon-Tyne.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. Johnstone, 1, Park Terrace, Heavitree, Exeter, Devonshire.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes. Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of Metcalfe's celebrated Alkaline Tooth Powder, 2*s.* per box: and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss Coupelle, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair"—Sergt. Craven, "Through using it I have an excellent moustache."

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

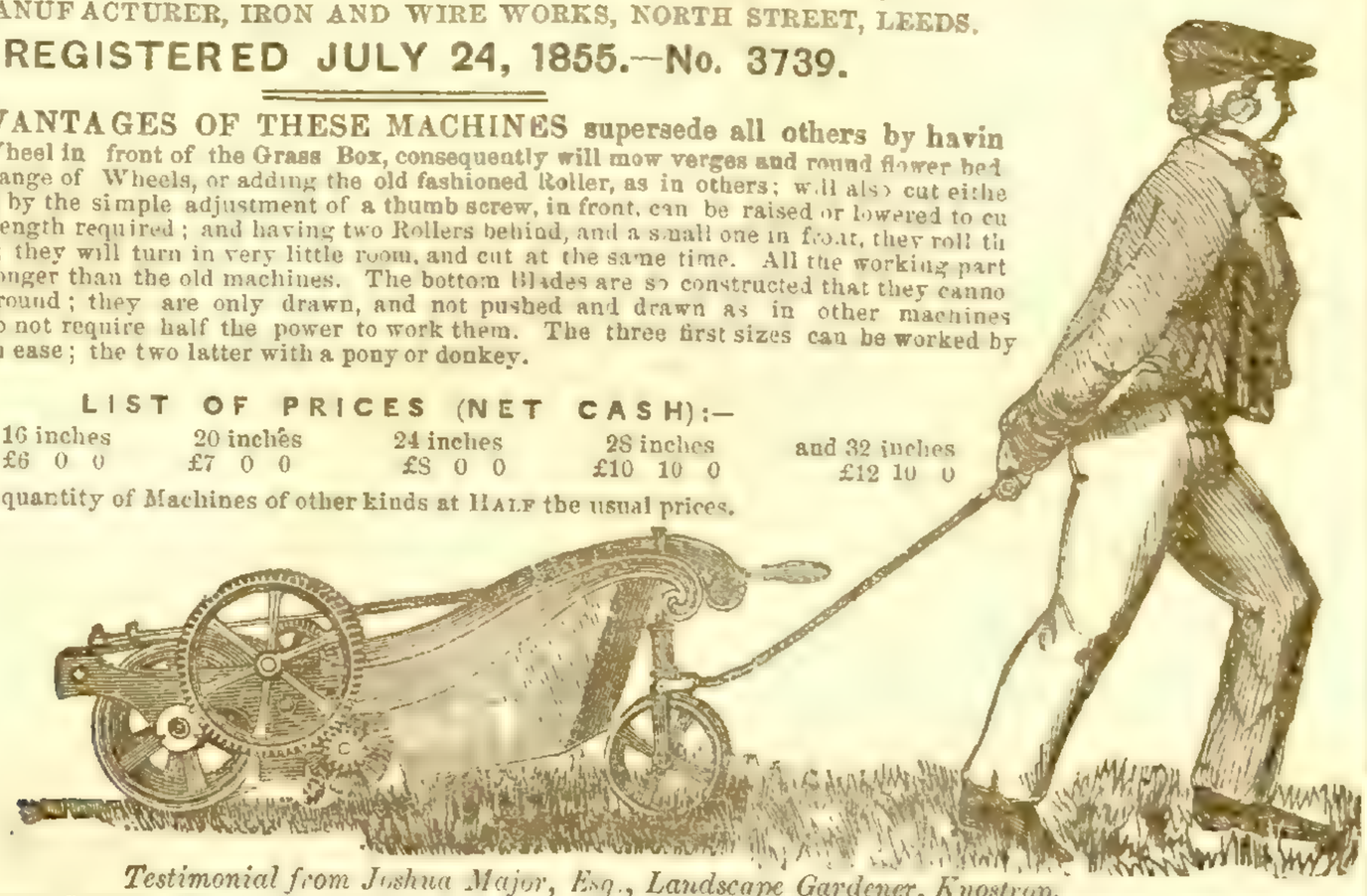
REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by havin a small Wheel in front of the Grass Box, consequently will mow verges and round flower bed without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut eithe wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cu the Grass any length required; and having two Rollers behind, and a small one in front, they roll th width they cut; they will turn in very little room, and cut at the same time. All the working part ma le much stronger than the old machines. The bottom Blades are so constructed that they canno tear up the ground; they are only drawn, and not pushed and drawn as in other machines consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.



Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

HARTLEY'S PATENT ROUGH PLATE GLASS, (1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs; and 1-4th, or 4 lbs. to the foot), for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

IN SQUARES CUT TO SIZES ORDERED.	1/8 s. d.	3/16 s. d.	1/4 s. d.
14 by 10, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½
1½ ft. sup., 3 or *if* above 20 & not above 30 in	0 7	0 8½	0 10
3 " 4 " 20 " 30 in	0 7½	0 9	0 10½
4 " 5 " 30 " 35 in.	0 8	0 9½	0 11
5 " 6 " 35 " 40 in	0 8½	0 10	0 11½
6 " 8 " 40 " 45 in	0 9	0 10½	1 0
8 " 10 " 45 " 55 in	0 9	0 10½	1 0
10 " 12 " 55 " 65 in	0 9	0 10½	1 0
12 " 15 " 65 " 75 in	0 10	0 11	1 0
15 " 20 " 75 " 90 in.	0 11	1 0	1 2
20 " 25 " 90 " 100 in.	1 1	1 2	1 3

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10*s.* 6*d.*	8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 12 0	9 by 7, and 10 by 8 ... 15 0

Estimates forwarded on application.

London Agents: JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

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ROBINSON'S PATENT BARLEY, for making superior BARLEY WATER in 15 minutes, has not only obtained the patronage of her Majesty and the Royal Family, but has become of general use to every class of the community, and is acknowledged to stand unrivalled as an eminently pure, nutritious, and light food for Infants and Invalids; much approved for making a delicious Custard Pudding, and excellent for thickening Broths or Soups.

ROBINSON'S PATENT GROATS, for more than 30 years have been held in constant and increasing public estimation as the purest farinæ of the Oat, and as the best and most valuable preparation for making a pure and delicate GRUEL, which forms a light and nutritious supper for the aged, is a popular recipe for colds and influenza, is of general use in the sick chamber, and, alternately with the Patent Barley, is an excellent food for Infants and Children.

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EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLANDS' KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn, or stings of insects, its virtues have long been acknowledged. Price 4*s.* 6*d.* and 8*s.* 6*d.* per bottle.

ROWLANDS' MACASSAR OIL, a delightful fragrant and transparent preparation, and as an invigorator and purifier of the Hair beyond all precedent.

ROWLANDS' ODONTO, or Pearl Dentifrice, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the Teeth a Pearl-like Whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

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GODFREY'S EXTRACT OF ELDER FLOWER is strongly recommended for Softening, Improving, Beautifying, and Preserving the Skin, and giving it a blooming and charming appearance. It will completely remove Tan, Sunburn, Redness, &c., and by its Balsamic and Healing qualities render the skin soft, pliable, and free from dryness, &c., clear it from every humour, pimple, or eruption, and by continuing its use only a short time the skin will become and continue soft and smooth, and the complexion perfectly clear and beautiful. In the process of shaving it is invaluable, as it allays the irritation and smarting pain, annihilates every pimple and all roughness, and renders the skin smooth and firm.—Sold in bottles, price 2*s.* 9*d.*, by all Medicine Vendors and Perfumers.

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"MALVERN is not more celebrated for its glorious hills, pure air, and charming scenery, than it is for the sparkling freshness, absolute purity, and health-restoring properties of its mountain springs."

LEA, PERRINS, AND BURROWS,
GREAT MALVERN,
SOLE LOCAL AGENTS FOR
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J. SCHWEPPE & CO'S. SODA WATER.

CAUTION.—A Decree for perpetual Injunction has been granted by Vice Chancellor Sir William Page Wood restraining Messrs. Clayton, Messrs. Ray and Son, and Mr. Selman respectively from using in their trade of Soda Water Manufacturers bottles having the words and figures "J. Schweppe & Co., 51, Berners Street, Oxford Street" stamped or impressed thereon, and also from using labels over the corks in such bottles similar to, or merely colourably differing from those used by Messrs. Schweppe & Co. And a Decree for a perpetual Injunction has also been granted by Vice Chancellor Sir William Page Wood restraining Messrs. Nevill and Oxlade from selling or exposing for sale any Soda Water not manufactured by Messrs. Schweppe & Co. in such bottles or with such imitation labels. And a further Decree for a perpetual Injunction has also been granted by Vice Chancellor Sir William Page Wood restraining Mr. John Luntley from printing or disposing of any such spurious or imitation labels; and in each Suit the Defendants were directed to pay the costs of Messrs. Schweppe & Co.

AND NOTICE is hereby given that similar proceedings will be forthwith instituted against all persons who shall hereafter be found offending in any of the particulars aforesaid.

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AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

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A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 17 0
Paillasse, wool mattress, bolster, and pillow ...	1 13 0
A pair of cotton sheets, three blankets, and a coloured counterpane	1 5 0
	£4 19 6
A double Bedstead, same	£6 15 9
If without Half-tester and Furniture—	
Single bed, complete	£3 13 9
Double bed, complete	£5 5 9

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Illustrated Catalogues sent (per post) free.

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WANTED, A NURSERY, a short distance from London, from 1 to 3 Acres, with Hothouses, &c., ready built.—L. M., Mr. Garlick, 28, St. John's Wood Terrace.

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EXTRACT FROM THE AUTHOR'S PREFACE.

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33.—1856.] SATURDAY, AUGUST 16. {Price Fivepence. Stamped Edition, 6d.

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John Shaw, Secretary.

Council Room, 40, Princess Street, August 16.

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GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot-Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed any part of the Kingdom for cash, 42 feet long by 13 feet, 90*l.*; 21 feet by 13 feet, 50*l.*; 12½ feet by 10 feet, 30*l.* A first-rate Conservatory, 30 feet by 18 feet, 130*l.* A large assortment kept. Estimates for Heating, or any branch in Wood or Iron.

HOT WATER PIPES (Cast Iron) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground 5 bars ... ... 5*s.* 3*d.* each.

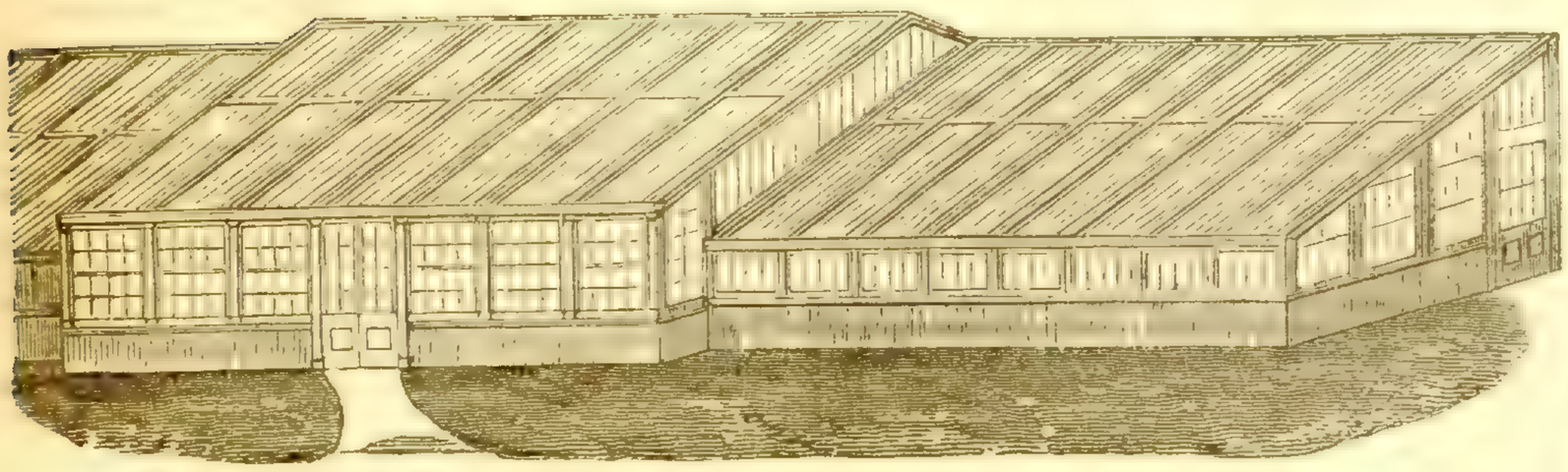
TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At Edgington & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depot, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 2*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

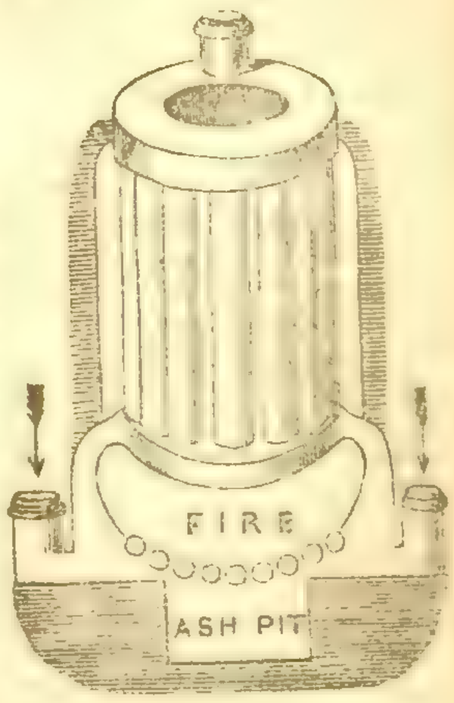
JOHN WEEKS & CO., KING'S ROAD, CHELSEA.

HORTICULTURAL BUILDING, AND HEATING BY HOT WATER.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



HEATING EXTENSIVELY BY ONE BOILER, COMMONLY CALLED

"WEEKS' ONE-BOILER SYSTEM."

Buildings of every description, Dwelling Houses, Churches, Warehouses, Horticultural Buildings, &c., separately or combined, and to any extent, can be effectually heated by ONE BOILER.

J. WEEKS & Co. refer to their own extensive Establishment, the whole of which is heated by *one boiler*, and may be seen in constant operation, warming Hothouses, Greenhouses, Conservatories, &c., upwards of 1000 feet in length, the water in the various houses circulating through upwards of 5000 feet of pipe, and the whole so fixed and regulated that any one of the houses can be heated separately, or the whole together, and any part regulated at pleasure.

J. WEEKS & Co. have also great pleasure in referring to the extensive Nursery of Messrs. Edward Henderson & Co., Wellington Road, St. John's Wood.

We will here quote Mr. Henderson's own words, expressing his approval of our ONE BOILER SYSTEM. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than 2 sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 900 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to numerous seats of the Nobility and Gentry in various parts of the country where *one Boiler* has been fixed to warm a great number of houses, &c., and frequently the dwelling-house also from the same boiler.

In some instances *our one Boiler* is doing the work formerly done by 20, so that in these cases the great number of fires, stokeholes, and chimneys, are entirely dispensed with.

At his Grace the Duke of Leeds', Hornby Castle, Yorkshire, *one of* J. WEEKS & Co.'s *Boilers is heating* 10,000 feet of 4-inch pipe, and one of the houses, a large Conservatory 190 feet long, is situated upwards of 500 feet from the Boiler.

J. WEEKS & Co. make their Tubular Boilers of all sizes on the same economical principles; nearly 4000 of which of different sizes are in operation at the seats of the Nobility and Gentry throughout the Kingdom and on the Continent.

The Nobility and Gentry about to erect Horticultural Buildings or to fix Hot-Water Apparatus will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Conservatories, Greenhouses, Hothouses, Pits, &c., erected and in full operation, combining all modern improvements in the various branches of the Horticultural science, so that a lady or gentleman can select the description of house best adapted to the purpose for which it is required.

As an *Horticultural Establishment* it is also an unlimited source of attraction, containing New and Rare Plants in great variety.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in pots.

FRUIT TREES and SHRUBS of every kind.

The SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

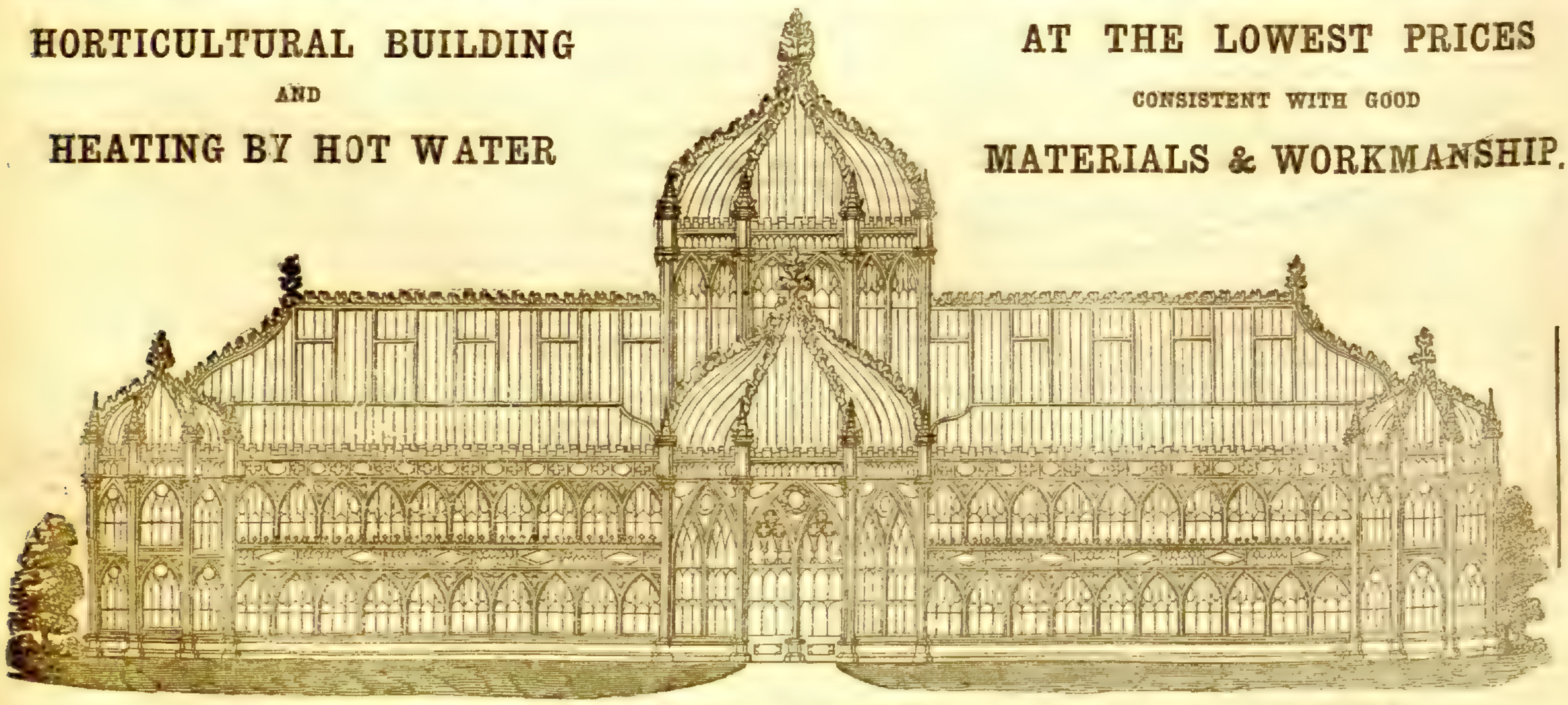
JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers,
KING'S ROAD, CHELSEA.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., BUILT upon the most scientific principles, combining all the improvements of the day. HORTICULTURAL WORKS of every description and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

THE ADAIR STRAWBERRY.

THE above delicious and desirable Strawberry, raised by Mr. ELPHINSTONE, Gardener to Sir S. ADAIR, Bart., is a cross between Hooper's Seedling and the Hautbois; and while retaining the size and high colour of the former, has the desirable and peculiar flavour of the latter. It is of strong growth, and will be an acquisition to all growers, whether for market or otherwise. The undermentioned Gentlemen and Gardeners bear testimony to its merit:—

N. S. HODSON, A.L.S., Botanic Gardens, Bury St. Edmunds.
JOHN PELLING, Cambridge.
SAMUEL BARRETT, Hardwick.
THOMAS BARNES, Florist, &c., Stowmarket.
E. BROWN, Cambridge.
GEO. P. HAY, Hon. Sec., Horticultural Society, Bury St. Edmunds.
DAVID T. FISH, Gardener, Hardwick House, Bury St. Edmunds.
PETER GRIEVE, Gardener, Culfand, Bury St. Edmunds.
HENRY TURNER, Curator, Botanic Gardens, Bury St. Edmunds.
JAMES PRINGLE, Gardener, Fornham Hall.
BIRCHAM & WARD, Hedenham, Bungay.

MESSRS. E. G. HENDERSON & SON have much pleasure in stating that they are appointed sole Agents for the above excellent Strawberry, which they will be prepared to send out after the 1st September next, at the following scale of prices:—

60*s.* for 100 Plants; 40*s.* for 50; 25*s.* for 25; 15*s.* for 12.

TERMS TO THE TRADE ON APPLICATION.

Wellington Nursery, St. John's Wood, London.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed* ... ... 1*s.* per packet.
Calceolaria, *choicest varieties* ... ... 1*s.* „
Cineraria „ „ ... ... 1*s.* „

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

NEW HARDY HYBRID RHODODENDRONS.

WATERER AND GODFREY beg to offer the following new Hybrid Rhododendrons, and which they recommend as being hardy, distinct, late, and beautiful, and such as will be sure to give satisfaction, viz.:—

	s.	d.
ALARM.—This is, perhaps, one of the most striking kinds we possess, each petal being edged with bright scarlet, the centre quite white; it is also a very late bloomer... ...	21	0
BLACK-EYED SUSAN.—Purplish lilac, the spotting being more decidedly black than in any variety we know	21	0
BEAUTY OF SURREY.—Rich, rosy scarlet, good shape, and prettily marked	21	0
LORD JOHN RUSSELL.—Pale rose, the upper petal being distinctly and beautifully spotted, or rather blotched; this is decidedly the best in its way	21	0
MAGNUM BONUM.—Rosy lilac, spotted all over each petal; the flowers being large, and almost flat, makes it very attractive	21	0
PRINCE ALBERT.—Rich lake, the flowers of remarkable consistency, in fact almost approaching a Camellia; certainly one of the most distinct and desirable kinds ...	21	0
PERICANUM.—Light rose, finely spotted; this is a very pleasing kind	21	0
WILLIAM DOWNING.—Rich dark puce, with an intense black blotch on the upper petal of paint-like consistency; the flowers are individually large, and the truss magnificent	21	0

Knap Hill Nursery, Woking, Surrey, Aug. 16.

CUTHILL'S STRAWBERRY PLANTS FOR 1856 AND SPRING OF 1857 WILL BE SENT OUT AUGUST 25TH.

CUTHILL'S EARLY BLACK PRINCE, 5*s.* to 7*s.* 6*d.* per 100.

CUTHILL'S PRINCESS ROYAL.—Early, very hardy, medium size, superior flavour. Name suggested by Sir Jasper Atkinson on account of its superiority. Price 1*l.* per 100; 50 for 12*s.*; or 25 for 6*s.* It is an excellent early forcer. (See the *Illustrated London News* of July 12th, for a drawing of CUTHILL'S Princess Royal Strawberry.)

CUTHILL'S PRINCE OF WALES.—Splendid colour and shape, fine size, the greatest bearer of all other sorts, first rate for table and preserving. Price 10*s.* per 100, or 50 for 6*s.* The average of days in bearing of these three sorts is over 55; the average weight about 1700 lbs. to three-quarters of an acre.

CUTHILL'S BLACK SPINE CUCUMBER, 1*s.* per packet.

Green's LADY ANTROBUS WINTER CUCUMBER has been in his possession 20 years. Per packet, 2*s.* 6*d.*

CUTHILL'S NEW LONG WHITE SPINE.—Great bearer, fine form, 12, 16, and 20 inches long, 2*s.* 6*d.* per packet.

J. CUTHILL'S Pamphlet on the Potato, Strawberry, &c. 2*s.*
J. CUTHILL'S Market Gardening Round London. 1*s.* 6*d.*
J. CUTHILL'S Pamphlet on the Vine Disease of Spain and Portugal; containing also a Plan for the Total Destruction of Woodlice in Cucumber Pits, &c. Price 1*s.*

Orders payable to JAMES CUTHILL, Camberwell, London.

NEW PLANTS OF 1856.

MITCHELL AND CO., of the Bristol Nurseries, Kemp Town, Brighton, are prepared to supply good strong plants well established in 60-sized pots of the various Novelties of the present season.

HENDERSON'S FUCHSIAS OF 1856.—The collection of eight for 6*s.*

SMITH'S OF 1856.—General Williams, Admiral Boxer, Conqueror, Gloire de Neisse, Epps' Wonderful; the collection for 5*s.*

BOUVARDIA LONGIFLORA, the true white flowering variety.—Too much cannot be said in praise of this beautiful plant. Our stock is one of the largest in the trade, which enables us to offer at 12*s.* per dozen. Trade price on application.

VERBENAS.—Henderson's Collection of 1856, 4*s.* per dozen, well established in 60-sized pots.

Smith's and Turner's varieties of 1856, 6*s.* per dozen, ditto.

PETUNIAS.—Smith's and Turner's, also the New French striped varieties, 6*s* per dozen.

TREE CARNATIONS.—Strong plants in 48-pots for winter flowering, 12*s.* per dozen.

CAMELLIAS.—Well set with flower buds, our splendid collection stands unrivalled; we offer good bushy well-grown plants from 15 to 18 inches high, 21*s.* per dozen; from 18 to 24 inches high, 30*s.*; from 24 to 30 inches, 42*s.* per dozen.

AZALEA INDICAS.—Choice varieties with good bushy heads well set with flower buds at 15*s.*, 18*s.*, 21*s.*, and 24*s.* per dozen. M. and Co. strongly recommend this portion of their stock to all intending purchasers.

CHRYSANTHEMUM Alfred Salter, 1*s.* 3*d.* each, or 6 for 6*s.*

MEYENIA ERECTA, 3*s* 6*d.* to 5*s.* each.

WHITE FAIRY ROSE—M. & Co. possess a large stock of this useful plant, which is well adapted for winter flowering; good plants, 9*s.* per dozen.

GERANIUMS consisting of Foster's, Hoyle's, and Turner's new varieties of 1856; our own selection, 36*s.* per dozen; purchasers', 42*s.* per doz.

Do. do., 1855, our own selection, 21*s.* per doz.; or purchasers', 25*s.* per doz

Do. do., 1854, purchasers' selection, 12*s.* per doz.

Names of the various collections can be had upon application.

Reference or Post-office Order is particularly requested from unknown correspondents, made payable to JOHN FAIRBROTHER, at the Bedford Street Branch, Post-office, Brighton.

All orders over 20*s* are delivered free in London, or any Station upon the London and South Coast Railway, with plants to compensate for longer distances.

NEW HARDY RHODODENDRONS.

JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.

RHODODENDRON JOHN WATERER: colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s.* each.

RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s.* each.

RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s.* 6*d.* each.

☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.

The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen
Exotic Orchids ... ... from	42*s.*
Stove and greenhouse Ferns ... ... „	18
Hardy do. ... ... „	9
Selaginellas or Lycopodiums ... ... „	18
Geraniums, show and fancy varieties ... „	9
Gynerium argenteum (Pampas Grass) ... „	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

CHOICE SEEDS.

BASS AND BROWN have saved the following from this season's flowers of their superb collections.

	s.	d.
GERANIUM, choice, 1*s.* per packet; newest vars. ... p. pkt.	2	6
CALCEOLARIA, choice, 1*s.* ditto; ex. ex. ... „	2	6
CINERARIA, choice, 1*s.* ditto; ex. ex. ... „	2	6
ANEMONE, single, of richest colour ... ... 4*d.* to	1	0
„ semi-double, ditto ... ... 4*d.* to	1	0
GLADIOLUS, choice from early vars.	1	0

Most of the species of Biennials and Perennials may now be sown for next season's flowering.

CHOICE IMPORTED GERMAN SEEDS.

Seeds of the Imported Brompton and Emperor Stocks may still be sown for next season's flowering; also Annual Stocks for flowering in Greenhouses.

Seed Catalogues supplied on application; also printed instructions for sowing and raising seeds.—Sudbury, Suffolk.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per packet—s.	d.
CALCEOLARIA from very showy varieties carefully impregnated	2	6
GERANIUM from first-rate Florist varieties ...	1	0
„ from the new showy French ditto ...	1	0
„ from first-rate fancy ditto	1	0
„ from Scented-leaved ditto	0	6
„ from the finest new Rose, Pink, White, &c., of the Scarlet habit	0	6

A remittance in stamps or otherwise must accompany all orders from unknown correspondents.

JOHN CATTELL, Nurseries, Westerham, Kent.

FLOWER AND VEGETABLE SEEDS SUITABLE FOR PRESENT SOWING

	Per paper—s.	d.
Cabbage, Early Incomparable	0	6
„ Enfield Market	0	6
Collared Rosette, a winter green	0	6
Onion, Deptford, Lisbon, and Tripoli, each ...	0	6
Lettuce, Imperial Bath Cos	0	6
„ Hardy Green Cabbage	0	6
Spinach Gigantic Winter, a very hardy and productive kind, per pint	1	0
Turnip, Early Snowball	0	6
Stocks, Autumnal and Intermediate, each... ...	0	6
Six papers Choice and Showy Annuals; these will stand the winter and flower early in the spring	2	0

To be had of WM. DENYER, Seedsman, &c., 82, Gracechurch Street London.

CHOICE FLOWER SEEDS FOR PRESENT SOWING. PER POST PREPAID.

		s.	d.
CINERARIA of the first quality	per packet	2	6
CALCEOLARIA, from the handsomest spotted and blotched varieties	„	2	6
MIMULUS, ditto ditto ditto ...	„	2	6
GLOXINIA, ditto 30 varieties	„	2	6
FUCHSIA, ditto 50 new ditto	„	2	6
PANSY, saved from 100 of the best vars., by name	„	2	6
POLYANTHUS, do. 50 ditto ditto	„	2	6
VERBENA, do. 50 ditto ditto	„	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do.	„	2	6
DAISY do. 50 of the new Belgian do. ditto.	„	1	6
ANTIRRHINUM, do. 20 best named varieties ...	„	1	0
ANEMONE, from the most showy and brilliant kinds	„	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

Postage Stamps or Post-office Orders received in payment of the above.

YOUELL & CO, Royal Nursery, Great Yarmouth, Norfolk.

BALSAMS.

F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show of the Botanic Gardens, Regent's Park.

Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled. – Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

TULIP CATALOGUE.

CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.

A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.

Now ready, very choice CINERARIA, 2*s.* 6*d.* per packet.
very choice CALCEOLARIA, 2*s.* 6*d.* „
Royal Nursery, Slough.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

CALCEOLARIA SEED.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that this season's seed is now ripe, and may be had in packets at 2*s.* 6*d.* each, or three for 5*s.* H. M. can with confidence recommend it, as it has been selected with great care from his unrivalled collection.

About the last week in September H. M. will be prepared to send out young plants of 15 of his best half-shrubby Calceolarias, which have been so much admired this season. Price 21*s.* the set, hamper and package included.

H. M. will be glad if his friends and others who intend favouring him with their orders for the set of Calceolarias will do so at once, as this advertisement will not be repeated.

Pampas Grass (strong plants to bloom next season), 5*s.* each.

From unknown correspondents a Post-office Order is requested. Stamps taken in payment for the seeds.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, AUGUST 16, 1856.

By the side of a country road not very far from London is a row of paling inclosing a plantation of some 20 years' growth, and pierced by a narrow gate of similar materials. You may ride past the place repeatedly without observing that a neat paved footpath winds away into the interior of the plantation. In winter a few ornamental chimneys may perhaps be seen peeping over the tops of the branches. Follow the footpath; you will soon find yourself at the back of a charming Swiss cottage, mantled with Ivy and embowered in trees. Roses, Clematis, and gay climbers struggle over the columns and hang in festoons from the sides; a very small lawn, trim as velvet and brilliant with richly coloured flowers, separates you from a rustic flight of steps; to the left is a wide opening among the trees, through which there is a glimpse of green wooded meadows bordered with gay shrubs, and forming the slope of a gentle valley.

Passing through this opening, the end of the cottage is seen defended by boxes and hives of bees, sheltered by the overhanging roof, and still profusely decorated with flowers until you reach the front. At your feet is then revealed a broad lawn, separated from the meadows by a raised terrace walk. Gladioli, Fuchsias, Geraniums, and other gaudy races on the one hand flank the walls of the cottage, while a rough bank of stones closely covered with Acanthus, variegated Coltsfoot, Lilies, and plants with striking foliage, conceals from view for a moment a charming flower garden, on which the eye of a TURNER would have dwelt with delight. Here purples and scarlets, and yellows, and whites, and blues, are tastefully intermixed in skilful confusion. A high wall covered with handsome climbing plants shuts it in from the north; from the south it receives the whole influence of the sun, while it is screened on the west by plantations, and on the east by the cottage and its accessories. It is a kaleidoscopic flora in a niche of verdure.

In all this there is no apparent attempt at display. The trees and the flowers, the parterre, and the bees, and the rockwork, and the festoons of climbing plants all fall into their places with so much ease that Nature herself might be thought to have planned the scene; especially since there is no trace of greenhouse or conservatory such as is usually found in a garden like this. Not indeed that the materials by which so much brilliancy is reflected are either rare or costly. Verbenas, Petunias, Calceolarias, Lobelias, Geraniums, and the like, give the principal colours with which the artist has worked; the only unusual material on her palette being *Liatris spicata*, whose peculiar purple and

erect mode of growth are here introduced with good effect.

A peep within the cottage does not diminish the desire to know from what hidden sources all this floral brilliancy is derived; for in the drawing room we see Orchids and tropical Ferns, and in the housekeeper's room certain dishes of handsome Peaches and Grapes, which cannot ripen without glass by the beginning of August. The mine from which so much is extracted must be sought for at a short distance. Passing along a shrubbery path, bordered by plants remarkable for their good foliage, among which are especially notable the purple-leaved Berberry and the purple-leaved Filbert, whose husks of the same rich colour are so ornamental at dessert, we come to a Grass walk beneath overarching trees, with quantities of Ferns on either side. From this you suddenly emerge into a kitchen garden, along whose edge are thousands of *Sedum rupestre* for the pasturage of bees. Here, amidst roughly kept ground are two or three glass-houses, patched up with weather boards and asphalte felt, with heavy clumsy roofs, put together by some hedge carpenter. Nothing can be more unpromising than their exterior. Inside you find a good hot-water apparatus, earthen floors on which water stands in puddles, ramshackle stages, and Spruce Fir poles to keep a low span-roof from tumbling down. Under such rude shelter is in one house a Peach trellis with 50 or 60 dozens of fruit, skilfully trained and perfectly ripened; in another a crowd of Orchids in beautiful health, Scitamineous plants worthy of an Indian jungle, cushions of the greenest, most feathery and most elastic Lycopods, glorious Ferns, and over all a canopy of faultless Grapes, which would have beaten Glendinning's (see p. 499) had they contended with them. Heaps of Vandas, Cattleyas, Epidendrums, one of which (rhizophorum) has been two years in blossom, Bromeliads, Oncidiums, Calanthes, and a swarm of other Epiphytes crowd the shelves. The Grapes belong to Vines planted in a border 1 foot only deep, and little more than twice as broad, at the back of this Orchid house, and within it, so that the roots are never exposed to chills or drought. Other places as unsightly have other uses, and especially that of shelter.

This is the magazine of beauty. Rickety unsightly places which a fastidious gardener would pull down, and which it requires some care to keep up, form the mine from which a master of his art raises the precious ore that is profusely scattered over the house and pleasure grounds. He is not frightened by damp and red spider; neither is he ashamed of his tumbledown apparatus. Nor need he be. On the contrary, he may be proud of extracting so much value out of such unpromising materials.

After all the important question to be asked of mere garden buildings is—do they answer the purpose? It matters nothing how they look, or in what clumsy manner they are put together, provided they do the work required of them. Nor can there be a greater mistake than to suppose that in order to render a forcing house serviceable it must be constructed with the elegance and skilful workmanship demanded in a drawing-room. If it is wanted as an elegant object, or a place of resort, then indeed the architect and workman must combine their efforts to produce the best effect they can; but if it is merely required to do gardeners' work it is of no sort of consequence how rude its construction or inelegant its form. It is only necessary to keep it out of sight.

Let no one inquire where the scene of our little sketch is to be found. Some know. Others will guess. Suffice it to say that the facts are more striking than our description, and that we must not expose privacy to the invasion of the curious, or even of the enthusiastic. Enough indeed may be learned without a visit; and especially this—that results are sometimes in an inverse proportion to means. We all know how little may be accomplished by much in gardening as well as other occupations; and our present sketch will serve to show how much may come from little. Skill has wonderful power over materials; taste is but another form of skill. With their aid the most modest retreat may become a scene of more real beauty than a palace with its statues and terraces and fountains. And this is no small consolation for those who imagine that nothing great can be effected without enormous cost. The most sagacious of modern statesmen pronounced him to be the best farmer who made the greatest profit out of the least capital. That principle we apply to gardening.

Some years since there appeared in some meadows in Berkshire an extraordinary quantity of a substance which gained the name of Water Flannel. It overlaid the Grass to the thickness of some inches, was white on its under side, green on its upper, and was said to grow so rapidly that people were alarmed lest their meadows should be ruined. It was soon ascertained to be nothing more than a Conferva (C. crispa) which had formed with great rapidity while the meadows in question were inundated, and went on growing as long as the soil continued to be damp enough. As the land dried the Conferva perished, and soon disappeared. We believe it was removed by harrows. (See our volume for 1843, p. 735.)

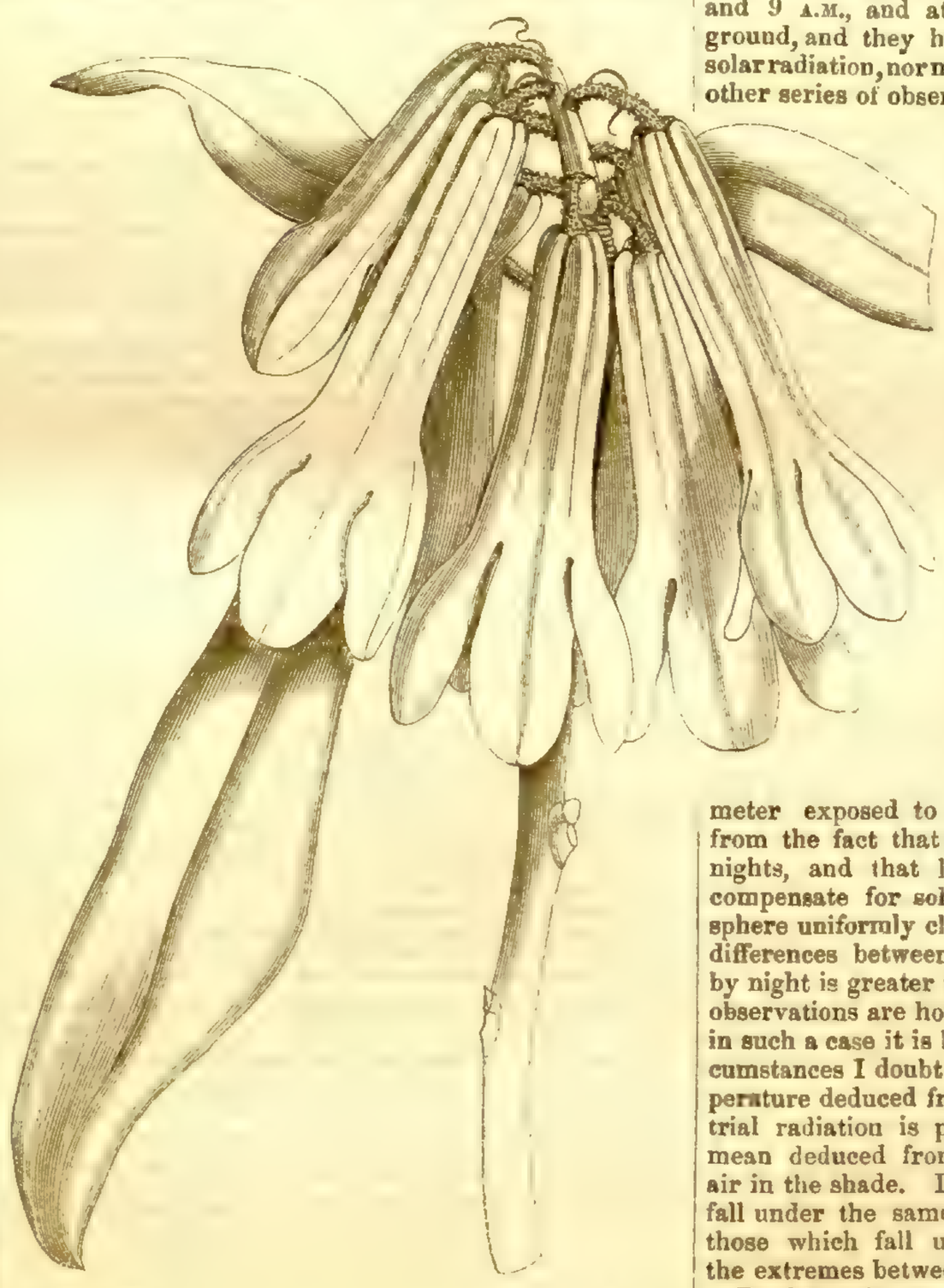
We learn from the *Moniteur des Comices* that the same plant has taken possession of the districts in France lately overwhelmed by water. The other day M. Payen laid before the Central Agricultural Society of Paris specimens that he had received from Châlon-sur-Saône of this vegetable matter deposited in the form of an immense felt cloth, which threatened to suffocate the meadows if not removed. He reported that the plant was so rich in nitrogen, containing by analysis 0.883 when dry, that it must make a good manure, either when mixed with farm-yard matters or soaked with urine. Where however it was inconvenient to carry it off the land he advised it to be thrown in heaps and burnt.

Such Confervas are common everywhere, and contribute to, or wholly cause, the green filamentous scum which often renders ponds and similar places unsightly. When raked out or otherwise removed it will be as well to recollect the advice given by M. Payen, and not to waste them as is often done.

New Plants.

181. Rhododendron Blandfordiæflorum. *Hooker, Bot. Mag., t.* 4930.

We wish this beautiful plant had received a better name; for six-syllable words, in an uncouth form, take our breath away. Not that the name is uncharacteristic; on the contrary, the flowers of this Rhododendron are like those of a Blandfordia; we only object to it because it is unpronounceable. In the spring of the present year flowers appeared in one of the cold pits in the garden of the Horticultural Society upon a Rhododendron which had been raised from Dr. Hooker's Sikkim collections under the name of *R. cinnabarinum var.?* They were long, tubular,



scarlet with a yellow edge and interior, and being pendulous had much the appearance of a Clivia or Blandfordia. The plant was a scrubby bush, with leaves like those of *R. cinnamomeum;* but its brilliant flowers quite concealed the faults of habit. We now learn from the Botanical Magazine that it is one of Dr. Hooker's discoveries in the Sikkim Himalaya and Eastern Nepal, "where it is not uncommon at elevations of 10,000 to 12,000 feet, both in valleys and on the mountain tops and ridges. It forms a slender rather ugly sparingly leafy twiggy bush, with often very ornamental flowers, which are extremely variable, and even wholly dissimilar in colour and often in form." It therefore behoves cultivators to take care that in propagating this species they provide themselves with that form in which the flowers are long, tubular, pendulous, and deep scarlet bordered with bright yellow.

II.—ON THE DIRECT EFFECTS OF THE SUN'S RAYS AND OF EXPOSURE UPON PLANTS.

(From Alph. De Candolle's Géographie Botanique.)

N.B. The temperatures are invariably expressed in degrees of Fahrenheit's thermometer, except when otherwise stated, and the elevations in English feet.—*Transl.*

Plants are usually exposed more or less completely to the sun's rays, and observations on temperature taken in the shade are hence ill adapted to explain the phenomena of vegetation.

M. de Gasparin, to whom this objection appeared a very forcible one, remarks that Humboldt often insists upon the necessity of measuring the direct effects of the sun's rays upon plants and the soil they grow in, and he has himself recorded observations made with thermometers covered with a layer of earth 3¼ feet thick at Orange and at Paris. Comparing these with others taken in A.D. 1786 at Mt. Peissenberg (alt. 3000 feet) he concludes that the sun's rays heat solid bodies in spring 7½° at Paris, 13° at Orange, and 20° at Mt. Peissenberg; and that the sun's rays raise the mean temperature of the year 6° at Paris, 12° at Orange, and 7° at Mt. Piessenberg. He adds that these figures are considerably reduced if the thermometer be also exposed to the rain, dew, and evaporation.

Similar very exact observations have been recorded at the Horticultural Society's Garden at Chiswick, with three thermometers, one covered with black wool and exposed to the sun to give the maximum effect of solar radiation, one similarly covered exposed to the sky at night to give the lowest temperature produced by nocturnal radiation, and the third hung in the shade. These observations have been studied by Prof. Dove, and the following are the results:—

	Mean deduced from max. solar, and min. nocturnal rad.	Mean temp. in shade.	Differences.
Mean of year ...	53½°	50°	+ 3½°
Winter	39°	39°	0
Spring	50½°	48½°	+ 2°
Summer	69¼°	62¼°	+ 7°
Autumn	54°	50½°	+ 3½°
May to September	66½°	59½°	+ 7°

This is perhaps the only unobjectionable series of observations upon record. M. Dove quotes another by M. Stark of Augsburg, but it was deduced from common thermometers, not blackened, observed at 7 A.M., 2 P.M., and 9 A.M., and at 35 feet above the surface of the ground, and they hence neither give the maximum of solar radiation, nor minimum of terrestrial. There are also other series of observations made by Gasparin at Mount Peissenberg, and by Quetelet; but all are open to the same or to similar objections.

M. Dove states that if similar observations to those of Chiswick were made in a continental climate the differences would be greater. If by this he means that the extremes between solar and terrestrial radiation would be greater, there can be no doubt that he is right, for the atmosphere of London is much more charged with vapour and clouds than that of a central, and especially an eastern locality in Europe. If on the other hand he supposes that the mean deduced from the extremes between the thermometers exposed to solar and terrestrial radiation is greater than those between thermometers hung in the shade, his opinion appears to me open to doubt. The excess of heat indicated by the thermometer exposed to solar radiation arises, I suppose, from the fact that the days are less cloudy than the nights, and that hence terrestrial radiation does not compensate for solar, as it would do were the atmosphere uniformly clear. Thus in maritime localities the differences between the purity of the air by day and by night is greater than in continental localities. Good observations are however wanting upon this point, and in such a case it is best to be cautious. Under these circumstances I doubt the hypothesis that the mean temperature deduced from the extremes of solar and terrestrial radiation is proportioned in all climates to the mean deduced from the maxima and minima of the air in the shade. In other words that the places which fall under the same isothermic* line are the same as those which fall under lines following the mean of the extremes between solar and terrestrial radiation.

Be this as it may, the question of far greater practical importance is to know whether vegetables are acted upon by solar radiation in the same manner as are a basin of copper or the bulb of a thermometer, whether empty or full of water, or quicksilver, or spirits of wine, whether free or covered with a black or a non-con-

* I mean by isothermic lines those passing through points on the earth's surface which have equal temperatures during the same period of time, in contradistinction to the isothermal lines of Humboldt, which pass through points having the same mean annual temperature.—*Note by A. D. C.*

It appears to us that the fact quoted in a previous article from M. De Candolle's work, namely that the temperature of the soil is in many places permanently above that of the air, is in itself proof that the isothermic lines projected from observations of the air taken in the shade cannot coincide with those deduced from the mean between the extremes of observations of solar and terrestrial radiation — the anomaly there alluded to being the direct result of radiation, and of solar radiation far exceeding terrestrial.—*Note by Translator.*

ducting substance, &c. Another question is, how and to what extent is the action of the sun's ray upon plants comparable with its action upon a thermometer? Is the thermometer a true exponent of the action of the sun's rays on a plant? Of these two questions the first relates to physical science, the second to pure physiology and to physiology of a very abstract nature. *J. D. H.*

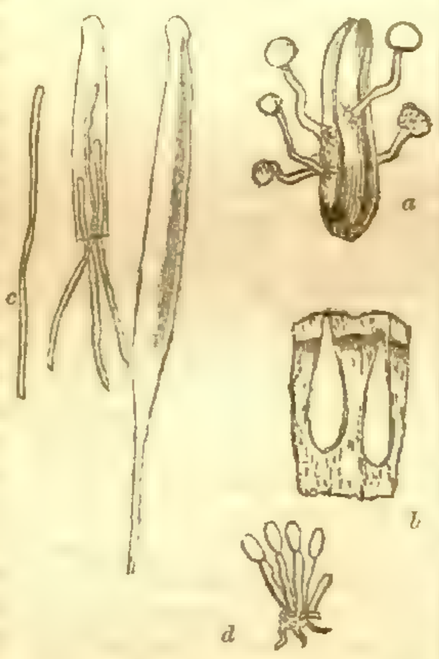
(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CXXXIII.

541. Parasitæ (*Cordyceps.** Ergot).—The seeds of many Grasses and some *Cyperaceæ* are subject to a very curious affection, which has long been distinguished under the name of Ergot. One form is familiarly known in our own country as spurred Rye; but the affection is scarcely less common in Wheat or Barley. Various causes have been assigned for this production, and various names given, but it is only within the last eight or ten years that its real nature has been ascertained.

542. The older observers looked upon it as a mere diseased state of the corn, without much inquiry into its cause. In Sowerby's Fungi the species or varieties are figured under the name of *Farinaria* (tab. 326, figs. 4, 6). Later writers referred it to *Sclerotium*, a genus formed to receive all fungi of a solid texture without evident fruit. From *Sclerotium* it was separated under the generic name of *Spermœdia* by Fries, under a notion that it was not truly a fungus. Leveillé considered the essential part of the fungus to consist in a wrinkled portion at the apex, a fact which has in part been confirmed by later writers. Queckett attributed it to a minute parasitic mould to which he gave the name of *Ergotœtia*.

543. Meanwhile a curious *Sphæria*, now assigned to the genus *Cordyceps*, had been figured in the Flora Danica as springing from what was there called a seed, but which was evidently an Ergot. This species was published in Klotzsch's Herbarium Mycologicum, as growing on Ergot, together with another also on Ergot. Cesati, however, who communicated the specimens did not boldly assert the fact of the Ergot being a condition of the *Cordyceps*, but remained more or less in a state of philosophic doubt. Whatever credit may be attached to his observations, they were published at least as early as 1848. Corda had also in the Œkonomische Neuigkeiten figured a sort of hymenium in Ergot, which induced him to refer it to the genus *Hymenula*. Tulasne's observations were published in 1853, and if they were not absolutely new they had at least, without a knowledge of Corda's and Cesati's memoirs, the merit of placing the real nature of the substance beyond doubt. If the Ergot is sowed like common seeds, with proper attention, it uniformly produces a *Cordyceps* distinguished by perfect ascigerous fruit, while at an earlier stage the surface of the Ergot exhibits a quantity of stylospores resembling closely the spores of *Hymenula*. The only doubt that has been thrown upon the matter is that Cesati has seen the same Ergot producing two species of *Cordyceps*, a fact which has been confirmed by Mr. F. Currey, from whom I have lately received an illustrative specimen. This, however, does not seem to me to militate against Tulasne's doctrine, for it is possible that the sporidia of two species of *Cordyceps* may be equally capable of affecting the grain of the same Grass, though the ergoted grains arising from the action of the two species may not be distinguishable; and even supposing that at one and the same time the Ergot might produce *Cordyceps purpurea* and *microcephala*, no reason can be adduced why the sporidia of either species should not concur in the production of the Ergot, and consequently when the Ergot is committed to the ground either species or both may spring from its surface.



544. One step towards the eradication of any disease is clearly a knowledge of its cause. If, then, the intimate tissues of the plants are not infested with the parasite, it may be hoped that by steeping the grains of those species as Rye and Barley in which Ergot is most common, its attacks may be prevented. Should however the Ergot have fallen, and the *Cordyceps* have in consequence been produced, if two white crops follow each other in succession, the latter may be affected even though the seeds have been steeped. Besides the sporidia are so minute that the slightest breath of air might take them to almost any distance, for they would not readily fall when once wafted upwards, except carried down by rain.

545. It is a great mistake to suppose that Wheat is very rarely affected. Ergot sometimes forms a large portion of bad samples of Wheat, though its nature is little known to our English farmers. In Barley it attains a large size and is very conspicuous. In Wheat it is but little larger than the ordinary grains, and sometimes occupies the same grain with Bunt.

546. Rye is so little grown in this country for food, that we seldom if ever hear the same complaints of the evil effect of Ergot as on the Continent. The free use however of bread into the composition of which a large quantity of Ergot enters, is followed by the most distressing and fatal gangrene. Its medical uses in the contraction of the uterus are well known, and there is no doubt that ewes and heifers often slip their calves when it abounds in a pasture. Farmers therefore should on no account turn in breeding stock where Ergot abounds. It is often very common on bents of Rye-grass in autumn.

547. Though the accounts of the action of Ergot when used for a continuance upon the human frame are beyond doubt, its occasional use may pass off with impunity. Children on the Baltic coasts often eat it under the name of St. John's bread without experiencing any evil consequences. Our figure represents at *a* an ergoted grain with *Cordyceps purpurea* growing from it slightly magnified; *b* is a section of a portion of the head showing the perithecia; the asci and linear sporidia of the same are represented at *c*; and at *d* a portion of the surface of the Ergot-bearing stylospores, highly magnified. *M. J. B.*

* From κορδυλη, a club, and κεφαλη, a head. For this Claviceps is substituted by some authors as more regularly formed. The word *ergot* is a French word meaning Cockspur.

PRACTICAL LESSONS IN BOTANY.

The absence of Professor Henslow at the Cheltenham meeting obliges us to delay the continuation of his interesting articles till next week.

Home Correspondence.

Ants and Guano.—It affords me pleasure to be able to confirm all you say upon this subject. Some eight or nine years ago I found ants very troublesome in tubs in which Peaches and Nectarines were cultivated. The plants were grown in turfy maiden loam, and the ants were evidently introduced with the soil. However during the early part of the season, when a moist condition of the soil and atmosphere was maintained to induce rapid growth, the ants made but little progress; but as the fruit approached maturity, and a drier soil and atmosphere were preserved to facilitate the ripening process and conduce to high flavour, the ants increased so rapidly as to threaten to disfigure if not destroy the entire crop. Various plans of trapping were resorted to, but all were very tedious and none very successful. Toads, upon the whole, proved the best traps, but they do not enjoy ants as they do woodlice, neither do they thrive in a dry atmosphere. Besides, few ladies like their appearance, especially so contiguous to luscious fruit, and worse than all the ants got the mastery of them. The idea then occurred to me of trying to make the ant homes so nauseous as to compel them to be off. With this object in view I had several strong infusions of cow, horse, and sheep manure made to water the tubs with. The ants did not relish these applications; still they reasoned like lawyers upon the advantages of possession, and stayed where they were. They even began to retaliate, for while the surface was wet with the manure water they kept more than once on the trees, and consequently did more damage to the fruit. But no sooner did the soil become partially dry than they returned to their old quarters, and appeared as happy as ever. Last of all I sprinkled some very strong guano all over the surface of the tub, and immediately gave them a gentle watering. The consternation and discomfiture if not entire destruction of the ants was complete. The sudden bursting of a steam boiler in a crowded factory could scarcely cause more confusion than the dose of guano produced in the ant homes. Their first anxiety, as is always the case with these interesting insects, was about their young, and a few efforts were made to secure and drag off the eggs. But they were almost immediately abandoned in despair, and a selfish scramble for personal safety ensued. Many, however, perished before they reached the sides of the tubs, and the others were found half-dead upon the floors in the morning. A second application over tubs, floors, &c., cleared the houses, and the fruit ripened in great perfection. I have frequently applied the same remedy since and always with success, more or less speedy according to the strength of the guano. The ants generally writhed under it as if hot water were applied to them; and I have always attributed its destructive properties to the large quantity of very volatile ammonia it contains. This may be the reason why I have observed in my experiments that the ants were not so much alarmed at the dry guano, but no sooner was the water administered than their terror became intense. I was under the impression that I had communicated these facts to some of the garden periodicals, but now presume that I have been mistaken. Of this however I am quite sure, that such facts cannot be too generally corroborated or too widely known, more especially as all fruits, as far as I am aware, and most flowers thrive amazingly under the guano regimen; and thus most fortunately we are enabled to destroy a troublesome pest, and to improve the health, beauty, and productiveness of our flowers and fruit by one and the same agent. *D. T. Fish, Hardwick Gardens, Bury St. Edmund's.*

Bethunia.—I beg to submit for your inspection the leaf and flower of a plant which grew up in a Musk pot. The leaf you will observe partakes of the form of the Convolvulus, Thunbergia, and Pharbitis, but the flower is entirely different. The plant has but one stem now about two feet high, and whenever a leaf sprouts a stem shoots out bearing a flower which rests itself on the anterior part of the leaf. It would highly gratify me and my friends if you would favour me with its name and mode of cultivating the plant. In the absence of its proper designation it has been called Bethunia, and it requires much water. *J. D. B., Wandsworth Common.* [It is some Polygonaceous plant, too imperfect for identification. The flowers are all males. It is apparently related to Polygonum nepalense. We should like to see it fresh, and accompanied by the females.]

Bees.—There is now to be seen in the shop window of Mr. Cory, grocer, of Trumpington Street, Cambridge, a glass of honey containing the extraordinary weight of 96 lbs. net. The glass is hexagonal, about 2 feet 6 inches high, and the diameter of a common cottage hive. The empty glass was placed upon the top of a strong stock, and it was filled perfectly with the finest virgin honey in seven weeks. Not a speck or blemish is visible in the combs from top to bottom. Mr. Lamplugh, chemist, of Chatteris, in the Isle of Ely, is the person who produced this immense mass of honey worked from a single hive. He has once before produced a glass containing above a hundredweight. Mr. Lamplugh seems somewhat shy in answering questions, but he says he can do this by his method of management, and that no trick or subterfuge is resorted to. Surely he ought to publish his system for the benefit of the public. There is no denying the simple fact that this huge mass of the purest honey was taken from the top of an ordinary cottage hive. I understand that Mr. L. has several other glasses in progress. *G. L.*

Early Peas.—For the purpose of ascertaining which among the Conquerors, Emperors, and Champions is really the best Pea for a first crop, I this season sowed side by side what ought to have been the following varieties:—1, Sangster's No. 1; 2, Sutton's Early Champion; 3, Warner's Conqueror; 4, Warner's Emperor; 5, Waite's Daniel O'Rourke. No. 1 I have reason to believe is the true kind, and it is the earliest and best Pea of the whole lot. Nos. 2 and 3 I could not distinguish from each other in any point. Both were about four days later in coming into use than No. 1. I am told that Warner's Conqueror is only another name for Warner's Emperor. If so, and if my No. 3 is true, then Sutton's Early Champion and Warner's Emperor are one and the same Pea. No. 4 is evidently false; it appears to be a very inferior strain of the old Charlton. I cannot say whether or not my No. 5 is correct. If it is so, Daniel O'Rourke only ranks third in point of earliness. As this is a matter of some importance both to buyers and sellers of Peas, it would be well if other gardeners would give the result of their experience on the subject. We want but one sort of Pea for a first crop, and if by comparing notes we ascertain beyond all doubt which is the best for that purpose of the many varieties contained in the seedmen's lists, all the others might with advantage be consigned to oblivion. *J. B. Whiting.*

On the Practical Advantages of introducing Botany into Schools.—In the valuable series of articles contributed to your journal upon this important subject by the Rev. Professor Henslow, I see that allusion is made to the inconvenience that attends the absence of systematical information from the collectors of valuable articles sent to Europe from our colonies. Now this is a point to which my attention has been particularly drawn, both in foreign countries and at home, and at no time more frequently than during the Exhibition of 1851. It is a fact notorious to the jurors of most, if not all the departments that were concerned with raw products, that countless numbers of reputed valuable substances from the animal and vegetable kingdoms were sent or brought to England by men of activity and intelligence, but who were utterly unable either to give themselves, or to obtain from others in the country whence they were procured, any intelligible account of their origin. Supposing it to have been a vegetable product, they might tell whether it came from a tree or herb, but nothing more; nor could any process of questioning elicit an intelligible hint as to the nature of its flowers, leaves, or fruit. Comparisons with plants of our own country (with which, as often as not, they had no conceivable likeness or affinity,) were always to be had when the questioning was carried too far, as were native names of indefinite application and no meaning, and English colonial names founded on false analogies and mistaken resemblances; but an intelligent answer on a point that required nothing beyond ordinary powers of accurate observation was extremely rare. Now, though early training in the elements of botany will not make grown up men botanists, I do believe that it will have so schooled the faculties of observation of every man subjected to it as a child, that his powers to form correct comparisons will remain latent through life, even when not called into action. I believe, too, that most men will habitually exercise that faculty through life; for when once it is known and felt to be present and capable of being called up, the desire to cultivate it will prove irresistible with most; and, lastly, I believe that so many persons will exercise it in obtaining a knowledge of the plants which surround them, that there will be no colony or dependency of Great Britain, which will not contain many persons able to give such a description of any plant that may be brought to them as will guide a proficient in botany to its affinities and uses. *J. D. H.*

Potato Disease and Electricity.—The theory advanced in last week's Number by "J. Q. Rumball," viz., that

the Potato disease is caused by the action of electricity on wet tubers, appears to me wholly untenable. That the disease should appear three days after a thunderstorm is no proof that lightning produced it, for it might be a mere coincidence, or it might arise from other attendant circumstances. Your correspondent makes no attempts to support his theory by known facts in the science of electricity, nay, its supporters (for it has many) seem to look upon electricity as another "Ariel," playing all sorts of odd pranks, and setting all laws at defiance. Now this is not the case; all electrical phenomena, including thunderstorms, are subject to certain fixed laws, which never vary. For the benefit of your non-scientific readers I will trespass a little on your space to explain the phenomena which take place during such storms. All thunderstorms are produced by one of the following causes:—Either, 1st, by the passage of the electrical fluid from one cloud to another; or, 2d, from the earth to the clouds; or, 3d, from the clouds to the earth. This takes place, however, only under the following circumstances—the cloud, or part of the earth from which it passes, must be in a positive state of electricity; and the cloud, or part of the earth to which it does pass, in a negative state of electricity; the exchange goes on till both are reduced to the same condition. Another important law of electricity is, that it moves by conduction, *i.e.*, as some substances, such as metals, water, &c., are conductors it will pass along them; but glass, fur, atmospheric air, &c., being non-conductors, almost totally obstruct its passage. As the two first causes of thunderstorms enumerated above cannot influence vegetation, we will pass over them and come to the third—the passage of the electric fluid from the clouds to the earth, which takes place in the following manner:—A cloud highly charged with positive electricity, being surrounded by air which is a bad conductor, cannot discharge its excess of electricity till it is in the vicinity of some good conductor, such as a church, a house, a tree, or any other high object, to which it immediately passes (generally in a zigzag direction, owing to the resistance of the air), and is conducted to the earth, where it is distributed in a thousand different directions. Now with these few simple though well established laws before us, what are we to make of Mr. Rumball's theory? The only data he advances in support of it are:—1st, he has frequently observed that the Potato disease made its appearance three days after a thunderstorm, if the weather continued wet or damp, but if the weather was fine, very little disease appeared. If this is a fact that can be borne out by general observation it would lead me to suppose that excessive wet, after dry hot weather, had produced disease and not electricity. Second, the "illustration" which your correspondent quotes in support of his theory is worthy of notice; that the disease attacked his plot of Potatoes in a diagonal direction is to me no illustration whatever, for it appears to be at variance with all the known laws of electrical phenomena. The electrical current could not have been confined within the space he describes unless there was a more highly conducting medium running in that direction, which is improbable; and if so, under such circumstances it could not have injured the Potatoes. It could not have been in the air, for if it had been so near the earth as to affect Potatoes, it must have at once passed into the earth, as the earth is a good conductor, and the air a non-conductor. This fact is, I think, a "curious illustration" of the fallacy of his theory. Lastly, the erection of the iron rods proves nothing, for they could only act by concentrating the electric fluid in that part of the earth which he wished to be most free from it. A great deal of space might be wasted in the refutation of these and other data brought in support of this and other theories respecting the Potato disease, but I forbear; I would merely suggest that such theorists would do well to pursue their observations in a more systematic manner, and instead of being lawgivers let each be, what I am, *a Student of Nature.*

Societies.

Twenty-Sixth Meeting of the British Association for the Advancement of Science, Cheltenham, *August* 6.—Under a summer sun, Italian more than English in its warmth, the members of the British Association gathered at Cheltenham to commence their Twenty-sixth Annual Session. The beauty of the town and neighbourhood and the magnificent weather did not fail to draw together a large company, though the scientific attractions were not expected to receive any increase from such temporary excitement as they gained during the war from the discussion of questions bearing more or less of political interest. The first general meeting of the members took place in the evening at eight o'clock. The Duke of Argyll resigned the chair to Professor Daubeny, who rose and addressed the meeting in an elaborate speech for which we much regret our inability to find room, except so far as one of the topics is concerned.

"It is well known," observed the President, "that a controversy has been going on for some time past between this distinguished foreigner, and certain experimental agriculturists of our own country, with regard to the principles upon which the manuring of our land ought to be regulated. In this dispute, however, you will not expect me to take part, for it would be obviously improper on the present occasion that I should avail myself of a little brief authority to influence the public on either side of a much debated question; and, indeed, on any other, it might be deemed an act of presumption in an individual, who can prefer no claim either to the extensive practical experience of the one, or to the high scientific eminence of the other, to take upon himself to adjudicate between two such conflicting parties. But I may be permitted to remark, that whilst some points of difference between them still remain open for further investigation, a much nearer correspondence of opinion exists with respect to others than the public in general, or even perhaps the disputants themselves, are inclined to allow. In so far, indeed, as concerns the relative advantages of mineral and ammoniacal manures, I presume there is little room for controversy; for although most soils may contain a sufficiency of the inorganic constituents required by the crop, it by no means follows that the latter are always in an available condition; and hence it may well happen that in most cases in which land has been long under cultivation, the former class of manures becomes, as Baron Liebig asserts, a matter of paramount necessity. Now, that the same necessity exists for the addition of ammoniacal manures can hardly be contended, when we reflect, that at the first commencement of vegetable life, every existing species of plant must have obtained its nourishment solely from the gaseous constituents of the atmosphere, and from the mineral contents of the rock in which it vegetated. The only divergence of opinion therefore that can arise relates to the degree of their respective utility in the existing state of our agriculture, and to the soundness of Baron Liebig's position, that a plant rooted in a soil well charged with all the requisite mineral ingredients, and in all other respects in a condition calculated to allow of healthy vegetation, may sooner or later be able to draw from the atmosphere whatever else is required for its full development. And does not, I would ask, this latter position derive some support from the luxuriant vegetation of the tropics, where art certainly contributes nothing towards the result? and is it not also favoured by such experiments as those carried on at Lois Weedon, in Northamptonshire, where the most luxuriant Wheat crops have been obtained for a number of consecutive years without manure of any kind, simply by following out the Tullian system of stirring up and pulverising the soil? How, too, are we to explain that capacity of subsisting without any artificial supply of ammonia, which Mr. Lawes is led by his experiments to attribute to Turnips and other plants of similar organisation, unless we assume that the power residing in the leaves of absorbing ammonia from the air may render plants, in some cases at least, independent of any extraneous aid? Be this, however, as it may, there is at least a wide distinction between this opinion and the one attributed to Baron Liebig by many, who would seem to imagine that, according to his views, ammonia, if derived from artificial sources, was in a manner useless to vegetation. As if it could be a matter of any moment, whether the substance which in both cases afforded the supply of nitrogen, and which in both cases also was primarily derived from the decomposition of organic substances, had been assimilated by plants directly upon its being thus generated, or had been received into their system at a later period, after having been diffused through the atmosphere! To suppose that Baron Liebig should have attached any moment to this distinction seems inconsistent with many passages in his work, in which, although the paramount importance of mineral manures may be insisted upon, and the success which had in certain cases attended the use of one compounded only of mineral ingredients may be put forward as a motive for further trials, the utility of ammoniacal substances in all their several forms is at the same time distinctly admitted. Still the practical question remains, whether, admitting the theoretical truth of Baron Liebig's position, a larger expenditure of capital will not be required for bringing a given farm into a condition to dispense with ammoniacal manures, than for procuring those materials which contain that ingredient ready for use. And here experimental researches, such as those conducted on so extended and liberal a scale by Mr. Lawes and Dr. Gilbert, come in aid of theory. They stand, as it were, midway between the abstract principles which science points out to the farmer and the traditional usages with respect to his art which have been handed down to him from one generation to another. They bear the same relation to the farmer which the records of the clinical practice in a large infirmary do to the general principles of medicine expounded by the modern physiologist. It is true that the experience of a particular hospital may not at all times coincide with the anticipations which science holds out; but this discrepancy only suggests to us the imperfection of our present knowledge, and is not allowed to disturb the confidence of the physician in principles already established on incontrovertible evidence. On the contrary, whilst he modifies his practice from time to time by the experience he has gained by actual observation, he feels at the same time the fullest conviction, that these results will be found eventually reconcileable with the general principles, which a still more extended series of induction may have established."

In concluding a most interesting speech Dr. Daubeny added—

"We are told, that in a future and higher state of existence, the chief occupation of the blessed is that of praising and worshipping the Almighty. But is not the contemplation of the works of the Creator, and the study of the ordinances of the Great Lawgiver of the universe, in itself an act of praise and adoration? and, if so, may not one at least of the sources of happiness which we are promised in a future state of existence,—one of the rewards for a single-minded and reverential pursuit after truth in our present state of trial, consist in a development of our faculties, and in the power of comprehending those laws and provisions of nature with which our finite reason does not enable us at present to become cognisant? Such are a few of the reflections which the study of physical science, cultivated in a right spirit, naturally suggests; and I ask you, whether they are not more calculated to inspire humility than to induce conceit; to render us more deeply conscious how much of the vast field of knowledge must ever lie concealed from our view—how small a portion of the veil of Isis it is given us to lift up—and, therefore, to dispose us to accept with a more unhesitating faith the knowledge vouchsafed from on high on subjects which our own unassisted reason is incapable of fathoming. 'Let us not therefore,' to use the language of a living prelate, 'think scorn of the pleasant land.'—'That land is the field of ancient and modern literature—of philosophy in almost all its departments—of the arts of reasoning and persuasion. Every part of it may be cultivated with advantage, as the land of Canaan when bestowed upon God's peculiar people. They were not commanded to let it lie waste, as incurably polluted by the abominations of its first inhabitants; but to cultivate it and dwell in it, living in obedience to the divine laws, and dedicating its choicest fruits to the Lord their God.'"

Next week we shall commence our reports of such parts of the sectional business as we think likely to interest our readers.

Notices of Books.

A Descriptive Dictionary of the Indian Islands and Adjacent Countries. By John Crawfurd, F.R.S. 8vo. Bradbury & Evans. Pp. 459.

No one knows so much of the Indian and Philippine Archipelagoes as Mr. Crawfurd, whose "History," published above thirty years ago, is still a book of the highest authority in all that relates to the trade, history, and products of those fertile regions. In the work now before us the learned author has recast his materials, reducing them to the form of a dictionary or rather gazetteer, by which plan a reader can find the subjects he seeks for more readily than in a continuous narrative even if well indexed. There is no satisfactory way of describing how such a work is executed except by extracts, of which we produce two only. The first relates to the Cocoa nut tree, serving to correct the absurd exaggerations current respecting that most useful plant.

"Coco-Palm (*Cocos-mucifera*).* This Palm, so generally diffused over the tropical world, old and new, would appear to be a native of several of the islands of the Asiatic Archipelago, while to others it seems to have been conveyed by currents or by man. The two most frequent names for it are, the Malay, ñur, and the Javanese, kâlapa. These, with some corruptions, have a very wide circulation, especially the first. The Javanese name extends to the languages of Celebes, and even to some of those of the islands of the Molucca Sea, but the Malay, to the Philippine tongues, to the language of the South Sea Islands, and even to that of Madagascar.

"The Coco-Palm is in a good measure a littoral plant, attaining earliest maturity, greatest size, and most fruitfulness close to the sea, although growing also and yielding fruit at a considerable distance from it. The natives are well aware of this fact, according to the following apt quotation from Marsden's Sumatra. 'Here, said a countryman at Laye, 'if I plant a Coco-Nut, I may expect to reap the fruit of it, but in Labun (an inland district) I should only plant for my great grandchildren.' Many uninhabited islets, on the western coast of Sumatra, afford examples of the mode in which the Coco-Palm has been conveyed by currents, and of the partiality of the plant for the immediate neighbourhood of the sea. 'This island, Tristé,' says Dampier, 'is not a mile round, and so low, that the tide flows clear over it. It is of a sandy soil, and full of Coco-nut trees. The nuts are but small, yet sweet enough, full, and more ponderous than I ever felt any of that bigness, notwithstanding that at every spring-tide the salt water goes clear over the island.' Vol. i. p. 474. The island thus referred to is the Pulo-Mega, or 'Cloud Island' of the natives, a name taken from Sanserit, and is distant from the shore of Sumatra 15 leagues. From this account, it is evident that the nut may be conveyed a long way by sea without losing its vitality. The same judicious observer narrates the following fact in illustration. 'The 10th day, being in latitude 5° 10′, and about 7 or 8 leagues from the island of Sumatra, on the west side of it, we saw abundance of Coco-nuts swimming in the sea, and we hoisted out our boats and took some of them, as also a small hutch or scuttle, rather belonging to some bark. The nuts were very sound, and the kernel sweet, and in some, the milk or water in them was yet sweet and good.' Vol. i. p. 474. The Coco-nuts, in this case, were no doubt the produce of a wreck.

"By far the best account of this important Palm

* We regret to be obliged to notice some typographical errors, such as this *mucifera* for *mucifera*, *caricum* for *casicum*, *officinalis* for *officinarum*, and so on.

that I have seen is to be found in the 4th vol. of the Journal of the Indian Archipelago, written by Mr. J. T. Thomson. 'The habit of this tree,' says this experienced and intelligent writer, 'is on the sea shore fringing the beach. In such a position, should the soil be loose and friable, though of the most meagre description, such as sea-sand and shells, it grows luxuriantly without the concomitant aids of cultivation, manure, or the proximity of inhabited houses; but this only obtains within 100 or 200 feet of the beach. Its bending stem inclined towards the sea, causing its fruit to be received into the bosom of that element, appears to have peculiarly fitted it for extension to the various islands and atolls of the Indian and Pacific Oceans, to which the nut is floated by the winds and tides, and to whose inhabitants it affords both shelter and food. When planted in other localities than these, it neither grows well nor affords fruit, unless it be on rich soil or in the proximity of dwellings, and in average soils it requires both considerable manuring and cultivation. . . . . A good Cocoa-nut tree when in full bearing will yield 140 to 150 nuts per annum. It commences to bear in damp, low, rich soils in the fourth or fifth year, in sandy soils of middling height in the sixth and seventh year, and on high ridges in the ninth and tenth year, and the last, though slow in growth, are wholesome good trees. From the time the blossom shows three months elapse before the formation of the fruit, and the fruit requires six months more to come to full growth, three months more to ripen, and it will remain other two months before it drops. Thus 14 months elapse between the blossoming and the falling of the ripe fruit.'

"The accounts usually given of the almost innumerable uses to which the different parts of the Coco-Palm are put are in a good measure exaggerated. The only parts essentially valuable are the albumen of the nut for its oil, and its husk for a textile material. In the Asiatic Archipelago the wood, the leaves, the sap, and the pith of other Palms are either better in quality or cheaper. In whatever manner the first inhabitants of other regions of the earth may have obtained their earliest subsistence, it is certain that those of which the Coco-Palm is a native had at once from it a spontaneous supply both of food and drink. Its presence on the coast probably contributed, with the easy supply of fish, to determine, from the first, that maritime character which still belongs to so many of the tribes of the Archipelago."

Our other extract relates to the important substance called Sago.

"Sago, in Malay, Javanese, and all the other languages of the Archipelago, sagu, most probably a word of one of the languages of the Moluccas. It is, probably, the name of the farina or meal, for each species of the genus of Palms producing it has its own specific name. Of these there are supposed to be five, the most frequently cultivated of which are the Râmbiya, Sagus Konigii or Metroxylon Sago, and the Bamban or Sagus lævis. All the species much resemble each other, and all yield an immense quantity of farina, the wood being a mere shell, containing a mass of medulla. Sago trees are found in every part of the Malayan Archipelago and Philippines, as far as Mindano, wherever there is a genial soil for them, and this soil consists of a marsh or bog, composed of decayed land vegetables, near the sea, but excluding tidal action. They are most abundant in the eastern parts of the Malay Archipelago, as the Moluccas and neighbouring islands, with New Guinea and Borneo, and in the Philippines, Mindano. In all these they are more or less the bread of the inhabitants. From these countries they are believed to have been introduced into Sumatra and the Malay Peninsula.

"The Sagos differ from all other Palms in two important particulars. They propagate themselves by lateral shoots, as well as by seed, like the Banana, and they die after producing fruit. From the first of these properties, a Sago plantation once formed is perpetual. The trees are cultivated in small patches, and a man and his family are thought, without much care, to be equal to the management of a plantation of 100 square fathoms, which will contain 400 trees. The trees are cut down immediately before bearing fruit, which is usually about the age of 15 years. 'When,' says Mr. Logan, who has given by far the best and fullest account of the culture and manufacture that has ever been published, 'a plantation has once arrived at maturity, there will be a constant harvest, because the natural mode of growth secures a continued succession of new plants from the time those first planted have begun to extend their roots, and this succession can be regulated by the knife in any manner the planter desires. The Sago tree when cut down and the top severed from it is a cylinder about 20 inches in diameter, and from 15 to 20 feet in height. Assuming 20 inches as the diameter and 15 feet as the height of the trees, the contents will be nearly 26 bushels, and allowing one half for woody fibre there will remain 13 bushels of starch, which agrees very closely with our previous calculation of 700 lbs. for each tree or 12½ bushels. It may give some idea of the enormous rate of this produce if it be considered that three trees yield more nutritive matter than an acre of Wheat, and six trees more than an acre of Potatoes. An acre of Sago if cut down at one harvest will yield 5220 bushels, or as much as 163 acres of Wheat, so that according as we allow 7 or 15 years for the growth of a tree, an acre of Sago is equal in annual produce to 23 or to 10 acres of Wheat.' Journal of the Indian Archipelago, vol 3, p. 312."

"Sago is the sole bread of the inhabitants of the Spice Islands and of New Guinea, and its neighbouring islands, but of no other part of the Archipelago. In the Malay countries it is the only food of the wild tribes, and is hardly used by the Malays themselves. In Mindano it is consumed only by the poorer classes, and in Java, Bali, and Lomboc, fertile in Rice, it is altogether unknown as an article of food. It is far from being either so palatable or nutritious as it is prolific, and is never preferred, even where it is most abundant, to Rice. It has the obvious disadvantage of being the lowest quality of farinaceous food, and living on which it is impossible to fall back on any other. In this respect it is like the Potato or the Banana, although over the first of these it possesses the advantage of the crop being less liable to failure; if, indeed, liable to it at all. One thing is certain, that no nation of the Archipelago, of whom it has been the chief vegetable diet, has ever acquired any respectable amount of civilisation. Those doing so, who had attained the greatest of it, were the inhabitants of the small islands producing spices, and they owed their advancement to the trade they carried on in these commodities, but even these had neither a calendar nor a written language, and received the useful metals and their clothing from the nations of the west.

"The granulated farina of Sago, of a dirty brown colour, used to be exported from the Archipelago in small quantities, under the old system of monopoly, but about the time when the trade with Europe was first thrown open in 1814, the Chinese of Malacca began to prepare a much superior article, known in commerce under the name of Pearl Sago. Of this and of Sago flower, or the ungranulated starch, Singapore is at present the chief place of manufacture and principal mart, the Chinese being the sole manufacturers, and the raw material being brought from various neighbouring countries, but chiefly from the north-western coast of Borneo, and the north-eastern of Sumatra with its adjacent islands from Siak to Indragiri. In the year 1847-48 the quantity of Sago exported from Singapore was about 80,000 cwt., worth on the spot about 45,000*l*."

A more difficult task than thus to record the most important facts relating to the vast region over which Mr. Crawfurd's work extends could hardly have been undertaken. We therefore must not be surprised at such subjects as Gutta percha, Cotton, Satin wood, China Grass, Caoutchouc, &c., having been omitted. They will doubtless be introduced hereafter either into a supplement or the pages of a new edition. In the meanwhile we have a most valuable book of reference, indispensable to all good libraries.

The Stepping Stone to Natural History (Longmans, 12mo, pp. 191,) is upon a good plan, but its field is much too extensive for the little people who are to use it. A "stepping stone" to be useful should answer to its name, and not be a mountain. What can children want to know about *Simiadæ* and *Cebidæ*, or Springboks, Koodoos and Nylghaus, or Chondropterygian, Malacopterygian and Lopho-branchiate fishes? This is quite beyond all possible utility. The apology, that it is upon the good old spelling book plan, will hardly be accepted in these days of common sense. Teach children all the important facts about such natural history *as they come in contact with*; tell them all about horses and cows and sheep, and sticklebacks and pike, and blackbirds and poultry and toads and frogs, but in mercy do not perplex and disgust them with a catechism concerning narwhals, Mastodons, Babyroussas and Geckos. While the little volume before us must be condemned for the purpose its author seems to have contemplated, we can recommend it to adults unacquainted with natural history, and who have access to museums. Even for them, however, it is not so useful as it might have been, from want of an index.

Garden Memoranda.

Messrs. Wood & Son's Nursery, Maresfield, Sussex.—After a pleasant journey of some 13 miles from Hayward's Heath, on the London and Brighton railway, we arrived at this celebrated Rose nursery, which is delightfully situated on rising ground, with Ashdown Forest on the one hand, and a deep valley through which runs a stream well stocked with fish and overhung with woods that thickly clothe the neighbouring heights on the other. Here Mr. Wood, soon after the termination of the battle of Waterloo and after many years of active service on the Continent, quietly settled down to cultivate the Queen of Flowers, and from that time to the present, by means of energy and perseverance, this nursery has been gradually rising in importance. He began with 14 acres, which have now increased to 60. As may be imagined, these are not all covered with Roses; on the contrary, many acres are occupied with general nursery stock. The Queen of Flowers may nevertheless with justice be said to form the most prominent feature of the establishment. Here we were informed were cultivated some of the first standard Roses in Sussex; Mr. Wood having seen them growing in a private garden on the Continent was struck with their beauty and effect; immediately, therefore, the war with France had ended, he obtained a few and sent them home to his brother-in-law, but owing to their being too long out of the ground they did not grow. Others were, however, afterwards imported and planted in this nursery, in which a good stock was soon got together; and now it not only produces them annually by the thousand, but also half standards and dwarfs in equal abundance. It is stated that there are above 20 acres of Roses, worked on the Briar.

Of the brilliant Géant des Batailles we saw in the shape of standards and half-standards no fewer than 7000 plants, and of that fine new Rose General Jacqueminot there were certainly as many as 2000 specimens. These two Roses were growing side by side, and although the unusual amount of sun we have lately experienced had greatly impaired the brightness of their colours, such large plantations of them made a display more easy to conceive than describe. The latter certainly wants more doubleness to be perfect; but its glorious colour and large size make it a great acquisition. Duchess of Norfolk, another high-coloured nearly spineless Rose, is well worth attention. This is a profuse flowerer, grows very vigorously in autumn, and makes an excellent pillar Rose. It can hardly be termed a climber. Of Jules Margottin we have on former occasions spoken in the most favourable terms; it is one of the most free flowering Roses with which we are acquainted, and here it seemed to be unusually well coloured. As a bedding variety it cannot fail to be extremely effective. Col. Rougemont is a noble Rose almost as large as Baronne Prevost, which it resembles; here it comes into bloom after that variety has done flowering, and therefore becomes a useful successor to that favourite sort. Louise Odier, rosy peach, is one of the best of its class, and the same may be said of Prince Leon, a compact brilliant crimson; Gloire de Dijon is a fine Tea-scented Rose with a Noisette habit; and Melanie Willermoz is a good hardy white shaded with buff. Madame Cambacères is a fragrant, very free flowering, finely cupped variety, and Emperor Napoleon and Baronne Laray are both good new Roses and worthy additions to the class to which they belong. Revei and Vorace are two good Bourbons; Souvenir de Leveson Gower though not quite new is an excellent free flowering and compact Rose. Duchesse de Orleans, deep rose, is large and durable and finely formed. General Castellane, bright carmine, is an excellent variety, and Gloire de France is a good addition to new Roses; it is rich crimson in colour, and excellent in shape; Le Lion des Combats is a large double crimson, and Madame Place, pink with a rich satin-like gloss on it, is well worth growing. Among stripes, Panaché d'Orleans is one of the best, and of deep purplish crimson few beat Prince Chipetouzikoff. Docteur Julliard is a very free flowerer. Madame Theodore Martell, a blush pink, is very double and carries its flowers up well above the foliage; La Ville de St. Denis is a bright rose, large and showy; Lord Raglan is small, but brilliant and so free that it has six or eight flowers on a truss. Alexandrine Bachmeteff is a good new Rose with the colour of Robin Hood. Of light Hybrid Perpetuals few beat Mrs. Rivers and Madame Vidot, both excellent flowers of their class; a new light kind called Josephine Ledechaux is said to be good, but this we did not see in flower.

Of Standard Roses worked high so as to cover unsightly objects quickly, and also for forming weeping or fountain Roses, we remarked some excellent examples. Some Mosses and Hybrid Perpetuals worked on Manetti stocks in the open ground in April this year were very fine, having made remarkably large heads for the time they have had to form them in. They are worked so near the ground that in addition to the support derived from the stock they send out roots of their own, and therefore as it were have a double chance of succeeding. Some kinds take freely on this stock; others do not; therefore both judgment and experience are required in the selection of varieties to be worked on it.

Tea Roses in pots are grown here extensively, and form a prominent feature in the business of this establishment. A new span-roofed house is being erected for their accommodation. It is 116 feet long, 25 feet wide, and 12 feet high; it is to be glazed with Hartley's rough plate glass, and heated by means of hot water in tanks and pipes. Of other houses two were filled with Tea Roses, and out of doors beds have been formed for them as follows. The bottom consists of faggots over which hot dung is laid to the depth of 2 feet, and then tan, in which the pots are plunged. Thus placed in the open air without covering of any kind their wood gets well hardened, and they are thus more easily kept free from mildew while growing. These Roses are liberally fed with manure water. This is obtained from a brick tank built in a corner of the stable-yard; into this are put from time to time quantities of horse droppings; these are mixed with rain water collected from the roofs of houses and conveyed there, where after standing for a time it is fit for use, and skilfully applied forms an excellent stimulant. No fewer than 6000 Tea Roses are reported to be growing here in pots.

Manures, it may be mentioned, are scarce and dear in this locality; all sorts of expedients are therefore resorted to to supply their place. One of the best substitutes for them is charred turf and other garden refuse. To get this a hole 40 feet in length, 6 feet deep, and 12 feet wide is dug. Into this are first put wood faggots; on these are laid 30 loads of turf from the forest, mixed with Laurel leaves and other vegetable refuse. These when dry are set on fire and covered over so as to prevent as much smoke as possible from escaping, and so it is treated until the whole mass has become charred. In this way a large amount of valuable manure is obtained, which when applied to Roses and other crops has been found to be productive of the very best results.

Among hardy herbaceous plants Phlox Countess of Home is one of the finest things in its way we have seen. It bears immense spikes of flowers, which are white with a crimson eye, well formed, and compactly set on the spike. Col. Dundas is another capital Phlox, rosy pink in colour, and, like that just noticed, remains long in beauty. King Leopold is an excellent striped variety. These are kinds which should be in every garden. Another Phlox called Madame Fontaine, white with a bold crimson centre, is also good. Lythrum "speciosum roseum" is an extremely gay plant, and would make an effective bed; it throws up numerous spikes covered with purple blossoms quite 15 inches in length; this and the dark-red Monarda didyma are plants which should not be lost sight of; they are much gayer than many new things which are more costly. The white Campanula coronata is another free flowering plant which is quite hardy and lasts long in bloom.

Hollyhocks are cultivated here in considerable numbers, and among them were some first class kinds. It is only lately that this noble autumnal plant would grow here. It has always been eaten up with mildew; but by means of careful attention to dusting the leaves with hot lime and sulphur this pest has nearly disappeared.

Forest and ornamental trees and shrubs are grown here extensively. Weeping trees, both Ashes, Thorns, Hollies, and Larches, are also plentiful, as are Standard Portugal Laurels, among which were some promising specimens with straight clean stems from 8 to 10 feet in height. Of Laurel hedges we noticed some good examples, 10 and 12 feet in height, and as close and straight as walls. These, we need not say, are useful both for shade and shelter. Fruit trees, especially Peaches, Nectarines, and Cherries, both trained and otherwise, grow remarkably well in the light sandy soil of this locality.

Thirteen acres of very unpromising land attached to this nursery have lately been converted into an American garden. We say unpromising because it consisted mostly of sandy rock, over which was a thin layer of peat. The rock was chipped away by degrees, broken up fine, and mixed with the soil, and now it is found that Rhododendrons, Kalmias, and other peat-loving plants thrive in it perfectly. This is a good example of what may be done with land of the worst description. We may mention that Potatoes both here and in loam showed disease in their tops; the tubers appeared to be unaffected.

The growth of Conifers is not neglected here; among them we remarked a Cryptomeria said to be 30 feet in height. Its stem 1 foot from the ground measured 2½ feet in circumference, and it is beautifully branched from bottom to top, altogether forming one of the finest trees of the kind we have seen. Of Abies Douglasi there was a thriving specimen; also Libocedrus chilensis 5 feet high and quite hardy, having stood out of doors several winters; Araucaria imbricata, and several kinds of Pinus.

Finally, it may be worth recording that this nursery is open at all times to respectable parties, whether they come to buy or for pleasure. To be able to see the Roses when in full bloom is to many who have otherwise no chance of seeing such a collection a real treat, and for retirement from the heat of the day a commodious Rose-covered summer house has been provided, in which a leisure hour may not be unprofitably spent.

Miscellaneous.

The Tansy and its value.—M. de Morogues announces that this plant, dried, is excellent sheep food, and that when fresh it makes capital litter for domestic animals. Its peculiar balsamic odour most effectually drives away fleas. A lapdog sleeping on a bed of fresh Tansy is immediately freed from these vermin. It should be renewed when the leaves are quite dry. This seems a better application of the plant than following the example of our grandmothers and making it into cakes.

Destruction to House Bugs.—The French Academy of Sciences is assured by Baron Thénard that boiling soap and water, consisting of two parts of common soap, and 100 parts of water by weight, infallibly destroys bugs and their eggs. It is enough to wash walls, woodwork, &c., with the boiling solution to be entirely relieved from this horrid pest.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—The different varieties of Japan Lilies will soon be coming into bloom and will require attention in the way of staking. When removed to the conservatory they should be placed in a cool airy part of the house shaded from bright sunshine, and afforded a liberal supply of water. Every care should be paid to preserving the beauty of their flowers, and having as long a succession of them as possible. Maintain an active war against insects; the best remedy for ants is guano (see pp. 531 and 549 of our last and present numbers. Any repairs which must be done to plant houses should now be finished as quickly as possible while the weather is favourable for such work. Cold Pits.—The fine weather which we have been experiencing will be highly serviceable to the inmates of these structures, and while bright sunshine continues every means should be used to encourage late growing plants to ripen their wood; allow them plenty of air, removing the sashes altogether on fine nights. Shake out and repot Pelargoniums which are sufficiently advanced after having been cut back; keep them close in a cold frame until they have made fresh roots. When fairly established after repotting they can hardly be too freely exposed to air or kept too cool. Attend carefully to Chrysanthemums; see that the shoots are secure from accidents, to which they will be liable if left unstaked after this time. Give them plenty of rich manure water and let them be set wide apart in an open airy situation, removing suckers as soon as they make their appearance. Cinerarias for early blooming should be kept cool and moist; endeavour to keep them free of thrips and mildew. Repot Primulas and encourage them to make rapid growth, especially the double varieties which are particularly useful for winter decoration. Calceolarias for spring flowering should be sown at once if not already done; but we have now so many fine varieties of shrubby kinds, and these so hardy and easily managed that for mere decorative purposes the herbaceous sorts are hardly worth the trouble of growing. Cuttings of the shrubby sorts, such as King of Yellows and Orange Boven, put in now will make useful plants for flowering next spring, and with very little attention they will form specimens of any desired size for the following season. Keep Violets clear of red spider by liberal washings with the syringe, and give them plenty of manure water; also attend to tree Mignonette for winter flowering, keeping the plants well supplied with pot room and in the most vigorous health possible; pinch off all the flowers as they make their appearance.

FORCING DEPARTMENT.

Pineries.—Plants growing in dung pits must be freely supplied with air to prevent their getting drawn, and they should also be kept near the glass and not allowed to stand too closely together, for strong robust plants need hardly be expected unless this is attended to, and weakly drawn ones seldom or never yield fine fruit. Give careful attention to such as are swelling; afford them plenty of warmth and moisture, and as much manure-water at the root as the soil will bear. Remove useless suckers and gills as soon as they are perceived, which, if left, only rob the fruit and weaken the suckers which it may be necessary to leave on the plant for keeping up the stock. Do not allow young stock in free growth in the succession pits to stand too closely together, nor to sustain any check through neglect in watering, or the want of pot room. Plants growing in beds of soil must also be carefully attended to with water, keeping the soil in a nice moist state. Where rapid growth is required keep as warm and moist as can be done without drawing the foliage, and give plenty of strong clear manure water at the root, and the plants will make rapid progress for the next two months. Vineries.—See that Vines from which the fruit has just been cut are free from insects, giving the foliage an occasional washing with the engine if red spider is at all troublesome; and use every precaution to keep the leaves in health as long as possible. Prevent the growth of laterals, which only shade and injure the principal foliage. Late Grapes colouring should be assisted with slight fires in cloudy weather, especially Muscats, which, after this season, where they are not already all but ripe, will require gentle fires, unless the weather should prove unusually fine. Thrips are frequently very troublesome in late Vineries where plants have been grown under the Vines, and where there is any reason to expect these, the foliage should be frequently examined closely; giving the house a heavy smoking as soon as they are perceived, and repeating this for two or three times at intervals of about a week, shading the house the day after smoking, where it can be done so as to be able to keep it rather close, will render the cure more effectual; and if the pest is taken before it gets quite established, it will be easily got rid of by two or three smokings, but unless taken in time it is very difficult to eradicate. Peaches.—Give every attention to getting the wood well ripened, as next year's success will very much depend upon this being properly effected. Keep the foliage clean and free from insects, and endeavour to preserve it in health as long as possible. Give air freely both day and night, but keep the roots as dry as can conveniently be done, therefore guard the inside borders from heavy falls of rain, shutting up the sashes at night when there is reason to apprehend much wet. Any gross shoots that may still incline to grow should be stopped, as if left they encourage the action of the roots, and cause a greater tendency to growth than would otherwise be the case. Loosen the surface of the border where this is at all close, in order to admit air and warmth.

FLOWER GARDEN AND SHRUBBERIES.

Timely attention should be given to the propagation of variegated leaved Geraniums, such as Flower of the day, Mountain of Light, and Golden Chain, which we need scarcely say are first-rate sorts for bedding out. Turner's Alma will make a capital addition to this class of plants. Most of the kinds are unfortunately shy growers except when planted out in rich light soil, and gross wood does not readily emit roots. Cuttings will strike freely, however, if planted where there is a little dry bottom heat, under the shelter of a hand glass in the open border or in a cold frame; but they are very liable to damp off in the moist atmosphere of an ordinary propagating pit. Look over the beds and see if their appearance can be improved by any means, and spare no attention at the present time which is calculated to render the effect more satisfactory. Go over Rose beds frequently, removing decayed Flowers, &c., and keep down mildew by dusting the parts affected with sulphur immediately the fungus is perceived. Any stocks not yet budded should be seen to at once.

HARDY FRUIT AND KITCHEN GARDEN.

Keep the young shoots of Peaches, &c., closely nailed in, and thin in order that they may be fully exposed to the influence of the sun. Protect the fruit from wasps by the use of a thin net if it cannot be done otherwise; but shade the trees as little as possible. If not previously done cut off Strawberry runners, and trim and clean the beds so as to expose the plants for bearing next season to light and air, in order that they may be strong and well ripened. Lettuces to stand the winter should now be sown; choose for the purpose a bit of light dry soil. Also sow a small bed of Cauliflowers and some Cabbage to succeed the August sowing. Attend to providing a good supply of salad for late use. Plant out Lettuce and Endive on light rich soil. Attend to taking up, drying, and storing Onions. Destroy weeds, and stir the surface of the soil among growing crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 14, 1856, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 8	☽	29.718	29.640	80	54	67.0	65	63	S.W.	.08
Satur. 9	9	29.808	29.750	75	55	65.0	65	63	S.W.	.10
Sunday 10	10	29.841	29.774	84	54	69.0	66	63	S.E.	.00
Mon. 11	11	29.831	29.787	87	56	71.5	68	63	S.W.	.12
Tues. 12	12	29.960	29.910	80	47	63.5	68	63	S.W.	.09
Wed. 13	13	29.959	29.858	85	50	67.5	68	63½	S.	.66
Thurs. 14	14	29.899	29.749	75	54	64.5	68	63½	S.W.	.06
Average .		29.859	29.785	80.8	52.8	66.8	66.8	63.1		1.02

August 8—Cloudy; overcast; rain; very fine at night.
— 9—Slight rain; overcast; very fine.
— 10—Fine; cloudy and fine throughout.
— 11—Fine with clouds; very fine; very hot; thunder and lightning, with rain.
— 12—Cloudy; very fine; clear and fine at night.
— 13—Very fine; hot and dry; very fine; lightning; rain at night.
— 14—Very heavy rain early A.M., cloudy and fine; thunder in afternoon; fine.

Mean temperature of the week 4 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending August 23, 1856.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 17	73.5	50.7	62.1	16	0.76 in.	3	1	1	2	4	5	12	2
Mon. 18	73.8	51.9	62.8	11	0.28	1	5	3	2	4	7	7	1
Tues. 19	72.9	51.7	62.3	15	0.42	2	2	2	1	1	9	10	3
Wed. 20	72.5	51.7	62.1	14	0.33	2	1	1	—	5	8	11	2
Thurs. 21	72.3	50.1	61.2	10	0.62	3	2	—	1	7	7	8	2
Friday 22	71.1	51.1	61.1	12	0.67	1	2	2	—	4	10	10	1
Satur. 23	71.2	49.5	60.3	17	0.95	1	3	1	1	3	10	9	2

The highest temperature during the above period occurred on the 18th, 1842——therm. 92 deg; and the lowest on the 21st, 1850—therm. 32 deg.

Notices to Correspondents.

Gardeners: *Haverfordwest.* We regret to hear that his temper is uncontrollable. He is a thoroughly good gardener; there is no doubt about that. Unfortunately the infirmity is common, especially among the best men—masters as well as gardeners. We counsel patience, and a little management.

Ghuzni Vineyards: *A O—d.* Many thanks. We wait till the sketch can be cut on wood. Myrtus Ugni is a native of Chili. We should think it perfectly adapted to any Indian climate which suits the common Myrtle. The importers of it are Messrs. Veitch & Co., Exotic Nursery, King's Road, Chelsea, London.

Greenhouse: *G T S.* You cannot do better than face your house with Portland cement, the very best material for the purpose. To use stone would be to throw money away.

Landscape Gardener: *B.* The best man now to be had, is we believe the gentleman you name at the end of your note.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*P.* Ipomœa Quamoclit, the crimson and white varieties.—*J B.* Amorpha fruticosa.—*M W.* Lilium longiflorum.—*W K* Eucnide bartonioides.

Raising Seeds: *S S S.* This is an art which many persons who even call themselves gardeners do not understand; to their disgrace be it said. Nothing is more common than to hear it said that "seeds won't grow," when it should be "I don't know how to grow seeds." We may have something to say upon this subject in another place.

The Cape Gooseberry: *J G P.* This is Physalis edulis. It ought to fruit the first year of sowing. It has a sub-acid berry as large as a Gooseberry, concealed within a bladdery calyx. The flowers have no striking beauty; but all flowers are beautiful in one way or another. The account you give of what you have raised leads us to suspect you have not got the right plant, which is not at all succulent.

Vines: *R S.* The roots ought not to grow from the branches of your Vines. They tell the following tale:—"Our Vine border was at first so cold that no roots could form there; so we were forced to come from branches, for the Vine must feed somewhere. Our atmosphere has been so hot and damp that we were the more encouraged to do so. Now that the border is warm enough for other roots to feed we are no more wanted, and shall surely shrivel and dry up if we are not cut off." No harm has been done; though it is very likely that the want of colour in the berries arises from the same faulty management of roots.

Weston-super-mare. The letter of an amateur has been received, and will be adverted to next week.

Wood from China: *R Wigram.* We have spent a couple of hours in the examination, and are unable to say what it is. Certainly it is not the timber of any Fir tree. It is rich in oleo-resinous matter, is hard, and ought to be very durable. If we can match it hereafter you shall be informed.

Misc.: *E P N.* All the American Oaks should be raised from acorns, and usually are. Such plants may be had of all great nurserymen. Your Stephanotis wants heat and sunshine, we suspect. Possibly too its roots are too cold. Strike Berberis Darwini from layers. Ants are a nuisance, because they disturb and dry the earth round the roots of plants; because they bite, and render places abounding in them uncomfortable: and because they devour fruit.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.

All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.

Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by

G. J. ANDREWS, Honorary Secretary.

Dorchester, August 16.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, Sugar Scum, and every description of Artificial Manures, Linseed Cakes, &c.—W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

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The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.

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WM. DRAY AND CO.'S REAPING MACHINES are compact, inexpensive, and suitable for all countries. They are beautifully made, with all the exactness and truth of steam-engine work. No less than Sixteen Prizes have been awarded to the Manufacturers by various Agricultural Societies. These Reapers are designed upon Hussey's Model, but have been vastly improved, and adapted to the requirements of the British Farmer. The price is 25*l.*

A List of Testimonials and full descriptions may be had on application to Messrs. DRAY & Co., Agricultural Engineers, Swan Lane, London.

DRUMMOND'S IMPROVED REAPING SCYTHE.—This well-known Scythe continues to give the greatest satisfaction, and is now extensively used both at home and abroad. An ordinary hand at the scythe can readily cut down from 1½ to 2 statute acres per day, laying the swathe so as it can be easily gathered into well-arranged sheaves. Price 9*s.* each. The Scythe is packed into small compass, and may be sent any distance with perfect safety. When three or more go together the carriage is very moderate.

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SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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RAKES FOR CORN, STUBBLES, &c.
HORSE RAKES, 7*l.* 10.
STEEL TOOTH HAND RAKES, 10*s.* 6*d.*
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The Agricultural Gazette.

SATURDAY, AUGUST 16, 1856.

WE give in an adjoining page reports of the Wheat crop from 207 districts scattered over the United Kingdom, 196 reports of the Barley crop, 200 reports of the Oat crop, 137 and 112 respectively of Beans and Peas, and 209 reports of the green crops.

Of the Wheat, Barley, and Oat harvest-reports, 78, 68, and 78 respectively state the crop to be an average one; 1[illegible], 98, and 96 respectively put it at above an average, and 15, 30, and 26 respectively at below an average. But this term "average" requires a word of explanation. A reporter may have honestly returned his crop as "average" for a long series of years, while every succeeding year has been an improvement on the last. An "average crop" in 1856 means a good deal more than was meant by "an average crop" in 1840. The "average" of 10 years ending 1846 was a good deal under that of those which have since elapsed—and when, therefore, 78 out of 207 reporters state the present harvest to promise an "average" return of Wheat, we must take their opinion of the present crop to be only that it does not promise a *greater* advance upon preceding crops than the rate of agricultural progress hitherto would lead us to expect. This of course enhances the meaning of all the more favourable reports as well. And here we may mention that among the 114 reports of the Wheat harvest which we have said return it on above an average, all those are classed which use such terms as "good" and "very good," "first-rate," immense," "full average," &c. Of course in lumping reports together in this way the injustice is done of making a return for instance from Dumfries-shire or from Denbigh of equal value with one from Lincolnshire or Norfolk; but our readers will not be satisfied with this mere *resumé* of results, and on examining the list themselves they will find that all our great Wheat growing districts are represented at the least quite as favourably as the others. Thus in Lincolnshire the crop is said to be "average, good average, good average, average, heavy, over average, good, great breadth;" and in Norfolk and Suffolk as "full average, average, hurt by midge, various, average, great breadth, average, good, talk of midge, full average, full crop, quite average, average, good average." We think, then, that taking into account the extent of land under Wheat, which is undoubtedly much beyond an average, along with the generally favourable opinion of the crop, we may be satisfied that there is now as large a quantity of home-grown Wheat within the country as there ever yet has been. To be sure it is not all harvested yet, and the weather of the last few days has not been first-rate harvest weather. The corn, too, is very much of it dead-ripe, and there is a difficulty in finding hands to reap it fast enough. It has ripened all so fast that we have little doubt the opinions as to harvest time which are given by our correspondents would all be put at 4 to 10 days earlier than they are printed here if they were given again. The hot dry weather of July and August has, however, been favourable to the crop, and the rains which have fallen latterly have done more good than harm to the country generally as yet. We quite believe, therefore, that the yield of Wheat will prove an unusually productive one.

As to the other crops we may shortly say that of the returns of the Barley crop 30 put it as an average, 98 at over average, and 68 as under average; of the Oat crop reports, 26 put it at average, 96 as over average, and 78 as under average. The acreable produce of the Barley crop is thus at least as much above an average—and we believe them both to be unusually good—as that of Oats; but to the former must be added the consideration that so few acres of the Barley crop probably never have been grown as has been the case this year.

The Pulse crops are generally good, especially those of Peas. And on the green crop returns we may just add that they refer exclusively to Turnips, Mangel Wurzel, &c., not to Grass and hay nor to Potatoes. They are generally, it will be seen, unfavourable. As to the hay crop, including the first cut of Clover, it has been unprecedently well got and abundant. The opinions we have had given us of the Potato crop are generally favourable. The disease is spoken of in a few places, but by no means generally.

WE have received from Mr. DONNELLY, of the Agricultural Statistics Office, Dublin, a copy of a very useful circular, addressed by him to County Surveyors, Chairmen of Railways, Canals, &c., on the extirpation of roadside weeds. "It is," he says, "universally admitted that great injury arises to the farming classes in Ireland from the growth of weeds along the sides of public roads, railways, and canals, and the shedding of their seeds over the adjoining lands," and he requests therefore that the authority of the grand jury at the present assizes may be obtained in order that a special covenant may be introduced into all road contracts, requiring the destruction of weeds on the sides of highways. The Lord Lieutenant, he says, considered the removal of weeds not only from farms, but also from the sides of all public roads, of so much general importance that his Excellency was pleased to refer to the subject at a recent agricultural meeting of the Royal Dublin Society.

The following table in illustration of the growth of this evil is taken from Mr. DONNELLY's reports for 1853 and 1854 on Irish Agricultural Statistics. He gives it as enforcing his appeal upon the subject. The degree in which weeds prevailed on the sides of roads, railways, and canals is shown in four classes: in the first, the proportion kept generally free from weeds is given; the second shows the proportion in which the removal of weeds was only partially attended to; the third, the proportion in which this useful labour was almost entirely omitted; and the fourth class that in which it was wholly neglected.

CLEANNESS OF ROADSIDES, &c.

Provinces.	First Class.		Second Class.		Third Class.		Fourth Class.	
	1853.	1854.	1853.	1854.	1853.	1854.	1853.	1854.
	Proportion per cent.	Proportion per cent.	Proportion per cent.	Proportion per cent.	Proportion per cent.	Proportion per cent.	Proportion per cent.	Proportion per cent.
Leinster ...	27	25	27	16	16	9	30	50
Munster ...	24	17	30	17	19	9	27	57
Ulster	23	18	30	25	26	17	21	40
Connaught ...	18	14	25	16	19	9	38	61
Ireland ...	24	18	28	19	19	11	29	52

The evil complained of seems from the above table largely to have increased.

WE promised last year to try what the produce would be of the chlorotized Oats described in the *Agricultural Gazette*, 1855, p. 569 and p. 586. A piece of ground was selected for this purpose, consisting of good sandy loam free from any admixture of coarse new manure, but in good heart, so as neither to force unnaturally nor to starve, either of which circumstances would have materially affected the result. The first appearance of the plant was most unfavourable. It had a streaked unhealthy look, and the shoots which soon came from its base in great number were peculiarly flattened. At this time matters appeared in such a condition that it was very doubtful whether the plants would ever have sufficient strength to throw up flowering stems. They were however well weeded, and the soil carefully loosened, insomuch that after a time, on the occurrence of more genial weather than when they were in an early stage of growth, they rapidly assumed a healthy green, and gave so fair promise of a good crop, that we felt half inclined to think that we should have to retract our notions of the absolute

necessity of good healthy seed to produce a healthy crop. All continued well till the panicles had got quite free of their sheaths. The upper spikelets were tolerably healthy, or at most only slightly variegated, but the lower were completely chlorotized as in the previous year. There were indeed both stamens and pistils in the chlorotized flowers, but neither had arrived at perfection, and not a particle of chlorophyll was visible. The mischief did not indeed on the whole exist to the same extent as in the parent plants, but the loss would still vary from a fourth to a third, or as in a specimen now before us, to a half; and the comparative amendment is due most probably to favourable circumstances which would not exist in field culture.

However this may be, we have at least a certain proof that disease may be propagated by seed, a fact which reason anticipates and our experience in animal pathology renders more than probable. It was indeed pretty clear that the Lancashire Oats, which originally came from Scotland, were derived from a diseased stock, because portions of the same field which produced them when sowed with other seed was free, while on the contrary distant fields sowed with the suspected seed were equally diseased. We have then a disease propagated by seed in the second generation, with every attendant symptom reproduced.

The inference is clear, that a great desideratum in modern farming is a more careful selection of seed, or the procuring of it from quarters worthy of implicit credit. It is quite clear that a person of intelligence and character might attain not only an honourable reputation, but substantial profit, who should make it his business to grow the best agricultural seeds possible for the market. He could command almost any price he pleased if he could once inspire faith in his judgment and probity. For such a purpose a rich farm is by no means wanted, much less forcing manure: but the place of manure must in great measure be supplied by the most careful cultivation and the exclusion of weeds. Above all, he must not allow a single grain to which any suspicion might reasonably be attached to pass out of his premises as seed corn. The better plan, indeed, would be to consume exclusively on the premises produce which could not be warranted. It need scarcely be added that to insure success the very strictest accuracy must attend every operation, and a regular journal be kept noting the sources from whence the parent seed came, and every peculiarity attendant on its growth. We have ourselves endeavoured to persuade one or two young and intelligent cultivators to attempt something of the kind. Even under marked deficiency of reputation, and without a single guarantee of ability except worldly cunning, we have known the profits of such an undertaking to be considerable.

The present season has been remarkable for the peculiar prevalence of smut. The loss in some cases has been a third, and not only Barley but Oats have suffered materially. Smut is in general so rare as to cause little uneasiness to the farmer, and unlike bunt, it does not affect the produce when reaped. It may however be worth the farmer's while to consider, from the present year's experience, whether he should not steep his Oats and Barley as well as his Wheat. In such a case perhaps sulphate of copper is the safest remedy. At least it is so in the case of Wheat, which does not lose its powers of germination if the weather after steeping should prove unfavourable to sowing, as is the case with some other preparations. Almost every one is aware that he cannot insure a crop of Wheat without steeping, and we have now a case at hand where that process was neglected, and at least half the produce is bunts. *M. J. B.*

PRESENT APPEARANCE OF THE CROPS.

FROM OUR OWN CORRESPONDENTS.

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	GREEN CROPS.	HARVEST.	NAME.
SCOTLAND.								
ROSS	Fine full crop	Average	Good	Sound	.....	Promising	September 1	K. Murray, Tain
INVERNESS	Heavy	Heavy	Good	Good	Good	Good	Middle of Sept.	J. Mackenzie, M.D., Eilenach
ABERDEEN	Luxuriant	Average	Heavy	.....	.....	Improving	Middle of Sept.	J. MacDonald, Huntly
ELGIN	Much over average	Over average	Over average	.....	.....	Very promising	End of August	J. Hamilton, Forres
FORFAR	Good; late	Indifferent	Good	Bulky	.....	Fair	September 8	W. Smith, Brechin
	Good average	Ordinary	Average	Good	.....	Improving	Middle of Sept.	A. Bell, Montrose
	Autumn excellent; Spring inferior.	Full average	Excellent	Over average	Over average	Inferior	.....	R. Colvill, Chance Inn
PERTH	Average	Average	Near average	Full average	Full average	Inferior	September 1	P. Eadie, Strathearn
FIFE	Full average	Average	Under average	Average	.....	Unequal	September 1	W. Veitch, Kinghorn
LANARK	Bulky; late	Average	Bulky; late	Good	Good	Indifferent	September 8	D. Gairdner, Hamilton
MID-LOTHIAN	Full average	Average	Average	.....	.....	Hardly average	September 1	J. Finnie, Swanston
	Average and sound	Fair; short extent	Short straw; good	Luxuriant	.....	Improving	September 1	J. Melvin, Rutho
EAST LOTHIAN	Good; sound	Fine	Bulky; laid	Very fine	.....	Healthy; late	End of August	G. Hope, Drem
RENFREW	Full average	Good	Full average	Under average	.....	Late; inferior	End of August	G. Boyd
	Promises average (1)	Average	Various	Under average	.....	Improving	September 8	A. Ralston, Lagg
SELKIRK	Good	Good	Average	.....	.....	Good; late	September 10	J. Stalker, Galashiels
ROXBURGH	Under average	Over average	Average	Over average	Over average	Under average	September 8	P. Brodie, Selkirk
	Average	Over average	Average	Full crop	Full crop	Not average	End of August	J. Thomson, St. Boswell's
BERWICK	Very good (2)	Good	Very good	Good	.....	Very irregular	September 1	J. Wilson, Edington
	Average; great breadth	Under average	Average	Average	Average	Average	September 8	G. Logan, Hume Hall
DUMFRIES	Good	Good	Full average	.....	.....	Various	September 10	J. Little, Langholm
WIGTON	Bulky; rusted	Average	Good average	Deficient	.....	Under average	September	A. H. McClean, Stranraer
ENGLAND.								
NORTHUMBERLAND	Full average	Large crop	Deficient	Good	Good	Partial	End of August	J. Grey, Dilston
	Looks well; thin	Good	Good	Good	Good	Very good	Middle of Sept.	W. Glover, Newcastle
CUMBERLAND	Very good	Very good	Very good	.....	.....	Late	Late	T. Wilson, Ullswater
	Good	Good	Good	.....	.....	Various	September	T. Donald, Carlisle
	Various; late	Average	Average	Good	Good	Late	.....	S. Rigg, Wigton
	Good	Good	Various	Good	.....	Various	End of August	T. Gibbons, Longtown
	Average	Average	Average	.....	.....	Good; late	End of August	G. Smith, Penrith
DURHAM	Good average	Good	Good	Good	Good	Good	Middle of August	R. B. Dixon, Darlington
	Light	Good	Light	Poor	Good	Bad	September 1	G. Bell, Durham
	Average	Average	Average	.....	Average	Look well	Middle of Sept.	G. Crotton, Kimblesworth
WESTMORLAND	Over average	Over average	Full average	.....	.....	Good	End of August	——
	Average	Full average	Under average	.....	Good	Late	August 25	J. Crosby, Kirkby Thore
	Generally good	Full	Full	Good	.....	Promising	September 1	W. Key, K. Lonsdale
	Looks well	Average	Good	.....	.....	Average	September 1	J. Robinson, Warcop
LANCASHIRE	Over average	Good	Good	Very good	.....	Irregular	September 1	F. Twining, Wigan
	Good; rusted.	Very good	Not average	Good	.....	Promising	August 25	J. Patterson, Ulverston
	Good	Good	Good	Good	.....	Good	End of August	M. Saul, Lancaster
	Various; improved	Good	Good	Very good	.....	Various	End of August	G. Drewry, Holker
	Abundant	Very good	Average	Good	.....	Middling	End of August	R. Robinson, Garstang
YORK	Thin; much improved	Good	Various	Promising	Promising	Late	September 8	T. Parrington, Redcar
	Average	Very good	Bare average	.....	Bad	Various	September 1	——, Leyburn
	Hardly average	Average	Good	Very good	Good	Very good	August 22	F. W. Tyas, Askem
	Fair average	Fair average	Average	Good	.....	Promising	End of August	T. Horsfall, Otley
	Quarter under aver. (3)	Average	.....	Good	.....	Promising	End of August	J. Oldroyd, Barnsley
	Rather under average	Abundant	Good	Luxuriant	.....	Very good	End of August	H. Briggs, Wakefield
	Thin on ground	Good	Middling	Good	.....	Promising	End of August	P. Stevenson, Thirsk
	Average	Full	Average	Average	Average	Late	September 1	H. J. Turner, Richmond
LINCOLNSHIRE	Average	Very good	Average	Good	First rate	Not good	August 20	T. B. Colton, Newark
	Good average	Very good	Under average	Very good	Good	Late	August 23	C. Sharpley, Louth
	Good average	Heavy	Average	.....	.....	Promising	August 20	F. Sowerby, Grimsby
	Average	Average	Average	.....	.....	Good	August 21	W. Hesseltine, Brigg
	Heavy; over average	Very good	Very good	Good	Excellent	First rate	Third week in Aug.	J. Clarke, Long Sutton
	Good; great breadth	.....	Fair yield	.....	.....	Late	August 25	W. Wingate, M. Rasen
NOTTS	Good average	Very good	Not good	Good	Good	Hurt by fly	August 15	J. Young, Coddington
	Average, & 1-5th more	Over average	Average	Very good	Average	Very good	August 18	C Walton, Clifton
	Over average	Average	Average	Not average	Very good	Patchy	August 15	J. Buckley, Normanton Hill.
	Average	Deficient	Good	Good	Deficient	Good	August 14	T. Stafford, Marnham
	Good	Light	Fair	.....	Good	.....	August 14	——, Mansfield
DERBYSHIRE	.....	.....	Very good	.....	.....	Very good	Middle of Sept.	B. Swaffield, Ashbourne
	Good	Deficient	Good	.....	Good	Very good	End of August	J. Parkin, Wirksworth
CHESHIRE	Under average	Average	Full average	Very good	.....	Very good	End of August	W. Palin, Tarvin
	Very good	Good	Full	Luxuriant	.....	Good	End of August	H. Tipping, Warrington
	Average	Good	Excellent	.....	Good	Luxuriant	August 28	R. Owen, Tarporley
SALOP	Bare average	Average	Good	.....	Good	Healthy	September 1	R. Davis, Wellington
	Average	Under average	Various	.....	.....	Middling	August 25	W. Minor, Market Drayton
	Good average	Average	Good average	.....	.....	Promising	August 18	E. Bowen, Ludlow
STAFFORDSHIRE	Full average	Good	Good	Good	Good	Favourable	August 20	J. Aston, Ashley
	Good	Good	Good	.....	.....	Unfavourable	September	J. Johnson, Tunstall
	Good; full average	.....	Short	.....	.....	Late	End of August	J. Young, Keele
LEICESTERSHIRE	Average	Good	Average	Very good	.....	Good	Sept. 1	T. Spencer, Knossington
	Average	Under average	Very good	Very good	Full	Various	Middle of August	C. Noel, Hinckly
	Over average	Under average	Good	.....	.....	Under average	Middle of August	G. Townshead, Stoney Stanton
RUTLAND	Average	Good	Good	Good	Good	Good	August 16	W. Fancourt, Empingham
NORFOLK	Full average	Very good	Good	Partial	Good	Various	August 14	J. Smith, Wymondham
	Average; hurt by midge	Full average	Good	Average	Good	Good	August 10	W. Cubitt, N. Walsham
	Various	Heavy	Indifferent	Good	Good	Various	August 19	J. Hill, Briston
	Average	Bare average	Not average	Good	.....	Various	August 10	T. Brown, Denvar
SUFFOLK	Great breadth; average	Under average	Good	Fair	Very good	Various	August 11	H. Edwards, Woodbridge
	Good; talk of midge	Good	.....	Good	Good	Turnips failed	August 20	G. Edwards, Framlingham
	Full average	Deficient	Good	Over average	Very good	Indifferent	August 14	J. G. Cooper, Branfield

(1) If the fine weather continues.

(2) Very hot from July 30 to August 7, and grain crops have made astonishing progress. Heavy rains however for the last 24 hours, and much of the grain is lodged.— August 8.

(3) The weather in this neighbourhood was the most unfavourable for the Wheat blooming that I ever recollect. We had high winds and rain almost daily during the whole time; the consequence is that although to a superficial observer the Wheat looks like a full average crop, when the ears are examined they are found to contain fewer grains by nearly one-third than they ought to have.

PRESENT APPEARANCE OF THE CROPS—*Continued.*

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	GREEN CROPS.	HARVEST.	NAME.
ENGLAND.								
SUFFOLK—*Continued.*	Full crop	Various	Pretty good	Good	Good	Bad	Middle of August	C. Welton, W. Market
	Quite average	Bare average	Good	Good	Good	Bad	August 14	G. Fenn, Beccles
	Average	Various	Very good	Average	Average	Various	August 11	L. O. Cottingham, Saxmund-
	Good average	Not average	.....	Good	Quite average	Various	Middle of August	C. Gibson, Wangford [ham
CAMBRIDGESHIRE..	Good	.....	Various	Good	.....	Various	Middle of August	A. S. Ruston, Chatteris
	Over average	Very good	Large	Good	Good	Promising	August 6	P. Howard, Granchester
HUNTS	Good average	Average	Not average	Average	Good	Not good	August 12	C. Beart, Godmanchester
	Full average	Average	Average	Very good	Very good	Bad	August 11	P. Purves, Brampton
NORTHAMPTON-SHIRE	Good average	Good	Good	Go d	Good	Not good	August 10	J. Whitwell, Peterborough
	Average	Average	Average	Average	Average	Fair	August 10	W. Gray, Northampton
	Full average	Various	Not average	Full	Good	Very bad	Middle of August	J. B. Smeeton, Welford
WARWICKSHIRE.....	Average	Not average	Not average	Not average	Not average	Various	August 20	J. H. Burbery, Kenilworth
	Hardly average	Good	Various	Indifferent	Indifferent	Bad	August 18	J. Ford, Newbold
	Average	Average	.....	Not average	Average	Various	August 15	W. Gibbs, Stratford
	Good average	Over average	Average	Good	Average	Bad	August 18	J. Burbery, Wootton
	Good	Various	Good	Good	Various	Various	August 18	W. Aitcheson, Berkeswell
	Hardly average	Fair	Average	Hardly average	Average	Not good	August 15	J. Lane, Goodrest
	Good	Deficient	Average	Good	Good	Not good	August 12	H. Thorley, Marston
WORCESTERSHIRE...	Good	Good	.....	Very good	Fine	Late	August 11	R. Smith, Droitwich
	Average	Various	Indifferent	Full	Immense	Indifferent	August 13	H. Hudson, Pershore
	Inferior yield; great breadth	Good	Light	Under average	.....	Inferior	August 14	F. E. Williams, Doddenham
	Full average	Very good	.....	Good	Good	Bad	August 11	C. Randall, Evesham
	Fair average	Over average	.....	Full	Various	Good	August 11	J. W. Fletcher, Boughton
	Fair; not great	Various	Fair	Good	Very good	Good	August 11	E. Woodward, Pershore
HEREFORD	Average	Bad	Average	Not average	Average	Very bad	August 12	J. Mathews, Blakemore
	Full average	Not average	.....	Average	Fair	Bad	Middle of August	W. Price, Ross
	Average	Good	Very good	Good	Very good	Indifferent	August 14	C. Andrews, Leominster
MONMOUTH	Not heavy; good	Good	Good	.....	.....	Suffering	August 10	H. Pride, Monmouth
	Full average	Very good	Average	.....	Very good	Bad	August 15	P. N. Edwards, Brinsop
	Over average	Average	Good	Good	Good	Want rain	August 14	T. Dyke, Monmouth
	Over average	Not average	Good	.....	.....	Various	August 12	G. R. G. Relphe, Uske
	Very good	Very good	Fair	Good	Good	Middling	August 12	W. Whittle, Abergavenny
GLOUCESTERSHIRE	Good	Very good	Good	Good	Very good	Good	August 15	J. Hunt, Alm[illegible]dbury
	Good	Good	Fair	Fair	Average	Suffering	August 12	J. Kearsey, Cirencester
	Thin, but productive	Very bad	Various	Blighted	Fair	Suffering	August 20	C. L. Denton, Coleford
	Average	Excellent	Good	Average	Abundant	Suffering	August 16	J. F. Peacy, Winchcomb
	Good	Good	Good	Good	Good	Suffering	August 10	G. N. Hulbert, Bagenden
OXFORDSHIRE	Good	Fair	Good	Good	Good	Want rain	August 6	S. Druce, jun., Eynsham
BUCKS.....	Average	Under average	Good	Good	Good	Late	August 15	W. J. Duncan, Stoney Stratford
	Fair	Bare	Good	Full	.....	Late; bad	August 15	A. Fraser, Claydon
HERTS	A good crop	Good	Good	Good	Very good	Late	August 12	——, St. Albans
	Good	Very good	Good	Fair	Fair	Suffering	August 16	C. F. Humbert, Watford
	Not over average	Under average	Very good	Good	Very good	Late	August 11	J. B. Lawes, Rothamsted
ESSEX	Full average	Under average	Middling	Good	Good	Indifferent	August 17	R. Baker, Chelmsford
	Over average	Average	Average	Over average	Over average	Various	August 8	W. Hutley, Witham
	Good	Fair	Middling	Good	Good	Various	August 6	J. J. Mechi, Tiptree
	Average	Not average	Average	Good	Good	Good	August 9	C. Hall, Havering
	Average	Not average	Fair	Good	Good	Bad	August 11	A. Barfield, Dunmow
MIDDLESEX.....	Average	Average	Average	Average	Average	Suffering	August 7	C. Webster, Uxbridge
BERKS	Over average	Over average	Average	Average	Full	Good	August 8	J. Adnams, Newbury
	Good	Good	Good	Good	Excellent	Poor	August 5	J. Williams, Abingdon
	Average	Average	Average	Average	Good	Good plant	August 10	E. W. Moore, Coleshill
SOMERSET	Average	Average	Good	Very good	Good	Suffering	Middle of August	J. W. Eastment, Wincanton
	Very good	Good	Thin	Various	Good	Indifferent	August 20	C. P. Collyer, Dulverton
WILTS	Thin; promising	Good	Good	Good	Good	Want rain	August 18	G. Brown, Avebury
	Generally good	Average	Good	Average	Average	Good	August 15	J. R. Maskelyne, Calne
	Over average	Good	Good	Over average	Good	Want rain	August 15	T. Chandler, North Wilts
	First rate	Average	Good	Good	Average	Want rain	August 12	J. Charles, Chippenham
	Good quantity; excellent quality	Good	Fair	Good	Good	Want rain	August 11	T. Arkell, Swindon
SURREY.....	Good; hurt by midge	Heavy	Fair	Good	Over average	Hurt	August 6	E. J. Lance, Frimley
	Good: blighted in places	Average	Very good	Good	Very good	Want rain	August 11	J. M. Paine, Farnham
KENT	Rather blighted	Good	Good	Good	Good	Very short	End of August	J. Marsh, Brook
	Nearly average	Ripe too soon	Good	Average	Good	Hurt	August 15	M. Sandford, Dover
	Average crop; great extent	Laid	Good	Over average	1-5th under average	Bad	August 8	W. Manser, Ramsgate
	Under average	Under average	Very good	Very good	Average	Partial	August 11	R. Matson, Wingham
SUSSEX	Probably average	Bare average	Under average	Average	Average	Good	August 18	J. Brotherston, Robertsbridge
	Average	Good	Various	Good	Good	Not good	August 11	H. S. Hayward, Folkington
	Average	Average	Heavy	.....	.....	Patchy	August 8	H. E. Sadler, West Sussex
HANTS	Various, but average	Good	Good	Good	Good	Suffering	August 11	W. C. Spooner, Eling
	Average	Average	Average	Average	Average	Partial	August 11	J. W. Clark, Romsey
	Average; hurt by midge	Fair	Average	Average	Average	Bad	August 18	J. T. Twynam, Winchester
	Good, great extent	Good	Good	Fair	Good	Indifferent	August 11	H. Raynbird, Basingstoke
	Average	Average	Bare average	Average	Over average	Deficient	August 10	J. Blundell, Bursledon
DORSET	Thin, but over average	Over average	Full average	.....	Good	Promising	August 15	R. Damer, Dorchester
	Hurt by fly and wind	Good	Good	.....	Good	Not average	August 13	W. Voss, Corfe Castle
	Good; ears full	Good	Good	Good	Well podded	Promising	August 16	W. Pope, Bridport
DEVON	Average	Not average	Good	Fair	Good	Bad	August 9	G. Turner, Exeter
	Good	Fair	Very good	.....	.....	Various	August 15	G. W. Fowler, Dartmoor
	Over average	Full	Promising	.....	.....	Good	August 19	G. Langdon, Barnstaple
	Average; fine	Over average	Fine	.....	.....	Promising	August 15	S. Cornish, Kingsbridge
	Good	Good	Good	.....	.....	Patchy	August 18	J. Benson, Tavistock
	Average crop	Full	Heavy	.....	.....	Various	August 15	T. Michelmore, Totness
CORNWALL	Great extent, fair	Good	.....	.....	.....	Fair	August 12	W. Elliott, Plymouth
	Good	Better	Best	.....	.....	Hurt	August 12	W. Karkeek, Truro
	Strong average	Good	Average	.....	.....	Suffering	August 18	J. Wills, Launceston
	Average	Average	Full	.....	.....	Various	August 14	J. Michel, Tregoose
	Over average	Very good	Very good	.....	.....	Fair	August 14	G. Andrew, St. Mewan
	Very good	Very good	Very good	.....	.....	Generally good	August 11	H. Tresawna, Probus
WALES.								
DENBIGH	Average straw; light ear	Fair	Fair	.....	.....	Average	September 10	E. H. Griffiths, Denbigh
	Very good	Very good	Very good	Very good	Very good	Very good	September 1	J. Williams, Conway
CARMARTHEN	Very good	Splendid	Very good	.....	.....	Hurt	August 15	J. Burnell, Llanelly
IRELAND.								
DONEGAL	Good	Good	Very fine	Fair	.....	Bad	Middle of Sept.	J. J. Atkinson, B. Shannon
DERRY.....	Very good	Good	Inferior	.....	.....	Promising	September 5	J. J. Clarke, Maghera
	Good	.....	Full	Good	.....	Average	Middle of Sept.	C. Pollock, Magherafelt
ANTRIM	Abundant; slight rust	Good	Very good	.....	.....	Excellent	August 24	R. R. Houghton, Lisburn
	Rusted	.....	Splendid	Good	Good	Suffered	September 1	J. Burnister, Randal's Town
TYRONE	Over average	Good	Over average	.....	.....	Improved	September 1	W. Paterson, Newton Stewart
	Very good	Good	Abundant	.....	.....	Fair	September 10	A. B. Buchanan, Omagh
GALWAY	Promising	.....	Promising	.....	.....	Good	September 1	G. Lamb, Moglough
DOWN	Good	Good	Very good	Fair	.....	Inferior	September 1	H. E. Boyd, Dromara
	Great extent; good	Good	Luxuriant	Good	Good	Good; late	Middle of Sept.	W. Cleery, Portaferry
	Great extent; good	.....	Very promising	.....	.....	Late; fair	End of August	J. Andrews, Comber
ARMAGH	Good	.....	Very good	.....	.....	Suffering	September 1	N. H. Hardy, Tandwayce
	Very good	Good	Good	Good	.....	Medium	End of August	W. Boyd, Armagh
MONAGHAN.....	.....	.....	Good	.....	.....	Medium	End of August	J. Smith, Castleblaney
LOUTH	Very good	Excellent	Very good	.....	.....	Indifferent	Middle of Sept.	W. M'Culloch, Dundalk
MAYO	Very good	Good	Very good	.....	.....	Promising	September 20	W. B. Stoney, Clk., Castlebar
MEATH	Very fine	.....	Average	.....	.....	Inferior	End of August	E. Beuley, M.D., Navan
WESTMEATH	Injured; fair	Good	Very good	.....	.....	Average	September 8	W. Newburn, Mullingar
	Light; good	Average	Light; good	.....	.....	Average	September 1	R. Bagnall, Tyrrell's Pass
ROSCOMMON	Good	Light	Light	.....	.....	Bad	Middle of Sept.	J. Kelly, Roscommon
	Good	.....	Good	.....	.....	Good	September 8	D. Boyd, Carrick-on-Shannon
GALWAY	.....	Tolerable	Middling	.....	.....	Middling	September 8	J. Ellis, Letterfrack
	Very fine	.....	Very good	.....	.....	Very good	August 25	J. Shiel, Creggs
CLARE.....	Average	Not average	Not average	Good	.....	Bad	August 20	E. Bennett, Ballycar
	Various	Middling	Good	.....	.....	Not average	August 20	W. Digan, Killaloe
WICKLOW	Very good	Very good	Bare average	.....	.....	Very good	August 18	J. Daly, Ennis, Kerry
	Very good	Average	Very good	.....	.....	Hurt	August 18	G. Glascott, J. P., Carnew
CARLOW	Good	Good	Thin	Inferior	.....	Poor	August 20	P. B. Mosse, Rutland House
WEXFORD	Very good	Middling	Various	Middling	.....	Bad	August 15	G. Gordon, Gorey
KILKENNY	Average	Bad	Light	.....	.....	Very poor	August 15	P. Grace, Freshford
TIPPERARY	Very good	Good	Good	.....	.....	Good	August 24	W. Ryall, Cashel
	Very promising	Good	Short	.....	.....	Very bad	August 18	J. Fennell, Cahir
WATERFORD	Very firm	Average	Firm	.....	.....	Very bad	August 15	E. Kennedy, Kilmacthomas
CORK	Promising	Good	Average	.....	.....	Suffered	August 20	H. Longfield, Doneraile
	Over average	Under average	Firm	.....	.....	Unequal	August 20	D. Barclay, Blarney
	Promising	Average	Short	.....	.....	Not good	August 20	S. Piddell, M.D., Kilderrery

Home Correspondence.

The Cradle Scythe.—Referring to the discussion on mowing crops in the annual report of the Wakefield Farmers' Club, it may be interesting to some of your readers to know that in Canada and the United States, where time is one of the elements of harvesting to an extent totally unknown in England, owing to the scarcity of labourers, the cradle scythe is the only article used; but it is, I think, of quite a different description from any used in England. It is a long wide heavy scythe, with a light frame consisting of an upright post and four fingers the length and curve of the blade, the upper one about 2 feet from the scythe, and all set so that when at work they shall be about perpendicular to the back of it. The handle is curved in various ways; the old sort is nearly straight, but a new one with a very curved handle is said to do excellent work. There is but one rib on it, the left hand grasping the top of the snaith, and by a peculiar but easy push at the end of the stroke laying the cut grain in a long regular swath. With this tool a good man if the grain stands well will cut from 2 acres upwards a day, more if the grain stands very light, less if it is very heavy. A neighbour of mine told me he cut once 5 acres of heavy Oats in a day, and from seeing what work he could do on his farm, which was next to mine, I believe it to be true. The scythe and sickle are only used when grain is very much lodged, so as to render it impossible to pick it up with the cradle; one man following to rake and tie completes each band of harvesters. It is perhaps owing to the straw being laid rather loosely in the sheaf that rapid carrying can be put in progress; for if a field of Wheat takes more than two days to cut, the instant the last sheaf is bound, the hands fetch the waggons and begin carrying the first cut Wheat, the sun being so powerful and the air so dry that not only is it fit to carry in so short a time but it would be injured by standing longer. I do not point out this in the hope of showing farmers how to do with fewer labourers, but it is of course of great advantage to be able to get in a field of grain, and there is always plenty of other work for men to do on a farm. *A Canadian Farmer.*

Potato Tops.—Early dwarf frame, or short blade varieties of Potatoes, are generally saved from the prevailing disease if it is dry and hot weather after the blight sets in, scorching or starving the fungus or contaminated sap in the leaves and stalks, and such we think we may venture to say are safest left to chance. It is, however, well known that our practice is to cut off (not pull up) the Potato stalks when luxuriant crops are attacked with blight, in order to bleed, as it were, the roots, and to save the tubers from further decay. To pull them up is to kill the plants instantaneously, shutting in disease, and subjecting the tubers to decay, unfitting them for human food. As some persons are averse to this practice, and as it stops the growth of the tubers, we will not press it any further, and only remind our readers that, whether they have recourse to it or not, the blight itself in strong crops stops all further progress of growth in the roots, and it all amounts to the same result at last, except that decomposition takes place very often in the tubers when left to chance, whereas if the roots were tapped by cutting off the stalks it would not, unless such decomposition had really taken place before the operation had been performed. The value of the tops, however, we have taken into consideration this season. Off 1 rod of a luxuriant crop it will be found that 1 cwt. at least of tops may be cut, or 8 tons per acre, which if not eaten may be trodden into a very rich manure, and if taken into account with the chance of a full crop of Savoys, or Cabbages, or Mangels, or Swedes, to be transplanted between the rows as soon as the haulm is removed from the Potato roots, this renders it of no material loss even if the Potatoes at Michaelmas should prove to be small, for let it be recollected they will be only small, and small they must be if left to chance after they are blighted, and then they may and will be decayed, and no chance offered of Savoys, Cabbages, &c., being secured except for late ones, which would be of little use and value. By forking up the Potatoes at Michaelmas we cultivate the land, and prepare it well for the next year's crop, and if a slight dressing of guano is applied before forking up the Potatoes, the green crops then advancing to maturity will be very much improved, and but little if any loss sustained, even if the Potato crop were entirely lost. *Hardy & Son, Seedgrowers, Maldon, Essex.*—P.S. Twenty ears of our best improved selected and prolific red Wheat growing with Potatoes, with 1 foot of stalk to each ear, will weigh 10 oz., and if cut off at the upper joint of the straw ¾ of a pound, which, if compared with the weight of 20 ordinary ears, will convey an idea to our readers what our thin seeding will do with judicious management. *A. H.*

White Clover.—A writer inquires the cause of White Clover appearing in the pasture fields and roadsides. I always considered it must have proceeded from the manure, but a residence of many years in America altered my opinion, for I always observed that wherever a clearance was affected in the forest, no matter how distant from a settlement, in the course of two years, although no seeds of any kind had been sown and the surface of the ground burnt nearly all over the previous fall, a good crop of White Clover was sure to appear, considered there the best sheep pasture in America. I shall be happy if any of your valued correspondents could solve the question, as I have heard so many varied opinions on the subject. *George S. Rogers, Red Lodge Nursery, near Southampton.*——We have also received the following:—The White Clover growing on road sides and places where it cannot have been sown, respecting which your correspondent "R" inquires, is the true Perennial White Clover. It grows wild in many parts of Britain, and we have large quantities of seed saved for us annually, as we find it more productive and more permanent than the common white or Dutch Clover. *Sutton & Sons, Seedgrowers, Reading.*

Black Caterpillar.—A letter addressed to me this day (July 31) from a farmer of great experience, reminds me of an occurrence which attracted especial notice at the time, and was, I perceive, alluded to in the *Mark Lane Express* of the 28th inst. I must quote a few lines of the article in order to introduce the remarks which I have to offer. "I recollect above 20 years ago when I had 50 acres of Turnips destroyed in less than a week, many of which had been hoed twice, after the scourge had left, it was found by those more fortunate that the Turnips which had escaped were attacked by a large brown grub later in the season, which ate the tap root of the Turnips after they had arrived at full growth." By this extract it appears that two insects are alluded to; and by the letter received by me, I perceive that my friend refers to a black insect that preys upon the leaves, and which "had not been seen for the last five or six years." The destruction that came under my own notice while I resided near Maidenhead must have been produced by the brown grub mentioned by the writer in question. This caterpillar first attracted my notice when I lived at St. Peter's, Isle of Thanet, in 1821, for I found plants of the Cabbage family, such as the Savoy, Borecole, and Broccoli that had been perfectly healthy over-night, flaccid and drooping on the following morning. Another circumstance excited particular attention, as when one plant so drooped its immediate neighbour was the next to fail. For a time no solution of the problem suggested itself; but upon carefully moving the earth around the stems of a diseased plant, a large dingy grey grub was seen coiled into a sort of ring. As in every instance the same grub was discovered, and in the same posture, sentence of "guilty" was pronounced against the offender thus detected, as it were, in the very fact. I lost sight of this marauder till the period referred to in the *Mark Lane Express.* I do not retrace the exact dates, but I entertain little doubt that the fearful destruction of the Turnip bulbs alluded to took place in the autumn of 1834 or 1835. Then scarcely a Turnip escaped, and this not only round Maidenhead but far into Buckinghamshire. I was in the habit of inspecting the crops and gardens about Marlow, High Wycomb, Missenden, &c. In the latter place the able gardener at The Abbey adopted every means at his command to ascertain the family of Lepidoptera to which the grub belonged. He kept several of the grey caterpillars in soil, placed the vessels well secured in a warm forcing house, and in due time had the satisfaction to witness the changes as they took place, terminating in the development of several moths. These I saw, and soon after it was announced in print that they belonged to a species termed Ægrostis, or by some Ægrotus. I have not data to which I can now refer in respect to the previous assault of the black caterpillar upon the leaves of the young Turnip plants, but well remember that the ravages of the grub were horribly extensive; insomuch that a person had nothing more to do than just to disturb the ground with the hand or a stick when he would see the remains of a bulb riddled into numerous holes, with perhaps ten or more of those ugly larvæ busily at work on the remaining substance, and no longer assuming their usual hypocritical coil. *J. Towers, Croydon.*

Societies.

Highland and Agricultural Society.—The meeting at Inverness has been successful in bringing out for exhibition some of the best animals in Scotland and the north of England, notwithstanding the difficulties in transmitting stock beyond the railway region of the country. About 70 shorthorns competed for the Society's prizes. The first and second prizes for old bulls were given for animals bred in Aberdeenshire; those for young bulls were given to Mr. Willis, of Bedale, and Mr. Tod.

Highland stock was present in good numbers and quality, the prizes being given to Mr. M'Rae and the Right Honourable Duncan M'Neill, the Duke of Sutherland, and Mr. Malcolm, of Poltalloch. Mr. M'Combie takes the first prize for the polled Angus breed of cattle which excited so much attention at Paris. It is won by an animal that has carried off the prizes at Berwick, Aberdeen, Carlisle, and Paris, never having been beaten.

The show of sheep was very fair, Leicesters were well represented, and Cheviots and blackfaced sheep are a good show. The implement show was not a large one. A discussion on short-horn breeding took place during the meeting, which we shall next week report.

The Royal Agricultural Society of Ireland held their annual show at Athlone this week. The exhibition of stock is unusually fine. The first prize in short-horned bulls is awarded to Grand Turk, belonging to Mr. Henry Ambler, of Watkinson Hall, Halifax. Lord Clancarty's short-horned roan bull, Pro Bono Publico, has taken the second prize. We are unable owing to the crowded state of our columns to give a detailed report of the meeting to-day, but hope to do so next week.

Boxted Lodge, Colchester: *Trial of Reaping Machines.*—Mr. Fisher Hobbs having in the most public-spirited manner offered his crops and grounds to the English Agricultural Society as the arena of the adjourned trial of reaping machines, a large number of those interested in reaping by machinery, as well as in steam ploughing, were gathered together there last Wednesday and Thursday. A more agreeable agricultural holiday was never spent. The thoroughly practical, systematic, and successful farm management exhibited, and the hearty hospitality enjoyed were security for this. The farms occupied by Mr. Fisher Hobbs are somewhat scattered and unconnected, but this, which would in ordinary hands have been fatal to good management, seems to have had no injurious effect at Boxted. We saw there clean, level, and well drilled corn and green crops; the Wheat, Oats, and Barley were first-rate as to yield, the last being however laid; and the Swedes, Turnips, and Mangel Wurzel covered the ground perfectly. First-rate flocks of Downs were on the pastures, and herds of Mr. Hobbs's breed of pigs were in the yards. Successful cultivation of Italian Rye-Grass was providing food for cattle and for horses—the effects of well managed drainage, irrigation, buildings, roads, were seen throughout, and harvest work was in busy operation, and there was bright weather over all.

On Wednesday the trials were in the presence of the judges only. On Thursday the public were admitted. Four machines appeared—Crosskill's Bell, Burgess and Key's M'Cormick, Dean and Dray's Hussey with their tipping platform, and Hussey with Palmer's side delivery. Where the corn was standing they all worked well, and would travel in any direction—where it was laid or bending they could none of them cut it well except by going right against the lay of the corn; and then, returning empty, they also all worked well. Where badly laid, and *required* to go across the lay of the corn, Bell's worked tolerably well; but Dean & Dray and Burgess failed both to cut the stubble short and to *avoid* cutting the ears. When working on ridged land Hussey, with the tipping platform, worked best of all. The price of the machines in the order we have named them is 42*l.*, 40*l.*, 32*l.*, and 25*l.* respectively. The first two use M'Cormick's knife, for which we were told he charges 7*l.* royalty apiece, a sum which we venture to predict will end in their disuse altogether. Hussey's knife, especially the skeleton form of it, seemed to us equally well fitted for its work—and the greater cheapness of the implements which use it is greatly in their favour. The tipping platform delivers the corn intermittently in the wake of the machine, the sheaves needing to be tied, or at least lifted aside at once. Palmer's radiating rollers which deliver it intermittently on one side did not send off the sheaves so cleverly as the other. M'Cormick's, with the screw side delivery giving the corn off in a continuous swathe, did not, except when the corn was standing well, make quite so good work as Bell; and Bell, again, which came out well under difficulties which spoiled the work of the others—charging a laid crop, and leaving in its wake a clean lane of short stubble, with corn laid, ears together, on one side—failed on the ridged land to do its work so well as Hussey. The award of the judges is not yet published. It will, we should suppose, give the award of merit to Crosskill's Bell and Dean and Dray's Hussey with the tipping platform.

Mr. Fowler exhibited his steam-plough at work with great success and promise of future usefulness, but to this we must refer another week. Mr. Amos's dynamometer, which is unquestionable evidence of the power employed, enables us to say that 1 $\frac{1}{10}$ acre of land was ploughed by it in one hour, 8-horse power only of the machine being employed during the operation.

It is difficult to overrate the value of Mr. Fisher Hobbs' services in thus inviting public attention to the two great sources of economy in agricultural labour which are promised to us. The substitution of steam power for that of horses in cultivation, but especially that of horse-power for hands during harvest time, which Fowler's steam-plough and the reaping machines now promise, are the two great agricultural problems of the day.

The latter subject is especially pressing and important now, when every year we are suffering more and more from difficulty in finding hands at harvest time, and we have to thank Mr. Hobbs for a greater publicity given to it and interest excited for it than it has ever yet attained in England.

Reviews.

A Letter on Steam Cultivation to E. Greaves, Esq., of Haversham. By William Smith, of Woolston, Bucks. J. Wesley and Co., 54, Paternoster Row.

This is a very sensible and well written letter, describing in as simple a manner as possible the differences between plough and spade culture, the propriety of copying the latter rather than the former in a tillage implement drawn by steam, the alternative of the locomotive or the traction plan of applying steam power in cultivation, and lastly the author's own experience as a cultivator of land by steam power. The following are extracts on all these subjects.

The difference between the plough and spade.—"The most approved of our common ploughs simply and

absolutely turn over the soil, placing the former surface from four to six inches below, and bringing up the smoothed surface of the under soil to the top. By this process all the seeds, weeds, and roots are deposited below the surface; whence the weeds which are propagated from roots or layers—such as Couch Grass, Water Grass, Crowfoot, Coltsfoot, and others, and which really are the plagues of the farmer—being divided by the plough, are indefinitely multiplied; and do, in fact, after four or five years, become increased to so great an extent, as to render it absolutely necessary for the farmer to leave his land partially barren for the purpose of removing these obnoxious weeds; to do which the plough entirely fails him, and he is driven to the scuffler, cultivator, or other implement which he has invented for this purpose."

"In spade husbandry, which has been advocated as the best system of all, the soil is not turned over to anything like the extent that it is by the use of the plough. This system consists mainly of a complete breaking up of the soil, and an admixture of it with the manure; at the same time accompanied with a separation of the permanent Grasses, &c., from the annuals, the former being carefully removed by the hand, and the latter deposited beneath the earth to decompose, and perhaps, to some extent, to provide food for the next crop. But how little food they furnish may be inferred from the fact that, the more free the soil is even of these, the better will be the crop produced. In short, it may be laid down as an axiom in farming, that, whatever be the nature of the soil, when a farmer plants his Wheat he ought to grow Wheat, and, at least as far as is practicable, nothing but Wheat, and when Beans, nothing but Beans, &c."

"Another marked difference between spade husbandry and cultivation by the plough is in the depth. From four to six inches is the ordinary depth of cultivation with the plough, and it is a question whether it would be generally advantageous to cultivate to a greater depth if the subsoil were to be laid upon the top, as is commonly the case in ploughing. Now a spade is from 10 to 12 inches deep, and to this depth in good spade husbandry it is usually thrust. But when we carefully observe the whole of the operation, we shall see that the spade does not upturn the whole of this; but that when the leverage is applied, the lower part is shattered by the violence that is offered, and the upper part is all mixed together and broken. But how different is the turning over of the spade from that of the plough, may be inferred from the care which the gardener is constantly obliged to use, after the operation of the spade, to draw into the next trench the weeds which the first operation had but partially buried. In spade husbandry the soil is not consolidated either by the transit of heavy implement or by the padding of horses, either of which seem very likely to impair the success of our agricultural operation. The passage of a heavy and unwieldy implement over the land cannot but have the effect of producing considerable consolidation, and rendering both the percolation of the water and the action of the atmosphere less free than they otherwise would be. But of the two, perhaps the padding of the horses is much more detrimental to the success of our operations than even the passage of a heavy implement. For the horses continually tread on a lower surface which has been smoothed over by the under-side of the share, and a crust or pan is thus formed through which the water will not freely percolate till after the application of a good subsoil plough, which in its turn again introduces the padding of the horses. Thus in all our agricultural operations with the plough there is not only a great loss, but there is an enormous waste of power. By waste of power as distinguished from loss, I mean that portion of the power which is actually applied to counteract the effect which we desire to produce. The power which a horse exerts to carry himself across a field is simply power lost; but the weight arising from gravitation and non-effective effort is all entirely wasted or exerted in producing a consolidation of the soil and subsoil, which previous to seed-time is generally found to be injurious. In spade husbandry, too, the land is completely cultivated at once. It is true there are two or three operations,—the breaking up, the mixing of the soil, and the separation of the weeds, are all performed at one and the same time."

The locomotive and the traction plans of applying steam power.—"The success of the locomotive on our railways seemed to turn almost all attention to that means of applying steam; and even now it is not despaired that success may attend the ingenious combinations of some of our engineers. But when we consider the enormous loss of power even of a team of horses (a weight of from two to three tons) in carrying themselves across a field, as well as the waste of power in counteracting their own exertions, by consolidating that which they are employed to render porous, I was led to believe that the loss of power in a locomotive engine, weighing probably from seven to nine tons, would be considerably greater even in proportion, when it was moving itself across a ploughed field or up even a slight acclivity. How much power would be wasted in opposing its own object would of course depend upon the manner of its movement and the mode of its application. But by adopting the traction system, the power lost would be only that which was required to overcome the weight of the ropes and the friction over the soil, which would be much less than that required to carry the locomotive engine; and little or no power would be wasted in counteracting its own efforts. Besides this, there would be a great advantage in using an engine which could be applied to many other agricultural purposes, such as threshing, grinding, chaff-cutting, &c."

Mr. Smith's own experience.—"On my own farm, which, as you know, is clay and gravelly clay, I have, as far as I could consistently with the use of horses, for some years past avoided the turning over of the soil, and more especially on that part of it which has been under my own management without the intervention of a bailiff: the chief implements I have used being my Registered Subsoil Plough and my Patent Cultivator. This mode of cultivation has been attended with the most beneficial results. I can give accurately only the result of the last year. On my home farm I had an average produce of 46½ bushels of Wheat per acre; while the produce of the rest of my land, where the plough had been used in the ordinary manner, was so much less, that it reduced my total average, over 90 acres, to 42¼ bushels. Allowing that the eye of the master does secure something, still this is a result which at all events shows that the turning over of the soil is not a matter of positive necessity, and that at least as good a crop can be secured by well mixing the soils as there can be by turning them over; and my own experience shows a better. It is almost premature to refer to growing crops; yet the present state of mine, where the principle has been carried out by steam power, when compared with those growing on similar soils does not lose by the comparison."

"I have used steam power over 100 acres of land this season. Some of this on my own farm is under crop, Beans, Peas, and Oats, all of which look very promising."

Calendar of Operations.

AUGUST.

S. E. CAMBRIDGE, *August* 9.—On our light and chalky soils the Wheat and Barley have ripened very rapidly; a great breadth of the former has been cut; hands have been numerous, at least sufficiently so, and the reaping has been done at from 9*s.* to 11*s.* per acre, those beginning it first getting it done the cheapest. The Wheat crop is generally very good, and of excellent quality. A sample of white Talavera was sold in our Cambridge market last Saturday, August 2, at 10*s.* per bushel. A small quantity of Barley has been cut; the crop is very good, but the quality will not be first-rate upon our hot soils, it having died away too fast. Oats are very good; so are the winter Beans and Peas, particularly the Prussian Blues, a new sort. The Turnips upon the red land are very good indeed; upon the white land they suffered considerably for want of rain in their earlier stage, and this last week's hot weather has considerably checked their growth, and turned them very blue. Mangels are very partial; some fields look splendid, while others close by are quite a failure. Sheep keep was never shorter than just now, the old seeds being completely parched up; consequently store sheep are much lower in price, 3*s.* to 5*s.* per head; store bullocks are also from 2*l.* to 3*l.* lower from the same cause. *T. Baker, Bury Farm, Stapleford.*

Notices to Correspondents.

BRICKMAKING: *T T M.* Apply to Mr. Chamberlain at Kempsey near Worcester. The essay is not published that we are aware of.

CONCRETE: *G P S.* writes as follows:—"It is the custom to build weirs in a swiftly flowing river in the west of England to prevent the soil from being washed away from the banks. This is usually done by hauling quarried stones and building a low wall slanting out into the stream, which throws the current away from the side of the river, so that not only are future encroachments prevented, but the lost ground is in time regained by the deposit which gradually accumulates in the dead water behind the weir. This proceeding is attended with considerable expense, and as the bed of the river is composed of coarse gravel and large pebbles it appears to me that if a concrete could be made of these materials, which are ready at hand, by the addition of lime and cement it might be more economical to purchase these than to quarry and haul stone. I am, however, at a loss to know the best means of forming such a concrete, which should set quickly and resist the continued action of the water; and should any of your readers have any experience in such matters I should feel much obliged for any suggestions they would favour me with." [What is wanted is experience on concrete which will set under water.]

COWS: *Bagnalstown.* One of the "Duchess" cows was sold at the Tortworth sale for 735*l.* That is, we believe, the highest price ever given for a cow. No such price was given at either of the Collings' sales. We have not a list of the sale to refer to, but will ascertain about "Bluebell."

ESSEX FARMING: *Mr. J. Lockhart Morton* has sent to the *Times* a report on the farming of Mr. Hutley and Mr. Dixon, of Witham, and Mr. Fisher Hobbs, of Colchester, in which the skill, energy, and intelligence of Essex agriculture are done justice to. The deep culture of Mr. Dixon—the old-fashioned practical energy of Mr. Hutley, and the complete management of Mr. Fisher Hobbs, who is furnished with all the appliances that ample means and intelligence can supply, furnish the materials of a very interesting paper, the substance of which we shall probably transfer to our columns another day.

HEAVY LAND: *A B.* If you can get the land into good tilth early in spring you may, with guano and salt, ensure a good crop of Potatoes in rows 30 inches apart. Winter Beans should be drilled on the flat in October 2 feet or so apart, the land having been first well tilled and manured. Use the Suffolk drill and load the coulter levers heavily. Cotgreave's plough is, we believe, made by Messrs. Ransome. It is a strong implement for turning a furrow slice out and trenching in the furrow thus laid open.

INSECTS: *Correspondent.* The grubs which you have found eating round the crowns of your Swede Turnips are the well known and too common caterpillars of the moth Agrotis Segetum (the history and figures of which were given in the *Gardeners' Chronicle*, 1852, p. 741). A quarter of an ounce of salt, dissolved in a quart of water, poured upon infested roots will drive the insects away. Numbers may also be caught by searching the leaves after dark with a lanthorn, and children might easily be trained carefully to examine the crowns of the roots. Hot soap suds poured over the roots will also cause the insects to quit them. *W.*

SEED SOWING IN DRY HOT WEATHER: *J R* says: "Draw a drill, well water the furrow, and sow the seed in it; then rake in the dry soil over the seed; in a few hours all the ground will be in a nice moist state. This plan prevents the ground cracking, which would be the case if the surface was watered."

TRIAL OF REAPERS: We are requested to say that the reaping machine may be seen at work during the whole harvest on Mr. Dray's farm, Farningham, near Dartford, Kent. On Monday, the 18th inst, a public exhibition will take place (on the above farm) of the "Champion" and also the "Union" reaping machines. Conveyance from London Bridge by rail to Dartford, thence per omnibus

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13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...	
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...	16 0
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16 „ 13,	17 „ 13,	18 „ 13 ...	... ...	18 0
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...	
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...	18 0
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...	

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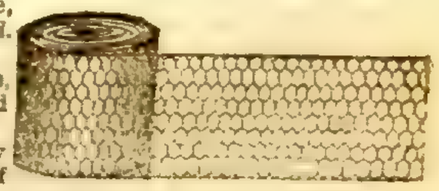
PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.

GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



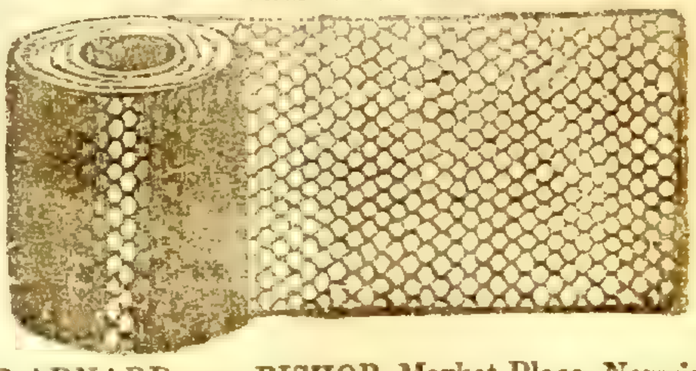
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4½ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5½ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

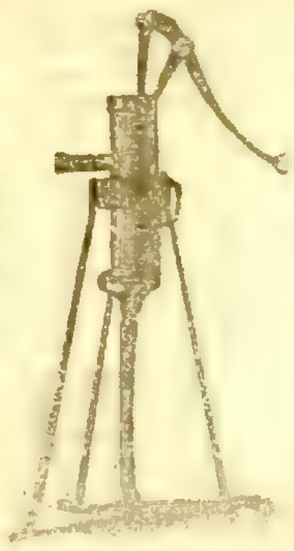
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Sons, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „ long	3 „ 3 „	gutta percha,	1	14	0
3 „ ditto	3 „ 6 „	or cast iron	2	8	0
3½ „ ditto	3 „ 6 „	flanged pipe,	2	12	0
4 „ ditto	3 „ 6 „	as required.	3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

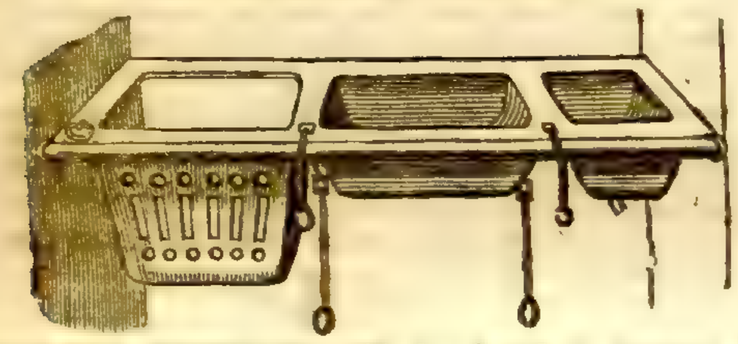
MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,

Warranted Good by the Makers.

JOSEPH MAPPIN AND BROTHERS, Queen's Cutlery Works, Sheffield; and 67, King William Street, London, where the largest stock of Cutlery in the world is kept.

Drawings forwarded by post.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

James Barton, Iron Founder, &c., 370, Oxford Street, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

103, Newgate Street, London.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At Fyfe and Co.'s Sanitarium, 46, Leicester Square.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at Half the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

To Mr. Green, Leeds.—Sir, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, Joshua Major.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. Charles Garrood, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

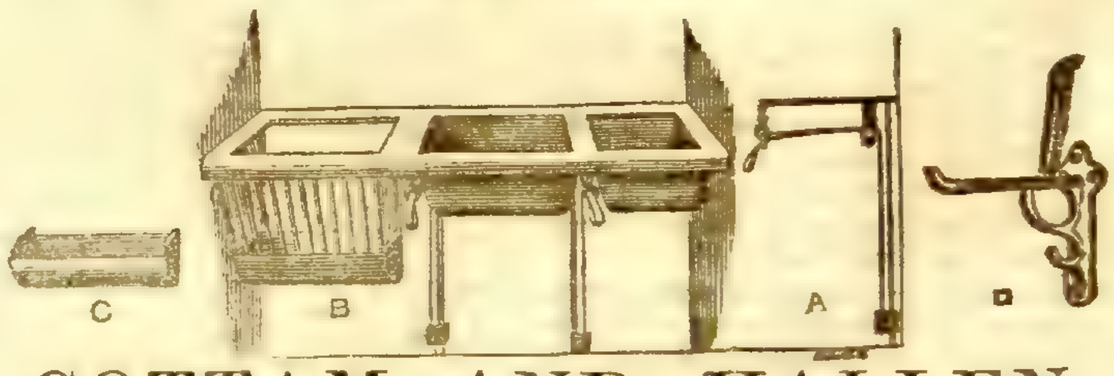
Illustrated Price Lists forwarded on application.

N.B. A. Shanks & Son finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. Shanks & Son also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

WARNERS' SWING WATER-BARROW

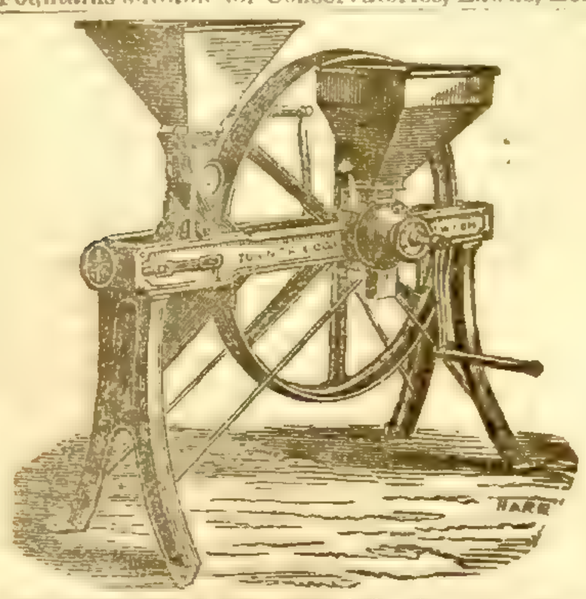
(TO HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

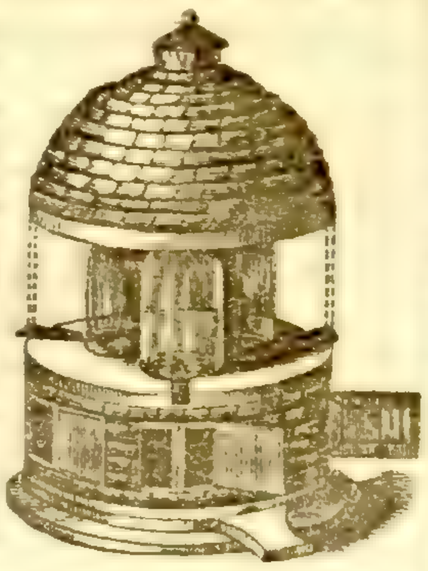
Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER, Ipswich.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.



This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

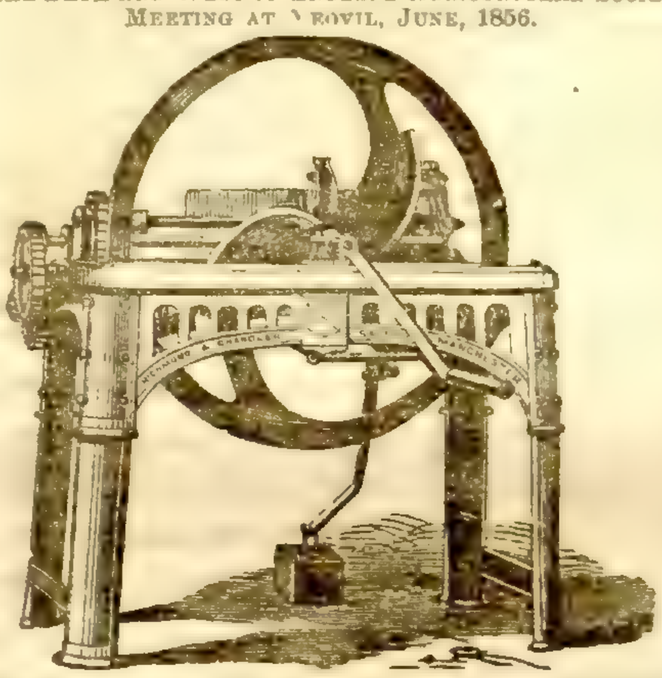
Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

THE PRIZE CHAFF CUTTING MACHINES

OF THE BATH AND WEST OF ENGLAND AGRICULTURAL SOCIETY'S MEETING AT YEOVIL, JUNE, 1856.



ALSO THE RECENT AWARD OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

RICHMOND & CHANDLER, having been awarded the special and only Prizes for Chaff Cutting Machines for Hand and Power at the recent Yeovil Show, beg to inform Agriculturists and others that they may be immediately supplied with these Machines, which, by their intrinsic merit, have achieved the highest character in the trade, together with the confidence of the public.

Address, RICHMOND & CHANDLER, Salford, Manchester, and South John Street, Liverpool.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPIN's celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Manufactory, Queen's Cutlery Works, Sheffield.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE's celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

CHASE'S

BEETLE POISON,

ENTIRELY FREE FROM DANGER TO HUMAN LIFE, AND PERFECTLY HARMLESS TO CATS AND DOGS.

A SAFE AND MOST EFFECTUAL DESTROYER OF BLACK BEETLES AND COCKROACHES; one trial alone will suffice to prove its great efficacy, and one box will destroy thousands. The great advantage in this preparation is, that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead.

Sold in boxes at 1*s.* each, or sent free to any part of the kingdom for Twenty Stamps (or a case containing one dozen boxes sent carriage free on receipt of a post-office order for 12*s.*), by THOMAS CHASE, Chemist, 14, Holborn, opposite Furnival's Inn, London, and may be obtained through all Chemists and Medicine Vendors.

The following Testimonial has been selected from many others, too numerous to publish:—

"Exotic Nursery, King's Road, Chelsea, Jan. 4th, 1856.

"Sir,—I have no hesitation in giving you a certificate to the effect that your 'Beetle Poison' is most effectual in destroying Cockroaches. After trying many other things, I was induced, by the recommendation of the Rev. E. Sidney, to try your poison, and the very next morning after it was laid, many Cockroaches were found dead, and such was the case for several succeeding mornings, but since then we scarcely or ever find one. I am, consequently, thoroughly satisfied that with perseverance in laying your poison, these pests may be entirely got rid of.—I am, Sir, your obedient servant, J. VERTCH, Jun.

"Mr. Chase, 14, Holborn."

TO SEEDSMEN AND CORN MERCHANTS.

TO BE LET, in Monmouth, the premises of a very old and lucrative SEED and CORN TRADE, with an excellent Front Shop.—Apply to Messrs. DYKE & Co., Monmouth.

TO GARDENERS, GENTLEMEN'S SERVANTS, & OTHERS.

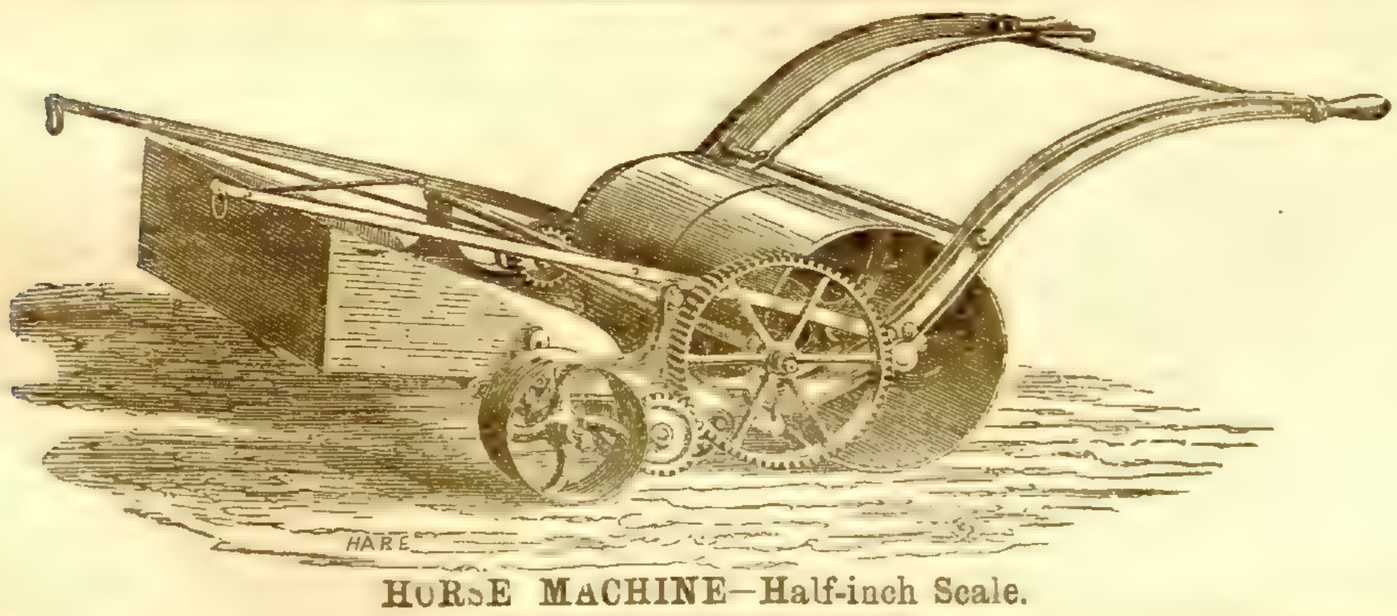
TO BE LET, a convenient COTTAGE, with acre of ground well stocked as a Nursery, with three Greenhouses and a good stock of MOSS ROSES. Established more than 20 years, with first-class connection. Every information respecting the business given. The Lease and Stock to be sold for half their value.—Apply T. HEWLETT, Florist, near Amherst Arms, Shacklewell, back of West Hackney Church.

IMPROVED MOWING MACHINES

MANUFACTURED BY

JAMES FERRABEE & CO.,

Phœnix Iron Works, near Stroud, Gloucestershire.



HORSE MACHINE—Half-inch Scale.

J. FERRABEE AND CO. and their predecessors have manufactured and sold between 5000 and 6000 of these Machines since they originally introduced them; and they have from time to time made all the important improvements in their construction which now render them so efficient. The accompanying engraving represents the large Machines as made to be worked by a stout pony or a horse. They are made very strong and durable, and will cut the longest and coarsest Grass usually met with on lawns and pleasure grounds, executing their work in an expeditious and superior manner, producing a more even and uniform surface than the most skilful mower—they will follow the inequalities of the surface without cutting into the soil, and can be readily adjusted to cut various lengths. The Hand Machines are made on the same principle, and may be either pushed or pulled by unskilled labourers with equal facility on lawns, hedges, between flower beds, bowling greens, cricket and pleasure grounds.

The Price List below *includes the carriage* to any Railway Station in England and Wales; and for a small additional sum they are sent *carriage free* to any Railway Station in Scotland or Ireland.

PRICE LIST.

Hand Machine, for One Man,	cutting 16 inches wide	...	£5	10	0
" for Man and Boy,	" 22 "	...	6	0	0
Pony Machine (or Donkey)	" 26 "	...	8	0	0
Horse Machine	" 28 "	...	11	0	0
"	" 36 "	...	15	0	0

London Agency—Manager of the Agricultural Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the country.——N.B. Every Machine bears the name J. FERRABEE & Co.

Sales by Auction.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JOHN SLATER, of Cheetham Hill, near Manchester, to sell by Auction at the Mart, Bartholomew Lane, on TUESDAY, September 3, at 12 o'clock, a very select portion of his Stock consisting of some of the finest varieties of Tulips in cultivation, many of which have not been previously offered for Sale.—Catalogues may be had one week prior to the Sale of Mr. JOHN SLATER; of the principal Seedsmen in London; and of the Auctioneers, Leytonstone.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.

IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.

250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc., vol. v., p. 20; and Paxton's "Flower Garden," vol. i., p. 11).

300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.

1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.

300 SKIMMIA JAPONICA.

1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.

5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.

10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, November 17, and four following days.

The Stock will be on public view 10 days before each Sale, when Catalogues may be had (1*s.* each, returnable to purchasers) at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 34.—1856.] SATURDAY, AUGUST 23. {Price Fivepence. Stamped Edition, 6d.

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CRYSTAL PALACE.—The THIRD GRAND FRUIT and FLOWER SHOW of the present Season will be held on WEDNESDAY, THURSDAY, and FRIDAY, September 10th, 11th, and 12th. Schedules of Prizes may be obtained on application to the Secretary of the Crystal Palace Company, at the Crystal Palace, Sydenham, and all Plants and Fruit intended for Exhibition must be entered on or before Thursday, September 4th. On this occasion Prizes will be awarded to Amateurs and Cottagers for Fruit, Flowers and Vegetables.

August 23. By order, G. Grove, Secretary.

STOKE NEWINGTON FLORICULTURAL SOCIETY.—The above Society will hold a Miscellaneous Exhibition on WEDNESDAY next, August 27th, when Prizes will be awarded for DAHLIAS, HOLLYHOCKS, ASTERS, VERBENAS, &c. Arthur Wortley, Hon. Sec.

HORTICULTURAL MEETINGS AT THE BRISTOL, CLIFTON, AND WEST OF ENGLAND ZOOLOGICAL GARDENS.—The last Show for the season will be held at these Gardens on THURSDAY, August 28.

Prize Lists may be obtained on application to the Honorary Secretary, Clifton.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The SECOND EXHIBITION OF PLANTS, FRUITS, AND VEGETABLES will be held at the Society's Gardens, Old Trafford, on WEDNESDAY, August 27.—Schedules of Prizes may be obtained on application to the Secretary. By order,

John Shaw, Secretary.

Council Room, 40, Princess Street, August 23.

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WASHINGTON HORTICULTURAL AND AGRICULTURAL SOCIETY will hold their Annual Exhibition of FRUIT, FLOWERS, and VEGETABLES, also POULTRY and AGRICULTURAL PRODUCE, in spacious tents erected for the purpose at Washington, on September 3d and 4th.

N.B.—A Sweepstake Prize of 3s. each, with 2l. added by the Society, will be awarded for the best 12 Dissimilar Blooms of DAHLIAS, open to all England and Scotland.—Entries must be made on or before the 26th August next. Schedule of Prizes can be had on applying to the Secretaries.

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N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

James Kitley, Lyncombe Vale Nursery, Bath.

PRICES OF UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, for the Season of 1856. All orders (not less than 20) to be accompanied with a Post-office order on Birmingham:—

Twenty	£0 12 0	Eighty	£2 1 6
Forty	1 2 0	Hundred	2 8 0
Sixty	1 12 0		

Plants in Pots, not less than Ten, 1s. 3d. each will be ready in October next.

Mr. Underhill's "Treatise on the Cultivation of the Strawberry," price 1s.

Mr. R. Underhill, Sir Harry's Road, Edgbaston, Birmingham.

SELECT FLOWER SEEDS FOR PRESENT SOWING. Sent post free at the annexed prices:—

	Per packet—s.	d.
DOUBLE DAISY from 60 choice varieties	0	6
CINERARIA, from best new varieties	1	0
CALCEOLARIA, from best spotted varieties	1	0
DOUBLE SWEET WILLIAM, from 30 large varieties	1	0
PANSY, from 100 finest show varieties	1	0
POLYANTHUS, from 50 superb varieties	0	6
ANTIRRHINUM, from best striped and spotted varieties	0	6
HOLLYHOCK, from 50 superb varieties	0	6

William Knight, Florist, &c., 67, High Street, Battle, Sussex.

DUTCH BULBS.

JAMES VEITCH, Jun., Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are particularly fine and in excellent condition. Catalogues are now ready, and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful cultivation of Bulbs depends in great measure on their being planted early in the season.—Aug. 23.

DUTCH BULBS.

R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.

THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.

Charles Alexander, Nurseryman and Seedsman, 30, West Register Street, Edinburgh.

DUTCH BULBOUS ROOTS.

ABRAHAM MARTIN AND SON have just received their first importation of the above from Holland, which are in good condition and very fine, and as their successful cultivation depends in great measure on their being planted early, we would advise our friends to make their selection as soon as possible. Catalogues gratis. All orders of 2l. and upwards paid 100 miles on any railway.

Nursery and Seed Establishment, Cottingham; Hull Branch Establishment, Junction Street.

New and Beautiful Hardy Coniferous Tree.

CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21s.; six plants, 4l. 10s.; 12 plants, 7l. 10s.—Knap Hill Nursery, Woking, Surrey.

YOUELL AND CO.'S GENERAL PRICED CATALOGUE is now published, and may be had post free on application.—Royal Nursery, Great Yarmouth, August 23.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AZALEA INDICA.

J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, August 23.

HYACINTHS AND OTHER BULBS.

WM. CUTBUSH & SON respectfully announce that their Descriptive and Priced CATALOGUE of HYACINTHS and other Bulbs, containing also cultural remarks, can be obtained postage free on application.

Highgate Nurseries, near London.

TULIP CATALOGUE.

CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.

A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.

Now ready, very choice CINERARIA, 2s. 6d. per packet.
very choice CALCEOLARIA, 2s. 6d. "
Royal Nursery, Slough.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, invite attention to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, acknowledged to be the best published, which will be forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD, upon application.

Primula, *choicest fringed*	... ...	1s. per packet.
Calceolaria, *choicest varieties*	... ...	1s. "
Cineraria " "	... ...	1s. "

A most comprehensive CATALOGUE of DUTCH and CAPE BULBS will be published in the autumn.

James Carter & Co., Seedsmen, 238, High Holborn, London.

BECK'S CHOICE NEW GERANIUMS.

JOHN DOBSON AND SON beg to announce that their DESCRIPTIVE CATALOGUE is now ready, and may be had on application.—Woodlands Nursery, Isleworth.

EXTRA CHOICE CALCEOLARIA SEED.

JOHN DOBSON AND SON beg to offer the above, their own saving, in packets, 1s., 2s. 6d., 3s. 6d., and 5s. each.

PRIMULA SINENSIS, 1s. per packet.
FANCY GERANIUM, 1s. do.

Woodlands Nursery, Isleworth; and High Street, Hounslow.

It is requested that all Seed orders may be addressed to Hounslow.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per packet—s.	d.
CALCEOLARIA from very showy varieties carefully impregnated	2	6
GERANIUM from first-rate Florist varieties	1	0
" from the new showy French ditto	1	0
" from first-rate fancy ditto	1	0
" from Scented-leaved ditto	0	6
" from the finest new Rose, Pink, White, &c., of the Scarlet habit	0	6

A remittance in stamps or otherwise must accompany all orders from unknown correspondents.

John Cattell, Nurseries, Westerham, Kent.

HOLLYHOCKS AND ROSES.—The Hollyhocks at the Cheshunt Nurseries are now in full bloom, presenting a display of richness and beauty scarcely attainable in any other flower. These, combined with the Autumnal Roses, of which some acres are in bloom, would amply repay a visit of inspection. Fine selected Hollyhock Seed in 2s. 6d. and 5s. packets.

A. Paul & Son, Nurseries, Cheshunt, Herts, one mile from Cheshunt Station, Eastern Counties Railway.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1s.; sent post free, 1s. 2d. Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6d. per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3d. per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

ORCHARD-HOUSE TREES.—The collection at Sawbridgeworth is now in high perfection. The large specimen trees are full of fruit, and houses upwards of 1000 feet in length are occupied with Peaches, Nectarines, Apricots, Vines, and Figs.

The Harlow Station, about one mile from the Nursery, is the most convenient. Thos. Rivers.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15s. per bushel.

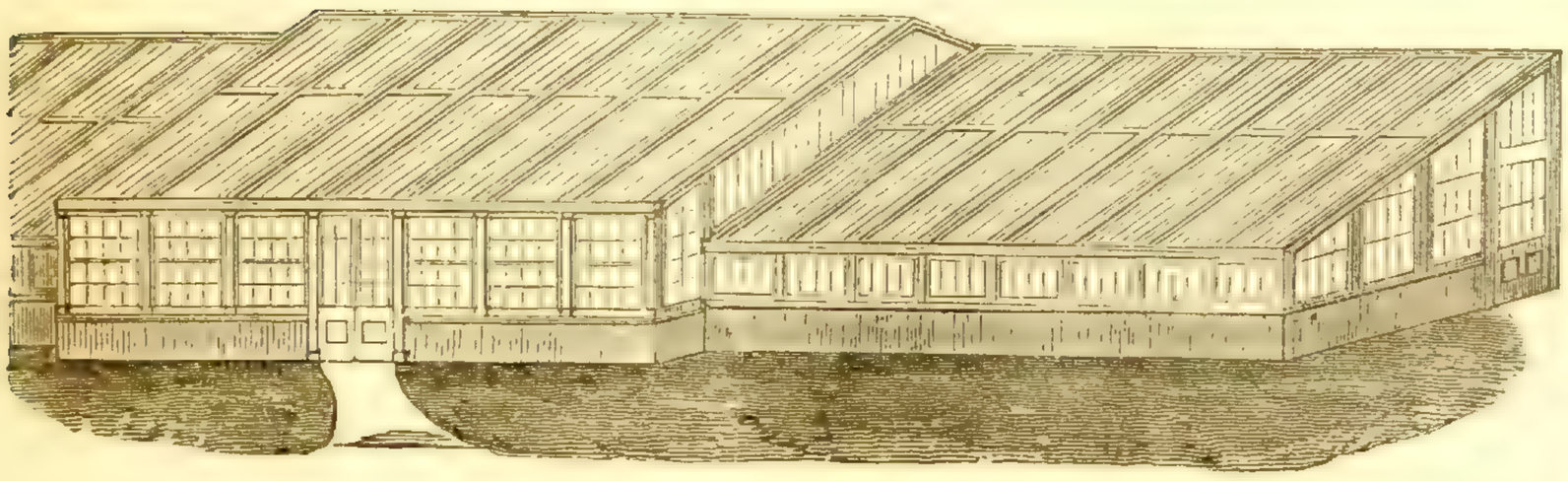
Address Mr. H. Raynbird, Basingstoke.

SEED POTATOES.—True Early Short-top Ash-leaf Kidneys, Early Ash-leaf Kidneys (Blue), British Queens, and Park Hall Kidneys. These early Potatoes are now being sent out for Seed, as they will not bear carriage in the spring without injury to the young shoots. Price 5s. per cwt.; sacks 1s. per cwt. All orders must be accompanied by a remittance.

Humphrey Chamberlain, Kempsey, near Worcester.

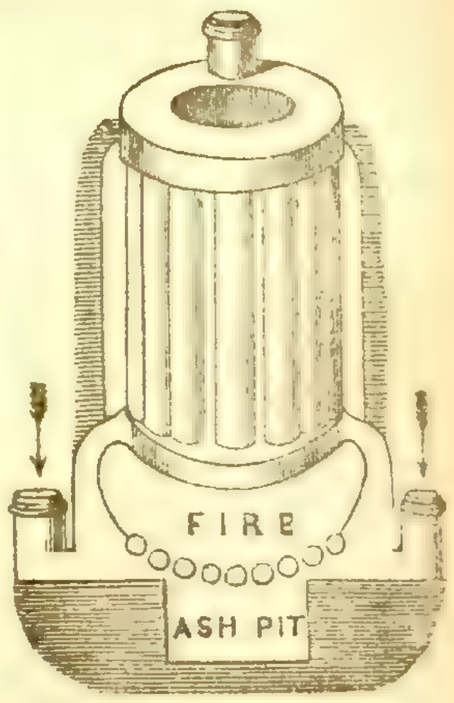
JOHN WEEKS & CO., KING'S ROAD, CHELSEA.

HORTICULTURAL BUILDING, AND HEATING BY HOT WATER.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



HEATING EXTENSIVELY BY ONE BOILER, COMMONLY CALLED

"WEEKS' ONE-BOILER SYSTEM."

Buildings of every description, Dwelling Houses, Churches, Warehouses, Horticultural Buildings, &c., separately or combined, and to any extent, can be effectually heated by ONE BOILER.

J. WEEKS & Co. refer to their own extensive Establishment, the whole of which is heated by *one boiler*, and may be seen in constant operation, warming Hothouses, Greenhouses, Conservatories, &c, upwards of 1000 feet in length, the water in the various houses circulating through upwards of 5000 feet of pipe, and the whole so fixed and regulated that any one of the houses can be heated separately, or the whole together, and any part regulated at pleasure.

J. WEEKS & Co. have also great pleasure in referring to the extensive Nursery of Messrs. Edward Henderson & Co., Wellington Road, St. John's Wood.

We will here quote Mr. Henderson's own words, expressing his approval of our ONE BOILER SYSTEM. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than 2 sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 900 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to numerous seats of the Nobility and Gentry in various parts of the country where *one Boiler* has been fixed to warm a great number of houses, &c., and frequently the dwelling-house also from the same boiler.

In some instances *our one Boiler* is doing the work formerly done by 20, so that in these cases the great number of fires, stokeholes, and chimneys, are entirely dispensed with.

At his Grace the Duke of Leeds', Hornby Castle, Yorkshire, *one of* J. WEEKS & Co.'s *Boilers is heating* 10,000 feet of 4-inch pipe, and one of the houses, a large Conservatory 190 feet long, is situated upwards of 500 feet from the Boiler.

J. WEEKS & Co. make their Tubular Boilers of all sizes on the same economical principles; nearly 4000 of which of different sizes are in operation at the seats of the Nobility and Gentry throughout the Kingdom and on the Continent.

The Nobility and Gentry about to erect Horticultural Buildings or to fix Hot-Water Apparatus will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Conservatories, Greenhouses, Hothouses, Pits, &c., erected and in full operation, combining all modern improvements in the various branches of the Horticultural science, so that a lady or gentleman can select the description of house best adapted to the purpose for which it is required.

As an *Horticultural Establishment* it is also an unlimited source of attraction, containing New and Rare Plants in great variety.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in pots.

FRUIT TREES and SHRUBS of every kind.

The SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers,
KING'S ROAD, CHELSEA.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., BUILT upon the most scientific principles, combining all the improvements of the day. HORTICULTURAL WORKS of every description and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

NEW PLANTS OF 1856.

MITCHELL AND CO., of the Bristol Nurseries, Kemp Town, Brighton, are prepared to supply good strong plants well established in 60-sized pots of the various Novelties of the present season.

HENDERSON'S FUCHSIAS OF 1856.—The collection of eight for 6*s*.

SMITH'S OF 1856.—General Williams, Admiral Boxer, Conqueror, Gloire de Neisse, Epps' Wonderful; the collection for 5*s*.

BOUVARDIA LONGIFLORA, the true white flowering variety.—Too much cannot be said in praise of this beautiful plant. Our stock is one of the largest in the trade, which enables us to offer at 12*s*. per dozen. Trade price on application.

VERBENAS.—Henderson's Collection of 1856, 4*s*. per dozen, well established in 60-sized pots.

Smith's and Turner's varieties of 1856, 6*s*. per dozen, ditto.

PETUNIAS.—Smith's and Turner's, also the New French striped varieties, 6*s*. per dozen.

TREE CARNATIONS.—Strong plants in 48-pots for winter flowering, 12*s*. per dozen.

CAMELLIAS.—Well set with flower buds, our splendid collection stands unrivalled; we offer good bushy well-grown plants from 15 to 18 inches high, 21*s*. per dozen; from 18 to 24 inches high, 30*s*.; from 24 to 30 inches, 42*s*. per dozen.

AZALEA INDICAS.—Choice varieties with good bushy heads well set with flower buds at 15*s*., 18*s*., 21*s*., and 24*s*. per dozen. M. and Co. strongly recommend this portion of their stock to all intending purchasers.

CHRYSANTHEMUM Alfred Salter, 1*s*. 3*d*. each, or 6 for 6*s*.

MEYENIA ERECTA, 3*s*. 6*d*. to 5*s*. each.

WHITE FAIRY ROSE—M. & Co. possess a large stock of this useful plant, which is well adapted for winter flowering; good plants, 9*s*. per dozen.

GERANIUMS consisting of Foster's, Hoyle's, and Turner's new varieties of 1856; our own selection, 36*s*. per dozen; purchasers', 42*s*. per doz.

Do. do., 1855, our own selection, 21*s*. per doz.; or purchasers', 25*s*. per doz.

Do. do., 1854, purchasers' selection, 12*s*. per doz.

Names of the various collections can be had upon application.

Reference or Post-office Order is particularly requested from unknown correspondents, made payable to JOHN FAIRBROTHER, at the Bedford Street Branch, Post-office, Brighton.

All orders over 20*s*. are delivered free in London, or any Station upon the London and South Coast Railway, with plants to compensate for longer distances.

THE ADAIR STRAWBERRY.

THE above delicious and desirable Strawberry, raised by Mr. Elphinstone, Gardener to Sir S. Adair, Bart.' is a cross between Hooper's Seedling and the Hautbois; and while retaining the size and high colour of the former, has the desirable and peculiar flavour of the latter. It is of strong growth, and will be an acquisition to all growers, whether for market or otherwise. The undermentioned Gentlemen and Gardeners bear testimony to its merit:—

N. S. Hodson, A.L.S., Botanic Gardens, Bury St. Edmunds.
John Peeling, Cambridge.
Samuel Barrett, Hardwick.
Thomas Barnes, Florist, &c., Stowmarket.
E. Brown, Cambridge.
Geo. P. Hay, Hon. Sec., Horticultural Society, Bury St. Edmunds.
David T. Fish, Gardener, Hardwick House, Bury St. Edmunds.
Peter Grieve, Gardener, Culfand, Bury St. Edmunds.
Henry Turner, Curator, Botanic Gardens, Bury St. Edmunds.
James Pringle, Gardener, Fornham Hall.
Bircham & Ward, Hedenham, Bungay.

MESSRS. E. G. HENDERSON & SON have much pleasure in stating that they are appointed sole Agents for the above excellent Strawberry, which they will be prepared to send out after the 1st September next, at the following scale of prices:—

60*s.* for 100 Plants | 40*s.* for 50 | 25*s.* for 25 | 15*s.* for 12.

Terms to the Trade on Application.

DUTCH FLOWER ROOTS, &c. &c.

MESSRS. E. G. HENDERSON & SON'S BULB CATALOGUE

Is now published, and may be had post free on application. It contains, in addition to the usual Priced Lists of Dutch Bulbs and Flower Roots, selections of the best sorts of Geraniums, Cinerarias, and other Florists' Flowers.

MESSRS. E. G. H. & SON continue to supply the following unrivalled SEEDS:—

CALCEOLARIA, First Quality	5*s.* 0*d.* per packet.
Ditto Second Quality	2 6 "
CINERARIA, Choice	2 6 "
PRIMULA SINENSIS FIMBRIATA	2 6 "

Other Choice Seeds suitable for the present Season's Sowing are given in Advertisement of July 19, 1856.

Wellington Nursery, St. John's Wood, London.

DUTCH FLOWER ROOTS.

PETER LAWSON and SON, Seedsmen to the Queen, &c., beg leave to intimate to their Customers and the Public the arrival of their first consignment of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.
27, Great George Street, Westminster.

CHOICE SEEDS.

BASS and BROWN have saved the following from this season's flowers of their superb collections.

	s.	*d.*
GERANIUM, choice, 1*s.* per packet; newest vars. ... p. pkt.	2	6
CALCEOLARIA, choice, 1*s.* ditto; ex. ex. ... "	2	6
CINERARIA, choice, 1*s.* ditto; ex. ex. ... "	2	6
ANEMONE, single, of richest colour ... ... 4*d.* to	1	0
" semi-double, ditto ... ... 4*d.* to	1	0
GLADIOLUS, choice from early vars.	1	0

Most of the species of Biennials and Perennials may now be sown for next season's flowering.

CHOICE IMPORTED GERMAN SEEDS.

Seeds of the Imported Brompton and Emperor Stocks may still be sown for next season's flowering; also Annual Stocks for flowering in Greenhouses.

Seed Catalogues supplied on application; also printed instructions for sowing and raising seeds.—Sudbury, Suffolk.

NEW HARDY RHODODENDRONS.

JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.

RHODODENDRON JOHN WATERER; colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s.* each.

RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s.* each.

RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s.* 6*d.* each.

☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.

The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

FERNS.

ROBERT SIM begs to offer nice healthy Plants of the following new or very scarce Ferns:—

	s.	*d.*
Gymnogramma lanata.—A very distinct new species, with very woolly-looking fronds; stove	7	6
Pteris aspericaulis.—A very handsome new species; fronds crimson while young; stove (?)	10	6
Ceratopteris thalictroides.—An easily cultivated aquatic species; stove	7	6
Platyloma Browni.—A very fine, and probably hardy species, from Australia: greenhouse	5	0
Polypodium alpestre v. flexile.—A very elegant new British variety; hardy	7	6
Athyrium Filix-fœmina v. depauperatum (known also as ramosum and monstrosum).—A most singular and elegant British variety, hitherto extremely scarce; hardy...	7	6
Lastrea Goldieana (true).—This rare and very handsome North American Fern is not the kind generally but incorrectly grown under this name; hardy	10	6

Carriage paid to London.—Post-office orders payable at Foot's Cray. Nursery, Foot's Cray, Kent.

NEW HARDY HYBRID RHODODENDRONS.

WATERER and GODFREY beg to offer the following new Hybrid Rhododendrons, and which they recommend as being hardy, distinct, late, and beautiful, and such as will be sure to give satisfaction, viz.:—

	s.	*d.*
ALARM.—This is, perhaps, one of the most striking kinds we possess, each petal being edged with bright scarlet, the centre quite white; it is also a very late bloomer... ...	21	0
BLACK-EYED SUSAN.—Purplish lilac, the spotting being more decidedly black than in any variety we know	21	0
BEAUTY OF SURREY.—Rich, rosy scarlet, good shape, and prettily marked	21	0
LORD JOHN RUSSELL.—Pale rose, the upper petal being distinctly and beautifully spotted, or rather blotched; this is decidedly the best in its way	21	0
MAGNUM BONUM.—Rosy lilac, spotted all over each petal; the flowers being large, and almost flat, makes it very attractive	21	0
PRINCE ALBERT.—Rich lake, the flowers of remarkable consistency, in fact almost approaching a Camellia; certainly one of the most distinct and desirable kinds ...	21	0
PERICANUM.—Light rose, finely spotted; this is a very pleasing kind	21	0
WILLIAM DOWNING.—Rich dark puce, with an intense black blotch on the upper petal of paint-like consistency; the flowers are individually large, and the truss magnificent	21	0

Knap Hill Nursery, Woking, Surrey, Aug. 23.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

Seeds Direct from the Growers the most certain means of Preventing Disappointment.

SUTTON and SONS, Seed Growers, Reading, Berks, *can supply every kind of* FARM and GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

Sutton & Sons, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, AUGUST 23, 1856.

It is to be feared that speculations upon the geographical distribution of plants are not the only innocents which the acquisition of facts will compel us to slaughter. There is an ingenious notion relating to the distribution of colours, which once gained disciples everywhere, but which seems to be in no better plight. This being a gardeners' question has been occasionally adverted to in our columns, and a fresh and most startling case of interference with theory leads us to introduce it once more.

One of the best digested accounts of the theory in question is that of Prof. Balfour, from whom we borrow the following statement.

"In reference to their colours, flowers are divided by De Candolle into two series—1. Those having *yellow* for their type, and which are capable of passing into red and white, and never into blue. 2. Those having *blue* for their type, and capable of passing into red and white, but never into yellow. The first series is called *Xanthic*, the second *Cyanic*. The following is a tabular view of the two series, green being considered as an intermediate state of equilibrium between the two:—

Red Orange-red Orange Yellow-Orange Yellow Yellow-green	Xanthic series.
Green.	Colour of Leaves.
Blue-green Blue Blue-violet Violet Violet-red Red	Cyanic Series.

Or the table may be given thus:—

Green.

Cyanic Series.	Xanthic Series.
Blue-green	Yellow-green
Blue	Yellow
Blue-violet	Yellow-orange
Violet	Orange
Violet-red	Orange-red

Red.

Green, which is made up of blue and yellow, is the centre whence the two series diverge, and they meet again in red. It would appear that all flowers capable of changing colour, do so in general by rising or falling in the series to which they belong. Thus in the Xanthic series, the flowers of the Marvel of Peru may be yellow, orange-yellow, or red; those of the Austrian Rose, orange-yellow or orange-red; those of the Indian Cress vary from yellow to orange or orange-red; those of the garden Ranunculus pass through every gradation in the series from red to green. In the Cyanic series, the Anemone varies from blue to violet and red; the Hyacinth from green to red, through all the gradations; Lithospermum purpuro-cæruleum, and many Boraginaceæ, from blue to violet-red; the Hydrangea from rose colour to blue; and the ligulate flowers of the China Aster from violet-blue to violet-red and red.

"These rules cannot be said perhaps to be universally applicable. They appear, however, to be very general, and they are useful in enabling us to predict the possible varieties of colour in the flowers of the same species. To the Xanthic series belong Adonis, Aloe, Cactus, Camellia, Cytisus, Dahlia, Lysimachia, Mesembryanthemum, Œnothera, Oxalis, Potentilla, Ranunculus, Rose, Tulip, Verbascum, &c. As examples of the Cyanic series may be mentioned Anagallis, Campanula, Epilobium, Geranium, Globularia, Hyacinth, Phlox, Polemonium, Nemophila, Scilla, Vinca, &c. Some exceptions occur to the rule laid down; thus, while Hyacinths are in general blue, red, or white, some varieties assume a pale yellowish hue; the yellow Auricula of the Alps, although it does not become pure blue, exhibits occasionally a violet hue; the flowers of Myosotis versicolor change from yellow to pale blue.

"The original colour of the Tulip is yellow, and although by cultivation it is made to assume all the varieties of colour in the yellow series, we do not find it becoming blue. Such is also the case with the common Dahlia and the Rose. No one has succeeded in getting a blue variety of either of the latter. The Geranium, on the other hand, although it presents all shades of blue, red, and white, does not become yellow. There seems thus to be a certain limit in the range of colour which a species can be made to assume. These remarks apply only to the change of colour in a given species. They will not apply in all cases to every species of a genus. Thus, whilst most of the Gentians belong to the blue series, and do not become yellow by cultivation, there is a yellow species of the genus (Gentiana lutea) which never changes into blue. Such is also the case in the genera Aconitum, Linum, Sonchus, &c. Again, we find certain plants exhibiting in the same flower blue and yellow colours. This is seen in Dendrobium sanguinolentum; also in Pansies, and in many other parti-coloured flowers, as in Convolvulus tricolor, and in species of Myosotis, which have a yellow zone round the corolline tube, while the upper part is blue. In these last-mentioned cases each of the coloured portions of the flower vary in general only in their proper series—the part which is yellow never becoming truly blue, nor the blue yellow. The florets of the ray of Composite plants often exhibit blue colours, while those of the disc are yellow. The law by which the changes of colour are regulated has not been ascertained, and it is impossible, in the present state of our knowledge, to predict what colour a florist's flower will assume."

It is impossible in the present state of our knowledge to predict what colour a florist's flower will assume. That is the point. Were the cyanic theory true we should always be able to say with some tolerable certainty within what limits change of colour is produceable. For example the blue series might run into red and violet, but never into yellow orange or scarlet; and *vice versâ*. That would be something to foresee. But as matters now stand we know of no reason why Camellias should not become yellow or Dahlias and Azaleas blue. Such a change is just as likely as that which we are now about to describe. If there is a genus more pre-eminently blue than any other cyanic race it is surely the Delphinium or Larkspur. Among this genus we have blues of all degrees of intensity, violets, reds, pinks, whites and greens, but nowhere a trace of yellow—not even in the stamens. Delphinium therefore should, according to theory, be fixed irrevocably to the standard of blue, and a scarlet or yellow species was no more to be expected in the cyanic Larkspur than a blue species in the xanthic Azalea. But the scarlet Larkspur has come to us unmistakeably; golden yellow in the petals, scarlet as a soldier's jacket everywhere else. This occurs in the beautiful *Delphinium cardinale*, one of the last of Messrs. Veitch's fine Californian introductions. In this flower there is no sign of blue, except in the green spot at the tip of the sepals, a tint that is common to both series of colours, as is above explained.

Whence comes the yellow which, mixed with red,

has produced the brilliant scarlet of *Delphinium cardinale?* Whither has gone the Larkspur blue, in the presence of which scarlet could not be formed? To be sure we have such colours in the Columbines (*Aquilegia*), which are first cousins of Larkspurs, and among which the same scarlet breaks out in *A. canadensis* and its allies. We have yellow too in Aconites. Are we then to infer that some future Lobb will bring home a scarlet *Aconitum*. Why not? We think it extremely probable. At all events the cyanic and xanthic speculations of philosophers must now be laid up in the limbo of pleasant dreams.

We have already reported that the Vine disease is disappearing in Tuscany, and we have reason to believe that even in Portugal the worst is over. That the disease in that country was not actually incurable has been shown by the case of a variety called the Souzão, of which a highly diseased plant was sent three years ago to the Horticultural Society, by Mr. Forrester, and which is now healthy and bearing ripe bunches in the Garden at Chiswick.

This may seem to be a rash opinion in the face of the intelligence from Portugal which has lately appeared in the columns of the *Times*, in whose city article it is stated that "the accounts from Oporto regarding the prospects of the coming vintage in the Douro are discouraging. The American Vines, which up to a few days back had been free from any bad signs, had suddenly manifested the blight to an extent which had destroyed the hopes entertained from the introduction of those descriptions. This year the disease is said to have attacked the fine vineyards beyond the factory demarcation, and an instance is quoted of one on the frontiers of Spain which last season yielded 60 pipes of the best wine, and which will now not produce six pipes."

We do not know what was expected from the introduction of American Vines, if by that term is meant, as we believe to be the case, European Vines cultivated in the United States, for the Vine disease exists there, as well as here, as we lately showed upon the authority of Mr. Chorlton (see p. 516). At all events we know that the American Vines were grafted on Portuguese stocks. Even here the result was perhaps not quite so unsatisfactory as would appear from the *Times;* at least it does not correspond, as we are informed, with the experience of one of the great wine growers, who this year grafted in Portugal a thousand Vines with cuttings obtained from English hothouses. Of this number about 900 took, and until June were green and beautiful. But, what was very curious, wherever among them indications of fruit appeared it was speedily stopped by the *Oidium*, which, however, did not extend to the Vines.

It has also been remarked this year that in the Douro wine districts, although the *Oidium* appeared in June, and apparently "paralysed the Vines," yet after the fourth day they recovered and vegetation proceeded with renewed vigour, "leaves and wood increasing in quantity and strength in proportion as the Grapes withered and dropped off."

It is impossible not to regard these as favourable symptoms, indicating that the virulence of the Vine disease is passing away even from the west of Europe. In the meanwhile the condition of the inhabitants of the Douro wine districts is lamentable in the extreme. For two years past the cultivation of the vineyards in many instances has been abandoned—the labourer has no employment—the proprietor no produce. Next year most of the Vines from this neglect alone, and not from disease, will be well-nigh ruined.

As to the wine itself we learn that as there were few Grapes produced in Portugal last year capable of being made into wine, the most prejudicial adulterations were resorted to in order to produce a beverage of vinous appearance for the use of the Portuguese people. The wine, therefore, as it is called, and at present is sold at the *tendas* or public-houses at Oporto, is of infamous quality, and much sickness has already being traced to its use. According to present appearances the production of wine in the north of Portugal will be even less than that of either of the two past years. On this account and in spite of the Government restrictions to the contrary large quantities of common wine will be smuggled from Salamanca, or from the interior of the province of Beira, and be introduced into the Alto Douro districts and thence admitted into Oporto for consumption or exportation. Among other contrivances which have been resorted to in order to save something from the vineyards, it is understood that the wine growers have been pressing such Grapes as they had, and then adding enormous quantities of brandy to the juice in order to prevent the putrid fermentation to which it is now so liable. This brandy-syrup, or cherupiga, containing probably 50 per cent. of spirit, is sure to become the basis of much so-called Port wine manufactured for sale in the English market.

VINES IN THE VALLEY OF THE THAMES.

Your remarks in a recent leading article relative to Mr. Glendinning's splendid Grapes will no doubt excite considerable interest, especially among that class of gardeners and amateurs who have incurred great trouble and expense in preparing Vine borders and planting Vines, from which the returns have been, are, and ever will be all but *nil*. It will, I think, be admitted by all who have studied vegetable phenomena, more especially in relation to the culture of plants, that the more we deviate from the simplicity of nature, the more compound and various our preparations become, so in proportion do our chances of doing what is not right increase. Earth, air, and water, with their natural concomitant, light, supply all the requisites of plant manufacture, and though we may go to Peru for guano, or search the earth for other manurial substances, it is quite certain that we shall experience much difficulty in discovering any foreign substance equal to what every country gentleman can find upon his own estate. Plants, like animals, may be fed to a very plethoric state, and like them too that very plethora will injure the constitution, and by bringing on premature old age, so impair the vital energy of the plant as to render it of little or no value. Thus it is that one man prepares a Vine border, using all manner of foreign substances, mixing fish, flesh, and fowl, the refuse of the currier, the sugar-boiler, the butcher, the kennel, and the slaughterman, in most incongruous confusion. He plants his Vines, and they grow with a vigour reasonably to be expected from such a preparation. But does the wood ripen? Does it become of that hard and indurated character which would result from slower and smaller growth? No! but the Vines produce magnificent foliage, and no doubt next year they will produce some splendid bunches of fruit. Yes, they do so, but somehow or other the Black Hamburghs are red, the Frontignans and Muscats shank, and remain quite green. What can be the reason of it? Oh! the border is too dry, it has had too much water, or the stupid gardener has given so much air as to chill the bunches, or the house has not had sufficient air. But never mind, they will do better next year; they are making nice wood, and the foliage is unusually grass green and watery. Next year comes; the rich border has had a good soaking of winter snow, and an additional soaking of manure water cold from the tank of farm yard; the Vines start irregularly and weak, the few bunches they show take a spiral growth and result in tendrils, and all is over. What ever can be the cause? The border was rich, and had plenty of manure water, and it was also well drained. Surely something must have destroyed the roots; well, let us see; but oh horror of horrors! the border which cost me so much money, and through which (it was so light and porous) you could thrust your walking cane without an effort, is now one soapy mass, cold and inert as so much recent cow dung. But see the roots; are not they fine? Yes, thick, soft, and spongy, as those of Asparagus or Bindweed, and with this difference, that they have not a fibre or spongelet upon them. Such then is the result of an over-rich border; it may be an extreme case, but not more extreme than many that have been seen. It is the effect of what Sir John Falstaff would have said, or rather his companions, "what an enormous quantity of sack for such a small quantity of bread."

This brings me to the subject of the present paper, "Vines in the Vale of the Thames," where it appears as illustrated by Mr. Glendinning's Grapes, and also in other cases which I may mention shortly. Prepared Vine borders are not only unnecessary, but if made are useless. For something like 20 years or more, first-rate Grapes both in quality and quantity have been shown at Chiswick and other London horticultural exhibitions from the garden of Mr. Beaufoy of South Lambeth. These Vines were planted for the most part by Mr. R. Atlee, who for many years was gardener to Mr. Beaufoy. Once, some fourteen years ago, I congratulated Mr. A. upon the success which had attended the planting of the Vines. "Yes," said he, "you may do that, but my border had nothing to do with the production of these Grapes, for the roots as soon as planted went perpendicularly down by the front wall of the house into the subsoil below, and I believe there is not a Vine root in the border." As an illustration of this fact Mr. A. took me to a Pine stove where he had that season planted a Muscat Vine, and that with just sufficient fresh soil to plant in had made such a growth as is only seen when the roots of a plant are quite in their natural element. Now the subsoil in the neighbourhood of Vauxhall is a reddish gravelly loam, poor to appearance but open and porous, and hence well suited to the habits of the Vine. The same character of subsoil also prevails, I think, in Mr. Glendinning's neighbourhood, and no doubt the Vines have taken the same course. In the vale of the Thames, from its rise in Berkshire down to Gravesend and Tilbury Fort, and on both sides of the water good Grapes will be found, I will not say without prepared borders, but I doubt not in many instances where the borders were of little more service to the plants than those I have previously enumerated. To commence, take for example the celebrated Champion Hamburgh Vine at Sunning Hill, those wonderful Vines at Cumberland Lodge and Hampton Court. Follow the course of the Thames by Kingston, Richmond, Kew, Mortlake, Barnes, Putney, Vauxhall, Bermondsey to Deptford, and so on to Gravesend, and in all these places you find excellent Grapes, and certainly in several places where no preparation has been made for planting them. Perhaps for quality no persons have produced better fruit in Covent Garden than Breffett, of Barnes, and the various growers at Vauxhall or South Lambeth, especially Chapman, while Stones, of Deptford, was famous for his Grapes long before the writer of this was born. Start again from Hampton Court, and proceed by Teddington, Twickenham, Isleworth, Brentford, Chiswick, Fulham, and Chelsea, and we find Vines of great excellence. The late Mr. Willmot's extempore way of making a Vine border by describing it as a hole made with a pickaxe into which a little soil was put to cover the roots will be familiar to many of your readers; and his description is literally true, for I have reason to know that nothing more was done when the Vines which produced four crops in two years were planted, than to take up the hard footpath with a pickaxe and cover the roots with a bushel or so of soil. Breffett of Barnes, Chapman of Vauxhall, and Mr. Wilmott of Isleworth have told me they made no Vine borders beyond merely trenching and manuring the ground intended to be planted. That Vines in the vale of the Thames generally speaking send their roots deep into the soil and beyond the influence of ordinary atmospheric changes is evident from the manner in which market gardeners dig and crop their borders, and from their forcing the Vines in the depth of winter almost without any protective material, and certainly without any fermenting material to impart heat to the roots. If the roots were near the surface of the soil such practices could not be persisted in, and hence I think it reasonable to infer that Mr. Atlee's theory of their rooting in the subsoil is just, and now explained will in future be more fully appreciated. Hence the reason of Mr. Glendinning's success, and hence also the probability that others in the same locality may calculate upon similar success by employing similar means. But the most remarkable thing in connection with Mr. G.'s Vines is, that they are not what would generally be regarded as fine Vines, that is, they have not girth or strength of stem usually considered necessary to produce a crop of Grapes of first-rate quality. According to the theory of the late Mr. Clement Hoare no Vine is fit to carry a bunch of Grapes until its stem at the base girths 3 inches and then only a few pounds, but most of Mr. Glendinning's which have carried such splendid Grapes do not girth that much at the present time, and hence if the fruit and foliage were off would be regarded even by good judges as very ordinary Vines. Now the same fact struck me upwards of 20 years ago, when fresh from the fine Vines at Welbeck, I called to see the forcing establishment of Mr. Breffett at Barnes. It was in November, and the first house of Vines was just beginning to swell, but they were so weak in the stem and the wood so small that I could not resist an involuntary exclamation of surprise that they should consider such Vines worth the trouble, not to say expense, of forcing so early in the season. Well do I recollect the smile that passed over Mr. Breffett's countenance as he sarcastically remarked, "Come again in April and then pass your opinion;" and I did call again in April, Mr. Duncan (now of Basing Park) being with me, and there on those poor Vines were certainly the most compact and best coloured early Hamburghs I had, at that time, ever seen. Mr. Breffett's Grapes were always celebrated for fine colour, thin stem and compact form, and they exhibit the same characteristics to the present time. Thus it appears that mere girth of stem is not a criterion of the fitness of a Vine to carry a crop, more especially if the Vine has been grown slowly, but if the growth has been rapid, and the roots are soft and spongy, then perhaps girth of stem should be taken into consideration. In an over-rich border a Vine will make long soft watery roots something resembling those produced in a moist atmosphere upon the stem, and almost without fibre; but in a properly prepared border formed of good fibrous loam and other porous material, a large quantity of fibrous roots will be produced, the growth will be slower and of moderate strength, and the organization of the plant of the most mature and perfect description. Such a Vine, though apparently not so strong as one planted in a rich border, has the maturing principle, if I may be allowed the term, more fully developed, and has its vessels full of highly elaborated instead of the crude and watery material which results from the rich border.

Hence the reason of Mr. Glendinning's success, and hence also the reason why rich borders should be avoided when fruit of first-rate excellence is required.

A. P. W.

VEGETABLE PATHOLOGY.—No. CXXXIV.

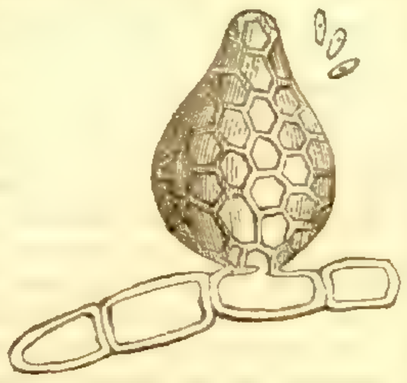
548. Parasitæ (*Antennaria. Capnodium* *). — The genus *Erysiphe*, which has been shown to be the cause of many of the affections to which both our indigenous and culinary plants are subject, does not seem to extend to very warm climates. In such localities its place is taken by the closely allied genus *Meliola*, which instead of producing a white mycelium has one which is jet black and the fulcra which surround the peritheria are of the same sooty tint. It is principally on the thicker leaves, but by no means exclusively that this genus is

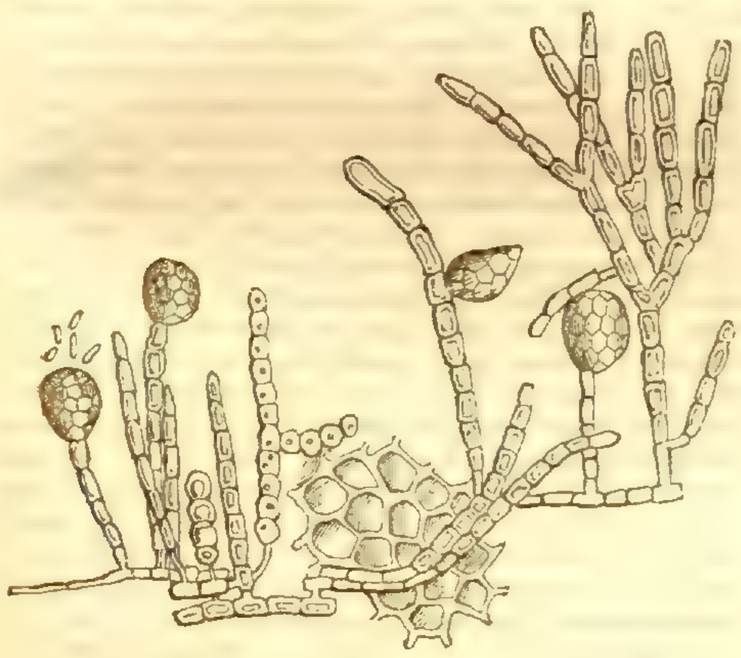
* The first from *antennæ*, alluding to the resemblance of the threads to the antennæ of an insect; the second from καπνος smoke, and ειδος resemblance.

produced. The species are principally tropical, but they occur in Chili, New Zealand, and the United States.

549. There are, however, other black mildews which have a similar habit, and are indeed scarcely distinguishable without the use of a lens, which are far more widely and copiously diffused, and in consequence more destructive. These are not to be confounded with the olivaceous smokelike fungi which are so common in autumn on the leaves of trees which have produced honeydew. They belong to quite another category, and have a less pure black than those which are at present before us, and a very different structure.

550. The first which require attention are those cases in which the parasite on examination presents the characters of *Antennaria*, consisting of branched moniliform often echinulate articulations, some of which swell out into a sporangium, which either contains minute spores, as in the accompanying figures of *Antennaria Stephensii*, Berk., or young plants in miniature (see *Gardeners' Chronicle* 1844, p. 851), which are at once developed under favourable circumstances on the rupture of the walls. These are not very common in our own country, but in some countries they abound to an excessive degree, and nowhere more than in New Zealand, the Auckland and Campbell Islands, and other localities in the southern hemisphere. In one species (*A. scoriadea*, Berk.), the threads project so much from the matrix and are so intricately branched and compacted as to look like cinders, and approximate to the American genus *Scorias* which covers various vegetable substances with a moist black spongy crust two or three inches in thickness.





551. These *Antennariæ* are the pests of the Coffee and Orange plantations in Ceylon and the Azores, and as the common *Fumago* generally accompanies honeydew, whether arising from Aphides or other causes, so these affections seem generally to wait upon the attacks of a species of Coccus. They have extended so widely of late years as to make cultivation very precarious, and at present no effectual remedy has been discovered, though it is probable that sulphur may have the same effect on them as on other epiphytous fungi.

552. Though the characters of the genus *Antennaria* appear so strongly marked, as appears from the figures given above of *A. Stephensii*, it is now pretty generally acknowledged that the genus is not autonomous, but merely a condition of the genus *Capnodium*, which in external appearance is identical with it and which often attends or follows the *Antennaria*, and this under such varied circumstances as to make it quite certain that the one is merely a form of the other. In *Capnodium* perfect perithecia are formed by the matting together of the component threads of the matrix, or at least they run up and are incorporated with them. These are generally very much elongated, and often strangely branched, and in several cases perfect asci and sporidia appear, as is the case also with the closely allied genus *Scorias*. The geographical distribution, as might be expected, is almost identical with that of *Antennaria*. The true fruit is not, however, invariably produced where the *Antennaria* stage is perfected. In this country, for example, *Antennaria* occurs occasionally without progressing to the stage of *Capnodium*, but there is a little species which is common on Laurels and other evergreens which constantly perfects its perithecia.

553. On the continent the species, when in the form of *Antennaria* or *Capnodium* or both united, are far more common. One of these, *A. Stephensii* or *C. Citri*, as imported on Lemons is far too familiar an object to our fruit dealers. It is no unusual thing, on opening a box just imported, to find the greater part of the fruit covered with a dense velvety coat, exhibiting in parts the characters of *Antennaria*, in parts those of *Capnodium*, which must have grown principally on the voyage, as it is scarcely conceivable that the fruit could been packed in such an unsaleable condition. The loss however in consequence is not absolute, as a portion of the fruit when brushed looks tolerably well, but it is evident that its keeping qualities must be much impaired by such a process.

554. In stoves where *Capnodium* is most likely to occur, extreme cleanliness and timely sponging will prevent the accumulation of these very unsightly plagues. I have not however met with any instance of their appearance. A long account of the species, with abundant figures, will be found in the fourth volume of the Journal of the Horticultural Society of London. *M. J. B.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. VI.

By the Rev. J. S. Henslow, M.A., Rector of Hitcham, Suffolk.

Ex. 4. Common Primrose (*Primula vulgaris*). The Cowslip and a Polyanthus have the same structure.

Cohesion.—There are five sepals in the calyx, but they are united or grafted together by their edges throughout a considerable portion of their length. The calyx consequently becomes a sort of cup-like tube surrounding the other floral whorls. Whenever similar parts in a flower are thus more or less grafted together they are said to "cohere."

There are five petals to the corolla, but these also cohere, and form a narrow tube below, which expands above into a border with five lobes, indicating that cohesion is not complete to the summit of the petals.

N.B. According to old notions this calyx would be considered as composed of one sepal (*monosepalous*) partially divided into five segments. The corolla would also be regarded as of one petal (*monopetalous*) slightly cut into five lobes.

Adhesion.—There are five stamens attached to the tube of the corolla at the part where it begins to widen. This position of the stamens is owing to the greater portion of their filaments being united or grafted with the corolla. If the tube of the corolla is split open and held up to the light, the attached or cohering portions of the filaments are easily traced to the bottom. When dissimilar parts belonging to different floral whorls are thus grafted together they are said to "adhere."

N.B. This convenient mode of distinguishing the grafting together of *similar* parts by the term "cohesion," from that of *dissimilar* parts by the term "adhesion," is seldom noticed by descriptive botanists, though long since suggested by De Candolle.

N.B. Simple inspection of the solitary pistil, with its one-celled ovary, would not enable us to determine whether it were composed of one or more carpels. Other considerations, which need not yet be noticed, have shown it to be composed of 5 open carpels cohering by their edges.

Ex. 5. Common Cherry (*Prunus cerasus*).

Cherry.

Calyx of 5 sepals cohering below into a tube.

Corolla of 5 petals inserted (*i.e.* seated) on the tube of the calyx.

Stamens numerous (∞) also inserted on the calyx.

N.B. As in the last example we observed the insertion of the stamens on the corolla was owing to the partial adhesion of their filaments with it, so here we have both petals and stamens partially adhering to the calyx, and thus producing the appearance of originating from it.

N.B. Like instances of adhesion between the three outer floral whorls (calyx, corolla, and stamens) occur in the Peach (*Amygdalus Persica*), Purple Loosestrife (*Lythrum salicaria*), &c. Where adhesion takes place between all the floral whorls, a marked peculiarity of structure is the result, and will be explained in the next example.

Ex. 6. Round-leaved Bell flower (*Campanula rotundifolia*) or any other species of this genus.

Superior and Inferior (*ovary and perianth*).

The calyx of 5 cohering sepals, the corolla of 5 cohering petals, and the 5 stamens, all adhere together, and with the ovary of the single compound pistil. The result produced is an appearance as if the parts of the outer floral whorls grew from the top of the ovary. In such cases the ovary is said to be "Inferior" and the perianth "Superior." Whereas in the other 5 examples because the pistils were free from adhesion with the other floral whorls, they would be styled "Superior," the perianths originating below them would be called "Inferior."

N.B. Numerous flowers possess a like structure, as the common Snowdrop (*Galanthus nivalis*), all Currants and Gooseberries (*Ribes*), all Honeysuckles (*Lonicera*), &c.

Floral Receptacle.—The parts of which a flower consists are seated on the "Floral Receptacle," which is the summit, more or less swollen, of a short stalk. In flowers where the perianth is inferior, the floral receptacle may be exposed by removing the parts composing the floral whorls. But in flowers with an inferior ovary the floral whorls are so combined with the floral receptacle that they cannot be detached so as to expose it uninjured.

Incomplete Flowers.—There are many flowers in which only one kind of the essential parts is present. The other kind will then be found in other flowers either on the same plant, as in the common Hazel (*Corylus avellana*), or on a different individual of the same kind of plant, as in Willows (*Salix*). The perianth is sometimes entirely wanting, and the essential parts of the flower are then generally protected by a leaf-like scale, and are often crowded together into a dense mass. As an example we may refer to the flowers of a Willow or Poplar, but without further comment than is required to show they consist of either stamens only, or of a pistil only.

Willow.

Heads of Flowers.—A very large number of plants, especially one particular group, Composites (*Compositæ*), bear very small flowers (*florets*) closely aggregated into a mass termed a "head" (*capitulum*). This was formerly regarded as a "compound flower," and is still so considered popularly. The common Daisy (*Bellis perennis*), Dandelion (*Leontodon taraxacum*), Dahlia, Sunflower (*Helianthemum*), Oxeye Daisy, &c., are familiar examples. Such heads of flowers are surrounded by small, generally green, leafy scales, looking somewhat like the sepals of a calyx. Beginners must be cautioned against mistaking them for single flowers. Every little flower in such a "head" possesses its own floral whorls, the peculiarities in whose structure need not now detain us, but will be explained as we proceed.

Oxeye Daisy.

Schedule Lessons on the Floral Whorls.—Particular places in the school are assigned to the children so far apart as to prevent any copying. As only botanical volunteers stop after the rest have been dismissed, this arrangement, though our school is small, suffices. Each child receives a specimen and then rules for itself the following blank form of schedule on a slate wherein to record the result of its own observations on the flower, and to enter the conclusions to be drawn from them.—

P. L.				Cl.
C. S.				Di.
C. P.				Sec.
St.				Or.
				Gen.
P / C				Sp.

The merest beginners, from six years upwards, compose the 3d class, and confine themselves to the first blank column, with sundry more or less perfect attempts at completing the second. The 2d class fill in the two first columns, with such attempts at the

remainder of the schedule as they can muster resolution to make. The first class are expected to fill up the whole schedule. In the first blank column are to be inserted the actual number of parts entering into the composition of the several floral whorls, whether they be free or cohere.

P. L. implies perianth leaves, only noticed in cases where it is doubtful whether a calyx and corolla are present. C. S. stands for calyx-sepals; C. P. for corolla-petals; St. for stamens; P. for pistil, and the C. below it for the number of carpels, where these can be made out by inspection, otherwise a (?) is inserted.

In my next communication I will give a few examples of the manner in which this first blank column would most probably be filled up by the children of the first class, with a few comments on the mode of correcting the not improbable errors of those in classes 2 and 3.

(To be continued.)

A RECENT STORM.

A violent storm occurred on the afternoon of Wednesday, July 23d, which merits careful investigation. Having examined its phenomena in this neighbourhood, with a view to determine the cause of hail, I am enabled to furnish some particulars which will probably be of general interest. The district examined extends from Ackworth on the N.W., through Badsworth to the S.E., thence through Thorpe to Wentbridge, N.E.

At Wakefield we had lightning of a peculiar red-purple colour, which was reflected from the ground as from a polished mirror, with loud and frequent claps of thunder. There was some very heavy rain, but no hail. The circumstances appear to have been the same from Wakefield to Ackworth Moor Top, there being traces of heavy rain along the whole road, but none of hail. I am informed that no hail fell at Ackworth, but a smart fall of hail occurred at Moor House, which is situated on the N.E. boundary of the parish of Badsworth. The hail here beat against the east windows of the houses. The succeeding rain was extremely heavy, and the wind tore from the centre of an Oak tree a limb as thick as a man's thigh. Mr. Moore's crops sustained no damage, showing that the place was situated beyond the limits of the storm, and that the hail which fell was carried laterally some distance from the place of its formation. The centre of the parish of Badsworth was nearly the centre of the storm in this district. Here hailstones, or rather masses of ice, fell, some of which, after being carried a distance, weighed 3½ oz. each, and measured between 6 and 7 inches in circumference. Almost every house had a large quantity of glass broken; carefully cultivated gardens presented a spectacle of destruction which must be seen to be believed; and in many fields the crops of corn are so utterly ruined that they will hardly return seed to the cultivator. A field of Wheat belonging to Mr. Jones, of Badsworth Hall, and a field of Barley opposite to the Wheat, belonging to a widow woman, afford good illustrations. The wind tore enormous limbs from the finest trees, and the whole scene afforded a terrible instance of the desolating effects of a few minutes' hail such as happily is seldom seen in this country. A field of Wheat near the toll-bar, on the right-hand side of the road from Wakefield to Doncaster, affords an excellent illustration of the law of hailstones. The bulk of the field is unaffected by the storm, showing clearly that it was beyond the limit of the hail in that direction, but the corner pointing towards Badsworth Church happened to be within the limit, and the effect of the hail across that corner is distinctly visible. The Wheat is damaged for 20 or 30 yards into the field. The injury here, however, is of a much slighter character than that of the centre of the storm, owing to modifying natural causes which I have discussed elsewhere. The breadth of the storm at Badsworth was about a mile and a tenth. From Badsworth to Thorpe ravages of the storm are everywhere visible. Corn crops are threshed in the field, and the ears cut off from the stalks; an orchard at Thorpe is as black as if it had been enveloped for a minute or two in a sheet of flame, and large branches are torn off in all directions. From Thorpe to Wentbridge the desolation continues, and as an illustration of its extent I was told that a poor man, who occupies 19 acres of land, had not as much corn left upon it as would keep himself, his wife, and a pig during the winter. Throughout this district the farmholdings are small, and yet it was no uncommon thing to hear the damage done by the hail on particular farms estimated at from 200*l.* to 400*l.* In one case nearly 300*l.* was paid by an insurance company, and in two others valuers were called in, who estimated the damage at nearly 400*l.* Two brothers, named Kitson, residing at Birkin, have suffered damage to the amount of 750*l.* A gentleman named Seaton, residing at Wentbridge, was sitting with his family at table when the storm came on. In a few moments most of the glass in the front of his house was broken; masses of ice went through the panes with such rapidity as not even to splinter them, cutting out holes as cleanly as rifle bullets. A decanter three-parts full of wine was knocked off the table, the wine glasses broken, and the table indented in many places. The stone walls of this gentleman's buildings are pitted all over with holes made by the hail, for the most part larger than would be made by firing swan shot at them. Mr. Seaton informed me that five or six buckets of ice were gathered up in his dining-room, and that he saw some ice which had lain in a hedge-bottom from Wednesday afternoon until Saturday night. The latter statement is corroborated in the following manner. A person named Friend Taylor, living at Wentbridge, was about a mile and a quarter from home, at right angles to the storm's path, when the storm occurred. With two or three other persons he took shelter in a Turnip field from the rain. There was no hail where he was, but so strong a wind set in, blowing at right angles to the storm-path, that the Turnips were lifted up out of the ground above an inch. The storm began about 35 minutes past 4 p.m., and continued until two or three minutes past 5 p.m. The hail began at 45 minutes past 4 p.m., and lasted for 7 or 8 minutes. Some of the hailstones were angular, as if fractures of a sheet of ice; others closely resembled Peach stones. A connection between the hail and electricity is shown by the fact of there being no perceptible interval between the flash of lightning and the thunder. The gardener at Badsworth Hall and another person observed the lightning descend from the clouds to the earth, and then instantly return from the earth to the clouds. During the storm the barometer fell very little in comparison to its fall for the high winds the week before. Marvellous as some of these facts appear, the accuracy of the report will be borne out by Mr. M. E. Naylor, who was good enough to accompany me during the inquiries. My thanks are specially due to Mr. Moor, of Moorhouse, Badsworth; to Mr. Jones, of Badsworth Hall; to Mr. Milnthorp and Mr. Harrison, of Badsworth, for the trouble which they kindly took in furnishing me with the information.

On Thursday last, at a few minntes past 12, a curious electrical phenomenon was seen close to St. Andrew's Church. Instead of an ordinary lightning flash a globe of fire, similar to the sun, with a hole in the centre, was perceived, having two long tails projecting downwards

and outwards. This appeared poised for an instant, and then descended to the earth in a neighbouring field with its points downwards. The Potatoes in that field appear since to have become diseased. *W. R. Bowditch, in Wakefield Journal, Aug.* 15.

III.—ON THE DIRECT EFFECT OF THE SUN'S RAYS AND OF EXPOSURE UPON PLANTS.

(From Alph. De Candolle's Géographie Botanique.)

(Continued from p. 549.)

It is admitted that the mere fact of the different parts of plants being differently coloured prevents our measuring the effects of the sun upon them by the indications of its action on a black-bulb thermometer. Its effects are much modified by this cause, and there are also many others scarcely recognised by meteorologists. A solid body, such as a leaf or branch, cannot be treated as a liquid in a bulb is, especially when the solid is a bad conductor, and the liquid (mercury) is a mobile and good conductor. Vegetable tissues are cooled by day by the ascent of sap and by evaporation; during night these movements cease, and radiation proceeds unimpeded. The transport of the sap during the day determines a considerable amount of evaporation which further modifies the heating power of the sun's rays. The stem, and often the leaves also, of a tree are vertical, and in general a plant presents but a limited area of its surface to the whole effects of radiation; further, the several parts shade one another. In a forest or on a prairie it is only certain parts of each individual branch that are exposed directly to the rays of the sun; the others are turned to the north, or are more or less completely sheltered. When an isolated tree is tufted, it is not more than a tenth or twentieth part of its surface that receives the solar action, and radiates freely into space, and again, the more it evaporates the further it cools its green parts.

From all these causes combined, it appears that, supposing the difference between the mean temperature of a thermometer hung in the shade during a fine season and one exposed to solar radiation to amount to 3° or 4°, it is necessary in attempting to estimate the effect of this difference upon vegetation to reduce it considerably. It will, in as far as we can judge, not exceed a fraction of a degree (Centigrade), and hence the differences due to radiation between a maritime and continental climate situated under the same latitude may be very trifling. Hence also observations made in the shade may be supposed to represent very well the shaded surfaces of a plant, and owing to the effects of evaporation the exposed parts also.

Common observation confirms this view in temperate climates. Did solar radiation influence vegetation to the amount of 4° or 6° we should not have the northern sides of isolated trees flowering and fruiting till long after the southern. In lanes running east and west we should find one side presenting a marked contrast to the other in many natural phenomena (for a difference of several degrees of temperature is often the equivalent of many degrees of latitude), which is not the case at all.

The operations of agriculture are equally unfavourable to the hypothesis of the action of radiation on plants. Thus, in the harvesting Cherries, Apples and Grapes, there are not two gatherings, one for the north and the other for the south sides of the trees. The difference is so small that it may be neglected, whilst did it amount to 4 or 5° of mean temperature its effect would be to hasten the maturation of some parts and retard that of others by many weeks. With us the Vine growers have vineyards at all exposures, some even exposed to the north, but they do not find it necessary to have more than one harvest, and the only point they observe in harvesting is to take the ripest Vines first.

The observations of meteorologists are entitled to less confidence in my opinion than are the facts of vegetable life. A thermometer cannot be compared with the tissues of a plant in a physical point of view. Plants demonstrate the chemical effects of solar rays that are unappreciated by the thermometer; and lastly there is a great difference between the kind of effect produced by the sun's rays upon a thermometer and a plant; in the thermometer it simply causes a fluid to dilate, in a plant it sets a complicated piece of machinery in motion. The best way of appreciating the effect of radiation is not by observing the thermometer, but by watching the effect of sun and shade upon different specimens of the same species planted in the same soil.

There are two classes of facts which require study under this point of view. 1. The influence of a north and south exposure upon mountains, which causes plants to affect different elevations; a difference easily expressed in terms of the thermometric scale. Thus, on a mountain the mean annual temperature of which diminishes at the rate of 1¾° for 500 feet, a species which ascends 1000 feet higher on the south side than on the north is influenced to the amount of 3½ by the exposure. It is true that the dryness of southern exposures and the humidity of northern have some effect independently of temperature, but when many species are under observation such sources of error are eliminated. It may be objected to this method that the northern slopes receive some sun, and that the southern are sheltered from the northern blasts, that the latter have two advantages, more sun and shelter; but to diminish the effects of shelter it is better not to include the lower parts of the mountain, which are always the most sheltered. On elevated and isolated summits the north winds are almost equally felt on all sides.

2. Observations on the date of leafing, flowering, and fruiting of plants belonging to the same species in the same country, &c., in the same year, but differently exposed to the sun and shade. Those exposed will be so many days in advance of the others. During these days a register of the mean temperature in the shade is kept, and thus one has a measure of the effect of the sun's rays expressed in terms of the time elapsed and in degrees of the thermometer hung in the shade. These two data, if multiplied into one another, will give results which differ in different countries and vary with the season and with the year, but the means of which will give sufficiently good approximate estimates of the effect of the sun's rays upon plants in similar countries. *J. D. H.*

(To be continued.)

Home Correspondence.

Budding Pear Trees.—I should like to ask why M. de Jonghe in his paper of the 14th July recommends Pear trees to be budded 2, 3, or 4 feet from the ground? All over the American continent, where there is a sun M. de Jonghe never could conceive as it could not exist in its full clear brightness in Belgium, it is the invariable custom to bud all fruit trees as near the ground as possible. To say this is done through ignorance is simply absurd. All arguments point to the common sense of such a course, as it enables the purchaser to do what he likes with his trees, instead of what the nurseryman chooses to allow him to do. *A Canadian Farmer.*

Orchard House Trees.—The following hints may be interesting to some of your readers. About ten days since I removed some of my Apricot trees in pots from the orchard house to a sunny sheltered place to ripen their fruit in the open air; this retarded the ripening period some eight or ten days, and the flavour of their fruit has been beyond anything I ever tasted in Apricots, so piquant and yet so juicy and luscious; some are still on the trees ripening slowly. If they had been removed from the orchard house in July, before they commenced to colour, they would not have ripened till the end of August, or even till September. If Apricot trees to produce late fruit are placed under a north wall from the middle of July till the middle of September, and then removed and placed under a wall with a southern aspect, or, if the autumn be cool, to the orchard house, they will ripen fruit of fine flavour as late as October. This simple method of retarding Apricots may always be practised with the most agreeable results. I am now trying the

same experiment with Peaches and Nectarines, by removing from my orchard house a Noblesse and one or two other mid-season Peaches covered with fine fruit, and placing them under a wall with a southern aspect, within 2 feet of it; I expect that I shall have Noblesse Peaches with a fine piquant flavour three weeks after those in the orchard house and on walls have ripened. The trees should be prepared for removal by lifting them a week or so previously, and if trees are fixed upon for removal early in July and not suffered to root deeply into the borders, all the better. I may, perhaps, mention that I have just gathered from a tree in my orchard house and eaten some fruit of the Early York Peach—an American variety with serrated leaves and large flowers; this ripens at the same period as the Early Ann, is larger, of a fine colour, and decidedly the finest early Peach yet known. When the orchard-house system was first broached it was most confidently given out by some of our best gardeners that it would be found utterly impossible to keep fruit trees in pots in a state of health, and then when it was found that the trees kept on flourishing in spite of adverse predictions, other ground was taken and my system of not re-potting the trees for a number of years was condemned as quite untenable. I have at this moment only the pleasant fact to state in reply to these melancholy croakers—my trees that have been in the same 13-inch pots some five, and some six years, are more fruitful and more luxuriant in their growth than they have ever yet been. *Thomas Rivers.*

Wellingtonia.—I received from the United States late last autumn and in the winter some 600 or 700 Wellingtonias raised from seed in the spring of 1855; they were potted in the usual compost, sand and loam, and placed in a house well ventilated. They grew healthily and well all the spring, and were removed to the open air in due course; before they were removed, and when they seemed to be in most vigorous health and growth, occasional shoots turned brown and died off; these were removed and not much noticed. During the months of June and July past the disease has progressed to a great extent, so that perhaps one-third of the young trees are affected; they do not all die, but after losing their branches break out again at the stem near the root. I have never before seen any disease like it among Conifers, and I must confess I was at first exceedingly disturbed at its appearance and its origin. Being however at Mr. Young's nursery at Milford in June last, I learned from Mr. Young, jun., that out of a dozen plants they had had from Messrs. Veitch, they had lost half by the same disease. It seems therefore peculiar to the tree, at least in its young state in this climate. Whether age will make it exempt is yet to be seen. I enclose a plant for your inspection. *Thomas Rivers.* [So many of the roots were dead and brown that we can hardly doubt that the soil contained some ingredient which disagrees with Wellingtonia. It appears to us that the roots perish first, and then the branches follow piecemeal. Read what is said about his soil by our correspondent Acton (p. 534, col. *a*), for whose accuracy we vouch. Perhaps Wellingtonia does not like potting. The roots of the specimen sent us were already corkscrewed. The Acton plant never had an opportunity of being spoiled by "pot-cramping."]

Figs.—The following appears in the *Independance Belge*, 12th August, 1856:—A process for hastening the ripening of Figs is, according to the *Journal de Tarn et Garonne*, employed by a fruit grower in that district. It consists in the application of a small drop of Olive oil to the centre of the eye of the Fig; the oil is applied with a straw so as to touch only the centre. This operation should be performed as soon as the eye of the Fig shows a decided red tint, and in the evening after sunset. The Fig which was green, small, and hard, becomes on the next day swollen, soft, and with a yellow tinge. The eye is open, the flowering commences, and the fruit is gathered on the morning of the fourth day, when the seeds are about to be formed. By this means the fruit which is obtained has more perfume and sweetness than by the ordinary ripening, and is free from the presence of the disagreeable small seeds. *W. M.* [The process in question is well known; experience shows that the advantages attending it are more imaginary than real.]

Societies.

British Association for the Advancement of Science, *Aug.* 7.—Section D.—Zoology and Botany.—The business of the Section commenced by the reading of a paper, "Notes on Experiments in the Botanical Garden of the Royal Agricultural College," by Prof. Buckman, of the Agricultural College, Cirencester.—In this paper the author first described the soil and situation of the locale occupied as his garden, which, from being situate on forest marble clay, is of a somewhat sterile character. The experimental portion is divided into 200 plots, most of which are 2½ yards square, some double that size, and a few still larger, now engaged in experiments with various manures. The plots are employed at the present time with crops mostly experimental, in the following classes:—Grasses, 82; Papilionaceous feeding-plants, 25; crops for green food, 12; Wheat, 6; garden vegetables, 5; Turnips, experiments with manures, 14; economic plants, 13; flowering and ornamental plants, 40: total, 197. For the Grasses many observations were given tending to show that several so-called species prove in cultivation to be varieties—instances of which were given in the following genera: Bromus, Festuca, and Agrostis, one case in particular and the three following forms of Festuca, F. loliacea, F. pratensis, and F. elatior, were shown to have been produced from the same seed by the gradual change of the first two into the latter. In the Papilionaceæ the author pointed out the production of the spring and winter varieties of Vetch from the V. angustifolia. In the genus Trifolium he made the following remarks on T. pratense and T. medium. The T. pratense occurs wild in all good and rich meadows and pastures; its place, however, in poor sandy soils is supplied by the T. medium, on which account the latter plant was some few years since introduced into agriculture to ensure a crop when the former usually failed. The seedsmen used to supply it under its botanical name of T. medium; but it is a curious circumstance that all the samples of this seed now in the market show it to be but a variety of T. pratense, and hence, at present, the best-informed seedsmen no longer send it out under the original botanical designation of T. medium, but under that of T. pratense perenne—the fact being well established that we have two varieties of broad Clover in cultivation, whilst the true T. medium has been entirely lost to agriculture; and the whole evidence with respect to this subject showed that it has not been lost from neglect, but that it has merged into T. pratense; and if so, it remains as a most interesting matter for experiment, especially when it is considered that no doubt has been entertained by botanists of their distinction as species. Many experiments of a like kind were described, and their practical utility clearly pointed out.

The President called attention to Prof. Buckman's paper on account of the question it raised as to the permanence of specific characters in plants and animals.—Mr. Maund referred to several experiments which he had made on the hybridization of Wheat, showing to what extent the characters of the permanent varieties of Wheat may be changed.—Dr. Daubeny thought Prof. Buckman's paper valuable both in an economical and taxological view; for whilst it showed how external circumstances could change the characters of specific forms, it showed how certain forms could be produced which yielded a larger amount of profit to the farmer. There was a general impression among botanists that the tendency to give specific names to new forms of plants had been carried too far, and Prof. Buckman's paper seemed to indicate the way in which new forms had been produced.—The Rev. L. Jenyns referred to the fact that two plants formerly thought to be distinct, the Symphytum officinale and the S. asperrimum, were growing together near Bath, and that it was now impossible to distinguish one from the other. Mr. Bentham stated that by taking a single isolated Flora like that of Great Britain, plants might be thought to belong to different species; but if the British species were compared with those of the Continent of Europe, it would be found that certain forms which were regarded as distinct quite evidently run into others. He referred to several species of Trifolium as confirmatory of his remarks. He also referred to the fact that not a single phænogamous plant was peculiar to the British Islands, but all were connected with peculiar Floras on the continent of Europe. Experiments had been made by Vilmorin on the conversion of wild plants into the cultivated forms, and he had perfectly succeeded with the Carrot and some others; but the wild Parsnip, which Prof. Buckman had successfully cultivated, had resisted all his experiments.—Dr. Gilbert referred to his own and Mr. Lawes's experiments, and stated that certain inorganic substances, as phosphate of lime, had a remarkable influence on the growth of many agricultural plants, producing considerable changes in the characters of their roots, leaves, and stems.—Mr. C. C. Babington stated that with regard to the great majority of British plants which had been called species, there was no tendency to change in their characters. Many of these grew constantly together and under every possible variety of circumstances, but always presented the characters by which they were distinguished. He protested against the doctrine, that because plants resembled each other therefore they were not distinct. He did not believe in the identity of Ægilops and Triticum, but believed the intermediate forms which were obtained were the result of hybridisation.

Entomological, *Aug.* 4.—J. O. Westwood, Esq., V.P., in the chair. Donations to the library from the Royal and other societies, Messrs. Kolenati, Guerin-Meneville, Nylander, &c., were announced. Mr. Douglas exhibited a specimen of the very rare moth Drepana Sicula, of which a single example only had been previously captured in this country, in Leigh Wood, near Bristol, by Mr. Bolt. Mr. Hunter exhibited Erispos Latreillii, a beautiful moth belonging to the family Noctuidæ, quite new to this country, which he had succeeded in rearing from the larva; also the rare Spilodes palealis, Trochilium chrysidiforme, from Folkestone. Mr. Weir exhibited a number of specimens of Macaria notata, all of which were more or less deformed, wanting one or other of the wings, a circumstance to which this species seems especially liable. Mr. Samuel Stevens exhibited several specimens of Trochilium chrysidiforme, and a new species of Phycita, from Folkestone, Deilephila Galli from the sandhills at Deal, and other rare moths. Other rare species of moths were exhibited by Messrs. F. Bond and Tomkins, and Mr. Waterhouse exhibited some interesting minute Coleoptera from the New Forest, including five species of Myrmidonia found in the nests of black ants, Oxypoda vittata, and Orchegia vittata; the latter had been reared from the larva. Mr. Wollaston also exhibited a number of rare Coleoptera from Leicestershire, including Seraptia fusca, and a Galeruca with monstrous antennæ, that on the left side having three separate branches. A paper by Mr. Newman was read on the effect on insects of the poisonous effluvia arising from bruised Laurel leaves.

Tardebigg Horticultural.—On Friday the Right Hon. the Baroness Windsor threw open the park and gardens of Hewell Hall to the visitors to the Tardebigg Horticultural Society's Show, which was held in the park. The object of this society is to encourage a taste for horticulture among the cottagers of the parish, and judging from the display they made of flowers, fruit, and vegetables on this occasion, the efforts of the committee met their due reward. But the beauty of the exhibition was mainly attributable to the splendid collection of plants and fruits exhibited by Mr. Markham, gardener to Lady Windsor, which were sufficient to establish that gentleman's skill as a cultivator. The visitors to the gardens had a great treat in being allowed to inspect every part of them. The French garden is truly magnificent, and with its gentle slopes, noble terraces, and richly filled flower beds, is a glorious proof of what nature and art, combined judiciously, can effect. The Dutch garden, in quite a different style to this, with its geometrical beds, standard Portugal Laurels, formal shaped shrubs, tiled walks, and clipped arboreta hedges, is also an object of attraction. The conservatory and Camellia house contain some most beautiful and immense specimens, some of them measuring more than twenty feet. The gardens and lawns are all in the highest state of keeping; any one might offer a premium for a weed without incurring risk; and the whole management of the place, as regards cultivation, reflected the highest credit upon the gardener. *Birmingham Journal.*

Notices of Books.

The Secrets of French Cookery. By A. Gogué. (*Les Secrets*, &c.) Paris. Hachette. 12mo. 2fr.

This little volume does not belie its title. It gives the reader a complete insight into the mysteries of a French kitchen, and tells those who can reason why all middle class English kitchens are so unsatisfactory. Physiologists say that cooking is only a preliminary digestion, for the purpose of enabling the stomach more easily to complete the process. Experience tells us that they are quite mistaken; and that among the middle classes in England cooking has been expressly contrived to render food more difficult to digest than it is in its natural state. M. Gogué explains this in his little book, which moreover enters into many useful details concerning French invitations, guests, servants, and entertainments, not omitting the daily cares of housekeeping. About eight-and-twenty pages are occupied with the cooking of vegetables, among which we find, what is rare in works of this kind, the treatment of Tomatoes and Aubergines. Let us translate what is said of the latter. "The Aubergine is a fruit of southern regions. In Provence and Languedoc it is greatly esteemed, and is cooked in various ways. In Paris it is difficult to obtain good ones sufficiently ripe. Choice should always be made of such as are very deep violet.—Stuffed Aubergines: Cut them in two lengthwise; remove a part of the flesh, mince it and add an equal quantity of minced Mushrooms, or, if you have not got Mushrooms, as much crumb of bread soaked in broth or milk. Take a piece of butter as big as an egg, as much finely minced bacon-fat, some olive oil, a little Parsley, two cloves of Garlic, and six minced Shallots; mix them with the Mushrooms and the flesh of the Aubergine. When the whole is well warmed, add a quarter as much stuffing, mix them all thoroughly, and fill the inside of the Aubergine, finish off with the stuffing, sprinkle with bread crumbs, and put in the oven or on a gridiron heated from above, and cook for half an hour at most.—Fried Aubergines: Cut them in four lengthwise; dust them with salt, and let them stand for an hour. Put into a pan three tablespoonfuls of Olive oil, and fry them, having first drained them and wiped them with a cloth. Mix a little chopped Garlic and Parsley with the oil.—Grilled Aubergines: Cut them in two, and after having well scored the flesh season them with pepper, salt, oil, and a little minced Garlic. Grill them over hot ashes, or on a very gentle fire, taking care to turn them."

We suppose that Aubergines ripe and good, not half ripe and nauseous, as they are in this country, will soon become a Covent Garden import from the South of France. In that case these recipes will be useful, for English cookery books know nothing of such esculents. And yet they are among the nicest of delicacies. Even Mrs. Acton seems unacquainted with the existence of such things.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—To many it may be gratifying to know that notwithstanding the diminished expenditure to which this establishment has of late been subjected, the condition of everything both outdoors and in is highly satisfactory. In the arboretum the Grass is short and trim, the walks smooth and clean, and had it not been for the heavy rainfalls which we have lately experienced the

flower beds would have been everything that could have possibly been desired. Even now they are extremely gay, and should fine weather soon return the temporary injury they have received will doubtless be but short-lived. The finer kinds of Conifers planted on the east side of this department of the garden have acquired sufficient size to render them objects of much interest and beauty, and now that their perfect hardiness has been established and their true characters more fully developed they are well worth inspection. On deciduous trees the "sear and yellow leaf" has scarcely yet ventured to appear; everything therefore looks green and healthy, and notwithstanding the dry warm weather we have had bears the stamp of luxuriance and beauty.

Under glass the warmer houses are brilliant with Achimenes and plants of that description, and the colder ones with Geraniums—scarlet, variegated, and sweet-scented, Cockscombs, and Balsams, and last but not least with that charming bulbous plant Tritonia aurea. This flowers most profusely, and when planted tolerably thick, the large masses of bright orange blossoms it produces are most striking. It is a plant which will succeed anywhere just free from frost, and few things of comparatively recent introduction are so valuable for autumn decoration. On the roof of one of the greenhouses we noticed the Australian Passiflora cinnabarina loaded with fruit, which is said to be eatable. Coccocypselum repens, in the propagating house, was in beautiful condition, with its pendant shoots loaded with the most brilliant Lapis lazuli berries. It succeeds perfectly when the pot is suspended from a roof, but is apt to damp off if placed on a shelf.

Among novelties and plants not yet sufficiently known, of which there are considerable numbers, chiefly from Mr. Skinner, we remarked Lycoseris squarrosa, a kind of scarlet Composite; Lobelia texensis, in the way of fulgens; an Antigonum, reported to be a very fine stove climber; the large orange Cassia grandis; Poitea viciæfolia; a double variety of Clitoria Ternatea; and Cæsalpinia exostema, a crimson-flowered shrub. Rondeletia anomala was plentiful, as was also the glorious Tecoma velutina. Among Rhododendrons was an Indian one called lancifolium, presented by the East India Company. Its foliage is small and hairy, something like that of Rhod. ciliatum. Of the "Burning bush," *Euonymus americanus*, raised from seeds brought from the United States by Mr. Rowe, there are numbers of plants, and the same may be said of American Oaks, among which there appear to be some curious things, more especially one with striped acorns.

Of supposed new Conifers we observed a new Pinus from Erzeroum as bright a green as P. insignis. This will doubtless prove hardy and a useful addition.

In the large conservatory the huge Brugmansias in the bed have just been pruned "hard in," leaving nothing but bare stumps, which have been washed with a mixture of clay, soft soap, and sulphur to keep down red spider. In a week or ten days these will push again, and may be expected to be in full beauty about Christmas. The handsome Orange Cestrum is just opening great bunches of blossoms. The side shelves are gay with Hydrangeas, the white variety of Trachelium cæruleum, a useful annual for autumn work, and a marvellous plant of Platycodon chinensis. The last, although quite a hardy plant, is at this season well worth a place under glass, where its numerous large blue blossoms forcibly remind one of those of the handsome Lisianthus Russellianus. The specimen of Lucuma which has stood and flowered for so many years in this house bids fair this season to be as fine as ever. New soil having been applied to its roots in spring has caused it to make good growths, every one of which promises to furnish a bunch of fragrant blossoms. Bæckia pendula is well worth attention, not only because it is covered every year about this time with myriads of flowers of snowy whiteness; but also because it has a graceful weeping habit which always makes it interesting.

The Rose house, as our readers have already been informed (see p. 403), has been in great beauty. The summer display is however now over, and that of autumn has scarcely commenced. After they had done blooming the flowering tops were removed, the plants made new growth and have again formed plenty of buds, some of which are just beginning to open.

The Orchard house is now worth a visit. Plums, Peaches, and Pears are all good. Of the last we counted on one tree nearly 50 fruit, all well swelled and of large size, and this in a year like the present when Pears everywhere are scarce, is a point gained of some importance. The Jefferson, one of our best Plums, is nearly ripe; the Early York, a small Peach possessing fine flavour, is now fit for table, and the same may be said of the little Nectarine called Fairchild's Early, a variety which when ripe has a colour not unlike that of a small Apricot. Several new kinds of Vines trained up the rafters are fruiting here this year for the first time. They are, however, not yet far enough advanced to warrant any opinion being offered as to their merits. In another house we noticed plants of the wild Grape-Vine of the valley of Baidar.

There is this year an excellent crop of Peaches on the protected trellis, brought first into notice by Mr. Bellenden Ker and Mr. Rivers. The Acton Scott Peach in particular is quite loaded with fruit, which is of fair size and well coloured.

Orchard fruit here, as in most other places this year, is scarce, except on walls, where on some of the Pear trees is a moderate crop. Peaches on walls are abundant. None are however quite ripe. Jargonelle Pears have all dropped without ripening owing to the attack of a maggot.

The Dioscorea Batatas planted without having been previously raised in heat is being tried here again this year, and so far with perfect success. Large whole roots, cut sets, and small tubers about the size of Peas, have all been planted. The plants from the whole roots are considerably the largest, those from the cut sets next, and the smallest of all are those from the Pea sized sets. All of them are on low ridges; their tops are not staked, but are allowed to ramble about as they please.

It may be mentioned that seeds of Acacia and other things steeped in glycerine for 10 days, and others of the same kind not so treated were all sown at the same time, and in the same kind of soil; the object being to ascertain which would succeed the best. The experiment has scarcely been under trial long enough to admit of a correct inference being drawn from it; at present, however, no difference exists between the two sets of seeds, those not dressed with glycerine coming up quite as well and regularly as those to which it was applied.

We understand that the Council are actively engaged in remodelling the whole garden establishment with a view to reduce expenditure without impairing utility. The great conservatory is to be converted into a winter shelter for fine specimen-plants that can be used in summer to decorate the arboretum. The consequence of this will be the sale of a large number of fine greenhouse plants no longer wanted. The orchard is also undergoing a thorough examination, and many old useless duplicate trees, as well as worthless sorts of Apples and Pears, are condemned, in order to make room for other things.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Continue to trim and regulate the growth of twiners, cutting out any shoots that have done flowering, which will tend to strengthen those left, and cause them to bloom later than would otherwise be the case. Get any repairs, painting, &c., which must be done this season, finished as soon as possible. See that Chrysanthemums are liberally supplied with water, and do not allow them to be injured for the want of staking. Stove.—Specimens of such things as Echites splendens, Stephanotis, Allamandas, &c., which have done their season's work, will be better removed to a cooler and drier house, which will be a more suitable situation for them while ripening their wood than a moist warm stove, but if this cannot be done then they should be placed in the coolest end of the stove, keeping them rather sparingly supplied with water at the root, and exposing them as freely to air as circumstances will permit. Take advantage of every leisure hour to wash the foliage of such things as require it, looking carefully for and destroying mealy bug and scale. Ixoras and many hard-wooded stove plants are very subject to the latter, and in most cases require to be frequently looked over to keep them clean. Keep the shoots of young specimens nicely tied out, and give timely attention to training, so as to secure the desired form of growth. Look well to the stock of things for winter flowering, repotting any that require more pot room, keeping such as have made their wood and require a period of comparative rest to bloom well rather dry and cool, and encourage any that may be backward in their growth with warmth and moisture.

FORCING DEPARTMENT.

Pineries.—Endeavour to afford plants swelling their fruit a high temperature with as little assistance from fire-heat as possible, which, as it tends to render the atmosphere dry is not conducive towards obtaining large finely swelled fruit. Therefore economise the sun's warmth as much as possible, shutting up early on the afternoons of bright days after syringing the plants and moistening every available surface, and maintain a high temperature during the day, giving air sparingly. But fruit approaching maturity will be improved in flavour by a moderate use of fire-heat, a freer circulation of air, and a dry atmosphere, and where there are no means of avoiding having plants swelling their fruit and those ripening it in the same compartment, then it will be advisable to keep the atmosphere rather dry and airy while fruit is colouring, as size is of little importance unless combined with quality; but this will be best decided by employers' tastes, &c. Give careful attention to securing a fair supply of fruit for winter and spring use. Look over stock in pots frequently to make sure that it is properly supplied with water at the root, and give a liberal supply of clear strong manure-water where free vigorous growth is desired. Vineries.—Give abundance of air on all favourable opportunities where the fruit is ripening, using fire-heat rather freely when the weather is damp and cloudy, and be careful to secure a dry state of the atmosphere where the fruit is ripe and expected to hang for any length of time, using a little fire-heat when necessary to dispel damp. See that ripe fruit is secure from the depredations of wasps, if these are at all troublesome.

FLOWER GARDEN AND SHRUBBERIES.

The earliest struck cuttings should be potted off as soon as they are sufficiently rooted to bear the operation, placing them in a close pit or frame until they have become fairly established in their pots, when they should be freely exposed to air, in order to induce short-jointed firm growth, which, with ordinary care, will be easily carried over the winter, whereas, plants got in late in autumn in a close moist atmosphere will, despite every care and attention, be largely thinned before spring. Push forward the striking of cuttings, and get the autumn propagation out of hand as speedily as possible. Where alterations involving the removal of large trees or shrubs are in view for the autumn, the necessary arrangements for commencing them cannot be made too soon; for although many things may be removed successfully at almost any season of the year, it can be done more cheaply, and with less risk and failure, in September than at any other period.

HARDY FRUIT AND KITCHEN GARDEN.

Fruit trees will have already made as much young wood as there is much chance of getting ripened. Where this is the case, go over the trees at once and stop a portion of the shoots, beginning of course with the strongest. See that Strawberry plants for forcing are properly looked after, as nothing but attention in preparing the plants will insure a good crop. Keep them regularly supplied with water, expose them fully to the sun, pinch off runners immediately they are perceived, and use every means to secure fine strong plants with bold crowns early in autumn, with which there will be no risk of failure next spring. Cover Morello Cherries with thin nets, to protect them from birds without excluding the air; also, if not already done, net up some of the latest keeping Gooseberries, to afford a late supply. The Red Warrington is one of the best to hang late on the trees, and is also of good quality. Gather early Apples and Pears as they become ripe, and before the greater portion is blown down and injured. Tomatoes must be kept thin of wood, checking all shoots, and exposing the fruit to the action of the sun's rays as much as possible. Take advantage of dry days to earth up early Celery, sprinkling a good dusting of quicklime or soot about the plants in the rows, and over the surface of the ground for some distance on each side, to destroy slugs, which generally do considerable damage to Celery, especially in wet seasons. Winter Onions should be sown at once, also Cauliflowers.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Aug. 21, 1856, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 15	15	29.978	29.915	75	46	57.5	66	63	S.W.	0[illegible]
Satur. 16	○	29.945	29.674	78	55	66.5	65	61	S.E.	.22
Sunday 17	17	29.533	29.422	70	54	62.0	64	62½	N.E.	1.12
Mon. 18	18	29.430	29.406	62	52	57.0	63	62	N.E.	.00
Tues. 19	19	29.619	29.426	67	55	61.0	62	61	N.E.	.29
Wed. 20	20	29.533	29.326	67	56	62.5	61	61	S.E.	.45
Thurs. 21	21	29.400	29.250	68	49	58.5	60	60½	S.	.2[illegible]
Average		29.634	29.487	69.5	51.5	60.5	63.0	61.8		2.32

August 15—Cloudy and fine; very fine at night.
— 16—Very fine; lightning and rain at night.
— 17—Excessively heavy rain falling to nearly the depth of an inch in one hour.
— 18—Uniformly overcast; cloudy throughout.
— 19—Overcast; drizzly; rain at night.
— 20—Foggy; overcast; rain; heavy rain at night.
— 21—Densely clouded; boisterous; very heavy rain 10—11 A.M.; fine at night.

Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending August 30, 1856.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24	70.9	47.6	59.3	14	0.13 in.	1	6	1	—	5	7	7	3
Mon. 25	70.8	51.0	60.9	12	0.32	2	2	1	1	6	10	4	4
Tues. 26	72.2	48.8	60.5	10	0.51	2	2	3	—	6	8	5	4
Wed. 27	72.7	50.6	61.6	9	1.32	1	2	4	—	1	9	6	7
Thurs. 28	72.8	50.6	61.7	13	0.20	2	5	3	—	4	6	7	3
Friday 29	7[illegible].6	48.6	60.1	11	0.58	4	3	4	1	2	8	5	3
Satur. 30	71.9	48.8	60.3	6	0.92	2	5	2	—	4	7	7	3

The highest temperature during the above period occurred on the 29th, and 30th, 1854—therm. 84 deg; and the lowest on the 29th, 1850—therm. 32 deg.

Notices to Correspondents.

American Blight: *T B P.* Prune hard in when the leaf falls; then paint all over down to as far below ground as you can get, with the following mixture, viz.: half a peck of quick lime, half a pound of flowers of sulphur, and a quarter of a pound of lamp black, mixed with boiling water till of the consistency of paint. Before applying it, however, take care to scrape off all loose bark and burn it. ‡

Insects: *A W.* Your caterpillars are those of the Pea Moth (Mamestra Pisi). We know no other remedy than hand picking, which is easy enough from the size and colour of the insect. —*F C J.* Your Cherry and Plum trees are infested with the slimy larvæ of Tenthredo Æthiops. Dust the leaves with powdered lime, or syringe them well with lime-water.—*N.* Your caterpillar is that of the Goat Moth. You will find its transformations and history recorded in the *Gard. Chron.*, 1847, p. 303.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Herbalist.* 1, Centaurea nigra; 2, Stachys sylvatica; 3, Matricaria chamomilla.

Weston-super-mare: *Amateur.* Rules should never be broken through at Horticultural Exhibitions. Bad weather is no excuse whatever for doing so; as to a man's being unable to catch his horse, and so losing a train—if such stories are to be admitted, you must also break through rules because one man oversleeps himself or another sits too long at breakfast. The printed rules say that they "will in all cases be strictly adhered to"; and yet one of the most important of all, that everything "must be correctly staged, named and numbered, with numbers supplied by the secretary *before* 11 *o'clock A.M.*" was according to your statement violated. If this were so there can be no doubt that the transaction was improper, and that Mr. Cole should not have been allowed to exhibit at all. Strict adherence to rules, and nothing else, will ensure order and satisfaction. Whether or not the affair was a job, we cannot say. All however that we have heard of the secretary leads us to believe that he meant well, and went wrong from inexperience and insufficient authority to control others.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

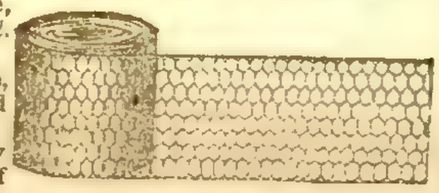
LONDON MANURE COMPANY
(Established 1840).
The above Company have the following ready for immediate delivery:—Corn Manure, for top-dressing; Blood ditto for Corn; Blood ditto for Roots; Superphosphate of Lime, manufactured expressly for the liquid or other drill; Concentrated Urate for Turnips, Mangels, Grasses, &c.; Peruvian Guano direct from importers' warehouses; Nitrate of Soda; Sulphate of Ammonia, and every artificial manure of known value.
40, Bridge Street, Blackfriars. EDWARD PURSER, Sec.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

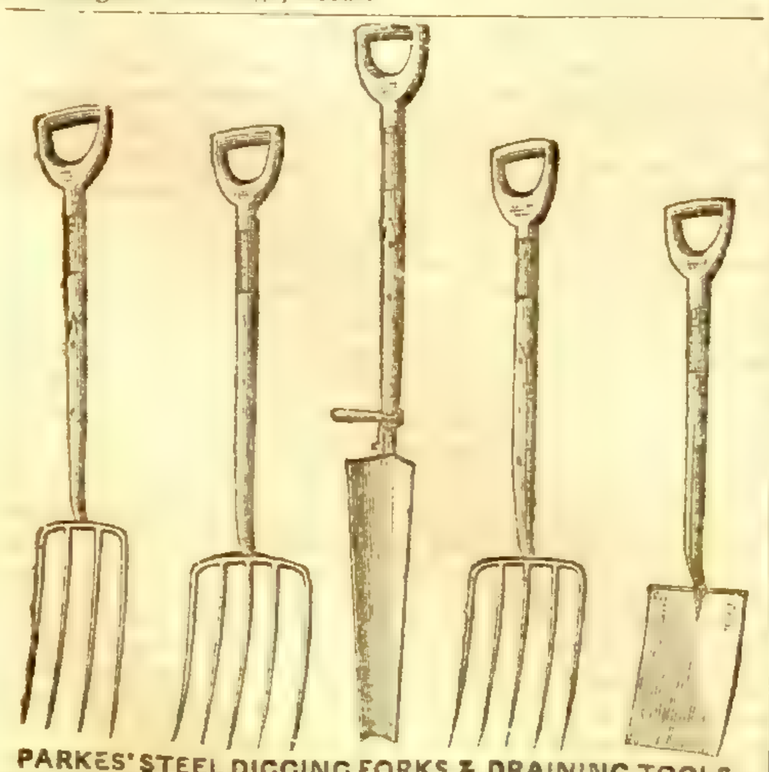
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

IRON FENCE, HURDLES, ETC.
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

H. J. MORTON AND Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.
GALVANIZED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.
GALVANIZED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.
PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price list apply at the Works.
GALVANIZED GAME AND POULTRY NETTING.—Galvanized, 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.
Galvanized, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.
The Netting made any width, and with openings of any size.



GALVANIZED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.—Galvanized Chain Camp Stools and Chairs. These are made to close up and are very neat, 6*s.* 6*d.* to 12*s.* 6*d.* each.—Galvanized Pronged Dahlia Rods and Rose Stakes of all lengths.—Windsor Tree Guards, Hurdles, Gates, Espaliers, and all descriptions of Wire-work and Galvanised Ironwork.—Wire Fencing for Parks, Plantations, Pleasure Grounds, &c., from 10½*d.* per yard.
For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.
103, Newgate Street, London.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.
All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.
Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by
G. J. ANDREWS, Honorary Secretary.
Dorchester, August 23.

SHORT-HORN COWS AND HEIFERS FROM HORNCASTLE AND MELTON FAIRS.
MESSRS. JOHNSONS', of the Manor Farm, Highgate, beg to inform Gentlemen and the Trade that they will Show on TUESDAY next, the 26th inst., from 200 to 300 first-rate Cows and Heifers from the above Fairs. Out of this lot will be found several animals of pure blood for breeding or exportation

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, AUGUST 23, 1856.

WE are now writing on the fifth day of an almost continuous rainfall. Over the whole of the south of England the corn had been ripe some days before the rain began, and one of the finest crops that England ever saw has been spoiling ever since. There were not hands enough to cut it as it ripened, and machinery for the purpose is unfortunately to be met with only here and there at distant intervals. There was time enough, had there been the means, to have harvested many hundred thousand acres before the weather changed, and the produce of those acres would probably have been worth one-fifth more, both in money value and as food, than after five days' rain upon it in the field it can be supposed to be.

When the scarcity of labourers had become obvious, a letter to the *Times* recommended the employment of militiamen in the harvest field. The practical man who wrote it saw food spoiling, and men who had been accustomed to the work of saving it forbidden to do other than look idly on. He recommended, therefore, that those who could not get their harvestmen elsewhere should be allowed to hire assistance here. And ever since—the grain meanwhile sprouting in the sheaf—have we had to listen to the warnings of political economists against the danger of Government interference in the labour market! But why are these warnings, which no man ever heard when Government was taking these men out of our fields, reserved for the time when it is proposed to send them for a few days back again?—a time, too, when the truest political economy surely requires that every effort be put forth to place the year's supply of food in safety? What red-tape stickler for routine, do you suppose, should stand lower on the list of incapable obstructives than the theorist who at such a time would interfere between the men who own the nation's food and any means by possibility within their reach for saving it? As well protest against the employment of the soldier when men are wanted for the fire-engine at a conflagration, as protest when corn is dead-ripe standing in the fields uncut, and liable, as the past week proves, to serious injury by weather—against the use of any means whatever to get it under cover. The agriculturist may rest assured that he best serves his country then, and acts most truly in accordance with a sound political economy, who by whatever means he can command secures his crops most rapidly.

At Boxted Lodge last week, where, although the corn was ripe, the fields had been left uncut because they had most liberally been placed at the disposal of the Agricultural Society's judges of reaping machines, we were rejoiced to hear Mr. FISHER HOBBS declare that he had but to speak a word, and if he needed them he could obtain 150 of "those German fellows" (there is a portion of the Foreign Legion encamped at Colchester), and they would clear his fields at once. But there were four machines at work upon his farm, and he therefore had not need of them. The case to which Sir MORTON PETO's letter to the *Times* referred is that of the thousands who have no machines, and who would gladly employ more labourers if they were obtainable. We hope that when harvest weather shall revisit us once more, militiamen, as well as any others who can wield the sickle, will be set to work with energy, leaving all these writings on the theory involved for perusal after harvest-home.

We must, however, before leaving the subject, point out the importance to the country as well as to the farmer of a more general use of the reaping machines another year. In the excellent new number of the Agricultural Society's Journal, there is testimony given to the entirely successful and practical character of this implement, which ought now everywhere to be introduced. Mr. HAMMOND cuts down 150 acres per annum with DEAN & DRAY's HUSSEY's machine with the tipping platform—the amount of an average day's work being nine or 10 acres; Mr. PARRINGTON, of Redcar, cuts down 1¼ to 1½ acre per hour with BURGESS & KEY's form of M'CORMICK's machine, and BELL's form which CROSSKILL makes has this year received the largest share of the Society's prize which has been divided amongst all three. In fact it is unquestionable that for ordinary harvest work any one of the machines will beat the bagging hook or scythe for the cheapness and the quality of its performance. If then CROSSKILL, BURGESS, and DEAN could only distribute 10,000 reapers before another harvest, it would be equivalent to more than letting loose all England's standing army on our corn fields, even supposing every man of them to use the sickle as well as he can wield the sword. This would be an interference with the labour market certainly — but who with the past fortnight's experience before him would not hail it as of great national service? Had we had such means at our command this year we should not now have had to complain of one half our crop being five days in the rain. Supposing these machines to have been a week at work, 500,000 acres would have yielded 2,000,000 quarters of grain, worth more both in money and as food, by much more than the value of the machine, than it now will prove to be. And the ground would have been cleared a fortnight earlier than it will for autumn cultivation and the other sources of employment which energetic agriculture furnishes.

IN last week's number of the *Society of Arts Journal* there is an article on what are called "negative Artesian wells" by Dr. BRUCKMANN, of Stuttgard, in which he describes the process of digging wells in Germany for draining purposes, and offers his services in superintending engineering works of that description here.

Dr. BRUCKMANN's "negative Artesian wells" are what we have naturally in many a locality in England, though we do not use such fine words in naming them. We call them "swallow holes." They are to be found wherever on elevated land a water-course or ravine cuts through the diluvial clay lying between the surface soil and a porous rock below. Soil over such a rock is continually drained over its whole surface and throughout its whole substance by the operation of the same principle which Nature exhibits more obviously in operation in these swallow holes, and which is efficient in Dr. BRUCKMANN's negative Artesian wells. And there is no doubt that this natural drainage may often be facilitated by the artificial passages by which Dr. BRUCKMANN proposes to render more direct the connection between the supply ground where the water falls and the openings through which the porous rock receiving that supply delivers it again at a lower level.

Wherever impervious beds intervene between the soil or spot requiring drainage and a porous rock which would convey its water naturally away, then it simply becomes a question whether a well sunk through these water-holding beds, or a surface channel cut, it may be, a long distance to obtain the requisite fall be or be not the cheaper artificial exit for the drainage water.

Dr. BRUCKMANN has in great detail described his success in Germany, and he has stated his qualifications for ensuring similar success elsewhere. These qualifications do not *need* to be of a very high order: a very little experience in geological inquiry will suffice to determine whether there exist in any

locality the circumstances necessary to the success of an artificial swallow hole. And any practical land drainer can say whether under such circumstances that be the cheapest method of obtaining an outfall for the drainage water.

In reference to the essays we have received giving replies to the agricultural examination paper of the Society of Arts, we have to state that the answer given by Mr. Henry Cox, Longford, Minchinhampton, appear to us the fullest and completest of the number. Any of them would, however, have perfectly deserved the award of "excellence" at the hands of the Society's Examiners. We shall publish Mr. Cox's paper in successive numbers of this journal, and refer more fully to them all next week.

LOCUSTS.

When in London lately I was informed by a friend that he had just seen in Mark Lane a sack of podded somethings, bearing this name, and which, from their pleasant flavour and general appearance, he considered likely to form an useful and agreeable variety of cattle food. The question was, from what plant they were derived, and whence the seemingly inappropriate name of locusts, a name, one would imagine, rather indicative of the insect than the vegetable world. In answer to my inquiries, I obtained the following information, which I here subjoin, for the benefit of those who, like myself, may feel interested on a subject of no little importance both to the naturalist and the agriculturist.

Locust Tree.—The Robinia pseudacacia of botanists, a North American forest tree. The same name has also been given to the Ceratonia Siliqua or Carob, or Algaroba tree, which inhabits the Levant, and bears large pods, filled with nutritious pulp.—*Penny Cyclopædia.*

Ceratonia Siliqua (*Keras*, a horn; hornlike pods). Carob tree.—Evergreen greenhouse plant; economical; height 15 feet; blossoms September and October; colour red and yellow. From the Levant in 1570. Propagated by seeds; soil, sandy loam.—*Loudon's Hortus Britannicus*, p. 414.

Ceratonia Siliqua (the Carob tree, Algaroba Bean, St. John's Bread, or Locust tree), is a large leguminous tree, inhabiting Syria and Egypt, and cultivated all over the warmer parts of the Mediterranean. It is valuable on account of its pods, which are 5 or 6 inches long, deep brown, and filled with a succulent pulp, highly nutritious to cattle, and also used by man. Its name of St. John's Bread has been given in allusion to the tradition that its pods were the "locusts" on which St. John fed while in the wilderness. In consequence of the well-known value of these pods for cattle food, an attempt was made by the late Lord Spencer to obtain them from the Mediterranean. Some tons were actually received, but we are not aware that the result of their use has been published. It is understood that, as food, they quite answered the expectations entertained of them, but cost too much to be worth employing. They must not be confounded with the Locust tree of the United States, which is the Acacia of nurserymen, the Robinia pseudacacia of botanists, for an account of which see "Locust tree."—*Morton's Cyclopædia of Agriculture.*

Carob tree, botanically *Ceratonia*.—A small evergreen tree of the Cassia division of the leguminous order. It constitutes a genus of itself, and takes for its specific name Siliqua. It abounds in Spain, Italy, and the Levant, and was introduced to Britain in the latter part of the 16th century. Its stem usually grows to the height of about 15 feet; its leaves are differently shaped from those of most other evergreens, and render it an agreeable variety among Orange trees, Myrtles, and other greenhouse arborescent plants; its flowers have a reddish-yellow colour, and appear in September and October, but are seldom produced in Britain, and its pods are long, flat, horn-shaped, and brown coloured, and contain a thick, mealy, sweetish-tasted fecula. This plant appears to be the Locust tree of Scripture, and is generally known in Spain under the name of St. John's Bread. The shells of the pods are supposed to be the husks alluded to our Saviour's beautiful parable of the prodigal son. The seeds are imported from Arabia into Spain under the name of Algaroba Beans, and the pods of native growth are eaten in times of scarcity by the Spanish peasantry, and were the principal food of the British cavalry during the Peninsular War.—*The Rural Cyclopædia, Rev. John M. Wilson.*

Such is the information I have been enabled to obtain on this somewhat obscure subject; obscure because the term Locust is applied to three different articles having no connection whatever with each other, namely, the Robinia, or common Acacia; the destructive insect of that name, and which in my ignorance I used to fancy might be the food of St. John in the wilderness; and lastly the Carob, or Algaroba Bean, which I have no doubt, as its Spanish name of St. John's Bread implies, was the actual article on which he did subsist. I understand that a sack of the so-called Locusts were exhibited in Gloucester corn market last Saturday, but at what price per ton I cannot exactly say. The experience of any of your readers on the subject will be both interesting and acceptable. *Samuel Taylor, Wotton Parade, Gloucester.*

We have also received the following:—I procured a bushel of the "Locusts" for experiment. The seeds within the pod are as hard as gravel, and are rejected by the horse, while he eats the pod. His teeth grind against the bean, and he gets rid of it. If injury is done to the teeth, the Locusts as an article of food would seem to be objectionable. Probably when imported the seed becomes dry and hard. I picked them out of the manger after the horse had eaten his feed of Oats, chaff, and Locusts chopped up with chaff. How is this objection, if it be one, answered? *C. Easton, Aug.* 16.

SOME PAROCHIAL STATISTICS.

By Martin Doyle.

The parish in Ireland of which I propose to give some details respecting its rural economy presents a fair specimen of the agricultural condition of a considerable district in the south-east portion of the province of Leinster, a district which can boast of farmers and peasantry superior in their habits of rural economy, unremitting industry, strict integrity, orderly conduct, and domestic treatment and comfort to nine-tenths of the kingdom south and west of the metropolis.

Ecclesiastically the parish about to be noticed may be distinguished as the rectory of M united to the rectories of B and C and the vicarage of D. The total tithe rent amounts to about 600*l.* a year, of which 110*l.* is payable to the lay rector of D, and 490*l.* to the incumbent.

		acres		
M (singly)	contains	2430	valued by the Ordnance Survey at	13*s.* 3*d.* per acre.
B "	"	3519	" "	11 0 "
C "	"	*2081	" "	13 0 "
D "	"	*1952	" "	13 3 "
		9982		

The table No. 1, compiled from constabulary investigations in the present year, shows the apportionment among the occupiers and the almost exclusively agricultural character of the population which is irregularly scattered over the whole area, there being but three very small villages, of which the largest contains only 30 habitations.

Sub Parishes, constituting the Parochial Area.	M	B	C	D	
Number of Housekeepers of all Classes.	218	196	76	64	574
Number of which are Proprietors.	1	1	0	1‡	3
Number of which are Tenants holding from 200 to 300 Acres.	1	0	0	1	2
Do. from 100 to 200 Acres.	1	2	3	1	7
Do. from 50 to 100 Acres.	11	15	9	4	39
Do. from 30 to 50 Acres.	14	23	8	3	48
Do. from 10 to 30 Acres.	34	21	10	8	73
Do. from 5 to 10 Acres.	22	4	11	12	49
Labourers occupying Houses.	82	103	23	37	245
Blacksmiths.	4	3	1	2	10½
Carpenters and Wheelwrights.	3	8	1	2	9
Masons.	2	1	1	1	5
Tailors.	3	2	1	1	7
Shoemakers.	4	3	1	2	10
Weavers.	1	0	0	0	1
Petty Dealers and Persons of very low Occupations.	30†	11	5	9	55
Licensed Publicans.	5	4	2	0	11

Assuming that each of the 574 families contains on the average five individuals, the aggregate is 2870, a little more than its numerical strength 20 years ago. The last disastrous famine scarcely increased the ordinary rate of mortality though great privations were endured by the poor, and the non-increase of the population beyond about 4 per cent. is attributable to the voluntary emigration of some families. The great disproportion between the acreage and the number of tenants is obvious. Deducting the portions farmed by three gentlemen (who are the proprietors of these and of adjoining properties) and those farms which are held by a few comparatively large class tenant farmers, 7500 acres are in the occupancy of 200 families, of whom 70 hold between 5 and 50 acres. In fact there are many others who occupy even smaller holdings than 5 acres, and are classed in the constabulary returns rather as farmers than labourers; but to avoid needless complications I have excluded them from the columns of land occupiers, and placed them in column 9. To the 245 families at foot of this column may be fairly added the 49 families in col. 8; they are chiefly dependent on their stipendiary labour, because they do not till their fields in the garden style, with spade or digging fork (by which in some cases they might acquire more income than by hiring out their services), nor obtain so many crops as their land would produce under a more careful system; and I must state, in justice to a very deserving and laborious class, that their soil in many localities is poor shallow clay, on the fertility of which no dependence can be placed, even with much toil and care; the humble occupier, therefore, afraid to trust the maintenance of his family to what might be yielded by his land, seeks employment elsewhere for himself or his sons, as the case may be, as a source of certain income. There is to be added also to the class of operatives upon the land a great number of young men and others dieted and lodged in farmers' houses and paid by the quarter or the year. The labourers of this description do not appear in the tabular details, yet there cannot be fewer on an average than two farm men servants domesticated in each of the 96 families (in columns 4, 5, and 6); and even the families in column 5, in most instances, labour in some manner on their farms, the fathers, sons, or nephews hold the plough, drive the harrow, sow seed, lead their carts, or discharge other sorts of work. Thus a very large amount of human labour is actually available if not always fully employed.

The aggregate number of labourers is produced from these tributaries, viz., 245 families (col. 9), supplying 1½ labourers each	367
Individuals who labour, cols. 7 and 8	192
Domestic servants, cols. 4, 5, 6	172
	731

Now, if so many hands be considered as far beyond the legitimate requirements of near 10,000 acres, how much more will the redundancy of labourers appear when it is shown that the quantity of land in actual culture is less than 5000. Some constabulary investigations for the present year enable me to demonstrate the correctness of this statement.

Extent of ground under crops in statute acres and parts of acres.					
Area of each Parochial Denomination.	M 2430	B 3519	C 2081	D 1952	9982
Wheat.	123	195	155	71	544
Oats.	342	370	281	136	1129
Barley.	360	520	243	152	1275
Beans.	162	86	74	85	407
Potatoes.	130	118	81	62	391
Turnips.	70	86	49	56	261
Mangel Wurzel.	19¼	19	17	13¼	69
Cabbage.	1	2	1	1¼	5¼
Flax.	18¼	...	13	...	31¼
Meadow and Clover.	170	260	166	131	727
Total extent under crops.	1398	1669	1085	708	4860
Grass.	971	1816	969	1050	4806
Plantations.	9	15	7	2	33
Waste.	54	19	40	192	305

Thus it appears that only 4838 acres (about half the productive area, after deducting the waste) are producing crops on which routine labour¶ is expended, and 727 acres of the foregoing number are under Clover and meadow, which require but a very inconsiderable amount of labour.

The cereal crops are obviously in too high a proportion, and the Clover very disproportionately low. Turnips, Mangels, and Cabbage constitute less than one-seventh; but Beans are considered an ameliorating crop, preceding Barley with the best results, and though usually tilled in the most slovenly manner and often but poorly manured, they are to be ranked when abundantly manured subordinately with those crops that are beneficial to the soil. Many farmers apply for Beans dung abundantly, and others use composts of sea-weed, sea-sand, some farm-yard manure, and vegetable soil, well mixed and frequently turned. Some indeed are so poor and hard run to accumulate fertilising materials that they have recourse to the roads and lanes bounding their fields for mould, which they cut away in a shameful manner from the sides, contracting originally wide roads, made and repaired at the public expense, to narrow causeways with deep dykes, of which the outer sides dangerously decline from the remnant of road-way left. Even on important highways inspectors of road contracts have difficulty in preventing such spoliation or in having the tresspass repaired, so that the legal breadth of road may be attained again. Such injuries are committed in winter or the early part of spring to obtain fertilising mould, for the Bean crop in particular. This is now one of the most profitable and readily raised crops for the petty farmers, and if they or any of the cultivators shall be led to adopt the

* Several hundred acres of alluvial land, reclaimed from the incursions of tidal water, will soon be assigned to these two denominations of the parochial area.

† These chiefly inhabit a tract of very poor soil, which was a common until about 20 years ago, when it was enclosed and let by its owner to the occupying families at little more than a nominal rent.

‡ This gentleman resides on another estate in an adjacent county.

§ Many individual mechanics are included in the families enumerated in this and the four following columns.

‖ Of these all are cultivators of land, and four hold from 20 to 50 acres.

¶ Some trivial amount of labour, however, is employed on top-dressing pasture land, and scouring and repairing ditches and hedges.

English or Scotch methods of sowing (by dibbling or drilling the seed with the plough instead of ploughing seed broadcast and so thickly into the ground that the stalks become slim and feeble, and the plants so crowded as to render hand-hoeing impossible), the Bean crop would be decidedly ameliorative, and of the inferior soils especially. The breadth of land under Potatoes is much greater this year than it was last year; and though a tainted tuber may be detected here and there on some farms it promises well. I see fields of Potatoes around me in a very luxuriant state, and apparently past danger of blight or any disease. Yet I have every hope that the advantage of having Swedish Turnips for cows, pigs, and horses has been so fully established that the extent of their culture will not be diminished. For cattle feeding the Potato is not likely to be used here again in preference to Swedes, which seldom or never fail if fairly treated. It is but now indeed that any of the common farmers are beginning to think of hoeing the Turnip crop; seeing, however, the beneficial results of the practice in a few instances, it will be adopted by all the intelligent cultivators within a few years.

I have yet to state the amount of brute animal labour engaged in the cultivation of less than 5000 acres, or in some manner acting within the parochial limits.

There are 381 agricultural horses of working age, 21 mules, and 148 asses. There are therefore more than eight horses for each hundred acres under the plough (the asses and mules I omit from the estimate altogether), which is at least double the number of draught animals required on the same extent of land in Great Britain. But, on the other hand, these horses have work imposed upon them not ordinarily called for by the British farmer, the cartage of seaweed and sea sand in particular; and as the number of families in occupation of the farms is so vastly greater in M—— than on an equal space of land in any strictly agricultural part of Great Britain, much allowance must be made for the various demands for animal labour by so many families having unavoidable intercourse with the market town. There they frequently must go to dispose of agricultural produce, though it may be small in bulk or value, and for the purpose of bringing home coals, town manure, or whatever they may want. Again, though many of the large farmers have capital horses, and feed them well, the petty cultivators who constitute a great majority of the agriculturists have only small slim animals, unequal to heavy draught, and consuming but little fodder, very little expensive fodder, grazing during eight months of the year, and kept during the remaining four months on straw and a moderate supply of indifferent hay. The man who holds half a dozen acres and has one horse finds a neighbour similarly circumstanced; these unite their horses for ploughing and harrowing, and thus both parties are accommodated. What neither of them could do singly they effect by co-operation. Quarries of limestone are within the parish, and many horses are employed in drawing calcined lime to the farms. Individual farmers also have limekilns and draw the stone unburnt to them from the quarries just referred to, or from a little quay to which a tidal canal bears it, and boat-loads of sea sand. The drawing of culm and coals also is to be added to the animal labour.

A glance at Table 3 shows the number of other sorts of live stock.

CATTLE.

Milch Cows.	Two years old and upwards.	One year old, and under two years.	Under one year.	Total of Cattle.
655	373	311	295	1675

SHEEP.				PIGS.			Goats.	Poultry.
One year and upwards.		Under one year.	Total.	One year and upwards	Under one year.	Total.		
Ewes.	Tups and Wethers							
746	420	715	1881	102	782	884	137	6907

When the horses, mules, and donkeys (all of which are principally grazed) are added to the foregoing stock, it will appear that the Grass land is sufficiently stocked. Many of the cattle are very large and handsome dairy stock, which would appear to advantage in any fair in the United Kingdom, and some of the sheep breeders have a heavy stock. In no particulars has progress been more marked in degree than in the improvement of all sorts of live stock. The breed of swine has been especially improved, and the prices obtained for them this year have been very high. The labourer alone remains stationary. He is still insufficiently paid for his labour, and consequently insufficiently housed, clothed, and fed.

I must devote a future page to the distinct consideration of his condition.

Home Correspondence.

The Meaning of an "Average."—Observing in your leading article of the 18th August a very shrewd remark, "that the average crops of corn, &c., of 1856, meant something very different from the average crops of 1840, inasmuch as we had been gradually improving our crops, &c., since the latter date" [All we stated referred to the positive meaning of the word "average." Its relation to the wants of the nation we did not refer to —on this we drew no inference whatever. The conclusions drawn below as to an "average" meaning a continuously increasing surplus of food are Mr. Grant's, not ours], and that consequently it may very fairly be inferred by the mass of our speculators, capitalists, and consumers that average crops in 1856 meant a much greater surplus of food than average crops in 1840, and that of course greatly decreased prices should be insisted on, for the excess of supply would be sure to bear out the demand for less prices in the end. Now this policy I think is erroneous in principle and practice, and must have a tendency to wasteful consumption and decreased production. I have no desire to impeach your veracity or motives in the statements you have made public, but I feel impelled to remind you of the one side statement you have made, which if not corrected may lead to much misapprehension and injustice. I offer no opinion at present as to the result of the forthcoming harvest. We have not yet "caught our hare," for amid these continuous wet days she is giving us a devious and uncertain run, but what is quite certain, and what I feel quite certain your candour will induce you to lay before your readers next week, is, that you omitted a very important adjunct to your shrewd observation about the averages, namely, that the average of our population has increased in a full ratio with the average of food production or rather over, and consequently if your anticipation of a great increase of average crops existed, it is not really a great increase of surplus food. And further, you omitted to state what the merest tyro in political economy is aware of, that the advantage of increased employment and wages has given the means of procuring the necessaries of life in an increased degree; ay, and the comforts, too, are much more within the command of the mass of consumers in 1856 than they were in 1840; and no doubt they will, and ought to avail themselves of it, and rejoice; long may all classes of our countrymen, including the hard-working and honest producers of abundance, rejoice together and be thankful. Let me be rightly understood. I do not quarrel with your statements; I only wish to draw the attention of your readers to facts, and what should, in my humble opinion, accompany your clever remarks, namely, that even if we secure an increased average in food, we have also an increased and increasing multitude of human beings, blest in an increased degree with the power and means for consuming it. *John Grant, Blackawton, Totnes, Devon.*

Vitality.—Some years ago a Mr. Bickes professed to have found out a stimulant in which he proposed to steep seed Wheat and other cereal grains, and which he said communicated such an energetic vitality to the plant that the field in which it was sowed required no other manure. This was a good deal ridiculed at the time, and we now hear nothing of it, but is there not more in the idea than the public are willing to admit? I don't mean to say that either Mr. Bickes or any one else knows how to communicate such a stimulus, but if the possibility of such an operation be denied, allow me to ask how it is that flowers raised from seed grown in the United States (the Sunflower and some of the Mallows for instance) grow to two or three times the size of plants raised from English seed in the same garden, even if that English seed has been raised from plants grown from American seed. For instance, the Sunflower grew 10 feet and the Mallow 15 feet high in my father's garden when raised from American seed; but when these robust plants ripened their seed, and this seed was sowed again, the plants of the second generation did not grow more than 5 feet high. If this robust growth was not owing to a stimulus communicated to the seed—to what was it owing? This is a question I have asked two or three times in your columns, but to which I never could get a reply, although I think it a most important subject, and one that does not deserve to be pooh! poohed! For even supposing such a stimulus cannot be artificially communicated (which has yet to be proved), it shows the very great importance of getting seed raised in the most suitable climates that can be found. May it not be desirable to get our seed Wheat from America? I have heard of an Australian Turnip weighing 84 lbs. May it not be desirable to grow our Turnip seed in Australia? If function reacts on organisation, if size, quality, and early maturity become hereditary, who can tell whether by so doing we shall not have Turnips averaging 30 or 40 lbs. a-piece through a field. *T. G., Clitheroe.*

The Harvest.—Observing your reports of the Wheat crops over 207 districts scattered over the United Kingdom, we are surprised that only in four counties, namely, Surrey, Kent, Denbigh in Wales, and by your York correspondent J. Oldroyd, is it represented as "blighted," "rather blighted," "light in ear," &c.; whereas in our own county, Essex, if our own report were worth a fig, we could not now (August 16) fairly represent it otherwise than as the latter gentleman has described it in York, and as he has noted it in his No. 3 marginal references, namely, "Quarter under average, Wheat looks like a full average crop, but when the ears are examined they are found to contain fewer grains by nearly one-third than they ought to have." The fact is that blights are chiefly occasioned by sudden atmospheric changes from a temperature of cold to heat, or from damp and lurid weather to sudden bright sunshine in the summer months. This has been truly exemplified this last fortnight or three weeks, which has brought all the various descriptions of corn hereabouts, and seeds we cultivate, especially such crops as have been planted too thickly, to premature ripeness. We adverted to this a fortnight back, and it is now fully substantiated by an abundance of straw, though not more than an average of 20 grains in each ear of very many plots of "rough chaffed" Wheat will be realised, and not half the produce of one ordinary perfect ear from each grain of seed sown; in other words there will not be say 12 bushels of crop from every bushel of seed Wheat sown, where thick sowing is continued to be practised. We cannot forbear to mention that for the last two days the harvest operations have been very suddenly interrupted by thunderstorms and cold wind, which is blowing the fully ripened corn out sadly, so uncertain are the changes of this climate of ours. We fear that those sudden changes of weather, so contrary in regard to heat and cold and wet and drought, at this juncture of time will have a bad effect on the crops in the north of England, bringing their late crops on too prematurely, as such changes of weather now generally have a worse effect on late crops. Our experience has proved to us that when such bright weather has not occurred till September and October, the crops have often been spoken of in far north as very satisfactory. It is presumptuous, however, to attempt to battle with the elements; but it is no reason we should not do all we can devise in providing against the worst, leaving the rest submissively to the Almighty giver of all events. *Hardy & Son, Seed Growers, Maldon, Essex.*

Boydell's Steam Locomotive.—In your report of Mr. Boydell's machine it is correctly stated that the advantage gained by the position of the pinion at the top of the driving wheel is not real. But the reason given, viz., that the velocity of the pinion must be doubled to produce the same effect as if it were placed on a level with the axis, is incorrect, for it is evident that the cogs of the pinion and the driving wheel move with the same velocity; and this without reference to the relative positions of their axes. The velocity therefore of the pinion wheel regulates that of the driving wheel, and the velocity of the machine, whether the pinion be placed at the top, or at the side, or at any intermediate position. The true explanation is, I believe, as follows:—The power of traction of the machine is measured by and is equal to the friction or bite on the ground of its driving wheels. This friction is produced by (and is equal to it for all practical purposes) the force excited by the pinion on the circumference of the driving wheel, by means of a lever; the radii of the wheel being its arms, and the axis its fulcrum. Now so long as the arms of the lever are equal, which, in the case of this wheel, is always the case, it does not matter whether they are in a straight line (as when the pinion acts on the top of the wheel), or whether they are bent (as when the pinion acts at any other point). The effect of the pinion at the top of the driving wheel would be the double leverage attributed to it, if the pinion were unconnected with the machine, but its axis being connected with it, pressures exist (*e.g.*, the pressure of the axis of the pinion on the frame of the machine, which tends to retard it) which counteract this apparent gain. It is a dangerous thing to reason on the internal forces of a complex machine; if one is considered, all must be taken into account as a general rule. *G. P. S.*——I saw this most extraordinary affair at work in the show ground at Chelmsford—that is, the engine was moving itself over a piece of dry ground where it had no difficulties to contend with, and the conclusion I came to was that if steam ploughing has to depend for its success on this it never will succeed. Since then I have been led to look over the various notices of this engine which have appeared in the *Gardeners' Chronicle*. In Number 16, p. 267, there are some dimensions given; the cylinders are 6¼ inches diameter=33 inches area, the length of stroke 10 inches, but the important element, the number of strokes, not given. The weight of the engine is stated by "W. B."(any relation of Mr. Boydell's?) [No.] to be 9 tons. Mr. Boydell in his letter at p. 524 does not give the power of the engine, neither does he deny the statement made by Mr. Mechi at p. 290, that the engine is 16 H. P., and that one-half the power is required to keep the engine moving! I believe that when the experiment is fairly tried the result will prove even worse than this. It never will pay to drag a useless weight of 9 tons over soft ground at the rate of four miles an hour. There is no need for it, and the sooner Mr. Boydell gives it up the better it will be for his purse. But only fancy such a delusion as this, see p. 491:—"But the advantage apparently gained by this position of the pinion (which gears into the driving wheels at the upper part of their circumference), on which Mr. Boydell insists with much confidence, is not real after all." I should think not! else this would be "a new proposition in mechanics," as "W. B." tries to prove at p. 507, in a way which it is utterly impossible to comprehend. It makes not the slightest difference where you place the pinion which communicates motion from the crank-shaft to the driving wheel; and that "the upper part of the wheel moves twice through the same space as the axle and fulcrum on the ground," (p. 524) is as great a mare's nest as I believe the wheels with the endless railway are. A point in the circumference of the pinion, or in the circumference of the

driving wheel into which it works, moves at precisely the same speed as the axle of the carriage, or as the carriage itself travels along the ground when the carriage wheel and the driving wheel are the same diameter. "W. B." gives the following dimensions of the wheels, p. 267: The carriage wheel, 6 feet diameter, or 18.85 feet circumference; and the 96-toothed wheel, 5 feet diameter or 15.7 circumference; and therefore the pinion of 10, teeth must be 1.63 feet in circumference, and 1.63 by 150 strokes by 60 minutes = 14,670 feet per hour as the speed of the driving wheel, to which add one-fifth, and we have 17,604 feet, or $3\frac{1}{3}$ miles as the speed of the circumference of the carriage wheels, or the speed of the carriage. Of course the speed will vary in proportion to the number of strokes per minute. If Mr. Boydell has spent nearly 10,000*l.* on this machine he had better pocket the loss and try something less complicated and more likely to succeed. What advantage have his endless railway wheels over common wheels of the same diameter and the same breadth except in complication? *R. S. N., Gateshead-on-Tyne, Aug.* 12.——We have also received the following from Mr. Boydell:—I think a few words will alter your opinion as to the difference of the velocities of pinions working at the apex of the spur-wheel, or below it; I take the liberty of endeavouring to do so. Whether the pinion is geared into the spur-wheel at the apex or below it, its distance from the axle or the centre round which it rotates is the same; but at the apex it gives the leverage as you describe it, and on a level with the axis it acts simply as a bell-crank does, the legs of which are equal to each other, and in both cases the thrust of the steam from the boiler is the same, and likewise the velocities. On Wednesday last, in the presence of many scientific men, a traction-engine at Woolwich with 2400 lbs. effective power of steam, and with a leverage power equal to make that 2400 lbs. draw 4080 lbs. over a pulley 132 feet per minute, drew upwards of 20 tons up an inclination of 1 foot in 10 feet at that speed; the dead weight of this alone must be 4480 lbs. besides the traction on the level, which I calculate at least 2000 lbs. more, making together 6480 lbs., and this will prove that increased power is got; and where can it be obtained, if not by the leverage gained by working the driving-wheel by a pinion at the apex of it? *James Boydell, Camden Works.*

Cow Parsnip.—With a view of settling the point of Heracleums as serviceable for cattle, Mr. Samuel Taylor may rest assured that cattle will not eat it freely at whatever stage of its growth it may be cut, and why it is designated Cow Parsnip baffles our understanding as well as his own. For ornament, however, it is not to be sneered at, for it is grand in the extreme, and we grow both sorts. H. sphondillium, though indigenous to our own climate, we repeat it, is very serviceable for cows, pigs, and rabbits, if not for horses and sheep, with a small portion of corn or bran, and may be cut three times a year, and whether green in May, or at seeding time July, it may be used with safety and advantage; but neither of the two varieties ought to be allowed to ripen seed in the garden compartments, as by its buoyancy it may be wafted all over, and ultimately become a pest instead of an acquisition. When boys, we can well remember that, searching for Heracleum sphondillium, or "cow-mumble" (for this is what it is vulgarly called), for pigs and rabbits by the sides of ditches in the month of June, we every spring destroyed scores of partridges' nests with their eggs, either intentionally or accidentally frightening the old birds off repeatedly, causing them to forsake their eggs. Cultivating this plant in the garden or waste would prevent all this, and the circumstance of destroying those partridges and pheasants be prevented, which is of more consequence to gentlemen sportsmen than to ourselves, we admit, but nevertheless worthy of notice. *Hardy & Son, Seedgrowers, Maldon, Essex.*——We have also received the following:—Mr. Taylor, of Wotton Parade, Gloucester, writes so touchingly about the Heracleum in this week's Paper that I cannot refrain from attempting to offer him some comfort, though it be from a humble quarter. Our late revered father was an active energetic experimentalist; he tried various sorts of gigantic Heracleums from Siberia, broad-leaved and cut-leaved, and persevered for more than 20 years in feeding sheep, cows, and horses upon it, mixed with other green meat. The sheep generally died, a few each year, from being put where it grew. The family objected to the cows eating it on account of the butter tasting strong, and the horses after eating it a spring became scabby or broke out in humours. It thus fell into disuse and it has been of late attempted to extirpate it from the pastures and arable fields, but alas! it defies all the efforts of the plough and spade, and overruns us more and more. It makes a noble ornament in belts and plantations, yet its large strong deep roots must rob the trees of nourishment, and make it even there an enemy. *A Novice.*——I have had, as I expected, many applications for seed of this plant; which, so far as I have been able, I have had great pleasure in supplying; but I regret to say that I have been unable to do this to the extent I wished and hoped, for the following reasons, which I hope will plead my apology with my various correspondents. I was out on a tour when their letters reached me, but lost no time in attending to them on my return to Gloucester last Saturday (the 2d.) I found the seed much forwarder than I expected; and, what I did not expect, a great deal of it eaten and carried away by birds—a satisfactory answer to the theory of Messrs. Hardy as to the poisonous nature of the plant! Of course they are too good judges, either to take what may injure them, or to prefer unsound to sound seed. The rogues had, therefore, not only purloined much of my good seed, but left me little else than bad, or at most doubtful. However, I have done the best I could. Still, of the small quantities sent, should the proportions germinating be smaller still, I trust the explanation I have given will exonerate me from anything like wilful neglect. *Samuel Taylor Gloucester, August* 6.

The Potato Disease has made its appearance with us to a greater extent than last year. The crop is going fast; the symptoms are as usual. Wheat is also a little blighted, and as last year it comes on too fast for the sickle; and we shall have harvest earlier than we thought by a week or 10 days. About the middle of next week most people will begin hereabout. Barley also comes on too fast and very irregularly. Swedes and Turnips do better, though we have not had rain enough to moisten the earth; but not far off there have been some heavy thunderstorms. Mangel does well where thick enough, but it is often too thin. What can be the reason? Is the seed bad? Or is it that it is put in before the ground gets warm, and so dies of cold? Or is it not all ripened sufficiently, and some comes up quickly, while the weakly ones take half the summer to bring them up? I rather incline to think this last is the chief reason; and if so the lightest ought to be blown away in preparing the seed for market. *G. S., West Sussex.*

Three Years' Crops.—Perhaps the underneath statistics of the crops on my farm may be interesting to some of your readers.

	1854	1855	1856
Wheat first in ear	June 20	June 23	June 22
Barley first in ear	June 22	July 1	June 28
Oats first in haw	June 20	June 27	June 28
Wheat in flower	June 25	June 30	June 29

Harvest Commenced.

	1854	1855
Oats	August 10	August 13
Barley	August 18	August 23
Wheat	August 21	August 22

My Oat harvest will commence to-morrow; the Barley will be ready to cut before the end of this week: but the Wheat is not nearly ripe yet. *C. M. C., Rugby, Aug.* 6.

Circular Tillage.—Without prejudice to any one I can now resume my letters on Steam Cultivation. I went to Chelmsford to see the steam ploughing, and am quite satisfied inventors think there are no conditions in this problem to be complied with, save one; whereas it is a problem full of conditions economical, social, mechanical, and agricultural. The only condition they study is this, namely, that the power of steam shall be geared on to the farmer's present "method" of tillage, without change or alteration. I am somewhat surprised at this mistake on the part of the engineer and mechanist when they have a precedent in point so recent as the introduction of steam to an improved method of travelling. For ten years I have made this problem of steam-tillage my especial study, and for nearly that period of time have been knocking at the back door of British agriculture; often wondering when I shall be asked round to the front by those who happen to have the means of paying for admission:—this can only have arisen from my not uttering all I know, and I confess (out of regard to others' sentiments) I have concealed some startling facts which have come to my knowledge in the course of this investigation. However since I know the right introduction of steam to the fields will be profitable to the farmer and highly beneficial to the labourer and the country at large, and also to the agricultural mechanist in the long run, I will now speak out and lay bare my whole reasoning and its unexpected results before the readers of the *Agricultural Gazette*, leaving them to pronounce a verdict thereon. The first unexpected announcement I have to make is, that steam cultivation is not a "mechanical" problem after all; it is a "manual" one! This assertion will appear most paradoxical to some, yet such is the fact, and steam cultivation will prove itself a paradox—the real modern paradox. Ten years ago, being cast amongst farming in Norfolk, and of an inventive turn, I was particularly attracted with the idea of tilling land by steam power, and was more especially moved by reading some spirit-stirring appeals in the earliest numbers of the *Agricultural Gazette*, modestly signed "C. W. H." and "H." I buckled to my task *con amore*. "This is a mechanical problem of a high order," I said, "and doubtless will require much thought, and most ingenious mechanical contrivances." So I got out my saw, planes, chisels, hammer and nails all ready for action; but with these I also pulled out Lord Bacon's Novum Organon Scientiarum, or "Art of conducting a Research and inquiring into the causes of things, and eliciting the Truth in either matters of Practice, or matters of Experiment, &c." I first read that (recommending every farmer to do the same), and then proceeded to investigate this problem of steam cultivation. As in duty bound, I first inquired what the mechanist had done for farming; and I found that, as compared with the days of no machinery, he had done wonders in the homestead; corn could be threshed out in immense quantity and in a very short time, and infinitely cheaper than before the use of mechanism: straw could be cut into chaff and steamed, cake and Oats bruised as food for animals; Beans, Peas, Wheat and Barley ground in vast quantity; in fact, the power over increased production was only limited by the mechanism; and moreover whatever was done was executed at a much cheaper rate than before. "All right here," I said. "The usual characteristics of the right employment of mechanism are evidenced—this is perfectly correct in principle. I will now examine their field-practice; I understand they are unceasing in their efforts to introduce machinery into the field, have already got a great lot there, and much more coming; hence, judging from analogy, from that analogy under which of course they are acting I shall see the same result, the same power over increased production. I shall see at least 100 tons of Turnips 'manufactured' on an acre of land, where without machinery there were formerly only 10 to 15 tons; and 50 coombs of Wheat manufactured on land where there were only 10 coombs made before, and all will be done at a less cost." When I got into the field I found I was quite mistaken. Somehow or other the productive and economical power of machinery seemed brought to a dead stop; and its shortcoming had to be largely assisted by expensive stimulants or manures, to keep the rate of production up even to that point it had arrived at when executed without mechanism or manure at all! In fact I could not discover any of the usual results of the right employment of machinery. "What is the cause of this?" I asked. "This is 'tillage,'" was the answer. "What is tillage?" I again asked. "It is the means employed to obtain a fruitful plant." "What is a plant?" I further asked. "A thing of life." "So field practice is a 'life manufacture,' not a 'dead' material manufacture, and tillage is only one of the means which lead to it." Then I saw why the field does not afford scope for a high degree of "mechanic development," it is a field for "man development." Why, steam cultivation cannot be rendered into a "mechanical" problem (in chief)—it is evidently a "manual" problem (in chief). What they want here in this department is a labour assisting, not a labour saving or labour superseding machinery. Our agricultural philosophers are evidently striving to put the wrong "element" in the wrong place. Their conclusions and their practice are based on a false analogy; they act and argue upon a resemblance which does not exist; here is one comparing 'the growing of a sack of corn to the manufacturing a piece of cotton, or a hat, or a coat." But this is evidently not a question of how to make a cotton garment, but how to make a cotton plant; not how to make the sails and ropes of a ship, but how to make a Flax plant; not how to make the silken garment, but how to make the Mulberry tree; not how to grind or thresh corn, but how to make a Wheat plant; in fact, not of how to manufacture dead material, but of how to make things of life. Thinking only of the means the mechanist disregards the end of tillage, making no provision for it; hence the contrivances in the field lead to no result compared with his effective and cheapening processes in the homestead. I see the reason. Never having had to deal with anything but the manufacture of dead objects with steam-driven machinery, impelled by a false analogy, he is seeking to manufacture live objects by the same laws and rules. There are three elements necessary for the field, to lead to increased and cheap production, viz.: Steam, men, and mechanism. Our mechanists neither know how to combine these agents, nor which of the three to advance to the front rank, so as to lead to cheap and successful steam cultivation. *C. Burcham, London.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Adjourned Trial of Reaping Machines, at Boxted Lodge, Aug. 13 *and* 14, 1856.—The judges awarded to Mr. Alfred Crosskill the sum of 20*l.* for his "Improved Bell's Reaping Machine." To Messrs. Burgess and Key the sum of 15*l.*, for their "Improved M'Cormick's Reaping Machine." To Mr. Wm. Dray the sum of 15*l.*, for his "Improved Hussey's Reaper." From the result of these trials, the judges regret to observe that very little improvement has been made in this class of machines since last year. They consider that for general harvest purposes, the machines of Mr. Crosskill and Messrs. Burgess and Key are to be preferred; but for reaping only, they think Mr. Dray's decidedly the best machine.

H. B. Caldwell.
Thos. Huskinson.
Wm. Chalcraft.
Clare Sewell Read.

Boxted Lodge, August 14, 1856.

Royal Agricultural Improvement Society of Ireland.—At the annual meeting last week of this society the Lord Lieutenant made the following remarks:—

"Within the last 20 years more than a million of Irish acres have been reclaimed from the waste. In 1841, to 8 millions of people there were 13 millions of cultivated acres in Ireland. Now, perhaps more than a million has been subtracted from the population, and more than a million acres has been added to the cultivated area. I wish, however, not to deal in generalities on a subject of this sort, but I will confine myself to the actual progress as contrasted between the present year and that which immediately preceded it. I derive my information from the very valuable returns collected by the constabulary of this country: and this is a matter which I conceive that you in Ireland have got a material start over your proud neighbours in England. These returns, as you are well aware, are collected annually, and be it spoken to the great credit of the Irish gentry, farmers, and people, they are furnished voluntarily, and rare indeed are the instances in which the information requested is not supplied with alacrity and good will. Well, I find from these returns, which have not yet been given to the public—the time has not yet arrived for their being sufficiently matured for the purpose—I find that, comparing this year with the last, there is a decrease of some amount in the growth of Oats and Barley, but there is an increase in the growth of Wheat of 83,683 acres. The increase in green crops amounts to no less than

114,774 acres; and though I must admit that Potatoes are by far the largest portion, yet I am in hopes that Potatoes themselves are grown more as a farmer's crop than with a view to the exclusive subsistence of the cottier. The increase in Flax, which I am especially glad to learn, covers 9000 acres, and the increase of the whole extent under tillage this year, as compared with the last, amounts to 65,773 acres. So, with respect to live stock, the increase in the number of horses amounts to 18,000; of head of cattle to 25,000; of the number of sheep to 90,000. There is a very large decrease observable in pigs, amounting to no less than 250,000; but it is thought by those who are charged with the collection of these returns that this is owing to their having been made up at an earlier period than usual; for I believe the farmers generally like to have their pigs to feed when they have the largest quantity of actual produce to give them. However, that is a matter which must be tested by subsequent experience. I have the pleasure of seeing opposite me on this occasion a most useful public officer, Mr. Donnelly, and I cannot see him without remembering that he and I have together striven to inculcate how much use it would be to effect a still larger destruction of roadside weeds. I do not like to go over ground which I have travelled before, and I believe and hope much has been done and is doing in this respect. I know that some railway companies have been good enough to give very useful directions on this head, and I believe both they and grand juries, and road contractors, and proprietors at large might do still more. I do not wish at all to treat even the unproductive pauper as a human weed—I should be sorry to represent him in that light; but I am happy to say that this crop shows a great deficiency as compared with its state last year; for, upon inquiring the numbers in the workhouses, I am happy to find that in the last week there were 17,771 fewer than in the same week in August, 1855, and there are 1571 less last week than the week before. Indeed, there is no circumstance in the present social condition of Ireland which inspires me with more satisfaction than what I believe to be the rise, perhaps the gradual but the general rise, perhaps the slow, but, I believe, the certain, and, I trust, the permanent rise in the rate of wages. And if there are any here to whom that has a less comfortable sound, I would invite them to remember that low wages by no means always represent cheap labour, and that no real or deep-seated or permanent prosperity can be expected in the country unless it is grounded upon a prosperous and contented tenantry and labouring class; and let me add that it is thus amidst the harmony of classes, the co-operation of interests, the blessings of external peace and internal concord, that I trust the Royal Agricultural Society is destined to pursue its honourable and beneficial career."

The following is the award of prizes by the society's judges of stock:—

SHORT-HORNS.—Sec. 1: 1st, Mr. Henry Ambler's bull Grand Turk; 2d, Lord Clancarty's Pro Bono Publico. Sec. 2: 1st, Mr. Ambrose Bole's Jacob; 2d, Mr. F. W. Cusack's Romulus. Sec. 3: 1st, Mr. H. Ambler's yearling bull General Jackson; 2d, the Hon. L. H. King Harman's Lord Raglan. Sec. 4: 1st, Mr. Rowland Campion's cow Lady-like; 2d, Lord Monck's Lady Colingwood. Sect. 5: 1st, Mr. Campion's heifer Jenny, receiving for the second time the Purcell Challenge Cup; 2d, the Hon. L. H. King Harman's Merino. Sec. 6: 1st and 2d, Mr. J. J. Turner's white heifer Lily Grey and roan heifer Ace of Hearts. Sec. 7: 1st, Mr. Campion's Rosalie; 2d, Mr. Ambler's Lady Mary.

OTHER BREEDS.—Best Devon bull, Earl of Charlemont's Lord Devon. Best polled Angus or Galloway bull, Lord Lurgan's West Australian. Best Ayrshire bull, Mr. Wm. Boyle's Carlisle. Best Kerry bull, the Earl of Charlemont's Black Knight. Best Devon cow, the Earl of Charlemont's Rose. Best Devon heifer, the Earl of Charlemont's Young Ruby. Best polled Angus or Galloway cow, Mr. E. Atkinson's Indian Queen. Best polled Angus or Galloway heifer, Lord Talbot de Malahide's Maid of Angus. Best lot of two polled Angus or Galloway heifers, Lord Talbot de Malahide's Duchess and Fanny. Best Ayrshire cow, the Earl of Clancarty's Scotchil. Best Ayrshire heifer, Mr. W. Boyle's Fanny. Best lot of two Ayrshire heifers, Mr. Allan Pollock, of Fairfield, Creggs. Best Highland cow, Allan Pollock, Esq., of Ballinasloe. Best West Highland heifer, Mr. Ellisson, of Frenchpark. Best lot of two West Highland heifers, Mr. Allan Pollock. Best Kerry cow, Lord Talbot de Malahide. Best Kerry heifer, the Earl of Clancarty. Best of all bulls, the Gold Medal, Mr. H. Ambler's Grand Turk. To the breeder of the best prize bull, the Gold Medal, J. E. Bolden, Esq., Springfield Hall, Lancaster. Best of all the prize cows or heifers exhibited at the show, Rowland Campion, Esq. To the breeder of the best prize cow or heifer, the medal, J. H. Cameron, Esq., Cameron House, Fife.

HORSES.—Best old stallion: 1st, Mr. Archbold Molloy's Clydesdale stallion Diamond; 2d, Mr. Sylvester Rait's Glancer. Best young stallion: 1st, Mr. Allan Pollock's Redmond; 2d, Miss Morris's Blue Ball. Best draught mare in foal: 1st, Mr. Rait's Bay-bill; 2d, Mr. W. S. Featherstonhaugh's Clydesdale gray cart mare. Best 2-year old draught filly, A. Pollock, Esq., Ballinasloe. Best yearling draught filly, Mr. A. Chalmers, Dalkey. Best draught filly: 1st, Sylvester Rait, Esq.; 2d, Mr. A. Chalmers.

SHEEP—LEICESTERS.—Best shearling ram: 1st, Mr. Rowland Campion; 2d, Mr. Reynell. Best two shear ram, 1st and 2d, Mr. R. Campion. Best old ram: 1st, Mr. Carter, Yorkshire; 2d, Mr. Owens, Blessington. Best pen of five shearling ewes: 1st, Lord Clonbrock; 2d, Mr. R. Campion. Best pen of ewes under five years old, Mr. Owen. Best pen of five ewe lambs, Mr. J. Latouche, of Harristown.

OTHER LONG-WOOLLED SHEEP.—Best shearling ram: 1st, Mr. N. W. Roche, of Fermoy; 2d, Mr. B. Browne. Best two shear ram, Mr. N. W. Roche. Best old ram, Mr. N. W. Roche. Best pen of five shearling ewes: 1st, Mr. T. Browne; 2d, Hon. L. H. King Harman. Best pen of five old ewes: 1st, Mr. Ambrose Bole; 2d, Mr. David Kerr, Edenderry. Best pen of five ewe lambs, Mr. Ambrose Bole.

CHEVIOTS.—Best old ram, 1st and 2d, Marquis of Conyngham. Best pen of five shearling ewes, 1st and 2d, Marquis of Conyngham. Best pen of five old ewes, 1st and 2d, Marquis of Conyngham.

SOUTHDOWN.—Best shearling ram, Mr. T. Roberts, Strokestown. Best old ram, Mr. T. Roberts. Best pen of five shearling ewes, Mr. T. Morris. Best pen of old ewes, Mr. T. Morris.

OTHER SHORT-WOOLLED SHEEP.—Best old ram, Mr. Lambert, Slane. Best pen of five shearling ewes, Mr. J. Kearney. Best pen of old ewes, Mr. E. Atkinson, jun., Malahide. Best ram in classes, the medal, Rowland Campion, Esq.

SWINE.—Best boar under 18 months old: 1st, Lord Castlemaine; 2d, Mr. A. D. Chaigneau's (Athlone). Best old boar: 1st, Mr. A. D. Chaigneau; 2d, Mr. J. Hodson (Athlone). Best breeding sow under 18 months: 1st, Rev. Mr. Warburton, of Kildare; 2d, Sir R. Paul, Waterford. Best old breeding sow: 1st, H. Carroll, Esq., Ballymore; 2d, Lord Castlemaine.

EXTRA PREMIUMS for best breeding sows, Mr. Matthias Hartford, of Moate.

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. XVII. Part I.

THE current number of this periodical is written almost wholly by men of science. We have essays on Vegetable Physiology, on the Natural History of Pasture Grasses, on the Roots of the Wheat plant, on the Composition of Farm-yard Manure, and on the Composition of Drainage Water by such men as Henfrey, Buckman, Voelcker, Way. In addition to these Liebig contributes a vigorous rejoinder to the controversy between himself and Lawes, Mr. Denison publishes his report on the agricultural department of the Paris Exhibition, Dr. Bell describes Durham farming, and Mr. Horsfall gives us in detail his experience on dairy management. A distinctive feature of the present issue of the journal is the appearance of a number of shorter papers as an appendix, to which Mr. Hoskyns and Messrs. Hammond, Parrington, and Moore contribute.

The whole volume contains a great deal that is clear addition to our knowledge, much that is descriptive of existing knowledge, besides some that tends to upset what has hitherto passed for knowledge. In all respects it maintains the high character as an agricultural periodical which has hitherto belonged to the series.

We must be satisfied at present with this descriptive notice of its contents, leaving to future numbers of the Paper the task of discussing some of the essays it contains.

Miscellaneous.

The Mixing of Salt with Liquid Manure.—In a former Number of the Journal we directed attention to an experiment of M. Barral, by which he proved most satisfactorily that common salt was a fixer of ammonia. We have also more than once alluded to the important place it is yet likely to occupy among the saline substances used by the farmer. In Switzerland it is now almost the universal practice to mix it with liquid manure. Its value here is supposed to be derived from its property of fixing ammonia; and the discovery of the benefit which is derived from mixing it with liquid manure was quite accidental, and deserves to be mentioned in this place. The important duty on salt in Switzerland is very high and oppressive—so much so, as in all such cases to lead to many attempts of evading the vigilance of the custom-house officers. A peasant having tried to defraud the authorities by carrying off a bag of salt, was discovered and pursued. In his anxiety to escape the punishment which would be inflicted on him if the bag were discovered about his premises, he threw it into his liquid manure tank, where he was sure there would be little chance of their searching for it, or at all events discovering it. Thinking he had destroyed his liquid manure, before using it he diluted it with water, so as to diminish as much as possible the bad effects which he thought would be derived from the salt. Great, however, was his surprise, when he found that the Grass on that part of the meadow watered with the liquid manure in which the salt was dissolved, was both more luxuriant in its growth, and was preferred by the cattle to all other forage. On perceiving this, the experiment was repeated with the same result. Government, also, having become aware of it, allows unpurified salt to be sold at a cheaper rate as manure salt. This is generally the refuse of the salt works, containing from 75 to 80 per cent. of salt. About $1\frac{1}{10}$ lb. of salt is used for every 22 gallons of liquid manure; in gravelly dry soils a larger proportion of salt is employed, and in soils naturally damp a smaller proportion. In soils liable to suffer from drought, on dry hill sides, salt is employed, after being first mixed with earth. Its effects are most apparent on Peas and leguminous plants of every kind, on roots, Potatoes Carrots, and Ruta-bagas. It has little effect on clay soils, excepting when drained. In some districts it is used for improving the quality of the dung. The salt is first mixed with earth, and this mixture is spread on every layer of dung. These details on the use of salt, communicated by M. Fellenberg, are worthy of a careful consideration from farmers of all countries. We do not say that the application of salt directly to soils in this country will be always attended with as beneficial results as in Switzerland; but we cannot help expressing our opinion, that the value of salt as an ingredient in a compost heap is not sufficiently appreciated in this country. And the practice, alluded to by M. Fellenberg, of mixing salt with earth, and then working this up with the manure of the farm, agrees so well with our own experience that we have no hesitation in recommending it. *Professor Anderson in the Journal of Agriculture.*

Notices to Correspondents.

EARS OF WHEAT: Messrs. Hardy & Son have sent us some magnificent ears of Egyptian Wheat, and their own red Wheat, in illustration of their skill as cultivators; and of their principle of wide drilling and thin seeding being the true one.

FEEDING TROUGHS FOR SHEEP: *X Y Z* Any carpenter can make them. Ten feet long, 3 or 4 inches wide at bottom, 10 or 12 inches wide at top, and 6 or 8 inches deep are common dimensions.

OFFAL: *M J.* The proportion between the live and dead weight of fat sheep depends on quality, breed, age, &c. A Smithfield stone of mutton is commonly obtained from every imperial stone of live weight, or 8 out of every 14.

SHORT-HORNS: *Bagnalstown.* There was no "John Collings." At Charles Colling's sale "Lily" was sold for 410 guineas, and "Lady" for 400 guineas. Blue Bell is not named.

THE CROPS. We have received from correspondents the following reports too late for last week's tabular return:—*North Northumberland:* Wheat, full crop. Barley, over average. Oats, over average. Beans and Peas, average. Green crops, good. *J. Thomson, Coldstream.*—*Lincolnshire:* Wheat, very good. Oats, light crop. Beans and Peas, full average. Green crops, promising. *T. Aitken, Deeping Fen.*—*Hants:* Wheat, average. Barley, good. Oats, good. Beans and Peas, good. Green crops, bad. *J. Eames, Lymington.* It must be remembered that a week's almost constant rain has fallen since our reports were published. We also refer our readers to Mr. Grant's letter in our Home Correspondence.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

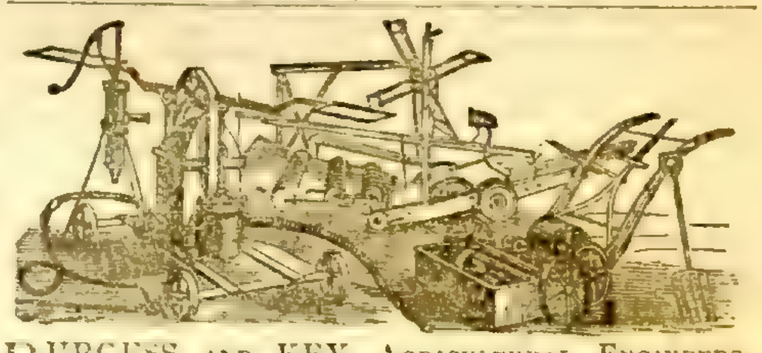
THE HYDRAULIC RAM will raise water, without manual labour, to any height, where a small fall can be obtained.

Fire, Garden, Deep Well, Liquid Manure, and all other Pumps.

Fountains of every description erected; Rockwork, Grottoes, &c.

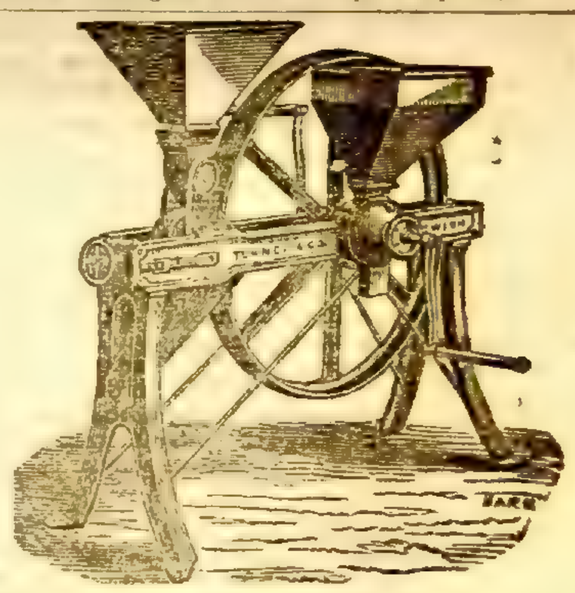
Hose Pipe of every kind for watering Gardens.

W. F. ROE (late FREEMAN ROE), Hydraulic Engineer, 70, Strand, London.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery.—Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

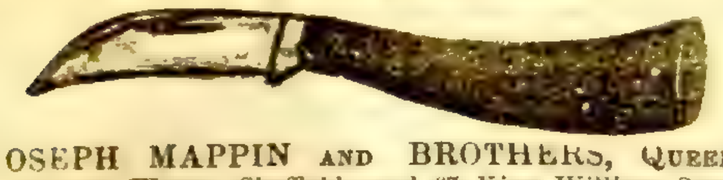
Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

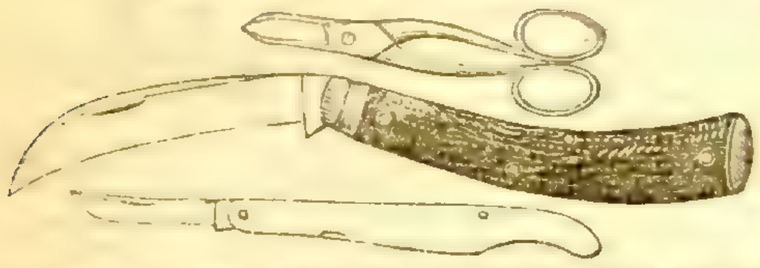
E. R. & F. TURNER, Ipswich.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,
WARRANTED GOOD BY THE MAKERS.



JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67, King William Street, London, where the largest stock of Cutlery in the world is kept. Drawings forwarded by post.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

BEEHIVES.

PRIZE MEDAL AWARDED TO G. NEIGHBOUR & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, Glasses, & Thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit: its arrangements are so perfect that the Honey may be taken at any time of the season without at all injuring the Bees.

Applications may be addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London.

Their newly-arranged Catalogue of other improved Hives, with drawings and prices, sent on receipt of two stamps.

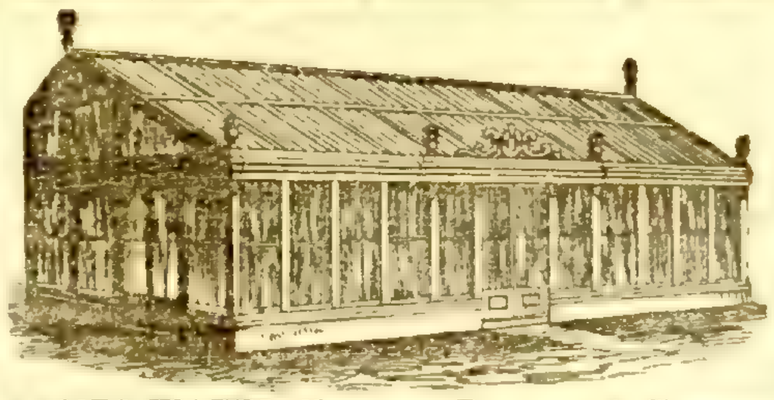
AGENTS:—Liverpool, JAMES CUTHBERT, 12, Clayton Square; Manchester, J. WILSON, 50, King Street; Glasgow, AUSTIN & M'ASLEN, 168, Trongate; BROWN & AUSTIN, 33 and 34, Argyll Arcade; Dublin, J. EDMONDSON & Co., 61, Dame Street; Chester, J. DICKSON & SONS, 102, Eastgate Street.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

GLASS PRESERVE JARS.

	Without Lids. s. d.	With Lids. s. d.			Without Lids. s. d.	With Lids. s. d.	
3-inch dia.	0 4½	0 6½	each.	7-inch dia.	1 0	1 4	each.
4 " "	0 6	0 9	"	8 " "	1 4	1 8	"
5 " "	0 8	0 11	"	9 " "	1 8	2 2	"
6 " "	0 10	1 2	"	10 " "	2 0	2 8	"

WASP TRAPS, 3*s.* 6*d.* per dozen.

GLASS TILES, ¼ of an inch thick, packed in cases containing 50, 1*l.* 17*s.* 6*d.* per case net.

3/16-inch, case of 60	...	...	...	£2 1*s.* 3*d.*
⅛-inch, " 60	...	...	...	1 17 6

GLASS SLATES of various dimensions and substances.
JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit. At EDGINGTON & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depôt, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

BE PARTICULAR to Address at Full Length,
BENJAMIN EDGINGTON,
2, Duke Street, Southwark,
OPPOSITE THE BRIGHTON RAILWAY.
MARQUEES, TENTS, AND RICK CLOTHS.

TERMINATION OF THE WAR.—AUTUMNAL FETES.—BENJAMIN EDGINGTON has prepared a large assortment of Tents for Peace Rejoicings, capable of accommodating from 100 to 2000 persons. Marquees for Horticultural Societies, Fêtes, Cricket Clubs, &c., new and second-hand, for Sale or Hire. A great variety of Tents erected on the premises.

TEMPORARY ROOMS of any dimensions, and with boarded floors, on Hire, for Dancing, Dinners, and Public Meetings, with conveyance and attendance to any distance, if required.

BE PARTICULAR TO ADDRESS AT FULL LENGTH, BENJAMIN EDGINGTON, 2, DUKE STREET, SOUTHWARK, OPPOSITE THE BRIGHTON RAILWAY.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed any part of the Kingdom for cash, 42 feet long by 13 feet, 90*l.*; 21 feet by 13 feet, 50*l.*; 12½ feet by 10 feet, 30*l.* A first-rate Conservatory, 30 feet by 18 feet, 130*l.* A large assortment kept. Estimates for Heating, or any branch in Wood or Iron.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, Gateshead High Fell, Newcastle-upon-Tyne.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

FOR BED SORES, &c.—WATER CUSHIONS, AND Water MATTRESSES for Invalids. Inventor and Manufacturer, HOOPER, London. For the prevention of Bed sores, and for affording relief where Sloughing has actually taken place. Also for Wounds, Abscesses, Fractures, Diseased Joints, Paralysis, Spinal Affections, Fevers, Extreme Age, Consumptive and Bedridden Patients generally. WATERPROOF SHEETING for protecting Bedding, and URINALS for Day or Night use. Orders by Post or Telegraph immediately attended to. HOOPER, Pall Mall East; and Grosvenor Street, London.

DO YOU TAKE PARR'S LIFE PILLS?

Upon the answer to that question depends much that can render life safe and agreeable.

It being now an admitted and incontestable fact, that they help to make men vigorous and hearty, and promote longevity.

Considering the virtues and almost universal application of this remedy, it is really doing a service to any friend to ask if he takes them, because the few who do not, really do themselves an injustice. *** Ask for PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country, and by the following appointed Agents:—

E. EDWARDS, 67, St. Paul's Churchyard.
BARCLAY & SONS, 95, Farringdon Street.
SUTTON & CO., 10, Bow Churchyard.
HANNAY & CO., 63, and SANGER, 150, Oxford Street, London.

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Cottage Gardener Office, 20, Paternoster Row, and all booksellers.

COUNTRY FAIRS.

THE PUBLISHER of "JOHNSON AND SHAW'S FARMERS' ALMANACK" will be most obliged by being favoured, during the present month, with any notices of alterations in the period of holding Fairs in which his readers are interested. It would be a great favour if any reader will cut the list of his Country Fairs out of the Almanack, wafer it on a half sheet of paper, and mark in the margin any altered times of holding the Fair, any Fair omitted, and by running his pen through the name of any Fair which has ceased to be attended by dealers in Agricultural produce.

Please to address J. Ridgway, Esq., 169, Piccadilly, London, who will forthwith return a new leaf to replace that forwarded.

The Almanack will be, as heretofore, published on the 1st of November. All Advertisements for the Advertising Sheets must be forwarded not later than the 1st of October.

NEW AND CHOICE BOOKS.

ALL the best NEW WORKS may be had without delay from MUDIE'S SELECT LIBRARY, by every Subscriber of One Guinea per annum. The preference is given to Works of History, Biography, Religion, Philosophy, and Travel. The best Works of Fiction are also freely added.

Literary Institutions and Book Societies supplied on liberal terms. Prospectuses may be obtained on application.

Charles Edward Mudie, 510, New Oxford Street, London: and 76, Cross Street, Manchester.

MARTIN'S PICTURES LEAVE ENGLAND.—Messrs. LEGGATT, HAYWARD, and LEGGATT inform their Friends that the Exhibition of these grand productions, viz., THE LAST JUDGMENT, THE GREAT DAY OF HIS WRATH, and THE PLAINS OF HEAVEN, now on view at the AUCTION MART, near the Bank of England, will close on SATURDAY, the 30th inst., immediately after which the Pictures will be shipped for America.—79, Cornhill, Aug. 23.

PRICE FOURPENCE, OF ANY BOOKSELLER.

CONTENTS of the NUMBER for SATURDAY LAST, AUGUST 16, OF

THE ATHENÆUM.

JOURNAL OF ENGLISH AND FOREIGN LITERATURE SCIENCE, AND THE FINE ARTS.

Thirty-two large Quarto Pages.

Reviews of, with Extracts from—

Life of George Washington. By Washington Irving.

Tales of College Life. By Cuthbert Bede.

English Cavalry in the Army of the East. 1854 and 1855. Divisional Orders and Correspondence whilst under the command of Lieut.-General the Earl of Lucan.

Reminiscences of Heinrich Heine. By Alfred Meissner.

The Austrian Dungeons in Italy. By Felice Orsini.

The Camel: his Organisation, Habits, and Uses, considered with reference to his Introduction into the United States. By G. P. Marsh.

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The Quadroon; or, a Lover's Adventures in Louisiana. By Captain Mayne Reid.

An English Chronicle of the Reigns of Richard II., Henry IV., V., VI. Edited by the Rev. J. S. Davies.

Memoirs of the Life and Times of John Carpenter. By T. Brewer.

Post-office Directory of Devonshire and Cornwall.

New Editions, &c.

List of New Books.

Original.—Madame Vestris—Angeli *v.* Galbraith—Report of the Proceedings of the British Association.

Weekly Gossip.—Gold Regions—The Astley Cooper Prize—Fluidity of Blood—National Reformatory Union—Edinburgh Archæological Museum—Sunday Bands—Ray Society's Anniversary Meeting—Mediterranean Telegraph—C. M. Charles's Death—Royal Botanic Society's Report—Meeting of the Archæologists of Germany—Contribution to the History of Wallenstein—Schiller and Göethe's 'Xenien'—Cheruel's New Edition of the 'Mémoires du Duc de Saint Simon'—French Literary Trials.

Fine Arts.—New Publications: Bonheur's Chalk Waggoner of Limousin—The Educational Question: a Caricature—Boscawen's "Suffer Little Children to come unto Me."

Fine Art Gossip.—New Picture in the National Gallery—The Goodwood Plate.

Music and the Drama.—Adelphi ('Our Gal,' &c.).

Musical and Dramatic Gossip.—Stage Moralities—Surrey Garden Concerts—Preparations at the Princess's Theatre—Drury Lane Engagements—Public Rooms—Birmingham New Music Hall—Paris Operatics.

Miscellanea.—Manchester Streets—German Telegraphs.

The **Athenæum** may be ordered of any Bookseller.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, August 23, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1856.] SATURDAY, AUGUST 30. {Price Fivepence. Stamped Edition, 6*d*.

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CRYSTAL PALACE.—The THIRD GRAND FRUIT and FLOWER SHOW of the present Season will be held on WEDNESDAY, THURSDAY, and FRIDAY, September 10th, 11th, and 12th. On Wednesday, September 10th, the doors will be open at 12; admission, 5*s*., children, 2*s*. 6*d*. On Thursday and Friday, September 11th and 12th, the doors will be opened at 10; admission, 1*s*., children, 6*d*. Schedules of Prizes may be obtained on application to the Secretary of the Crystal Palace Company, at the Crystal Palace, Sydenham, and all Plants and Fruit intended for Exhibition must be entered on or before Thursday, September 4th. On this occasion Prizes will be awarded to Amateurs and Cottagers for Fruit, Flowers and Vegetables.

August 30. By order, G. Grove, Secretary.

CRYSTAL PALACE GRAND FRUIT AND FLOWER SHOW, September 10th, 11th, and 12th.—GARDENERS producing satisfactory evidence of their employment will, on application to the Secretary of the Crystal Palace Company, on or before FRIDAY, September 5th, receive Tickets of Admission, not transferable, available on the FIRST DAY of the Show by payment of Two Shillings. For the accommodation of Gardeners a Special Train will leave London Bridge Station for the Crystal Palace at 6.0 A.M. on Wednesday, September 10th.

BRITISH POMOLOGICAL SOCIETY.—A Meeting of the BRITISH POMOLOGICAL SOCIETY will be held at the Rooms, 20, Bedford Street, Covent Garden, on THURSDAY, September 4th, to which Members and Fruit Growers generally are invited to send specimens of such Fruits as may be in season. The Chair will be taken at 2 o'clock.

All packages and communications to be addressed to the Secretary, 20, Bedford Street, Covent Garden.

ALTERATION OF TIME FOR THE WASHINGTON FLOWER SHOW.—This Exhibition will be held in the village of Washington, on MONDAY and TUESDAY, the 1st and 2d September, and not on the 3d and 4th September, as previously announced.

N.B.—The Society will provide vehicles, to be at the Washington Station to meet the 8.45 A.M. up-train and also the 9.35 down-train, to convey Fruits, Flowers, &c. &c., to the Show.

Washington (Durham), Aug. 30. R. J. Stokoe, Thos. Thompson, } Hon. Secs.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY'S EXHIBITION will be held at the above splendid Palace and Grounds on WEDNESDAY and THURSDAY, the 3d and 4th of September next. By permission of Colonel the Hon. G. A. Upton, the band of the Coldstream Guards, conducted by Mr. Godfrey, and also the Royal Pavilion Band, conducted by Mr. Oury, will attend each day. Between 300*l*. and 400*l*. are offered in Prizes. Schedules can be had of the Secretary, or of Mr. Spary, Queen's Graperies, Brighton.

A 10*l*. Silver Cup, the gift of the L., B., & S. C. Railway Company, will be awarded to the best Eight Dishes of Fruits, distinct varieties. Free carriage of Plants, &c., from the Bricklayer's Arms Station and all other Stations as on former occasions.

Edward Carpenter, Secretary.

45, Lavender Street, Brighton.

NEWBURY HORTICULTURAL SOCIETY.—The following PRIZES are open for competition to all England on FRIDAY, September 5. Admission Fee to each, 2*s*. 6*d*. For the best collection of 12 dissimilar HOLLYHOCKS, on spikes, a SILVER CUP (the gift of an Amateur), the value of 5 Guineas; the second best, 3 Guineas; the third best, 2 Guineas. Also, for the best stand of 24 dissimilar DAHLIAS, 3 Guineas; and the second best, 2 Guineas.—For further particulars apply to the Honorary Secretaries, 9, Northbrook Street, Newbury.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next EXHIBITION of this Society will be held at Chatteris on WEDNESDAY, the 10th day of September. In addition to the usual Prizes the following will be offered, viz.:—For the best 36 Dahlias, dissimilar, First Prize—a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l*. 10*s*. Persons intending to compete for these prizes must give written notice to the Hon. Secretary by Wednesday, September 3d. Persons intending to compete for the other prizes must give written notice (stating what they intend to exhibit) to the Hon. Secretary by 8 o'clock in the evening of Tuesday, the 9th of September next.—All further information may be obtained on application to

Chatteris, August 30. William Fryer, Hon. Sec.

GRAND DAHLIA AND FRUIT SHOW.—The Autumn Exhibition of the MAIDSTONE HORTICULTURAL SOCIETY will take place in the Corn Exchange, on WEDNESDAY, September 17th. Prizes open to all England. For 24 Dahlias, distinct varieties, 2*l*., 1*l*., 15*s*., and 10*s*. For 6 Exotic Orchids, 2*l*. and 1*l*. Entrance to Non-Subscribers, 5*s*. No productions will be received after 10 o'clock. Admission at 1 o'clock, 2*s*. 6*d*.; Children, 1*s*. At 3 o'clock, 1*s*.; Children, 6*d*. List of Prizes and Rules to be had of J. B. Monckton,

Maidstone. Hon. Sec.

HEREFORD HORTICULTURAL EXHIBITION.—Open to all England.—Will be held on the Castle Green, Hereford, on TUESDAY, the 9th of September, when Three Prizes—5*l*., 3*l*., and 2*l*.—will be awarded for collections of Stove and Greenhouse Plants (9 varieties); 3*l*. and 2*l*. for Ornamental Plants, in or out of bloom (12 do.); 3*l*. and 2*l*. for Dahlias, selfs (18 do.); 2*l*. and 1*l*. do. Fancy (9 do.); 1*l*. 10*s*. and 1*l*. for Hollyhocks, single blooms (24), not less than 12 varieties, with numerous other prizes.

Censor, J. Edwards, Esq., F.H.S.

For Schedules, &c., apply to W. Smith (Assistant Secretary), Florist, Hereford.

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to all parts of the world, upon application. The Bulbs are *as usual* of *first-rate quality*.

James Carter & Co., Seedsmen, &c., 238, High Holborn, London

DUTCH BULBS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their FIRST IMPORTATION of the above have arrived in excellent condition. DESCRIPTIVE CATALOGUES, which contain *their celebrated system of culture, can be obtained free on application.*

Highgate Nurseries, near London.

DUTCH BULBS.

JAMES VEITCH, Jun., Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are particularly fine and in excellent condition. Catalogues are now ready, and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their orders early, as the successful cultivation of Bulbs depends in great measure on their being planted early in the season.—Aug. 30.

DUTCH BULBS.

R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

DUTCH BULBOUS ROOTS.

ABRAHAM MARTIN AND SON have just received their first importation of the above from Holland, which are in good condition and very fine, and as their successful cultivation depends in great measure on their being planted early, we would advise our friends to make their selection as soon as possible. Catalogues gratis. All orders of 2*l*. and upwards paid 100 miles on any railway.

Nursery and Seed Establishment, Cottingham; Hull Branch Establishment, Junction Street.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.

THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.

Charles Alexander, Nurseryman and Seedsman, 30, West Register Street, Edinburgh.

GROOM'S BULBS.

H. MATTHEWS, Son-in-law and successor to the late H. Groom, Florist, Clapham Rise, begs to inform the public generally that his LILIUMS are now in full perfection also that he has a large stock of NARCISSUS POETICUS, at 1*s*. 6*d*. and 2*s*. 6*d*. per 100, according to the size of root.—H. M.'s DUTCH BULBS will be assorted in a few days, and solicits early orders for the same.

HYACINTHS AND OTHER DUTCH BULBS.

THE SUBSCRIBER begs to announce the arrival of his DUTCH and other ROOTS, in very fine condition, Catalogues of which can be had, or forwarded free on application.

Choice SEEDS for present Sowing, warranted.

PRIMULA SINENSIS FIMBRIATA, saved by Mr. John Hayes, very splendid, per packet—2*s*. 6*d*.

CALCEOLARIA, from the best marked varieties ... 1 0
CINERARIA, very fine, 50 sorts, mixed 1 0
ANTIRRHINUM, spotted varieties, very beautiful, 6*d*. and 1*s*.

W. Dawe (late Dawe, Cottrell, & Benham), Seedsman, &c., 36, Moorgate Street, London.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per packet—*s*.	*d*.
CALCEOLARIA from very showy varieties carefully impregnated	2	6
GERANIUM from first-rate Florist varieties ...	1	0
" from the new showy French ditto ...	1	0
" from first-rate fancy ditto	1	0
" from Scented-leaved ditto	0	6
" from the finest new Rose, Pink, White, &c., of the Scarlet habit	0	6

A remittance in stamps or otherwise must accompany all orders from unknown correspondents.

John Cattell, Nurseries, Westerham, Kent.

CALCEOLARIA AND MIMULUS SEED.

N. GAINES having been fortunate in saving Seed from the superb Calceolarias and Mimulus he exhibited so successfully at the Royal Botanic, Regent's Park, and Crystal Palace Exhibitions, he is prepared to offer it at 2*s*. 6*d*. per packet. Early orders are solicited, as the stock is very limited.

N. G.'s collection of Pæoneasters, Verbenas, and Dahlias are now in flower, and can be seen gratis any day, Sundays excepted, at the Nursery, Surrey Lane, Battersea.—August 30.

PRIMULA SINENSIS FIMBRIATA.

WOOD AND INGRAM have a very fine strain of the above, which they are now selling in 1*s*. packets, post free.—Nurseries, Huntingdon.

GUERNSEY AND BELLADONNA LILIES, 4*s*. per dozen.

Fine flowering Bulbs can be supplied during September by B. Page & Co., Seed Merchants, Southampton.

Price to the Trade upon application.

HOLLYHOCK SEED.

CHATER AND SON offer the above saved from their best flowers, in packets, 200 seeds, 1*s*. 6*d*.; or 18 varieties, separate packets named, 5*s*.

BOURBON ROSE (GLOIRE DE ROSAMINE), strong flowering plants in 48 pots, 10*s*. per doz.—Nurseries, Haverhill.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AZALEA INDICA.

J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, August 30.

CHRYSANTHEMUMS, CAMELLIAS, FERNS.

CHANDLER AND SONS have now ready for send-out fine bushy plants both of the large and small varieties of CHRYSANTHEMUMS, from 9*s*. to 12*s*. per dozen. Also fine healthy young CAMELLIAS well set with flower-buds, 30*s*. per dozen and upwards. A great variety of FERNS at moderate prices.—Wandsworth Road, Vauxhall.

E. SALTER AND SON, Strawberry Nursery, Old Brompton, beg to inform the Public that they have now ready for planting out Salter's DEFIANCE SCARLET STOCKS, which have taken the Prize twice. They grow 2 feet high in blossom, and 2½ in circumference. Sent carriage free within 50 miles of London at 10*s*. per 100. Post-office orders payable at Brompton.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, William J. Nicholson, Egglescliffe, near Yarm, Yorkshire.

A Printed List will soon be ready, and may be got free by applying as above.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 8*s*. 6*d*. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

James Kitley, Lyncombe Vale Nursery, Bath.

HOLLYHOCKS AND ROSES.—The Hollyhocks at the Cheshunt Nurseries are now in full bloom, presenting a display of richness and beauty scarcely attainable in any other flower. These, combined with the Autumnal Roses, of which some acres are in bloom, would amply repay a visit of inspection. Fine selected Hollyhock Seed in 2*s*. 6*d*. and 5*s*. packets.

A. Paul & Son, Nurseries, Cheshunt, Herts, one mile from Cheshunt Station, Eastern Counties Railway.

SELECT FLOWER SEEDS FOR PRESENT SOWING. Sent post free at the annexed prices:—

Per packet—	*s*.	*d*.
DOUBLE DAISY from 60 choice varieties	0	6
CINERARIA, from best new varieties	1	0
CALCEOLARIA, from best spotted varieties	1	0
DOUBLE SWEET WILLIAM, from 30 large varieties	1	0
PANSY, from 100 finest show varieties	1	0
POLYANTHUS, from 50 superb varieties	0	6
ANTIRRHINUM, from best striped and spotted varieties	0	6
HOLLYHOCK, from 50 superb varieties	0	6

William Knight, Florist, &c., 67, High Street, Battle, Sussex.

B. PAGE AND CO., Seed Merchants and Growers, Southampton, can now supply, carriage free on South-Western—

	s.	*d*.
Prime New English Trifolium, per cwt. ... ... 40*s*. to	42	0
" Dwarf Rape, per bushel	14	0
" Early Six Weeks' Stubble Turnip, per lb. ...	0	9
" Chives' Orange Jelly ditto, per lb.	1	0
" Italian Rye-grass, per quarter	50	0

Permanent Pasture and Lawn Grasses equal to any house in the trade.—*Vide* Southampton "Public Lands."

Page & Co. having long supplied the leading practical farmers in Hants, Wilts, and Dorset, their establishment is worth the attention of Gentlemen Agriculturists who wish to buy at strictly speaking market prices.—Oxford Street, Southampton.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

	Per dozen
Exotic Orchids ... ... from	42*s*.
Stove and greenhouse Ferns ... ... "	18
Hardy do. ... ... "	9
Selaginellas or Lycopodiums ... ... "	18
Geraniums, show and fancy varieties ... "	9
Gynerium argenteum (Pampas Grass) ... "	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

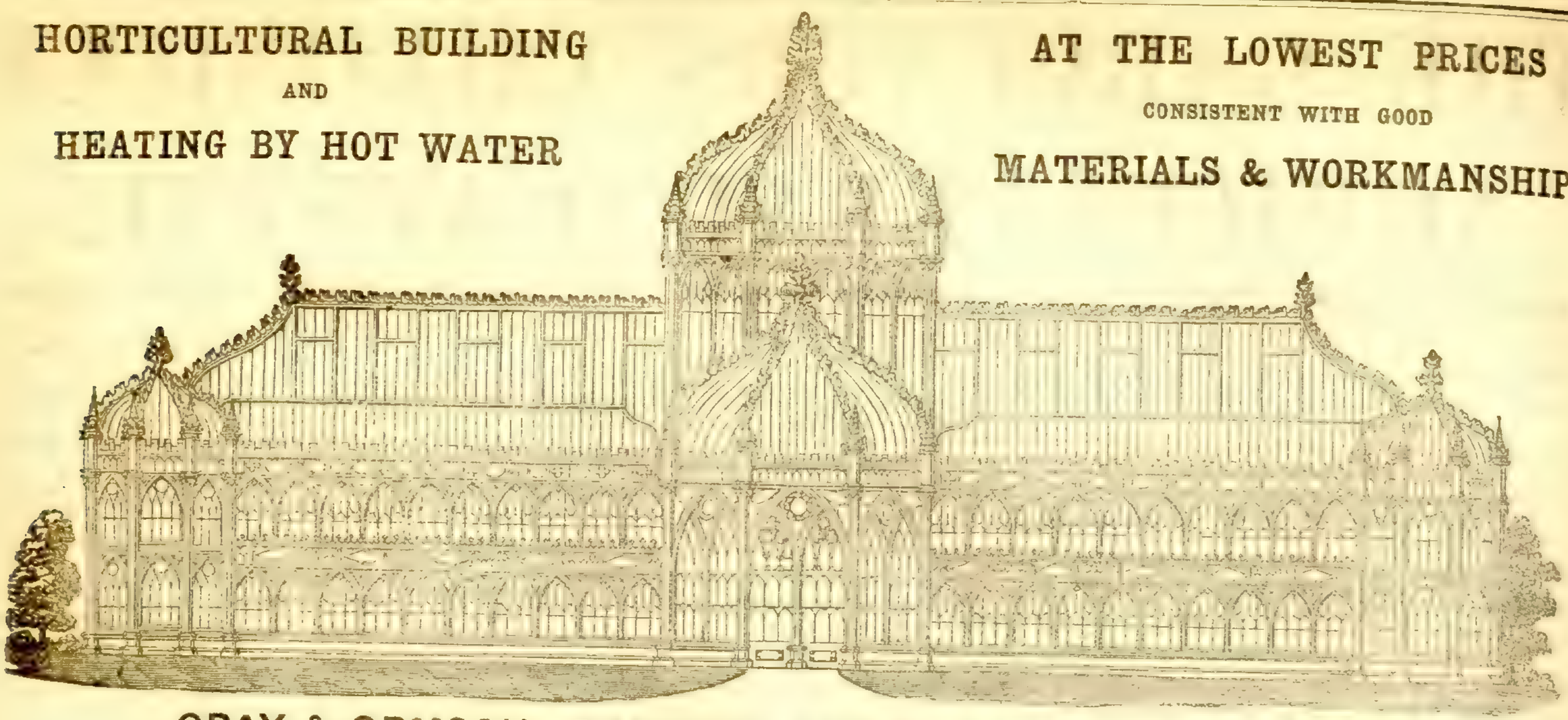
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

ORCHARD-HOUSE TREES.—The collection at Sawbridgeworth is now in high perfection. The large specimen trees are full of fruit, and houses upwards of 1000 feet in length are occupied with Peaches, Nectarines, Apricots, Vines, and Figs.

The Harlow Station, about one mile from the Nursery, is the most convenient. Thos. Rivers.

HORTICULTURAL BUILDING
AND
HEATING BY HOT WATER

AT THE LOWEST PRICES
CONSISTENT WITH GOOD
MATERIALS & WORKMANSHIP.



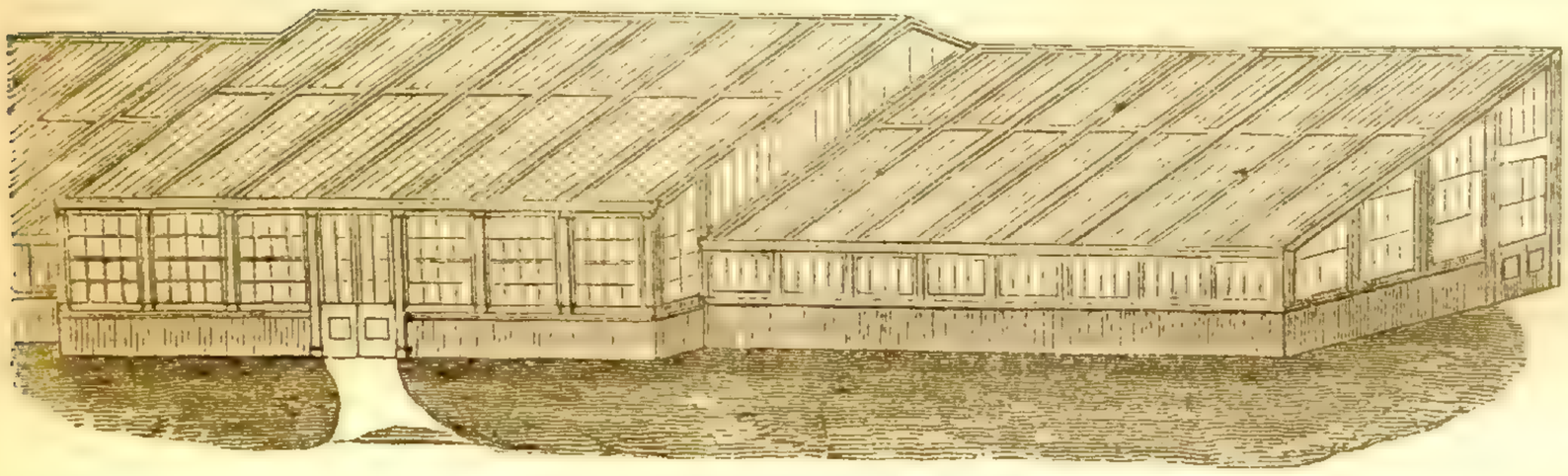
GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

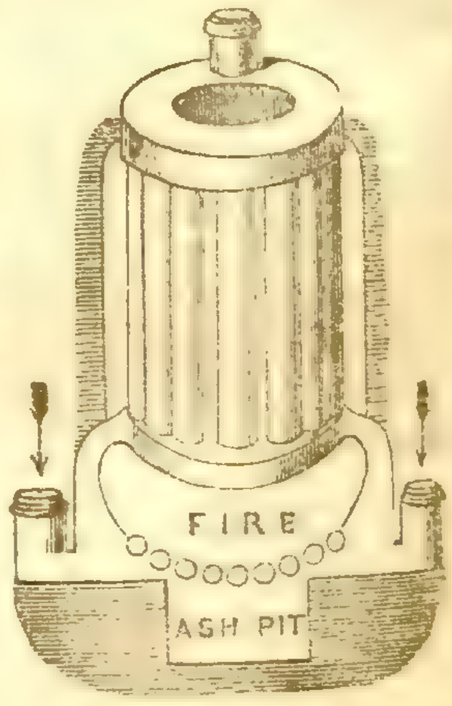
JOHN WEEKS & CO., KING'S ROAD, CHELSEA.

HORTICULTURAL BUILDING, AND HEATING BY HOT WATER.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



HEATING EXTENSIVELY BY ONE BOILER, COMMONLY CALLED

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Buildings of every description, Dwelling Houses, Churches, Warehouses, Horticultural Buildings, &c., separately or combined, and to any extent, can be effectually heated by ONE BOILER.

J. WEEKS & Co. refer to their own extensive Establishment, the whole of which is heated by *one boiler*, and may be seen in constant operation, warming Hothouses, Greenhouses, Conservatories, &c, upwards of 1000 feet in length, the water in the various houses circulating through upwards of 5000 feet of pipe, and the whole so fixed and regulated that any one of the houses can be heated separately, or the whole together, and any part regulated at pleasure.

J. WEEKS & Co. have also great pleasure in referring to the extensive Nursery of Messrs. Edward Henderson & Co., Wellington Road, St. John's Wood.

We will here quote Mr. Henderson's own words, expressing his approval of our ONE BOILER SYSTEM. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than 2 sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 900 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to numerous seats of the Nobility and Gentry in various parts of the country where *one Boiler* has been fixed to warm a great number of houses, &c., and frequently the dwelling-house also from the same boiler.

In some instances *our one Boiler* is doing the work formerly done by 20, so that in these cases the great number of fires, stokeholes, and chimneys, are entirely dispensed with.

At his Grace the Duke of Leeds', Hornby Castle, Yorkshire, *one of* J. WEEKS & Co.'s *Boilers is heating* 10,000 feet of 4-inch pipe, and one of the houses, a large Conservatory 190 feet long, is situated upwards of 500 feet from the Boiler.

J. WEEKS & Co. make their Tubular Boilers of all sizes on the same economical principles; nearly 4000 of which of different sizes are in operation at the seats of the Nobility and Gentry throughout the Kingdom and on the Continent.

The Nobility and Gentry about to erect Horticultural Buildings or to fix Hot-Water Apparatus will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Conservatories, Greenhouses, Hothouses, Pits, &c., erected and in full operation, combining all modern improvements in the various branches of the Horticultural science, so that a lady or gentleman can select the description of house best adapted to the purpose for which it is required.

As an *Horticultural Establishment* it is also an unlimited source of attraction, containing New and Rare Plants in great variety.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in pots.

FRUIT TREES and SHRUBS of every kind.

The SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., BUILT upon the most scientific principles, combining all the improvements of the day. HORTICULTURAL WORKS of every description and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers,
KING'S ROAD, CHELSEA.

NEW HARDY RHODODENDRONS.

JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.

RHODODENDRON JOHN WATERER; colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s.* each.

RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s.* each.

RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s.* 6*d.* each.

☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.

The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

CUTHILL'S STRAWBERRY PLANTS FOR 1856 AND SPRING OF 1857 ARE NOW READY.

CUTHILL'S EARLY BLACK PRINCE, 5*s.* to 7*s.* 6*d.* per 100.

CUTHILL'S PRINCESS ROYAL.—Early, very hardy, medium size, superior flavour. Name suggested by Sir Jasper Atkinson on account of its superiority. Price 1*l.* per 100; 50 for 12*s.*; or 25 for 6*s.* It is an excellent early forcer. (See the *Illustrated London News* of July 12th, for a drawing of CUTHILL'S Princess Royal Strawberry.)

CUTHILL'S PRINCE OF WALES.—Splendid colour and shape, fine size, the greatest bearer of all other sorts, first rate for table and preserving. Price 10*s.* per 100, or 50 for 6*s.* The average of days in bearing of these three sorts is over 55; the average weight about 1700 lbs. to three-quarters of an acre.

CUTHILL'S BLACK SPINE CUCUMBER, 1*s.* per packet.

Green's LADY ANTROBUS WINTER CUCUMBER has been in his possession 20 years. Per packet, 2*s.* 6*d.*

CUTHILL'S NEW LONG WHITE SPINE.—Great bearer, fine form, 12, 16, and 20 inches long, 2*s.* 6*d.* per packet.

J. CUTHILL'S Pamphlet on the Potato, Strawberry, &c. 2*s.*

J. CUTHILL'S Market Gardening Round London. 1*s.* 6*d.*

J. CUTHILL'S Pamphlet on the Vine Disease of Spain and Portugal; containing also a Plan for the Total Destruction of Woodlice in Cucumber Pits, &c. Price 1*s.*

Orders payable to JAMES CUTHILL, Camberwell, London.

DARK LACED SEEDLING POLYANTHUS LADY MILNER.

JOHN WILLISON has great pleasure in offering the above unrivalled Seedling at 5*s.* per plant, which has been so successful at the York Show for the two last years, which took the 1st, 2d, and 3d prizes, and has been pronounced by many competent judges the best in its class.

Mr. C. Turner's opinion:—"Sir, your Polyanthus for size, shape, and marking, is the most perfect flower I ever saw; it is a beauty." J. W. has saved a little seed from the above seedling at 2*s.* 6*d.* per packet, and from 25 good show flowers 1*s.* 6*d.* per packet. The above can be had of Mr. C. Turner, Slough; S. Finney & Co., Gateshead; and all the principal nurserymen and florists. The usual allowance to the trade and one over when a dozen are taken. J. W. can supply good plants of the following at low prices:—50 to 100 of the leading sorts of show Gooseberry Trees at 6*s.* per doz.: Primroses, crimson, 9*s.* per doz.; White, Purple, Lilac, and Yellow, 4*s.* per doz. All orders from unknown correspondents must be accompanied with a post-office order.

JOHN WILLISON, Chubb Hill Nursery, Whitby.

NEW HARDY HYBRID RHODODENDRONS.

WATERER AND GODFREY beg to offer the following new Hybrid Rhododendrons, and which they recommend as being hardy, distinct, late, and beautiful, and such as will be sure to give satisfaction, viz.:—

	s.	*d.*
ALARM.—This is, perhaps, one of the most striking kinds we possess, each petal being edged with bright scarlet, the centre quite white; it is also a very late bloomer... ...	21	0
BLACK-EYED SUSAN.—Purplish lilac, the spotting being more decidedly black than in any variety we know	21	0
BEAUTY OF SURREY.—Rich, rosy scarlet, good shape, and prettily marked	21	0
LORD JOHN RUSSELL.—Pale rose, the upper petal being distinctly and beautifully spotted, or rather blotched; this is decidedly the best in its way	21	0
MAGNUM BONUM.—Rosy lilac, spotted all over each petal; the flowers being large, and almost flat, makes it very attractive	21	0
PRINCE ALBERT.—Rich lake, the flowers of remarkable consistency, in fact almost approaching a Camellia; certainly one of the most distinct and desirable kinds ...	21	0
PERIEANUM.—Light rose, finely spotted; this is a very pleasing kind	21	0
WILLIAM DOWNING.—Rich dark puce, with an intense black blotch on the upper petal of paint-like consistency; the flowers are individually large, and the truss magnificent	21	0

Knap Hill Nursery, Woking, Surrey, Aug. 30.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq. Manor House, Bathampton:—"This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq, Swainswick House, whose name is well known to the floricultural world, being the raiser of a great number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British Queen is a very delicate and tender kind—this is one of the hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a Strawberry is required.

Strong well-rooted plants 3*l.* per 100; 1*l.* 15*s.* for 50; 1*l.* for 25; or one dozen for 12*s.*; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurserymen, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

TULIP CATALOGUE.

CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.

A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.

Now ready, very choice CINERARIA, 2*s.* 6*d.* per packet.
very choice CALCEOLARIA, 2*s.* 6*d.* „
Royal Nursery, Slough.

NEW VERBENAS OF 1856.—Blue Bonnet, Tranby, Dandy, Standard Bearer, Géant de Batailles, Impératrice Elizabeth, Mrs. A. Clive, Viscountess Emlyn, Antagonist, King of Sardinia, King of Roses, Purple Defiance, General Simpson, Duke of Cambridge, Sir Colin Campbell, Criterion, Lady Camoys, Nosegay, Crimson Perfection, Moonlight, Mrs. H. Williams, La Stella, Loveliness, Dr. McLean, Eugenia, Admiral Lyons, Countess of Oxford, Lady Kerrison, Preeminent, Victory, Imperialil, Any of the above 4*d.* each, and post free when more than 12 are taken. New striped Petunias at 6*d.* per dozen.—Address

HENRY MAY, the Hope Nurseries, near Bedale, Yorkshire.

BALSAMS.

F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show of the Botanic Gardens, Regent's Park.

Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled.—Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

CATALOGUES.

BASS AND BROWN'S Nos. I. and II. CATALOGUES for 1856–57 are now ready and supplied on application.

No I. contains their large and superb collection of BULBS and FLOWER ROOTS, which are this season very fine; HERBACEOUS PLANTS, CONIFERÆ, HARDY ORNAMENTAL SHRUBS, ROSES, FRUITS, &c.

No. II. contains their choice collections of GERANIUMS, AZALEA INDICA, CINERARIAS, STOVE and GREENHOUSE PLANTS, &c.

CHRYSANTHEMUMS.

14 best Pompones of last season, handsome and bushy, for strong bloom	14*s.*	0*d.*
20 best Pompones of previous date	12	0
20 best large flowering of ditto	12	0

Sudbury, Suffolk.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, AUGUST 30, 1856.

THE reappearance of the Potato disease, and the storms which have here and there accompanied it, have revived the old speculation that this affection is caused by the action of electricity. We see the question raised in the country newspapers, and our own correspondents are engaging in the discussion. It is urged that the disease continually breaks out after thunderstorms, as was confidently asserted in Ireland in numerous places in the year 1845, when fishermen reported that they had seen from the sea lightning playing over healthy Potato fields which immediately became rotten. Of this a very extraordinary instance was pointed out in the parish of Skerries, near Dublin. Without going back to those days we are assured that similar instances have just occurred. A correspondent mentions the following cases as having come within his own knowledge:—

"A severe storm occurred at B———, during which the exchange of electricity between the earth and the storm-cloud was seen by more than one observer. From that time the early Potatoes become diseased, and on the Saturday week after the storm were half rotten. An electrical discharge was seen to take place from a cloud into a field on Thursday, August 7. Prior to that time no trace of disease appeared; now there can hardly be found a root without one or two stems nearly rotten, and the damage done was clearly visible on the Saturday morning after the storm. Enquiry of those who get their living by buying crops of Potatoes on the land and selling them again, and whose experience is of course the largest in this case, shows that frequently a corner of a field is taken; sometimes a strip along a hedge side; sometimes a belt across the middle, and commonly a limit to the malady may be traced in some one or more fields in the district in which it prevails. An old man, a market gardener, was going with his cart to Bradford market from Wakefield four years ago in the month of July. It was very close and hot. At a particular spot on the road it became 'suddenly as cold as Christmas, fit to take the face off you.' This lasted for about 50 yards, when 'all on a sudden it was as hot as going into a stove.' That night the Potatoes became diseased which had previously been perfectly healthy, and this poor man was ruined by the loss. He now works as a labourer in the public streets. I think," adds our correspondent, "that in all these (probably in all other) cases electricity is the cause, the sole cause of the evil, and that fungi, &c., are but results which mostly accompany the decay of nitrogenised vegetable matter. The stem of the plant forms the medium through which electric discharge takes place: the obstruction to the passage of the electricity developes heat which converts the fluids of the stalk into steam, thus rupturing the cells and giving rise to decay. The circulation of sap, altered in its chemical condition by passing through the disrupted part, causes the decay of the tubers. It is also probable that a chemical decomposition of the fluids in the plant takes place by the electricity in its passage, and that part of the effects known as Potato disease are due to this."

But it is to be remembered that the Potato disease breaks out in the absence of thunderstorms; as, for instance, in the spring, when Potatoes are forced for an early crop. Nor can we admit it ever to be so sudden in its appearance as is alleged. On the contrary, it is invariably preceded, for some days or even weeks, by the well known brown discolouration of the stem near the old set, a symptom which, being underground, is not observed. Moreover it is necessary for the advocates of electrical agency to show why that agency failed to manifest itself before the year 1845 in Great Britain. These are facts for which theory must account satisfactorily before we can give our assent to the electrical notion. We forbear to remark upon our correspondent's hypothesis that the fluids of the stem are converted into steam(!), which ruptures the tissues and thus causes decay; nor is the supposition consistent with facts of another kind. The Potato disease is first manifested on the skin of the stem next the old set. Some time afterwards blotches, accompanied by the mildew plant (*Botrytis*), appear on the leaves at or near the edges. Afterwards the decay spreads, connecting the base of the stem with the leaves and invading the lateral tubers. This is the invariable course of the disease as far as we have observed it, even when it has spread with the greatest rapidity, and in some instances a few hours have sufficed to complete the operation.

We wholly concur with our experienced friend Mr. BERKELEY in regarding the phænomenon as due to the action of the microscopic spawn (*mycelium*) of the Botrytis, which after a time sets up a putrid fermentation of the juices of the Potato. All facts at present known to us are consistent with this view; which nevertheless is not without its difficulties. Why, it must be asked, did not the Botrytis attack the Potato before 1845, in these islands? Or if its attacks were in reality much earlier, as is probable, how was it that they became so virulent from 1845? To that we have no answer to give. The same question is also applicable to the Vine mildew, and remains equally without reply.

It is probable that the spread of these pests may be owing to a greater abundance than usual of nitrogenous matter in the tissues of the Potato and Vine, however acquired; for many facts point in that direction, and we know that nitrogenous matter is most especially the nutriment of fungi. If that be so the sudden application of nitrates formed in thunderstorms, dissolved in the rain that accompanies them, and rapidly absorbed by the roots of the Potato, may give such an impetus to the development of fungi as will account for their sudden excessive manifestation in connection with electrical discharges in the atmosphere. Nor would this be inconsistent with the presence of disease in forcing houses, although thunderstorms do not occur there; because in such places carbonate of ammonia, which is always in excess, may furnish the nitrogen required. This is a very different, and, we venture to think, more plausible interpretation of the supposed connection between lightning and Botrytis,

that what is generally offered. But even if true it by no means exhausts the question; for it still fails to explain why nitrogenous matter was not thus in action before 1845.

Mr. John Shaw, of 40, Princes Street, Manchester, has sent us a sample of a shading material which promises to supply a real want in gardening. The fabrics at present in use for that purpose are either too opaque or too perishable, or too heavy, or too costly, or they have, like Frigi Domo, the great fault of shrinking excessively. That before us seems to be free from such objections. When drawn over a glass roof the effect is that of a white cloud reflected on the glass; it does little more than diffuse light without obstructing it. Of its durability we cannot judge, but some trials we have made with it in wet windy weather are satisfactory as regards its strength. Nothing can well be less heavy, even when soaked with rain, for the threads are too far apart to allow water to be detained among them. Its price is 5*s.* for a piece 20 yards long by 38 inches wide; 3*d.* a yard for such a width is as little as any good material can cost. Finally, as to shrinking, we do not at present see that it possesses that bad quality in any appreciable degree.

Time is, of course, the only test of the true value of articles like this "Tiffany," for so it is called; and that test we have not been able to apply. We know, however, that it is in use at Trentham, where Mr. Fleming finds it extremely useful. In a note before us he says:—"The new material for shading answers perfectly. It is stout and yet open enough to admit sufficient light to plants in flower, to Ferns and Lycopods, which thrive amazingly under its genial shade. Pine Apples are much benefited by being shaded by it during bright sunshine, and so are Melons and Cucumbers." He proposes to fix it permanently during summer over the Camellia house at Trentham, in order to preserve the healthy green foliage from being browned by the sun. He is also of opinion that the material will answer to keep wasps and flies from fruit, and to protect wall trees from frost in spring.

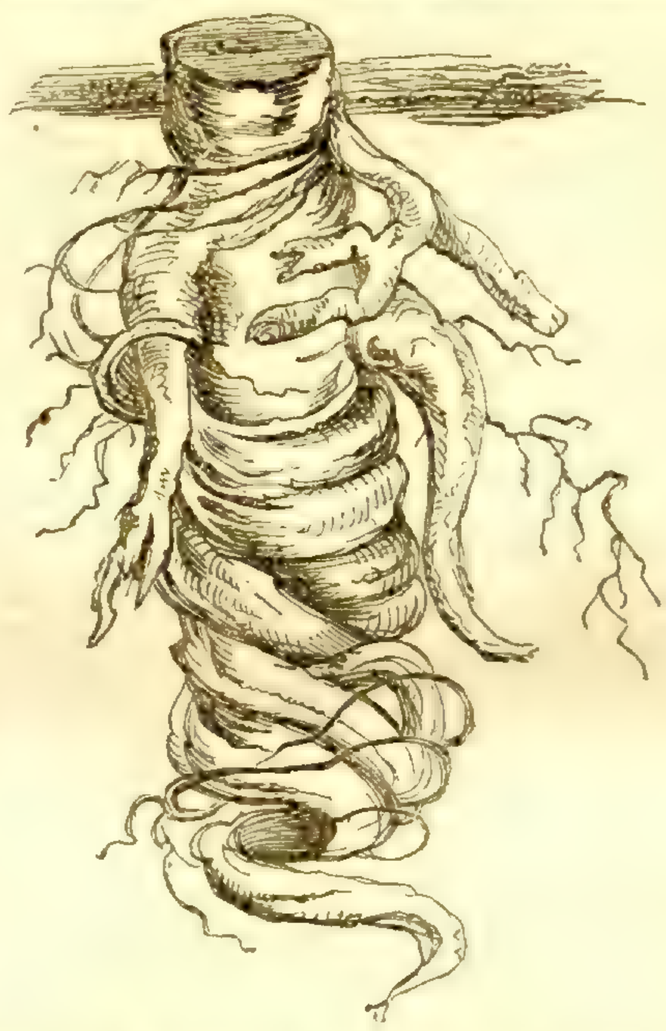
We advise a trial to be made of it at once, as a guard against the swarms of wasps which the late dog-days so abundantly engendered.

It is said that Wellingtonia, the noblest of Coniferous plants, is afflicted with an alarming disease. Our correspondents describe the disease in various ways; but chiefly as a dying away of the limbs without any assignable cause. To a small extent this seems to be constitutional; and so far it resembles what is so common in Cryptomeria, Juniperus squamosa, and a few other plants of the same group among Conifers, and may be regarded as unimportant. But in some cases the mischief goes further, the whole top turning brown and perishing. Is that really a disease? Or is it not rather the consequence of some management which the plants dislike? We incline to the latter opinion.

If Wellingtonia, while very young, is planted out of doors in burnt clay and fragments of charred roots or leaves, it grows with great rapidity, presents the appearance of robust health, and becomes in a few months the sturdy bush described at p. 534 by a correspondent at Acton. No cold touches it. No wet affects it; for the place in which it has grown ever since its infancy is as wet and cold as could be found in the county of Middlesex. We ascribe this vigorous health in some measure to the soil, which perfectly agrees with it, but more especially to the perfect freedom of its roots. On the other hand, all the unhealthy specimens we have seen or heard of had been nursed under shelter, and cramped in little flower-pots. The effect has been to produce a weakly growth at a season when the plant should have been at rest and the production of wood and leaves in places where they are imperfectly exposed to that action of sun, wind, and air which is indispensable to all plants, but most especially to Conifers. Moreover the roots crowded and twisted within the narrow space of a flower-pot were quite incapable of obtaining such a supply of food as was demanded for their own organisation, as well as for the nutriment of the branches. The inevitable result would be the death of something. In a specimen sent us by Mr. Rivers both top and bottom were perishing equally.

Should this reasoning be correct the remedy will be obvious. The plants should be fully exposed to the weather in all seasons, and never be cramped in pots. It would seem as if the treatment of Spruce and Larch was that which they would prefer. If for a plant of so much value that rough management is thought objectionable, then we would suggest the basket potting so successfully employed where the situation a plant is to occupy finally cannot be decided. This basket potting, which is far too little known, is managed as follows:—A seedling is planted in a small coarse wicker basket plunged in the ground. After a time its roots find their way through the sides of the basket into the surrounding earth. The basket is then carefully lifted and placed in a similar plunged basket of much larger dimensions, the first being left to rot. In time its roots find their way to the open sides of the second basket, when the shifting must be repeated; and this must be continued till the station of the specimen is finally determined upon, when it is planted along with the basket or baskets into which it may have been transferred from time to time.

In this way "corkscrewing," as the spiral direction of the roots is called, becomes impossible; whereas in a garden pot it is as impossible to prevent it. And this is a point of the first importance, for if the roots of a Conifer once become corkscrewed



nothing will afterwards overcome the spiral tendency; and although the plant may not actually fall over or be blown out of the ground, it acquires incurable debility, as may be seen anywhere in the case of Cedars of Lebanon and others which have been long kept in pots for the convenience of transplantation; and of the condition of whose roots the annexed cut is no exaggeration.

New Plants.

182. Biota Meldensis.

This new Arbor vitæ is named from having been raised at Meaux, by a Mr. Quetier of that city, so famous for its Roses. It is said to be a hybrid between the common Arbor vitæ and a Red Cedar. It has, however, the cone of a Thuja. Its pyramidal habit makes it easy to recognise. M. Pépin regards it as possessing peculiar interest as being the only hybrid yet known among evergreen trees. *Moniteur des Com.* There is a *Thuja pendula* with a weeping habit and long flagelliform branches which is also supposed to be a hybrid, as is stated in the Botanical Register. There is also a hybrid Oak between Qu. pedunculata and Ilex; and doubtless other cases could be named.

GLASS-HOUSES FOR GARDENING PURPOSES.

Your remarks upon the triumphs of good cultivation in make-shift houses have induced me to offer a few observations upon garden structures in general. In no department of gardening have more errors been committed or more expense contracted than in this, and no other has furnished so many sources of vexation to gardeners or disappointment to their employers. I believe one chief reason of this arises from the fact that houses are frequently erected without any very definite idea of the purpose they are intended to serve. Almost every country tradesman, be he carpenter, bricklayer, plumber, or ironmonger—for all these, and more than these, dabble in such matters—feels himself qualified to give estimates for and erect such buildings. Besides, most agents, be they successful corn growers or learned lawyers, are generally prepared to give their opinion on the subject; and ranges of glass are sometimes erected in country places without those who are to use them having been consulted about the matter at all. Hence, expensive houses are frequently built without any proper means of heating or ventilating, their facilities for successful cultivation being in an inverse ratio to their cost. I have seen many instances of this description, and in the arrangements for heating alone have observed as much hot-water pipe used in an Orangery as would suffice for an Orchid house; whereas in a plant stove I have seen the pipes for heating the atmosphere so buried up as if the chief *desideratum* was to secure subterranean not atmospheric heat, to keep the foundations of the building comfortable instead of economically securing a genial temperature by placing every inch of the warming apparatus in the best possible position for conducting and radiating heat. But I will not multiply instances, as such anomalies are common to most gardeners, unless indeed it be those whose plant houses have all been erected and heated by some of the large London or provincial firms, who generally execute their work much to their own credit and the satisfaction of all parties concerned.

While I perfectly agree with you that very much may be accomplished, and is, by most good gardeners with very unpromising materials, I am still of opinion that all glass structures for gardening purposes should be distinguished by strength, durability, efficiency, and beauty, and that all this is compatible with a due regard to enlightened economy. They should be strong to give that security and safety to our *protégées* which their fragility and our sympathy and love for them so imperatively demand; also that we may be able to visit them at all times, to admire their beauty, and minister to their wants without any fear for our personal safety. This can hardly be the case with the makeshift houses so graphically described at p. 348. They should also be strong, to protect them from accident. About three years ago I was awoke one morning by a terrific hurricane and the crash of breaking glass; three minutes sufficed for dressing and calling up my young men, and I sallied forth to examine the range of houses. I shall never forget the scene. The lights of a fruiting Pine house and a cold pit hard by were dancing a polka together, to the rough wild music of a lofty greenhouse that swayed about with the wind and threatened every moment to add its light half rotten materials to the *débris* around me. I vowed then, amidst the serious havoc and deafening uproar of the storm, a vow that I will legibly imprint upon every glass house that I design, or cause to be erected—that they shall all be strong. But glass houses should also be durable, and this implies that they should be constructed of the best materials. Also that these materials should be so formed and placed as to be kept as dry as possible. I have frequently seen the finest beams of Deal forming wall-plates and supports for roof-sashes rotted entirely through by having a level top or a slight inclination inwards. Sometimes even mouldings are fixed on above the level as if for the express purpose of retaining water. Such beams ought invariably to be bevelled from the centre to the sides, so that a drop of water cannot lodge upon them. Attention to such matters, securing good workmanship in the glazing, and giving them a coat of paint just when, and not a year or two after, they require it, will enable good materials to withstand the severe tests to which they are exposed for years. Iron, though more durable than wood, cannot be recommended for general purposes. Its use involves the necessity of such frequent inside painting, and the quantity of glass destroyed by its powerful expansive and contractive properties is so great, as to more than counterbalance the advantages it possesses on the score of durability. Above all glass houses must be efficient, that is, they must answer the purpose for which they were designed. The roofs should be impervious to moisture, and though strong not heavy to obstruct the free ingress of light. Ventilation should be abundant, skilfully arranged to avoid draughts, simple, easily and speedily regulated; a copious supply of water at the temperature of the house should be provided, and atmospheric moisture easily at command. The heating apparatus must be sufficiently strong, clean, and under perfect control; and, in fine, the whole arrangements made with the view of producing the largest quantity of perfect fruit or flowers in the shortest period of time, at the least cost, in the smallest space. With such houses a common man may succeed, while a good gardener is sure to excel.

Garden structures ought also to be ornamental. It is bad policy to keep them out of sight, and in most places it is simply impossible. Ladies and gentlemen in the present day are not satisfied with results. They must see the entire process by which such results are obtained. Hence, for one lady or gentleman now who is satisfied with seeing their gardens in their house or on their table, hundreds are almost daily visiting every part of them, from the imposing highly finished conservatory, that has become a necessary appendage to the drawing-room, to the rude contrivances that are run up to shield bedding plants from the withering breath of a stormy March, or the pelting hailstorm of laughing April. In many establishments, too, the entire range of glass becomes a promenade for the family in cold or wet weather. By such means the taste for gardening pursuits is doubtless strengthened and extended. The gardener who by erecting ugly houses or keeping them untidy would check this taste is blind to the true interests of his profession. I would advocate fostering it as much as possible by making garden structures and their occupants still more beautiful. Much may be done by beauty of design—more perhaps by skilful arrangement—and a good deal by destroying the tiresome monotony of our roofs, and indeed the whole inside of our houses by introducing chaste and pleasing colours of paint. The charm of good culture and cleanliness I suppose to be always present. But it will be asked, is all this consistent with economy? I think it is. Strength and durability constitute the very keystone of true economy. Take a term of years, say a quarter or half a century; compare the expense of flimsy structures to those that have been well built, and the balance will be in favour of the latter. There are many ex-

ceptional cases, but as a general rule it holds good in this, as in all other matters—that what is worth doing at all is worth doing well. Besides well-built houses are generally more efficient. Great masters of our or indeed of any other art are comparatively rare, and it requires such to achieve triumphs over great difficulties. Much beauty too may be secured at but little additional cost, and I know of no department of art in which more can be obtained for a less sum than in garden architecture. However, I freely admit that if garden buildings are to be richly adorned, a strict economy cannot be adhered to, for I agree with you, in one of your articles upon the Horticultural Society's garden at Chiswick, that ornamental gardening is expensive. But what then? Ornamental gardening is a high style of art; and who can say that its practice involves more expense than the pursuit of sculpture or of painting, or that the pleasures it confers are less refining, spirit-stirring, satisfying and ennobling? *D. T. Fish, Hardwick Gardens, Bury St. Edmunds.*

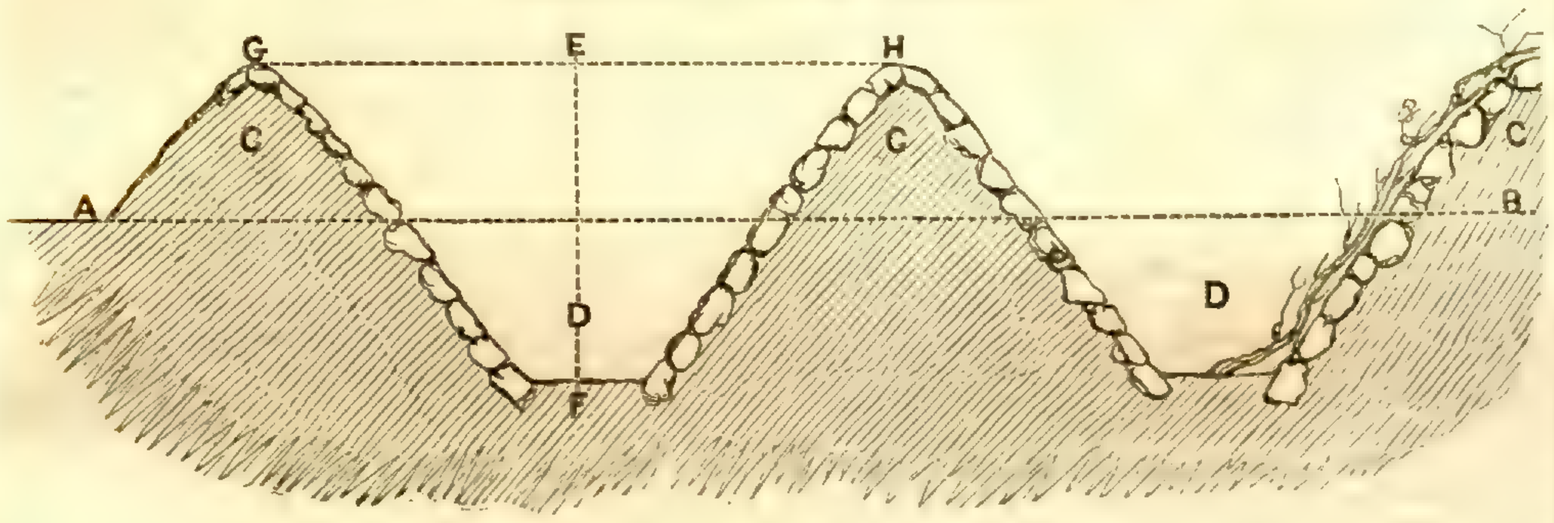
GHUZNI VINEYARDS.

The perusal of a leading article in your issue of the 2d inst., in which you advert to a Transatlantic publication on the growth of the Vine, induces me to trouble you with a suggestion gathered from my Eastern experience, and which I think it probable may prove useful to the cultivators of the Vine in the United States, and more especially to those resident in Canada.

I served for four years, 1839 to 1842 inclusive, in Affghanistan. That country is, as you are aware, a lofty table land, the highest portions of which, having an altitude of 6000 to 8000 feet above the sea, are around Ghuzni and Cabool; from thence the plateau slopes gently towards the south-west, until at Candahar the barometer indicates an elevation of about 4000 feet only above the sea level. The climate of the northern districts appears to me greatly to resemble that of Canada. The air is pure and exceedingly dry; the summer short but intensely hot; whilst the winter is long and extremely severe. I have seen the thermometer stand at 112° Fahr. in my tent on the banks of the Helmund in August, and in the following winter witnessed the quicksilver fall to 14° below zero in the citadel of Ghuzni. Yet Affghanistan is celebrated for its vineyards; indeed, Grapes may be called the staple production of the country, and although many of the species are valuable only for their abundant bearing, others, especially the small golden Bè-dana (seedless) possess a richness of flavour that would render them favourites even in England. The system of cultivation pursued, and under which alone in such a climate and with limited means the husbandman could hope to see his Vines ripen both fruit and wood, is briefly this:—

The site of the vineyard is selected, if possible, on the slope of a hill with a southern aspect. The ground is then dug in trenches (running north and south) at intervals of about 12 feet, and from 3 to 4 feet deep, the soil excavated being deposited between the trenches, thus forming intermediate mounds, the whole finally

SECTION OF A GHUZNI VINEYARD.



B. General level of the ground.
C. Earth excavated from D.

E. F. 6 to 7 feet.
G. H. 12 to 14 feet.

resembling somewhat a gigantic Celery bed. All the stones that have been dug out (and, if necessary, others are collected for the same purpose) are then driven into the sides of the trenches and mounds, and thus form a rough revetment or wall; the Vines are then planted in the bottom of the trenches, and as they grow trail themselves over the mounds.

The advantages of the system are obvious. During the long winter the Vines are buried deep in snow, and this warm covering is retained by the trenches until some time after all on the surface of the country has disappeared, and danger from spring frosts has passed away. As the snow in the trenches melts it find a ready outlet at the lower ends. When once the Vines begin to push their progress is rapid, as from the mode of growth provided for them they receive not only the full benefit of the whole of the direct rays of the sun, but also of the heat radiated from the underlying stone revetment.

I think you will agree with me that the adoption of a plan such as the above would enable our Canadian farmers speedily to enjoy an abundance of good Grapes, obtained, too, with little trouble or expense. *A. C——d., Great Malvern.*

VEGETABLE PATHOLOGY.—No. CXXXV.

555. Parasitæ (*Botrytis**).—This name is familiar to the English reader from its connection with the Potato murrain, but as if nothing in nomenclature was ever to remain unchanged, three names at least, *Peronospora*, *Bremia*, and *Monosporium* have striven to supplant it, and the former with some prospect of success. Unhappily when extensive genera are divided, the division is seldom made by authors who have studied the whole group, and have therefore reserved its proper place to the original name, which ought to contain the more typical species. Each, for the most part, separates a group under a new generic name, till the original genus is lost. The genus *Botrytis* was first established by Micheli to include the species which were afterwards separated under the name of *Polyactis* by Link. Meanwhile a parasitic species, the mould of many Crucifers, was proposed by Persoon under the name of *Botrytis parasitica*, and the species is figured by Sowerby as *Mucor Botrytis*. Many species were subsequently added, which form *Verticillium* and other genera, and *B. parasitica* and its allies remained tenants of the genus till Corda, without considering what had been done by others, according to his habit of giving every form a new generic name, proposed for them the name of *Peronospora*, while Regel, in ignorance of a host of publications on the subject, gave to one species the name of *Bremia*, and Bonorden added that of *Monosporium*. Under these circumstances, unless the name of *Botrytis* is to be swamped altogether, it seems right to retain it for the plant of Persoon and its allies, as the genus *Polyactis* is well established, and can scarcely have its proper name restored.

556. The *Parasitic* species of *Botrytis*, to which it is proposed to confine the name, consist of a branched mycelium creeping amongst the large intercellular spaces of the under side of the leaves of plants, or occasionally amongst far closer tissues and fertile threads rising from them which penetrate into the open air or some free space, and there produce at their swollen or branched and often forcipate tips, large globose ovate or elongated spores. Tulasne, Caspary, and others have however discovered that this is not the only fruit. The latter, independently of Tulasne, has figured† two kinds of fruit, one of which containing a single many-coated spore he calls a sporangium, and the other a cell containing multitudes of minute sporidia he calls a sporidangium, an organ which differs from the pycnidia of Tulasne in its simple covering and the reproductive bodies like those in the vesicles of *Mucor* being formed from the protoplasm.

These forms of fructification have not been discovered in every species at present, and as the *Oidium* of the Vine has not yet been found producing the fruit of an *Erisyphe*, so the *Botrytis* of the Potato has at present not been found with sporangia or sporidangia.

557. The parasitic species of *Botrytis* occur on plants of various kinds, and are very numerous. In South Carolina a very handsome species grows on Vine leaves without however being produced in such abundance as to do much mischief. In our own country the ravages are often extensive. A lilac-coloured species abounds on Spinach and other allied plants, forming close dense tufts. Peas, Poppies, Teazle, Lettuces, Parsnips, and above all these various species of Onions, often fall a sacrifice to their attacks. The species which affects the latter, *B. destructor*, is like the mould of Spinach tinged with lilac, but instead of forming a close felt is scattered uniformly over the leaves. The spores are longer than in any other species. In the species which attacks *Rhinanthus*, *B. densa*, the spots are definite, and the stems very short and of a pure white; in *B. ganglioniformis*, the pest of Lettuces, but which also grows on the Sowthistle, the tips of the threads, instead of being regularly forked, swell into ganglion-like processes, from which little spicules project, each of which is surmounted by a spore. On the *Anemone* the fertile threads are still shorter than in the *Botrytis* of *Rhinanthus*, and are very slightly divided, so as to bear only four or five spores.

558. The threads of the *Botrytis* are injurious in two ways, first by diverting and appropriating the nutriment which was elaborated by the plant on which they grow, principally as it should seem by endosmose through the walls, though the threads are capable of penetrating the cavities of the cells, and secondly when they themselves decay, by acting like a putrefactive ferment on the tissues with which they are in contact. It is manifest that if this be the case it is not necessary that the *Botrytis* should penetrate to every part where decay exists, for when the tissues are once affected at a particular point they can communicate the taint as well as the fungus. The *Botrytis* which attends the Potato murrain is so important as to require a separate article. Our figure represents *Botrytis macrospora*, Unger, a species closely allied to *B. umbelliferarum*, in which Caspary has found his sporidangia. *M. J. B.*

* From βοτρυς, a bunch of Grapes.

† Ueber zwei- und dreierlei Früchte einiger Schimmelpilze (Hyphomyceten), von Dr. R. Caspary. Berlin, 1855. An extract from the monthly report of the Berlin Academy, May 1855.

Home Correspondence.

Diseased Lobelia.—May I take the liberty of requesting you to examine the enclosed specimen of Lobelia. It is the well-known L. Ramosoides, which is very extensively used here for dwarf blue beds and also for margins to beds. I lately observed that beds of it were less brilliant in colour than usual, and after closely examining the plants I found that they were slightly spotted. I attempted to save the beds by cutting a little from the tops of the plants, and afterwards shading them with boughs. They however would not revive, but were in the space of three or four days entirely gone, leaving not the slightest trace of their former beauty—they became one putrid mass. Some of the beds in distant parts of the garden begin to get gradually affected in a similar manner; but the evil is confined to this variety. The other sorts treated as annuals and raised from seeds in spring are not at all affected, though growing in the same compartment of the garden. This variety of Lobelia I have kept up from cuttings made in autumn and spring, and they have never until within the last few days exhibited the slightest symptom of decay. I may mention that the weather has been very dry and warm for several weeks, but during that time the beds of Lobelia were well supplied with water. Their decay has been so rapid and unusual that I am sure you will not consider me obtrusive in laying the matter before you. *Robert Gordon Foggo, Shrubland Park.* [We have examined very carefully the specimen of Lobelia which you have kindly transmitted, without arriving at any satisfactory conclusion as to the cause of the affection. The root is singularly healthy for so diseased a plant. There is no fungus about the plant to account for the decay, which commences at isolated spots all over the plant, even as high as the calyx and petals, and then rapidly extends in every direction. Upon the moister portions are imperfect specimens of *Botrytis grisea* mixed with *Macrosporium Cheiranthi*. These, however, are merely a consequence of decay and not a cause. There is a minute *Phoma* on the peduncles, but in too small quantities to make it of any consequence. The only peculiarity about the tissues is that the walls of the external cells are strongly plicate, a condition dependent upon their having become more flaccid than in health. The whole history of the complaint, and especially the circumstance of its being confined to a single variety, indicates one of those constitutional disorders against which no one can guard, and against which it is often hopeless to contend. Even in the animal kingdom, where there is more time for the application of remedies, such maladies often admit of no relief. About fifteen years since an excellent breeder of short-horns, notwithstanding the utmost skill and attention, found his stock attacked by cancer. It was not at all known how it was generated, nor why it became almost universal. Every possible means were employed to guard against its increase but in vain, and at last it became imperative to get rid of the breed altogether. It is exactly the same with the gardener, to whom it is extremely mortifying, because his employer, if unacquainted with the subject, is apt to attribute failure to want of skill, but wherever plants are raised from cuttings the stock is peculiarly liable to disease, because the peculiarities of constitution are under the most favourable circumstances handed down, and if there is any weakness it is often exaggerated, added to which from the very mode of increase, the tissues are liable to taint from dead matter about the scar, and though the taint may not be sufficient to produce apparent disease at once, it may impair the constitution. The only effectual plan is to get a new stock from some distant quarter, or to try what may be done by seed. The latter resource is, however, a very precarious one, as the seed of thoroughly diseased plants, if they are vigorous enough to produce seed, is very apt to give rise to a diseased stock. *M. J. B.*]

Victoria Regia.—My Victoria Regia, described at p. 518, is now furnishing remarkably fine flowers; its bloom in its perfect stage measured 11½ inches in diameter. The plant is still producing enormous leaves, of which there are in all 12, and new flower buds are

appearing every day. It is considered the finest plant in this part of the country. *W. May, Gr. to Josiah Spode, Hawkesyard, Rugeley, Staffordshire.*

Early Peas.—I quite agree with Mr. Whiting that it is a matter of some importance both to buyers and sellers to ascertain which is really the best Pea for a first crop; and like him I have this season been proving a few sorts for my own satisfaction. They were the following, which were sown on the same day:—1. Sangster's No. 1; 2, Prince Albert; 3, Warner's Early Emperor; 4, Early Warwick; 5, Auvergne. Nos. 1 and 2 were equal in regard to earliness, but No. 2 is such a poor bearer and so very tender, that I consider it not worth growing; No. 3 was a few days later, more prolific, but inferior in flavour to No. 1; No. 4 was eight days later; No. 5 I found to be only a second early, but far inferior to Fairbeard's Champion, which I consider is the best of all Peas for a second sowing, being an abundant bearer, and possessing an excellent flavour. *H. Petrie, Elsham Hall, Lincoln.*——As an addendum to Mr. Whiting's list of new names, I beg to add that of "Rendle's First Early Green." After several trials with this Pea I have proved it (except in one instance) to be "Danecroft Rival;" the exception alluded to was last year, when it turned out to be identical with "Warner's Emperor." The seed in every instance was procured direct from Plymouth. *Beta.*

Locust of Tartary.—On Monday, the 11th inst., as one of the bailiffs was passing into the county court at Mansfield he took off the Town Hall railing what he called a large grasshopper, and gave it to the clerk of the Court. It appeared much exhausted, but recovered itself on being fed; it died last Friday. It is the larger species of the locust of Tartary. How it could have got to Mansfield must be explained by those more conversant with such matters than I am. *J. O.*

Proposal for a Metropolitan Botanic and Flower Garden.—If you will find room for a few lines explanatory of an idea, I believe in some respects new, for carrying out the above objects in a practical way I shall feel obliged. My plan is to institute a garden where botany (that of our own land especially) may be studied, and lovers of gardening may see those flowers, plants, and shrubs which are in use for garden ornament, observe their habits, and learn all information about obtaining and keeping them. I believe such a thing is not in existence, certainly we have nothing of the sort near London. The beautiful gardens at Kew afford no facility for study, and as regards indigenous botany they are generally considered a failure. The Regent's Park Gardens, from which so much was expected, are of no service to the general public; the Medical Botanic Garden at Chelsea I need not mention, and at the Crystal Palace ornament and not instruction is the rule; and in none of these places can the man who delights in his garden and home adornment get at the name, nature, and cost of the useful and beautiful vegetation which enchants his eye. In two paragraphs I will briefly state how I would pursue this object of instructing in science and taste. The garden should be as near town as smoke and the price of land would allow—not beyond a fourpenny omnibus ride. The part appropriated to gardening should take a central position, the shrubs and flowers being arranged for easy reference, and clearly named. Outside this division in a continuous line or circle would be placed our indigenous plants, ordered according to the best natural system, with facility for learning their medical and other properties. Exotic plants should be similarly managed, so that the visitor might learn the country, habits, and uses of what he is looking at. I would also as far as practicable allow botanic students to obtain small specimens, as at Versailles and elsewhere, and an arranged propagating department, so that the progress of vegetation could be observed. On the ground there should be a light structure containing a reading-room, where botanic and gardening periodicals might be seen, and a select library of reference. There should also be the names of all the seedsmen and florists, and the catalogues of those who publish them; secondly, a museum, where specimens, scientific and economic, could be easily referred to, and gardening implements and contrivances exhibited. It may be said all this would cost a fine sum, for most undertakings in this country must be done expensively, but having had the idea in my mind for some months I could show that the expense would not be very great, not more than a person of comfortable means would spend about his own grounds. I should suggest a public subscription to lay out the grounds in the first instance, and purchase and collect a few thousand plants; and public gardens, private goodwill, and florists would no doubt soon add to the store. The rarer plants and the herbarium (which could start with about 2000 species) might be collected by degrees. For current expenses, I calculate a nominal entrance charge of 2*d.*, florists' special advertisements in the reading-room, shows, and the sale of redundant seeds and specimens among the trade, would defray the expenses of gardeners, &c. Having been an amateur gardener for some years, and a botanic student for many, I feel much interest in the idea, and should be happy to give any assistance in my power to an institution which would promote the knowledge of nature and the love of flowers. *G. Finden Warr, 5, Elizabeth Cottages, Southgate Road, Islington.*

Change in the Seasons.—Something has lately been said in your columns about the change in the seasons that appears to have taken place of late years; and I have lighted on a paragraph on the same subject written long ago indeed, but perhaps none the worse on that account. It forms part of the essay "Of Vicissitudes of Things," by Lord Verulam, commonly called Lord Bacon. "There is a toy which I have heard, and I would not have it given over, but waited upon a little. They say it is observed in the Low Countreys (I know not in what part), that every five-and-thirty years the same kind and suit of years and weathers comes about again, as great frosts, great wet, great droughts, warm winters, summers with little heat, and the like; and they call it the Prime. It is a thing I do rather mention because computing backwards I have found some concurrence." This passage may not be familiar to some of your readers, and whatever they may think as to the existence of the "Prime," will probably interest them as showing that irregularity in the seasons was experienced, to some extent, at least, by the subjects of Queen Elizabeth as well as by those of Queen Victoria, and as showing moreover that the subject excited some attention then as now. One of your correspondents says that the testimony of old people to the change of climate since their youth is found to be very vague when sifted. Not always I think. In 1851 an old man told me that he thought it rash to build such a large flat-roofed edifice as the Crystal Palace. "To be sure Paxton ha'nt a lived so long, nur seed sich snow as I've a done." He then told me precisely the year and the duration of a great snow that happened in his youth, but I have forgotten both. Again, I remember a very old gardener saying that in his youth a particular sort of Plum used to ripen well at Frampton, in Dorset, on standards, which is now never the case there. In both these cases the evidence was as clear as could be. Has the question as to the existence of Vineyards in England in old times ever been settled? In Normandy there is no doubt of their having formerly existed in parts where they are not to be found at present. *H. J. Moule, St. Germain-en-Laye.* [And so they did in England. The reason of their cultivation being discontinued was the gradual introduction of *good* wine at low prices, as we long since explained.]

Cotoneaster microphylla a Hedge Plant.—It has been stated that this is admirably adapted for covering rocky banks and walls. As, however, I do not remember ever seeing it recommended as a hedge plant, or used for that purpose except by myself, I may state that few, if any, plants are so well adapted for an ornamental and efficient fence. Ten years ago I planted a hedge of it at the bottom of a sloping garden about 60 yards long by the side of a road, and about 3½ feet above its level; and for the last four years it has proved a sufficient protection against cattle without rails. The only care required is to keep the plants clean and their branches as they extend in the line of the fence for a few years, with an annual dressing with the shears or switching-knife when it has obtained the required size. My hedge is much admired by all who have seen it, being at all times a deep green, and enlivened in the depth of winter and spring with a profusion of scarlet berries, until it again becomes as white as a sheet with its innumerable blossoms, which during the day are literally covered with bees. Besides forming a good and neat fence the branches hang down above the bank and completely cover it to the level of the road. Mice store the berries up in winter; but the Mistletoe thrush is the only bird I have seen attracted by them. *J. Gaitskell, Cumberland.*

Large Puff-balls.—I found a puff-ball (as it is commonly called) of such gigantic dimensions to-day that I think it worth mentioning. It was in the shape of an elongated human skull. It measured in circumference 2 feet 11 inches by 2 feet 4 inches, and weighed 54 ounces. *Cavanensis.* [This is not very large for Bovista.]

Societies.

British Association for the Advancement of Science, *Aug.* 7.—Section D.—Zoology and Botany (*Continued*).—Dr. Lankester read a paper from Prof. Henfrey "On the Development of the Embryo of Flowering Plants."—In this paper Prof. Henfrey announced that Prof. Schleiden and Dr. Schacht had given up their opinion that the end of the pollen-tube produced the embryo in the seeds of flowering plants; and had come to the conclusion that the embryo is formed from a distinct protein mass, contained in the embryo sac. He also pointed out that the embryo mass does not become a regular cell covered with cellulose till after the pollen-tube has come in contact with the embryo sac.

Friday.—"On the Variation of Species," by the Rev. L. Jenyns.—Having referred to Prof. Buckman's paper, read in the Section yesterday, he stated that his remarks to-day would refer to the same subject; but that his illustrations were animals, and not plants. He then proceeded to refer to the fact that a large number of varieties of animals, more especially birds, had been put down as distinct species, which were undoubtedly the same bird. Whilst he was convinced of the existence of species, he felt sure that there was a tendency to regard as distinct many animals which were not so.

"On the Triticoidal Forms of Ægilops, and on the Specific Identity of Centaurea nigra and C. nigrescens," by Prof. Henslow.—In this paper the professor recorded the result of his own experiments, in which he had so far succeeded in changing the character of Ægilops squarrosa as to lead him to conclude that M. Fabre's original statement that A. ovata was the origin of Wheat, Triticum sativum, was not altogether without foundation. He exhibited specimens, in which the form of Ægilops squarrosa had undergone considerable change; but he had not yet succeeded in obtaining the characters of Triticum sativum. Prof. Henslow then exhibited forms of Centaurea nigra and C. nigrescens, in which it was seen that these plants had completely passed one into the other. He then referred to instances of the species of Rosa, Primula, and Anagallis, passing one into the other. Mr. Bentham stated that when he first began to study botany, he thought permanent characters ought to be regarded as distinctive of species. He now, however, believed that permanent characters might be given to plants by locality and climate, which had no right to be regarded as distinct species. He then proceeded to refer to his own experience of the Flora of Europe, Asia, and Africa, as contrasted with that of the British Islands. He instanced more particularly Bellis perennis and B. sylvestris as the same plant, and Taraxacum obovatum and T. lævigatum. He thought that all the forms of Rubus, with the exception perhaps of R. cæsius, ought to be referred to R. fruticosus.—Sir W. Jardine referred to instances of birds in which external circumstances changed the colour of their plumage and other points of their structure.—Prof. Balfour referred to instances of plants which varied very much in their characters, according to the circumstances in which they were placed. He mentioned the case of Pontederia crassipes, which assumed, according to its treatment, quite different characters. Accidental changes in form frequently became permanent, of which he related an instance in a Fern at the Edinburgh Botanic Gardens.—Dr. J. E. Gray referred to the great influence which depth, age, and other circumstances had upon the character of shells. He believed the multiplication of species was a great evil, and calculated to deter persons from the study of natural history.—Prof. Busk drew attention to the importance of distinguishing the characters which constituted a species from those which might characterise the individual. In the lower forms of both animals and plants, the individual exhibited itself as composed of hundreds and thousands of parts, each resembling the other.

Metropolitan Hollyhock and Dahlia Exhibition.—This took place at Cremorne on Tuesday and Wednesday, the 19th and 20th inst. One hundred and sixty spikes of Hollyhocks were staged, all nearly 3 feet in height, and closely set with bloom, the flowers giving an average diameter of 5 inches. The Dahlias as a whole were not first-rate. Roses were shown by Messrs. Paul. Messrs. E. G. Henderson contributed a van-load of Coniferous plants, which, tastefully grouped, formed an admirable centre for the display of the Hollyhock spikes staged round them. Messrs. Smith of Dulwich also sent 30 specimen Balsams. Of Hollyhocks Messrs. Bircham & Ward sent Solfaterre, Souvenir, Pourpre de Tyre, Lemonade, Purple Perfection, Brennus, Seedling, Fireball Superb, Standard, Vesta, and Hon. Mrs. Ashley; Mr. Chater—Lady Middleton, Walden Masterpiece, Saturn, Resplendens, Canary, Autocrat, Beauty of Walden (one of the best varieties shown), Empress (best buff or yellow), Géant des Batailles, Fanny, and Mont Blanc; Messrs. Paul produced Primrose Perfection, Memnon, Pourpre de Tyre, Narcissus, Mrs. Oakes, Hedenham Rival, Beauty of Cheshunt, Solfaterre, White Globe (best white spike), Glory, and Hon. Mrs. Ashley. Nine spikes: the Rev. C. Fellowes showed Solfaterre Improved (best yellow spike, as also the best spike in the exhibition), Lilac Model (best spike mottled light), Fireball Superb, Purpurea elegans (best purple or plum spike), Hon. Mrs. Ashley, Mrs. Oakes, Unique, Brennus, and Lemonade Improved; Mr. Grant sent King of Yellows, Eva, Pourpre de Tyre, Beauty of Cheshunt, Souvenir, Solfaterre, Yellow Model, Seedling, and Hon. Mrs. Ashley; H. Bowler, Esq., furnished Atropurpurea, Hon. Mrs. Ashley, Unique, Joseph Clarke, (to this was awarded a First-Class Certificate), Mrs. H. Bowler, Lilac Model, Queen, Solfaterre, and a Seedling; Fourth, Mr. C. J. Perry. In twenty-four blooms, the best varieties were for the most part those shown in spikes. In the class of twenty-four blooms, (Dealers), Mr. Chater, and Messrs. Paul showed collections. Of these, the best varieties were Exquisite, Nil Desperandum, Sulphur Queen, Ceres, Atrosanguinea, Rosy Morn, Lilacina, Grandis, Masterpiece, Queen of Buffs, Ruby Queen, Canary, Purple King, Leonora, Lady Middleton, Lilac Queen, Beauty of Walden, Autocrat, Sceptre d'Or, Ignea, Walden Rival, Lord Jocelyn, Pourpre de Tyre, Mrs. Oakes, Memnon, Purple Perfection, Mr. Adams, White Globe, Beauty of Cheshunt, Eclipse, Hon. Mrs. Ashley, Blushing Bride, Solfaterre, Charles Baron Improved, Criterion, Rosy Morn, and Omar Pacha.

Of Dahlias (24), Mr. Charles Turner sent Sir John Franklin, Colonel Windham, Malvina, Captain Ingram, Incomparable, Sir F. Bathurst, Bessie, Lord Palmerston, Grand Sultan, Amazon, Rachel Rawlins, Harbinger, Sir C. Napier, Lord Bath, Eclipse, Espartero, Sir R Whittington, and Duchess of Cambridge; Mr. H. Legge had Admiral, Sir C. Napier, Crimson King, Amazon, Mr. Seldon, Duchess of Kent, Glenlyon, Beauty of the Grove, Mrs. Legge, Robert Bruce, Rachel Rawlins, Duke of Wellington, Magnet, Le Phare, Louisa, Glenny, Port Wine, Roundhead, and Jullien. Mr. Keynes furnished Lord Palmerston, Lollipop, Sir F. Bathurst, Lady Folkestone, Cœur de Lion, Malvina, Sir J. Franklin, Rachel Rawlins, Dr. Gully, Bessie, Reginald, Archbishop of Canterbury, Admiral Dundas, Lord Bath, Sir C. Napier, Sebastopol, and Annie. In the private growers' class (24 blooms), Mr. C. Grant

sent Miss Caroline, Pre-eminent, Lord Palmerston, Fanny Keynes, Malvina, Robert Bruce, Cossack, Amazon, Lady Mary Labouchere, Lilac King, Lord Bath, Yellow Beauty, Sir C. Napier, Lollipop, The Nigger, Sir J. Franklin, Bessie, Miss Burdett Coutts, and Duchess of Wellington. In the class of 12 Dahlias, J. Cook, Esq., showed Salvator Rosa, Lollipop, Rachel Rawlins, Constancy, Beauty of the Grove, Beauty of Slough, Duchess of Kent, Miss Caroline, Empress, Sir F. Bathurst, Colonel Windham, and Essex Triumph; Mr. Holmes: Lord Palmerston, Caroline, Sir C. Napier, Sir J. Franklin, Cherub, Diadem, Yellow Beauty, Sir F. Bathurst, Miss Burdett Coutts, Bijou, The Nigger, and Lollipop; the Rev. C. Fellowes: Fanny Keynes, Miss Caroline, Mrs. Wheeler, Lilac King, Rachel Rawlins, Lord Bath, Marion, Amazon, Miss Burdett Coutts, The Nigger, Lollipop, and Duchess of Wellington; C. J. Perry, Esq., had Miss Caroline, Beauty of Slough, Archbishop of Canterbury, Rachel Rawlins, Ringleader, Lollipop, Annie Salter, Magnet, Yellow Beauty, Mrs. Rawlins, Annie, and Bessie. Fancy Dahlias (24 blooms): Of these Mr. Keynes exhibited Charles Perry, Conqueror, Polyphemus, Carnation, Lady Grenville, Jonas, Empereur de Maroc, Mrs. Hansard, Miss Frampton, Duchess of Kent, Mrs. Spary, Pigeon, Model, and some unnamed seedlings; Mr. C. Turner: Eugenie, Butterfly, Marvel, Pigeon, La Vogue, Inimitable, Enchantress, Duchesse de Brabant, Comet, Empereur de Maroc, Mrs. Hansard, Admiration, Miquette, Kossuth, Laura Lavington, Phaeton, and Gloire de Kain; Mr. H. Legge: Butterfly, Triomphe de Roubaix, Vasco de Gama, Baron d'Arme, Malvina, Attraction, Mrs. Hansard, Annie Miquet, Duchess of Kent, Princess Charlotte, Snagretta, Laura Lavington, Gloire de Kain, Phaeton, Pigeon, Juliana, Lady Greville, Liliput von Branduth, and some seedlings. Twelve Fancies.—The Rev. C. Fellowes had Enchantress, Topsy, Triomphe de Roubaix, Inimitable, Eugenie, Miss Ward, Lady Grenville, Comet, Pigeon, and Kossuth; C. J. Perry, Esq.: Triomphe de Roubaix, Pigeon, Marvel, Gloire de Kain, Jonas, Butterfly, Reine des Belges, Uncle Tom, and Comet; Mr. C. Grant: Enchantress, Triomphe de Roubaix, Empereur de Maroc, Duchess of Kent, Reine des Fleurs, Wonderful, Gloire de Kain, Cockatoo, and Comet. First-class Certificates were awarded to Fancy Dahlia Polyphemus (Keynes), flaked rose and purple; to Fancy Dahlia Model (Keynes), also flaked rose and purple, but of distinct shades; and to Dahlia Mrs. Legge (Legge), orange ground, with red or cherry tips. Lady Popham (Turner), white, with chaste tip of purple, seems of first-rate merit, a single flower only was staged; Fenella (Holmes) is a small flower in the way of Amazon; Unique (Turner) is a good orange and red.

Botanical of Edinburgh: *July* 10th. Prof. Balfour in the chair.—The Chairman stated that the painful duty devolved upon him of recording the death of the President, Colonel Madden, which took place suddenly and unexpectedly from rupture of the aorta soon after last meeting of the Society. "We all, I am sure, (he said) deeply deplore the loss of one who took a warm interest in our proceedings, and with whom we have had much pleasant intercourse. For my own part, I cannot easily give expression to the sad feelings with which I contemplate this bereavement. He had been a constant visitor at the Garden during the summer while engaged in preparing his elaborate paper on the Indian plants in Dr. Buchanan Hamilton's herbarium; and I had looked forward to the pleasure of spending many a happy day with him in the prosecution of botanical science. His amiable deportment and gentlemanly manner endeared him to all of us, and we all rejoiced to see one who had spent a large portion of his life in the active service of the East India Company now devoting his time and leisure to the prosecution of science. During his residence in India he was a careful observer, and made many interesting remarks on the flora of the country. He sent home the seeds of many valuable plants which have flowered in Glasnevin and other gardens. When he came to settle in Edinburgh, he joined the Royal and Botanical Societies, in both of which he became a very active member. He was elected a councillor of the Royal Society, and took a marked interest in its proceedings. He particularly took charge of the scientific additions which it was agreed to make to its library. To the Transactions of the Botanical Society he contributed an excellent paper on the occurrence of Palms and Bamboos high on the Himalaya, and it is to be hoped that the paper which was read from him at our last meeting will be in such a state as to allow of its publication. Most sincerely, I am sure, do the Society condole with his afflicted widow. Such events call on us to be ready, seeing we know not what a day may bring forth. I have also to report the death of Mr. William Gourlie, the local secretary of the Society in Glasgow, who was connected with our Society from its commencement, and who aided it much by his exertions. He was a zealous naturalist, and had made a large and valuable collection of plants, which it is hoped will not be lost to science. From his mercantile position in Glasgow he was able to render important service to the Society and to botanists on many occasions, and he was always ready and willing to do everything in his power for the promotion of science. During my residence in Glasgow as professor of botany I was much indebted to him, and many specimens now in the museum here I owe to his kindness. He set an example of zeal to the mercantile men of the western metropolis, and his labours promised to be instrumental in infusing a taste for science among the community of Glasgow. When the Meeting of the British Association took place in Glasgow in September last he acted as chief local secretary. The labour which he underwent, not merely during the meeting, but for months before, was extraordinary. He spared no pains to render the meeting creditable to Glasgow, and the arrangements which he made called for commendation from all. He was publicly thanked by the Duke of Argyll for his services. About the time of the meeting symptoms of disease of the bones in the face appeared, and the malady went on insidiously and unobserved for many months, till at length it appeared as a fungous growth. He endured at first great suffering, which he bore with much fortitude and resignation; and after a protracted illness he sunk in the course of last week. He has been taken away in the midst of his usefulness, and at the very time when he seemed to be gaining the highest eminence in his native city. The place which he occupied will not be easily supplied. Let us hope that his enthusiastic love of science, and his noble exertions in the cause of botany, will be means of stimulating his townsmen to follow his steps; and that, while they are prosecuting their commercial speculations, they will not think it beneath their notice to devote some of their time to science, which was to him in his season of recreation a source of high enjoyment, and which secured for him many friends in all parts of the world. Though dead, may he yet speak to them."

Notices of Books.

Ferny Combes. A Ramble after Ferns in the Glens and Valleys of Devonshire. By Charlotte Chanter. Reeve, 12mo, pp. 118.

Under this name we have a very pleasing guide to the most beautiful of our English counties; not in the formal manner of a Murray, and free from the dull tediousness of the forcibly feeble volumes sold at watering places, but as fresh and enjoyable as the rich scenery to which it introduces the reader. A "Combe" we are told signifies in Somerset and Devon a hollow or glen with its rivulet running down to the sea. "The Combes of North Devon, with one or two exceptions, are rarely above two or three miles long; and if we could take a bird's eye view of the country, we should see that the land within three or four miles of the sea is irregularly scored with these glens, the sides of which, when cultivated, prove rich and fertile; but for the most part they are poorly farmed, or still covered with a tangled mass of Briars, Ferns, and Golden Gorse. Now and then you find woods, but not of any very great extent. The Combes are very rich in Ferns; but the best places for hunting are the loose stone banks of the country. Those who are accustomed only to the bare white walls of our oolitic districts will be surprised to hear that they must look on walls for most of our most beautiful and curious Ferns. But a North Devon 'wall' is a thing by itself. The rotten shaley slates, placed edgeways, are but the outer covering of deep banks; and through this coating spring tasselled *Athyriums*, never-ending varieties of *Scolopendrium*, and numerous forms of *Filix-mas*, not forgetting the many states of *Lastrea dilatata*, ranging from four feet high to an inch and a half."

To these wild scenes Mrs. Chanter introduces her readers with all the zeal of an enthusiastic admirer of Nature, and especially of those charming forms in which the vegetable world is pre-eminent. Her book is not written to while away a weary hour, but to be used on the spot; it is a field book of Devonshire botany; its pages have all the verve and eager dash of a Forbes. In a scramble after plants local difficulties are tossed aside, to rough it is the word, and the discovery of a Fern new to the traveller is ample compensation for fatigue and inconvenience, to say nothing of something like danger.

Listen to the spirit with which Dartmoor is described; the words seem to come from the mouth of a bugle-horn.

"Out upon the hills! the glorious, granite capped hills of Dartmoor, breezy and fresh! Thousands of acres free from cultivation, for Nature has put her own seal upon them. Ages, ages ago were those huge blocks of granite strewn about, defying man to intrude on Nature's solitude; for who could remove all those countless myriads of stones, to till the ground that lies beneath? Yet centuries ago this wild region, and the wildest parts of it, now deserted by man, were the abodes of a curious, wonderful people. Dartmoor was one of the strongholds of the Druids; and the many 'hut circles,' 'stone avenues,' tolmens, and cromlechs, show them to have been a numerous people, marvellously attached to stones. Their peculiarly pet place, Wistman's Wood, is unique. Gigantic blocks of granite, so piled one on the other that the only way to get along is to jump from stone to stone. Woe betide you if you put your foot on a nice tempting piece of Sedge or Grass! The thin crust speedily gives way, and you may chance to get wedged in between Druidical remains. From among the rocks spring ancient Oaks, known as ancients even in ancient days, gnarled and stunted, clothed with hoary Mosses and parasitical plants. Not long ago we found numerous rabbit paths along the branches of the trees. Do naturalists record the fact that rabbits frequent trees; or is it peculiar to those in Wistman's Wood? Wise people say that Wistman's Wood ought to be 'Wise Man's Wood,' in honour of the very clever and intellectual people who once resided there. Having a slight knowledge of the Devonshire vernacular, we make so bold as to suggest that 'whist' or 'wist' signifies sorrowful, mournful. Any one who has visited Wistman's Wood can hardly fail to have been struck with the doleful moans and sighing which assail him on all sides (added to his own if he have a tumble, no unlikely thing), making him fancy that a regiment of Arch-Druids and Bards are bewailing the overthrow of their altars, the desecration of their circles, the standing still of their rocking stones."

But we must not detain the reader from a volume so attractive as this, further than to enable the authoress to describe her own true feelings concerning the pleasures of a botanical ramble.

"Some indeed may inquire, 'What is the advantage of knowing the names of a set of weeds which are of no use to any one?' 'Of no use?' That is a question not for us to solve. At any rate, are many of your employments more useful? Are all so innocent? Ask the worn-out, heart-wearied man yonder, who has escaped for one short month from his stool in a city office; ask him, if there be not a use in the exquisite and various forms and colours of the seaweeds he is turning over on the beach. He will answer, 'It does me good to look at them; it refreshes my soul; it makes me young again!' Of no use? That is too easily assumed, and implies surely a forgetfulness of Him that made them. It does not necessarily follow that a thing is useless because we happen to be ignorant of its use. We ought to believe, we ought to be sure, that the lowliest flower or insect has, though it may be unknown to us, a real use in God's economy. 'Behold the Lilies of the field, how they grow!' These gaily dressed flowers had their use. It was their mission (could they have a higher?) to become preachers unto men of reliance on God for meat, drink, and clothing. Who will deny the fascination which flowers of the choicer kind exercise over all? But to how few are they accessible! The costly greenhouse, the highly paid gardener, are requisite for their possession; but what do the wild flowers cost? Only the trouble of picking them; and they, if people take the pains of looking for and examining them, have quite as many, though more humble, charms than their more aristocratic relations. 'Here! smell this bunch of Butterfly Orchis. Did ever a greenhouse produce a flower with more exquisite scent?' 'But where did you find it? I never saw it before.' 'Good friend, I plucked it by the side of a road you have passed a hundred times. Look at these Daffodils! —where will you find colour more brilliant, texture more delicate?' 'But they are such vulgar flowers; they are so common!' 'My friend, I fear you are very vulgar, for men and women are very common on the earth."

The heart of many a weary soul will respond to this, especially just now when the dreary streets of cities are emptied into the lanes and fields of green delightful England. We should add that the little volume is illustrated with eight coloured figures of Ferns, the only fault of which is that they are stuck between every page except that to which they belong.

Garden Memoranda.

The Modern Structures in the Botanical Garden, Carlsruhe.—The botanical garden of Carlsruhe is one of the oldest, if not in Europe, at least in Germany. Caspar Bauhinus, the great botanist of the 16th century, speaks of the garden of Durlach—the former residence of the Grand Dukes of Baden, the treasures of which were subsequently transferred to Carlsruhe. When the present Regent assumed the reins of the country, he resolved to supplant all repairs by thorough new buildings, which, besides their practical adaptation, should be architectural works of art. Baudirector Hübsch, a gentleman known by theoretical and practical works, was entrusted with the erection of these structures. On the borders of the gardens of the castle stands the new greenhouse (Orangerie Haus). As the Orange trees of the establishment are numerous and high grown, a large space was required. The building is 250 feet long, 50 feet broad, and of an adequate height. The side which turns towards Stephanie Street is ornamented by the principal elevation, above which rises a high cupola of glass, under which is a hall for festivals (Festsaal). The other part of the greenhouse is connected under a right angle with the whole remainder of the buildings, and ends at the palace, so that the passage from the palace to the end of the houses is uninterrupted, in a length of 1,400 feet. Almost in the middle of that line stands a high pavilion, through which passes the road from the botanical garden to the pleasure grounds (Englische Anlagen!) of the gardens of the palace, above which is a saloon affording a fine view over the town and gardens. A residence for the director, a Palm-house, and a caldarium for exotic water-plants lie also in this line. The other portion of the building forms an arcuated gallery. In front of the gallery is a winter-garden, which forms one of the pleasantest parts of the whole. We find here trees and shrubs which require protection during winter, but now stand quite free as in their native land. The length of this winter-garden is 400 feet by 40 in breadth. The great advantage of this arrangement of M. Hübsch is, that he has known how to manage things so that not even a vestige of the beams and spars of the winter protection is to be seen in summer, which was accomplished by the winter-garden having in its rear the long gallery, in the walls of which the contrivances for making the walls and roof of the winter-garden could be immitted without leaving any

vestige behind when not required. The caryatides of the Palm-house are made of the fine Durlach stone. *Builder.*

Miscellaneous.

Agrimony Tea.—The following recipe is given in a late number of the *Moniteur des C.* Put fresh gathered leaves into a coffee roaster along with three pebbles to act as stirrers. At the end of a quarter of an hour a native tea is produced which is said to be wholesome, pleasant to drink, and possessed of all the tonic or astringent qualities of green tea. This beverage is particularly adapted to people who live poorly, and imperfectly digest their bad food; it is also recommended against dysentery.

American Vine Mildew.—The first indication of the disease is shown by the leaves having brown spots upon them, and which permeate quite through the tissue. Afterwards, are seen small white patches of the soft and delicate fungus attached to the under side of the leaf, and which, if not speedily destroyed, will soon extend to the fruit stalks, penetrate to the berries by the rhizoma or spawn, and make them in appearance like a diseased Potato in the first stage of infection, stopping their growth, and rendering them useless; the leaves also will fall off after a short time, and the whole plant become seriously injured. These white patches are the fructification of the parasite; when viewed under the microscope, there is exhibited a multitudinous congregation of little mushroom-looking substances, and if suddenly jerked, the tiny sporules may be seen detached and floating in the atmosphere, so minute and subtle and in such countless numbers, that it is not unreasonable to suppose (beside the immediate development and rapid vegetation of thousands of them under favourable influences) many are absorbed by the stomata or breathing pores on the under surface of the leaves, and conveyed into the interior, simply by the descending movement of the elaborated sap, which is afterwards converted into woody fibre, and in its turn becomes the organised medium by which the ascending sap, in the following spring, flows with greater velocity to the unfolding leaves. The secreted sporules may then be re-conducted upwards, and conveyed onwards to the foliage, and there remain dormant, until the favourable circumstances occur for their germination, when they spring into renewed life, and speedily produce another crop of seeds for a future generation. This kind of mildew seldom does any mischief after the growth approaches towards ripeness, or the fruit is in the last swell, and as it generally begins to appear about the early part of July, during damp and close weather, those plants which have been more or less forwarded by artificial heat are almost free from its attacks; but in the Cold Grapery or Retarding House we should be on our guard, and when storms or damp weather occur, strew sulphur on the floor of the house, in the proportion of one pound to each 15 or 20 square yards, and withhold water for the time being, keeping the house quite close, if cloudy, and allowing the temperature to rise somewhat higher for two or three days. This will cause the sulphur to throw off fumes which are readily perceptible to the smell, and will check the further progress of the pest if present, or prevent its appearance if not so. We have used all the supposed remedies that we could collect a knowledge of, by way of experiment, without being able to discover anything more than temporary relief, while the fumes of sulphur, as above recommended, have never failed to immediately check, and if water be withheld during the continuance, to finally overcome it. There need be no fear of sulphur doing harm to the foliage; so long as ignition does not take place, it may be used with confidence. Herein lies the secret. If allowed to burn, chemical action goes on, and sulphurous acid is produced, which in its then gaseous form will speedily destroy all foliage with which it comes in contact. *Chorlton's American Grape Growers' Guide.*

An Ancient Oak.—One of the oldest trees in Europe was struck by lightning in the month of July last. This tree, an Oak, had been planted near Châtillon-sur-Seine (Côte d'Or), in 1070, by a Count of Champagne. The Oak, which had therefore existed 786 years, measured seven and a half metres in circumference, and had produced acorns up to 1830. *Morning Paper.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Hyacinths and other Dutch bulbs should be procured and potted for early forcing as soon as they can be obtained, and even where early forcing is not intended there will be a better chance of getting first-rate bulbs early than some months hence. Small Orange trees in pots for forcing in winter for the decoration of this house should now be fully exposed to the sun and air, in order to get their wood well ripened, upon which their flowering freely will greatly depend. The Mandarin being a free grower, with a dwarf bushy habit and small foliage, and a most abundant bloomer, is probably the best for this purpose, but any of the varieties flower profusely provided the wood is thoroughly ripened in autumn. These and Daphnes should be largely grown wherever sweet-scented flowers are in demand in winter. Also see to having plenty of Salvia gesneriflora, which is an exceedingly gay plant and very useful for mixing among Chrysanthemums in the show-house. Should mildew appear on any of the soft-wooded Heaths, dress with sulphur at once. These will, however, be mostly out of doors, where mildew is seldom troublesome, but they must be guarded against getting too wet at the root. Get Azaleas that have set their buds tied into form, in order to give them a neat appearance. Also attend to the staking and training of other things as leisure time can be found. Look carefully after red spider on anything found to be liable to this pest, and see that it is eradicated before the plants get disfigured. It is easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear. Shake out and repot Pelargoniums that are sufficiently advanced after having been cut back, keeping them rather close and moist until they strike into the soil. Plants, however, that are fairly established after repotting can hardly be too freely exposed to air or kept too cool. Also keep Cinerarias cool and moist, and attend to repotting such as require it. Primulas must also be carefully attended to, in order to encourage them to make rapid growth, particularly the double varieties. Keep Tree Violets clear of red spider by liberal syringings, and give them plenty of manure water, which will assist in keeping them in vigorous health.

FORCING DEPARTMENT.

Pineries.—Where the pot system of cultivation is practised, any of the stock which may appear to require repotting should be examined and shifted at once, if this is found necessary, in order that the roots may get hold of the fresh soil before dull cloudy weather sets in, when it will not be safe to encourage free growth. And any necessary re-arrangement of plants growing in the open bed should also be effected as soon as possible, as with a little care in shading on bright days and keeping the atmosphere moist, this can be effected at present with very little risk of checking the plants, so as to throw them into fruit, and there is also plenty of time to get them well established after removal before the dormant season. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the middle or end of October to allow of keeping them rather cool and dry through November and December, so as to check and thoroughly mature their growth, as unless this is attended to there will be considerable risk about getting them to show fruit at that season. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. Some dislike to apply water at the root in the case of plants that have been kept dry for a time to check growth, and withhold it until the fruit is perceptible; but this is a mistake, causing loss of time as well as injuring the plants, as unless root action is encouraged, plants cannot be expected to start freely. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious to the plants as keeping them cool and dry for a month, exposing them to as much sunshine as the foliage will bear without scorching, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength, for having a regular succession of plants is the most likely way to secure a regular supply of fruit. Vineries.—Take advantage of dry weather to give air freely in houses where the ripening of the wood is the object aimed at, and if a little fire heat is used, with air, this will be much more efficacious now than later in the season, when the sun will be less powerful. Except however in the case of young Vines with a very gross habit it will hardly be necessary to use fire heat if the weather is dry and sunny. Keep the surface of the border in a free open state, so as to encourage evaporation, for keeping the roots too wet is the main cause generally of the wood being backward in ripening at the proper time. Figs.—Where the second crop is ripening keep the atmosphere as dry as can conveniently be done, and also let the trees be on the side of dryness at the root, but avoid such a degree of it as would be likely to injure the foliage or the bearing wood for next crop.

FLOWER GARDEN AND SHRUBBERIES.

The stock of cuttings should be carefully looked over to see that nothing has been omitted, and that a sufficient quantity of everything is in a promising state for making nice stocky plants before winter, and if it is found that the stock of anything is insufficient not a day must be lost in getting in cuttings. If however there is a reserve stock of strong plants in pots, which is a safe practice where there is a large quantity of bedding stuff required, and proper convenience for growing them and propagating in spring, these will furnish a large quantity of cuttings next March which will form equally good plants by turning out time as cuttings put in now. In the case of such things as Ageratums, Heliotropes, and dwarf Lobelias, it is useless wintering young stock, as these grow so freely in heat and are so easily propagated from soft cuttings that a few good-sized old plants which require but little room or attention in winter will furnish a very large quantity of plants by turning out time. See, however, where there are not plants to furnish spring cuttings, that plenty are got in at once, so as to provide while it can be done against the risk of being short of stock at turning out time. Attend to the potting of such cuttings as are sufficiently rooted, and give every after attention to these in order to get them well established before winter. Sow hardy annuals in the reserve ground for transplanting to assist in furnishing an early display next season, for which they are exceedingly useful. Persevere with mowing and other routine work, and go over the beds frequently, removing dead flowers, &c., and while the garden is in full beauty spare no effort to have everything in and about it in the best possible state of keeping.

HARDY FRUIT AND KITCHEN GARDEN.

Take advantage of dry days to get Celery earthed up, first thoroughly soaking the lines with manure water, also apply quicklime where slugs are troublesome. On heavy soils it is sometimes necessary to surround the plants with sand or sifted ashes to prevent their rotting off in winter, which they are apt to do if surrounded with soil that holds much water. Where anything of this kind is necessary it will be advisable to defer earthing up till later in the season, as frequent soilings of this sort would be very troublesome. Also pull up Onions where ripe, and get them thoroughly dried. Thin young crops of Turnips, Spinach, &c., before they become weakly and drawn, through standing too closely together. Stir the surface of the soil deeply among growing crops, to admit air to the roots, and keep down weeds. Recently planted Strawberries will be benefited by liberal applications of manure-water. Get spare ground manured and dug or trenched for another crop whenever time can be spared for this kind of work.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Aug. 28, 1856, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind.	Rain.
Friday 22	7	29.984	29.774	64	39	53.5	61	60½	N.	.09
Satur. 23	23	30.128	30.085	66	46	56.0	59	60		.10
Sunday 24	24	30.090	30.040	69	54	61.5	61	60	S.W.	.02
Mon. 25	25	29.983	29.812	66	52	59.0	62	60	S.W.	.02
Tues. 26	26	29.929	29.901	76	55	65.5	63	60	W.	.00
Wed. 27	27	29.824	29.755	77	52	64.5	63	60½	W	.10
Thurs. 28	28	29.846	29.773	71	53	62.0	64	60½	S.W.	.17
Average		29.969	29.848	70.4	50.1	60.2	61.8	60.2		.11

August 22—Partially overcast; cloudy and fine; very fine; cold at night.
— 23—Overcast; fine, cloudy.
— 24—Fine throughout; slight rain at night.
— 25—Densely overcast; slight showers.
— 26—Cloudy; very fine; cloudy and mild.
— 27—Uniformly overcast; very fine; cloudy.
— 28—Overcast; cloudy and fine; rain in the evening; fine.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Sept. 6, 1856.

August. and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 31	70.6	48.8	59.7	13	1.31 in.	2	6	2	2	2	4	7	5
Mon. 1	70.1	48.6	59.3	16	1.50	2	4	3	4	3	8	2	4
Tues. 2	70.9	47.6	59.2	10	0.44	6	5	2	1	2	7	7	2
Wed. 3	70.4	48.6	59.5	11	0.48	2	7	3	1	4	6	6	1
Thurs. 4	70.2	47.6	58.9	13	0.58	5	7	4	—	4	4	8	3
Friday 5	69.5	47.9	58.7	14	0.30	3	6	7	—	5	3	4	2
Satur. 6	69.7	46.0	57.8	12	0.70	1	9	3	—	1	9	6	1

The highest temperature during the above period occurred on the 1st 1843—therm. 85 deg; and the lowest on the 4th and 6th, 1850—therm. 30 deg.

Notices to Correspondents.

Glass: *A D* will be obliged by some of our correspondents informing him if green fluted glass has ever been used for Pine growing, and if so with what result.

Insects: *A C.* If you will send us specimens of the fly you mention we may possibly be able to name it, and say how you can get rid of it.‡

Lilium Brownii: *A Constant R.* We will inquire and let you know next week.

Lindsay's Book on Lichens: *Tenby.* The minute anatomy of the shields of these plants is very difficult and cannot be well investigated without an achromatic microscope, assisted by tincture of iodine. But you can make out their names without having recourse to minute anatomy.

Lupins: *W H. Dunnett.* Your seedling Lupins are very handsome things. L. Dunnetti superba, purple and white, has flower spikes quite a foot in length. L. tricolor elegans is somewhat smaller, but very pretty, and the same may be said of L. Hartwegi alba. The last being a pure white will make a beautiful bed.‡

Mealy Bug: *Sub.* You will find an excellent article on this subject at p. 135 of our volume for this year.‡

Mushrooms: *Sylvia.* The French cook "flaps" thus. They wipe them dry, cut out the stalk, and steep them for an hour in a mixture of oil, salt, pepper, and a little chopped garlic. They are then put on the gridiron the stalkside downwards, after which they are turned, and the gills are wetted with some maitre d'hotel or similar sauce. When cooked take them off very gently so as not to let the juice run out, and serve with a little of the mixture in which they were steeped and the squeeze of a Lemon.

Names of Fruits: *J M, Whitehaven.* Your Nectarine is the Elruge.‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*G.* Sison Amomum, easily known by the peculiar pungent smell of its ripe fruit when crushed, and the bag-like vittæ, which are semi-transparent in certain lights.—*G D S.* It is impossible to name shrivelled fragments of Umbelliferous plants without ripe fruit. It seems very like common Parsley.—*W M.* 1, Hieracium maculatum; 2, Rumex pratensis; 3, Cuscuta Trifolii; 4, the large-flowered variety of Myosotis arvensis called umbrosa.—*W J Epps.* Tweedia cærulea.—*A Constant Reader.* Such fragments, unaccompanied by a particle of information, cannot be determined without an expenditure of time which we are quite unable to afford. All plants sent for names should be in an examinable state, and as complete as circumstances will permit. If pressed flat and sent in a letter-cover they will come for a penny as well as if shrivelled up in a pill-box, which is the worst of all modes of sending plants *except wrapping them in cotton wool.*—*B J M.* Lasthenia glabrata.—*J A.* Miltonia Regnelli.—*R S.* Carlina vulgaris.—*A B C.* Sedum Cepæa.—*Barham Court.* Some Cassia; we believe C. biflora.

Misc: Full price will be given for copies of Nos. 1 and 22 for the present year.——*Sub.* Certainly; you can show an Orchid in a miscellaneous collection of stove and greenhouse plants provided there is no rule to the contrary.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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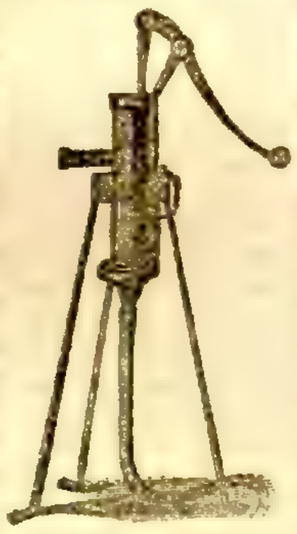

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
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2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
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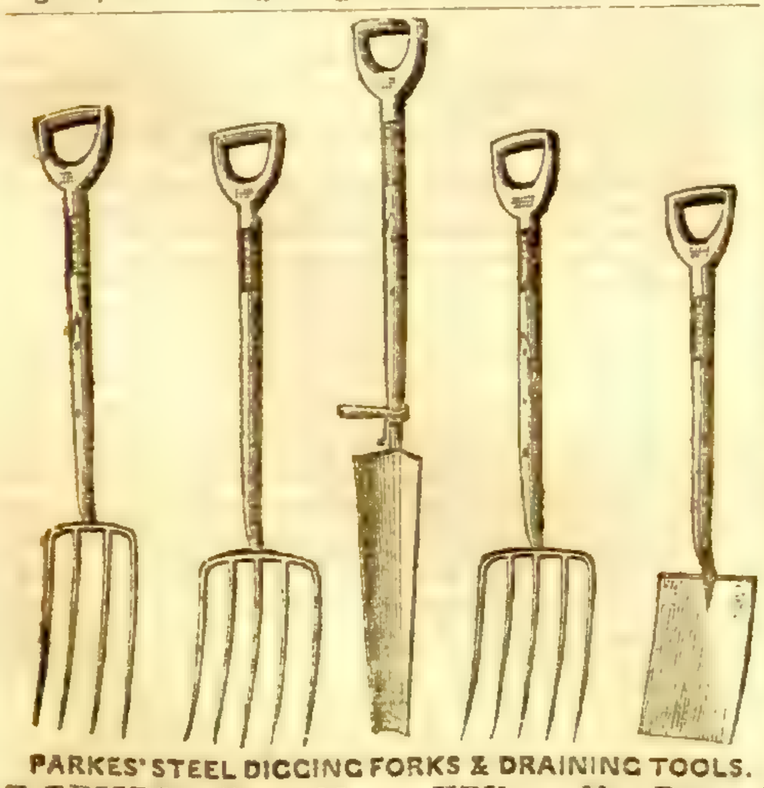

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE DORSETSHIRE POULTRY IMPROVEMENT ASSOCIATION.—The Annual Exhibition of this Association will be held in Dorchester on WEDNESDAY and THURSDAY, September 17th and 18th, when several valuable Silver Cups, the gifts of noblemen and gentlemen of the County, in addition to the Society's Prizes, will be awarded.
All Entries must be made (on the Forms only) with the Honorary Secretary on or before Monday, September 1st, after which no entry will be received.
Prize Lists, Forms of Entry, and the Rules of the Association will be forwarded to any applicant on a stamped envelope addressed and six penny postage stamps being received by
G. J. ANDREWS, Honorary Secretary.
Dorchester, August 30.

The Agricultural Gazette.
SATURDAY, AUGUST 30, 1856.

Mr. BOYDELL, whose endless railway or slipper-carrying locomotive has now for two seasons occupied the attention of agriculturists, supposes that the power of his engine is doubled by gearing it on to the driving-wheel of the machine at the top of its circumference. Our correspondent "G. P. S." has, we believe, exposed the fallacy on which this idea rests by pointing out that the pinion, whose "leaves" pressing against the "cogs" of the driving-wheel convey the power in question, is a part of the machine itself. If it were not connected in this way, then, pushing as it does at the end of a diameter of the wheel whose other end, in contact with the ground, is the fulcrum, while the weight to be overcome is the strain upon the draught chain attached to the axle, it is evident that it would have all the advantage contended for it. A force of 10 lbs. where the pinion presses would balance a strain of 20 lbs. pulling at the axle: but the pinion is part of the machine itself, and exerts a pressure in its bearings as well as on the cogs into which it gears. It is just in the position in which a man would be who should push the machine along as he rode upon it by pressure applied at the end of the spokes of the driving wheel. He pushes forward with a thrust of 10 lbs. we will say, but this forward thrust by hand is accompanied by a corresponding backward thrust by foot, if he be standing, of just as much. The former may indeed be equivalent to a pull of 20 lbs. upon a rope attached to the axle of the machine, but from this the latter has to be deducted, and thus the apparent gain derived from the advantageous position of the thrust is destroyed.

"W. B.," who contends for all the advantages claimed on this ground by Mr. BOYDELL, speaks of the "saving of space which the motor-force gains by translation," *i.e.*, by the forward movement of the machine as it is operating; but apart from any direct attempt to meet the claim put thus we must remember that the machine has to start before it can be in motion, and the efficiency of the power which it carries must be tested in the first place therefore while it is at rest.

OF all the pests in the shape of weeds by which the farmer is harassed, there is none so mischievous in its effects or so difficult of eradication as the Crow Garlic (Allium vineale); it is, therefore, not surprising that enquiries should be repeatedly made as to the best methods to be adopted in getting rid of it, and as it is in reality one of the exceptional cases that cannot be included in any general weed treatment it is proposed to consider its separate history here.

1. The Crow Garlic is a liliaceous plant, the *scape* or flower stem of which is as much as from 2 to 3 feet high, rising from a bulb which, especially in non-flowering examples, will be surrounded by from four to eight smaller bulbs or *bulblets*. The original intention of the scape is to bear the flowers, of which it would thus present a head after the manner of the Garlic and Onion of our gardens; but it curiously happens that instead of flowers the scape is surmounted by from one to three compacted heads of minute bulbs possessing the structure and characters of those at the base of the plant, and endowed with such a power of vitality as to be in most cases *viriparous*, that is growing or sending out leaves before they fall from the parent stem. These are sometimes, but very rarely, mixed with flowers, and as they readily and singly separate from the parent, as its stem becomes dry, so then each little bulb as their mass becomes scattered around is in the condition to take possession of the soil where it falls, which it does like a clove of Garlic, by sending out roots from its base, and thus a whole colony in one season results from a single plant.

The power of propagation possessed by this plant may be gathered from an estimation of three examples collected during the present week, July 1856.

Example 1.	Bulbels* on the flower stem ...	219	Bulblets* to the root ...	3
2.	ditto ...	237	ditto	4
3.	ditto ...	264	ditto	5
Total		720		12
Average for a single plant = 240			... ...	4

Here then we see that the Crow Garlic if allowed to seed has a prodigious method of increase, and we must recollect that its increase is not, like the majority of weed plants, by seeds which are for the most part agreeable to birds and insects, by which means many much more productive plants are kept in check; on the contrary, it would appear to be avoided by all classes of these creatures, whilst the bulbels themselves, which are seldom abortive, possess such wonderful powers of vitality that they may be kept like Onions or the ordinary flowering bulbs for months and perhaps even years, and still maintain their germinating power. It however fortunately happens that only a tithe of the plants of a season send up flowering heads, as they are liable to be interfered with in their growth in corn, seeds, and the like by the exuberance of the respective crops in which they occur; but the farmer must be made aware of the important fact that it then increases by bulblets or smaller bulbs which bud out around the larger, and hence we have in the Crow Garlic a pest which, if it matures itself, results in the production of hundreds of others, but, if not, still the original bulb is increased in strength, whilst a colony may insidiously arise from the bulbel of a former year, even though the flowering process has not been brought about.

2. The great anxiety manifested by farmers with respect to the plant under review is easily accounted for, when we consider that its favourite habitat is that of the corn field, and usually the best Wheat-producing land on calcareous formations. Such for example, as the great oolite of the Cotteswolds, and the chalk marl of the Wiltshire hills, are peculiarly liable to it; indeed, the more plastic soils on these usually light lands are peculiarly liable to it. Its injurious effects, unlike most other weeds, cannot be traced in any considerable degree either to a robbery of plant food from the soil or to its incommoding the plants amongst which it grows by any particular overshadowing, as it seldom grows in such quantity as to affect the crop in either way, and is besides possessed of small fistular leaves with a straight flower-scape, taking up even in its most perfect shape very inconsiderable space. Besides, its herbage even in hay (for it sometimes affects the hay as well as the seed field) possesses but little of the offensive Garlic odour which characterises it in the dried form. Did the plant usually seed, its seeds would be so small as to produce no mischief beyond its power of reproduction, as they could readily be separated from the grain; but it is in the production of its bulbels that its injurious character resides. These are so near the size and weight of a grain of corn that they can be separated from the grain only with the greatest difficulty, and such is the offensive smell and taste of these which are peculiarly rich in the Garlic odour, that a few bulbels crushed in threshing much injures the sample for the market, whilst if ground with the corn it most effectually damages the flour.

3. From these considerations our third inquiry resolves itself into the two following heads:—

a. The freeing the sample from the bulbels when present in the crop.

b. The eradication of the plant by which the bulblets and bulbels are produced.

a. In any ripe crop where Crow Garlic is known

* Throughout this article the term *bulbel* is used to express the smaller buds, of which the conglomerated head is composed; *bulblets*, the smaller bulbs which grow about the principal bulb at the base of the plant, and which are called the smaller cloves of the garden Garlic.

to exist care should be taken in harvesting to hand-pick it as closely as possible, to which end the best plan we can devise is to have each ridge before taken possession of by the hand reaper or the reaping machine, as the case may be, carefully examined by women or boys, who should precede the reapers, and so carefully pick out each of the heads of bulbels; this should be done quietly, as if ripe the bulbels will readily become scattered over the ground, and thus be prepared for propagating the evil at a future time; the plants so collected should be brought together, not with the notion of rotting for manure, but in order to be burnt, as this precaution, usually the only safe one in the destruction of weeds in general, is incomparably so in the case of the Crow Garlic.

But with every precaution some of the Garlic heads will escape observation; it will therefore be necessary to overlook every sheaf of Wheat preparatory to threshing.

It however frequently happens that a sample of Wheat is so foul that these plans, however carefully conducted, are unavailing in preventing an ill flavour to the samples of grain, in which case there is often no safeguard except letting the crop stop in the rick for a period of from two to three years, when the Garlic cloves, whether in the form of bulbels or bulblets, become dried up, in which state they are lighter than the grains, and can then be removed from the sample by winnowing.

b. The avoidance of these processes, which are a constant source of trouble and expense, should be an important object with the farmer, to which end we would recommend the colonies of the Garlic—for they generally grow in clusters where the heavy bulbels fall when undisturbed—to be well overhauled with the fork, and if the bulbs are thus forked up in spring they will then not have made their bulblets, and if carried away to weed or rubbish heaps *and burned* there will be an effectual stop to the 240-fold increase which might otherwise be developed.

Later this increase may be prevented by pulling, but by this process the bulbs are almost certain to be left in the soil and then they at once begin throwing out root buds or bulblets, and in increased quantity, when propagation by bulbels is denied. Sometimes the reapers avoid the plant in their work and then the heads are left standing, and so the bulbels are scattered under the impression of killing it in the fallows—and it is quite true that much of it is got, together with weeds and Couch, by the harrows in preparing the land for the next crop becoming entangled by the long viviparous growing leaves—but at the same time it should be remembered that this very operation tends to spread a far greater proportion more evenly over the surface of the field, and thus an increased and uniform succession is amply provided for. But as regards that taken off with Couch by harrowing, a practical caution will not be out of place. We have in our mind's eye a large heap of Couch which was taken from a field greatly infested with Crow Garlic; this Couch* was deposited on a bit of waste ground to rot, a result which ensued; but be it observed the rotten Couch only afforded a soil for the growth and development of the accompanying Crow Garlic, and at this moment its surface is green with the leaves of unseeded plants, whilst a sprinkling of mature heads enough to sow a large field have reared their tall forms between; and indeed the specimens enumerated in this article were derived from this source.

Here then we see the curious and unusual powers of propagation of this plant; we have noted its great vitality which, unlike Couch, cannot be destroyed by drought and exposure to the sun, nor even by rotting in a heap: its history teaches us that wherever present it should be rooted out in the best manner that can be devised. Its bulbels should never be left to the chance of being scattered abroad, but being collected, all power of vitality should be destroyed by as speedy and effectual a burning as can be performed, for useless indeed will it be to fork out Crow Garlic from one crop if we sow it in the supposed rotted weeds or spread with the manure for its successor.

The following table, being the first contribution to the Agricultural Statistics of 1856, shows in statute acres the extent under Flax in Ireland in 1855 and 1856, compiled from returns collected by the Constabulary. It is expected that, on the further revision of the Agricultural Returns of 1856, no difference of any importance will be found between the extent of land under Flax here given for the present year, and that which will appear in the more detailed Tables now in course of compilation. We have to thank Mr. Donnelly, Registrar-General, Ireland, for this early information on a very important subject.

Counties and Provinces.	Extent of land under Flax. 1855.	1856.	Difference between 1855 and 1856. Increase.	Decrease.
Ulster.	Acres.	Acres.	Acres.	Acres.
Antrim	6,727	6,030	...	697
Armagh	9,308	10,917	1,609	...
Cavan	6,034	6,024	...	10
Donegal	15,779	17,654	1,875	...
Down	11,177	13,510	2,333	...
Fermanagh ..	2,005	1,934	.	71
Londonderry ..	11,760	13,959	2,199	...
Monaghan	11,858	12,137	279	...
Tyrone	13,228	14,746	1,518	...
Total of Ulster ..	87,876	96,911	Increase, 9,035 acres.	
Munster.				
Clare	892	949	57	...
Cork	2,387	1,569	...	818
Kerry	585	1,039	454	...
Limerick	242	230	...	12
Tipperary	103	99	...	4
Waterford	43	49	6	...
Total of Munster ...	4,252	3,935	Decrease, 317 acres.	
Leinster.				
Carlow	81	159	78	...
Dublin	1	1	...	...
Kildare	9	4	...	5
Kilkenny	45	46	1	...
King's	254	238	...	16
Longford	262	388	126	...
Louth	190	219	29	...
Meath	267	213	...	54
Queen's	7	8	1	...
Westmeath ...	199	203	4	...
Wexford	825	1,551	726	...
Wicklow	1	2	1	...
Total of Leinster ...	2,141	3,032	Increase, 891 acres.	
Connaught.				
Galway	544	532	...	12
Leitrim	718	680	...	38
Mayo	745	923	178	...
Roscommon ...	386	436	50	...
Sligo	379	377	...	2
Total of Connaught	2,772	2,948	Increase, 176 acres.	

Acreage under Flax in Ireland, in 1855 ... 97,041 acres
" " in 1856 ... 106,826 acres
Increase in 1856 ... ... 9,785 acres.

The extent of Flax grown in Ireland during the past seven years is as follows:—

1850.	1851.	1852.	1853.
Acres.	Acres.	Acres.	Acres.
91,040	140,536	137,008	174,579

1854.	1855.	1856.
Acres.	Acres.	Acres.
151,403	97,041	106,826

ON DRYING GRASS ARTIFICIALLY.

A few weeks past I was pleased to see the subject of drying Grass by artificial heat described in your journal. Living as I do in a wet climate, where on the average I think we lose one-third of our hay crops, I have naturally been led to consider how that loss could be avoided, and amongst other remedies that of artificial drying.

I believe that in some localities and under certain conditions, this mode of operation might be conducted without its cost interfering so much as to obviate the advantage to be derived from it.

The land ought to be sufficiently flat, so that the hallage, a main point, might be easily effected, and the meadows situate immediately adjacent to the drying-house; also manure ought to be liberally applied to provide a great quantity of Grass in a small compass, so that the operation be carried on over as limited an area as possible, to assist which, as the work could be carried on at any season early or late independent of weather, each meadow might be mown twice or even three times. I have no doubt either but that superior fattening qualities might be given to the Grass by the judicious use of certain manures, such as bones, lime, guano, &c., and that the Grass, undergoing no alteration by the process except being deprived of its moisture, would retain the properties it held in its natural state, and be as useful in fattening animals in the stall in the winter time when meat is dearer, as it is in the field in summer.

The difficulties to be met are the expense of the drying-house and apparatus, the cost of the coal, and the carriage of the Grass. The manual labour required would not be far short of that necessary for saving the crop in the common way, for although a great saving would be accomplished in the diminished labour required to turn and dry it, the gathering, loading, and unloading, would cost much more than that required in making hay, the carriage would be as four to one, and the loading and unloading, as the pitchfork would raise very small quantities at once, would be increased in the same proportion.

From some experiments made in a draining pipe drying-shed heated by flues, I found that 20 lbs. of hay cut on a rainy day were sufficiently dried in the course of 24 hours at a temperature of 80° or thereabouts, and that they lost 15 lbs. in weight by the operation.

In this shed the draining pipes could be sufficiently dried for burning in about three days, half a day more or less, according to the weather. The result agreed with what I should naturally have expected, viz., that the drying of Grass would be accomplished in one-third of the time required to dry clay, the substance being much more pervious to heat in consequence of the particles being not so intimately connected.

Clay in the shape of draining pipes when dried ready for the kiln loses as near as may be one-fifth of its weight in the three days at a temperature of 80° in the drying shed alluded to above, whilst the Grass lost three-fourths of its weight, so that I think with a temperature of 120° it may be safely presumed that the Grass would be sufficiently dried in 12 hours with a heat of 120°.

Now as to the *modus operandi*. To render the operation practically useful a building of large dimensions comparatively speaking would be required, and I should say that it ought to be large enough to admit of a ton of dried Grass being turned out every 24 hours.

Now from experiments I made with a view to ascertain the room required to spread the Grass produced from an acre of ground producing one ton of hay per acre, I found that a superficies of 100 square feet covered 7 inches deep would carry Grass enough to produce 22½ pounds of dried Grass. On the meadow the crop when spread the second day stood only 3 inches deep, but on the heated floor, where there would be no evaporation rising from the earth to interfere with the drying process, I conceive 7 inches in depth, as indeed I proved by actual experiment, would not be too much. I think it would probably be found that it would dry spread 8 inches deep; taking the depth, however, at 7 inches, a floor 167 feet long by 30 feet wide would take Grass sufficient to turn out half a ton of dried Grass, whilst a second floor immediately over the first in the same building would take the other half ton, thus drying an acre a day. The lower floor might be conveniently made of the perforated maltsters' tiles resting upon iron rafters, supported on pigeon-hole brickwork; six hot-water pipes, 4 inches diameter, supplied with boiling water kept in quick circulation, would furnish the heat underneath the tile floor.

The building to be 12 feet high to the square, so as to allow of a second floor of open lattice work of wood being placed above the ground floor with a height of 6 feet 6 inches between the two. The slope of the roof would allow sufficient head room for the workmen on the upper floor. Four planks 9 inches broad to be placed longitudinally upon the upper floor for the men to tread upon as they turn the Grass. Trap doors in the upper floor to be provided to let down the Grass fresh placed there for 6 hours to be finished on the lower floor. A hay-house or perhaps two, at convenient distances from each other, abutting upon the drying shed at right angles to receive the hay as it becomes dry.

An objection might here be raised that the steam rising from the Grass on the lower floor would moisten that upon the upper, but heat rises to such a degree that this apparent disadvantage would not interfere in practice, at least it does not do so in drying draining pipes, where I find the pipes on the higher shelves of the racks dry twice as fast as those on the lower ones, though subjected to all the steam rising from the shelves below them.

After the hay harvest was over the building might be usefully devoted to drying corn in the sheaf, and after September the lower floor would make an excellent granary, where corn might be kept 3 feet deep, drying it gently and turning it until it was fit for market.

As to fuel, I believe that half a ton of coal would keep up a temperature of 120° of heat in a house of these dimensions during the space of 24 hours.

It appears to me that if fire bricks can bear the expense of drying by artificial heat that hay ought to pay for it. By way of comparison—fire bricks are sold here at 30*s.* 4*d.* per 1000:—

	£	s.	d.
Coal, labour, digging, hallage, royalty, moulding and burning	£1	1	0
Coal (at 10*s.* per ton) per 1000 for drying on hot floor	0	6	0
Profits	0	3	4
	£1	10	4

Now, on the average, hay is sold here at about 4*l.* The cost would be as follows:—

	£	s.	d.
Rent of land producing 1 ton per acre	£1	10	0
Tithes and parochial rates covered by after Grass .	0	0	0
Mowing and haymaking, the same as if made in the field	0	10	0
Half a ton of coal, at the price in this country, say 15*s.*	0	7	6
Interest on building supposed to cost 500*l.*, at 7 per cent., to cover wear and tear, and assuming it to dry 60 tons a year	0	11	8
	2	19	2
Profits	1	0	10
	£4	0	0

One intelligent agriculturist suggested to me that the Grass might be only three parts dried by fire-heat, and that the remainder of the moisture should be expelled by heating in the rick; but inasmuch as I conceive the superior quality of dried Grass to common hay due to its undergoing no change but that caused by the expulsion of its moisture, I consider heating in the rick inadmissible. *Agricola.*

POTATO DISEASE.

The Potato epidemic which contrary to all precedents has been late in its general attack, indeed some weeks later than it has been accustomed to be in even years, has since the thunderstorms of the 14th and 15th "brought up its lee way with a wet sail." The leaves are blackening rapidly everywhere, and there is already much appearance of disease in the tubers; although, from the breadth of land under the crop

* This Couch consisted of a mixture of the three following Grasses: *Triticum repens, Poa pratensis* and *Agrostis stolonifera.*

and the nearly full growth of it, we have every reason to expect a very great plenty of Potatoes this year, indeed confidence has so returned in them that conacres of them have again become common and this alone has been enough to expand their production. The thunderstorms were accompanied and followed by heavy and continued rain, and, so far, Mr. Rumball's dream of electric influence has been read. He has however been so ably and cleverly refuted by "A Student of Nature" in the *Chronicle* of the 16th that it is scarcely worth saying more about it; still, it has been numerously and confidently entertained on this side of the water by the despised peasantry of the country for a very long time and even by many more enlightened men, indeed it is the general belief that lightning is the cause of the disease, although people are a little puzzled why it did not operate before in this destructive way. But we have other and even stranger theories very confidently put forth here; some persons have found, no doubt in favourable situations for them, slugs and snails, not some but numerous, legions, infesting the diseased Potato leaves,—hence they are the cause. Indeed nothing has given so much room for imagination in supposed causes as this Potato blight, and yet there does appear a very simple and effective one, and often asserted in the *Chronicle*, in a pest that not only prevails with our Potatoes but extends its baneful influence over every product of the earth, a simple vegetable parasite sufficient to produce all the phenomena which the Potato exhibits.

Very shortly after the appearance of the desolating Potato disease unmistakeable mildew seized upon almost every green thing; the Currants of Zante were destroyed, the Vineyards throughout Europe were ruined, our own garden products suffered from it, the very Hawthorns of our hedges escaped not, indeed it has been a veritable period of mildew throughout the world. In Ireland, under our moist climate, Wheat suffered so severely by it that its culture was for several years abandoned. Hopes, in the most promising crops, were so much blighted that only bushels were reaped where quarters were expected; the rust was so heavy on it that in going through it one was covered as thickly with a red powder as a miller is with a white one. The general diminishing effects of mildew have been so much felt that confidence has for the last two or three years been restored, not only in the Potato, but in the Wheat, the tillage of which has therefore also progressively increased to a very great extent.

"If," says Mr. Rumball after a thunderstorm, "the weather continue damp, the tubers become extensively affected; if hot and dry, as now, then only a few are touched." Did it never occur to him to remark whether such were not the case in damp weather, whether there were a thunderstorm or not. Very generally a thunderstorm is preceded by hot dry weather, which is unfavourable to the spread of mildew; if no rain attends or follows the thunderstorm the growth of mildew is still stayed, if it is attended or followed by rain the mildew spreads rapidly, supposing it to be the period of its attack, for the weather in such case is most favourable for its rank growth, and then also most other vegetable products also feel the same influences and become subject to its attacks. The present year very strongly exemplifies this: the hot dry weather which prevailed this summer at the time that, according to all precedents, the Potatoes ought to have felt the effects of mildew, so checked and delayed its growth that it made no sensible appearance till the storms occurred and the rains deluged our fields, since which not only has its growth been most rapid among the Potatoes, but the Peas are also covered with it, which were not before affected. If, according to Mr. Rumball, "the immediate cause of the Potato disease is electricity acting upon the wet tubers," the rain ought to precede the electric shock, and the tubers ought to be affected before the leaves, which is contrary to usual occurrences, for long before the electric storms, even in dry weather, the leaves become slightly affected, so long before that a few blackened leaves are, I believe I may say invariably, seen a month or more before general observation detects the visitation, and very long before the mildew spreads; the fact is it exists apparently irrespective of the state of the atmosphere, and certainly some time before the tubers become diseased.

With respect to our Irish discovery, the slugs or snails naturally infest sheltered and moist places, which are also favourable to the growth of mildew; indeed, all the arguments urged by the agriculturist of the Esher model school in favour of his slugs or snails are equally cogent with mildew, each deprives the plant of its juices and causes death in the parts that have been so deprived—both are parasites—but I think the mildewed edge that borders the blackened spot of the leaf is a very decided proof of the presence and action of the vegetable parasite. I would call the attention of those who doubt the disease being a mildew to this indication:—the under side of the blackened part of a leaf of the Potato plant is found edged to the breadth of perhaps half an inch with a white mildew; it would I think appear patent to any one that the death of the blackened part has been caused by the drinking up of its juices by this fungus, the precursor of its death. The life of leaves is destroyed by many accidents, and, where a black leaf appears, the cry of Potato disease is raised, but unless the mildew edge is seen I am ever slow to attribute it to our fell foe. It is rather curious, however, that the mildew falls on the upper side of the Pea leaves. But a most curious detection has been made by a Longford man who is a sincere believer in the slug or snail discoveries, indeed I believe an originator of it years ago; he has opened some of these delicate insects with his penknife and found them fully charged with the green (juice of) Potato foliage they had so lately devoured; had he opened a caterpillar he would also have found it "fully charged" with the green fluid it had extracted from the vegetable it fed on. *J. M. Goodiff.*

ON THE SO-CALLED TRANSFORMATION OF ÆGILOPS OVATA INTO WHEAT.

WHEN a few years ago the late M. Dunal introduced to our notice the result of the labours of M. Fabre at Agde, respecting the so-called transformation of Ægilops ovata into Wheat, the great body of European botanists became divided into two parties; the one, which found the most adherents in England, implicitly believed in the exact letter of M. Fabre's conclusion (*i.e.*, that by a successful cultivation alone a mere weed like Ægilops ovata had been raised to the rank of so important and useful a grain as Wheat), the other, which found the most in Germany and France, rejected M. Fabre's conclusions and endeavoured to explain the change that had evidently taken place, by assuming that it had been brought about by crossing Ægilops ovata with Wheat, a process by which, if repeated, any hybrid would ultimately revert to its parent stock, as is the case for instance in a mule, which in the course of a few generations will, by means of crossing, become either a donkey or a horse. Although I have had no opportunity of making any experiments with the plants alluded to, I was by no means an indifferent spectator, but laboured to assist the good cause by reprinting in the botanical periodical edited by me (The Bonplandia) all the English, French, and German articles and pamphlets which had appeared, and by furnishing such leaders as were best calculated to keep the subject alive, and guard it from being disposed of by weak and illogical arguments. Being so much interested in this question I was agreeably surprised on hearing some weeks ago that one of Prof. Henslow's Ægilops plants had produced an ear resembling that of Wheat; and as Prof. Henslow's plants were no hybrids, but only well-grown specimens of Ægilops ovata, it was likely to be demonstrated by this "sport" that the views of M. Fabre, backed by Dunal and others, were correct, and consequently those of the other party incorrect. Like many others I have ever since then looked forward with great interest to the publication of Professor Henslow's report on his singular production, and my interest has if possible been heightened since the receipt of a letter from St. Petersburg, dated July 15th, 1856, in which my esteemed friend Dr. Regel, the director of the Imperial Botanical Gardens of that place, informs me that he has succeeded in answering the Ægilops question, not *ex cathedra*, but by experiment, and that his own views on the subject (*i.e.*, that the transformation could only take place by a repeated process of hybridization) have been confirmed. I have produced this letter *in extenso* in the "Bonplandia," vol. iv., p. 243, and will confine myself in this place to an abstract, which, to do Dr. Regel justice, I must preface with the remark that it was he, who, long ere Godron published to the same effect, started in his "Gartenflora" the hypothesis, now confirmed by his experiments, and that to him belong whatever merits or demerits it may have.

The following is the abstract alluded to:—"St. Petersburg, July 15th, 1856. My experiments, made during the last few years of fecundizing Ægilops ovata with the pollen of Wheat have been successful; the hybrid itself now stands before me. There is nothing of a gradual transition from one plant into the other, but we have obtained at once from the seeds of Ægilops ovata a plant which shows a much greater resemblance to Wheat than to Ægilops. The individuals raised (about 10) do not differ in the least from each other, all are perfectly alike. The thin prostrate stems have changed into strong robust ones, which, though they may still lie prostrate at the base, soon become rigid, erect, and 1½ to 2 feet high, bearing an ear from 1½ to 2 inches long, which resembles more that of Wheat than that of Ægilops. In the few instances in which I have succeeded in raising a hybrid between two genera, the hybrid always bore the generic type of the plant which furnished the pollen. The same is the case here; the hybrid, Ægilops triticoides, is really no Ægilops but a Triticum; for its glumes and paleæ are not, as in Ægilops, concave, but they are carinate. In Ægilops the glumes, which encompass each spikelet, terminate in 2—4 aristæ, and have equally thick parallel veins. Moreover these glumes quite envelope the spikelet, which consists of two perfect and one imperfect florets. In Triticum vulgare these two glumes are laterally carinate on the back, have unequally thick veins, are pointed, or terminate a little below the apex in a mucro or a long arista. (For the process of fecundation the beardless form of Wheat was selected.) These glumes are placed at the base of a spikelet with three or more florets, which they do not quite envelope. The hybrid produced by the two plants bears a spikelet with from three to five florets, on the base of which are two glumes which only surround the spikelet when it is young; but afterwards not at all. On the back we have the lateral keel so characteristic of Triticum, through which they end in an arista, much shorter than the glumes themselves. The tendency which the hybrid shows to Ægilops consists in the numerous veins of the glumes running parallel with the keel, and one or two of which terminate in a short tooth. The lower of the two paleæ is in Ægilops not unlike the glumes; in Wheat it is either obtuse or, in the bearded forms, and ends in a long arista; on the back it is carinated. The hybrid has a lower palea carinated at the back and ending in an arista many times shorter than the paleæ; moreover there is on each side a lateral vein terminating in a short tooth.

"From this description it will be seen that my experiment has confirmed that Ægilops triticoides is a hybrid between Ægilops ovata and the Wheat, and that the conclusions respecting the transition of the two plants which I deduced from analogous cases have proved correct. Opposed to them are reports of other transition forms between the hybrid and the two parental plants, leading us to the consideration of three questions, viz.: whether there are really any other transition-forms? whether, if there are, they have been produced by a returning of the hybrid to one of its parents? or whether they have to be explained by a repeated fecundation of the hybrid with one of its parents? I have already declared in favour of the latter view; it is true I myself have not seen these later transition-forms, but I have also no reason to doubt their existence. That a hybrid, when it is a perennial plant, cannot return to its parents by esexual propagation we know from experience, but it is different with the sexual propagation, where experiments with newly raised hybrids, fertile even in their pollen, must decide and can only prove the question. Experiments to that effect have yet to be made. I know from personal experience only one instance of the latter. Respecting our hybrid between the Wheat and Ægilops I have left some of the plants on isolated places so that they may fecundate themselves, some I have fecundated with Ægilops, and again some with the common bearded Wheat. How far these experiments may succeed the future will show. In other respects we have still to consider a question mooted by Dr. Lindley in the *Gardeners' Chronicle*, who, taking his stand on the theory started by Dr. Klotzsch, expressed the opinion that if Ægilops triticoides had fertile pollen it would prove that Ægilops ovata and Triticum vulgare were extreme forms of one species. But this view does not hold good, since my hybrid has pollen, which is entirely sterile. The question, therefore, whether Ægilops triticoides is a true hybrid, measured even by Klotzsch's standard, is thus answered in the affirmative; we have, however, still to learn whether our plant may not fecundate itself by means of its own pollen. This latter question no theory, only experience, can decide. *Ed. Regel.*"

Since the above was written, I have seen in the *Athenæum* a brief abstract of Prof. Henslow's paper on the Ægilops question read before the British Association at Cheltenham, in which it is stated that Prof. Henslow "had so far succeeded in changing the character of Ægilops ovata as to lead him to conclude that M. Fabre's original statement, that it was the origin of the domestic Wheat (Triticum sativum) was not altogether without foundation. He exhibited specimens, in which the form of Ægilops ovata had undergone considerable change; but he had not yet succeeded in obtaining the characters of Triticum sativum."—Prof. Henslow will render great service to systematic botany if he continue his experiments in the same direction as he has done hitherto, viz., to endeavour to raise Ægilops ovata by means of cultivation to the rank of Wheat, though he may only obtain, as I have little doubt he will, a positive fact by a negative result. *Berthold Seemann.*

[We believe the plant which was the subject of Prof. Henslow's experiments was Æ. squarrosa, not ovata.]

ANSWERS TO AGRICULTURAL QUESTIONS.

BY MR. HENRY COX, OF MINCHINHAMPTON, GLOUCESTERSHIRE

IN your Paper of July 5 you invite answers to the questions put by the Society of Arts. The farm to which they refer is an adhesive loam, which I take to mean Wheat and Bean land. I start on the presumption that the farm is in good heart and properly drained, and the farm buildings in good repair and nearly central, and the farm not very sideland, as you are well aware hilly land is much more expensive to manage than when it approaches nearer to a level.

FARM PRACTICE.

In answering the following questions on the management of a farm, you will make your replies throughout consistent with the scheme of cultivation which you lay down for yourself in the first of them. The farm in question is 320 acres in extent—70 acres being in meadow-land and pasture; the soil is an adhesive loam, and its quality may be indicated by its rent and rates, which amount in all to 2*l.* 5*s.* per acre.

1. State the mode in which you will crop this farm, supposing it situated in midland or southern England—giving the acreage under the several crops you name—and bearing in mind (in reference to your crops for cattle food) what the requirements of your live stock may be.

I would, for the sake of round numbers, cut off 11 acres of the arable land lying nearest the steading, and apply it to grow Italian Rye-grass, Rye, Potatoes, Lucerne, and any little things that should turn up in the way of experiment. We should then have six equal proportions of 40 acres each—

Two portions, or 80 acres, would be Wheat.
One portion, or 40 acres, would be Beans.
One portion, or 40 acres, would be Mangel Wurzel, Swedes, Turnips, Vetches, &c.
One portion, or 40 acres, would be Clover.
One portion, or 40 acres, would be Oats.

We should then have Wheat twice in six years; Oats, Clover, and Beans, once in six years; Mangel Wurzel once in 12 years; and Vetches and Turnips once in

12 years. Then I would shift in every rotation the Mangel Wurzel on to the Turnip land of the preceding six years, and *vice versâ*. I would endeavour to manure every other year in some way; thus I would use a small portion of farm-yard manure, and 2 to 3 cwt. superphosphate, with a little salt, for the root or fallow crop; a fair dressing of farm-yard manure alone for the Bean crop; and a dressing of guano, mixed with ashes or screened earth, as a top-dressing for the Clover crop. We should then have bone earth once in six years, and guano once in six years. Perhaps you will say, why grow Oats on this land at all? I have many reasons. 1st, It would set the Wheat crop a little wider in the rotation. 2d, They may be sown in spring, and therefore more equally divide the labour, because it will not always be convenient to get all the roots off the fallow land in time for Wheat. 3d, Oat straw is capital fodder, and Oats will be required in rather large quantities for feeding the farm horses, &c. Certainly, in a time of scarcity, and when Wheat brings such prices as the last two years, there may be a deviation in its favour, but on an average of years I should consider it right to admit Oats into the rotation. So much depends on seasons as regards the requirements of stock food, that I think this question a difficult one; but suppose we set down as an average that the land under green crops should produce 15 tons per acre. I am fully aware that very much larger crops have been produced, but I think this is quite as much as we can consider an average, taking seasons into consideration, and likewise the fact that we must begin with the Clovers, Vetches, Rye and Italian Rye-grass before the crop is up to its greatest bulk, or we shall have much of it spoiled before it is half housed.

SUMMER FOOD.

40 acres	Clover	10 tons per acre,		400	green food.
5 „	Rye	8	„	40	„
5 „	Rye and Vetches	12	„	60	„
5 „	Vetches... ...	10	„	50	„
5 „	late Vetches	10	„	50	„
				600	

The Rye and Rye and Vetches would be off in time for Swedish Turnip, and would precede the Clover; the Vetches (early) would be off in time for Yellow Turnips, and come between the first and second cut of Clover; and the late Vetches would be off in time for White Turnips, and would serve to help out with the young Clover of the second cutting. This would serve the horses and about 30 head of cattle, with the addition of a little dry food, from the middle of April till the end of September.

2. State the quantity of seed you will need upon the farm for each of the crops you grow.

SEEDS.

Wheat	80 acres,	1¼ bush.	per acre,	100	bush.
Oats	40 „	3 „	„	120	„
Beans	40 „	2 „	„	80	„
Rye	5 „	2 „	„	10	„
Tares	10 „	3 „	„	30	„
Rye and Tares mixt	5 „	3 „	„	15	„
Clover	40 „	10 lbs.	„	400	lbs.
Mangel*	20 „	4 „	„	80	„
Swede	10 „	2½ „	„	25	„
Turnip	10 „	2½ „	„	25	„
Italian Rye-grass	3 „	4 bush.	„	12	bush.
Potatoes	3 „	30 „	„	90	„

3. Estimate the produce of the farm in bushels of the several seed crops grown; and state the sum you will realise for each according to what you consider an ordinary price for each per bushel.

80 acres Wheat, 30 bushels per acre, 2400 bushels, at 6*s.* 6*d.*	£780	0	0
40 acres Beans, 32 bushels per acre, 1280 bushels at 4*s.* 6*d.*	288	0	0
Oats, 40 acres, 40 bushels per acre, 1600 bushels at 2*s.* 9*d.*	220	0	0

4. Say how many horses you will need to work the farm, and name the operations in which they will be engaged during the months of June and October respectively.

If the farm is clean, level, and convenient to the steading, I could work it with 7 horses, *i. e.* 3 pairs and one odd, which would be nearly always engaged in drawing food for horses and cattle, drawing stones to repair roads, &c. &c.; but as stock must be bought for this farm, I should buy annually 4 or 8 good old working bullocks, say in August. They might help through the Wheat ploughing and sowing if required, and be good for feeding afterwards; this would make us sure of our work being done in fair time. The chief operation in which the horses will be engaged in June is preparing for and sowing Swede Turnips, horse-hoeing Mangel, drawing hay from meadow land, and drawing food (green) for live stock. In October (we will suppose the harvest to be finished in September) they will require to be kept with all vigilance preparing the Bean stubbles for Wheat, and sowing Wheat on the Clover stubble (which we suppose to be nearly finished ploughing in September); towards the last week, if the Bean stubbles are finished, they may be engaged in drawing in some of the earliest Mangels, as this operation should be finished before the middle of next month, or serious consequences may occur from frost.

5. Relate the several operations after Wheat harvest in the culture of a succeeding Mangel Wurzel crop.

As soon as the Wheat is off I would run Coleman's grubber or Bentall's broadshare through the land, say two or three inches deep; the harrow should follow, and if any Couch or Coltsfoot or Mint have got a-head I would have it picked off; it might then lie two or three weeks to allow all seeds to germinate, when the harrow should be again passed over the ground to kill such as had germinated. As soon as the Wheat sowing is finished, and a ridge or so of Rye and Vetches got in, I would give it a double ploughing; these two ploughs should follow each other, one with mouldboard and the other without, the depth being regulated by circumstances, that is, I would only break a small portion of the subsoil that had not been previously worked. This operation finished, in a fortnight or so, as opportunity served, I would put through it crossways the Ducie drag or Coleman's scarifier with chisel points, as deep as both ploughs; this would mix in some degree the under soil with the top without causing sterility for a time. The next operation would be to ridge it up either with the double breast plough or single plough going twice in one place; the plough without board should be again passed down between each bout, and the whole may then lie for frost and air to pulverise till we can find time to draw on the manure, which may be done any time in the winter when the land is in a fit state. This I would put in the bouts between the ridges and split the ridge back on it, and the subsoiler should again be passed down the furrows. It will then be fit to remain till April, when if weeds make their appearance it may be advisable to run the horse hoe up and down the furrows, and a pair of light harrows to follow crossways. Mangels are very fond of salt, therefore if three or four cwt. per acre be ground fine and strewn over the whole before this last operation it will be of much service, not only as food to the plants, but in killing insects, slugs, &c. If superphosphate or guano is used, it is best to mix this with the salt before sowing. The double breast plough may again be passed between the ridges lightly, and after a light roller have passed over them with pieces nailed on to mark the spot where the seeds are to be deposited, the seeds may be planted with a dibble at the rate of about five pounds per acre, or they may be deposited with the drill on the top of the ridges. As soon as the plants are fairly up in rows the horse hoe may be put to work between the rows, and men and women to clean the rows and single the plants, leaving of course the best plants in the ridges, after which they will only require a constant attention with horse and hand hoe till October, when they may be drawn and carted off the land and laid in long narrow heaps well secured with straw or other protecting material till required for use.

6. Estimate the cost of each of these operations per acre: and give all the other items which make up the cost per acre of the Mangel Wurzel crop.

The cost per acre of the preceding operations.

Scarifying with Coleman's cultivator	£0	2*s.*	6*d.*
Harrowing two tines	0	1	0
Double ploughing	0	12	0
Second scarifying	0	2	6
Ridging up	0	2	0
Subsoiling between ridges twice	0	4	0
Filling 15 loads manure	0	1	3
Hauling ditto	0	5	0
Spreading ditto	0	1	6
Covering ditto	0	2	0
Horse hoeing and hoeing and again ridging up before sowing	0	3	6
3 cwt. superphosphate	1	1	0
3 cwt. salt	0	3	6
Drilling or dibbling	0	2	0
3 horses hoeing between plants	0	3	0
Singling and horse hoeing 1st time	0	3	0
2 after-hoeings	0	3	0
Pulling and filling in carts	0	8	0
Drawing home	0	6	0
Stacking and covering with straw	0	2	0
	£4	8	9

These items must vary much under different circumstances, and it is not to be understood that any person could perform these operations on so low a scale where a farm had been overrun with weeds. For instance land has fallen in and come under my management that for hand-hoeing alone has cost above 20*s.* per acre.

(*To be continued.*)

* There is not enough seed allowed here by 2 or 3 lbs. an acre.

Home Correspondence.

Seed.—"T. G., Clithero," asks if it may not be desirable to get our seed Wheat from America, or to grow our Turnip seed in America. We must answer this negatively. Most kinds of seeds, if not all, grown in warmer climates than our own, certainly degenerate both in point of earliness, healthfulness, and fineness of growth after the first year of planting in this cool climate of ours; and many do so even the first year, though they grow very fine plants and flower well, yet they prove only abortive. The Scarlet Runner, for instance, is remarkable for this; two years ago an immense quantity was imported into England, we believe from America, extraordinarily large and good, far beyond any grown at home, and both being sown side by side and treated in every way alike, the English ones proved abundantly podded, but the foreigners were nearly all but abortive, though they blossomed most profusely, and this was a general remark amongst our neighbouring seed growers. After becoming inured, however, to the climate, the next year very little difference was observed. Of some Mazagan Beans from France, and some of home growth, planted the same day and treated both alike, the Frenchmen were fit to gather a fortnight before the English; both were left for seed; the next year, however, both were again sowed together, and no difference in ripening was observed. This occurred 30 years ago. Many nurserymen and amateurs no doubt, if they will speak truthfully in the matter, will pronounce it to have been the same with Ten Week Stocks, Balsams, &c., from abroad. But to be candid however, a contrary effect has been observed when they had been cultivated and brought from cooler climates than our own; they generally then become improved in earliness, quality, colour, &c., and often prove better than our own. These remarks apply not only to countries, but even to different districts at home from N. to S. or from S. to N. We could advise nothing better than to grow our Wheats and seeds saved from home growth, and from earliest selected stocks, or well cultivated land without stimulants or manure of any kind; although the seed may prove to be somewhat smaller than that raised from precocities reared by strong manures. All we want from abroad is what we cannot grow and supply at home. This we think requires to be better understood in commercial transactions abroad and at home, for we may rest assured they are studying their own interests, and will soon know their business as well as ourselves, and we may safely take it for granted they will require to buy no more of us than their own real necessities require. Let us also study our own interests and maintain our independence as well as we can by growing all we possibly can at home. *Hardy and Son, Seedgrowers, Maldon, Essex.*

Destruction of Weeds in Ireland.—Mr. Donnelly has sent us the following letter. [The pupils taught at National Schools exceed half a million.]

OFFICE OF NATIONAL EDUCATION,
21st August, 1856.

SIR,—We have had the honour of laying before the Commissioners of National Education your letters of the 10th July and 18th inst., relative to the great importance of the destruction of weeds along the sides of highways.

We are directed to state in reply, that the Commissioners cordially approve of the suggestion you have made, that the children attending the National Schools should be instructed by their respective teachers as to the necessity of destroying all weeds found on the farms of their parents, or on the highways adjacent thereto.

The Commissioners will, therefore, have much satisfaction in pointing out to their Inspectors the steps necessary to be taken for carrying your suggestion into effect.

To W. Donnelly, Esq.,
Registrar-General,
Agricultural Statistics Office,
5, Henrietta Street, Dublin.

MAURICE CROSS, JAMES KELLY, } *Secretaries.*

Memoranda on the Breaking Up of Grass Land (*Continued from p.* 427).—Let us take 100 acres of land in old pasture, being good meadow or grazing ground of equal value with that already named, which we propose to bring into cultivation. In the first place I believe it is allowed by the majority of good farmers that the best mode of reducing Grass land of nearly every description into arable is by paring and burning. Suffice it to say that the land ought to be pared with the paring spade, in February, as you then have it in readiness to burn as soon as the weather will permit. Of course it is an advantage to burn the turf as early as possible, as you then do not lose the season for sowing your seeds or corn. I propose to farm this 100 acres on the four field system, viz., Wheat, roots, Barley, and Clover or Italian Rye-grass. We shall consequently have 25 acres of each of the above mentioned crops. I shall now endeavour to show the probable value of each of these crops, and the cost of producing them. It is impossible to fix in what way your land shall be cropped the first year, so much depends on the nature of season. On land of the description I have mentioned we may calculate on growing 4½ quarters of Wheat per acre, on an average of years. Of the probable value of this crop per bushel it is rather difficult to calculate, but we shall certainly be within bounds in reckoning it at 6*s.* per bushel. The other corn crop, viz. Barley, we will put at 5 quarters per acre, and allow 32*s.* per quarter as its value. I now come to speak of the two remaining crops, namely Roots and Clover. Of the root crop, whether Mangel Wurzel, Swedes, or Carrots are preferred, I do not hesitate to say that 20 tons per acre ought to be produced, and in fact that weight is produced by good farmers from land of the value we have been treating of. And while I am on this subject, it may not be out of place to say that certain quantities of each of the roots I have mentioned should be grown. I would propose that half the land should be sown with Swedish Turnips, one quarter to Carrots, and the remaining quarter to Mangel Wurzel; so that you may commence feeding your cattle on Swedes which for the first three months are decidedly the best roots, afterwards the Carrots, and lastly the Mangel Wurzel, which root if properly stored and not allowed to shoot will retain the greater portion of its nutritive properties through the whole spring and even summer. I have frequently seen cattle feeding in July on this valuable root, and thriving as much as at any other season of the year. I have spoken of the value of the two crops of corn; I will now endeavour to prove the value of 25 acres of roots to be applied to stall feeding of cattle. In thus doing I will add to the roots the straw of the Barley crop, which shall be eaten by the cattle, and the straw of the Wheat shall be used as litter. From actual observation I have come to the conclusion that 1½ cwt. of either of the roots of which I have spoken is sufficient for an ox per day. Now supposing 25 acres will give 500 tons, and that the Barley straw of 25 acres is a sufficient quantity of dry food for a given number of cattle consuming 28 acres of roots, this amount of food will maintain 37 oxen or cows during six months. Lastly, let us consider in what way the remaining field of the course is to be consumed, viz., Clover or Italian Rye-grass. Of this crop I propose that the whole of it be mown and consumed by cattle in stalls or yards. The number of times Clover or Italian Rye-grass can be cut in the season depends chiefly on the good or bad management of the land. Suffice it to say, that the same number of cattle can be maintained during the remaining months on this crop of Clover as were fed on the roots and Barley straw. For the sake of comparing the relative merits of these two systems of

farming, let us suppose that each animal will pay 1*l.* per month for feeding, and that under each mode of management the cattle thrive in equal proportions, although I am fully convinced that roots and straw in the winter, and green Clover in the summer, very far exceeds hay alone and Grass alone. *E. H.*

Reviews.

The Journal of the Royal Agricultural Society of England. Vol XVII., Part I.

We refer to this volume now merely to call attention to Dr. Voelcker's valuable report upon the management of Farmyard Manure. It gives in great detail the results of a lengthened chemical research; and the conclusions arrived at are of the greatest possible practical value. In some particulars they are opposed to the generally prevailing opinions on the subject, as will be seen from the following *résumé*, with which the article concludes.

"1. Perfectly fresh farmyard manure contains but a small proportion of free ammonia. 2. The nitrogen in fresh dung exists principally in the state of insoluble nitrogenised matters. 3. The soluble organic and mineral constituents of dung are much more valuable fertilisers than the insoluble. Particular care, therefore, should be bestowed upon the preservation of the liquid excrements of animals, and for the same reason the manure should be kept in perfectly waterproof pits, of sufficent capacity to render the setting up of dungheaps in the corner of fields, as much as it is possible, unnecessary. 4. Farmyard manure, even in quite a fresh state, contains phosphate of lime, which is much more soluble than has hitherto been suspected. 5. The urine of the horse, cow, and pig, does not contain any appreciable quantity of phosphate of lime, whilst the drainings of dungheaps contain considerable quantities of this valuable fertiliser. The drainings of dungheaps, partly for this reason, are more valuable than the urine of our domestic animals, and therefore ought to be prevented by all available means from running to waste. 6. The most effectual means of preventing loss in fertilising matters is to cart the manure directly on the field whenever circumstances allow this to be done. 7. On all soils with a moderate proportion of clay no fear needs to be entertained of valuable fertilising substances becoming wasted if the manure cannot be ploughed in at once. Fresh, and even well-rotten, dung contains very little free ammonia; and since active fermentation, and with it the further evolution of free ammonia, is stopped by spreading out the manure on the field, the valuable volatile manuring matters cannot escape into the air by adopting this plan.

"As all soils with a moderate proportion of clay possess in a remarkable degree the power of absorbing and retaining manuring matters, none of the saline and soluble organic constituents are wasted even by a heavy fall of rain. It may, indeed, be questioned whether it is more advisable to plough in the manure at once, or to let it lie for some time on the surface, and to give the rain full opportunity to wash it into the soil. It appears to me a matter of the greatest importance to regulate the application of manure to our fields so that its constituents may become properly diluted and uniformly distributed amongst a large mass of soil. By ploughing in the manure at once, it appears to me, this desirable end cannot be reached so perfectly as by allowing the rain to wash in gradually the manure evenly spread on the surface of the field. By adopting such a course, in case practical experience should confirm my theoretical reasoning, the objection could no longer be maintained that the land is not ready for carting manure on it. I am much inclined to recommend as a general rule: Cart the manure on the field, spread it at once, and wait for a favourable opportunity to plough it in. In the case of clay soils, I have no hesitation to say the manure may be spread even six months before it is ploughed in, without losing any appreciable quantity of manuring matters. I am perfectly aware that, on stiff clay land, farmyard manure, more especially long dung, when ploughed in before the frost sets in, exercises a most beneficial action by keeping the soil loose and admitting the free access of frost, which pulverises the land—and would therefore by no means recommend to leave the manure spread on the surface without ploughing it in. All I wish to enforce is, that when no other choice is left but either to set up the manure in a heap in a corner of the field, or to spread it on the field, without ploughing it in directly, to adopt the latter plan. In the case of very light sandy soils it may perhaps not be advisable to spread out the manure a long time before it is ploughed in, since such soils do not possess the power of retaining manuring matters in any marked degree. On light sandy soils I would suggest to manure with well-fermented dung shortly before the crop intended to be grown is sown.

"8. Well-rotten dung contains likewise little free ammonia, but a very much larger proportion of soluble organic and saline mineral matters than fresh manure. 9. Rotten dung is richer in nitrogen than fresh. 10. Weight for weight, rotten dung is more valuable than fresh. 11. In the fermentation of dung a very considerable proportion of the organic matters in fresh manure is dissipated into the air in the form of carbonic acid and other gases. 12. Properly regulated, however, the fermentation of dung is not attended with any great loss of nitrogen nor of saline mineral matters. 13. During the fermentation of dung, ulmic, humic, and other organic acids are formed, as well as gypsum, which fix the ammonia generated in the decomposition of the nitrogenised constituents of dung. 14. During the fermentation of dung the phosphate of lime which it contains is rendered more soluble than in fresh manure. 15. In the interior and heated portions of manure-heaps ammonia is given off; but, on passing into the external and cold layers of dungheaps, the free ammonia is retained in the heap. 16. Ammonia is not given off from the surface of well-compressed dungheaps, but on turning manure-heaps it is wasted in appreciable quantities. Dungheaps for this reason should not be turned more frequently than absolutely necessary. 17. No advantage appears to result from carrying on the fermentation of dung too far, but every disadvantage. 18. Farmyard manure becomes deteriorated in value, when kept in heaps exposed to the weather; the more the longer it is kept. 19. The loss in manuring matters, which is incurred in keeping manure-heaps exposed to the weather, is not so much due to the volatilisation of ammonia as to the removal of ammoniacal salts, soluble nitrogenised organic matters, and valuable mineral matters, by the rain which falls in the period during which the manure is kept. 20. If rain is excluded from dung-heaps, or little rain falls at a time, the loss in ammonia is trifling, and no saline matters of course are removed; but, if much rain falls, especially if it descends in heavy showers upon the dungheap, a serious loss in ammonia, soluble organic matters, phosphate of lime, and salts of potash is incurred, and the manure becomes rapidly deteriorated in value, whilst at the same time it is diminished in weight. 21. Well-rotten dung is more readily affected by the deteriorating influence of rain than fresh manure. 22. Practically speaking, all the essentially valuable manuring constituents are preserved by keeping farmyard manure under cover. 23. If the animals have been supplied with plenty of litter, fresh dung contains an insufficient quantity of water to induce an active fermentation. In this case fresh dung cannot be properly fermented under cover, except water or liquid manure is pumped over the heap from time to time. Where much straw is used in the manufacture of dung, and no provision is made to supply the manure in the pit at any time with the requisite amount of moisture, it may not be advisable to put up a roof over the dung-pit. On the other hand, on farms where there is deficiency of straw, so that the moisture of the excrements of our domestic animals is barely absorbed by the litter, the advantage of erecting a roof over the dung-pit will be found very great. 24. The worst method of making manure is to produce it by animals kept in open yards, since a large proportion of valuable fertilising matters is wasted in a short time; and after a lapse of 12 months at least two-thirds of the substance of the manure is wasted, and only one-third, inferior in quality to an equal weight of fresh dung, is left behind. 25. The most rational plan of keeping manure in heaps appears to me that adopted by Mr. Lawrence of Cirencester, and described by him at length in Morton's 'Cyclopædia of Agriculture,' under the head of 'Manure.'"

Notices to Correspondents.

ANSWERS TO AGRICULTURAL QUESTIONS: We are unable this week to compare and discuss, as we had proposed, the papers we have received, not having yet had permission from the writers.

DISEASED MEAT: *F R S.* The report lately published gives the conclusions arrived at by the Metropolitan Medical Officers of Health. "Such meat is habitually offered for sale." The following are among the marks by which it may be known:—Its colour is generally either dingy or too bright; the smell is peculiarly sour and sickening even when such meat is fresh; there is a peculiar and decided wetness of the meat, which is also soft, flabby, and not set; there is often blood in the veins, which has curdled there, and not run out as it does when sound beasts are killed. [For full particulars see our "News" portion of the paper.]

HEREFORDS: *H.* The best fairs are those of Hereford itself, especially that of Oct. 20.

POULTRY: *T S.* Next week.

SEIZURE OF UNWHOLESOME GRAIN AT LEEDS: *Correspondent.*—The case was this:—Some Leeds corn merchants were summoned for having in their possession, exposed for sale, 12 quarters of Wheat which was unfit for food. The sample produced stank abominably; and it appeared to be composed of three-fourths of brown earth and one-fourth of discoloured grains of Wheat. The counsel for the defence relied on the assertion that the Wheat was not exposed for sale—it was simply warehoused, and had been deposited. It was said that the Wheat would have been used for manure; it formed the damaged portion of a cargo of 1800 quarters from Egypt. The decision of the bench was as follows:—"We are of opinion that the corn complained of was not exposed for sale within the meaning of the statute, inasmuch as it is proved to our satisfaction that it possessed no money value whatever [!] We are of opinion that corn placed in warehouses unfit for the food of man is always seizable by the inspector, and there is great danger to the person holding it of being convicted under this act of Parliament unless he can clearly and satisfactorily show that he had it not in his possession for any of the purposes contemplated by the act; and the *onus probandi* will rest upon him. In order to prevent any information of offences of this character, it is desirable and will be prudent on the part of persons being in possession of such corn at once to announce the fact to the inspector, in order that it may be examined and disposed of in such manner as will prevent the sale of it for human food." The defendant's counsel hereupon promised to make manure of the rotten Wheat, and the parties left the court.

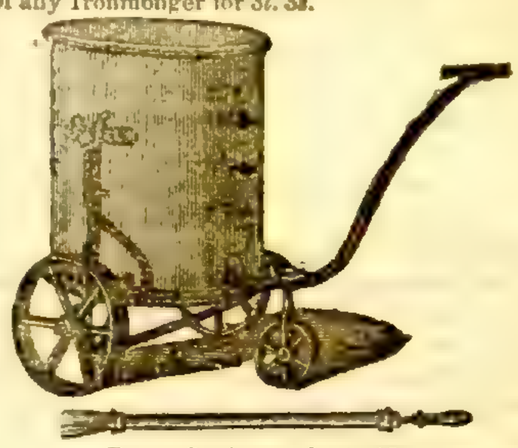
SOUTHDOWNS: *Correspondent.* We have just learned that the prize sheep at Athlone were from the flock of Mr. Overman, of Weasenham, Raynham, Norfolk, to which we alluded as so successful at Chelmsford. Mr. Roberts, who took the first prize for shearling rams, and the first for rams of any age, won both by sheep purchased of Mr. Overman.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*



Brass Syringes, 9*s.* to 18*s.*
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Fountains suitable for Conservatories, Lawns, &c.

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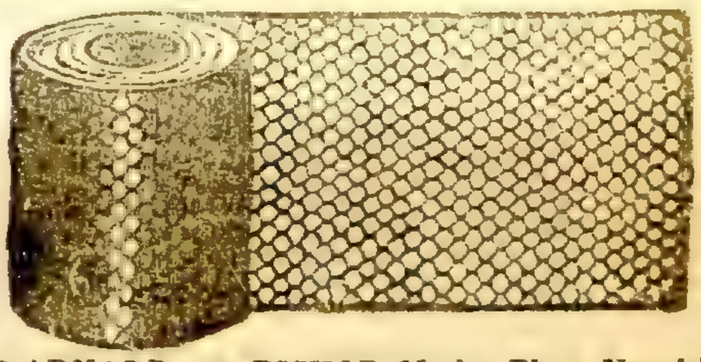

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	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong, do.	6 ,,	4¾ ,,
2 inch ,, intermediate, do.	7 ,,	5½ ,,
2-inch ,, extra strong, do.	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do.	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

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Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

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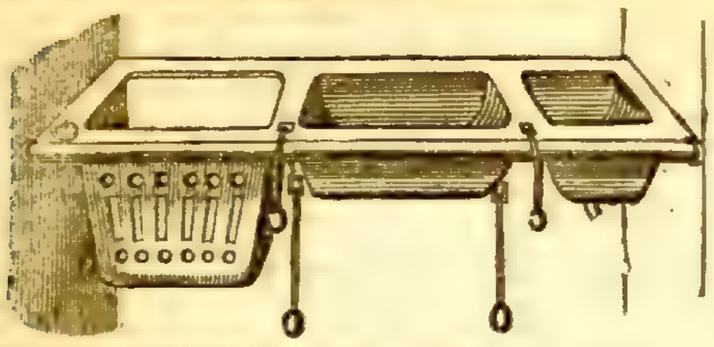

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James Barton, Iron Founder, &c., 370, Oxford Street, London.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—Thomas Hill, late W. Coleman, Cutler, 4, Haymarket, London.

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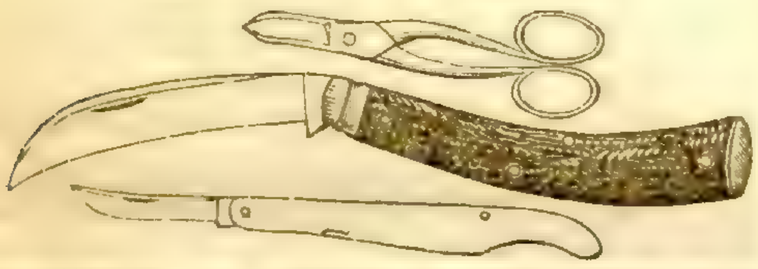
Warranted Good by the Makers.

JOSEPH MAPPIN and BROTHERS, Queen's Cutlery Works, Sheffield; and 67, King William Street, London, where the largest stock of Cutlery in the world is kept. Drawings forwarded by post.

PAXTON WORKS, SHEFFIELD.



SAYNOR and COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

GLASS FOR CONSERVATORIES, ETC.

HETLEY and CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS and Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, Packed in Boxes containing 100 Feet.

6 by 4, and 6½ by 4½ ...	12*s.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ...	13*s.*	9 by 7, and 10 by 8 ...	13*s.* *d.*

11 by 9,	12 by 9,	13 by 9,	14 by 9 ...		
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...	14	0
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...		
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...		
18 „ 12,	19 „ 12 ...	...	... ...	16	0
16 „ 13,	17 „ 13,	18 „ 13 ...	... ...		
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...	18	0
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...		
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...	18	0

LARGER SIZES, not exceeding 40 Inches Long.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, the same quality as we supply to Mr. Rivers, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

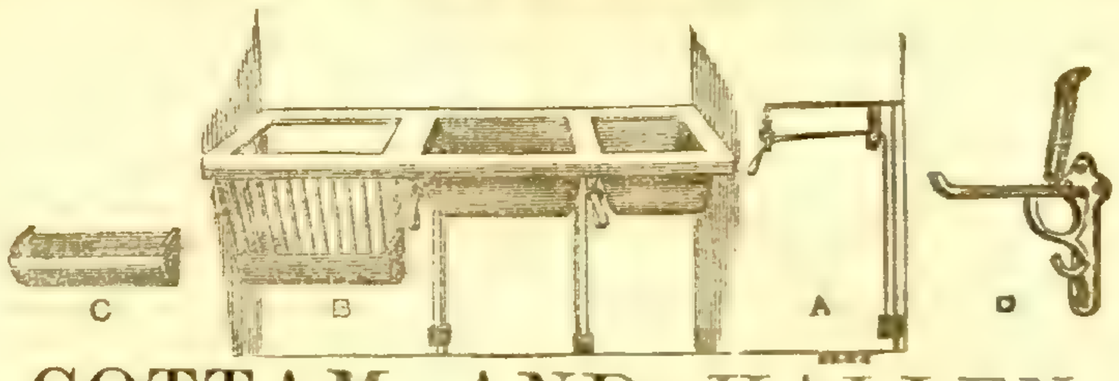
HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2⅝*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, London.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS and SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

Illustrated Price Lists forwarded on application.

N.B. A. Shanks & Son finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. Shanks & Son also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at Half the usual prices.

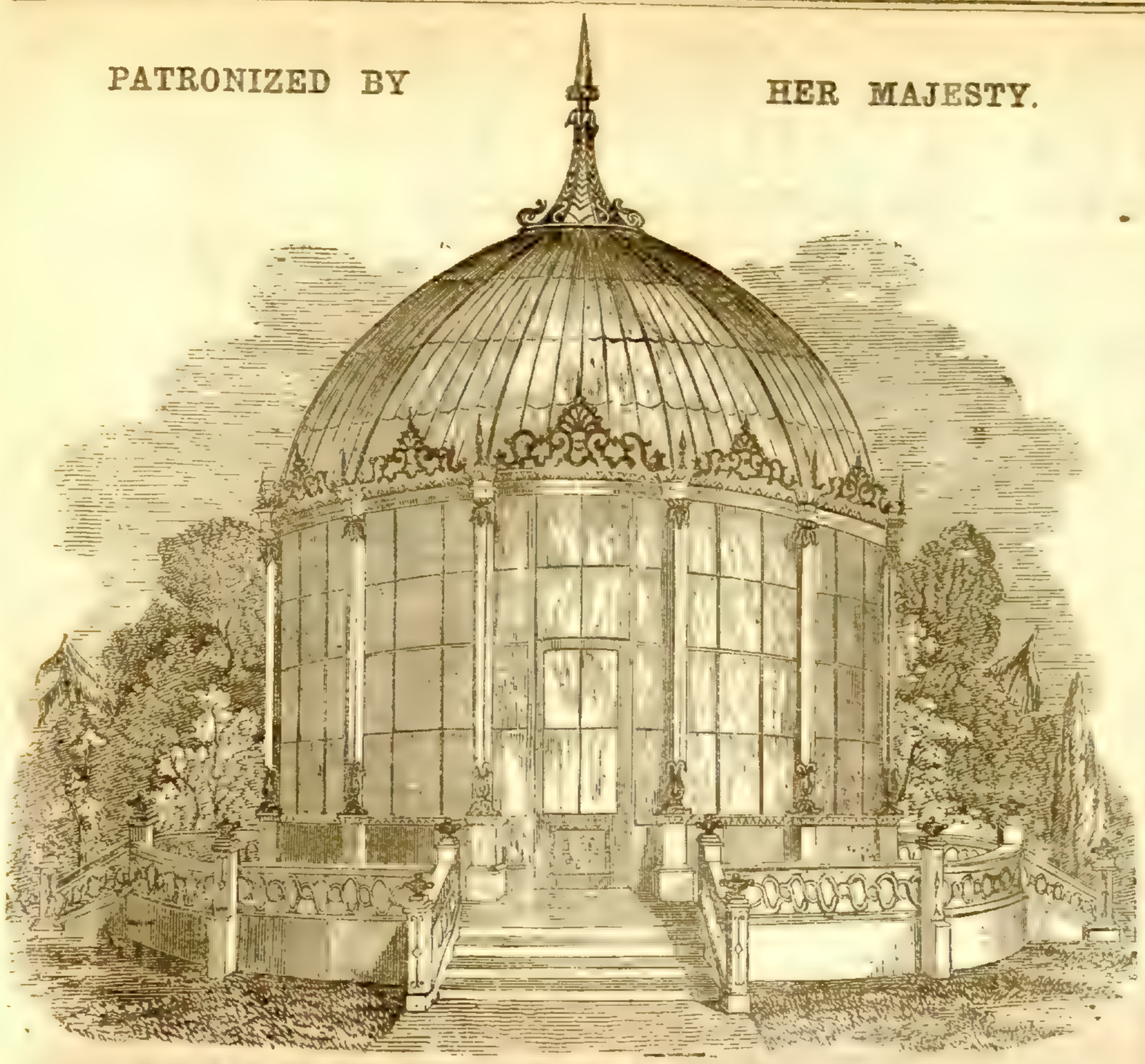
Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

To Mr. Green, Leeds.—Sir, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, Joshua Major.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. Charles Garrood, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

PATRONIZED BY HER MAJESTY.



WILLIAM SHAKESPEAR,

(SUCCESSOR TO CLARK AND JONES),

Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,

55, LIONEL STREET, BIRMINGHAM.

WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c., for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the super or mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship.

Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.

ESTABLISHED IN THE YEAR 1818.

A CLEAR COMPLEXION.

GODFREY'S EXTRACT OF ELDER FLOWER is strongly recommended for Softening, Improving, Beautifying, and Preserving the Skin, and giving it a blooming and charming appearance. It will completely remove Tan, Sunburn, Redness, &c., and by its Balsamic and Healing qualities render the skin soft, pliable, and free from dryness, &c., clear it from every humour, pimple, or eruption, and by continuing its use only a short time the skin will become and continue soft and smooth, and the complexion perfectly clear and beautiful. In the process of shaving it is invaluable, as it allays the irritation and smarting pain, annihilates every pimple and all roughness, and renders the skin smooth and firm.—Sold in bottles, price 2*s.* 9*d.*, by all Medicine Vendors and Perfumers.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

FOR BED SORES, &c.—WATER CUSHIONS, AND Water MATTRESSES for Invalids. Inventor and Manufacturer, HOOPER, London. For the prevention of Bed sores, and for affording relief where Sloughing has actually taken place. Also for Wounds, Abscesses, Fractures, Diseased Joints, Paralysis, Spinal Affections, Fevers, Extreme Age, Consumptive and Bedridden Patients generally. WATERPROOF SHEETING for protecting Bedding, and URINALS for Day or Night use. Orders by Post or Telegraph immediately attended to. HOOPER, Pall Mall East; and Grosvenor Street, London.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dulness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

NO CHARGE FOR STAMPING ARMS, CRESTS, INITIALS, &c., on paper and envelopes, at LOCKWOOD'S well-known establishment, 75, New Bond Street. Good cream-laid Note paper, five quires for 9*d.*; Thick ditto, five quires, 1*s.*; Albert and Queen's sizes, five quires for 6*d.*, 9*d.*, and 1*s.*; Envelopes, 3*d.* to 1*s.* 6*d.* per hundred: Foolscap paper, 7*s.* 6*d.* per ream; Copybooks, 2*s.* 6*d.* per dozen. Card Plate engraved, 2*s.* 6*d.*; 100 Cards printed, 2*s.* 6*d.* Mourning Stationery equally cheap. Wedding Orders promptly executed. A large variety of Writing and Dressing cases, Envelope boxes, Blotting books, Inkstands, Gold Pens, Church Services, &c. Copy address, LOCKWOOD'S, 75, New Bond Street. Country orders for 20*s.* sent carriage free.

ASTROLOGY.—Persons residing in London or elsewhere can send any Address, Christian and Surname, and Age, in a letter containing 13 postage stamps to Professor MERVILLE, Princes Road, Lambeth, London (the only Acrostic Astrologer in the universe), and they will receive as soon as possible special poems on their names, in which their Destinies will be revealed.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing thirteen penny post stamps, to Miss Coupelle, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, &c., of the writer, with many other things hitherto unsuspected.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, Gateshead High Fell, Newcastle-upon-Tyne.

HOLLOWAY'S PILLS PRE-EMINENTLY RENOWNED FOR THEIR CURE OF ASTHMA.—Mr. James Judd, of Mitcham, had been for years afflicted with Asthma, experiencing great agony upon respiration, with a violent cough; he had also acute pains in his side. He tried every remedy, and was advised by all classes of medical practitioners; but his time, patience, and money were alike thrown away. He at length had recourse to HOLLOWAY'S Pills, and by persevering in their use for a few weeks obtained the most favourable results, and became perfectly cured.—Sold by all Medicine Vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen.—Manufactory, Queen's Cutlery Works, Sheffield.

LAND DRAINAGE.

MR. THOMAS SCOTT, 5, Charing Cross, London, is now prepared to undertake large or small Drainage Contracts, and to complete the same in as short a space of time as may be required. References to gentlemen whose properties he has drained, or is now draining; and also to officers of the Crown.

FARM BUILDINGS & DWELLING-HOUSE.

PERSONS DESIROUS OF CONTRACTING FOR THE ERECTION of either or all of the following WORKS for the Earl of Essex may see the Plans and Specifications at the Office of Mr. HUMBERT, Land Agent & Surveyor, Watford, Herts.

1. Farm Buildings at Rayne Hall, in the parish of Rayne, near Braintree, Essex.
2. Farm Buildings at Porter's Hall, in the parish of Stebbing, near Dunmow, Essex.
3. A Dwelling House at Walkern Park, in the parish of Walkern, near Stevenage, Herts.

All tenders must be delivered to Mr. HUMBERT on or before the 2nd day of September, on which day, at noon, they will be opened at his Office. The Advertiser does not bind himself to accept the lowest or either of the tenders.

TO NURSERYMEN AND OTHERS.

TO BE LET, with immediate possession, on account of the decease of the late lessee, a small NURSERY GROUND with Cottage adjoining, a range of Hot Pits, and a Greenhouse.—For particulars apply to Mrs. JOHNSTONE, 1, George Street, New Town, Deptford, Kent.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orné, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

DESIRABLE MILK AND GRAZING FARM.

TO BE LET, by Ticket, for a term of years, at the King's Arms Hotel, Lancaster, on SATURDAY, Sept. 6, at two o'Clock in the afternoon, and entered upon at the usual time next Spring, all that richly cultivated Milk and Grazing Farm called BEAUMONT FARM, situate in Skerton and Slyne-with-Hest, in the County of Lancaster, consisting of a good House, extensive and convenient Out-buildings, and about 135 statute acres of Land, chiefly Meadow and Pasture, now in the occupation of the Executors of the late John Pritt, Esquire. The Land is free from Tithes, except a small annual payment for Vicarial Tithe. Beaumont Farm (through which the Turnpike-road to Kendal and Ulverston passes) is situate about two miles from Lancaster, and is in the highest state of cultivation, no expense in its management having been spared by the late Mr. Pritt, whose character as a first-class agriculturist is well known. —To view the Farm, apply to Mr. THOMAS WORTHINGTON, on the premises; and further information may be obtained on application to Mr. RICHARD HINDE, Castle Hill, Lancaster; or to Mr. INGRAM, at his Office, Standishgate, Wigan.

Sales by Auction.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. JOHN SLATER, of Cheetham Hill, near Manchester, to sell by Auction at the Mart, Bartholomew Lane, on TUESDAY, September 2, at 12 o'clock, a very select portion of his Stock consisting of some of the finest varieties of Tulips in cultivation, many of which have not been previously offered for Sale.—Catalogues may be had one week prior to the Sale of Mr. JOHN SLATER; of the principal Seedsmen in London; and of the Auctioneers, Leytonstone.

TO PINE AND GRAPE GROWERS.

MR. GARCIA has received instructions from Mr. Watson to Sell by Auction on TUESDAY, September 16, at 1 o'Clock precisely, on the premises, Vine Gardens, Ealing Lane, Ealing, Middlesex, a very superior stock of FRUITING and SUCCESSION PINES, warranted clean and very healthy, and consisting of all the leading kinds in cultivation. Also a large quantity of VINES in pots raised from eyes, from 6 to 10 feet high, and true to name. Some FIGS in pots; and some excellent PEACH TREES, in tubs; also 50 very handsome specimens of MELO CACTI just arrived from the Island of Penang; and a small collection of ORCHIDS. Now on view.—Catalogues may be had by applying as above; or at Mr. GARCIA'S Offices, 71, Regent Street, London.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.
IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.
250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc., vol. v., p. 20; and Paxton's "Flower Garden," vol. i., p. 11).
300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.
1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.
300 SKIMMIA JAPONICA.
1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.
5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.
10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, November 17, and four following days.

The Stock will be on public view 10 days before each Sale, when Catalogues may be had (1*s.* each, returnable to purchasers at the Nursery, and of Mr. J. C. STEVENS, 38, King Street Covent Garden.

Approved bills at three months' date will be taken of purchasers from 50*l.* to 100*l.*, and at six months' date of purchasers above 100*l.*

The Sunningdale Station on the South Western Railway is within about two miles of the Nursery.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON,

BEG to announce the arrival of their consignments of IMPORTED DUTCH BULBS, which they are glad to say are of *first-rate quality, as usual.* Their comprehensive CATALOGUE OF BULBS, *the twenty-first Autumnal series,* will be forwarded *free of charge,* and *post-paid* to ALL PARTS OF THE WORLD, upon application.

JAMES CARTER & CO., SEEDSMEN, &c., 238, High Holborn, London.

THE ADAIR STRAWBERRY.

THE above delicious and desirable Strawberry, raised by Mr. Elphinstone, Gardener to Sir S. Adair, Bart. is a cross between Hooper's Seedling and the Hautbois; and while retaining the size and high colour of the former, has the desirable and peculiar flavour of the latter. It is of strong growth, and will be an acquisition to all growers, whether for market or otherwise. The undermentioned Gentlemen and Gardeners bear testimony to its merit:—

N. S. Hodson, A.L.S., Botanic Gardens, Bury St. Edmunds.
John Peeling, Cambridge.
Samuel Barrett, Hardwick.
Thomas Barnes, Florist, &c., Stowmarket.
E. Brown, Cambridge.
Geo. P. Hay, Hon. Sec., Horticultural Society, Bury St. Edmunds.
David T. Fish, Gardener, Hardwick House, Bury St. Edmunds.
Peter Grieve, Gardener, Culfand, Bury St. Edmunds.
Henry Turner, Curator, Botanic Gardens, Bury St. Edmunds.
James Pringle, Gardener, Fornham Hall.
Bircham & Ward, Hedenham, Bungay.

MESSRS. E. G. HENDERSON & SON have much pleasure in stating that they are appointed sole Agents for the above excellent Strawberry, which they will be prepared to send out after the 1st September next, at the following scale of prices:—

60*s.* for 100 Plants | 40*s.* for 50 | 25*s.* for 25 | 15*s.* for 12.

Terms to the Trade on Application.

DUTCH FLOWER ROOTS, &c. &c.

MESSRS. E. G. HENDERSON & SON'S BULB CATALOGUE

Is now published, and may be had post free on application. It contains, in addition to the usual Priced Lists of Dutch Bulbs and Flower Roots, selections of the best sorts of Geraniums, Cinerarias, and other Florists' Flowers.

MESSRS. E. G. H. & SON continue to supply the following unrivalled seeds:—

CALCEOLARIA, First Quality	5*s.* 0*d.*	per packet.
Ditto Second Quality	2 6	"
CINERARIA, Choice	2 6	"
PRIMULA SINENSIS FIMBRIATA	2 6	"

Other Choice Seeds suitable for the present Season's Sowing are given in Advertisement of July 19, 1856.

Wellington Nursery, St. John's Wood, London.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

Wm. Cullingford, 1, Edmund Terrace, Ball's Pond, Islington.

WILLIAM BARRATT, LANDSCAPE GARDENER, Wakefield.

HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of Fruit Trees, Ornamental Shrubs, Evergreens, Forest Trees, Roses, and Thorns.

LANDSCAPE GARDENING REVIVED AS AN ART.

MR. THOROLD, of Thorpe Bower, near Norwich, continues to OFFER his SERVICES to ladies and gentlemen in Laying out or re-arranging their Gardens and Pleasure-grounds on correct principles of taste, in any style, or combination of styles, suitable to the requirements of all kinds of residences, upon any scale, and in most cases to produce immediate effect. Mr. T. can give ample references as to his success.

GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot-Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed any part of the Kingdom for cash, 42 feet long by 13 feet, 90*l.*; 21 feet by 13 feet, 50*l.*; 12½ feet by 10 feet, 30*l.* A first-rate Conservatory, 30 feet by 18 feet, 130*l.* A large assortment kept. Estimates for Heating, or any branch in Wood or Iron.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT WATER PIPES (Cast Iron) at WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

WHEAT FROM WET.—When the Wheat is cut in the Field, make small oblong square stack, by driving in 4 hurdle stakes in square 6 feet apart, lay sheaves on ground with the ears facing each other. Build conical stack, taking care the ear part is highest, cover ears with strip of tarpauling 1 yard wide. This I sell with lines in to tie down to the hurdle stakes at 7*d.* per square yard. Each stack will take 5 yards, which will last many years.

R. Richardson, 21, Tonbridge Place, New Road, London.

RABBIT NETS, SHEEP NETS, FISHING NETS, LONG NETS, 50, 80, and 100 yards, for shooting, being ready for use. Sheep Nets, 4 feet high, 1*l.* per 50 yards. All kinds of Fishing Nets on sale at moderate prices.

R. Richardson, 21, Tonbridge Place, New Road, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

POULTRY, &c., SHOWS.—IMPROVED PORTABLE WIRE PENS for Poultry and Pigeons, furnished on hire by Thos. P. Hawkins, General Wireworker, 27, Dale End, Birmingham.

WIRE GAME and POULTRY NETTING and WIRE GOODS of every description.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

TANNED NETTING, for the Protection of FRUIT TREES from Frost, Blight, and Birds, also for the security of fresh Sown Seeds, at 1*d.* per square yard, 200 yards, 14*s.*; 500 yards, 30*s.*; 1000 yards, 50*s.*; scrim canvas for wall fruit.—At Edgington & Co.'s Rick, Cloth, Tent, and Waterproof Cloth Manufacturers, 49, King William Street, London Bridge; 17, Smithfield Bars, City; and Old Kent Road Emigrant Depôt, Poplar. Waterproof Waggons and Cart Cloth.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

BE PARTICULAR to Address at Full Length,
BENJAMIN EDGINGTON,
2, Duke Street, Southwark,
OPPOSITE THE BRIGHTON RAILWAY.
MARQUEES, TENTS, and RICK CLOTHS.

TERMINATION OF THE WAR.—AUTUMNAL FETES.—BENJAMIN EDGINGTON has prepared a large assortment of Tents for Peace Rejoicings, capable of accommodating from 100 to 2000 persons. Marquees for Horticultural Societies, Fêtes, Cricket Clubs, &c., new and second-hand, for Sale or Hire. A great variety of Tents erected on the premises.

TEMPORARY ROOMS of any dimensions, and with boarded floors, on Hire, for Dancing, Dinners, and Public Meetings, with conveyance and attendance to any distance, if required.

BE PARTICULAR to ADDRESS at FULL LENGTH, BENJAMIN EDGINGTON, 2, DUKE STREET, SOUTHWARK, OPPOSITE THE BRIGHTON RAILWAY.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

A SINE QUA NON FOR LADIES AND GENTLEMEN IN TRAVELLING.

BERDOE'S UNIVERSAL CAPES, impervious to Rain yet perfectly Ventilating.—The very large sale of these respectable and economical Garments is their best recommendation. A large stock for selection; also of Waterproof Overcoats, Shooting Jackets, &c.—96, New Bond Street, and 69, Cornhill.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

BUY OF THE MAKERS.

BRUSHES, COMBS, and BROOMS, of every description, whether for the dressing-table, household, or stable use, 30 per cent. lower than any other house in the trade, at the Manufacturers. J. & J. WITHERS, 36, Tottenham Court Road (opposite Bedford Street). Warranted Tooth Brushes, 3*d.*; superior ditto, 4*d.*; the best that can be made, 6*d.* each.—N.B. The lowest price asked, and no abatement.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of Metcalfe's celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

THE COMFORT OF A FIXED WATER-CLOSET for 1*l.*—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1*l.* Also Hermetically-sealed and inodorous chamber commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At Fyfe and Co.'s Sanitarium, 46, Leicester Square.

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Common Iron Bedsteads, from 16*s.*; Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 15*l.* 15*s.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 17 0
Paillasse, wool mattress, bolster, and pillow ...	1 13 0
A pair of cotton sheets, three blankets, and a coloured counterpane	1 5 0
	£4 19 6
A double Bedstead, same	£6 15 9

If without Half-tester and Furniture—

Single bed, complete	£3 13 9
Double bed, complete	£5 5 9

BATHS AND TOILETTE WARE.—WILLIAM S. BURTON has ONE LARGE SHOW ROOM devoted exclusively to the display of BATHS and TOILETTE WARE. The stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make this establishment the most distinguished in this country. Portable Showers, 7*s.* 6*d.*; Pillar Showers, 3*l.* to 5*l.*; Nursery, 15*s.* to 32*s.*; Sponging, 14*s.* to 32*s.*; Hip, 14*s.* to 31*s.* 6*d.* A large assortment of Gas Furnace, Hot and Cold Plunge, Vapour, and Camp Shower Baths. Toilette Ware in great variety, from 15*s.* 6*d.* to 45*s.* the set of three.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding and Bed-hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; 4, 5, and 6, Perry's Place. Established 1820.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, August 30, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 36.—1856.] SATURDAY, SEPTEMBER 6. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY, 21, Regent Street.—An Ordinary Meeting of this Society will be held on TUESDAY, September 23, at 4 p.m., for the election of new Fellows. No other business will be transacted.—By order of the Council, WM. B. BOOTH, Librarian.
September 6.

CRYSTAL PALACE.—The THIRD GRAND FRUIT and FLOWER SHOW of the present Season will be held on WEDNESDAY, THURSDAY, and FRIDAY, September 10th, 11th, and 12th. On Wednesday, September 10th, the doors will be opened at 12; admission, 5*s*., children, 2*s*. 6*d*. On Thursday and Friday, September 11th and 12th, the doors will be opened at 10; admission, 1*s*., children, 6*d*. The Bands of the Coldstream Guards and the Royal Artillery will be in attendance in addition to the Band of the Company. For the accommodation of Gardeners a Special Train will leave London Bridge Station for the Crystal Palace at 6.0 A.M. on Wednesday, September 10th.—By order, G. GROVE, Secretary.
Crystal Palace, Sept. 6.

CRYSTAL PALACE FLOWER SHOWS.—The Prizes gained at the Exhibitions of this season will be paid at the Cashier's Office, at the Palace, between the hours of 10 and 4 on FRIDAY next, to the gainers of prizes or to parties bearing their authority to receive them.—By order,
Crystal Palace, Sept. 6. G. GROVE, Secretary.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next EXHIBITION of this Society will be held at Chatteris on WEDNESDAY, the 10th day of September. In addition to the usual Prizes the following will be offered, viz.:—For the best 36 Dahlias, dissimilar, First Prize—a Subscription Silver Cup, value five guineas; Second Prize (offered by the Society), 1*l*. 10*s*. Persons intending to compete must give written notice (stating what they intend to exhibit) to the Hon. Secretary by 8 o'clock in the evening of Tuesday, the 9th of September inst.—All further information may be obtained on application to
Chatteris, Sept. 6. WILLIAM FRYER, Hon. Sec.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—In consequence of a sufficient number of entries for the DAHLIA CUP not having been made, the time for making entries is extended until 8 o'clock in the evening of TUESDAY, September 9.
Chatteris, September 6. WILLIAM FRYER, Hon. Sec.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

LANDSCAPE GARDENING REVIVED AS AN ART.
MR. THOROLD, of Thorpe Bower, near Norwich, continues to OFFER his SERVICES to ladies and gentlemen in Laying out or re-arranging their Gardens and Pleasure-grounds on correct principles of taste, in any style, or combination of styles, suitable to the requirements of all kinds of residences, upon any scale, and in most cases to produce immediate effect. Mr. T. can give ample references as to his success.

NOTICE.
MESSRS. STANDISH AND NOBLE, in reply to numerous inquiries, beg to say that BUSINESS is carried on at their Establishment as usual. The Sale advertised to take place at their Nursery will comprise only a small portion of the Stock, and will not in any way interfere with the execution of their orders.—The Nurseries, Bagshot, Sept. 6.

RAILWAY NURSERIES, WATFORD.—Noblemen, Gentlemen, &c., can be *well* supplied with every description of NURSERY STOCK of the *finest quality* and on the most *reasonable* terms, by E. R. GREENUS, at the above establishment. Three minutes' walk from Watford Station.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

NEW HARDY RHODODENDRONS.
JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.
RHODODENDRON JOHN WATERER; colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s*. each.
RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s*. each.
RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s*. 6*d*. each.
☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.
The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

FOR PRESENT SOWING.
NEW SEED JUST HARVESTED.
ITALIAN RYE-GRASS, | MUSTARD,
TRIFOLIUM INCARNATUM, | RAPE,
PERENNIAL WHITE CLOVER, | COW GRASS,
PERMANENT PASTURE GRASS SEEDS.
SUTTON & SONS, Seed Growers, Reading.

DUTCH AND CAPE BULBS.
JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual* of *first-rate quality*.
JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

GROOM'S BULBS.
H. MATTHEWS, Son-in-law and successor to the late H. Groom, Florist, Clapham Rise, begs to inform the public generally that his LILIUMS are now in full perfection also that he has a large stock of NARCISSUS POETICUS, at 1*s*. 6*d*. and 2*s*. 6*d*. per 100, according to the size of root.—H. M.'s DUTCH BULBS will be assorted in a few days, and solicits early orders for the same.

DUTCH BULBS, ETC.
WILLIAM CUTBUSH AND SON beg to intimate that their FIRST IMPORTATION of the above have arrived in EXCELLENT condition. DESCRIPTIVE CATALOGUES, which contain *their celebrated system of culture, can be obtained free on application.*
Highgate Nurseries, near London.

DUTCH BULBS.
R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.
THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.
CHARLES ALEXANDER, Nurseryman and Seedsman, 80, West Register Street, Edinburgh.

HYACINTHS AND OTHER DUTCH BULBS.
THE SUBSCRIBER begs to announce the arrival of his DUTCH and other ROOTS, in very fine condition, Catalogues of which can be had, or forwarded free on application.
Choice SEEDS for present Sowing, warranted.
PRIMULA SINENSIS FIMBRIATA, saved by Mr. John Hayes, very splendid, per packet—2*s*. 6*d*.
CALCEOLARIA, from the best marked varieties ... 1*s*. 0*d*.
CINERARIA, very fine, 50 sorts, mixed 1 0
ANTIRRHINUM, spotted varieties, very beautiful, 6*d*. and 1*s*.
W. DAWE (late Dawe, Cottrell, & Benham), Seedsman, &c., 36, Moorgate Street, London.

BEST FLAVOURED STRAWBERRY NOW OUT IS
BARRATT'S MAGNUM-BONUM. Good Plants, 7*s*. 6*d*. per 100. WM. BARRATT's New List of Strawberries can be had on application.—St. John's Nursery, Wakefield.

SUPERB NEW STRAWBERRIES.
WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.
N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.
JAMES KITLEY, Lyncombe Vale Nursery, Bath.

STRAWBERRIES. — Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40*s*. per 100, or 6*s*. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready.—Apply to R. S. YATES, St. Ann's Square, Manchester.—Sept. 6.

PRICES OF UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, for the Season of 1856. All orders (not less than 20) to be accompanied with a Post-office order on Birmingham:—

Twenty	£0 12 0	Eighty	£2 1 6
Forty	1 2 0	Hundred	2 8 0
Sixty	1 12 0		

Plants in Pots, not less than Ten, 1*s*. 3*d*. each will be ready in October next.
Mr. UNDERHILL's "Treatise on the Cultivation of the Strawberry," price 1*s*.
Mr. R. UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

NEW STRAWBERRIES.
STEWART AND NEILSON are now prepared to send out well rooted plants of their new and distinct varieties, having been well proved, and pronounced by good judges to be excellent.
1. PRINCE OF WALES.—Equal to the British Queen in flavour, a good bearer, and well adapted for light soils.
2. MRS. D. NEILSON.—Fruit large, an abundant bearer, of good flavour, and forces well.

Price of each, per 100,	£5 0 0	Price of each, per 25, £1 10 0
" 50,	2 15 0	Single Plants, each ... 0 1 6

Post-office orders payable at New Brighton.
Nursery, Liscard, Cheshire, September 6.

CATALOGUES.
BASS AND BROWN'S Nos. I. and II. CATALOGUES for 1856-57 are now ready and supplied on application.
No. I. contains their large and superb collection of BULBS and FLOWER ROOTS, which are this season very fine; HERBACEOUS PLANTS, CONIFERÆ, HARDY ORNAMENTAL SHRUBS, ROSES, FRUITS, &c.
No. II. contains their choice collections of GERANIUMS, AZALEA INDICA, CINERARIAS, STOVE and GREENHOUSE PLANTS, &c.
CHRYSANTHEMUMS.
14 best Pompones of last season, handsome and bushy, for strong bloom ... ... 14*s*. 0*d*.
20 best Pompones of previous date 12 0
20 best large flowering of ditto 12 0
Sudbury, Suffolk.

A PRICED CATALOGUE OF PLANTS, including RARE and HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS and CLIMBERS, GREENHOUSE PLANTS, AZALEAS, ERICAS, EPACRIS, CAMELLIAS, GERANIUMS, CARNATIONS, PICOTEES and PINKS, HOLLYHOCKS, PHLOXES, CHRYSANTHEMUMS, HARDY HERBACEOUS PLANTS, &c. &c.—Cultivated and Sold by YOUELL & Co., Royal Nursery, Yarmouth, Norfolk, is now ready, and will be forwarded on application.

AZALEA INDICA.
J. IVERY AND SON, NURSERYMEN, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, Sept. 6.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

TULIP CATALOGUE.
CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.
A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.
Now ready, very choice CINERARIA, 2*s*. 6*d*. per packet.
very choice CALCEOLARIA, 2*s*. 6*d*. „
Royal Nursery, Slough.

TRADE LIST OF GERANIUMS.
J. DOBSON AND SON beg to announce that their NEW DESCRIPTIVE CATALOGUE, with Trade Prices, is now ready, and may be had by the Trade only on application.—Woodlands Nursery, Isleworth.

BECK'S NEW PELARGONIUM.
THE FINEST VARIETY EVER OFFERED IS BECK'S "EMPEROR."
J. DOBSON AND SON beg to announce that they will be prepared to send out strong plants of the above splendid new variety with several other choice sorts the first week in October. A Descriptive Catalogue with prices may be had on application.—Woodlands Nursery, Isleworth.

GRAPE VINES IN POTS.
JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

HOLLYHOCK SEED.
CHATER AND SON offer the above saved from their best flowers, in packets, 200 seeds, 1*s*. 6*d*.; or 18 varieties, separate packets named, 5*s*.
BOURBON ROSE (GLOIRE DE ROSAMINE), strong flowering plants in 48 pots, 10*s*. per doz.—Nurseries, Haverhill.

CHRYSANTHEMUMS.
WOOD AND INGRAM beg to offer fine Plants of the above, both Large Flowering and Pompone varieties, at from 6*s*. to 9*s*. per doz.—Huntingdon Nurseries.

CHRYSANTHEMUMS, ETC.
JOHN CLARK having a large quantity of fine strong bushy and healthy plants of all the leading varieties of both LARGE and POMPONE CHRYSANTHEMUMS, is enabled to offer them at from 6*s*. to 9*s*. per dozen; smaller plants at 4*s*. per dozen. Also fine blooming plants of Epiphyllum truncatum, Euphorbia jacquiniflora, and Poinsettia pulcherrima, at 2*s*. 6*d*. and 3*s*. 6*d*. each. All the new Petunias and Verbenas at 5*s*. per dozen. Belle Vue Nursery, Cheltenham.

GUERNSEY AND BELLADONNA LILIES, 4*s*. per dozen.
Fine flowering Bulbs can be supplied during September by B. PAGE & Co., Seed Merchants, Southampton.
Price to the Trade upon application.

MUSHROOM SPAWN.
J. WEST, Walnut Tree Nursery, Stoke Newington Green, has now a splendid lot of first-rate MUSHROOM SPAWN for sale. Price on application.

TRUE AND FINE DRUMHEAD PLANTS FOR CATTLE, offered by THOMAS WELLAND at 3*s*. 3*d*. per 1000, or 8000 for 1*l*., packed and delivered at the station at the Surrey Gardens, near Godalming.

FINE PLANTS.—Fruiting and Succession Pine Plants for Sale; very stocky and clean.—J. LANCASTER, Edward Street, Deptford.

FINE HERBACEOUS PHLOXES, blooming from June till November, of the most varied and beautiful colours, from 12 to 30 inches high, some sorts excellent for bedding. Strong Plants, from 6*s*., 9*s*., to 12*s*. per dozen; or for bedding 2*l*. to 3*l*. per 100.
BIRCHAM & WARD, Hedenham Rosery, Bungay, Suffolk.
B. & W. also will dispose of a few packets of Seed, carefully selected from the best named varieties, at 5*s*. per packet.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON,

BEG to announce the arrival of their consignments of IMPORTED DUTCH BULBS, which they are glad to say are of *first-rate quality, as usual*. Their comprehensive CATALOGUE OF BULBS, *the twenty-first Autumnal series*, will be forwarded *free of charge*, and *post-paid* to ALL PARTS OF THE WORLD, upon application.

JAMES CARTER & CO., SEEDSMEN, &c., 238, High Holborn, London.

BALSAMS.

F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show at the Botanic Gardens, Regent's Park.

Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled. —Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

SEED WHEAT.

HARDY'S SELECTED, PROLIFIC, and IMPROVED RED, 12*s*.; and SUPERIOR, TRUE, EGYPTIAN, WHITE, MUMMY, 20*s*. per bushel. Bag, 1*s*.; sack, 1*s*. 6*d*. Carriage paid to London. Post-office Orders must accompany applications. References—J. J. Mechi, Esq., Tiptree Hall; and Rev. G. Wilkins, Wix, Manningtree, Essex.

On receipt of 12 stamps and a full-sized stamped envelope, addressed to any destination, will be sent by post Specimen ears of each variety averaging above 100 grains! Also of Barley, a peculiar and prolific variety, containing double ordinary produce of any other kind! A packet of this or the Wheat grains, to plant 1 rod, for 12 stamps.

Also for another dozen stamps or 1*s*., "HARDY'S COMPETITION PRIZE ESSAY ON THE CULTIVATION OF CORN," carefully revised for 1856-7.

ABRAHAM HARDY & SON, Seed Growers, &c., Limbourne Brook and Knowle's Farms, Maldon, Essex.

JOHN WESTWOOD has now for sale fine healthy plants of the following for cash, viz.:—

ROSES.—Devoniensis, Safrano, Souvenir de la Malmaison, and Cliftoniensis, in 48-sized pots, at 12*s*. per dozen, on their own roots.

DEUTZIA GRACILIS, in 48's, at 8*s*. per dozen.

JASMINUM NUDIFLORUM, in 48's, at 6*s*. per dozen.

VARIEGATED GERANIUMS.—Flower of the Day and Brilliant, at 3*s*. and 4*s*., and Dandy at 3*s*. per dozen.

HELIOTROPES.—Florence Nightingale, John Cattell, and Beauty of the Boudoir, at 5*s*. per dozen.

PETUNIA IMPERIALIS (double white), at 6*s*. per dozen in 48's, and 4*s*. per dozen in 60's.

CYCLAMEN PERSICUM RUBRUM, at 9*s*. per dozen, good strong bulbs.

PRIMULA FIMBRIATA SINENSIS, in 48's, at 7*s*., and in 60's, at 5*s*. per dozen—a first-rate strain.

FAIRY ROSES.—Fine strong plants, in 48's, at 8*s*.; smaller but good plants, at 5*s*. per dozen.

The true old RED CLOVE, at 3*s*. per dozen.

J. W. is also prepared to receive orders for the undermentioned Bedding Geraniums, to be delivered in October next, at 4*s*. per dozen:—

DIADEMATUMS COCCINEUM and ERUBESCENS.

WHITE, PINK, AND SALMON-FLOWERING KINDS.—Kingsbury Pet, Skeltoni, Boule de Neige, Miss Emily Field, Triomphe de Mont Rouge, Rose d'Amour, Rubens, Rose of Morn, Guelder Rose, Lucia Rosea, Princess Alice, Hydrangeaflorum, Rose of Morn, &c.

IVY-LEAVED.—White (true large white), pink, and scarlet-flowering.

SCARLET AND CERISE.—Le Titien, Kossuth, Bishopstowe Scarlet, King of Nepaul, Reidi, Conway's Royalist, Trentham Rosy Scarlet, Trentham Gem, Masterpiece, &c.

PENCILLED OR FANCY VARIETIES.—Delicatum, odoratissimum punctatum, Lady Mary Fox, Sidonianum, Citriodorum majus, Duchess of Sutherland, &c. Also Cerise Unique, Commander-in-Chief, Life Guardsman, and many other varieties, at 3*s*. per dozen.

N.B. A Catalogue will be shortly issued of J. W.'s stock of show, Fancy, and French Geraniums, and forwarded gratis to all applicants. This stock is worth inspection, being the largest most varied in the world.

Floral Nursery, Acton Road, Turnham Green.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq., Manor House, Bathampton: "This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq., Swainswick House, whose name is well known to the floricultural world, being the raiser of a great number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British Queen is a very delicate and tender kind—this is one of the hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a Strawberry is required.

Strong well-rooted plants 3*l*. per 100; 1*l*. 15*s*. for 50; 1*l*. for 25; or one dozen for 12*s*.; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurserymen, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

TO STRAWBERRY GROWERS.

BLAKE'S INCOMPARABLES.—This splendid Fruit is very large, of delicious flavour, and surprising bearers, with large upright trusses, many producing upwards of 100 berries on one plant. Well rooted Runners can now be had at 5*l*. the 100, by a remittance to Mr. ROBERT BLAKE, Birdham Parsonage, Chichester.

MESSRS. E. G. HENDERSON AND SON'S NEW BULB CATALOGUE is now published, and may be had post free on application. In addition to an unequalled selection of Bulbs it contains revised and priced lists of GERANIUMS and CINERARIAS. The new plate of 5 choice Geraniums (amongst which are Mrs. Story's new white flowering varieties, the best in cultivation) can be had post free for 12 Stamps.

The ADAIR STRAWBERRY—for particulars of this delicious variety see Catalogue, or back numbers of this Paper. Price 50*s*. per 100 Plants.

The following New Plants are now being sent out:—

Camellia Jenny Lind	Rhododendron Mrs. Dargan
Echites Houtteana	„ Earl of Burlington
Azalea The Bride	„ Lord Bolingbroke
do. Louis Napoleon	Begonia picta
Rhododendron Countess of Rosslyn	„ cinnabarina
„ Duchess of Cleveland	„ hybrida
„ Duke of Hamilton	Dianthus albo nigricans
	Cupressus Lawsoniana

Also their unrivalled seed of CALCEOLARIA, 1st quality, 5*s*. per packet; second ditto 2*s* 6*d*. CINERARIA, best quality, 2*s*. 6*d*. do. Primula sinensis fimbriata, 2*s*. 6*d*. do.

Parties wishing for their Spring List of 2000 Plants can have the same forwarded post free on application.

Wellington Nursery, St. John's Wood.

BULBOUS ROOTS, ETC.

AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following Bulbs, &c, of the best quality, and all strong flowering roots. Will be ready to send out in the course of the month.

	Per 100		Per 25
Gladiolus Couranti fulgens	42*s*.	Gladiolus Aglae...	30*s*.
„ Fanny Rouget	42	„ Charles Rouillard ...	25
„ fulgens aurea picta ...	42	„ Comtesse de Bresson	30
„ Mdme. Coudert	50	„ Don Juan	25
„ Mdme. Herincq	63	„ Hector	25
„ M. Blonet	42	„ M. Corbay	30
„ M. Gorgeon	42	„ Couranti carneus ...	50
„ Triomphe d'Enghien (per 50)	30		

The above are all splendid varieties of Gandavense.

	Per 100		Per 100
Lilium lancifolium album	63*s*.	Lilium aurantiacum per doz.	10*s*.
„ „ rubrum ...	80	„ atrosanguineum ...	42
„ „ punctatum per doz.	36	Cypripedium spectabile ... per doz.	24
„ spectabile ...	80	„ calceolus „	9
„ superbum per doz	10	„ pubescens „	30
		„ candidum „	36

Camellias with flower buds of good varieties, fine healthy plants, 6*l*. per 100 and upwards; Azalea indica, do., do., 4*l* per 100 and upwards.

A. v. G. begs to say he has on sale 20 fine strong healthy Orange Trees, some covered with fruit. The lot may be had for 60*l*. cash, packing included. They can easily be sent to London by the Ghent steamer.

Tree Paeonia, 12 fine-named varieties for 36*s*.; Lælia majalis, 84*s*. per dozen. Strong plants.

NEAT AND DURABLE GARDEN LABEL.—The Advertiser will forward, on the receipt of three postage stamps, a specimen label lettered in oil.

F. H., Lydburynorth, Salop.

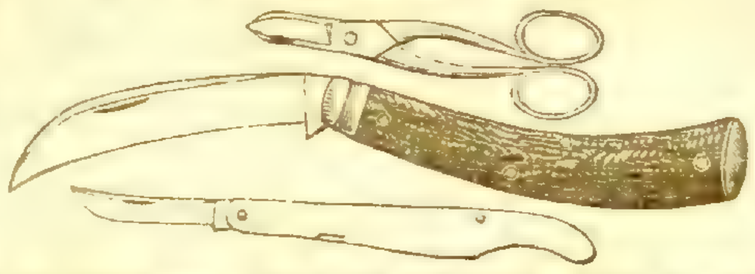
PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s*. 6*d*., 3*s*., and 3*s*. 6*d*. each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY,

WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67, King William Street, London, where the largest stock of Cutlery in the world is kept. Drawings forwarded by post.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.

RATS, MICE, AND DESTRUCTIVE ANIMALS how to paralyse, and render them immoveable on the spot though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make. Anglo-German and other Bird Cages of superior description. Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d*. per yard; 2 yards wide, 4*d*. per yard; 4 yards wide, 8*d*. per yard. Half-inch mesh ditto, 2 yards wide, 8*d*. per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d*. per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d*. per yard; 4 or 6 yards wide, 3*d* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

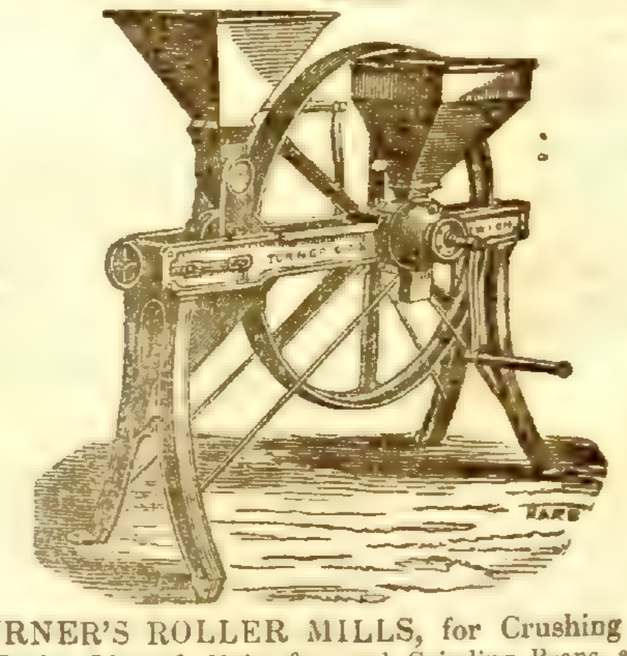
HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s*. each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER, Ipswich.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias, Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable" Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen
Exotic Orchids	from	42*s.*
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties ...	"	9
Gynerium argenteum (Pampas Grass) ...	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

VIOLETS.

R. SHACKELL has proved by experience that to succeed well with Violets for the winter, either in pots or beds, it is requisite to remove them earlier than the time at which he has offered them for sale in years past, so that they may get established before the cold weather sets in. In speaking of his beautiful Violet the RUSSIAN SUPERB, it needs no stronger recommendation than to say that it is now many years since he first sent it out, and he never had a fault found with it. Every horticultural editor spoke in the highest terms of it.

Strong plants of Shackell's Russian Superb ...	12*s.*	per dozen.
Shackell's White Russian	6*s.*	"
Perpetual Purple Tree Violet	6*s.*	"
" White "	6*s.*	"
Double White Violet	6*s.*	"
Neapolitan Violet	6*s.*	"
Old Russian, 10*s.* per 100; or	2*s.*	"

All the above are strong good plants. If the order be above 10*s.*, hamper and package free.

ROBERT SHACKELL, Florist, Locksbrook Nursery, Bath.

DARK LACED SEEDLING POLYANTHUS LADY MILNER.

JOHN WILLISON has great pleasure in offering the above unrivalled Seedling at 5*s.* per plant, which has been so successful at the York Show for the two last years, which took the 1st, 2d, and 3d prizes, and has been pronounced by many competent judges the best in its class.

Mr. C. Turner's opinion:—"Sir, your Polyanthus for size, shape, and marking, is the most perfect flower I ever saw; it is a beauty." J. W. has saved a little seed from the above seedling at 2*s.* 6*d.* per packet, and from 25 good show flowers 1*s.* 6*d.* per packet. The above can be had of Mr. C. Turner, Slough; S. Finney & Co., Gateshead; and all the principal nurserymen and florists. The usual allowance to the trade and one over when a dozen are taken. J. W. can supply good plants of the following at low prices:—50 to 100 of the leading sorts of show Gooseberry Trees at 6*s.* per doz.: Primroses, crimson, 9*s.* per doz.; White, Purple, Lilac, and Yellow, 4*s.* per doz. All orders from unknown correspondents must be accompanied with a post-office order.

JOHN WILLISON, Chubb Hill Nursery, Whitby.

CAMELLIAS, AZALEAS, &c.

YOUELL AND CO. beg to offer fine strong healthy Plants of the following, so desirable for autumn and winter decoration.

Camellias, fine plants, well set with flower buds of the handsomest varieties, 24*s.* to 30*s.* per dozen.

Azaleas, a splendid collection of all the best kinds, 12*s.* to 18*s.* per dozen.

Ericas, fine plants, including the best hard-wooded kinds, 12*s.* per dozen.

Epacris, of which we possess an extensive stock of fine bushy flowering plants of the finest varieties, 12*s.* per dozen.

Greenhouse Plants.—To those forming a collection or making additions to what they already possess, we are enabled to offer to advantage a fine stock of the handsomest leading kinds at 18*s.* per dozen, or 6*l.* per 100.

Tree Carnations.—A large quantity of the more showy varieties, so desirable for winter blooming, 12*s.* per dozen.

Phloxes.—All the new and handsome varieties of recent introduction, 9*s.* per dozen.

Hyacinths.—An extensive collection of the most approved kinds adapted for glasses or pot culture, 9*s.* per dozen; together with a general assortment of other Dutch Bulbs.

Strawberries.—A collection comprising all the very best of the "proved" varieties, 3*s.* 6*d.* per 100.

Catalogues will be forwarded on application. All orders of 2*l.* and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and Shrubs of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c. all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estmates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

B. PAGE AND CO., SEED MERCHANTS and GROWERS, Southampton, can now supply, carriage free on South-Western—

		s.	d.
Prime New English Trifolium, per cwt.	40*s.* to 42	0	
" Dwarf Rape, per bushel	14	0	
" Early Six Weeks' Stubble Turnip, per lb. ...	0	9	
" Chives' Orange Jelly ditto, per lb.	1	0	
" Italian Rye-grass, per quarter	50	0	

Permanent Pasture and Lawn Grasses equal to any house in the trade.—*Vide* Southampton "Public Lands."

PAGE & Co. having long supplied the leading practical farmers in Hants, Wilts, and Dorset, their establishment is worth the attention of Gentlemen Agriculturists who wish to buy at strictly speaking market prices.—Oxford Street, Southampton.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per packet—*s.*	*d.*
CALCEOLARIA from very showy varieties carefully impregnated	2	6
GERANIUM from firs'-rate Florist varieties ...	1	0
" from the new showy French ditto ...	1	0
" from first-rate fancy ditto	1	0
" from Scented-leaved ditto	0	6
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PANSY, saved from 100 of the best vars., by name	"	2	6
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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 6, 1856.

MEETINGS FOR THE ENSUING WEEK.

CRYSTAL PALACE HORTICULTURAL EXHIBITION: Wednesday, Sept. 10, at 12 o'clock; Thursday, Sept. 11, and Friday, Sept. 12, at 10 o'clock.

THE ADULTERATION OF FOOD is a subject which has engaged the attention of a Select Committee of the House of Commons during the past session, and their report is now before us. Upon the whole they have dealt with a difficult subject as successfully as could have been expected from persons guided only by general principles of political economy, and not possessing any personal practical knowledge of the matters brought before them. The existence of adulteration, or what is called so, is stated to prevail widely, not only among articles prepared in this country, but in foreign products before they are imported; and a long list of both classes of articles is enumerated by the Committee. Without disputing the truth of the information collected on this point, we must observe that it has very much the appearance of exaggeration, including, as it does, articles in which adulteration can scarcely be said to be practised now, or at least to such an extent as to call for legislative interference. For instance, the frauds in chicory and tobacco have been rendered so dangerous to the dealers by the vigorous action of the Board of Inland Revenue as to be no longer of importance.

"In dealing with these various adulterations," the Committee say, "it is necessary to distinguish between the pecuniary fraud practised on the public, and the injury to public health. *If, as regards the adulteration of articles with substances of a cheaper and innocuous character, the public derive the full benefit of this cheapness in a lower price, it would be difficult, if not unwise, for the Legislature to interfere,* unless it could do so by requiring that every such article be sold as a mixture, as distinguished from the article in its pure state. This the law already requires as to the article of coffee, and also as to the article of bread, which, unless made of Wheat flour alone, must be distinctly marked with the letter 'M.' But, whenever an article is so adulterated as to involve pecuniary fraud or injury to health, it appears to your Committee to be the duty of the Legislature to provide some efficient remedy."

This extraordinary paragraph very much shakes our confidence in the judgment of the Committee. According to this, a man is not guilty of fraud if he sells starch for sugar, provided he charges no more than the value of the mixture of the two articles; thus a pound of sugar being worth 4*d.*, and of starch ½*d.*, a grocer who sells his so-called sugar at 2¼*d.* a pound commits no wrong; and the poor man who cannot tell the one from the other has no claim to legislative protection. There is no fraud, say the Committee, in selling a customer what is useless and not wanted, under the pretence of its being useful and what is wanted, provided only the fair market value of the adulteration is charged. So that the shopkeeper who sells rice instead of pepper, only charging the price of rice, does no harm, although he spoils his customers' provisions; and the manure dealer who supplies loam instead of guano commits no wrong, although he ruins his customers' crops, provided his article is sufficiently low priced. This is surely free trade run mad. It is clear that the Committee are unacquainted with the practical working of these frauds, or they would not have introduced into their report such a sentence as that we have quoted. In their own households the evils of adulteration are scarcely known. Upon such a point they should have taken the opinion of a jury of farmers, gardeners, or artisans, whose good sense would have ensured a verdict that all articles when adulterated involve pecuniary fraud; even after hearing the ingenious Mr. ROBERT ARCHER WALLINGTON, solicitor, Leamington, who thinks it quite proper to sell gelatine under the name of isinglass. Here however two distinctions must be drawn. The first between those things whose nature requires them to be mixed with other substances in order to render them fit for commercial purposes, and such as demand no such preparation. Thus pure Arnotto will not keep, and must be artificially prepared for the purpose of the dairywoman, although Dr. HASSALL did not know it, till his memorable discomfiture by the Pharmaceutical Society. A second ought to be made in those artificial preparations which, like marmalades, pickles, and similar articles, have no known composition, but are prepared so as to suit the taste or pocket of the buyer. The Committee indeed say that marmalade is adulterated when containing Apples in its composition. But what is the meaning of the word marmalade? Some think that Quince marmalade is improved by Oranges, that Orange marmalade is better when made in part from Cranberries or from Apples; that Raspberry marmalade (or jam) is the better for Red Currants. To call such mixtures adulterations is absurd.

To remedy the state of things which to the Committee appears to exist, the Board of Inland Revenue, armed with new powers, would be perfectly competent. The Committee however object to this, on account of its centralising action. What they propose is "to empower municipal or other local or district authorities to appoint an officer, or officers, who, on complaint made, or in cases of reasonable suspicion, shall procure portions of any article supposed to be adulterated, with a view to their examination or analysis by some duly qualified person appointed for that purpose. On the report of such persons, if it confirm the suspicion of adulteration, a summons shall be issued and the case be investigated before the justices, who shall have power to inflict summary punishment, by fine or imprisonment, in every case where pecuniary fraud or danger to health shall have been proved. The justices should also be empowered to publish the names of offenders."

If it should be practicable to obtain in country places such evidence as would be required to support the informations brought before the justices, we should see no objection to this part of the ecom mendation of the Committee. But the doings lately at Wakefield, at the instigation of amateur chemists, are calculated to throw serious doubt upon the possibility of relying upon local evidence; and unless persons of unquestionable knowledge could be found to support the informations great injustice might be committed. The detection of frauds of this nature is a very delicate matter; chemical investigation and microscopical examination may be made to prove anything in the presence of magistrates unacquainted with the difficult sciences to which they belong. Partizan witnesses are moreover able to find or see almost anything they wish to find. So that prosecutions for fraud require to be conducted with more discretion than is always locally to be secured. It would be the more especially necessary that dealers should be ensured against wrong convictions if justices were to be "empowered to publish the names of offenders." For although public exposure would be far more effectual in suppressing the offences in question than private fines,

yet on the other hand it would be a far more serious wrong if resulting from magisterial mistakes. Such a power might be safely intrusted to a central board, but it is very questionable whether it could be intrusted to a bench of justices who might become unconsciously mere instruments of oppression. We have always been of opinion that the exposure of dealers by the so-called sanitary commission of the *Lancet* was wholly unjustifiable, and deserved severe punishment. No such objection would exist to the power of exposure being placed in the hands of a board like that of the Inland Revenue, which would be free from local prejudices, and above all suspicion as to the fairness of its proceedings.

To our minds the adulteration of food forms only a part of the inquiry to which Parliamentary attention might be directed. Frauds of all kinds, quite as serious, surround us; the farmer who is victimised by the rascally guano-mixer; the gardener who is sold a piece of iron hoop under the name of a knife, or a mixture of Poa annua, Cocksfoot, and Cow-grass instead of Poa pratensis, Rye-grass and White Clover; the traveller who gets only half a pint of wine or beer for a pint; and his wife who purchases a mixture of wool and cotton under the name of flannel, or fast-coloured clothes which lose their colour after the first shower, are all alike victims of fraud, and are equally in need of legislative protection. And that being so, it may be doubted whether after all people must not be left to protect themselves.

WE have just had our attention called to a magnificent specimen of *Lilium giganteum*—the "Prince of Lilies" as it has been justly styled by Sir WILLIAM HOOKER—that has recently flowered in the garden of the Hon. J. TOWNSHEND BOSCAWEN, Lamorran Rectory, near Truro, Cornwall. From the drawing and account with which we have been favoured, it would appear to be the finest specimen of the kind that has yet been produced in this country, or perhaps in Europe.

The first knowledge that botanists had of this majestic Lily was derived from a figure and description of it given by its discoverer, Dr. WALLICH, in his "Tentamen Floræ Nepalensis Illustratæ," printed at Calcutta in 1824; but the honour of introducing it is due to the late Colonel MADDEN, who sent home seeds of it in 1846 or 1847, and from these, as well as the more recent importations that have been made by Messrs. VEITCH and SON of Exeter and Chelsea, we believe all the plants of it now in cultivation originated. The first that flowered in Europe was a plant in the collection of Messrs. CUNNINGHAM, Nurserymen, Comely Bank, near Edinburgh, from which a drawing was made in July, 1852, and subsequently published in the Botanical Magazine, fol. 4673. We are there informed on the authority of Colonel MADDEN that "the plant is common in the damp thick forests of the Himalaya, the provinces of Kumaon, Gurwhal, and Bushur. It grows in rich black mould, the bulb close to the surface, at from 7500 to 9000 feet above the level of the sea, where it is covered with snow from November to April. The hollow stems are commonly from six to nine feet high, and are used for musical instruments."

The Lamorran plant, we learn from Mrs. BOSCAWEN, was one of four which were offsets taken in November, 1854, from a plant that flowered out of doors in July of the same year. The bulb was unprotected through the severe winter of 1854-5, when the thermometer was down as low as 10° (Fahrenheit) at Truro; and it has also borne the two last trying springs of 1855 and 1856 without protection. With these facts before us there cannot now be any doubt about the hardiness of this noble Lily, and of its being able to endure without injury the usual severity of an English winter, even in places which have not the advantage of possessing the soft and balmy air of a Cornish climate. The height which the flower stem attains in the course of a season is most unusual for any of the Lily tribe. Dr. WALLICH's specimen is stated to have been 10 feet high, which was also the height of that of MESSRS. CUNNINGHAM, the flowering portion at the top measuring 20 inches and bearing 12 flowers. The Lamorran Lily, however, considerably exceeded these, and must have been a very striking object, being no less than 12 feet high with a raceme of 18 large white drooping flowers, somewhat resembling those of the common white Lily, excepting that they had a deep purplish tinge along the inner edge of each division of the perianth. When in perfection they measured five and a half inches across the mouth of the tube, and were no doubt similar to those described by DR. WALLICH "delightfully fragrant."

We congratulate Mr. BOSCAWEN on the success which has attended his experiment of cultivating this fine plant in the open air, and trust it may be the means of inducing him to continue the interesting inquiry on which he has entered. No situation in Cornwall is better adapted for experiments in this way than Lamorran, nor could a more beautiful family of plants have been named for such a purpose than the one Mr. BOSCAWEN has selected. Let us hope that it will not be long before we are made acquainted with the comparative hardiness of other East Indian Lilies, as well as of those lovely kinds from China and Japan with which our gardens were enriched some years ago, and which now form the most attractive ornaments of our conservatories during the latter part of summer and autumn. *B.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. VII.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

FLORAL SCHEDULE, *column 1st.*—As filling up floral schedules forms a principal feature in these practical lessons, I trust I may be excused if I dilate a little upon them. I hope to convert those who fancy there must be something too abstruse for the minds of children to master, in the meaning and application of the more important words employed in a strictly scientific and efficient botanical terminology.

Number of parts in each Floral-Whorl.—The following examples will suffice to show how the first columns of these schedules should be filled up; and a few comments will explain some of the niceties to which attention may be directed.

Exs.	P.	G.	St.	C.P.	C.S.	P.L.	
9	1	8 ?	8	4	2	*	*Common red* Poppy.
10	1	2	6	4	4	*	*Common* Wallflower.
11	1	3	5	5	5	*	*Sweet* Violet.
12	0 1	0 5	10 0	5 5	5 5	* *	*White* Campion.
13	1	3	8	5	5	*	*Perforated* St. John's-wort.
14	1	1	10	5	5	*	*Common* Furze.
15	8	8	8	6	10	*	*Wood* Strawberry.
16	1	4	8	4	4	*	*Great* Willow-herb.
17	1	2 ?	4	5	5	*	*White* Dead-nettle.
18	1	4	5	5	5	*	*Common* Primrose.
19	1	1	8	*	*	4	*Common* Spurge-Laurel.
20	0 1	1 2	12 0	* *	* *	3 3	*Perennial* Mercury.
21	1	3	1	*	*	6	*Spotted palmate* Orchis.
22	1	3	3	*	*	6	*Yellow* Flag.
23	1	3	6	*	*	6	*Common* Blue-bell.
24	1 1	0 1	1 0	* *	* *	0 0	*Common* Arum.

9, Papaver Rhœas; 10, Cheiranthus Cheiri; 11, Viola odorata; 12, Lychnis dioica; 13, Hypericum perforatum; 14, Ulex europæus; 15, Fragaria vesca; 16, Epilobium hirsutum; 17, Lamium album; 18, Primula vulgaris; 19, Daphne laureola; 20, Mercurialis perennis; 21, Orchis maculata; 22, Iris pseudacorus; 23, Agraphis nutans; 24, Arum maculatum.

When the parts composing a floral-whorl are "free" (*not cohering*), their number is evident. When they cohere, more or less, their number may generally be readily ascertained by the upper portions of the several parts projecting beyond the lower cohering portions. But there are cases in which the cohesion between some or all is complete, or very nearly so. It is then sometimes difficult, sometimes impossible, to recognise the precise number of parts in a whorl, without taking into consideration the peculiar laws of structure by which particular groups are restricted or defined. The practical instructor will warn the beginner that "seeing is not always believing" in botany any more than in other sciences.

N.B. "*Seeing not believing.*" I cannot refrain from insisting on the better recognition of this important aphorism than the public generally seem disposed to admit. Some of your readers may remember the manner in which my scepticism was assailed in the *Gardeners' Chronicle* eight years ago, when I questioned the accuracy of those who declare they have seen a mother viper allow her young to run down her throat for shelter. I then asserted that whether such a vision were fact, or the effect of ocular delusion, science required better evidence than had hitherto been produced, before so remarkable an anomaly could be admitted as an undeniable marvel. All believers in the swallowing theory were challenged to secure an example by which the fact (if such it were) might be scientifically demonstrated by some competent authority. The only instance (so far as I am aware) in which such opportunity has hitherto occurred, is directly opposed to what our best physiologists seem inclined to regard as most probably a vulgar error. (See *Gardeners' Chronicle* for 1848, p. 590.)

For thousands of years all mankind trusted their eyes for proof that the sun and stars revolved daily round the earth. "Vulgar notions" have not yet entirely succumbed to the "scientific idea" which recognises the monthly rotation of the moon upon her axis to be a phenomenon of precisely the same character as the daily rotation of the earth. Whenever our ignorance of a particular science renders us incompetent to the task of properly demonstrating some truth revealed by that science, it is better to put faith in those who have proved themselves qualified for assuring us of what is really the fact, however little we might otherwise be inclined to admit it.

So with respect to the scientific (that is to say strictly accurate) ideas we ought to obtain of the structure of flowers, we must not be satisfied with what every one ignorant of botany may see plainly enough. We must learn to observe plants by that better light by which science enables us to check or contradict the seemingly obvious but too frequently erroneous conclusions deduced from an imperfect or inaccurate investigation of facts. A beginner, in filling up the first column of a floral schedule for our example 14, the "*common* Furze," would almost certainly record two sepals to this flower. I should allow him some credit for his imperfect observation, and then show him a minute notch at the summit of one, and two notches at the summit of the other divisions of the calyx; this will probably satisfy him that the number of sepals are really five. This example would further afford me an opportunity of stating that five sepals are constantly present in flowers constructed on the same plan as those of the "*common* Furze." Now, as all flowers thus constructed (*Papilionaceous flowers*) are easily recognised, and all belong to a very large section (*Papilionaceæ*) of an extensive natural order (*Leguminosæ*), he will hardly be again deceived if some Lupin, with apparently only two sepals, were next offered to his inspection. He would at once suppose there must *probably* be five sepals to its calyx. Close examination would show him he had judged rightly. This ambiguity, it may be remarked, is confined to very few such (papilionaceous) flowers; in all others the true number of sepals is sufficiently distinct. There are certain generalities implied in the structure of the more important natural groups which soon become impressed on the memory. These serve as checks to imperfect observation wherever there may happen to be (apparently or actually) some deviation from the more ordinary characteristics by which such groups are recognised. To return from this N.B. digression to our 16 examples selected for the first columns of the school floral schedules.

P. L. (*i. e. Perianth Leaves*).—Where a subdivision of the perianth into calyx and corolla is sufficiently marked (as in Examples 9 to 18) the number of its leaves need not be noticed; since it would only be the aggregate of those of the sepals and petals together.

N.B. In Examples 12, 20 and 24 we have two kinds of flowers; one kind to be examined for the stamens and the other kind for the pistils. In 12 and 20 these are on different plants (*Diœcious*); in 24 they are on the same plant (*Monœcious*). This last example is sure to puzzle beginners, and no wonder, as its real structure was unknown to the great master, Linnæus. It, or some such, may be early introduced for the sake of showing them how to avoid confounding an aggregation of flowers (an *inflorescence*) with a single flower, as in the case of composites already noticed, Ex. 8 "Oxeye-daisy."

Mem. From my not having seen a proof of No. 6 a little omission has occurred. The paragraph to the "Willow" should have been headed Ex. 7; and that to the "Heads of Flowers" by Ex. 8. It would also have been better in the latter figure to have connected the words in "Oxeye-daisy" (*Chrysanthemum*), as this is a generic name, and beginners might be apt to regard it as only a species of "Daisy" (*Bellis*). This sort of confusion is not uncommon.

(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CXXXVI.

559. PARASITÆ (*Botrytis.* Potato Murrain). It is now so universally acknowledged that the Vine disease is due to the attacks of a parasitic fungus, that there ought to be no difficulty about the reception of the cognate theory as regards the Potato murrain, a theory respecting the justice of which I have never entertained a doubt. The only theory which at the present day can at all compete with it, is that maintained by Schleiden and others, that it is the result of high cultivation, a theory which shall be fairly stated at the end of this article.

560. In considering the Potato murrain it must be borne in mind that there are two distinct diseases of the Potato, each characterised by the presence of a fungus, which may and often do occur separately, but which may also simultaneously attack the plant. These diseases are distinguished by the Germans under the name of *nassefäule* and *trockenfäule*, the wet and dry rot. They are in some respects antagonistic to each other, though both concur in the final destruction of the tubers.

561. The last is called the disease of Martius, from its having been described by him in 1842. It is characterised by the presence in some of its forms of *Fusisporium Solani.* The affected tubers are traversed in every direction by mycelium, which gorges the tissues to such an extent that they become excessively hard, so as to require many heavy blows before they give way. The degree of hardness is not always equal, and in some cases, at least in this country, the *Fusisporium* may exist alone on the Potatoes while the tissues are moist. According to the degree of dryness the parasite assumes many distinct forms, and has been described under several generic names. This disease had existed in Germany for many years, and had become so prevalent at the time when Martius wrote as to make the successful cultivation of Potatoes any longer in Germany a matter of doubt.

562. Just as the disease of Martius had attained its height another malady, characterised by the more speedy dissolution of the tubers and the presence of *Botrytis infestans*, made its appearance. It was extremely destructive in some part of the United States in 1844, and was noticed in England and on the Continent in that and the preceding year, but in 1845 it became almost universal, and from the great importance of the subject attracted general notice, though scarcely

any one anticipated the horrors of the consequent famine, or the enormous political changes to which it gave rise. The disease in most cases, and with most varieties, commenced in the haulm and leaves. Little patches of *Botrytis* were observed which soon reduced the tissues with which their mycelium was in contact to a dead patch, which spread in all directions as fresh crops of the Botrytis sprang up like Fairy Rings in a Grass field on the circumference of the exhausted soil. The tissues of the stem were rapidly involved, and finally the more superficial portions of the tuber. Where there was no superabundant moisture the decay of the tubers was not so rapid as that of the green parts of the plant, but under less favourable circumstance a few hours produced an extraordinary effect, and in some cases which were witnessed by the Government Commissioners in Ireland, in four-and-twenty hours large heaps were reduced to a loathsome putrescent mass. According as the *Botrytis* existed alone or in combination with the *Fusisporium*, the decay under the least pressure of unpropitious atmospheric influences exhibited a greater or less intensity.

563. Multitudes of remedies were proposed, but for the most part with very little success, nor is the crop such as to admit of very expensive chemical applications at the cost of additional labour and expenditure. The most effectual, perhaps, was the cutting off of the haulm before the fungus was established. From the low growth, and the occurrence of the fungus principally on the lower surface of the leaf, it is almost impossible to get sulphur fairly in contact with the parasites. Where the air is naturally impregnated with salt, in the neighbourhood of the sea, or artificially with chemical vapours, as near copper works, the disease has been wholly absent or far less virulent. The whole surface is there accessible, a condition not very easy to realise in practice. There is much reason to suppose that the disease is gradually dying out, though virulent attacks, as at this present moment, have occasionally occurred in almost every district without intermission since its first prevalence.

564. The Schleidenian theory rests on the fact that the tissues of plants, which consist partly of cellulose and partly of proteinous matter in contact with starch, inuline, gum, sugar, and other substances capable of fermentation or chemical change, are easily deranged under any alteration of their normal ingredients. If, then, an increased dose of nitrogen be taken up from the soil in consequence of the use of highly nitrogenous manures, the balance as a necessary consequence is deranged and putrefactive fermentation ensues. The difficulties in the way of this theory are quite as great as in the other, and when once the prejudice is removed that fungi can only grow on decaying or decayed vegetable matter, a notion which is opposed by a host of facts, there is little objection to be brought against what is commonly called the Fungal theory. The one cause, however, may greatly aggravate the other, and the cultivator should be instructed that he cannot farm very highly without the prospect of danger. His direction should be turned rather to more frequent and effectual stirring of the soil, and the thorough extirpation of all obnoxious weeds. Under such a system he will insure a good return, and at the same time have a healthy vegetation, while ample work is provided for the labouring poor, to the general comfort of himself and neighbours.* *M. J. B.*

NEW GARDEN FERNS.—No. XIII.

24. GYMNOGRAMMA PULCHELLA.

Fronds ovate, irregularly ramose, tripinnate or quadripinnate; pinnæ alternate, the lower primary ones unequally ovate-lanceolate, largest on the posterior side, elongately narrowed from the broad base; pinnules all alternate, secondary ones ovate, about half an inch long, deeply pinnatifid often pinnate below, the ultimate divisions oblong, inciso-lobate, the lobes usually bifid; sori narrow, indistinct, often forked, lines of spore-cases protruding from the white pulverulous coating of the under surface; rachis and stipes dark purple brown.

An elegant Fern introduced from the continental gardens, and grown under the name above adopted, which, however, we have not seen published. It has some affinity with G. rosea, *Desv.*, of which the G. conspersa,

Kze., appears to be a less developed state, but is a larger growing plant, with smaller divisions. It is a stove Fern, and is supposed to be a native of South America, young plants of what were probably the same species (which we had called G. gracilis in an unpublished paper on cultivated Ferns), grown a year or two since at the Wellington Nursery, having been obtained from Mr. Linden. The fronds grow 2 feet, perhaps more, in length, and are nearly a foot wide across the base. Their form is very irregular, from the varying size and length of the pinnæ, and from the rachis not unfrequently becoming forked; and they are more finely divided and elegant in cutting than the accompanying figure, otherwise correct, indicates. The fronds are quadripinnate at the base, tripinnate above, the secondary pinnules being ovate, with their oblong lobes quite separate in the one case, and divided nearly to the midrib in the other; these ultimate pinnules or lobes are themselves inciso-lobate, and their larger lobes are generally bifid. The upper surface is of a dull but deepish green, rendered grey by the shedding of the white powder, which thickly clothes the lower surface, and through which the sori, consisting, as in the allied pulverulent Gymnograms, of but few spore-cases, protrude, forming indistinct lines beneath. The stipes and rachides are of a deep purplish brown colour. It is an elegant slender Fern of considerable size and very graceful arching habit, and grows freely in a stove temperature; increasing, moreover, readily from the spores.

25. HYMENOPHYLLUM DILATATUM, Swartz. LEPTOCIONIUM SORORIUM, Presl.

Fronds erect, decurved at the points, ovate-acuminate, quite smooth, tripinnatifid; primary divisions ovate-lanceolate; ultimate segments broadly linear, often elongated or subcaudate, drooping, entire; involucres sunk in the apex of the segments, orbicular, and somewhat wedge-shaped below, the valves obtuse, entire; receptacles clavate, included; stipes and rachis green and winged almost to the base.

One of the most beautiful Ferns of New Zealand, where it is very abundant. It also occurs in Lord Auckland's Island, and in Java. The fronds often attain a foot and a half in height, with their stipes erect, and their branches gracefully decurved. The fronds consist, as it were, of several series of branchings or forkings of the rachis and veins, these being throughout, and as well as the stipes, bordered with a green leafy margin on each side. In other words they are tripinnatifid, the first divisions ovate-lanceolate, tailed and deflexed; their narrow sub-divisions are also tailed, and

these are again branched into short linear lobes. Each of the ultimate segments has a single vein or rib passing along its centre. The fructification is borne towards the apex of the fronds; the sori situated at the apices of the ultimate lobes, in which the somewhat wedge-shaped base of the involucre is sunk, its free portion being rounded, entire, broader than the segment, and consisting of two valves, enclosing the short clavate receptacle. The fronds are of a deep olivaceous green, and peculiarly smooth, the texture as in others of this family being thin and transparent. It is a greenhouse evergreen species requiring abundance of atmospheric moisture. *T. M.*

DEGENERATION OF VARIETIES OF THE PEAR TREE.

Is a variety of the Pear tree capable of degenerating in its vigour, hardiness, and bearing, as well as in the form, size, and flavour of the fruit? In general we believe that this question may be answered in the negative, provided always that in propagating the variety by scions on the Pear stock it is planted in a suitable condition as regards soil, climate, and situation. If all these conditions are insured, a variety, whatever it may be, ought to be reproduced, by budding or grafting, with little or no variation from the original type. Some varieties are less subject to vary than others. Some improve, others lose in certain respects. It is important to know correctly the locality in which a new variety has been obtained from seed, and in what favourable situation it has shown itself in full perfection. It is only by complete monographs of the best varieties that the cultivator can get acquainted with these practical details, unless, indeed, he make very long and expensive experiments for himself. Let us add some examples to make ourselves better understood. La Fortunée, a seedling which fruited for the first time in 1829, is a tree of moderate vigour, and bears in the open ground, either as a pyramid or a standard; but the fruit is not larger than a small Bergamot. In a gravelly soil the fruit is larger, and ripens earlier, but the flavour is not improved. Worked on Quince at half-standard height, and planted against a wall with a south-west aspect, in a light, free, moist soil, it will produce fruit as large as the Bergamotte de Paques, or as the Ne Plus Meurisse.†

The Beurré d'Hardenpont (Glou Morceau) does not succeed on the best Pear stock in a light deep soil when cultivated as a standard. Nevertheless the seedling tree is stated by many of the amateurs of Mons to have borne perfect fruit in the garden of the late D'Hardenpont, because the soil was of a gravelly nature. We have seen trees of it, on the Pear stock, in the old experimental [private] garden of the Messrs. Lee, of Hammersmith, and according to Mr. Salter, the present possessor, these trees bear well-formed fruit of excellent quality.

The Beurré Diel requires a rather compact but rich soil, and the Passe Colmar, the Poire Legipont or Merveille de Charneux (the name of a village in the province of Liege), a light deep soil to yield perfect fruit as a standard on the free stock. Planted against a wall these varieties yield fruits more perfect in form, but not so high flavoured. Against a wall the Beurré Rance becomes enormous, and assumes the Bon Chrétien form; but as a standard, in light, free, and deep soil, the flavour is better.

In general a good variety of Pear raised in a cold climate, or in a cold heavy soil, succeeds very well when transplanted into a warmer situation. The fruit there improves in form, size, and flavour. A variety raised in a warmer climate than that of England and Belgium does not generally succeed elsewhere than against a wall with a good aspect, like some of the varieties which have been obtained in our latitudes, and which absolutely require the protection of a wall to yield fruits perfect in every respect; and further, the trees must be trained in the form most suitable to them. Worked on the Pear stock, certain varieties must be grown as dwarfs, some as half standards, others again as standards. The branches of some may occupy a horizontal position, whilst those of others may diverge at angles more or less acute. It is only on this condition, all others being observed, that the trees produce fruits perfect in form and flavour, and without being degenerated in any of their characters. The constitution and mode of growth of a tree must be studied to cultivate it properly in the open ground, as well as against a wall.

The Easter Beurré,‡ worked on a strong wilding, at 7 feet from the ground, and planted in a free, deep, warm soil, forms long, nearly upright shoots, and bears at Louvain excellent fruits of the form of a handsome Bergamot. Against a wall this variety will permit of its shoots being inclined to a more horizontal position, and bears perfect fruit of the Doyenné form.

These examples will be sufficient to render intelligible my ideas on the necessity of having monographic notices, stating the soil and aspect in which a variety of the Pear ought to be planted in order to produce fruits possessing all their qualities, so that its non-success may not be attributed to degeneration.

Contrary to a resolution taken in consequence of observations made in the cultures of Van Mons, at Brussels and Louvain, we, about 15 years ago, admitted into our collection about 50 varieties of Pears of French origin, or said to be such. Cultivated as standards, without shelter, 15 successively died off, barren, and suffering from various diseases. Those which survived were, for the most part, recognised as varieties of Belgian origin, or others to which a new name had been given. The remainder are still on trial, not yet having borne fruit. The Duchesse d'Angoulême has occasionally produced some fruit on the Quince stock, and a few on the Pear stock. Beurré and Doyenné Gouboult have succeeded better. Belle de Zees and De Feron soon decay. Van Mons-Léon le Clerc yields every year some fruit. The only variety, a native of Nantes, which has exceeded our expectation, is the Beurré Clairgeau. If I had not received the seedling tree of this variety, which I do not cease to admire, from a reliable source, I should indeed be inclined to believe that it is the result of a seed from our country, and sprung from a race several times regenerated in our latitudes.

The varieties of English origin, of which 21 have likewise been introduced in our cultures, present, in general, as vigorous an appearance as the varieties of Belgian origin obtained in the end of the last century; but the trees are far from having that fine form and good habit of growth possessed by the varieties last raised by Van Mons, to which preference must be given for reasons previously stated. The varieties received from Germany likewise succeed well with us; but, with the exception of several summer sorts, they are chiefly varieties of Belgian origin to which new names have been given.

From what has been already stated it will be understood that varieties cultivated in climates analogous to that in which they were raised will, in general, retain their characters, provided the trees are planted in a suitable soil and treated in a proper manner.

If the causes of degeneration are to be ascertained, they may be sought and found:

1. In the use of improper stocks, which have no affinity with the graft.
2. In the use of grafts badly selected, either taken from the lower part of very young trees, or from others weak and affected with various diseases.
3. In the use of grafts grown in an artificial manner.
4. In a mode of cultivation unsuited to the nature of the variety.

* Further views on this subject will be found in my article in the first volume of the "Journal of the Horticultural Society of London," and under the word Potato in "Morton's Encyclopædia of Agriculture."

† The name of one of the gardeners of the late Van Mons.

‡ This variety is known in France by the name of Doyenné d'hiver. It was raised in the garden of the Capucins at Louvain, now the Botanic Garden. Van Mons gave a notice of it in 1820 in the "Annales des Sciences." In 1825 the seedling tree still existed, but since then it has disappeared. At that period it was unknown in France to M. Noisette and the late M. Poiteau.

5. In planting a variety in soil which is either too poor and too shallow, or too heavy, cold and moist.

6. In want of attention, in consequence of ignorance of the first elements of a rational mode of culture.

With respect to the first three causes, we have touched upon the principal points connected with them on several occasions in previous articles, and it would be superfluous to revert to them. Concerning the fourth, it is evident to every practical man that a normal degree of vigour, and consequently a good crop of perfect fruit, can only be obtained by allowing the tree to take that form which is most in conformity with its mode of vegetation. If that form is constantly restricted by premature pinching or by too severe pruning, the tree bears a few small, cracked, gritty fruits, becomes barren, and is eventually destroyed. This is not owing to degeneration, but to a want of skill on the part of the cultivator. Nor can we attribute the cause to degeneration, when bad fruit is gathered from a tree planted in a soil which is too strong, compact, and moist. It is not reasonable to seek from the soil that which it cannot give.

We have seen a plantation of more than 100 Pear trees, comprising about 80 of the best varieties of Pears. These trees were confided to one who is known to be an able cultivator. They were all trained in the same form, that of a dwarf pyramid, upon the free stock, and upon the Quince. On the 15th of June, 1856, the 100 trees had not 200 Pears on them. The premature pinching, performed in a season different from the ordinary run, had caused a disordered vegetation, from which, of course, the trees suffered, and in consequence of which they were not able to set their fruit. Moreover, the ground where the trees were planted was covered with a rather thick layer of horsedung, and this preventing the action of the air and sun upon the soil which covered the roots, the trees were unable to profit by the beneficial effects of the solar rays upon the ascending sap. If these trees remain weakly and barren, is that result to be attributed to the circumstance of the varieties treated in this way having reached the period of degeneration?

On visiting lately one of the finest gardens in Belgium, I observed that part only of the trees planted against a wall bore fruit. On seeking for the cause of the sterility, I found it was this—the soil of the border in front of the wall had been dug to a considerable depth for cropping with vegetables. By this unintelligent operation the fibrous roots, and the spongioles with which they were furnished, were destroyed. The organs of fructification previously formed had produced flowers, but could not set the fruit, or if any did set it mostly dropped. These trees bore but very few fruit; but those in front of which the ground had not been dug bore, on the contrary, a large quantity.

It was supposed that the season was unfavourable, and that the trees were bad. The proprietor was even inclined to think that the Pear trees against the wall had no longer the vigour and hardiness requisite for bearing fruit, and attributed this bad result to the degeneration of the varieties of the Pear tree.

Between Chelsea and Fulham several plantations of fruit trees, about 50 years old, and of fine appearance may be seen. It may be observed that between these trees are planted Gooseberries, Currants, Strawberries, and vegetables, the culture of which disturbs the fibrous roots near the surface of the soil, and thus renders it impossible for the trees to produce fruit. In fact, when a tree is transplanted before the winter solstice into a lighter soil, it will be found in the month of March that the ends of the cut roots have formed callosities, and small fibrous roots. On leaving a tree in its place without removal it will be seen on the rising of the sap that the wood-buds along the shoots become fruit spurs, and it is by the action of the fibrous roots and spongioles that this result is obtained. When the tap-roots strike downwards, the stem and shoots again push upwards; and as long as the fibrous roots at the surface of the soil are not destroyed, and whilst manure suited to the nature of the ground is given at the proper time, it is certain that the action of the fibrous roots upon the organs of fructification will continue to exercise a favourable influence on the bearing of trees properly planted and duly attended to.

In conclusion, fruit trees, like all living things, are capable of improvement, either by chance or by the mind of man, and of reproducing themselves in the course of time more or less identical, and more or less perfect, according to circumstances and skilfulness of treatment. But as to the opinion that varieties of fruit trees are disposed to degenerate in consequence of the time they have been in existence we do not believe in it. *J. De Jonghe, Brussels.*

Home Correspondence.

Lindsay on Lichens.—The account you gave of this book (see p. 502) induced me to purchase it. I cannot say that I regret having done so, and yet I am disappointed at finding it much less well done than it might have been. The author is doubtless a learned man, and his book is full of interesting and valuable information; but he seems to have no notion of the mode of enabling others to gain the knowledge they seek for. He puts all his plates in the wrong places, and forgets to refer to them from the main text. He produces fine-looking figures of the minute parts of these plants, but is quite mysterious as to the manner in which one unskilled in microscopical observation is to find them. He produces a "synopsis" of the natural orders (!) and genera of Lichens, invested with a grand dressing of fine words, but he tells nothing about the meaning of those words. What is an inexperienced student to make of Gymnocarpi and Angiocarpi, words whose value must be ascertained before one step further can be taken? As to how his Usneaceæ, Corniculariaceæ, and all the other aceæ are to be recognised the synopsis is dumb. To be sure this last matter is explained as Dr. Lindsay proceeds, by technical *descriptions* of his *aceæ*, but what the reader wants to know is their *distinctions* in the fewest possible words. That is what he should have told us, and that being all left out, his book seems to me like a country signpost consulted in a pitch dark night. I can forgive him for the hard words he is so fond of, because I can find out with a little trouble that "corticolous" means growing on bark, and so on; but I really cannot excuse his having kept to himself exactly those things which an earnest inexperienced student most wants to know. *R. E.* [We have been obliged to curtail this letter, which no doubt expresses the sentiments of many readers. The omissions to which "R. E." alludes have been adverted to by ourselves, and we do hope that the learned author will adopt the course we formerly presumed to suggest. If he does not it is impossible that his volume, with all its merits, can ever become popular.]

Bees are sometimes united without destroying either of the queens; but as every cause of irritation should be avoided, it is safest to remove the queen of the intruding bees. As to the result of introducing a stranger queen into a hive, Huber made many experiments; in some instances the stranger was smothered, in others she was permitted to encounter the reigning queen, and the rivals contended for the sovereignty by royal duel in the same manner as the succession to the throne is contested when there is a plurality of princesses. Such a manner of proceeding, however, appears at variance with the loyalty and devotion of the bees towards a queen, once acknowledged as such. Being desirous of testing their fidelity, I introduced a queen into the centre of an observatory hive, which contained a fertile queen. The moment the stranger entered she was seized, surrounded by a crowd of furious foes, and retained prisoner till she died. She was probably suffocated, but not without offering a desperate resistance, as many of her assailants fell around, evidently stung to death. This scene lasted three hours and a half, during which time the queen of the hive pursued her ordinary avocations with perfect composure, but the closing act was very remarkable. When the stranger became lifeless the bees allowed her to drop to the floor, and no doubt other bees, finding her no longer imprisoned, trembled for the safety of their sovereign, for she was instantly surrounded by a dense mass of bees, and retained in the midst of her faithful guards till the removal of her rival from the hive assured all of her safety. As the perfuming the bees with smoke destroys the power of recognition among the workers, it is possible the effect on the queen may be similar, and that her own subjects might not have power to identify her or a strange queen, but this is a nice point which it would be extremely interesting to solve, and the experiment would not be a difficult one, the queens having been previously marked. *A.*—Your correspondent "Apiarian" does not need to give himself any trouble about there being two queens in a joined hive; the bees will regulate that for themselves. The following is the method I adopt to unite swarms in hives—supposing I want to unite two swarms: on the evening of the day that the second swarm is thrown off, and when all the bees are quiet, I lift the hive where I intend the bees to remain very carefully off the stand where they have been placed, and putting an imp (rim) on the spot, I take the new swarm, and placing the hive upon the imp, I give it a smart blow, which shakes down all the bees into the imp. I then replace the other hive upon the imp, and leave them until the morning, when I always find them united and agreeing well together, unless I have so mismanaged as to shake or disturb the bees in the first hive; if I have done so, they begin to fight with and kill the others, and often the whole swarm is destroyed. Of course it must be understood that the second swarm has been hived as soon as it was thrown off. If I wish to unite two old hives, I stupefy the bees in one hive by means of the large fungus, putting my fumigating box in the bottom of an empty hive, of which the mouth is upwards, and those bees which do not fall down into the empty hive are carefully swept into it with a feather from the combs, as they are removed from the hive; then the same process is resorted to as above described for swarms, and the union is complete the next morning if care has been taken not to disturb the other bees. *T. G., Clitheroe.*

Sulphur.—Before the occurrence of the Vine disease gardeners had been in the habit of using sulphur in various forms either as a wash or a fumigating agent; but since the period of that attack which reduced the clusters of Grapes upon the open walls to objects of deformity, many have devoted their exclusive attention to means of applying sulphur to the Vines as a certain and specific remedy. Since 1847, when I first noticed the ravages of the fungus on almost every Vine in and near Croydon, my attention has been aroused to the subject, and having had a very favourable opportunity to experimentise upon two young Vines planted by myself, I have either prevented or entirely warded off the evil by the use of sulphur in a form now to be described. The levigated stone-brimstone is with greater facility mixed with water than the common flowers of sulphur, but it is not often met with, and therefore taking any required quantity of the latter it can be rendered mixable with water by only triturating it with a twentieth part of powdered tragacanth (gum dragon), both dry, adding very gradually soft water till reduced to a paste. When in that state, by increasing the quantity of water, the sulphur can be easily and thoroughly mixed and incorporated with the fluid without one particle of it floating at the top. Thus, if required, the syringe may be employed, or the mixture may be laid on the wood as a paste with a painter's brush. My Vines have been so treated in the early part of the year, the old wood and young shoots being covered by the brush. The sulphur was thus fixed by the tragacanth; and as a consequence not one symptom of disease has been observed in either foliage or fruit. On the latter however it would be better to dust the berries with the dry sulphur only to obviate adhesion, and every shower could then wash it off. Gardeners used to complain that they could not blend flowers of brimstone with water: I then published the result of my process, and its applicability is certain either in the Vinery, plant stove, or to trees on the open wall. *John Towers, Croydon.*

Societies.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, *Aug.*, 1856.—SECTION B.—CHEMICAL SCIENCE.—"On the Products and Composition of Wheat Grain," by Mr. J. B. Lawes and Dr. Gilbert. This paper contained the results of a large number of experiments made by him and Mr. Lawes during a period of several years, upon Wheat grown in this country as well as abroad. Dr. Gilbert subjected the various coarse and fine varieties of flour to analysis, and showed that the nitrogen increased in proportion as the sample was coarser and contained more bran. The flour that contained least nitrogen was that which took up least water in the process of bread-making, and an interesting question arose as to the nutritive value of bread containing much or no bran—Dr. Gilbert's opinion being in favour of the latter, as far as working men are concerned, notwithstanding the theoretical higher value of bread containing bran. Another interesting fact stated by Dr. Gilbert was, that the Black Sea Wheat in Europe and the Southern States Wheat in America were far richer in gluten than those from more northern latitudes, those from Dantzic containing least gluten, while they stood highest among bread-making grain. The character of the gluten seemed dependent in some degree on its oily constituent, and therefore the quality of the bread depends on the maturation of the seed.—Dr. R. D. Thomson remarked that the value of bread might depend on the state of hydration of the starch and gluten, but was doubtful as to the value assigned to the nutritious qualities of starch, as the French chemists proved that the starch was often left undigested.—Dr. Voelcker stated that he had arrived at similar experimental conclusions to Dr. Gilbert, but while he acknowledged that starchy bread was mechanically the best, he combated Dr. Gilbert's view, that this was the most wholesome kind of bread for the working man. He traced the phosphoric acid found by Dr. Gilbert in the bran to phosphorus contained as such in the gluten, Dr. Voelcker having found this element in caseine and legumine.

SECTION D.—ZOOLOGY AND BOTANY, INCLUDING PHYSIOLOGY.—Prof. Henslow gave the results of the labours of the Committee on Typical Forms of Minerals, Animals, and Plants for Museums. The lists which had at present been obtained had been printed in the last volume of the Transactions. They were still incomplete, but Prof. Henslow hoped they would be complete for every department before the next meeting. He exhibited some specimens of a new method of mounting, more especially mineral specimens. This consisted in placing them on a small stand of clay, which being at first soft gradually hardened and became a firm support to the object.—Dr. Wright, of Cheltenham, thought that the lists of objects would have been more useful if references to good figures of them in well-known works had been appended.—Dr. J. E. Gray spoke to the importance of local museums, and especially recommended that the classes and families of plants and animals should be illustrated by specimens from the locality in which the museum existed. He thought that local museums might be supplied with duplicate specimens from the government museums. Duplicate specimens existed in the British Museum, but these could be distributed only by an order from the Lords of the Treasury. He made no doubt that by a proper application the duplicate specimens from all our government museums might be obtained.—Prof. Tennant said that the labels in our museums were not sufficiently communicative. It was not enough that the name of a mineral was given. Its composition, colour, hardness, specific gravity, and other qualities might be given on a label with as much ease as the name. In all our collections too little attention was paid to making them teach. He especially drew attention to the necessity of placing the pictures of animals in the Zoological Gardens, London, on those cages where three, four, or even more species of animals are kept. A mere name under these circumstances was no guide, and even mischievous where it was a wrong one.—Prof. Bell expressed his conviction of the importance of museums for the purpose of teaching natural science. No one had done so much and so ably on this subject as Professor Henslow. The Ipswich Museum, of which he was President, was a perfect model of what a museum ought to

be. He might also add, that Prof. Henslow's village of Hitcham was a model of what a village ought to be. In the school of this village Prof. Henslow had demonstrated that it was quite possible to teach natural history in combination with other branches of knowledge. A full account of these interesting experiments had been given by Prof. Henslow in the late numbers of the *Gardeners' Chronicle.*

"Recent Researches on the Cause of the Fluidity of the Blood," by Dr. B. W. Richardson.—The point of Dr. Richardson's researches consisted in the discovery of the volatile alkali, ammonia, as a constituent of the living blood, and its escape from blood abstracted from the body. The author related a long series of demonstrative experiments, all proving not only that ammonia was present in the blood, but that upon its presence the solubility of the fibrine, and therefore the fluidity of blood, depended. The peculiarity of this demonstration of the cause of the fluidity of the blood is, that it explains the different hypotheses which have previously been offered on this question, and shows in how far these hypotheses have approached or fell short of the truth. In concluding his paper, Dr. Richardson pointed out that ammonia, in combination with carbonic acid gas, is a constant constituent of the air expired in the breath. The presence of ammonia in the animal economy, and its evolution in respiration, was of interest in that it connected more closely the limit that exists between the animal and vegetable worlds. But the subject was of the greatest importance in relation to the causes, the nature and the treatment of various diseases. Prof. Bell complimented Dr. Richardson on the very laborious series of experiments by which he had arrived at his conclusions, with regard to the cause of the coagulation of the blood. He had seldom heard of an investigation conducted with more regard to the principles of sound induction. [The power of ammonia in preserving the fluidity of caoutchouc seems to be connected with the action of the former substance on the blood. ED.]

Dr. Lankester exhibited some water taken from a well at Cirencester. The water from this well had been the cause of illness in a family which had partaken of it. Although at first clear, after standing a little time it exhibited the mycelium of a fungus. This water had been sent to him for examination, and he had been struck with the resemblance of the fungus to that of one which he had found in the well-water of Broad Street, Golden Square, the drinking of which had been undoubtedly connected with the outbreak of cholera in that district in 1854. This well had subsequently been found to have received into it the contents of house drainage. He had now discovered that the well at Cirencester had also received into it a certain amount of house drainings. He related other cases in which fungi appeared in contaminated water. None of the water mentioned exhibited any injurious constituents that could be discovered by chemical analysis. Before chemistry could detect them they had lost their injurious properties, and the microscope alone could realise their presence.

Mr. M. Masters exhibited a specimen of an abnormal growth in a Rosewood tree. The specimen consisted of two root-like organs which had been found in the hollow of a trunk of the Rosewood tree; the root-like branches having descended from the upper part of the cavity in the trunk, and descended and penetrated into the bottom of it. Mr. Masters also exhibited a series of microscopic photographs by Mr. Delves.

Dr. Lankester read a description of a new crustacean, *Monimia Whiteana*, from Mr. S. Bate, of Plymouth; also an instance of instinct in a caterpillar from Sir Thomas Phillips. [The introduction of *Monimia* into Zoology as a generic name might surely have been avoided. It has long been used in Botany. ED.]

Reviews.

The Social History of the People of the Southern Counties of England in past centuries, &c. By Geo. Roberts. 8vo. Longmans. pp. 572.

In nothing have historians committed a graver error than in supposing that the interest of the world is limited to wars, politics, and religion; to the acts of Kings and Emperors, or the violent outbreaks of popular masses. It is wonderful that the social condition of the world in times long past should not have more attracted the attention of the antiquary, and that domestic matters, which come home to the feelings of everybody, should have been in a manner passed by in favour of striking events which, however great in their general results, can find no sympathy with the bulk of mankind. Probably no single chapter in the romances of Walter Scott has more strongly interested his readers than that with which Ivanhoe opens, although the personages are no higher than Gurth the swineherd, and Wamba the jester; and the reason we take to be that the former condition of men of that class is too little known. The present volume of Mr. Roberts is an important contribution to the popular literature of our early social history: it may be doubted indeed whether any volume, since the days of Strutt, throws more light upon that of which we know so little; and we most especially recommend it to the study of Young England, which may perhaps discover that "the days of Good Queen Bess," "Merry England," "the good old English gentleman," are phrases which bear a very different interpretation from what is generally supposed. The truth is that like other people we have ascended by slow degrees from the lowest depths of barbarism to our present state of refinement; and that he who would place the days of Alfred before those of Victoria must prefer a pigstye to a palace. It is curious indeed to see how much the practices of our forefathers resembled those of a Red Indian in some respects, especially in the indispensable propitiation by presents. If a courtier or great country squire was solicited to do anything, says Mr. Roberts, "a pottle of wine from Gascony, some broad fish, and shrimpis from the south coast might prove a courteous offering proper and effective." In like manner when the Mohawks, and Cherokees, and Choctaws were to be propitiated, a bottle of rum, half a pound of tobacco, or a string of glass beads were necessary to secure their good will.

Although there is scarcely a subject of domestic interest, from punishing a scold to the laws which regulated dress and expenditure, which is not more or less illustrated in these pages, yet such as concern rural affairs will most interest our readers. In the matter of Oak timber, for instance, we have some curious particulars, which explain how it is that the country has gradually become converted from close forest into open arable fields. Its value was extremely small, its use universal and extravagant. "It is recorded that in 1223 12 acres of timber were worth in Sussex 2*l.* 13*s.* 4*d.* an acre." So late as 1614, so low was its price that a writer of that day complained that "women carry manors and thousands of Oak trees on their necks." In 1545, in the ancient accounts of the mayors of Lyme, are entries of 20 Okis (Oaks) bought for 6*s.* 8*d.*, 20 others for 12*s.* 6*d.*, two others for 1*s.* 6*d.*, four others for 2*s.*, as they stood. Hewing, sawing, and delivery at the sea-side was in addition and cost 4*d.* a day, exclusive of meat and drink, for which 3*d.* extra was allowed; so that a woodman's day's wages were more than an Oak tree. Altogether, as Mr. Roberts observes, these Oaks finally cost (on an average) 2*s.* 5*d.* each, "showing that the expense of carriage, meat, and drink, was ninety-four times more than the original cost." The price however continually rose, so that in 1744 five Oak trees cost the Corporation of Lyme 7*l.* 14*s.* We are not however to infer that the price of Oak or other timber in Dorsetshire was the same all over the kingdom. On the contrary it varied excessively according to locality and other circumstances. Thus:—

"The celebrated round table at Windsor was made about the year 1356. The prior of Merton sold from his wood near Reading 52 Oaks for 26*l.* 13*s.* 4*d.*, or at the rate of 10*s.* 3*d.* each. In 1394, 42 Oaks in the park of Combe sold for 9*l.* 19*s.* 1*d.*, or 4*s.* 8¾*d.* each; while 467 Maples brought 19*l.* 13*s.*, or 10*d.* each. In 1458 one great Elm tree there sold for 20*s.* Cotham Wood, belonging to the manor, was let to farm according to the practice of that and later eras. In the reign of Edward VI. 200 large trees, 'grossos arbores,' near Drogheda in Ireland, were valued at 16*l.*, *i. e.* 1*s.* 7*d.* each. Most of the houses in narrow streets were constructed of Oak framework, Oak beams, and Oak flooring. The latter were laid lengthways, and not across the floor joists, as in the present day. There was no ceiling to the under rooms. The beams, joists, and flooring were whitewashed. Oak wainscoting, tables, chests, and furniture were universal. Much of this has been bought up and made its appearance as an ingredient in modern fittings up of rooms after the old style. Very little lime was used. Oak came much cheaper than Ashlar stone. Laths were not in use. The daubers, afterwards plasterers, spread their mortar upon Spear Grass."

The reckless consumption of timber, as thus described, and in iron smelting and charcoal burning, did not fail to bring forth its fruits in the shape of scarcity and dearness. We find that "So early as the year 1563 is an item of 40*s.* in the constable's account of Lewes about preferring a bill for the preservation of great timber. Wood was becoming scarce in many parts, and the want of it, as there was no sea coal for general use, was much felt. Tusser, like many other writers, took occasion to complain of some great evils of his time. He notes the reckless consumption of wood for fuel, and its immediate bad consequences:—

> 'Some burneth a lode at a tyme in his hall,
> Some never leave burning till burnt they have all,
> Some, making of havock without any wit,
> Make many poore soules without fier to sit.'

The iron furnaces near the Downs by Brighton had caused timber and wood to be so scarce and dear that from 3*s.* 4*d.* a ton it had risen to 13*s.* 4*d.*; from 2*s.* 6*d.* a load of wood to 7*s.*; and from 6*s.* 8*d.* a load of coal, *i. e.* charcoal, to 14*s.*; from 2*s.* 6*d.* the hundred billot or tale wood to 8*s.*; and ship board from 16*s.* the hundred to 50*s.* the hundred." "Apropos of fuel. Nicholas de Yhonge, of Flanders, astonished the citizens of York by his introduction of the domestic bellows in the reign of Edward III. The bellows of the Minster organ had been there probably from the time of the Anglo-Saxons."

The growing scarcity of fuel-wood by degrees led to the introduction of laws for the protection of timber:—"The scarcity of fuel, before coal began to be regularly supplied to the inhabitants of the south-western parts, was severely felt. Warmth in an inclementseason, and more than that, fuel for culinary purposes, must have stimulated the poor to sally out into the fields and supply in an illegal manner their necessities. We are not to understand, in the beautiful language of Goldsmith, that each woman went

> 'To pick her wintry faggot from the Thorn.'

There were the regular *wood-stealers*, *hedge-tearers*, or spoilers of hedges, and, to crown all, the *pollers of trees*. Ranulph Hocket was appointed in 1578, besides his office of piggerd, 'to have and take all the wood from the hedge-tearers that they shall bring into the Comb Street from over Gosling's Bridge, and therewith to take their ropes and hooks.' Fifteen common wood-stealers and spoilers of hedges were presented by name in 1597. The number is sufficient to account for great devastation in the neighbourhood, and these trespassers and spoilers acted in defiance of an order in the Court of Hustings' Book, Lyme, 1584, p. 279, as follows:—'*Hedge-tearing or breaking.*—Persons found with *wood* to have two days and one night in the *dark house*, and during that time to have brown bread and water. *Second offence.* To be set in the stocks two days in the open street, with the wood stolen before them, and one night in the dark house, with brown bread and water. *Third offence.*—To be whipped about the town, as such persons ought to be who commit peckery and petty larceny. *Fourth offence.*' (Page torn out)." "A precept from the manor of Castle Combe in 1557, against harbouring a hedge-tearer, proves that this habit prevailed extensively. Præceptum est quod nullus infra dominium istud hospitat Elenam Otes, neque aliam personam in dominiis suis quæ frangit sepes vel spoliat boscum sub pœna foris faciendi domino, xs. In the same manor, in 1586, it was ordered that the tenants shall put away those under them that stelithe wood, breke hedges, or are common scolders, under a penalty of 6*s.* 8*d.* The destructive effects of tree-polling were witnessed in some parishes in South-east Devon at the decline of smuggling. The 'helps,' that is those who were hired to run a cargo, being seldom employed, and not having given up night work for honest labour, were poor and lawless. Many a good-sized Ash tree that figured in the landscape lost its poll or head in the night, and the stump alone remained."

These extracts show how full of interest are Mr. Roberts's pages. With one more passage concerning beer we must close the volume:—"The invaluable entries in the archives of the Scrope family, lords of the manor of Castle Combe, Wiltshire, enable us to add much to our previous knowledge. These entries of orders about beer date from so early as 1456, the reign of Henry VI. The ale-tasters presented Thomas Cokesale for refusing to sell ale to his neighbours while he had some on sale, and even while the sign [the Ale-stake] was out. He was fined 4*d.* In 1461, one Lautroppe was presented for having, contrary to the order, brewed three times under one display of the sign or ale-stake. For this he had to pay 6*d.* We understand, that upon setting out the sign that beer was on sale, the ale-tasters (*tastatores cerevisiæ*) proceeded to perform their office. This man offended by brewing three times, and only making the usual signal for one brewing. This, had it not been detected, would have enabled him to sell two brewings without the liquor having been tasted by the proper officers, and the public might have had ale sold to them 'not sufficiently mighty of the corn, or wholesome for man's body.' To meet this perhaps growing evil practice, in 1590 (22 Eliz.) it was ordered, that no innkeeper, common brewer, or typler shall keep in their houses any fewel, as straw or verne, which shall not be thought requisite, and being warned of the constable to rid the same within one day, *subpœnâ*, xxs. This order was made against the danger of fire, and to prevent tipplers from having the means of conducting these furtive brewings. Here the public good was aimed at. No one was to brew in 1461 at the same time as the churchwardens were brewing the church-ale for the profit of the church, under pain of 13*s.* 4*d.*; nor (A.D. 1464) to brew or sell till all the ale brewed for the church was entirely sold. This was brewed for the benefit of the common fund for the relief of the poor, A.D. 1590. When the Archbishop of Canterbury should visit his land at Taring (near Worthing), in Sussex, in 1277, four gallons of the best beer were to be charged only 1*d.* If bad it was to be staved, and a ½*d.* or 1*d.* charged for the vessel. The price of beer at Castle Combe in 1464 was, for—

Best beer per gallon	0*s.*	2*d.*
Second	0	1
Third	0	0½

In 1557 the price had advanced as follows:—

Best ale under the hair sieve, per gallon ...	0*s.*	3*d.*
Stale	0	4
Second ale	0	1½
And when it is stale	0	2
Smallest ale...	0	0½
Best ale in their houses, a wine quart ...	0	1
Without the door	0	0½

They are to sell out of their houses as long as there is three gallons in the house. No brewer there, in 1590, was allowed to sell his grains out of the town if the town dwellers will buy them at 2*d.* the bushel. This was very high; the same is now sold at 4*d.* the bushel. It was ordered at Marlborough, A.D. 1524, by the mayor and council, that the brewers should sell of the—

Best ale, 12 gallons	16*d.*
This rose to 20*d.* in 1532.	
One thurindole	0½
2 gallons of small ale...	1

In the reign of Henry VIII (35th year), Isabella Stansby and another, common brewers at Lyme, were presented for brewing ale not 'mighty of the corn,' but, on the contrary, too thin and unwholesome, and for selling the same in unlawful measures, for which each was fined 6*d.* (serevis' brassicav' nimis tenue et insalubre et vend' per mens' illicit.') The orders for brewers are not a few, no less than for tipplers, or those who sold *tipple* or drink. The ale-tasters had an important duty to perform. In 1572, it was ordered that none of the ale brusters do from henceforth brue but with fewell, and not with hard wood or faggot-wood, upon pain for every time of so

doing of 5s. It is curious that in London the dread of fire caused a law to be made at an assize of beer in 1212, that no baker should bake, or ale-wife brew by night, or with reed, straw, or stubble, only of wood."

Garden Memoranda.

A. J. DOXAT'S, ESQ., PUTNEY HEATH.—This is one of the most delightful of the multitude of beautiful suburban residences which now everywhere encompass our metropolis. It is pleasantly situated on high ground in the middle of Putney Heath, and although scarcely beyond the smoke of London the house is so secluded and skilfully surrounded with shrubs and trees that it looks as if it were many miles in the country. On the lawn are clumps of Rhododendrons, several noble specimens of Portugal Laurels, Cedars of Lebanon, and some of the rarer kinds of Conifers, while near the mansion is a charming bed of Petunias edged with variegated Alyssum and a basket of red and white Verbenas, the latter consisting chiefly of the fine variety called Mrs. Holford. In front of the house are some fine old Elms, and surrounding the whole is a double row of Lime trees, between which a cool shady walk offers an agreeable retreat during the heat of summer.

The flower garden, which is small, is cut off from the lawn by means of a Laurel fence and a strip of green walk. It contains beds of Verbenas, scarlet and other Geraniums, and borders of annual and herbaceous plants. Maurandya Barclayana planted out in spring covered a wire trellis beautifully with foliage and flowers, and a short distance from it we observed a pretty specimen of Fuchsia corallina. Attached to this garden is a greenhouse with a Vinery on either side of it. At present the greenhouse is gay with Fuchsias, Japan Lilies, and Pelargoniums, which are kept back in spring by picking off their blossoms so as not to allow them to flower early. By this means they may be had in good condition about this season long after the early kinds have been cut down. A shelf along the front was occupied by Fuchsias, the shoots of which were trained up the roof, and being beautifully in flower they had a very gay appearance. On the back wall a large Plumbago capensis planted in a slate tub was literally a perfect mass of bloom, and formed an elegant background to a fine stageful of plants in front of it. In one of the Vineries was an excellent crop of Grapes well coloured, and numbering, it was reported, about 400 bunches. The other is a later house to which no fire heat is applied, except the weather about this time becomes damp and cold. This house is ventilated at top and front—in the latter by means of lights swung by their middle on pivots. For many years the crop in this house was ruined by mildew, which the gardener considered was induced by opening the front lights from which a strong current of air was admitted among the leaves. He therefore some four years ago tried the effect of keeping them shut ever after the fruit had set, and since that time he has never been troubled with that pest. The soil in this locality being only a very thin stratum overlying gravel the lawn got chokefull of Moss and burnt up in summer. With a view to improve it the turf was taken up and relaid with a layer of blue marl under it, and since that has been done the Moss has disappeared, and now even after the unusual amount of hot weather we have had it looks as green and nice as it could possibly be desired to do.

On the walls of the kitchen garden is a capital crop of Peaches, Nectarines, and Plums. Apricots have been good, but they are now over. Of Figs there is also an excellent crop, especially on the Chesnut, a large and comparatively scarce variety which is now ripe. When Figs were wont to be covered here in winter the result was no crop; but during the last two seasons when they have received no protection whatever they have borne well. Even on the most exposed side of the wall they are this year covered with fruit. Ridge Cucumbers are here, as in most other places, rendered useless by disease. Potatoes are also badly diseased both in top and root, a remarkable circumstance on a soil so dry, warm, and gravelly.

An American Aloe bloomed here magnificently last year in October. The candelabra-like stem still stands green on the plant.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Luculias and other winter flowering things growing in the border must be freely exposed to light and air, in order to get the growth well ripened and to insure a fine display of bloom. Also see that all plants are clear of black thrips, for this pest is particularly active at this season wherever it is allowed to gain a footing, especially on Luculias and such things as are in a growing state. STOVE.—Where there is but one house for the accommodation of tropical plants, considerable care and attention are necessary to properly manage these at this season, as some having completed their season's growth require to be kept cool and rather dry, in order to ripen the wood, while others in free growth require to be encouraged with warmth and moisture. If there is no convenience for removing to a cooler house such things as have made their growth, these should be placed together at one end of the stove, keeping them sparingly supplied with water at the root, and giving air rather freely, which will generally serve to prevent any attempt at a second growth; and those requiring to be kept warm and moist should also be placed together at the opposite end of the house, where very little air should be given, using every care to keep the atmosphere about them moist, &c. Allamandas, Clerodendrons, &c., which have done blooming, may be removed to a Vinery where the Grapes are ripe or ripening, for as these will require very little water, they will not do much mischief in the way of causing damp, and their room in the stove will be found very useful for other things. See that everything is free from insects, and keep the foliage of such things as Ixoras, &c., clean by washing with a sponge and soapy water when necessary.

FORCING DEPARTMENT.

PINERIES.—Take advantage of bright weather while it continues to encourage free growth where this is desirable, giving the plants a liberal supply of water at the root, using manure water for such as are moderately well rooted, and keeping the atmosphere warm and moist. Shading will of course be dispensed with by this time—at least it should be, as growing plants will require exposure to all the light possible, in order to induce fine strong foliage and a dwarf stocky habit. See that the succession stock is properly supplied with water at the root, as any neglect in this respect while the weather continues bright would be liable to cause some of the plants to fruit prematurely. Also keep the atmosphere moist by frequently sprinkling the paths, &c., and syringe them lightly over-head, and shut up early in the afternoon, so as to husband the solar heat as much as possible: be careful, however, in syringing to spare plants in flower, as syringing these over-head would probably cause deformed fruit. Give plants swelling their fruit plenty of clear strong manure water, and young plants growing in open beds will enjoy an occasional soaking of the same. VINERIES.—If bright weather continues, it will be advisable to shade fruit that is thoroughly ripe and expected to hang for a considerable time; for although the quality of the fruit may be rather improved by warmth, &c., some sorts soon lose their fresh plump appearance. Give air freely, and keep the house as cool and dry as circumstances will admit. Stop laterals in the late house, and keep the foliage regularly exposed to light, so as to have it as healthy and vigorous as possible. Fruit beginning to colour should be encouraged with plenty of warmth and air, as Grapes ripened during this fine weather will be very superior in quality, and more likely to hang well than such as have to be ripened by artificial means late in the season, when there will be comparatively little sunshine. Keep thrips in check where at all troublesome by repeated fumigations, and use every means to preserve the foliage from red spider. Vines planted this season, and which are growing freely, may soon be found to be getting too dry at the root; and where this is discovered to be the case, if it is desirable to encourage free growth for some time longer, give the border two or three slight waterings to moisten it about the surface roots, but by no means give it a soaking.

FLOWER GARDEN AND SHRUBBERIES.

That the present month is a favourable time for transplanting large sized shrubs and trees is seldom disputed; nevertheless, it more or less annually happens that a great amount of this kind of work is put off until so late that the plants have no chance of pushing a few fresh roots to enable them to resist the cold drying winds of March: and there are doubtless many of our readers purposing to shift large shrubs and trees this season who have hardly thought of commencing yet; but we would strongly advise all such to start as soon as circumstances will admit, and they will find that things shifted during this month will require but little attention in the way of watering next spring and summer, compared with others transplanted in winter and spring. Also get ground intended to be planted with young things from the nursery turned up as soon as possible, especially in the case of strong adhesive soils, which are quite unfit for planting until they have been some considerable time exposed to the mellowing influence of the sun and air. Give diligent attention to the propagation of bedding out stock, and get cuttings that are sufficiently rooted potted off at once, keeping them close and moist until they become established. Those that have been potted off some time and have got established in their pots should be gradually inured to exposure to the open air, stopping the shoots to keep them dwarf and stocky. But plants that are not very strong should be shaded from bright sunshine for a few hours in the middle of the day, or placed in a shady situation out of doors; let them have the benefit of the night dews however if kept under glass, and guard them from cold drying winds if removed from under shelter. If any of the beds appear to be suffering from the want of water, give them a good soaking at once, and see that late Hollyhocks are afforded a liberal supply, which will greatly assist us in prolonging their beauty. We may soon have indications of the near approach of frosty nights, and it will be well to be prepared with something with which to cover any of the beds liable to be injured by slight frost, such as Heliotropes, &c., and the variegated Geraniums, the foliage of which is very readily injured by frost.

HARDY FRUIT AND KITCHEN GARDEN.

Any of the Peach or Nectarine trees which are observed to be growing too freely should be gone over, stopping all the stronger shoots, and those that were treated in this way a few weeks ago should also be looked over again, stopping a further portion of the shoots if this appears necessary, to prevent the formation of gross strong wood. Pear, and indeed, all trained fruit trees should also be gone over, removing all superfluous wood, so as to expose the trees to sun and air as fully as possible, which will be of service towards getting the fruit spurs and bearing wood well matured before winter. Where mulching has been used for Peach and Nectarine trees, this should be removed at once, if not already done, for the fruit is seldom well flavoured if the roots are excluded from the action of the sun and air during the period of ripening. See that Strawberries in pots for forcing next season are well cared for, placing them in an open sunny situation where they will have all the light possible, and do not allow them to suffer through the want of moisture at the root. Exhausted crops, as Peas, &c., should be cleared away as soon after they are done with as possible, and the ground manured and trenched, when it will be in readiness for planting with Cabbage, &c., and will look fresh and clean if not wanted for immediate planting. Tie up Endive to blanch, and plant out the late crop in a warm sheltered situation. Attend to Tomatoes, keeping the shoots closely stopped in order to prevent useless growth, and expose the fruit fully to the sun, for these are backward generally, and are hardly likely to ripen unless well exposed to the sun, &c.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 4, 1856, as observed at the Horticultural Gardens.

August. and Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 29	29	30.144	29.898	76	40	58.0	64	60½	S.W.	.00
Satur. 30	●	30.151	29.967	74	54	64.0	64	60½	S.	.10
Sunday 31	1	29.931	29.874	77	40	58.5	64	60½	S.W.	.05
Mon. 1	2	29.842	29.787	72	44	58.0	64	61	S.W.	.00
Tues. 2	3	30.174	29.910	67	33	50.0	65	60	N.	.01
Wed. 3	4	30.255	30.207	73	37	55.0	64	60½	N.W.	.10
Thurs. 4	5	30.196	30.095	75	34	54.5	63	60	S.E.	.10
Average		30.099	29.961	73.4	40.3	56.8	64.0	60.4		.07

August 29—Very fine throughout.
— 30—Slight fog; very fine; cloudy.
— 31—Fine; very fine; rain at night.
Sept. 1—Very fine; cloudy; thunder, much lightning, without rain at night.
— 2—Slight shower; very fine; very clear at night, and cold.
— 3—Heavy dew; very fine throughout; cold at night.
— 4—Very heavy dew; hot sun; exceedingly fine throughout; cold at night.

Mean temperature of the week ¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Sept. 13, 1856.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7	69.1	47.6	58.3	15	0.55 in.	1	5	5	2	4	9	3	1
Mon. 8	68.2	47.7	57.9	12	0.65	3	6	2	2	3	10	2	[illegible]
Tues. 9	68.2	48.4	58.3	13	1.09	—	[illegible]	2	2	5	7	[illegible]	[illegible]
Wed. 10	69.3	46.7	58.0	17	1.27	—	4	3	1	6	6	[illegible]	[illegible]
Thurs. 11	68.6	46.0	57.3	9	0.46	2	4	1	3	4	4	8	4
Friday 12	67.9	45.4	56.6	11	0.49	4	4	1	4	1	4	11	1
Satur. 13	67.3	46.1	56.7	13	0.40	2	3	6	2	2	6	6	[illegible]

The highest temperature during the above period occurred on the 12th 1841—therm. 84 deg; and the lowest on the 7th, 1855—therm. 28 deg.

Notices to Correspondents.

CAMELLIAS: *Sub.*, Cold and imperfect drainage often cause the buds of these to drop off, and even a scarcity of water after they are formed will produce the same effect. Another reason why Camellias drop their buds is leaving too many on the plant. Some varieties produce twice as many as they have strength to expand, the consequence of which is if they are not picked off at any early period they will drop off, and those that remain will often be deformed and small. If, therefore, you want good blooms, you must not permit too many buds to remain on a plant.‡

DECAYED TIMBER: *Templeoque.* It is eaten by some Coleopterous insect, probably an Anobium, or Ptinus Fur.

DISEASES: *A Subscriber.* We must refer you to one or more articles on the Cucumber Disease in this year's *Chronicle*, especially that of our Number for June 28th, page 435. It defies the best cultivation, and occurs under circumstances so very different, that it is extremely difficult to give any rational account of its cause, or even to suggest a probable remedy.—*J Lancaster.* We have examined very carefully your Grapes and blistered stems. In the former there is no trace of a fungus, and their diseased condition is sufficiently accounted for by that of the stems, for not only is the bark unhealthy, but the wood is partially discoloured; so much so, that we should not be surprised to hear from you next year that one side of the stems is dead. It is quite clear from your account of the appearance of the ailment at the two extremities of the house that the cause is local, and it is very probable that you are right in attributing it to unusual heat. The stems of Vines are diseased in a similar way when attacked virulently by *Erineum*, or in the disease called *Rougeau*, and we have lately seen Vine stems, one side of which was perfectly dead while the other was vigorous. *M. J. B.*

INSECTS: *C B.* Your Turnips are attacked by the blacks or nigger caterpillars, which are the larvæ of a yellow-bodied saw-fly, Athalia Centifoliæ. One of the best remedies is to turn a lot of young ducks into the field. They will soon clear the leaves of this pest.—*W B G.* The blotches on your Pear leaves are caused by the slimy grubs of the Pear and Plum, which are the larvæ of a black-winged saw-fly, Sclandria Æthrops. Powder the leaves with lime or syringe them with lime-water.—*J W.* The insects on your Pear leaves are the Psylla Pyri, a species allied to the aphides both in structure and habits. Tobacco water, or a solution of lime, soap, and soot, will destroy the insects.—*Highfield.* Your snake-like animal is the caterpillar of the common Elephant Hawkmoth, Chærocampa Elpenor. *W.*

LILIUM BROWNII: *A Constant Reader.* It appears from the Annales de Gand, where this is to be found, that it was so called by Spae, having been sent to Miellez, of Lille, by Brown, of Slough, under his own name. It was reported to be a Nepalese plant, but appears to be nothing more than the well-known Lilium Japonicum.

PARTERRES FRAMED WITH BOX: *Farnborough.* We have been able at last to redeem our promise by visiting the place. It is after a design by Nesfield, and is worthy of his highly cultivated taste. The parterre was in excellent order, scrupulously neat, and as gay as flowers could make it. We now advise you to adopt the plan, provided you can manage to keep the Box edging in perfect trim. If that is not done, beauty will be exchanged for the reverse.

ROSES: *Sub.* Next week.‡

VINES: *L R L.* If liquid manure is wanted for them make it by putting two double handfuls of guano into a pail of water; stir it a few times in 48 hours; then let it stand till it is clear, when it may be used, one pailful to each Vine. The sediment will be good manure for turning in to the kitchen garden.‡

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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James Samuel, Esq., C.E., 26, Great George Street.
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This Company is formed to promote the cultivation by establishing, or aiding in the establishment of Mills for converting Flax Straw into fibre within cartage distance of the place where Flax is grown, and thus ensuring to the grower a ready sale for his straw.
The great impediment to the cultivation of this crop, the seed of which is so valuable for feeding purposes, has long been the difficulty the grower found in selling his straw. Local Mills would remove this impediment by ensuring a local buyer who would manufacture the straw and sell it as fibre. The existing importation is about 80,000 tons a year, worth at 50*l.* a ton, 4,000,000*l.* There is no reason why this large sum should not circulate at home.
The prospectus of this Company will be published at length in the *Times* of Saturday the 6th of September, and Saturday the 20th of September. All landed proprietors and others desirous of promoting the above objects are invited to communicate with the Secretary. By order of the Board,
ALFRED BEESTON, Secretary.

LAND DRAINAGE.
MR. THOMAS SCOTT, 5, Charing Cross, London, is now prepared to undertake large or small Drainage Contracts, and to complete the same in as short a space of time as may be required. References to gentlemen whose properties he has drained, or is now draining; and also to officers of the Crown

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HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
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The Agricultural Gazette.
SATURDAY, SEPTEMBER 6, 1856.

EVERYTHING connected with so important a plant as Wheat is interesting, and the most trifling observations may lead to investigations of great value. We make no apology, therefore, for calling attention to a curious appearance which is presented this year by some of the Wheat which has been prematurely ripened and not subsequently exposed to wet; at least such is the history of the phenomenon as it has occurred to ourselves. The whole grain, or that portion of it more especially which is near to the embryo, exhibits a pure rosy tint, of different degrees of intensity. On the application of moisture the tint vanishes entirely. Under the microscope the tissues sometimes appear entirely unaltered, while on other occasions there are abundant threads of mycelium. We are inclined, however, to consider these as accidental, and to attribute the appearance to purely chemical causes. The tint is so precisely like that which proteinous matters assume when treated with sugar and sulphuric acid, that we cannot help suspecting that it arises from some chemical action between the starch converted partially into sugar and the sulphates contained in the outer coats, upon the gluten contained in the superficial cells. This is indeed mere conjecture, and we throw it out as nothing more, but at least there is nothing improbable about it. The tint, it should be observed, is not confined to a few scattered grains, but exists in a vast proportion of a sample. It is, however, principally in the leaner grains that it occurs, or in other words in those which have ripened before their time. If any of our readers have any experience of the phenomenon, or any better explanation to offer, we should thankfully receive it. *M. J. B.*

WE must postpone for a week the full publication of the tables containing the agricultural statistics of Scotland, which, thanks to Mr. MAXWELL's energy, and the unanimous acquiescence of Scottish agriculturists in his plans, have been thus early presented to the public. Among the principal facts which they illustrate are the great increase in the extent under Wheat, 260,000 acres being in Wheat this year, while 168,000 only were in Wheat in 1854, and the diminished extent under bare fallow, which is this year only 17,000, while in 1854 and 1855 it was 26,000 and 22,000 acres. It appears that the returns have been given by the tenants without a single instance of refusal, a fact which must ultimately affect the opinions of agriculturists in England as to the tendency of such inquiries and such information.

THE value of the Carob Bean, or rather of the pods containing it, as food for cattle, has occupied the attention lately of several of our correspondents, and we are therefore exceedingly obliged to Dr. VOELCKER, of the Royal Agricultural College, and to Mr. E. T. KENSINGTON, his pupil, for valuable information on this subject. The latter writes to us as follows:—

"Although cargoes of the Carob Bean have been imported from time to time into England, it would appear that only lately have they become generally known as a useful food for cattle. With the exception of an evidently defective analysis published in 1845, by Professor JOHNSON, in the 'Proceedings of the Agricultural Chemistry Association of Scotland,' no analysis of the Carob pods appears to have been published. It was therefore suggested to me by Dr. VOELCKER to ascertain carefully the composition of this article of food. The following are the results obtained:—

	In natural state.	In dry state.
Water	14.22	00.00
Sugar	54.07	63.03
Mucilage (and other digestible respiratory principles)	17.41	20.30
Woody fibre	3.88	4.52
Oil	0.96	1.12
Portein compounds (flesh-forming principles)	7.72	9.00
Insoluble inorganic matters (insoluble ash)	0.62	0.72
Soluble organic matters (soluble ash)	1.12	1.31
	100.00	100.00

"In the foregoing analysis, the large amount of sugar deserves to be especially noticed. It will be seen that in the state in which this food is imported into this country it contains more than half its weight of sugar; in addition to this large amount of sugar it contains about 17 per cent. of other respiratory and fat-producing principles, and about 1 per cent. of ready made fat. For these reasons the Carob Bean appears to be especially well adapted for fattening purposes. The amount of flesh-forming constituents, it will be observed, is comparatively small, and is exceeded in the case of Barley-meal, Oats, and grain in general. This would indicate that it is not so well adapted for young stock or milk cows as more nitrogenous food would be, since such food, according to Mr. HORSFALL's experience, is highly conducive to the abundant secretion of rich milk. The inorganic matters consist principally of alkaline salts, containing a good deal of phosphoric acid.

"The Bean pod contains dark brown and extremely hard seeds, which are rejected by the animals. A direct determination has shown that they constitute about 13½ per cent of the whole weight of the Bean as imported into this country. It is of importance to bear this in mind, for the intrinsic value of this food is considerably lowered by this useless matter. A comparison of the foregoing analysis with the subjoined analysis of Barley-meal would seem to show that there is no saving in using the Locust Bean in preference to Barley-meal:—

Composition of Barley-meal.

Water	14.65
Flesh-forming constituents	10.84
Heat and fat-producing substances	68.31
Woody indigestible fibre	3.45
Inorganic matter (ash)	2.75
	100.00

"It will be seen that Barley-meal and Locust Beans contain about the same quantity of moisture and indigestible fibre, and that taking together the amount of sugar and other respiratory principles, we have 71 per cent. in Locust Beans and 68 per cent. in Barley-meal. The deficiency in these principles, however, is made up by a larger amount of flesh-forming constituents in the case of Barley-meal. On the whole, therefore, we may say that as far as the theoretical composition of the two articles of food is concerned, both possess about equal value." Our correspondent goes on to say that the deduction on account of the hard indigestible seeds in the pods, being about one-eighth of the whole, is equivalent to about 30*s.* per ton, since Locust Beans were bought at Cirencester at the rate of 12*l.* per ton at a time when Barley-meal was about 11*l.* per ton; and he adds the particulars of an experiment at the College Farm, in which the two foods were tried against one another. Two Scotch oxen were supplied with 4 lbs. of pods and 4 lbs. of Barley-meal each per day, and other two of the same breed and condition with 8 lbs. of pods each per day, and at the end of two months no perceptible difference in the condition of the animals was observed. It would thus appear that the 4 lbs. of Barley-meal produced an equal effect with the 4 lbs. of Locust Beans with

which each animal was supplied. Still, however, it is desirable that a more extensive series of practical feeding experiments should be undertaken before we can arrive at trustworthy conclusions. And we are exceedingly obliged, therefore, to Dr. VOELCKER, and our correspondent, his pupil, for giving such information as will no doubt lead to further trial of this food. We must add that the Carob pods can be imported at a much less cost than that at which they seem to have been bought at Cirencester.

SWALLOW HOLES.

[The following is extracted from a report on the drainage of an estate in Yorkshire, written so long ago as 1844, by J. Bailey Denton, Esq. It describes an instance in which the principle on which swallow-holes act in land drainage had been applied. The practice is condemned as lazy and incomplete. The whole report is interesting from its reference at so early a date to what is still one of the coming objects to be arrived at in estate economy—namely the use of drainage water.

REPORT &c.

I HAVE been over the above property in order to advise upon its capability of drainage, and upon any advantage its surface may possess for the collection of the drainage waters to be afterwards used for profitable purposes. I will first state a few facts relating to the geological and physical form of soil and surface, with which my observations have supplied me, and which have very materially induced the conclusion arrived at. The estate comprises 878 acres, 3 roods, 27 perches, and its area is remarkably compact, having only one small property, the workhouse, within its boundary (the figure of which is nearly square). The surface is undulatory, mainly inclining with the dip of the strata from the north-west to the south-east corner, intersected by lateral valleys, whereby much the greater part of the land gives its face to the south. The soil itself offers the several varieties for which the millstone grit is remarkable; the heavy clay alternating on the surface with a shaly rubble, and composing together four-fifths of the estate, while the remaining one-fifth is peat. The farms are divided into unnecessarily small inclosures, averaging in size 5 acres, and the plantations, though for the most part judiciously disposed, occupy a larger space than is consistent with the profit due from the land.

I estimate the quantity of land undrained and requiring under-draining at 350 acres, and that there are about 100 acres beyond that quantity already drained, though imperfectly, by your late father and the tenants. If we take as peat 120 or 130 acres, we shall leave to the lighter land about 300 acres. Then as to fall of surface, I find there is an area of about 320 acres which has an inclination favourable to the concentration of its surface and spring waters, but owing to the frequent and sudden change of soil from the tenacious clay to the porous rubble, I doubt if I can assume any data enabling me to determine how much of that area will absorb the rain that falls upon it, and thereby militate against such a profitable conservation of those waters as I am anxious to propose.

One of the tenants showed me a very apposite illustration of this sudden change of soil, and the spot upon which he brought it to proof happens to be one of the fields through which the main I have projected would pass.

The upper part of Town field, perhaps for two or three chains wide under Town field plantation, was a year or two back wet and quaggy, while the remainder of the field was dry and well fit for the growth of Barley. In order that the tenant might treat and crop the whole alike, he drained the wet land. The drains were cut southward down the land, equidistant, but instead of conducting their water by a receiving drain into the field-side ditch, he caused holes to be dug in the porous soil, into which he collected a quantity of stones and rubble, and then allowed the drains from the wet land to empty themselves into them, so that in heavy rains they overflowed and swamped the growing crop. "Still," he said, "it was not long before the whole had filtered itself into the earth."

[Mr. Denton then goes into details upon the sources of supply, and the direction of carrying channels by which the drainage and spring water of the estate might be conveyed to the best site upon it for a water power mill.]

Thus several small springs at the north-west corner of the estate, which have never been known dry in the driest season, would be made tributary to the main, but it is right I should say that the contour of surface induces me to think that were an effective drainage adopted on the estate, the water of these springs would be considerably curtailed. I could not even estimate the quantity of water each spring would supply, as the water as soon as emitted was partially absorbed to be again discharged at a lower level.

Much water is now retained by the clay lands, to be exhaled by the atmosphere. Much, very much, is absorbed by the sandy shaly subsoil; much is carried away in surface streams, and much remains stagnant in the peat. The water retained by the first would be collected by under draining; a considerable part of that which is received by the second would be intercepted; that carried off by the third by division would be reclaimed, and that stagnating in the last would be gained by open drainage. Doubtless all the water falling on the lands inclining towards the main or its branches, except those which present a porous surface and absorb the rain as it falls, might be concentrated and brought to the point selected; but as these porous patches do alternate with the non-porous, and that too within such small extents, it is essential before we venture upon the extra expense of cutting the main receiver and making the reservoir (beyond the cost of an uniform and effective drainage of all the net lands) that those points should be minutely ascertained.

I am impelled to urge upon you a further examination into the capability of the estate to originate within itself a water power, in consideration of its near locality to Leeds, Bradford, and Otley, the heart of the weaving district; and in consideration of the fact that although distant but seven miles from Leeds, the heavy cost of land carriage brings up the price of coals to 12*s.* per ton.

J. Bailey Denton, Gray's Inn, London, Feb. 16, 1844.

ONE HUNDRED AND NINE TONS, TEN CWT OF MANGEL WURZEL PER ACRE.

The Agricultural Society of Rochelle lately inserted in its Transactions a note in which M. Auguste de Gasparin announced that he had obtained 275,000 kilogrammes per hectare, or upwards of 109 tons of Mangel Wurzel per acre. This account appeared exaggerated to the Central Society of Agriculture of the Seine Inférieure, seeing that the most productive and best cultivated soils had never been known to produce more than at the rate of 48 tons 2 cwt. per acre; and it requested the Society of Rochelle to confirm the above statements. M. de Gasparin was accordingly again consulted respecting his previous assertion. The following is the substance of his reply:—

"I know," said he, "in the first place, that the boasts of the Gascons are somewhat distrusted. Without however taking notice of the difference of the men, there is a difference in the climate, and in the natural fertility of the soil. From (1000 square mètres) 39 perches, 16 yards, or very nearly a quarter of an acre, a space which I usually devote to my experiments, I actually obtained 27 tons, 7¼ cwt.; but to attain this result, eight conditions must be fulfilled.

"1st. The ground must be deeply trenched. 2d. A large quantity of manure must be supplied. 3d. The plants must be 12½ to 13 inches apart, every way. 4th. Irrigation must be resorted to every fortnight when it does not rain. 5th. A hoeing, if possible, must be given after every irrigation. 6th. Plants that commence running to seed must be topped. 7th. The leaves must not be stripped off. 8th. The crop must not be taken up till the end of November, when vegetation has ceased."

He then enters into some details relative to these propositions, which we give in full. "1st. The trenching permits the plant to make greater length of root and consequently the whole attains a much greater size. 2d. My ground, about a quarter of an acre, is manured with 26 cubic yards of good dung, and 220 lbs of Colza cake. 3d. The seed was sown on a hotbed, under glass, on the first of January; I planted with plants as thick as the finger in April, when others sow the seeds. This early sowing is essential to success. The roots had then nine months' growth when I took them up at the end of November; and as they form a concentric circle every 15 days, they had 18 by that period, or six more than the Mangel Wurzel sown at the usual period; and as the last six layers were external to the others, the size of the roots was more than doubled. 4th. The fibrous roots of the Mangel Wurzel do not spread far. It may therefore be planted rather closely; I have remarked, in my seed bed, that plants which came up by the side of each other were, notwithstanding their proximity, as good as the rest. 5th. Irrigation is indispensable with us. Circumstances having prevented me from irrigating in the two last seasons, the produce in them has not reached the figure I have stated to you. Care however must be taken not to give water in excess, otherwise the roots will be apt to become hollow. 6th. Hoeing is necessary after irrigation, for when the water is rapidly dried up by sun and wind, the surface becomes crusted. However in this close and luxuriant crop the ground is soon covered by the foliage, and after the third hoeing it is difficult to give a fourth; but neither sun nor wind can then dry the roots; and doubtless, under the shade of the leaves, combinations of gases are formed which accelerate the vegetation of the plant. Mangel Wurzel plants which are brought forward so early, are apt to run to seed, but by cutting back the stem when it commences to run, the root then grows like the others. 7th. By stripping off the leaves, especially in the dog-days, the growth of the plant is stopped. 8th. Do not take up the roots till November, when vegetation has wholly ceased. In October and November the weight of the roots is doubled if the weather is warm.

"In short, to obtain a result like that in question, a warm climate, abundance of manure, irrigation, early sowing, and a well-stirred soil are necessary.

"If the plants have not 9 months of vegetation; if heat and moisture, these great agents of vegetation, are deficient; if a frequently clouded sky renders the sun's rays less efficacious, doubtless the amount of produce would be different.

"The figure which I attained, and which appeared extraordinary to the Central Society of the Seine Inférieure, is certainly not the ultimatum. On the banks of the Canal de Saint-Gilles, in the soils that yield so prodigious a vintage, a Mangel Wurzel has been grown which weighed 132 lbs. How many of such would be required to weigh 100 tons! and can we not study, and afterwards realise the conditions under which this phenomenon has been produced! There are some persons in England," says M. Auguste de Gasparin, in conclusion, "who will not credit the enormous production of Italian Rye-Grass. The cultivators of Timothy Grass cannot account for this production of 10 tons per acre. But when I see all the care that is given, the showers of liquid manure drainage, and steam coming to the assistance of man, I, for my part, am soon easily convinced of the assertions of the English. They have sought for the plant in the extremity of Italy; they have laid under contribution the energetic nature of the south; they have united it to the active industry of the north. And we too have our part to play; we will search the tropics; we will seize upon those vigorous Grasses whose annual shoots exceed our underwood in height. The Panicums, the Arundos and Echinops will cover our fields, and I shall not be long, I hope, in making some interesting communications upon the subject."

ANSWERS TO AGRICULTURAL QUESTIONS.

BY MR. HENRY COX, OF MINCHINHAMPTON, GLOUCESTERSHIRE.

(*Continued from p.* 588.)

7. Describe as concisely as you can the culture of Sainfoin and Trifolium incarnatum, among forage crops—of the Carrot and Potato among root crops—of the Bean and of the Oat crop.

Sainfoin requires but very little culture, merely to be drilled in on a young Barley or Wheat plant in the month of April, at the rate of 3 bushels per acre. Some people mix a little Trefoil with the seed, in order to cut more forage the following year; but I do not consider it a good practice. Sainfoin is at its best two years after sowing, and what we gain in bulk the first year by the growth of Trefoil, we should lose the second by the weakening of the Sainfoin. But Sainfoin seldom enters into the rotation of adhesive loams; it is best at home on rocky or calcareous soils; it is a very excellent forage plant on the Cotswold hills, and few sheep breeders can afford to be without it. If, however, it is allowed to stay and wear itself out, it is a very long time before the land will again produce it in perfection.—Trifolium incarnatum is an annual plant, and is best sown on firm ground amongst a very clean Wheat stubble in the autumn. In favourable situations it produces an early and excellent forage, but slugs and pigeons are exceedingly fond of it, and sometimes play sad havoc amongst it; 20 to 25 lbs. of seed per acre is sufficient. The Carrot, too, is best at home on a different farm to the one we set out with, its natural soil being a deep rich sandy loam. I should cultivate it much in the same way as recommended above for Mangel Wurzel, with the exception of ridging and farm-yard manure. There is no crop I know of so fond of guano as the Carrot, and I would sow broadcast 4 to 5 cwt. per acre over the land about a month before sowing, and well harrow it in to prevent the escape of ammonia; the seed should be mixed with rather damp sand the first week in April, and drilled about the second week, about 18 or 20 inches apart. Care should be taken not to cover the seed too deep, or it will not vegetate freely. If put in with the Suffolk drill the weight should be taken off and a very light roller passed over after, but it is necessary that the ground should be made pretty firm before drilling. A portion of Radish seed would be well drilled with the seed, as it would indicate the rows earlier and render the first hoeing less tedious.—There is no crop on which there has been more writing and discussion than the Potato, and there is no crop more accommodating and more grateful for good management. Like the Carrot its best home is a rich sandy soil; in it it will luxuriate in all its glory, but it will yield good crops in strong clay, light gravel, or bog earth. If it is to be grown on the two latter descriptions of soil then it may be planted in October or November, that is, if the bog have been rendered quite dry by drainage, but if in the two former descriptions of soil, then March and April is the proper time to plant them. If planted on a large scale the double-mould broad plough may open the drills in the same manner as for receiving the dung. For Swedes or Mangel the sets may be dropped in by women or children, and by splitting the ridges they are covered; they may be hoed with the horse-hoe and earthed up again with the double broad plough, and when ripe may be dug either with the plough or with the three-prong fork. They should be stored in long narrow heaps to prevent them from fermenting, and a good plan is to cover them with the soil without allowing straw between it and the Potatoes. Many people have said, do not cut your Potatoes before planting, but since the disease has been prevalent I have been more particular to cut them than before, and for this reason, that a whole Potato will throw up a greater quantity of stalks than a cut one, consequently there is a denser mass and less chance of the air circulating amongst them to keep them dry and healthy, and likewise there is a greater amount of small tubers struggling for the nutriment the plant is enabled to obtain, and as a matter of course the produce cannot be so fine. I have cultivated them very successfully between rows of Turnips 3 feet apart. The Potatoes are planted in March, and when up horse-hoed and earthed, and the Turnip seed drilled in in June or July. The haulm of the Potatoes dies off about August or September, allowing plenty of time for the Turnip to swell, and affording some excellent keep in the following spring; and if some of the Potatoes chance to go rotten, the roots of the Turnips will devour them with the greatest avidity. I have not deviated much from my recommendation in the Journal of the Royal Agricultural Society at the commencement of the disease—to plant high and dry, and give plenty of room for the air

to circulate about the foliage, and plant such varieties as come early to perfection; by those rules I have not yet failed to secure plenty of sound and wholesome Potatoes. —The Bean is fond of strong adhesive loam, and will even grow well in clay; it is a very deep feeder, and will penetrate a long distance into the soil; and before draining became the rule, that is, when very few pieces were drained, it was very nearly the only plant that would thrive on this description of land; but it thrives much better now that it is drained, picking its food in some cases out of the drain itself, and leaving plenty of little pipes to convey air and water through the once impervious subsoil. Its proper place is between two white straw crops, and many instances could be named where Wheat and Beans have followed each other a great number of years, and the land has even improved under this system. There are few plants which throw off so great an amount of excrement as the Bean. This may be good manure for the succeeding Wheat crop, while it may be poison to Legumes, and likewise the Bean requires very little silica or alkaline salts, and it is very probable that the Bean plant raises more of these salts from the subsoil than it requires, and thus in some degree assists the Wheat plant, which requires to be largely furnished with these ingredients. The only culture it would get under the system of management I should pursue on this farm would be, that as soon after harvest as convenient, the Oat stubbles would get a good scarifying with Coleman's cultivator, or some other of that class of implements, and a harrowing or two; then at the first opportunity I would draw on 12 or 15 cart-loads of manure, and spread equally over the piece, and plough down with one deep furrow; the only other culture it would get would be a harrowing or two before planting, which should take place in February or beginning of March at the rate of about two bushels per acre, either by drills or dibble. I think it a good plan to plant them in double rows, leaving a sufficient space for the horse-hoe to work freely amongst the rows, and by horse and hand-hoeing keep them clean till harvest, when they may be cut and bound with straw bands, and stooked in the same manner as Wheat, and ricked as convenient.—Oats in the Scotch practice are generally cultivated after old "lay" or two or three years seeds, but on the farm we are treating of I think they should come after roots, as I have found Wheat after roots does not fill well, and is more apt to get blighted. A single ploughing after roots, and deposits with the drill in February or March at the rate of 4 bushels per acre, will yield a first-rate crop; it may be either mown or reaped and stooked as Wheat. The Oat plant will thrive in a more humid atmosphere than most other grains, and is not so particular about soils. It is at home on the bog and peat soils of Ireland and Scotland, as well as on the chalk of Wiltshire, and the brash of the Cotswolds in Gloucestershire, and will yield immense crops on the rich alluvial soils of Worcestershire and Hereford.

8. Say what quantity of purchased manure may be reasonably applied during the year upon the farm, enumerating the kinds and stating the application of each.

The purchased manure would be of three kinds. The first of small amount, viz., salt—about 3 tons to the Mangel Wurzel crop. This should be sown broadcast along with the superphosphate of lime or bone earth. I would apply always bone earth with the root crop. As this is a salt that goes to supply the building material of the bones of animals, we are continually losing it from the soil, and this is the only manner in which we can return it with profit and effect. Six tons of superphosphate would cost about 42*l.*, and should be confined to the roots. Guano is highly charged with ammonia, and contains some phosphate. It is best applied to the Clover crop in April, at the rate of about 2 to 3 cwt. per acre, but it should be previously mixed with double its weight of screened soil or clay ashes to fix the volatile principle of the ammonia. Five tons of guano may be reasonably expended on this farm:—

6 tons of superphosphate	£42	0	0
3 tons of salt	3	10	0
5 tons of guano	60	0	0
	£105	10	0

The guano should be applied, if possible, when the glass is falling towards "rain."

9. Give the number and kinds of the several agricultural implements which you will need upon the farm; state the cost of each, and say what implements you would have substituted for any on your list had the soil of your farm been a light sand instead of an adhesive loam.

Common heavy land plough	(5)	£20	0	0
Double mouldboard plough	(1)	5	0	0
Coleman's cultivator	(1)	9	0	0
Scotch carts with harvest frames	(4)	64	0	0
Harrows, 3 sets of 3 each, different weights	(3)	12	0	0
Clod crusher	(1)	13	0	0
Light roller	(1)	8	0	0
Chaffcutter	(1)	10	0	0
Manure and seed drill	(1)	30	0	0
Turnip and Mangel drill	(1)	6	10	0
Horse hoes for ridge and flat	(2)	9	0	0
Dressing machine and sieve	(1)	8	0	0
Turnip slicer and pulper	(2)	7	10	0
Cake crusher	(1)	4	0	0
Bean and Oat crusher		5	5	0
Water cart fitted with pump		9	0	0
Market waggon (or two more carts)		30	0	0
Parkes' steel forks for manuring and digging out Couch, &c.	(10)	3	0	0
3 pairs of weed hooks and spudder		0	6	0
100 sacks at 2*s.* each		10	0	0
6 sieves, at 2*s.* each		0	12	0
2 wooden shovels for barn		0	5	0
2 brooms, ditto		0	0	6
1 bushel measure		0	10	0
Carry forward		£264	18	6
Brought forward		£264	18	6
2 pair buckets and yoke		0	12	0
1 grindstone and frame		1	0	0
Weighing machine		6	0	0
2 wheelbarrows		2	0	0
Churn and other utensils of dairy for manufacturing milk not used for weaning calves ...		10	0	0
Horse rake for hay and Couch		8	10	0
12 hay forks, at 3*s.*		1	16	0
12 small rakes, at 1*s.* 3*d.*		0	15	0
2 ladders		2	0	0
4 shovels for stable, &c, at 2*s.* 6*d.*		0	14	0
6 hoes for Turnips, &c, at 1*s.* 3*d.*		0	10	0
2 spades for hedging, &c.		0	8	0
Vice, carpenter's bench, augurs, axe, hammers, saw, gimblets, sledge, iron bar, gauges, chisels, line, rule, &c.		7	10	0
Hedging bills, short and long		0	6	0
4 racks for young beasts in yards		3	0	0
1 hay knife		0	4	6
4 sets of harness		10	0	0
7 sets thill harness		35	0	0
2 scythes for cutting Clover, &c.		1	0	0
1 flexible tube or probang		0	7	6
Marking iron to mark on hoof of horse		0	2	6
4 ploughmen's poles for marking ridges		0	4	0
2 dung drags		0	4	6
30 chains for cattle		2	5	0
Turnip pecks	(2)	0	3	0
Hand-barrow		0	5	0
Tubs for holding spare whey, mixing pigs' food, for pickling Wheat, &c. &c.		1	0	0
Corn chest		2	0	0
2 stable forks, 3*s.* each		0	6	0
Stable lantern and 2 hand lanterns		0	10	0
4 currycombs and mane combs		0	3	0
Foot pickers, &c.		0	2	6
Greasing box, and chisel, and jack		1	0	0
Sheets for barn, &c.		1	0	0
Sack barrow of wood with top		0	5	6
Screen iron		1	10	0
Rick cloths, poles, and pulleys		15	0	0
Corn drill		30	0	0
Grub hoes, mattock, &c.		0	10	0
2 waggon lines for binding on corn, &c.		1	4	0
8 halters, &c., for tying up horses		0	8	0
Sundries for stable, &c.		1	8	0
		£416	2	6

If the land had been light we should have substituted light land ploughs, and the heavy roller for the clod crusher. We should have to get hurdles and racks for sheep feeding on the ground. I have assumed from the rent of the land that there is already a steam engine and threshing machine on the farm; if not, circumstances should guide us in the outlay; as portable engines and machines are now very numerous for hire, it may be better to hire than expend a large sum in this way. An efficient apparatus of this sort could not be got much under 380*l.* to 400*l.*, which would be a great tax on the farmer's capital.

10. Estimate the expenditure in wages on the farm, and name the ordinary prices per acre of the following operations; (*a*), hoeing Wheat; (*b*), thinning Turnips; (*c*), digging Potatoes; (*d*), mowing Clover; (*e*), reaping Wheat.

Four men with horses, to average say 10*s.* per week	£104	0	0
Herdsman and boy, 15*s.* per week	39	0	0
Woman to attend to calves and dairy	15	0	0
Hoeing and thinning 40 acres roots at 6*s.* per acre ...	12	0	0
Drawing and filling or clumping 40 ditto, at 8*s.* ...	16	0	0
Mowing 40 acres Clover twice over, at 7*s.*	14	0	0
Mowing and making 35 acres meadow hay, at 15*s.* per acre, including thatching	26	5	0
Hoeing 40 acres Beans, at 4*s.*	8	0	0
Ditto 40 acres Wheat, at 4*s.*	8	0	0
Weeding 40 acres Oats, at 2*s.*	4	0	0
Digging 3 acres Potatoes and storing ditto, at 25*s.* ..	3	15	0
Filling and spreading manure on 40 acres Beans, at 3*s.*	6	0	0
Ditto on 40 acres root crops, at 3*s.*	6	0	0
Cutting, stooking, pitching, stacking, &c., 40 acres Beans, at 12*s.*	24	0	0
Ditto 80 acres Wheat, at 12*s.*	48	0	0
Ditto 40 acres Oats, if mown, at 9*s.*	18	0	0
One man as overseer at 2*s.* 6*d.* per day. He should be a very handy man and know how to fix or mend a gate or hurdle, make a rack or ladder, or mend a cart, keep the hedges in repair, &c.	39	0	0
An odd man, whose duty would be to keep the roads in repair, mix artificial manures, screen ashes and soil, and assist the overseer in his plot of experimental ground, place and thatch roots	26	0	0
One woman to clear stones, &c.	15	0	0
One strong lad to scare away the rooks, to go on errands, and make himself generally useful	15	0	0
Mowing 20 acres Rye and Vetches once over, at 3*s.* 6*d.*	3	10	0
Strong lad to look after saddle-horse, garden, &c. ...	30	0	0
Extra labour to assist in threshing corn, &c.	10	0	0
	£490	10	0

(*a*), 3*s.* to 5*s.*; (*b*), 2*s.* 6*d.* to 3*s.* 6*d.*; (*c*), 21*s.* to 28*s.*; (*d*), 2*s.* 6*d.* on light land to 4*s.* on strong land. Some of the farmers on the Cotswold Hills pay from 1*s.* 6*d.* to 1*s.* 8*d.*, and give about 3 quarts of table beer per acre besides for mowing their crops of mixed Rye-grass and Clover, but here a man can cut with ease about 2 acres per day. (*e*), from 7*s.* per acre, where the crop is light; on light lands to 11*s.* or 12*s.* In the rich alluvial soils I heard of one instance last year that the farmer offered to give 15*s.* per acre and the men refused, but here the crop was after roots, and the straw nearly all laid down in an exceedingly bad and twisted condition.

(*To be continued.*)

HOME FARM MANAGEMENT.—No. X.

It is obvious, from what has been stated in these letters, that there are so many theoretical principles involved in the conducting and successful carrying out of practical farming that it is necessary the managers of home farms should be thoroughly qualified for their duties, and unite as far as possible in themselves "practice with science" in its various forms. Example farms are more likely now than at any previous period to exercise a stimulating influence on the general farming practices of the country, and if they are to be exemplary they should be managed on the first principles of the art. But apart altogether from the example set by judicious home farm management, there is good reason for alleging that they might be made remunerative if only properly taken care of. The successful care and treatment of root crops is necessarily connected in a very intimate way with successful farm management altogether, and here I shall notice the way in which these should be managed on a home farm so as to secure this end. The rotation—whatever it may be—is usually begun by either a naked fallow or a green crop break. In respect to summer fallowing, it may only be said that except on undrained, bibulous, foul clays it should never be heard of on a home farm, and if these defects in the soil render it necessary to prefer a bare fallow to Beans or Turnips in cleansing it, the sooner it is thoroughly drained and permanently improved the better will it be for both the landlord's and the tenant's profit account. In preparing the soil for the various species of green crops there are certain modes of culture equally suitable for them all, and it may be well, therefore, to treat of the working of the land for these purposes by itself before going further.

The first preparatory operation for the cleansing crop of any year should be undertaken immediately after the harvest of the previous season. On light soils this first work may consist of a thorough grubbing of the stubble land, first up and down, and then across the ridges (stitches or breaks). By using the broad share or grubber drawn by two horses abreast, the soil may be quite easily loosened to the depth of 8 or 10 inches. But on rather strong soils there is no implement in the present state of our agricultural mechanism equal to the deep-soil swing plough. The way in which the work should be done by it may be described as follows. As soon as the throng of harvest is a little past—or even before the crop is removed from the field if other circumstances are favourable—and while the ground is yet comparatively dry, this plough drawn by three horses yoked abreast, either with equalising draught bars or with a bar having a long and a short end connected with the common swingle-trees, should be set in motion. In most cases it is of advantage to plough across the ridges, and if the horses are powerful enough, and are equally matched, a depth of from 10 to 12 inches may easily be attained. A plough team of this kind is not only steadier and much stronger than one yoked with three horses in any other way, but the ploughman is quite able to manage it without a driver. Of course a strong wide wrested plough is indispensable to the proper performance of the work, and the plough irons should be so prepared as to ensure the complete inversion of the furrow if the ploughman will only do his part aright. Unless this deep ploughing is given when the soil is tolerably dry it will not be productive of all the advantages which in reality belong to it in many instances. When clayey ground happens to be in this favourable state, such deep culture opens it up and effectually prevents it from again becoming consolidated for many years thereafter. It also leaves the land in the best possible state to be acted on by frost and atmospheric air, and though an inch or more of clay is brought to the surface, no evil, but great good, will result from its being intermixed with the old soil. Much of the success of green cropping depends on deep preparatory cultivation, for every inch added to the depth of the stirred soil must immensely increase its inorganic resources, and of consequence its fertility also. After strong land has been once wrought by a soil plough, and it is thought desirable that a still greater depth should be attained, the use of Cotgreave's plough drawn by four horses will effect this end in a satisfactory manner.

I have now described the best mode of working the soil in the autumn previous to the season in which root crops are to be grown. And the next preparatory operation which calls for a passing notice is that of spring pulverisation—a work very easily accomplished on sharp light soils, but a most difficult undertaking on refractory clays. If the land is friable in its nature, a turn or two of a grubber and a pair of rank harrows bring it almost at once to a suitable tilth. On such land as this a home farm manager requires very little skill in carrying out the cultivating processes, but on strong clays the case is very different indeed. Even assuming that heavy land is thoroughly drained, there is still so much watchful skill and prudent promptitude necessary to get it wrought just at the right time that the farmer's task is by no means an easy one. If in his determination to push forward the field labour he acts rashly and imprudently the chances are that in working the soil in a wet, or a very partially dried state, he is taking most effective measures to sour and toughen it for many years to come. One half of the skill of the clay land farmer is required to keep him from committing blunders like this. Should he be wholly unable to exercise patience and wait till the sun and wind have dried the ground sufficiently to permit of its being properly worked, then he ought at once to look for some other farm which will be more easily managed. I am well aware that the stewards of heavy land farms which happen to be in the proprietor's occupation are likely in many cases to be misunderstood by their employers, when they exercise caution in the way I have indicated. Because Lord Mingary's farm bailiff is working his Potato or Turnip land on a certain day, therefore Mr. Springleethie's bailiff may on the same day be doing likewise. But if the one farm is a light loam and the other a dense bibulous clay, any skilful farmer knows that they cannot both be ready for spring culture at the same time. Yet Mr. Springleethie may

be very severe on his manager for putting off time, as he imagines, in waiting till the ground is tolerably well dried. Now, while too much cannot be said against the thoughtless sluggishness which will permit an hour—not to say a day—to pass by unimproved when the soil is in a suitable state to be wrought, it is a very great mistake to compel a steward to push forward the pulverising work before the proper time. In patiently waiting till a clay soil is sufficiently dried to be effectually reduced to a tilth, means are really being taken to ensure its pulverisation in the easiest way and on the most satisfactory basis. Though the farm horses should be standing half the day idle, it is better to submit to this evil than to have them doing work only calculated to increase the after labour connected with the management of the soil. A judicious farm manager will take care that the work is not begun till the right time, but he will also do everything in his power to press it forward when once it can be done in a satisfactory manner. I need scarcely notice the fact that the refractoriness of strong soils is greatly increased by their being ploughed during the winter in a wet state, and in that season as well as in the spring months great care is necessary in selecting the time when they are to be tilled. The prudent farmer will certainly do as little as possible to strong clays when they are wet, and the necessity for this caution just makes it the more imperative that he should, as far as may be practicable, push forward at least the preparatory operations for a green crop as soon as possible after the harvest of the previous year. *J. Lockhart Morton, Mid-Lothian.*

Home Correspondence.

Locusts.—In an article in your *Gazette* lately you invite information on the subject of this species of food. I will give you such as I at present have. It was recommended to me about two months since as a cheap and, in consequence of its highly saccharine character, a desirable food for fattening sheep. I purchased half a ton at the price of 8*l.* per ton, and I have now for about a month given it to fattening sheep, some of which I have killed for my own table. The quantity which I give is half a pint a day to each sheep; this costs for each about one farthing. Although a little shy of it at first, the sheep now eat it greedily, and thrive abundantly. Those that I have killed have been unusually fat; they have nothing but this food and the aftermath pasture of a rather poor sandy park. I have not yet been able to persuade horses to take to it. Pigs devour it voraciously. Considerable quantities were, I understand, produced at the Exhibition at Paris from Catalonia; the reputed price was 2*l.* a ton in the country. It is no doubt easily procureable in the Mediterranean, and is I believe a very valuable article of food, and will well repay the importer if sold at a price far below the present price of 8*l.* a ton. In Phillips's "Pomarium Britannicum," 3d ed. (1823), the Locust tree, of which this food is the pod, is described as a large spreading tree, in shape resembling the Beech, the flowers of which are produced in loose spikes at the end of branches, and are succeeded by thick fleshy brown pods, shaped like those of the garden Bean, about 6 inches long and 2½ broad. I enclose you one of these to show the accuracy of the above description. *W. G. H., Berkshire.*

Late Peas, Scarlet Runners, and Kidney Beans.—If only a single pod of Peas or Beans is allowed to ripen or grow old, whether casually or purposely on each plant, it prevents any more pods being formed worth the plants standing for. Every one pod therefore attaining age, whether required for the home table or not, should be carefully gathered, and either sold at a cheap rate or given away. The plants being thus deprived of their first fruits will the same hour make an effort to produce more young and fit for table, like a swarm of bees when deprived of their honey, instinct teaching them to replenish a fresh store. If in dry weather a drenching with the watering pot (avoiding the leaves or stem being wetted) is resorted to, the effects will be observed the very next day. Thus if care is persisted in, not tearing the straw or leaves or tendrils, by gathering the young pods, in most instance five or ten times the quantity young and fit for table may be procured. *Hardy & Sons, Seed Growers, Maldon, Essex.*

Blight.—Since the blight attacked the Potato tops a month ago, we have had very little rain here in Essex, and up to this date, August 26, the tubers though small are quite sound and free from disease. The corn hereabout is very much blighted; but it has been secured as yet without any harm from wet, but we may say it has been benefited thereby, the fearful storms of late having passed by or around this neighbourhood. Seeds of many kinds have also sadly partaken of the prevailing blight, amongst which are especially the Brassicas and Lettuces. Fruit is represented as better than in other parts, although it can only be fairly spoken of as very deficient. *Hardy & Son, Seed Growers, Maldon, Essex.*

Teetotalism in the Harvest Field.—Will you permit an old surgeon, who has practised in a rural district for many years, and has had great opportunity of observation among agriculturists and their labourers, having studied their habits and administered to their wants both in health and disease, to say a few words on the practice of giving stimulating drinks to labourers in haymaking and harvest. The drinks usually given to them in England are beer or cider. With respect to the last it can only be for its stimulating properties from the alcohol it contains, or as a refreshing acescent drink, or both combined; for every one will acknowledge that as to the nourishment it contains—that is almost *nil*; and from the former properties I have often seen it produce very serious symptoms. As to beer too, the very small portion of gluten still undecomposed must be I think the only nutriment contained in it, and if so a mouthful of good bread will contain more nourishment than a quart of strong ale: and I conclude, therefore, that this also is taken mainly for its stimulating qualities, just as gin or whiskey are taken, to give a temporary lift to the animal spirits, to be followed by a rapid depression. All these stimulants, however, do not act in the same manner; some, as Champagne, &c., produce their effects rapidly, and these as rapidly go off—being shorter in their stage of excitement they leave less debility as their consequence; while others (and beer may be classed among these) are slower in exerting their influence, which, as well as the state of depression consequent upon it, is kept up longer unless the state of excitement is again produced and continued from day to day. At length pay-day comes, and a thorough debauch at harvest home finishes what the daily excitement has been gradually paving the way for. Hear what our great chemist Liebig says, who was not altogether an advocate for total abstinence. In his Letters on Chemistry, p. 455, when speaking of the spirit drinker, he says: "Spirits by their action on the nerves enable him to make up the deficient power at the expense of his body, to consume to-day that quantity which ought naturally to have been employed a day later. He draws, so to speak, a bill on his health, which must be always renewed, because for want of means he cannot take it up; he consumes his capital instead of his interest; and the result is the inevitable bankruptcy of his body." Exactly the same results follow the stimulation and exhaustion of the system by beer or cider. The common idea after drinking stimulating liquors is, "I am stronger now than I was before; I can work much better:" but let us examine whether there is really a healthy increase of strength, or if the idea contains an error. See that horse dragging his load slowly up the hill; he wants more strength; the driver's whip affords it—the vigorous strokes reanimate the dumb brute, and now he pulls harder, the load moves quicker; a little more whipping and more hard tugging and the victory is obtained; the cart has reached the top of the hill and a free breathing time has come. Well, is the horse the stronger for it? Will he do his work better to-morrow? Have you not been drawing a bill on his health? If so, remember Liebig's result. Thus also does the slave driver increase the strength of his human animals, by the whip. Now, what the whip is to the poor horse and nigger your ale and your cider are to your harvestmen; their energy is increased temporarily by robbing them of future strength, with this difference, that in the latter case the stimulus is made to please, not to sting; and this difference, paradoxical as it may appear, is all to the disadvantage of our husbandmen. Neither the horse nor the slave desires a repetition of the stimulus; fear alone being the motive for extra exertion, they will therefore do all in their power to avoid the painful process; but the drink is felt to be a pleasure, the repetition of it is eagerly sought, and if denied the labourer becomes dull and ill-tempered; if granted, he runs a great risk of becoming a confirmed drunkard. My only design at present is to show as shortly as possible that a man working out of doors, and thus enjoying the healthy stimulus of fresh air, and having thereby a good appetite for plain nourishing food, will be stronger without stimulating drinks than with them. I have purposely avoided any discussion of the immense train of evils dependent on drunkennes, though another aspect of the subject is intimately connected with agricultural interests, viz., the increased rates caused by the effects of drunkenness. What, then, can you do to strengthen your labourers? I answer—give them plenty of nourishing food; to use the words of an excellent reviewer: "The substitution of solid aliment, containing the materials of muscular tissue, for a liquid which contains but little of these, and whose principal constituent is a heat-producing substance (never less wanted than when laborious exertion is being made under the summer sun), is attended with the very result which the physiologist would predict, namely, an increase in the amount of muscular substance, and consequently in muscular vigour." *M. R. C. S.*

Reaping Machines.—Your article lately upon the expediency of using reapers for cutting corn being so much to the point, and having used them rather extensively for three years past, allow me through your columns to give some practical results. Although the judges at Boxted could not see any improvement in them, I see them with a widely different eye—there *is* improvement. You admit the necessity of extra labour; there we all agree. To come to the point: I had a large harvest to let; I let it in my usual way to a company, trusting to a few contingencies which alas! never came, but an unexpected friend arrived in the shape of a reaper which I had previously ordered, but knowing the extensive number required by Messrs. Burgess & Key, I began to despair of my dumb friend; but better late than never, at length it did come. Left Brentwood on Monday, August 4; a new one had to be to put together, which was done; set to work just at 12 o'clock in a 13-acre field large measure. By 9 o'clock, "military time," there was just one acre left uncut, the work perfectly satisfactory. Women and boys with two Irishmen tied it, and I carted it in splendid order on the 15th and 16th without a drop of rain. I could not have done it without a reaper; it would have been this moment in the field, and added to this the field is ploughed. Again, two pieces of Wheat, one north and one south, have fallen under the same destructive process. Again, a piece of Oats, averaging 6 feet in height, I thought must be its master; the machine set to work, 8 acres down in as many hours, and just now while writing, carting them in beautiful order; paid women 4*s.* per acre to tie them, 15*s.* would have been demanded of me per acre to cut besides beer. The same machine is now in Scotland, I have no doubt you will soon hear of its fame. I am not afraid of wearying you upon this important implement. Messrs. Burgess & Key sent a one horse-power to my farm at Stanford-le-Hope, "narrow cut." My bailiff had already let his corn to a company; but regardless of that he sacrificed their labour, set the machine to work, cut down half their Wheat, and the time which would have been taken up in cutting was most judiciously made use of in carting. Upwards of 60 acres of Wheat was secured in first-rate condition without a drop of rain, being the whole of the Wheat grown on a farm of 211 acres. Let practical men put to figures 60 acres of Wheat got up in this manner and 60 acres blundered up, as I have seen much round me the last few days—the labourers being gainers at the same time, likewise the public. These few remarks convey their own lesson—those that run may read; all the scouring paper in the world will never rub out prejudice, nor all man's reasoning root it up, but no one be bold enough to fight against truth. Reapers will supersede like steam brute physical strength, and rejoiced shall I be to see it, for the working man's sake, made often by intemperance in the harvest field, through a series of years, at 50 years of age what he should be at 70. I will just add one remark from a labourer of mine of 23 years' standing, a giant in strength, "I never saw work done like this." I could echo this man's sentiment, as I do your leading article; I never saw such work, so quick, so clean, so true. I could add much more, but a word to the wise is sufficient. *William Eve, Manor Farm, North Ackerdon, Romford, Essex, August 27.*

Questions on Farming.—Having seen a copy of the Questions put by the Society of Arts in your Gazette lying on the table of the Mechanics Institution here, I have taken a mind to send up my ideas on the theory of agriculture, but being only a factory operative, I cannot say much about the practice. 1. The causes of the increased fertility of land just drained may be gathered from the following. The surplus water is taken away which injured the land before its removal, 1st, by cooling it by evaporation; 2d, by preventing the free access of air to the soil; and 3d, by holding the soil in an unfit state for working.—2. By fallow operations, 1st, injurious weeds are destroyed; 2d, the land is rendered lighter to work; 3d, the air by this means gets access to the soil and decomposes it, setting at liberty its mineral constituents for the use of the crop; and 4th, if the crop is growing at the time of the operation the air is admitted to the roots of the crop, which probably benefits the crop, in one way supplying it with a larger amount of ammonia.—3. A dung-heap should be kept under cover, as the rain falling on the heap would wash some of the soluble parts away, (yet stable manure should not be kept too dry, as it is subject when so to dry rot); and soil, clay burnt or unburnt (but generally better when burnt), or some other substance having an affinity for ammonia should be mixed with the manure heap, in order to prevent the escape of ammonia.—4. Lime is a fertiliser, 1st, by supplying some amount of nourishment to the crop; and 2d, by decomposing (when applied in a caustic state) the vegetable matter of the soil, thereby rendering it fit for food for the crop, and when the vegetable matter is in excess, reducing that excess.—5. As to the manures specified I know very little about the price of manures, but having seen advertisements of superphosphate of lime, from 7*l.* to 12*l.* per ton, and as this seems to be a manure of that description, though not one of the best, I might guess near the higher price, but this is only guess.—6. The increased efficiency of bones by solution in acid is explained thus:—1st, the phosphate of lime is rendered easier of assimilation to the crop; and 2d, the crop being thus assisted in its early growth, it forms leaves and roots quicker, which give the crop greater power of assimilating food from the air and soil.—7. The greater value of the manure from full-grown animals appears from the following:—Young animals retain a larger portion of the phosphate of lime which is in their food than full-grown animals do, hence their excrements are not so valuable for manure, and besides, their food is often poorer, hence likewise their excrements. 8. When cattle are kept warm, less of their food is required for combustion to support the heat of the body; and 2d, being kept quiet they will waste less muscular tissue. 9. [The coagulation of milk is not explained correctly.] *R. T. Redmayne, Warper, Duke Street Mill, Blackburn.*

Employment of Soldiers in Harvest Work.—I agree entirely in the principle of "turning swords into ploughshares, and spears into pruning hooks," so far at least as the emergencies of the case call for such a transmutation, and I really can conceive no emergency more urgent than that of a fickle harvest, heavy crops, and a scarcity of hands to do the work of harvest, whilst, as you justly observe, those who could help are suffered to look idly on. What danger can arise from "Government interference in the labour market," by allowing a certain number of soldiers to turn harvestmen is a problem I am content to leave the political

economists to solve. But a case just now occurs to me, which though not exactly in point, is quite enough so to establish the principle that the military may occasionally be employed in farm work, not only without detriment to the service but with advantage both to the community and to the men themselves. When many years ago I assisted in the management of the late Mr. Roscoe's farms near Liverpool, there chanced to be a regiment of Suffolk militia quartered in the town. It so happened that Mr. Roscoe and the colonel occasionally met, and their conversation was not unfrequently directed to farming subjects; amongst others that of hoeing Turnips, a matter in which, to say truth, the labourers of that district were then lamentably deficient. Aware of this, the colonel very kindly and considerately offered us any required number of his men to assist in the work, an offer of which we gladly availed ourselves. The redcoats soon found themselves at home. They gave us a good crop of Turnips, with some advantage to the men, who if they did not show the natives "how fields were won," showed them (vastly more to our purpose) "how fields were hoed." Where was the interference with labour in this case? And is not the harvest a far more important object than Turnip hoeing? Agreeing generally in what you have said on the subject, there is one point on which I may be allowed to differ. I do not for a moment question the superiority of reaping machines over manual labour as to expedition. Thousands of acres may be got down by them for scores by the sickle and reap-hook; but unfortunately getting down is not getting up. Of the immense breadth of Wheat cut this year on the early lands, how small a proportion was secured when the rain set in, compared with what there might and ought to have been. I have no doubt that there was a scarcity of hands, that the farmers wanted soldiers, but would it not have been better policy to have made sure of what was fit than to spend time and labour in increasing the quantity already down, adding so much to the risk in case of bad weather? Mind, I have nothing to say against reaping-machines, only that of themselves they are powerless, nay worse than powerless, as a security against bad weather. They will cut down an immense space in a little time, but unless the quantity so cut is harvested in as little a time, which of course implies a proportionate increase of manual labour, of what advantage is their boasted expedition? I am glad to see the subject of Locusts as cattle food attracting the public attention. The hard stone-like seeds mentioned by Mr. Easton are certainly an objection, as tending to injure the teeth of the animals eating the pods, but if desirable in other respects, especially as to price, I have considerable faith in the ingenuity of our agricultural machinists to devise ways and means of overcoming greater difficulties than this. *S. Taylor, Gloucester, Aug. 25.*

Boydell's Steam Locomotive.—Both "G. P. S." and "R. S. N." in a late Paper fall into the same error of taking movements round the axle as the fulcrum instead of the bottom of the wheel when it rests on the ground; such being the fact, all their reasonings fall to the ground as fallacious. Again, I was hardly prepared to find that any of your readers did not know that the velocity of the top of the wheel was double that of the bottom. [The bottom of a wheel rolling along the ground is stationary.] Lastly, there is nothing new in the proposition that a force applied to the top of the wheel will balance double that force applied at the axle. The new proposition to which I referred is the saving of space which the motor force gains by translation when thus applied to the top of the wheel. *W. B.*

Circular Tillage.—Some people once started off in quest of the philosopher's stone: they did not find that, but in the search they stumbled upon certain pebbles, which laid the foundation for sciences most useful to mankind. Others went off in search of the "Elixir Vitæ;" they did not find that, but they advanced the science of medicine, which has served to alleviate the pains and pangs of suffering humanity. Others went after perpetual motion; however they did not discover what they were immediately in search of, but they greatly advanced the knowledge of mechanics. Somewhat like the above cases will this problem of steam-cultivation prove. It will disappoint expectation, for it will surpass it. It will be found that instead of steam doing the work for man, it will enable man to do the work. Some years ago I started in search of steam tillage; my expectation (like that of most other persons) was this: I shall find out some plan whereby we can till land without men or horses, and thus remove an apparently heavy tax upon bread production. After long investigation, it now remains for me to lay before the readers of the *Agricultural Gazette* what I have discovered. At first, acting on the principle that small mouthfuls lead to an easier digestion, I will embody the results of my agricultural or field investigation in the form of propositions, with the distinct understanding that these doctrines will be exemplified in a steam-driven tillage machine. 1. That tillage is one of the means of field-practice, and that, therefore, it is life production. 2. That on this account the farmer's field practice differs from all other business arts in existence. 3. That there is no analogy between the dead material manufacture in the homestead and the live material in the field. 4. Hence it follows that that course of proceeding which is right in the homestead may be wrong in the field. 5. That our present field practice is founded in a mistake, based on an original error of judgment, and that this error is and has been perpetuated through a misconception of the real object to be aimed at in tillage. 6. That the error in principle arises from the fact that field-practice is the art of manufacturing live objects, which demand more of "attention" than of any other agency—that this element "attention" is not now provided for—the means for tillage practice being solely studied, the end of field-practice wholly disregarded. 7. That in the homestead machinery is a benefit. 8. That in the field machinery is an evil, or an alloy only to be tolerated because it can never be wholly dispensed with. Here the real question is—whether we can by steam-power so assist man as to render him equal to two months' hard labour in the field; so that at the end of that time we may possess him in full force to fill his true office as affording care and attention to the nurture of that plant which to him and us is the staff of life? *C. Burcham, London.*

Calendar of Operations.

SEPTEMBER.

FARM NEAR HEXHAM, *Aug. 29.*—Previous to the 8th instant we had a fortnight of very warm sunny weather, during which the crops made rapid progress. On the 8th and 9th heavy rains fell which laid the crops very much, and from that time until now the weather has, with little change, been cold, cloudy, and wet, and little progress has been made with harvest work. To-day the weather has cleared up, and with a continuance of sunshine harvest will be quite general in this valley next week; on the higher grounds the crop is still very far back. So far as we have gone our crops cut up better than we expected, and are not as yet very much damaged, but much will depend on the weather of September. Turnips have improved greatly, and now look like being a good crop on Turnip soils. Hay was never secured in better condition. In the Potato crop there are some cases of disease in the district; but it is by no means general, and the crop is good. Stock is doing well.

WESTER ROSS, *Sept. 2.*—The crops have made very slow progress for some weeks. The weather has been cold and showery, and the sun's countenance has been pretty much a stranger to us. Our Wheat is much laid, and laid in all directions. The wind has been blowing from all points of the compass, and showers have been falling abundantly; and so twirled are some of our heavier fields of Wheat that an on-looker would be apt to suppose that they had been stooked. And besides the colour is anything but that golden colour which we so much like to see. Not only have those fields that are laid got this dark, leaden colour, but those also that are yet erect have got much of the same unpromising appearance. A few pieces of early Oats have been cut, but at the present step general harvest will not be reached for some 10 days. Oats are not so heavy as Wheat, but will, I doubt not, yield a good return of superior grain. The quantity of Oats this year grown will not be sufficient to meet the requirements of the district. Barley is also a superior crop, but will be very scarce from the small breadth sown. Turnips have been thriving wonderfully; indeed the progress has been such that we question whether, at this season, they ever looked better. So close are they already in many fields that it would be difficult to tell in which direction the drills run. There is a brisk demand for Turnips, at fully previous prices, for wintering of hoggs. A field of good Turnips will fetch from 5*l.* to 7*l.* per acre for this purpose. The Potato disease has been at work for some weeks, and the fields are gradually blackening. Even if the disease should not have visited us this season the yield would have been under an average; but as it is, their growth is prematurely stopped, and few of them will reach the size of marketable Potatoes. Harvest people are by no means scarce in this quarter, although wages are gradually looking up. A few days ago, a farmer intimated that he wanted hands to cut down a few acres of Oats, and, on the morning appointed a band of nearly 100 appeared and offered their services, and speedily the whole was into the stook.

WEST SUSSEX, *Sept. 3.*—Since our last report we have got through the most important season of the year, amidst many hopes and fears. Before the rain came there was not much Wheat secured, and perhaps rather more than half of it was cut, and as there were a good many of the shocks blown down and got more wet than if standing, some few sheaves soon began to sprout, but still there is not so much of this as to do much harm; we should hardly think enough to make it perceptible in the bread, as most of the sprouted corns blow away in the dressing. There is not much difference between what was cut and what was not, as much of the latter was laid previously, and of course was more or less sprouted. But by dressing a little harder we shall get a good quantity of fair quality. Barley has suffered most, especially that which was cut before the rain: it is altogether unfit for the maltster, and what was not cut is very much damaged, so that we shall have the quality very various, and Barley fit for malting dear, while for feeding purposes it will be in good supply; and the consequence may be that fat pigs will command less money. As the Oat crop does not grow so rapidly there is not much harm done to it; the chief loss is by shaking out, as they have had to be turned so often, and the rain made them tender. The Potato disease, which seemed for several weeks to be confined to the tops, now shows itself in the roots to a great extent; but even with a few bad ones there is the prospect of a fair crop, so that altogether if the quality is not all that we could wish, the quantity is well up to the mark. And now we have fine weather and the barometer very high, so that harvest will be finished this week and in the best order, and there will be no want of dry corn for the millers. The rains have done good to the Turnip crops where they had not altogether failed, and perhaps at no former time has artificial manure recommended itself more, for where it is good and liberally used there is seldom much fear of a crop: some have spent extra labour this year enough to have supplied them with abundance of it, and they would have now had the satisfaction of looking at a good crop instead of naked fields. Our work will now be getting Rye, Vetches, and Trifolium sown on the Wheat stubbles. I have always preferred ploughing for Trifolium, more for the sake of being better prepared for the succeeding crop of Turnips; but as it does not do nearly so well as when harrowed in upon the Wheat stubble we must give up ploughing. *G. S.*

Notices to Correspondents.

NORTH LANCASHIRE SOCIETY: *F R S.* We must refer to the columns of our Newspaper for a report of the speech of Lord Stanley. Some of the points to which his lordship referred have often been and will again be discussed in the *Agricultural Gazette.*

SALE OF SHORT-HORNS: *Correspondent.* The principal feature in Mr. Sainsbury's sale last week was the disposal of two bulls of the "Duchess" blood, the 4th Duke of Oxford and the 2d Duke of Cambridge. A 3-year-old heifer "Darlington 6," sold to Mr. Thorne of New York for 300 guineas—the bulls selling for 230 guineas and 120 guineas.

TURNIP FLY: *A G.* It is now a somewhat unseasonable subject, but we may mention the main points on which the correspondent of the "Journal of the Society of Arts" depends are—thick seeding and sowing common Turnip along with the Swedes, the former being preferred by the fly.

ERRATUM. The words "Turnip seeds in *America*," in the notice of seeds, August 30, by Messrs. Hardy, should be read—"Turnip seeds in AUSTRALIA," &c.

AQUARIA.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

AQUARIA, WITH EBONY STANDS,

12 inches diameter	Each 5s.	17 inches diameter	Each 12s.
13 "	6	18 "	13
14 "	8	19 "	14
15 "	9	20 "	15
16 "	10		

COMMON SHAPE DITTO.

12 inches diameter, each	4s. 6d.	17 inches diameter, each	8s. 0d.
13 "	5 0	18 "	10 0
14 "	5 6	19 "	11 6
15 "	6 6	20 "	12 6
16 "	7 0	Syphons, 2s. 6d. each.	

TANK DITTO, GLAZED WITH PLATE GLASS.

Height.	Length.	Width.	£ s. d.	Height.	Length.	Width.	£ s. d.
18 in.	36 in.	16 in.	4 15 0	15 in.	24 in.	13 in.	2 10 0
16 in.	28 in.	16 in.	3 12 0	14 in.	20 in.	11 in.	2 0 0
15 in.	26 in.	12 in.	2 10 0	12 in.	18 in.	10 in.	1 8 0

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	3s. 0d.	12 inch diameter, each...	8s. 0d.
7 " " " ...	3 6	13 " " " ...	10 0
8 " " " ...	4 0	14 " " " ...	12 6
9 " " " ...	5 0	15 " " " ...	17 0
10 " " " ...	6 0	16 " " " ...	22 0
11 " " " ...	7 0		

Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21s. per dozen; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every Article in the Trade.

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116, Bishopsgate Street Without, London.

PRACTICAL INSTRUCTIONS ON THE MANAGEMENT AND STOCKING OF THE AQUARIA, with every information. By SHIRLEY HIBBERD. Price 1s.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under	6 by 4	at 1½d.	is	£0 12 6
From 6 by 4	"	7 " 5	" 2d.	"	0 16 8
7 " 5	"	8 " 6	" 2¼d.	"	0 18 9
8 " 6	"	10 " 8	" 2½d.	"	1 0 10
10 " 8	"	12 " 9	" 2¾d.	"	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3½d. to 5d. " " "
26 oz. " 3½d. to 7½d. " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

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BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Common Iron Bedsteads, from 16s.; Portable Folding Bedsteads, from 12s. 6d.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17s.; and Cots from 20s. each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2l. 7s. 6d. to 15l. 15s.

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 17 0
Paillasse, wool mattress, bolster, and pillow ...	1 13 0
A pair of cotton sheets, three blankets, and a coloured counterpane	1 5 0
	£4 19 0
A double Bedstead, same	£6 15 9
If without Half-tester and Furniture—	
Single bed, complete	£3 13 9
Double bed, complete	£5 5 9

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The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding and Bed-hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

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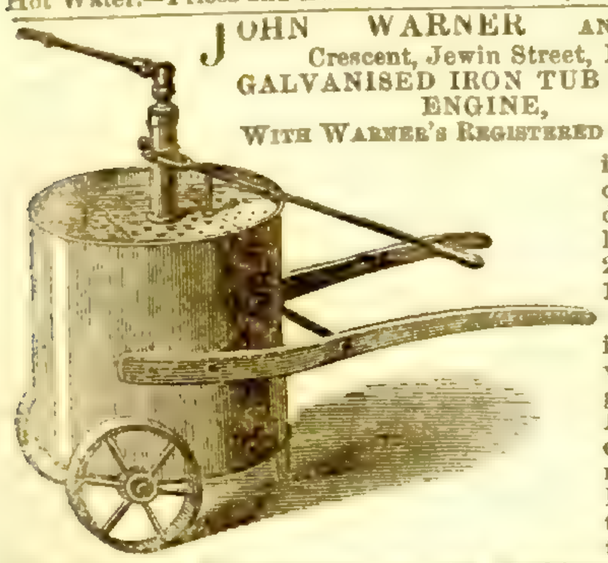
C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

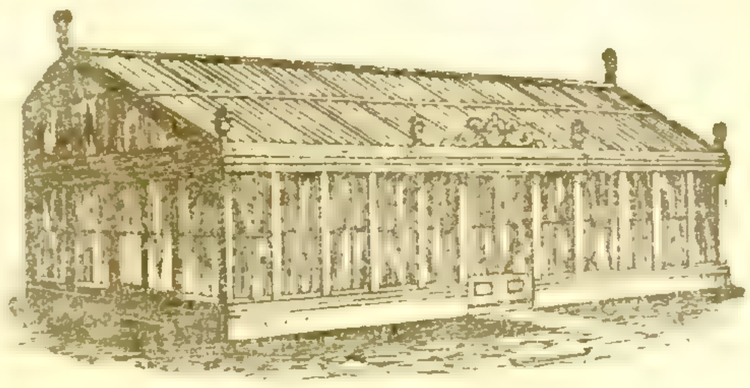
JOHN WARNER AND SONS, Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,



is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

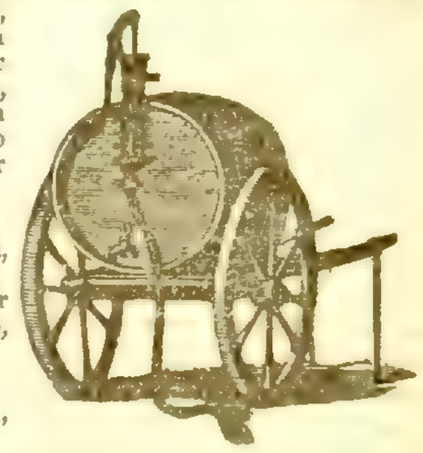
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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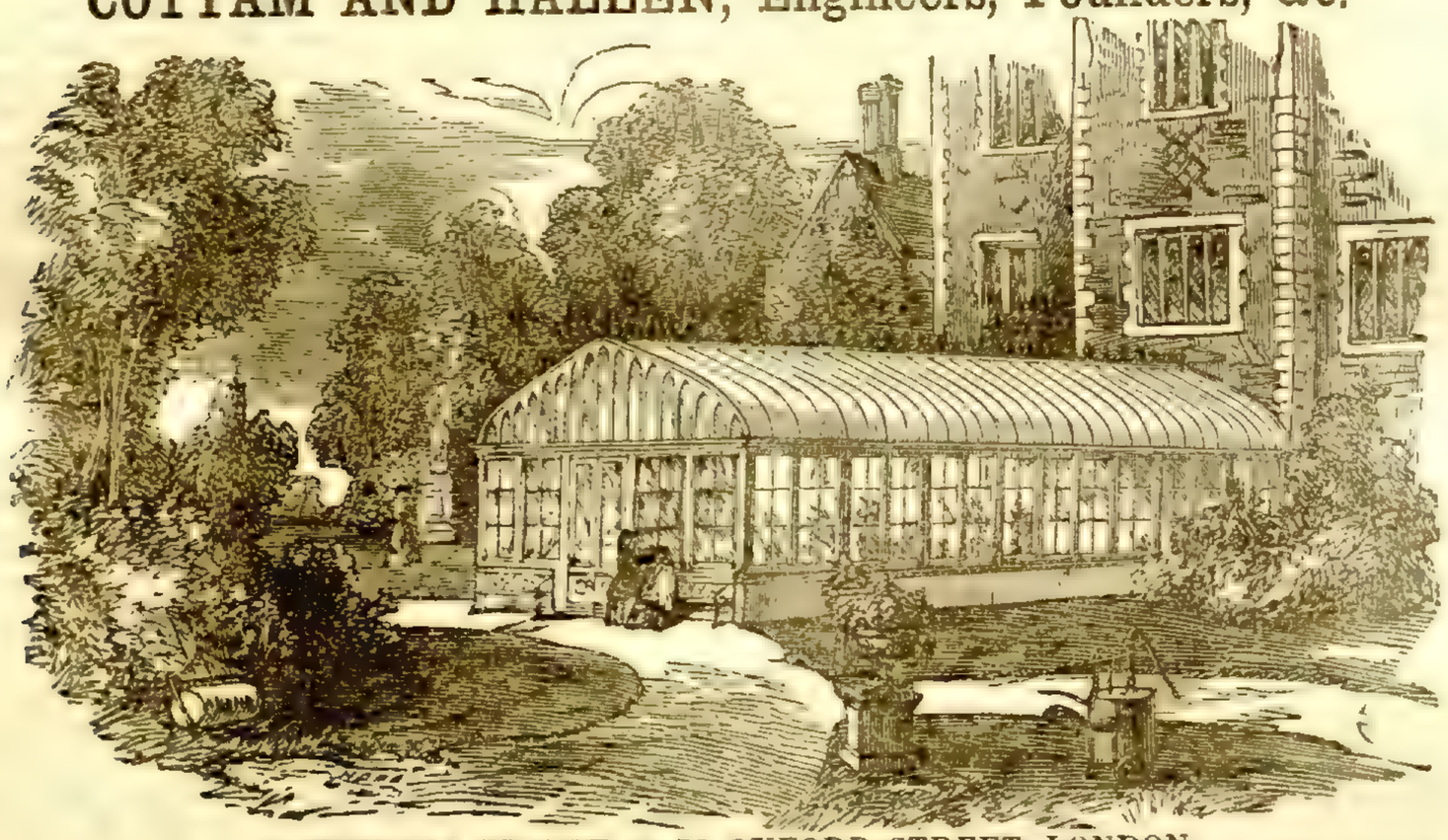

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A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

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T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

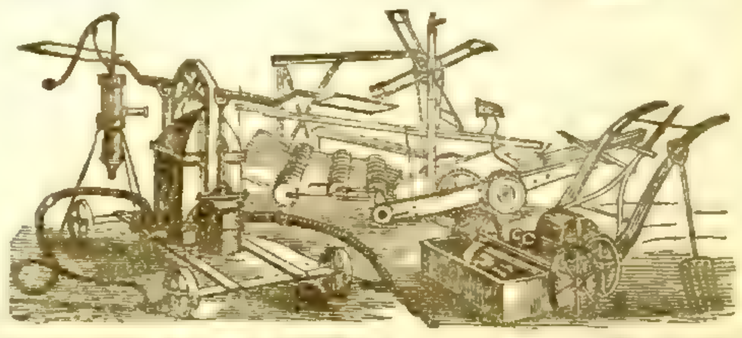
A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq, Landscape Gardener, Knostrop.

To MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.



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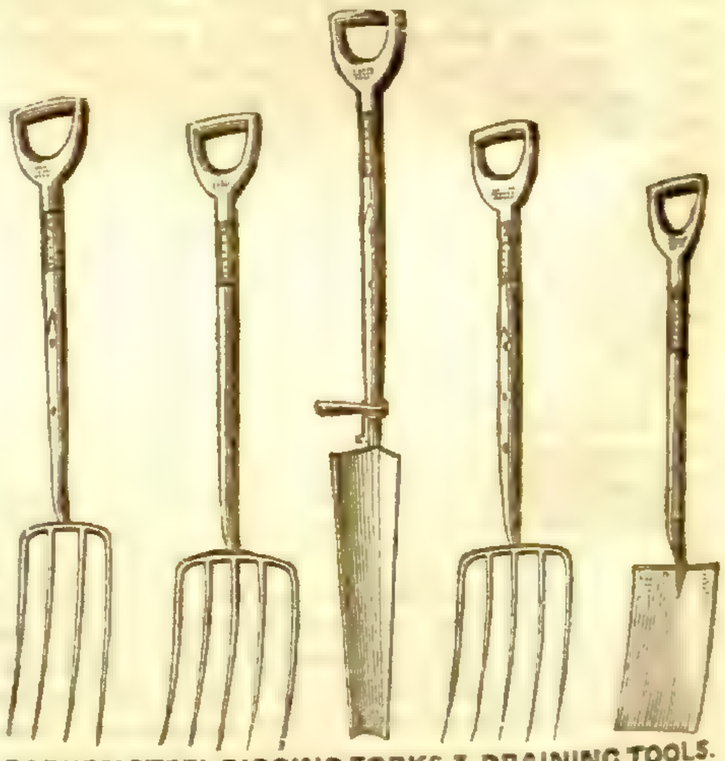

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MR. STRAFFORD has received instructions from George Townshend, Esq., to offer for Sale by Auction, without reserve, on THURSDAY, September 18, at Sapcote Fields, near Hinckley, Leicestershire (being the day after the Sparkenhoe Farmers' Club Exhibition), a choice selection of SHORT-HORNED CATTLE, consisting of upwards of 30 head of Bulls, Cows, and Heifers, including in their range the blood of Beverley (9984), Carracci (8932), Earl of Leicester (12,815), Earl of Warwick (11,412), General Sale (8099), Ibrahim Pacha (11,597), Jethro Tull (11,616), Mahomed (6170), &c.; also seven valuable CART HORSES of the old Leicester Breed; 150 pure bred LEICESTER SHEEP, descended from the far-famed Dodford and Holme Pierrepont flocks; 20 PIGS, and some IMPLEMENTS. The whole of which are to be sold in consequence of Mr. Townshend leaving Sapcote Fields.—Catalogues, with Pedigrees, and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. TOWNSHEND, Sapcote Fields, near Hinckley.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1856.] SATURDAY, SEPTEMBER 13. { Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY, 21, Regent Street.—An Ordinary Meeting of this Society will be held on TUESDAY, September 23, at 4 p.m., for the election of new Fellows. No other business will be transacted.—By order of the Council, Wm. B. Booth, Librarian.
September 13.

SOUTH LONDON SOCIETY OF AMATEUR FLORISTS.—THE FIFTH FLOWER SHOW of the above Society for this season will be held at the Cricket Ground, Lower Kennington Lane, Newington Butts, on THURSDAY, September 25, when Prizes will be awarded to the following productions, viz., Dahlias, including Fancy varieties, Verbenas, Seedlings, &c. Admission to Non-Members from 3 till 7 o'Clock at 6*d*. each. List of Prizes and the Rules of the Exhibition may be obtained from John Bushell, Honorary Secretary *pro tem.*, Lower Kennington Lane.

NORTH LONDON FLORICULTURAL SOCIETY'S GRAND EXHIBITION OF DAHLIAS, VERBENAS, FUCHSIAS, AND MISCELLANEOUS PLANTS, open to all England, will be held in Myddelton Hall, Upper Street, Islington, on TUESDAY, September 23; within 15 minutes of Shoreditch, London Bridge, Waterloo, and King's Cross stations. All collections must be in the Hall by 10 o'Clock. Admission to the Public from 1 o'Clock until 7, 1*s*. A Vocal and Instrumental Entertainment from 3 o'Clock until the close. For further particulars apply to George Smith, Honorary Secretary, Hornsey Road, Islington.

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NOTICE.
MESSRS. STANDISH AND NOBLE, in reply to numerous inquiries, beg to say that BUSINESS is carried on at their Establishment as usual. The Sale advertised to take place at their Nursery will comprise only a small portion of the Stock, and will not in any way interfere with the execution of their orders.—The Nurseries, Bagshot, Sept. 13.

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BASS AND BROWN'S Nos. I. and II. CATALOGUES for 1856–57 are now ready and supplied on application.
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No. II. contains their choice collections of GERANIUMS, AZALEA INDICA, CINERARIAS, STOVE and GREENHOUSE PLANTS, &c.

CHRYSANTHEMUMS.
14 best Pompones of last season, handsome and bushy, for strong bloom ... ... 14*s*. 0*d*.
20 best Pompones of previous date 12 0
20 best large flowering of ditto 12 0
Sudbury, Suffolk.

AZALEA INDICA.
J. IVERY AND SON, Nurserymen, &c., Dorking and Reigate, beg to say that their DESCRIPTIVE CATALOGUE of all the newest and most approved varieties of the AZALEA may be had in exchange for one postage stamp.—Dorking, Sept. 13.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding secret sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

GARDENERS' CHRONICLE NEWSPAPER
PENNY

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER & CO., SEEDSMEN, &C.,

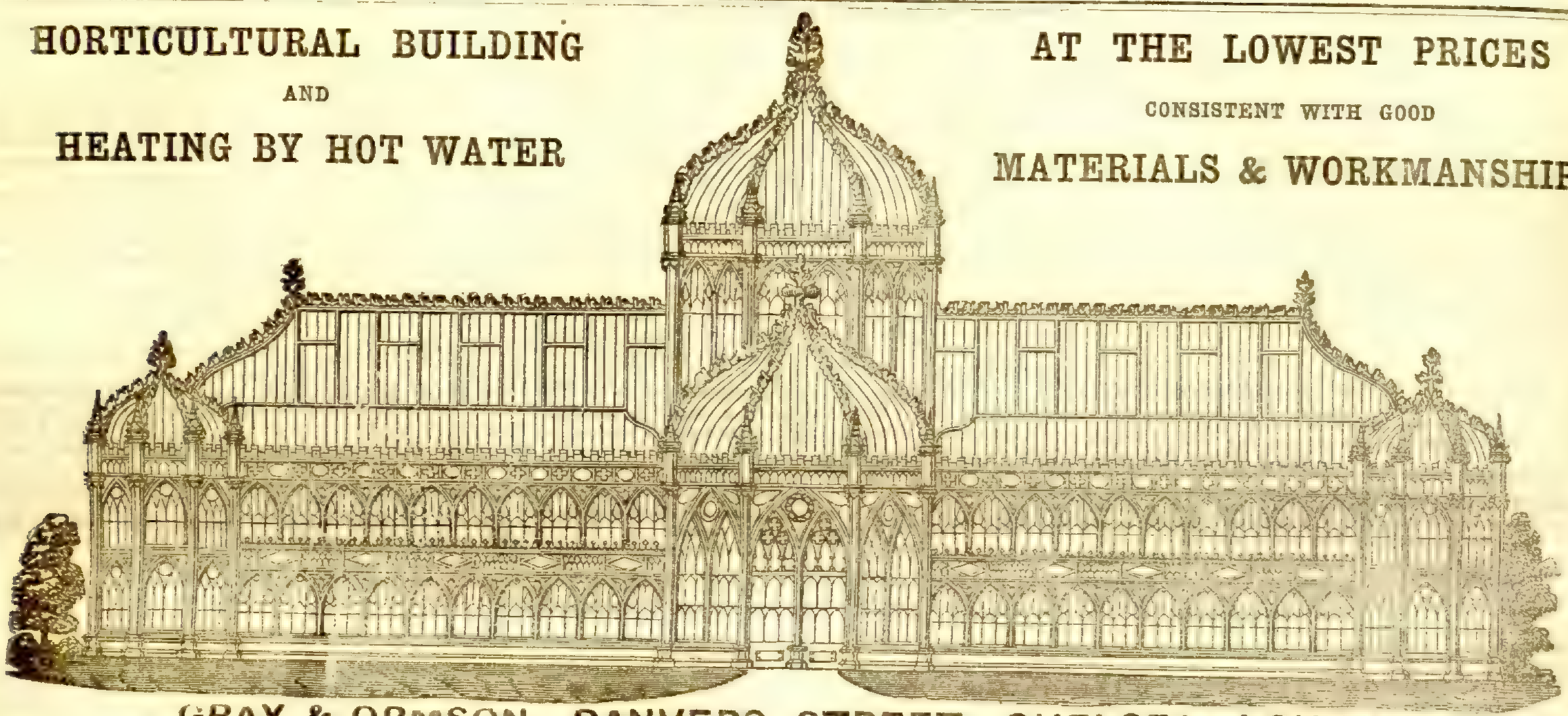
238, HIGH HOLBORN, LONDON,

BEG to announce the arrival of their consignments of IMPORTED DUTCH BULBS, which they are glad to say are of *first-rate quality, as usual.* Their comprehensive CATALOGUE OF BULBS, *the twenty-first Autumnal series,* will be forwarded *free of charge,* and *post-paid* to ALL PARTS OF THE WORLD, upon application.

JAMES CARTER & CO., SEEDSMEN, &c., 238, High Holborn, London.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT-WATER APPARATUS.

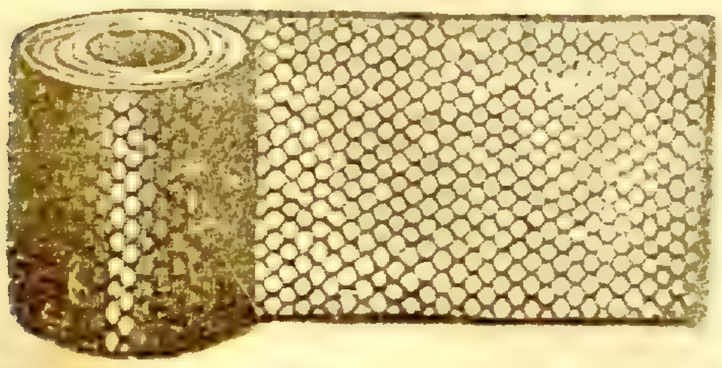
J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators; Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. TAYLER, Battersea.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4½ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1½-inch " 24 inches wide	5½ "	4½ "
1½-inch " strong, do.	6½ "	5½ "
1½-inch " intermediate, do.	7½ "	6 "
1½-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

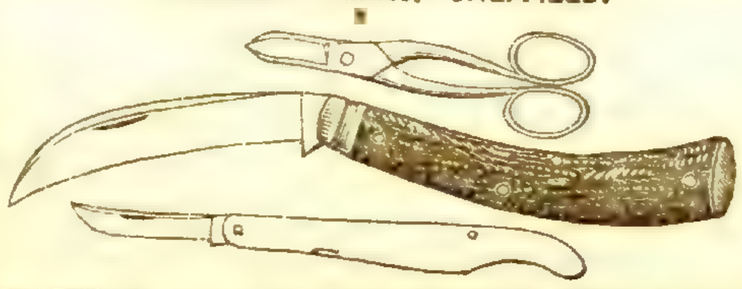
Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY, WARRANTED GOOD BY THE MAKERS.

JOSEPH MAPPIN AND BROTHERS, QUEEN'S CUTLERY WORKS, Sheffield; and 67, King William Street, London, where the largest stock of Cutlery in the world is kept. Drawings forwarded by post.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.

WARNERS' SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

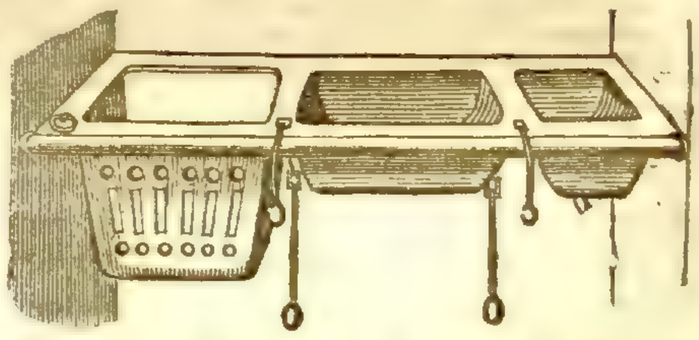
Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

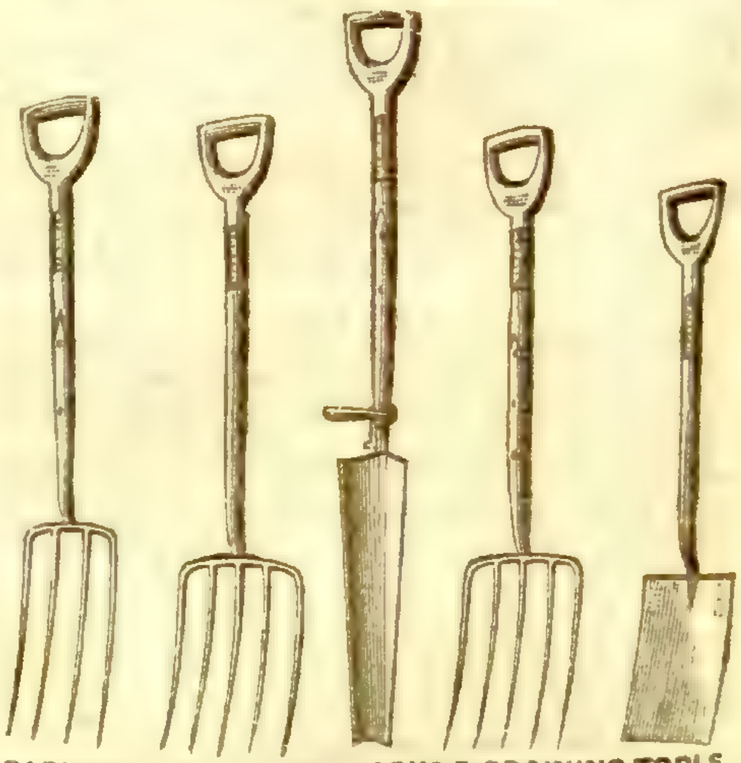
BE PARTICULAR to Address at Full Length, BENJAMIN EDGINGTON, 2, Duke Street, Southwark, OPPOSITE THE BRIGHTON RAILWAY. MARQUEES, TENTS, AND RICK CLOTHS.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street London.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

NEW HARDY RHODODENDRONS.

JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.

RHODODENDRON JOHN WATERER; colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s.* each.

RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s.* each.

RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s.* 6*d.* each.

☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.

The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

MESSRS. E. G. HENDERSON AND SON'S NEW BULB CATALOGUE is now published, and may be had post free on application. In addition to an unequalled selection of Bulbs it contains revised and priced lists of GERANIUMS and CINERARIAS. The new plate of 5 choice Geraniums (amongst which are Mrs. Story's new white flowering varieties, the best in cultivation) can be had post free for 12 Stamps.

The ADAIR STRAWBERRY—for particulars of this delicious variety see Catalogue, or back numbers of this Paper. Price 50*s.* per 100 Plants.

The following New Plants are now being sent out:—

Camellia Jenny Lind	Rhododendron Mrs. Dargan
Echites Houtteana	" Earl of Burlington
Azalea The Bride	" Lord Bolingbroke
do. Louis Napoleon	Begonia picta
Rhododendron Countess of Rosslyn	" cinnabarina
" Duchess of Cleveland	" hybrida
" Duke of Hamilton	Dianthus albo nigricans
	Cupressus Lawsoniana

Also their unrivalled seed of CALCEOLARIA, 1st quality, 5*s.* per packet; second ditto 2*s.* 6*d.* CINERARIA, best quality, 2*s.* 6*d.* do. Primula sinensis fimbriata, 2*s.* 6*d.* do.

Parties wishing for their Spring List of 2000 Plants can have the same forwarded post free on application.

Wellington Nursery, St. John's Wood.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and Shrubs of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c. all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co, King's Road, Chelsea.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq. Manor House, Bathampton:—"This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq., Swainswick House, whose name is well known to the floricultural world, being the raiser of a great number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British Queen is a very delicate and tender kind—this is one of the hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a Strawberry is required.

Strong well-rooted plants 3*l.* per 100; 1*l.* 15*s.* for 50; 1*l.* for 25; or one dozen for 12*s.*; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

SEED WHEAT.

HARDY'S SELECTED, PROLIFIC, and IMPROVED RED, 12*s.*; and SUPERIOR, TRUE, EGYPTIAN, WHITE, MUMMY, 20*s.* per bushel. Bag, 1*s.*; sack, 1*s.* 6*d.* Carriage paid to London. Post-office Orders must accompany applications. References—J. J. Mechi, Esq., Tiptree Hall; and Rev. G. Wilkins, Wix, Manningtree, Essex.

On receipt of 12 stamps and a full-sized stamped envelope, addressed to any destination, will be sent by post Specimen ears of each variety averaging above 100 grains! Also of Barley, a peculiar and prolific variety, containing double ordinary produce of any other kind! A packet of this or the Wheat grains, to plant 1 rod, for 12 stamps.

Also for another dozen stamps or 1*s.*, "HARDY'S COMPETITION PRIZE ESSAY ON THE CULTIVATION OF CORN," carefully revised for 1856-7.

ABRAHAM HARDY & SON, Seed Growers, &c., Limbourne Brook and Knowle's Farms, Maldon, Essex.

VIOLETS.

R. SHACKELL has proved by experience that to succeed well with Violets for the winter, either in pots or beds, it is requisite to remove them earlier than the time at which he has offered them for sale in years past, so that they may get established before the cold weather sets in. In speaking of his beautiful Violet the RUSSIAN SUPERB, it needs no stronger recommendation than to say that it is now many years since he first sent it out, and he never had a fault found with it. Every horticultural editor spoke in the highest terms of it.

Strong plants of Shackell's Russian Superb ...	12*s.*	per dozen.
Shackell's White Russian	6*s.*	"
Perpetual Purple Tree Violet	6*s.*	"
" White "	6*s.*	"
Double White Violet	6*s.*	"
Neapolitan Violet	6*s.*	"
Old Russian, 10*s.* per 100; or	2*s.*	"

All the above are strong good plants. If the order be above 10*s.*, hamper and package free.

ROBERT SHACKELL, Florist, Locksbrook Nursery, Bath.

BULBOUS ROOTS, ETC.

AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following Bulbs, &c., of the best quality, and all strong flowering roots. Will be ready to send out in the course of the month.

	Per 100		Per 25
Gladiolus Couranti fulgens	42*s.*	Gladiolus Aglae...	30*s.*
" Fanny Rouget	42	" Charles Rouillard ...	25
" fulgens aurea picta ...	42	" Comtesse de Bresson	30
" Mdme. Coudert	50	" Don Juan	25
" Mdme. Herincq	63	" Hector	25
" M. Blouet	42	" M. Corbay	30
" M. Gorgeon	42	" Couranti carneus ...	50
" Triomphe d'Enghien (per 50)	30		

The above are all splendid varieties of Gandavense.

	Per 100		Per 100
Lilium lancifolium album	63*s.*	Lilium aurantiacum perdoz.	10*s.*
" " rubrum ...	80	" atrosanguineum ...	42
" " punctatum per doz.	36	Cypripedium spectabile ... per doz.	24
" spectabile ...	80	" calceolus "	9
" superbum per doz	10	" pubescens "	30
		" candidum "	36

Camellias with flower buds of good varieties, fine healthy plants, 6*l.* per 100 and upwards; Azalea indica, do., do., 4*l.* per 100 and upwards.

Tree Pæonia, 12 fine-named varieties for 36*s.*; Lælia majalis, 84*s.* per dozen. Strong plants.

JOHN WESTWOOD has now for sale fine healthy plants of the following for cash, viz.:—

ROSES.—Devoniensis, Safrano, Souvenir de la Malmaison, and Cliftoniensis, in 48-sized pots, at 12*s.* per dozen, on their own roots.

DEUTZIA GRACILIS, in 48's, at 8*s.* per dozen.

JASMINUM NUDIFLORUM, in 48's, at 6*s.* per dozen.

VARIEGATED GERANIUMS.—Flower of the Day and Brilliant, at 3*s.* and 4*s.*, and Dandy at 3*s.* per dozen.

HELIOTROPES.—Florence Nightingale, John Cattell, and Beauty of the Boudoir, at 5*s.* per dozen.

PETUNIA IMPERIALIS (double white), at 6*s.* per dozen in 48's, and 4*s.* per dozen in 60's.

CYCLAMEN PERSICUM RUBRUM, at 9*s.* per dozen, good strong bulbs.

PRIMULA FIMBRIATA SINENSIS, in 48's, at 7*s.*, and in 60's, at 5*s.* per dozen—a first-rate strain.

FAIRY ROSES.—Fine strong plants, in 48's, at 8*s.*; smaller but good plants, at 5*s.* per dozen.

The true old RED CLOVE, at 3*s.* per dozen.

J. W. is also prepared to receive orders for the undermentioned Bedding Geraniums, to be delivered in October next, at 4*s.* per dozen:—

DIADEMATUMS COCCINEUM and ERUBESCENS.

WHITE, PINK, AND SALMON-FLOWERING KINDS.—Kingsbury Pet, Skeltoni, Boule de Neige, Miss Emily Field, Triomphe de Mont Rouge, Rose d'Amour, Rubens, Rose of Morn, Guelder Rose, Lucia Rosea, Princess Alice, Hydrangeaflorum, Rose of Morn, &c.

IVY-LEAVED.—White (true large white), pink, and scarlet-flowering.

SCARLET AND CERISE.—Le Titien, Kossuth, Bishopstowe Scarlet, King of Nepaul, Reidi, Conway's Royalist, Trentham Rosy Scarlet, Trentham Gem, Masterpiece, &c.

PENCILLED OR FANCY VARIETIES.—Delicatum, odoratissimum punctatum, Lady Mary Fox, Sidonianum, Citriadorum majus, Duchess of Sutherland, &c. Also Cerise Unique, Commander-in-Chief, Life Guardsman, and many other varieties, at 3*s.* per dozen.

N.B. A Catalogue will be shortly issued of J. W.'s stock of Show, Fancy, and French Geraniums, and forwarded gratis to all applicants. This stock is worth inspection, being the largest and most varied in the world.

Floral Nursery, Acton Road, Turnham Green.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per packet—*s.*	*d.*
CALCEOLARIA from very showy varieties carefully impregnated	2	6
GERANIUM from first-rate Florist varieties ...	1	0
" from the new showy French ditto ...	1	0
" from first-rate fancy ditto	1	0
" from Scented-leaved ditto	0	6
" from the finest new Rose, Pink, White, &c., of the Scarlet habit	0	6

A remittance in stamps or otherwise must accompany all orders from unknown correspondents.

JOHN CATTELL, Nurseries, Westerham, Kent.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen
Exotic Orchids	from	42*s.*
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties ...	"	9
Gynerium argenteum (Pampas Grass) ...	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

B. PAGE AND CO., SEED MERCHANTS and GROWERS, Southampton, can now supply, carriage free on South-Western—

	s.	*d.*
Prime New English Trifolium, per cwt. ... ... 46*s.* to	42	0
" Dwarf Rape, per bushel	14	0
" Early Six Weeks' Stubble Turnip, per lb. ...	0	9
" Chives' Orange Jelly ditto, per lb.	1	0
" Italian Rye-grass, per quarter	50	0

Permanent Pasture and Lawn Grasses equal to any house in the trade.—*Vide* Southampton "Public Lands."

PAGE & Co. having long supplied the leading practical farmers in Hants, Wilts, and Dorset, their establishment is worth the attention of Gentlemen Agriculturists who wish to buy at strictly speaking market prices.—Oxford Street, Southampton.

HUGH LOW AND CO. would call the attention of purchasers to their very large and fine stock of the undernamed articles, all of which are in the best possible health, and well worth inspection.

INDIAN AZALEAS, in different sizes and fine named varieties.

CAMELLIAS, with flower-buds of different sizes.

STANDARD SWEET BAYS, with straight stems and fine shaped heads.

ORANGE TREES, of sorts and sizes, both with and without fruit.

JASMINUM GRANDIFLORUM; grafted plants full of flower buds. This is one of the most fragrant winter blooming plants in cultivation.

ERICAS AND EPACRIS, strong flowering plants.

PINUS BENTHAMIANA (true); certainly the handsomest and hardiest of all the long leaved Conifers.

Clapton Nursery, London, Sept. 13.

TULIP CATALOGUE.

CHARLES TURNER begs to intimate that his TULIP CATALOGUE, with prices, is now ready, and can be had on application.

A Catalogue of Geraniums (including Foster's, Hoyle's, and Turner's new varieties), Fancy Geraniums, Cinerarias, &c., will be ready in September.

Now ready, very choice CINERARIA, 2*s.* 6*d.* per packet.
very choice CALCEOLARIA, 2*s.* 6*d.* "

Royal Nursery, Slough.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 13, 1856.

IF the tide of MORMONS now flowing with increasing force towards the United States is to be stopped, it is more likely to be influenced by a knowledge of the difficulties such emigrants have to encounter than by considerations of any other nature. We therefore avail ourselves of a favourable opportunity for the purpose of pointing out the true nature of the Salt Lake district, whither Mormons are directing their steps, in the hope that the perils which beset their path may deter some at least from blindly rushing to destruction. Our information is derived from the narrative of M. JULIUS RÉMY, a distinguished French naturalist, who visited Utah last year, and whose statements are not open to contradiction.

This traveller, with one companion, quitted San Francisco on the 30th July, 1855. The early part of their journey through what is called the Sierra Nevada of California, was agreeable enough. There the dense forests of Coniferous plants recalled the Alps of Savoy; in the meadows, on the rocks, everywhere, appeared a prodigious multitude of gay flowers, which filled the air with their fragrance. Eriogonums in endless variety gave a peculiar feature to this vegetation. A Pyrola with variegated leaves grew beneath the Fir trees, and rested on a little forest of musk-scented Rubus. The highest point they reached in these mountains was 9600 feet according to the aneröid. A day, by Carson Valley, took them into the plain, where they learned the road to the Salt Lake. Hereabouts they found the hottest springs known, the water indicating a temperature of 82° Centigrade, or 179° Fahr. Nevertheless even here vegetation maintained an existence, Confervæ flourishing in the almost boiling fluid.

Here a total change came over the scene, and all was desolate. The luxuriant vegetation, the enamelled meadows, the cooling shade, the limpid streams disappeared. On the banks of the river whose course they followed nothing better appeared than stunted Willows and Poplars. Now began the deserts: the soil was covered with a salt crust, amidst which a few miserable bushes (shrubby Chenopods) sprang up. The mountains which formed a sort of frame to the horrid scene,

were themselves naked and barren; the river swarmed with serpents. At Ragtown, the first place they reached, the water became so salt that it was almost impossible to drink it. All around the place lay the carcases of cattle. A day's rest for their animals enabled the travellers to attempt the passage of a desert for 40 miles. They started at 6 o'clock in the evening of Aug. 15, and by 6 in the morning of the 16th they had struck the river Humboldt, whose waters, at that point, they found muddy, stinking, full of dead fish and soda, and consequently undrinkable as well as unwholesome. Great quantities of fishing birds and huge musk rats abounded. The vegetation consisted of Grasses, Sedges, Docks, &c. The great desert was at hand.

At this charming place the horses broke loose, and one of the travellers had to follow them. The first desert had again to be passed, but on foot, without food or water; and it was three days before he returned with the cattle, having his nose broken by a kick from one of the beasts, and being almost dead of a fever brought on by fatigue among the burning sand. Deserts like this must be seen to be appreciated; without personal experience no one can form an idea of the misery endured in such places. The thermometer stood at 40° and 45° Centigrade (104 and 113 Fahr.) at 2 P.M., and at night rain fell in torrents. Such a position was dangerous to the last degree. RÉMY himself was attacked with fever; and to add to his discomfort his tent was surrounded by savage Indians and still more savage whites, and his best mule died "killed no doubt by the alkali." The big-tailed foxes soon came down from the mountains and devoured him.

For many a weary mile our travellers followed the course of the Humboldt, a river that runs along the bottom of an immense gulley, which prevents it's being seen from the plain. In this gulley it is always necessary to encamp, in order to find pasture for the cattle; a great nuisance, because it brings you immediately under the fire of Indians concealed on the edge of the cliff. On the 22d August M. RÉMY fell in with a body of emigrants, from whom he heard of the murder of a Capt. JONES by the Choctonés, an Indian tribe into whose territory he was about to enter. Notwithstanding the assurance of the emigrants that he must inevitably experience the same fate, he and his companion persevered in their journey, travelling only by night for a whole week, in order to escape the Indians, who were on their track and occasionally sent some arrows after them. Luckily RÉMY's companion was well acquainted with the Indian habits, and to this circumstance the little party undoubtedly owed their lives. At last they reached a Mormon post, the residence of a strange fellow named PETER HAWS, who to his other peculiarities added that of a belief in the transmigration of souls.

With some trouble an Indian chief was here found who agreed to guard the travellers as far as the Salt Lake. Their way over mountains and plains was indicated only by the compass. A little snow fell, and one night after a heavy rain they found themselves frozen in their blankets. The vegetation now changed. Pines and Junipers appeared in abundance, but of no height. One of these Junipers, 18 feet high, and about a foot in the diameter of its trunk, was found to be 509 years old. At last they came within 90 miles of the Salt Lake, at a hideous region wholly desert, without a trace of man or animal, and where the travellers were almost blinded by the light reflected from the snow-white salted soil. In two days they passed through this frightful solitude; and in a few days more, over a rather better country, they reached Grantsville, a settlement still 40 miles south-east of the lake, after having been a day and a half without any kind of provisions.

The lake itself is described as extending so far into the mountains that it resembles a vast sea, and seems to lose itself among them. Its waters are of the deepest azure, and so dense that the human body will not sink in them. Its edges, especially on the north, are formed entirely of a deep bed of the most beautiful salt.

Such is the way to Mormonland by way of California; from the Eastern states the dangers we believe are greater and the road longer. If a couple of strong experienced resolute travellers only just succeeded in reaching it at the peril of their lives, what must be the fate of old men, women, and children, whose mere numbers enormously increase the inevitable dangers of the journey? Let us hope that those who have influence over the ignorant peasants believing in JOE SMITH and his successor BRIGHAM YOUNG, will make them acquainted with the facts here related; for when nothing else will stop them in their mad career a recital of dangers and hardships such as these may snatch at least a few of them from utter ruin.

The Salt Lake City itself is situated between the river Jordan and the Wahsatch Mountains, against which it rises like an amphitheatre. M. RÉMY and his companion entered it on the 25th of September, after 58 days of hard travelling from Sacramento. They found it unlike any other city in the world; it may be described as a vast assemblage of houses rather than a town according to European ideas. The streets are 40 yards wide, and run north and south, or east and west. They are watered by streams ingeniously brought from the neighbouring mountains, and bordered by rows of Cotton-wood trees (Willows). The diameter of the city is six miles. With the exception of the palace of the Governor the houses are all constructed of wood and plaster, stand a little way off the street, and are surrounded by a plantation. The Mormon Pope or president is Mr. BRIGHAM YOUNG, who is also Seer and High priest. This worthy gentleman has 17 wives of different ages; the number of his children is unknown; all that the travellers could learn upon that interesting subject was that nine were born in the week they were there; and that preparation was made for the reception of 30 sultanas in his new palace.

THE Imperial and Central Horticultural Society of Paris have just announced exhibitions of flowers, fruits, and esculents to be held at their house, No. 3, Quai Malaquais, Paris, on the following days, viz:—

11 and 25 September.
9 and 25 October.
13 and 27 November.

The objects of exhibition are to be new seedlings, or such as have not received prizes at previous exhibitions; they are to be delivered, *carefully named*, before 9 o'clock in each morning and to be removed the next day in the morning. Exhibitors, visitors, and members of the Society are to have admission on each day from 10 in the morning to 5 in the afternoon.

THE POTATO DISEASE.

IT is now 11 years since I first directed attention to this remarkable disease, and notwithstanding all that has been written upon the subject, and the numerous experiments that have been made throughout the country with the view of ascertaining whether some means could not be devised to act as a preventative or arrest its progress, I believe every plan and mode of treatment that skill or science could suggest has been unattended with any satisfactory result, and we are at the present moment not only without a remedy against the inroad which this mysterious visitor annually makes on our Potato crops, but are even little better acquainted with its habits, or the cause which produces it at a particular season of the year, than we were at the time when it first made its appearance. On this subject, as on every other of a questionable nature, we have had opinions innumerable, and almost as various as the persons who have given them. Some have attributed its origin to the effects of soil,—over manuring, the attacks of aphides and other insects, and even to degeneracy of the Potato itself; whilst not a few with more probability, I think, have ascribed it to atmospherical causes, arising from the electrical changes that are continually taking place, producing a certain condition in the air unfavourable to the health of the plant, and occasioning such a check to its growth as to bring on disease and hasten its decay. In so far as my experience enables me to judge, I am inclined to believe the atmospherical theory is the right one, and the grounds for this conclusion will be found in the following memoranda of the state of the weather both before and after the appearance of the disease in the west of England during a series of years from 1845 to 1853, which may probably interest some of the readers of the *Gardeners' Chronicle* who have made similar observations.

1845, *August* 13.—The disease first noticed among some early frame Potatoes. The previous week was sultry and very wet; it then suddenly changed and became sunny and warm. The brittleness and burnt appearance of the leaves induced me to suppose it was the effects of cold, although I could scarcely bring myself to believe it was occasioned by frost so early in the season. In a short time the disease spread with great rapidity, stems, leaves, and roots being all very much affected, especially the latter, many of them being nothing but a pulpy mass emitting a most offensive smell.

1846, *July* 4.—Symptoms of disease beginning to appear. The latter part of June was wet and stormy, and in exposed situations the leaves and stems of Potatoes were much damaged by the wind. The early part of July proved warm and dry. The injured portions soon became affected with disease, and the crop was found nearly as bad as in 1845.

1847, *July* 17.—During the greater part of this month the weather was remarkably dry and warm. Much rain fell on the 10th, between which day and the 17th it was very close and sultry, with occasional dense fogs. Disease very general, but considered not quite so destructive as in the two preceding years.

1848, *July* 1.—Throughout the month of June the weather wet and unseasonable, with little sunshine. During July it was unusually warm and sultry. On several days the thermometer stood at 80° and 82°, and on the 15th it reached as high as 86°. The Potato crop more affected than ever—three-fifths of the produce by actual measurement being found wholly unfit for use.

1849, *June* 18.—The beginning of the month sultry and wet, but warm and fine during the week before the disease appeared. Coming as it did so early in the season I began to think it perfectly useless to persist in cultivating the Potato. Crop indifferent and much diseased. Besides the Potato, other plants such as Heliotropes, Cucumbers, and Melons in frames, Cucumbers and Vegetable Marrow on ridges, as well as Jerusalem Artichokes, were all seriously injured by this disease.

1850, *July* 19.—Weather very fine both before and after the disease was seen. The crop indifferent, but the roots tolerably sound and apparently improved in quality.

1851, *July* 13.—The disease just appearing. Weather previous to this date very fine and seasonable, afterwards warm and wet. The crop not so much injured this year as was expected from the haulm having been destroyed rather early in the season.

1852, *July* 2.—Weather during June sunless and wet, with occasional storms of wind. On a sudden change to close sultry weather in July symptoms of disease were soon apparent, and as it spread most rapidly great fears were entertained about the crop; the latter, however, was found to be rather better than usual.

1853, *July* 10.—The latter part of June very wet. The beginning of July fine and warm, with dense fogs occasionally, which appeared to favour the spread of the disease, for although not observed until the 10th the crops generally were all more or less affected by the end of the month. A large portion of the roots injured, but by no means so bad as formerly, and there are now some hopes that the cultivation of Potatoes will be resumed, the disease having run its course and lost much of the destructive character it had on its first appearance.

Now to whatever cause this singular malady may be owing, I think it will be evident from the preceding remarks that the state of the weather has much to do with it—a sudden change from wet to dryness, or the reverse, accompanied by a rise or fall in the temperature such as usually follow the thunderstorms that occur about Midsummer, being almost a certain forerunner of the disease; while a sultry, humid atmosphere is found to be alike favourable to its developement and dissemination the moment it comes into existence.

On these points we have yet much to learn, and although we have failed in our attempts to discover a remedy for this epidemic, we must not be discouraged from continuing our inquiries. The mildew was at one time looked upon by gardeners as a similar pest; but now it is no longer dreaded, recent discoveries having made us acquainted with a substance that is a perfect antidote against its attacks, and which proves to be both simple and easy of application. Such being the case, it is but reasonable to hope that by connecting together the remarks and observations of the gardener and meteorologist we may in time obtain some insight into the nature of this scourge which has for some years past so seriously injured the Potato crop; and having done so, we may probably discover a remedy that shall be as effectual as in the instance of mildew above mentioned. *B.*

VEGETABLE PATHOLOGY.—No. CXXXVII.

565. PARASITÆ (*Stemphylium*, *Macrosporium*, *Sporidesmium*, *Helminthosporium**). The two first of these genera may perhaps be safely reduced to one; the third is distinguished by the almost total absence of sporophores, while the fourth has in general very dark and well developed fertile threads and spores with numerous horizontal but no vertical articulations, which are normal in the two first, and are not alien to *Sporidesmium*. In the present notice I shall consider principally those species which decidedly belong to the three first, reserving the last for a future number in conjunction with *Cladosporium*.

566. It is only of late years that anything has been said of the destructive powers of any of the species on living tissues. The species, like so many other fungi, were supposed to attack dead or dying parts of vegetables; but it was not imagined that they could establish themselves on sound and healthy tissues. It was however shown by De Bary that plants of Heath are attacked by a little *Stemphylium*, which runs over the tender foliage and soon reduces the healthiest plants to dry sticks. This has been especially noted in the Transactions of the Horticultural Society of Prussia, and specimens have been widely distributed by Rabenhorst under the name of *Stemphylium ericoctonum*, under which name it has been published. I have numerous examples myself by the kindness of Dr. Caspary. The plant is remarkable amongst other matters for exhibiting in different stages the characters of *Verticillium* and *Dactylium*, before it assumes its perfect form.

567. More recently two papers have appeared in the Botanische Zeitung, 1856, illustrative of a disease caused in Rape seed and Carrot by a little fungus referred by Amtmann Kühl to the genus *Sporidesmium*,

* From στιμφυλον pressed olives; μακρος long and σπορα seed; σπορα seed and δισμος a chain; ιλμινς a worm and σπορα seed.

but which appears more properly to be merely some *Macrosporium*. The details are far too lengthy to reproduce here, and they do not admit of much abbreviation. It appears, however, that the mycelium penetrates deeply into the substance of the mother plant, and soon causes more or less complete ruin. The discoloured spots are at first punctiform on the pods, but striæform on the stem and branches. They soon spread; the leaves hang down, and at length rot off without however being always attended by any affection of the root. The plant is easily propagated, not only between slips of glass in water or a damp atmosphere, but on parts of the Rape plant. Spores sprinkled over the pods produce a new crop in less than four days. The black specks soon appear as in other cases, and the delicate mycelial threads penetrate by means of the stomates into the subjacent tissue. The spores are very tenacious of life, and are readily propagated after they have been kept a twelvemonth, a fact which probably is equally true of a great variety of moulds, and which accounts for their ubiquity. When the crops were still unaffected, in the beginning of June, the fungus was easily reproduced by sprinkling spores which had been saved from the preceding year; and in nature these are preserved on the dry stems and leaves, and perhaps in various other situations, for the fungus is not confined to Rape, but affects equally Carrots and Charlock.

568. The roots themselves are often infested with another parasite referred to *Helminthosporium*. This is published in the twentieth number of Klotzsch's Herbarium Mycologicum; but unfortunately I have not yet received the number. It is published under the name of *Helminthosporium rhizoctonum*, Rabenhorst. The base of the root, and sometimes the middle but never the top, is covered with a dense violet-black coat.* The top of the Carrot is sound, but the base is soft and decayed, and soon after the root is removed from the soil other parasitic fungi establish themselves on the surface. It first appears in the guise of little scattered black specks. These soon become confluent, and throw out a quantity of mycelium, which is of lighter colour than the fertile threads, insomuch that various tints may be traced from white and rose coloured up to violet black. The mycelium does not penetrate beyond the subepidermal stratum, but the cells which are infested change their colour by a conversion of the contained matters into ulmates and humates. The leaves are at the same time affected with the same mould as the Rape, but distinguished from it as a variety by the greater development of the sporophores. In both alike the spores are multiseptate with a few vertical plates, and are either strongly clavate or acuminate. In the parasite of the Rape the spores sometimes produce new spores from their surface, or at their apices, and the process is repeated till we have the structure of *Alternaria*. In some again two or three are joined at the base, in which case we have a close approach to *Triposporium*. Unfortunately, though the species is very carefully described, the author is unable to suggest any remedy. The mycelium is too deeply seated to be easily affected by sulphur, a remedy which can scarcely ever be applied in such a case till it is too late. The best practice probably would be to give a good top-dressing of lime and sulphur, though the action of these unhappily is not permanent, since it affects only those parts of the plant which are already fully expanded. A fresh crop of the parasite will necessitate therefore a fresh dressing, the cost of which may exceed the probable return. *M. J. B.*

THE DESTRUCTION OF DODDER.

THE means which till now have been employed for the destruction of the Dodder were either difficult or tedious to apply, or not very effectual. Struck with the ravages which this parasitical plant has made, I have endeavoured to find an easy, sure, and cheap means of destroying it; for in order to be available to the cultivator these conditions are required. After many unsuccessful attempts, I had the good fortune to discover a substance which fulfills these conditions perfectly well. It is the sulphate of iron. The mode of proceeding is this:—

I dissolve in 220 gallons of water about 220 lbs. of sulphate of iron. With this solution I water the parts of artificial meadows that are attacked by the Dodder; I wet the plants thoroughly with the liquid. It is necessary to perform the operation in fair weather in order to hasten the oxidation of the sulphate of iron, for it is to the oxidation that I attribute the results obtained. A short time after the watering the Dodder becomes black and friable. If performed in rainy weather the rain-water must inevitably carry off portions of the solution which adhere to the plant. I cannot state exactly the number of quarts which should be given to each square yard of surface, for the quantity must vary according as the plant is more or less affected.

In two or three days after the application of the solution, the Dodder is completely destroyed. I then mow the forage and carry away the portions affected by the parasite, and which have been acted upon by the sulphate. When the remedy is applied in time, that is to say, when the Lucerne has not been completely destroyed by the Dodder, the former pushes again vigorously after the application, and the leaves assume a dark hue, indicating good health.

The action of sulphate of iron is two-fold; on the one hand it destroys the parasite, and on the other it restores the vitality of the plant which has been exhausted. It might be supposed that the sulphate of iron applied in such quantity would act as a poison upon the Lucerne; but this is not the case. The calcareous soils upon which I have operated protect the Lucerne completely, because the sulphate of iron is decomposed where lime is present. But these are not the only soils on which I have operated; I have also destroyed the Dodder on alluvial soils, which contain but little lime; the Lucerne has not been affected by the sulphate of iron on these soils any more than on the calcareous.

A poison being only taken into the system of vegetables by the roots, and the spongioles of the Lucerne being very deep in the earth, the sulphate of iron reaches them only in small portions, and in consequence of rain which may occur after the application. If a plant with creeping roots were acted upon, the sulphate of iron would doubtless destroy it; but in our artificial pastures of Clover, Sainfoin, and Lucerne, this result is not to be feared. *Ponsard in Mon. des Com.*

* See Kühn Ueber das Erkränken der Möhren, in Bot. Zeit. 1856, Feb. 15.

NEW GARDEN FERNS.—No. XIV.

26. THYRSOPTERIS ELEGANS, Kunze. PANICULARIA BERTERI, Colla.

Fronds large decompound, the sterile and fertile portions separate; sterile with cuneate-lanceolate obtusely serrated ultimate segments; fertile consisting only of the rachis or veins bearing stipitate subsecund sori, which have an oblique cup-shaped or subglobular involucre, and form a thyrsoidal raceme or panicle; stipes stout, clothed below with deciduous wool.

This is a very remarkable Fern, both on account of its size and peculiar structure, and scarcely less so for its geographical position—the island of Juan Fernandez. The native fronds gathered by Bridges, which we possess, are upwards of 8 feet in length, with a smooth stipes of 5 feet long, roundish in the upper part and measuring half an inch in diameter, flatter near the base, where it is thickly clothed with deciduous wood, and there measuring an inch and a quarter in its broadest diameter. The leafy portion is about 3½ feet long, and nearly as much across the base, the lower pinnæ or branches being at least a foot and a half long; supradecompound, with a nearly triangular outline, smooth, shining, and coriaceous. The lower pinnæ or branches have several fertile quadripinnate pinnules at their base, and are sterile towards the apex; while the upper pinnæ, also with quadripinnate pinnules, and the apex of the frond, are entirely barren. The tertiary divisions of the sterile portions, one of which is shown on the left hand in the figure, are ovate, more or less acuminate; *they* are bipinnate, their ultimate divisions small, cuneately

lanceolate, entire, or with one or two shallow teeth, and corresponding free veins. The fertile parts of the frond are exactly analogous to the barren in their mode of division, as is shown on the right hand in the figure, except that instead of the small flat ultimate divisions they consist only of stalked clusters of spore-cases, the veins only, tipped by the sori, being developed, and the parenchymatous matter of the sterile parts being altogether wanting; each venule or vein bears one of these clusters, so that the entire, or two or three-toothed barren segments are replaced by one, two, or three sori respectively. The involucre is a semi-globular or cup-shaped body, somewhat contracted and oblique at the mouth, and contains sessile compressed spore-cases like those of the Cyatheas, to which family, no doubt, this plant belongs. It has been said to have a caudex as thick as a walking-stick, and hence it has been called an arborescent Fern, but as the stipes fully answers this description there has no doubt been some error in the terms employed, and the Fern appears to be rather a dwarf-stemmed plant with gigantic fronds. The involucres are comparatively larger than shown in the figure. The plant forms a desirable evergreen Fern for a warm greenhouse. It was introduced a year or two since by Mr. Bridges, to the nursery of Mr. Low, of Clapton. *T. M.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. VIII.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

COLUMN 1st, *continued.*—C. S. (*i. e. Calyx-Sepals.*) In Ex. 9, "*common red* Poppy," it is necessary to observe the number of sepals in the flower-bud, because they fall off as the flower expands. In Ex. 15, "*wood* Strawberry," a garden specimen may be consulted, except it be some horticultural monstrosity in which two or more flowers have coalesced, and the parts of the floral whorls are in consequence multiplied. The calyx in this plant is generally described as "double," *i.e.* as composed of two whorls, each consisting of five sepals, all of which cohere. The significance of the five outer sepals will be better appreciated after a morphological lesson on the relationship which subsists between one part and another in the different floral whorls.

C. P. (*i. e. Corolla-Petals.*) In Ex. 17, "*white* Dead-nettle," five petals cohere to form the tubular corolla. The same structure occurs in "*common* white Horehound" or in any other of the very natural order Labiates (*Labiatæ*). Two petals cohere almost to their summit, and thus form the upper portion (*upper lip*), whilst three cohere almost as extensively and form the lower portion (*lower lip*) of the corolla. Such a corolla is termed "lipped" (*labiate*) from its affecting somewhat the appearance of an animal's mouth with the lips apart.

St. (*i. e. Stamens*).—In general the number of the stamens, whether free or cohering, is readily ascertained. If they exceed 12 they are recorded as numerous (∞). In Ex. 21 "*spotted palmate* Orchis," and in others (as Herminium monorchis) of the numerous and remarkable order to which it belongs, the flower is peculiarly modified. In this and most others of the order there is only one stamen consisting of a sessile anther composed of two lobes or cells, which stand more or less apart. Beginners will follow the example of Linnæus in mistaking these two lobes for distinct stamens. It has already been noticed that some of the flowers of Ex. 24, "*spotted* Arum," consist of only one stamen, and it may be further remarked that the two lobes of the anther are seated back to back and not side by side, as is more usual. In the earlier state they are yellow, and gradually turn purple.

$\frac{P}{C}$ (*i. e. Pistils and Carpels*).—There is sometimes a difficulty in determining the number of carpels. When there are more than one they frequently cohere, either partially by their ovaries only, or further still by the lower portion of their styles, leaving the upper portions free. In the latter case the compound style is considered "single" and branched, each branch bearing a stigma. The cohesion may be continued throughout the entire length of the styles, leaving the stigmas only free. Or the cohesion of these may also be complete, and the character of the compound stigma more or less indicated by the number of lobes or projections which tally (but not always) with the number of the carpels. There is only one carpel to a pistil in Example 14, "*common* Furze" (*and other Legumens*), in 19, "*common* Spurge Laurel," and in 24, "*spotted* Arum." In these cases, therefore, the pistil is "single" and "simple." In Ex. 15, "*wood* Strawberry," the carpels are numerous and free, and the pistils (being identical with them) are "numerous" and "simple." In the other examples the pistil is "single" and "compound."

To Ex. 9, "*common red* Poppy," a (!) has been placed, because the number of the somewhat ∞ carpels which compose its pistil is variable. This may be ascertained without dividing it, by inspecting the number of sessile stigmas which form double lines on its summit, extending like rays from the centre to the circumference.

To Ex. 17, "*white* Dead-nettle," another (!) denotes a difficulty, which botanists have not yet overcome. They have not satisfactorily decided whether the four-celled ovary originates in the cohesion of four carpels or two.

To Ex. 18, "*common* Primrose," there is a third (!) because it is impossible by inspection and transverse section of the pistil to decide whether it consists of one carpel or more. When its ovary has become matured into a fruit, there are sufficiently clear indications that five carpels are present, but we should be forestalling what ought first to be shown in regard to the general structure of fruits, if we were to proceed with these remarks.

In Ex. 24, "*common* Arum," one kind of flower consists of a single simple pistil, composed of an ovary capped by a sessile stigma. Several of these are ranged round the lower part of the stalk on which they are seated. They have no perianth, and are packed close together. The other kind of flower, which consists of a single sessile anther, is also without perianth. These are packed close together round the stalk, a little above the flowers, composed of a pistil only. The upper portion of the stalk on which the flowers are seated is a fleshy club-shaped mass. This plant is popularly known under the name of "Lords and Ladies," but in this part of Suffolk, where we are deficient in nobility, it has been degraded into "Landlords and Landladies!"

N.B. When the beginner finds that professed botanists are sometimes at fault, he will feel satisfied there is an unexhausted mine of discovery before him, in which he may soon expect to open up some fresh vein of inquiry, and assist in the accumulation of facts tending to elucidate the laws by which the structure of plants is defined. The more clearly these laws are apprehended, and as seeming anomalies disappear, the more surely do they testify to the surpassing excellency of the wisdom by which they were ordained.

I would earnestly caution all who are inclined to take up botany as a special pursuit, never to listen to the misapprehensions under which even some naturalists seem to labour in regard to the comparative importance or non-importance of its several branches, and still more in respect of the supposed rudimentary and unsatisfactory state of the entire science. The progress hitherto made may possibly be a mere foreshadowing of what we have to expect: but it has been great. It ought not to be undervalued. Men of sound learning, of philosophic minds, of most accurate habits of investigation, have devoted their lives to this science, as strictly such, and they have not laboured in vain. They have placed it at least upon a par with any other great branch of natural history: in some respects they have carried it beyond all. In every subordinate department of the science the progress has been so satisfactory that the merest tyro to whom it

is introduced can comprehend the facilities and appreciate the difficulties of his position. Because any one can now direct a telescope to the spot where Neptune may be seen, do we think less of the science by which the existence of that planet was originally detected? Because children may now dexterously communicate by electric telegraph, do we undervalue the research by which the great principle was established which led so immediately to the construction of that important engine? The public generally have as yet very hazy notions of what abstract science exactly means, or they would never suffer any one in particular to linger and languish for want of due encouragement: since the progress of every art dependent on it must continue proportionably stationary.

(*To be continued.*)

Home Correspondence.

Lilium giganteum in North Staffordshire.—This extraordinary plant flowered splendidly in July last at Biddulph Grange. It was planted in the open border and has borne the three last severe winters without any other protection than a wooden shutter, intended to throw off superfluous moisture; and even this precaution was probably superfluous. The flowering stem made its appearance in April, and rose to the height of 8 or 9 feet crowned by a truss of 15 blossoms, which continued fully 10 days in perfection. They were exquisitely fragrant and first expanded in the evening, a circumstance that might have escaped notice had not the delicious odour—perceptible at the distance of 30 yards—attracted attention to the spot where the plant grew. The flower-stem measured 3 inches in circumference at the height of a yard from the ground, and was stiff as a flag-staff. It is still (September 10) perfectly green and fresh, but instead of flowers is now surmounted by seed-pods as large as those of the common Bean. The plant had been received from Messrs. Veitch, of Chelsea. Fine as was this specimen, it seems to have been inferior to the one that flowered in Mr. Boscawen's garden, near Truro, in Cornwall; but this was probably owing in a great measure to the circumstance of the Staffordshire plant having been removed last autumn, which of course could not be done without great injury to its roots. *J. B.*

Colours of Flowers.—I have read with much interest your article on this subject at p. 563. We have another instance in Salvias, as well as Delphiniums, of lilac and scarlet being met with in the same genus, but certainly you are perfectly correct in stating that no instance has yet occurred where these two colours have been blended by hybridizing. I mention Salvias because I have tried in vain over and over again to produce in them a red and blue striped variety. *Subscriber.*

Diseased Lobelias.—I regret to find the disease noticed by your correspondent Mr. Foggo as affecting Lobelia ramosoides is by far too common this season, and I suspect in many instances will be attributed to some neglect on the part of the gardener. A neighbour of mine had several of his plants die off rather suddenly without any apparent cause, while the plants in my garden, which have been masses of blue for the last three months, continue healthy without having exhibited any symptoms of disease in a single instance. Almost every one who has visited the Royal Gardens at Kew—the place above all others in the neighbourhood of London for healthful recreation and rational amusement—must have been struck with the beautiful appearance during summer of the blue Lobelia beds on either side of the principal walk leading to the great conservatory; and yet when there a short time ago I was surprised to find the beds that had been the objects of general admiration were occupied with Verbenas, &c., that seemed by their appearance to have only been recently planted. On inquiring the reason for this being done so late in the season, I was informed that the blue Lobelias with which they were previously filled had been all suddenly attacked with a sort of "blight," and so seriously injured as to render it necessary to have the whole of them removed. If such has been the case elsewhere I fear the effect of many a gay parterre will have been greatly marred for want of a good substitute to take the place which the blue Lobelia occupied. *B.*

Exhibitions.—If prizes are offered for fruit and vegetables in collections of 12 distinct kinds, can parties take the prize if they exhibit in their collections three Grapes, two dishes of Peas, three of Potatoes? Do you term those distinct sorts of fruit and vegetables? Also would it disqualify a party, provided he staged more dishes than the 12? By answering these questions you would greatly oblige *George Taylor.* [We apprehend that if there are three *really* distinct sorts of Grapes, &c., the exhibitor keeps within the meaning of the rule. A person who stages either more or fewer than 12 dishes is undoubtedly disqualified by such an act, and his collection should be treated as if not present.]

Manuring Forest Trees.—I send you two leaves of two Lime trees of the same age—I suppose 140 years—and whose soil was exhausted by two such large vegetables sucking the substance out of it for 140 years. I nourished one of them by laying on about 4 inches of good earth round the stem, and extending as far as the branches, a diameter of about 45 feet. The large leaf is from this tree, and the others on every branch are about 12 to 15 inches round; the other leaf is from the tree which got nothing (this is 10 inches round). I think this shows how a limited number of ornamental trees may be dealt with and invigorated, and made to prolong their lives. The labour and cost might prevent it being done to a large extent, and earth might become scarce. It has occurred to me whether some more condensed and portable nutriment might not be given, mixed probably with a little earth or ashes and left to be worked into the roots, in cautious quantity. Perhaps a little guano might be good, but the substance which has occurred to me as appropriate to trees is coarse potassa, inasmuch as it is the produce of trees by incineration. Is it not therefore probable that its effect on the roots of trees might be to nourish them? I mean to try it in a cautious way, and one of the shapes in which I mean to make the experiment is by applying wood ashes, which one can have in thinning and clearing out woods. I have been burning a good deal of stuff, and I mean to apply the residuum in this way. I find also that coarse sulphate of potassa can be purchased at 6*s.* 6*d.* per cwt., and 1 cwt. will do a great many trees, sowing it on the surface and leaving it to be washed in by the rains, of which we have abundance. I live in the belief that there would be a good result. *K.* [We cannot entertain a doubt that the method here described would be attended by the advantage anticipated. The difference in the leaves of the two Lime trees sent us was most striking.]

Societies.

CRYSTAL PALACE HORTICULTURAL EXHIBITION.—The last of the great displays of Fruits and Flowers held this year under the auspices of the Crystal Palace Company took place on Wednesday, Thursday, and Friday last, and, notwithstanding the advanced state of the season, was perfectly successful. The park and terrace gardens were in excellent condition, the beds well furnished with flowers, and the vases, which are wholly filled with Scarlet Geraniums, were a perfect blaze of beauty. Indoors the plants were also extremely healthy. Fuchsias were finely in flower, and some of those trained up pillars at least 12 feet in height. Two Tree Ferns growing opposite the Sheffield Court were remarkable for their luxuriance and beauty; they could not measure less than 12 feet in diameter. Red, white, and blue Water Lilies were blooming profusely in the aquaria. The number of visitors during the three days, we understand, was upwards of 50,000.

The display of Stove and Greenhouse Plants contributed on this occasion was comparatively limited; but what were produced were well flowered. They consisted chiefly of Plumbago capensis, Heaths, Allamandas, Dipladenias, Ixoras, Stephanotis, Clerodendrons, Veronicas, Cyrtoceras reflexum, and Pleroma elegans. Japan Lilies, of every shade of colour from pure white to the richly-spotted rubrum, were shown in abundance. Some of the intermediate varieties were extremely handsome, especially one in a group contributed by Messrs. Jackson, of Kingston, the colour of which was unusually brilliant.

Of Verbenas there were several collections, the best of which was furnished by Mr. Shrimpton, gr. to A. J. Doxat, Esq. These were trained over flat circular wire trellises, and were beautifully in flower. To crimson sorts Géant des Batailles promises to be a good addition. Among scarlets Mrs. Woodruff and Lord Raglan are brilliant and showy, and of purples one of the best is Wonderful. These sorts all possess white eyes, which serve to set their respective colours off to excellent advantage. Among whites Mrs. Holford was the best.

Cockscombs and Balsams were exhibited; but the former were not good, and the latter, with the exception of a collection from Mr. Smith of Dulwich, were past their best. Mr. Smith's were however beautifully grown and flowered. The way in which he manages them will be found fully recorded at p. 535 of our present year's volume.

The exhibition of Scarlet Geraniums, three stages deep, was quite 14 yards in length. The best of them were Frogmore, Tom Thumb, Lady Middleton (which is not distinguishable from Trentham Rose), Rubens, and Le Titien. The last is a very fine kind with beautifully compact heads of flower. Among sorts with horse-shoe leaves were Baron Hugel, Masterpiece, and Brighton Hero; and of variegated sorts beautiful plants of Brilliant, Attraction, Silver King, Golden Chain, and Flower of the Day. We also noticed variegated and other kinds grafted standard high.

Fuchsias occupied a piece of stage at least 24 yards in length, and among them were some well grown plants. Of light kinds we remarked Queen of Hanover, Venus de Medici, Pearl of England, Duchess of Lancaster, pure white with rose coloured corolla, England's Glory, a good bold flower, Clio, and the small purple corolla'd Snowball. Among dark kinds were Autocrat, Prince Albert, Orion, Duke of Wellington, Banks Glory, Alpha, and General Williams. There was also a good dark kind with a double corolla.

Achimenes were exhibited in tolerable abundance. Among the sorts were gigantea, a variety in the way of picta, Chelsoni, rosea, the blue and white varieties of longiflora, the white Margueritæ, venusta, Backmanni, a good purple, and Edmond Bossier, white, prettily streaked round the eye with rays of lilac.

Of Lycopods there were several well grown collections, in which were beautiful plants of Danielsianum inequalifolium, Mertensi, lepidophyllum, Cæsium arboreum, Galleotti, stoloniferum, denticulatum, flexuosum, umbrosum, viticulosum, Wildenovi and apodum. The lively green compact tufts of the last were the admiration of everybody.

Of Ferns there was a large bank of handsome specimens here and there mixed with Orchids and Pitcher Plants. Of Gymnogramma there were as usual some beautiful species; also Cheilanthes lendigera, Asplenium Belangeri, Pteris geranifolia, Gleichenia dicarpa, a beautiful small leaved kind, Hemidictyum marginatum, and Sagenia alata. Adiantums, Aspidiums, and others more commonly met with were also abundant.

Pitcher Plants came from Messrs. Veitch and Gedney. The sorts were ampullacea, lævis, Rafflesiana, and phyllamphora.

Orchids were scarce. They were furnished by Messrs. Woolley, Carson, and Gedney. Among them were the pretty Eria densiflora, Miltonia spectabilis, Aerides suavissimum, Odontoglossum grande, Peristeria elata, the blue Vanda, Epidendrum vitellinum, with blossoms of unusual brilliancy, and two Angræcums.

Heaths were in good condition, but not plentiful. Among the sorts were Clowesiana, Irbyana, Massoni, Austeniana, and retorta major.

Plants remarkable for fine foliage were shown extensively. The best group as usual came from Messrs. Veitch. It consisted of noble plants beautifully arranged of Livistonia borbonica, Philodendron pertusum (a species with large and handsome leaves), Dracæna Draco and indivisa, the beautiful Aralia pulchra, Plectocomia elongata, Pandanus utilis, Dion edule, Cycas revoluta, and Sabal umbraculifera. The same firm contributed a very fine group of Variegated plants, and collections of the latter were also shown largely by other growers. Among the different kinds were Musa zebrina, Maranta Warczewiczi, Croton pictum, Dieffenbachia picta, the beautiful Cissus discolor, Croton variegatum, and C. discolor, the latter with leaves red underneath and green above, Pandanus argenteus variegatus, Coleus Blumei and pectinatus, the former blotched, the latter streaked and mottled with brown; the red and brown Dracæna terminalis and ferrea, Ananassa sativata variegata, a variegated variety of the Aloe-leaved Yucca, a Hydrangea with green and white leaves, the variegated Aspidistra lurida, Caladium pictum bicolor, and the red hairy-leaved Begonia splendida. So large an assemblage of these and other beautifully variegated plants was perhaps never before brought together; their effect *en masse* was admirable.

Fruit, it need scarcely be remarked, formed one of the most important features of the show. It was very plentiful; but with one or two exceptions it did not exceed mediocrity. There were few Pine Apples; Grapes, Peaches, and Nectarines were abundant, and the same may be said of Plums, which on the whole were very good. Pears were not very plentiful, but there was a good display of Apples.

The best collections of 12 dishes of 10 distinct kinds of fruit were contributed by Mr. Fleming, gr. to the Duke of Sutherland, and Mr. Tillyard, gr. to the Rt. Honourable the Speaker at Heckfield. Mr. Fleming's exhibition contained a Black Prince and Moscow Queen Pine Apple, both good, but the latter a little over ripe; Muscat and other Grapes, Trentham Hybrid and Hybrid Cashmere Melons, Violette Hâtive and Red Roman Nectarines, very fine Walburton Admirable Peaches, Moorpark Apricots, Morello Cherries, and Jargonelle Pears. Mr. Tillyard had a good Black Jamaica Pine Apple, two Melons, very nice Violette Hâtive Nectarines and Noblesse Peaches, Red Magnum Bonum and Washington Plums, White Ischia Figs, excellent Black Hamburgh and White Nice Grapes, Morello Cherries, and White Currants. A third collection from Mr. Page, gr. to W. Leaf, Esq., of Streatham, contained Sharpe's Emperor and Jefferson Plums, Yellow Ingestrie Apples, Brown Turkey Figs, Elruge Nectarines and Noblesse Peaches, Black Hamburgh Grapes, two Queen Pine Apples, Jargonelle Pears, Morello Cherries and a Bromham Hall Melon.

Of collections of eight dishes of 6 distinct kinds of fruit the best came from Mr. Frost, gr. to E. L. Betts, Esq. It contained a Queen Pine Apple, Muscat and Black Hamburgh Grapes, King's Green-fleshed Melon, Grosse Mignonne Peaches, Violette Hâtive Nectarines, Jefferson Plums and Morello Cherries. Next in point of merit was a collection from Mr. Robinson, gr., Warnford Park. It contained a Black Jamaica Pine Apple, Muscat and West's St. Peter's Grapes, Greengage Plums, Royal George Peaches, and White Nectarines, Brunswick Figs, and a Melon. A third collection came from Mr. Taylor, gr. to J. Coster, Esq., of Streatham: it contained a Golden Perfection Melon, a Queen Pine Apple, Black Hamburgh and Muscadine Grapes, Brown Turkey Figs, Noblesse Peaches, Jefferson Plums, and Morello Cherries. Other collections came from Mr. Kaile and Mr. Martin, gr. Selwood Park, Sunning Hill.

Of Providence Pine Apples noble specimens came from Mr. Bray, gr. to J. B. Lousada, Esq.; and from the Duke of Devonshire's garden at Chatsworth. Queens large and beautifully formed came from Mr. Barnes, of Bicton. These, we should think, could not weigh less than 6 lbs. each. Mr. Bray had also some handsome specimens of this kind of Pine Apple, and so had Mr. Page, gr. to W. Leaf, Esq. Mr. Dawson, of Panshanger, Herts, showed a good Cayenne; and some good fruit came from Mr. Jones, gr. to Lady Charlotte Schreiber, Dowlais House, Glamorganshire.

Three excellent dishes of Grapes came from Mr. Fleming of Trentham; the sorts Muscat and Black Hamburgh. Mr. Ewing, of Bodorgan Hall, also furnished very fine bunches of Barbarossa and Black Hamburgh, both of which had, however, sustained some little injury from travelling. Mr. Alborough, of Brook House, Norwich, had some well-ripened Muscadines, Muscat, and Black Hamburgh. In the class of two dishes, Mr. Snow, gr. to Earl de Grey, had some well grown and beautifully ripened Muscats; Mr. Fleming Muscadines and Muscats, and Mr. Robinson White Frontignan and Muscats. Boxes containing 12 lbs.

of Black Hamburgh beautifully coloured and covered with bloom were furnished by Mr. Harrison of Oatlands, Mr. Kay of Finchley, and Mr. Clarke of Manchester. The last appeared to be Mill Hill Hamburgh. The largest bunch of Grapes shown was one of Muscat of Alexandria, coarse and green. This came from Mr. Young, gr. to C. Bailey, Esq., Aberdare. The next largest, a beautifully ripened bunch of Mitchell's seedling, a kind like the Syrian, was contributed by Mr. Tillyard. Mr. Vare sent a noble bunch of Black Hamburgh.

Peaches and Nectarines were well ripened, but small. In the class of 6 dishes of 3 kinds, the best came from Mr. Frost, gr. to E. L. Betts, Esq. The varieties were Grosse Mignonne, Gallande, and Barrington Peaches, and Elruge, Newington, and Hunt's Tawney Nectarines. In 4 dishes Mr. Dawson had Grosse Mignonne, and Violette Hâtive Peaches, and beautiful specimens of Pitmaston and Violette Hâtive Nectarines. In 2 dishes, Mr. Lane, gr. to J. H. Palmer, Esq., of Fulham, had excellent Elruge Nectarines and Violette Hâtive Peaches. Fine fruit of the last-named variety and of Pitmaston Nectarine also came from Mr. Dawson.

Of Apricots there were one or two dishes, all of which were however composed of very small fruit. The best came from Mr. Ewing, gr. to O. F. Meyrick, Esq., Bodorgan Hall, Anglesea.

Melons were not very plentiful. The best Green-fleshed came from Mr. Munro, gr. to Mrs. Oddie, of Colney House, East Barnet. The sort was the Bromham Hall, sometimes called Pine Apple. Mr. Whiting of the Deepdene furnished the best Scarlet-fleshed.

Figs: the best were contributed by Mr. Bousie, Stoke Park. The sorts were the Brunswick and White Marseilles. Excellent fruit of the Brown Turkey came from Mr. Robinson of Warnford.

Cherries were chiefly confined to Morellos, of which there was some beautiful fruit. The best two dishes came from Mr. Dawson; one was the Florence, the other the Morello. Good fruit of the last also came from Messrs. Hudson and Betteridge.

Of Plums, remarkably fine specimens of Jefferson, Kirk's and Greengage were shown by Mr. Snow, gr. to Earl de Grey; and nearly equally good fruit of the Jefferson, Kirk's, and Washington, came from Mr. Bousie. We also noticed good specimens of Magnum Bonum.

Dessert Apples, beautifully ripened and well coloured, were shown by Mr. Mitchell of Brighton. The sorts were Nonesuch, King Pippin, Summer Golden Pippin, Court Pendu Plat, and Margil. Of kitchen varieties the best came from Mr. Munro, gr. to Mrs. Oddie. The sorts were Norfolk Beaufin, Emperor Alexander, White Quaranden, Hawthornden, Alfriston, and Keswick Codlin.

Of Pears the best flavoured dish was furnished by Mr. Whiting; the sort Jargonelle. Mr. Taylor, gr. to J. Coster, also showed fine fruit of this variety.

Of Fruit trees in pots Messrs. Kaile, Lee, and Lane showed collections containing Peaches, Nectarines, Plums, and Cherries, all well fruited, and the Peaches and Nectarines large and well coloured.

Cut flowers in the shape of Dahlias, Hollyhocks, China Asters, and Pansies were shown in great abundance, and for the most part in excellent condition. Nothing in their way could possibly be finer than the collection of Dahlias contributed by Mr. Turner, of Slough. Mr. Keynes also showed very good blooms. Among the Dahlias shown by Mr. Turner were Sir R. Whittington, Duchess of Wellington, Constancy, Sir C. Napier, Captain Ingram, Bessie, Cossack, Lady Popham, Earl of Carlisle, Yellow Beauty, Shaded Model, Lord Palmerston, Rosea elegans, Tyrian Prince, Satirist, Beauty of the Grove, Salvator Rosa, Edmond Foster, Sir F. Bathurst, Fenella, Model, King of Autumn, Fame, Grande Sultan, Miss Burdett Coutts, Butterfly, Lollipop, Essex Triumph, Rachel Rawlings, Richard Cobden, Perfection, Eclipse, Lord Raglan, Colonel Wyndham, Delta, Ruby Queen, Sir J. Franklin, Lady Folkestone, Cherub, Miss Spears, Chance, Mr. Seldon, Exquisite, Amazon, and Admiral Dundas. Among Mr. Keynes' flowers, in addition to those named above, were Pre-eminent, Duke of Devonshire, Morning Star, Lord Cardigan, Negro, Evening Star, Chameleon, Miss Nightingale, Lady Paxton, Omar Pacha, Marshal Pelissier, Hamden Beauty, and Chrysalis. Fancy varieties differed but little from those recorded at p. 583. Several seedlings were shown, and some received prizes Of these we hope to give some account hereafter.

Hollyhocks in spikes were exhibited in pretty good condition by Messrs. Chater and Paul. Among Mr. Chater's were Sir W. Middleton, salmon; White Globe (Paul's), Mr. J. Clarke; Purple Perfection; Jabez Chater, rosy salmon; ignea, rich orange; Sulphur Queen Improved; Alexandrina and Lady Middleton, dark rosy salmon. Mr. Paul had Queen of Whites, a beautiful variety with none of that green tinge which whites generally have; also Primrose Perfection, Rosy Morn, a lively looking bright pink kind; and a cream coloured sort called Pearl. Several collections of single blooms were exhibited; they were in good condition, and individually very beautiful; but Hollyhocks to be seen in perfection should be shown in the shape of spikes.

Cut Roses were abundant, and formed, as they always do, a source of great attraction. The best were furnished by Mr. Mitchell, of Piltdown, and Messrs. Paul. Among the varieties we remarked beautiful blooms of Souvenir de Malmaison, Géant des Batailles, Gloire de Dijon, General Jacqueminot, Lord Raglan (which promises to be one of the very best of our new Roses), Acidalie, and Mrs. Bosanquet. Mr. Cranston had a fine boxful of Gloire de Dijon, which is one of our best and hardiest of Tea Roses. He also showed good blooms of Cloth of Gold, and of that fine Rose Jules Margottin. From A. Rowland, Esq., also came some fine blooms.

Vegetables were not very abundantly contributed, and what did come were not first-rate, with the exception of one dish of Potatoes called Bradley's Kidney, which was greatly admired. They were very regular in shape, and quite smooth and polished in the skin. Many larger varieties were shown, but they were coarse. The Parsnips and Carrots in some of the collections were good.

ENTOMOLOGICAL, *Sept.* 1.— W. W. Saunders, Esq., F.R.S., President, in the chair. The President before entering upon the business of the evening communicated to the Society the great loss which natural history had experienced in the death of Mr. Yarrell, which had taken place suddenly on the morning of the meeting at Yarmouth. As one of the most profound British naturalists, and one of the most amiable of men, Mr. Yarrell's loss would be long felt. He had taken a warm interest in the welfare of the Society from its first establishment, and had for many years acted as its treasurer. Donations of works upon natural history presented to the Society by the Royal Agricultural Society, the Zoological Society, Society of Arts, &c., were announced. Mr. Westwood called attention to the modification in respect to the distinction of species and local varieties which was attempted to be established in Dr. Schaum's new work on the Coleoptera of Germany, in which a great number of insects hitherto regarded as distinct species were sunk into local varieties; a point of view which was recently gaining ground to a considerable extent in this country. Mr. Wallace exhibited specimens of two Lepidoptera of the greatest rarity, recently captured in the Isle of Wight, namely, Caradrina exigua, hitherto unique, and Botys silacealis, known only by a specimen in the old collection of Francillon, which had consequently been regarded as a doubtful native species. Mr. Janson exhibited the four following Coleoptera recently captured near London, hitherto of very great rarity—Dinarda dentata, a single specimen in the British Museum, recorded as captured by Leach in Devonshire, had been doubted as British; Dendrophilus pygmæus (D. Sheppardi Curtis); Dorcatoma rubens in an old Oak tree; and Cryphalus binodulus, a genus of Bostrichidæ new to this country. The species of this family are generally found under the bark of Conifers, but the present species was found under the bark of Aspen. Mr. Douglas stated that he had observed Apate capucinus in the staves of casks of Currants imported from the Ionian Islands. Mr. S. Stevens stated that he had reared a beautiful species of Plusia and a Pyralis which had fed on the leaves of plants imported by him from Madeira, which he noticed as an instance of the facility with which foreign species might be accidentally introduced into our native lists. Mr. Hunter stated the circumstances under which he had found the Eriopus Latreillii, leading to the possibility of its being an imported specimen. Mr. Turner exhibited a new Depressaria from the neighbourhood of Worthing. Mr. Newman exhibited specimens of a curious white woolly insect found on leaves of Grass, which the president recognised as a species of Coccus. Mr. Westwood gave an account of several masses of eggs of a Phryganea inclosed in gelatinous masses found on Yew trees by Sir W. Trevelyan. Mr. Green exhibited Cleora Lichenaria reared from the larva feeding upon an orange-coloured Lichen. Mr. S. Stevens exhibited the larvæ of Agrotis Ashworthii and Macroglossa Stellatarum. Messrs. Dutton and Moore also exhibited numerous insects recently captured; and a paper by Mr. Bates, containing the description of a new species of Myrmecilla (one of the Cicindelidæ), was read.

Garden Memoranda.

MR. WILKINS' EXPERIMENTAL GARDEN, READING.— The supplying growing crops with liquid manure underground has long occupied Mr. Wilkins' attention, and the practical value of the plan on a small scale has for several years been well exhibited at this place. From the success which we had heard had attended his efforts we were induced to pay his experimental garden a visit in 1854, and the result of our inspection on that occasion will be found at p. 536 of our volume for that year. We again inspected his crops the other day, and the following is a faithful report of their present appearance and condition. They are growing in beds bottomed with thin tile or brick which also encloses them at the ends and sides to the height of 4 inches, and down the middle of each bed a drain-pipe is laid, which conducts and diffuses the manure-water over the whole of the bottom of the bed. At one end of this underground drain is placed an upright pipe which is fed by a series of small gutta percha pipes connected with a reservoir in which the manure-water is made, and from which by turning a tap all the beds can be supplied with liquid manure at one and the same time, and when enough has been furnished them, which is known by the height at which the water stands in the upright pipe, the tap is again turned and the supply cut off. Such is Mr. Wilkins' present plan of preparing the beds and supplying the manure. Opposite the beds we have just been describing are others formed in the usual manner. A bed on the old and another on the new system have each been planted at the same time and with the same sort of crop, and thus the difference between the one and the other can be seen at a glance. The first bed we inspected consisted of French Beans in a state of maturity. The pods of those on the new system were much more plentiful than those on the old plan; they were also individually longer and contained Beans of larger size. In German Greens on the new and old plan there was a marked difference in favour of those to which manure water had been applied. Rhubarb both on the new and old systems had been good, but that on the new especially so, the flower stem rising 7 feet in height; both had been cut over about three weeks ago, and that to which manure water had been applied had pushed fresh stems fit for use, while on the bed not so treated there was not a stalk longer than the finger. Hemp on the new system had made stems 7 feet 4 inches high, and strong in proportion, while that on the old plan was only 4 feet 5 inches in height, small, and spindly. Sutton's Early Six Weeks' Turnip, sown three weeks ago, was growing well on the manured beds; but on the old plan they had entirely failed, the fly having attacked and ruined them before they had got into rough leaf. White Globe Mangel Wurzel on the new plan was a perfect crop, while on the old system it was all but a failure. One of the largest of the roots measured 2 feet 3 inches in girth. Swedes were greatly in advance of those in a neighbouring field where the highest class tillage is pursued, some of the roots on the new system girthing 23½ inches round, while those in the field and on the old system had scarcely half that circumference. The difference between the growth of Carrots and Parsnips on the new and old systems was also equally remarkable, those on the new being much the largest.

In Potatoes the difference was not so great; both were good and apparently free from disease. Some in pure sand and sawdust, but fed with liquid manure, were both growing vigorously. Brussels Sprouts on the new system were much stronger than those on the old. Hops both manured and otherwise were good and bearing heavy crops. A pole raised from a cutting planted in the spring of this year was 11 feet in height and full of fine Hops from top to bottom. The yield of Wheat, Peas, and Beans on the new system was more than double that grown on the old plan; the ears of Wheat were much finer, and the individual grains larger. Marsh Mallow grown for its fibre was equally as good on the old system as on the new. It will thus be seen that Mr. Wilkins' plan of feeding crops in active growth with liquid manure at the root has as far as it has gone been productive of the best results, and therefore for allotment holders and others possessing small gardens it will be found invaluable. By its adoption they may we believe nearly or quite double the amount of food which their gardens at present yield them, and that at little trouble to themselves. We understand indeed that a company is being formed to carry out the plan in regard to small gardens at a very small expense, which the cottager will be permitted to repay in such a way as his means will allow him. As we have said, therefore, to small holders the plan may become a great boon; whether or not it can ever be practised on a large scale remains to be proved. The great obstacle to its universal adoption is its expense. That, however, the patentee thinks may yet be overcome.

We may mention, in conclusion, that Mr. Wilkins has made capital bread of half Mangel Wurzel and half Wheat flour; its taste is good and its colour equal to that of second-rate bakers' bread. He has also made a wine from Mangel Wurzel, which he says might be sold for 6*d.* per quart bottle. We tasted some of it after it had been three weeks bottled; it was, of course, not in perfection, but it promised to be excellent after it had been longer in the bottle.

Miscellaneous.

Bunya-Bunya.—The finest cone of Bunya-Bunya (Araucaria Bidwilli) that has perhaps ever been sent to Europe, formed part of the collection of the Australian products in the Exposition Universelle at Paris, 1855, and was exhibited by Chas. F. D. Parkinson, Esq., of Moreton Bay, son of Col. Parkinson. Through the medium of Col. J. Sidney North, M.P., this has been presented to the Museum of the Royal Gardens of Kew, and it is accompanied by the following interesting particulars, from the pen of Mr. Parkinson himself:— "This tree is deserving of more notice than any other growing in the northern districts of New South Wales; not perhaps because the quality of the wood may be superior to the other kinds of Pine, but because each tree belongs to some one individual of the Aborigines. The Bunya-Bunya is of the Pine kind, and grows in scrubs, or ranges of hills or mountains. It is not known growing in a wild state further to the south than the range dividing the falls of the waters of the rivers Brisbane and Burnett; but in the Wide Bay District, in the 27th parallel, it grows very thickly over an extent of country, about 30 miles by 12, which is in consequence called the 'Bunya-Bunya country.' The tree is easily distinguished, as it far outtops every other kind of tree in the scrub; and instead of the branches pointing downwards as in the Moreton Bay Pine (Araucaria Cunninghami), they grow straight out from the tree, or rather with a curve or inclination upwards. Its height is immense; Leichardt mentions

ther being 160 feet high before there were any branches; for in its wild state the branches only grow near the top of the tree, owing to the want of light in the scrub, but if planted out in an open space they feather quite to the ground. The wood can be used for the same purposes as Pine, and is rather more durable: it makes excellent sheep-hurdles. The leaves are of a rich dark green, and sharp-pointed, so much so as to be prickly. The cone, or fruit, is very large, and grows on the extreme tip of the tree. This fruit is only plentiful every third year. In appearance it is like an immense Fir cone, and is, before it is quite ripe, of a beautiful green colour. Measurement of the cone sent to the great French Exhibition:—12 inches in length; 22 inches round the broadest part, transversely; 19½ round in the narrowest part. The shape is a depressed globe. When the proper season arrives, the natives assemble in great numbers from very great distances all around, for the purpose of eating the fruit, which they generally roast. Each tribe has its own peculiar set of trees, and each family its own allotment among them. These are handed down from generation to generation with the greatest exactness, and if any one is found in a tree not belonging to him, a fight, or 'pullen pullen,' is the inevitable consequence. This is believed to be the only hereditary personal property possessed by the Aborigines, and it is therefore generally respected, and this makes the 'Bunya-Bunya' interesting." *Hooker's Journal of Botany.*

American Apple Orchards.—In America they have their "bearing year" and season of rest in neglected orchards, but they do not, as we do, attribute it to late spring frost. Downing, in his work, the "Fruits and Fruit Trees of America," treating on orchard culture, says, "The bearing year of the Apple, in common culture, only takes place every alternate year, owing to the excessive crop which it usually produces, by which they exhaust most of the organisable matter laid up by the tree, which then requires another season to recover, and collect a sufficient supply again to form fruit buds. When half the fruit is thinned out in a young state, leaving only a moderate crop, the Apple, like other fruit trees, will bear every year, as it will also if the soil is kept in high condition." He adds in a note, "One of the finest orchards in America is that of Pelham Farm at Esopus, on the Hudson. It is no less remarkable for the beauty and high flavour of its fruit, than the constant productiveness of the trees. The proprietor, C. J. Pell, Esq., has kindly furnished us with some notes of his experiments on fruit trees, and we subjoin the following highly interesting one on the Apple:—'For several years past I have been experimenting on the Apple, having an orchard of 2000 bearing Newtown Pippin trees. I found it very unprofitable to wait for what is termed the 'bearing year,' and it has been my aim to assist Nature, so as to enable the trees to bear every year. I have noticed that from the excessive productiveness of this tree, it requires the intermediate year to recover itself—to extract from the earth and the atmosphere the materials to enable it to produce again. This it is not able to do, unassisted by art, while it is loaded with fruit, and the intervening year is lost. If, however, the tree is supplied with proper food it will bear every year; at least such has been the result of my experiments. Three years ago, in April, I scraped all the rough bark from the stems of several thousand trees in my orchard, and washed all the trunks and stems within reach with soft soap; trimmed out all the branches that crossed each other, early in June, and painted the wounded part with white-lead, to exclude moisture and prevent decay. I then, in the latter part of the same month, slit the bark by running a sharp pointed knife from the ground to the first set of limbs, which prevents the trees from becoming bark-bound, and gives the young wood an opportunity of expanding. In July I placed one peck of oyster shell lime under each tree, and left it piled round the trunk until November, during which time the drought was excessive. In November the lime was dug in thoroughly. The following year I collected from these trees 1700 barrels of fruit, part of which was sold in New York for four and others in London for nine dollars per barrel. The cider made of the refuse, delivered at the mill two days after its manufacture, I sold for 3¾ dollars per barrel of 32 gallons, exclusive of the barrel. In October I manured these trees with stable manure in which the ammonia had been fixed, and covered this immediately with earth. The succeeding autumn they were literally bending to the ground with the finest fruit I ever saw, while the other trees in my orchard not so treated are quite barren, the last season having been their 'bearing season.' I am now placing round each tree one peck of charcoal dust, and propose in the spring to cover it from the compost heap.'" If time and space allowed, I could make many more extracts from this work to show that in America orchards, when neglected, bear crops every alternate year only, but where under proper culture they bear every year. When our orchardists imitate the labour and perseverance of this American gentleman, who takes so much pains with his Newtown Pippin trees, then may we hope to hear no more outcries as to the failure of our crops. *M. Saul, in Turner and Spencer's Florist, Fruitist, and Garden Miscellany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Where valuable stove plants have to be kept here while in bloom, they will require careful management to prevent their being injured by damp, and they must not be overwatered at the root, as stove plants are soon injured in a low temperature if kept too wet underground. Give air freely on bright days, but if the house contains many stove plants it will be advisable to shut up rather early in the afternoon, so as to retain a little warmth for the night; and in the event of wet cloudy weather setting in, it will probably be found necessary to use a little fire-heat, to dispel damp and preserve the blossoms of tender things, and this should be seen to before handsome specimens get disfigured or ruined for the season; for these in bloom are not over plentiful about most places at this season of the year, and are therefore worth caring for. Keep everything in this house as clean and neat as possible, removing decaying flowers and leaves, &c., immediately they are perceived, and examine pot specimens frequently, particularly such as may not occupy the most suitable places, turning them partly round in order to expose all their sides equally to light and air.

FORCING DEPARTMENT.

PINERIES.—A rather dry state of the soil about the roots and also of the atmosphere is essential during the ripening of the fruit where high flavour is an object, therefore be careful not to over-water plants on which the fruit is approaching maturity, and it will be advisable to use slight fires on dull days, so as to allow of giving sufficient air to prevent a stagnant state of the atmosphere, for fruit of first-rate quality cannot be expected from plants growing in a sodden soil or a damp unhealthy atmosphere. Endeavour to afford growing stock a steady bottom-heat of about 85°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will now be necessary to a considerably larger extent than has been the case during the summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors, &c., frequently, as any sudden change from a moist to a dry state of the atmosphere would be most injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will allow, and shut up early on the afternoons of bright days, so as to husband the sun's influences as much as possible. Where young stock is grown in dung-pits care must be exercised after this season not to get the plants weakly through keeping too close and warm, giving air freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings to allow of giving a little air at night and on cloudy days. VINERIES.—Use gentle fires when the weather is damp in houses where the fruit is ripe; but only just sufficient to keep the atmosphere dry, and look over the bunches, frequently removing any tainted berries immediately they can be perceived, for these if left in the bunches communicate the malady to others, and cause it to spread much faster than would otherwise be the case. It is still a too common practice to expose the Vines to the weather immediately the fruit is cut, and somes persons deem this practice essential to the ripening of the wood. When the weather happens to be warm and dry, such treatment may answer very well, but to expose Vines in wet, cloudy weather, when the object is the ripening of the wood, is sure to result in disappointment; therefore, where the wood is not properly ripened, keep the atmosphere dry and moderately warm, and use sufficient fire-heat to allow of giving air freely both day and night. Use brisk fires in houses where the fruit is not yet ripe, giving air freely, and be careful to guard the foliage from insects, particularly where the fruit has to be kept for any length of time after it is ripe. PEACHES.—As the trees will now be freely exposed to the air day and night, very little attention will be required here for the present. The foliage should, however, be kept clear of red spider, by an occasional washing with the engine where necessary, so as to preserve it in health until it has performed its functions and decays naturally. If any trees have to be removed here from the open wall, this may be done immediately the present crop of fruit is gathered, as the removal if very carefully effected and the tree properly attended to afterwards will not prevent the wood ripening, and there will be plenty of time for the trees to make fresh roots and get sufficiently established to carry a crop of fruit next season if not forced too early.

FLOWER GARDEN AND SHRUBBERIES.

If previous directions have been attended to, the propagation of next season's bedding stock will by this time be well advanced, and where, from the pressure of other work or other causes, this is not the case, every possible dispatch must be used while the weather is favourable for such work. Where cuttings of Verbenas and such like things have yet to be put in they should be inserted rather thinly in deep pans or shallow pots, in which they can be wintered, as they will be got established sooner in this way than would be the case if they were to be potted off before winter, and we have frequently found late cuttings managed in this way to winter fully as well as stronger plants; and, except plants intended to furnish cuttings in spring, it is very immaterial how small bedding plants are before winter, provided they are well rooted without having been got up in a close warm atmosphere to render them sappy and tender. Many parties, through anxiety to secure large plants, keep bedding out stock close and moist until late in autumn, and frequently in frames on dung beds, where size is soon obtained, but plants treated in this way are necessarily so soft and tender that it is almost impossible to carry them over the winter without serious loss. Therefore avoid keeping such things too warm after this season, and if they are placed in bottom heat give air at night, and whenever it can be done without the cuttings flagging, so as to prevent weakly growth.

HARDY FRUIT AND KITCHEN GARDEN.

Where wasps are troublesome means must be taken to preserve ripe fruit from their depredations, and Plums and Peaches had better be netted up, as wasps, if at all numerous, soon do serious damage to these. Also look frequently over any varieties of Pears ripening, and gather those that are fit, for if allowed to hang after they are ripe the wasps are sure to find them, and will attack the fruit before it is fit for gathering, so that the crop will probably be spoiled unless it can be netted up. Where Currants are covered with mats, which, by the bye, are very inferior to close nets for this purpose, and much more expensive, the trees should be uncovered occasionally on fine dry days, so as to expose the fruits thoroughly to the air, in order to prevent their being injured by damp, &c. Trim and dress Strawberry plantations, and be careful to injure the leaves of the plants as little as possible, and avoid deep digging between the rows which is of no farther use than to injure the roots, as the Strawberry rather prefers a somewhat firm soil.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Sept. 11, 1856, as observed at the Horticultural Gardens.

Sept.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain
Friday	5	6	29.984	29.863	71	37	54.0	63	59½	E.	.00
Satur.	6	7	29.742	29.597	70	42	56.0	62	59	E.	.12
Sunday	7	8	29.866	29.738	72	38	55.0	63	58½	S.W.	.00
Mon.	8	9	29.893	29.891	74	40	57.0	62	58½	W.	.00
Tues.	9	10	29.877	29.788	72	52	62.0	64	59	S.E.	.00
Wed.	10	11	29.994	29.869	74	48	61.0	62	58½	E.	.00
Thurs.	11	12	30.140	30.089	72	47	59.5	63	59	N.E.	.00
Average			29.928	29.833	72.1	43.4	57.7	62.7	58.9		.12

Sept. 5—Slight fog and heavy dew; fine; cloudy and fine.
— 6—Foggy; fine, with clouds; rain at night.
— 7—Very fine; cloudy and fine; cold at night.
— 8—Foggy; very fine throughout.
— 9—Dense fog; very fine; cloudy at night.
— 10—Slight haze; fine throughout.
— 11—Overcast, and fine; light clouds; very fine.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending Sept. 20, 1856.

Sept.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	14	66.3	46.9	56.6	15	0.84 in.	1	4	6	3	2	6	6	2
Mon.	15	66.6	46.5	56.5	15	0.63	—	5	4	2	7	2	5	5
Tues.	16	67.9	48.4	58.1	13	0.50	3	5	4	1	9	2	5	1
Wed.	17	68.5	46.9	57.7	11	0.90	1	4	6	1	2	9	4	3
Thurs.	18	66.3	45.7	56.0	14	0.84	1	7	2	1	2	8	5	4
Friday	19	67.0	46.1	56.6	13	0.60	3	6	3	1	5	6	4	2
Satur.	20	67.1	44.7	55.9	14	0.45	1	6	2	3	3	6	6	3

The highest temperature during the above period occurred on the 17th, 1843—therm. 84 deg; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

BOOKS: *Fitzgibbon.* We are acquainted with the Cottage Gardeners' Dictionary. It is useful to those who have not better books, notwithstanding its manifold errors.

DISEASES: *E A W.* Your Strawberries are infested with a parasitic fungus *Phyllosticta Fragariæ.* You would not be surprised at its ravages could you see a slice of the tissue of the plant under the microscope. A figure will be given in the course of a month or two in the Vegetable Pathology. We fear that lime will do you no good as regards the fungus. Your plants are very rank and seem to have been heavily manured. The fungus penetrates so deeply that a remedy cannot easily be applied, and unfortunately we have none to recommend in such cases, for to be effectual it must be imbibed with nutritive matter from the earth by means of the roots, a process which might be as fatal as the parasite. You might, however, try a top-dressing of lime and sulphur. The former is probably deficient in your soil which hardly effervesces at all with sulphuric acid, and might, therefore, do good to the general health of your plants. *M J. B.*

INSECTS: *D* (Tamworth). The insects in your decaying Potatoes are the common Julus pulchellus, which are always met with in decaying vegetable matter.—*E J.* It is not known why the little fly (Sepsis cynipsea) swarms occasionally in the manner you mention. *W.*

MCDOUGAL'S DISINFECTING POWDER: *Carpinus.* We want disinterested information respecting this preparation. What we have seen appeared to do its work slowly and imperfectly unless so much is used as to render it too expensive.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Mary.* Pteris crispa. *S.*

THE PEACOCK ANEMONE: *G.* This is the common Anemone pavonina, a mere variety of the A. hortensis. It is very pretty and occurs under different forms and colours; but is anything rather than a novelty. The French call it the Anémone œil de paon. In the last number of the Revue Horticole the following are said to be finest sorts grown by M. Truffaut, of Versailles, a very successful cultivator of them. *Abida:* scarlet red, centre yellow, stamens black. *Achantes:* scarlet lake, centre white, stamens black. *Achilles:* bright carmine, velvety, centre white. *Adonis:* vermilion red, centre white. *Bajarac:* Scarlet red, velvety, centre white. *Coronis:* fiery carmine, centre white. *Damia:* violet, centre white. *Dedalion:* bright vermilion, stamens black. *Danäe:* carmine madder. *Eolus:* carmine, centre white. *Fidius:* brilliant red, velvety, centre yellow. *Plutus:* vermilion red, centre white. They should be planted in patches in September in a light soil with a southern exposure. By May the leaves are dead, when the roots should be taken up and dried in the shade.

PLUMS: *E. Pierce.* Your Plum is middle-sized, round, purple; flesh greenish-amber, with a brisk but rich and sugary flavour; it parts freely from the stone, which is small. It appears different from any in general cultivation in the neighbourhood of London; and presuming it is a seedling, it might be named after the place where, or the person by whom, it was raised. ‖

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

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LOAM, BOG, PEAT, LEAF MOULD, SILVER SAND, ROTTED MANURE, GRAVEL, GROTTO MATERIAL, &c., can be supplied in large or small quantities; also every article connected with the Nursery business at the lowest price.—JOSEPH FRYER, Clarendon Nurseries, Camberwell.

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THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

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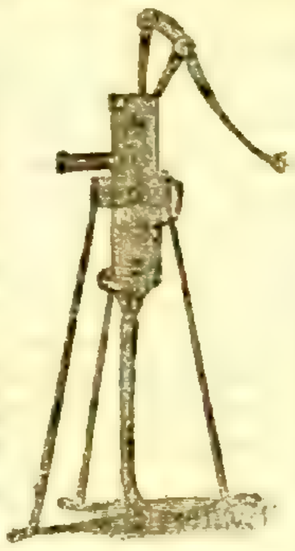
CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

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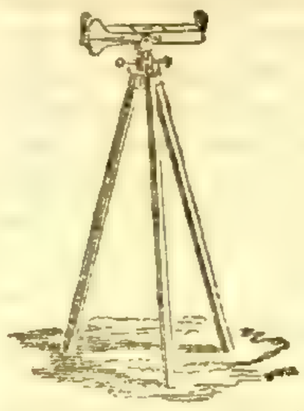

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Price 30*s.*; Case 1*s.*
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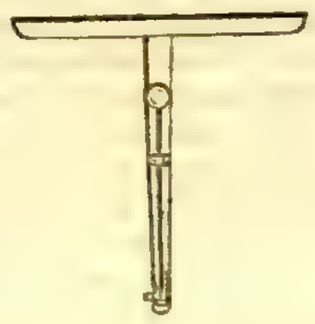

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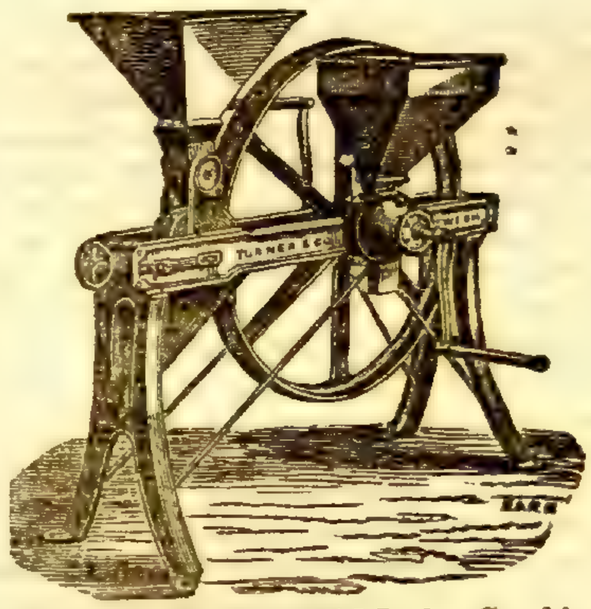

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THE COLLEGE SESSION for 1856-57 will commence on TUESDAY, October 21st, when the Supplemental and Scholarship Examinations will be proceeded with as laid down in the Prospectus.

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Further information may be had on application either personally or by letter to the Registrar, Queen's College, Galway, from whom also copies of the Prospectus may be obtained.—By order of the President,

September 13. WILLIAM LUPTON, A.M., Registrar.

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The Agricultural Gazette.

SATURDAY, SEPTEMBER 13, 1856.

THE use of dry autumn weather in the cultivation of our stubbles is well insisted on and described by our excellent correspondents Messrs. HARDY in the following communication, with which we have been favoured by them:—

"Now that harvest is past is the time to set about the burning of the stubbles. No employment of horses and men pays better or does more good on the farm. As soon as the corn is cleared off the fields a BENTALL'S or other broadshare, and a large rake, fork, and shovel for each man employed are required to effect the purpose, and the land is left in so fine a tilth as to admit myriads of seedling weeds to spring up before it is to be ploughed and sown, such as would otherwise not have germinated for years. We would just observe that whoever is not supplied with the efficient implement made by Mr. BENTALL ought to be, and our distant correspondents who have no knowledge of it will do well to take our recommendation of it as a first-rate article for expeditiously and cheaply cleaning the surface of the land.

"The process of paring and burning is simple, cheap, and efficacious. First, the broadshare, three horses, one man, and a boy, will pare twice over 3 acres in a day, say at 5*s.* per acre. Three men then follow whilst all is dry, with large-sized strong rakes, raking up all the stubble and weeds in their green state before they shed any seeds, taking five common-sized ridges at a time, forming fires on the middle ridge at about every 2 to 3 rods; then with a four-pronged fork they form and light the fires as they go along at three places on opposite sides. When these are about half burned through they rake all the clods up towards the fire and bury up at night by heaping all the earth over them that can be shovelled up around them. The next morning most

of them, and all, if properly managed, will be burned or scorched through sufficiently to kill all vegetable and animal life of which they contain the germs. The fires will then require but little trimming and tucking up, and the work is completed, leaving about a load of burnt earth at each fire, and at about 40 loads at least on an acre, valued at 2*s.* per load. We say *on*, for it is already on, and this makes it so valuable, as all cartage is spared, and on heavy lands no manure will be required for the next crop of corn."

The expense of these operations need not exceed 10*s.* or 12*s.* an acre, and the result, independently of the fertilising dressing thus obtained, is worth far more than this in the diminished cost of keeping clean the green crops of the following year. What land can be manured in autumn should have its dressing carted on after this fallow operation is completed, and being ploughed up and left till spring is in the best possible condition for such early spring culture as may be needed to prepare it either for the Bean crop or the Mangel Wurzel.

THE agricultural statistics of Scotland for 1854 were published in February 1855: those for 1855 were published in December of the same year: the statistics of 1856, so far as the acreage of the crops and the number of the live stock are concerned, were published on Sept. 1. There is progress here in a very important point—the quickness with which we are all informed of the results of Mr. HALL's inquiries. It was of little service to inform us in February, when half the produce of the land had already been consumed, how much food had been produced, and even in December such information would have had comparatively little influence on the food trade of the country. It is of the very greatest importance to safe trade that we should have, just as the consumption of the new year's food begins, certain data laid before us from which the year's supplies may with tolerable certainty be calculated. And for this, so far as Scotland is concerned, we have to thank the agriculturists of Scotland, the Highland Society, and its energetic secretary. These all receive the thanks of those interested in the attainment of such information from the whole country, and who see the earnest of success elsewhere in the remarkable success which has attended the inquiry in the north.

But the tables themselves, as well as the time of their appearance, indicate remarkable progress. The quantity of land in Wheat has amounted this year to 261,842 acres against 191,300 in 1855, an increase of one-fourth in a single year! In Barley the extent is diminished, being 165,663 acres this year against 186,082 in 1855. In Oats the average is 918,258 in 1856 against 933,662 in the previous year. In Rye we have this year 4754 acres against 3692 in 1855. In Bere there are 15,385 acres against 17,263 in 1855. Of Beans there are 40,488 acres against 37,338 in the previous year. And to take the more important of the green crops, we have 459,741 acres of turnips now growing while there were 449,404 acres last year. Potatoes are grown on about the same extent of land—viz., 148,930 acres this year, and 146,969 last year. Mangel Wurzel is rather on the increase: there are 3642 acres in 1856 against 2299 in 1856. Carrots and Cabbages are both grown in increased quantity; and of Rape, for which there is now a separate place in the schedule, we learn there is about the same extent grown in Scotland as of the other two, viz., 1400 acres. It is interesting to learn in addition to these particulars that the extent in bare fallow in Scotland has this year diminished about one-seventh, being 17,715 acres against 22,462 acres in 1855.

The number of live stock seems to vary but little from year to year. The total number of horses returned was 172,229 in 1855, and 179,904 in 1856; of cattle, 974,816 in 1855, and 967,311 in 1856; of sheep and lambs, 5,694,900 in 1855, and 5,822,478 in 1856; of swine, 134,350 in 1855, and 126,944 in 1856; of all live stock, 6,981,295 in 1855, and 7,096,637 in 1856.

It is satisfactory to know that these returns are made by men competent and willing, and that the scheme both as regards the inquiry and the numeration of its results is in the hands of so able and now so experienced a man as Mr. HALL MAXWELL. No such criticism is possible of the Scottish statistical inquiry as Mr. CARROLL makes of that conducted in Ireland by the constabulary force.

THAT the produce of our corn fields is dependent on the quantity and quality of the grain we use as seed is known to every one. The formation of a proper seed bed has to be followed by the right deposit of a properly selected seed, and that by the due cultivation of the plant, before we can arrive at that maximum of produce which our climate will allow us.

There is, however, one of these particulars which has occupied less of our attention as cultivators than it deserves. We have looked carefully to the tillage of our fields; there has been discussion enough on the position of the plant with respect to its neighbours—thick and thin seeding have occupied the attention of our correspondents quite sufficiently; but the importance of a due selection of the seed with regard to purity of sort and with regard to perfect healthiness of growth has not been put so prominently before our readers as it deserves. Mr. BERKELEY has indeed lately given his experience on the hereditary character of a disease in Oats, and Mr. LAWSON has urged on cultivators the need of care in choosing unmixed and pure varieties; but there has not been such general interest in the subject as it ought to receive. This is more especially the case with reference to the former of these considerations. The latter has commanded more general attention, and Mr. LAWSON speaks not more for himself than for a large body of experimenters and observers to whom with himself the farmer is indebted. DRUMMOND, RENDLE, SKIRVING, SUTTON, every seedsman indeed of any note, gives his name to one or other of the many sorts which every agricultural plant presents. These sorts have been reared from single seeds, carefully tended and accurately compared with others, and found to possess merits such as in the opinion of its cultivator or originator give it a claim to general cultivation. There is not a seedsman in the country whose professions, nor, let us say, one of any note whose actual operations do not prove the general estimation in which the subject of purity of seed is held by cultivators.

It is the importance of perfectly formed and thoroughly ripened and completely healthy seed to which we need now to call attention. No one who has travelled through the country in July and August, even in a season like the present, when a hot season has ripened grain more perfectly than in this country it generally is, has failed to notice in the Wheat fields patches of dead or prematurely ripened corn with bleached or dusky, empty ears, which puzzle the cultivator quite as much as they do the passers by. He knows the past history of the land, but that does not explain them—and he knows the several processes which during its growth and cultivation the crop has undergone; but these throw no light upon them. The probability is that the phenomenon, common enough in every arable district in the country, is due, like the somewhat similar case to which Mr. BERKELEY called attention in the Oat, to defective seed.

It is certainly within the experience of the farmer as well as of the gardener that the produce of a seed is dependent upon something besides the treatment it receives from the cultivator. It grows not only according to the soil in which it is deposited, but according to the force or character of the vitality which it has inherited. The faulty plants which die off before the rest are but the lower illustrations of the same scale whose higher places present such specimens as our correspondent from Clitheroe refers to in his recent communication on the importation of seed from other climates. Of course, then, it is of the highest importance that our seed should be taken from plants making some approach to such specimens as more congenial climates yield, and should be ripened as perfectly and as healthily as in such climates they more generally are.

If diseases are hereditary, healthy plants alone should yield the seed we use, and if, as the facts which "T. G." quotes would indicate, vigour of growth as well as weakliness is handed down, the importance becomes more obvious still of choosing the seed of next year's crop from the best and healthiest crops which this year has provided.

Happily there is no lack this autumn of well ripened and prolific Wheat. An unusually hot summer and a spring time such as, on well-drained soils at least, induced a strong and vigorous growth, have united to produce an unusually abundant yield, and wherever this has been well harvested seed of the best quality is to be had: and it may be added that the occurrence of harvest all together, by which much became dead ripe before it could be cut, was not unfavourable to the character of the grain as seed however much it may thus have suffered as food.

ANSWERS TO AGRICULTURAL QUESTIONS.

BY MR. HENRY COX, OF MINCHINHAMPTON, GLOUCESTERSHIRE.

(*Continued from p. 608.*)

11. Give a rough estimate of the capital needed during a year's tenancy of the farm, specifying the amounts required respectively for rent and taxes, labour, horses, implements, live stock, seed, manure; and say if there is any other principal item of expenditure to be taken into account in addition to these.

Rent	£720	0	0
Income-tax on 360*l.*, if the full amount be paid	24	0	0
Labour, if the occupier manage for himself, about	490	10	0
Horses, seven at 30*l.*	210	0	0
Implements (excepting threshing machine and steam-engine)	416	2	6
Seeds and seed corn	112	7	0
30 full grown beasts to consume roots, Clover, &c., at 18*l.* each	540	0	0
10 in-calf heifers and cows, at 15*l.* each	150	0	0
10 yearling beasts, at 6*l.* each	60	0	0
10 calves at 2*l.* each	20	0	0
Saddle-horse	30	0	0
1 bull	15	0	0
2 farrow sows	10	0	0
Manure	105	10	0
Full tillage 40 acres roots, &c.	250	0	0
Clover seeds and sowing, say	30	0	0
Half tillage of Beans, say	30	0	0
Half ditto Clover stubble	30	0	0
Full tillage 3 acres Italian Rye, if sown this year without corn	12	0	0
728 bushels Oats for horses, at 2*s.* 9*d.*	100	2	0
182 bushels Beans, at 4*s.* 6*d.*	40	19	0
9 tons of hay, at 4*l.*	36	0	0
5 tons of Bean-meal, at 9*l.*	45	0	0
5 tons of mixed cake, at 8*l.*	40	0	0
160 acres of Oat, Bean, and Wheat straw, at 25*s.*	200	0	0
600 yards of manure for Beans, at 4*s.*	120	0	0
Tradesmen's bills	20	0	0
Market and other sundry expenses	30	0	0
	£3885	10	6

In addition there may be 200*l.* required to furnish house; 150*l.* for house-keeping, and 150*l.* interest of money. As for reaping machines, &c., I think the holding scarcely large enough to justify the cost.

12. Estimate the quantity of straw which under your scheme of cultivation will be produced for use as litter, fodder, &c. State also the number of tons of cattle food which your farm will yield, naming the several crops, the probable produce of each per acre, as well as on the whole.

Wheat straw 80 acres	100 tons.
Oat straw 40 acres	60 "
Bean straw 40 acres	50 "
	210 "
Mangel Wurzel, 20 acres (20)	400 "
Swedes, 10 acres (15)	150 "
Yellow and other Turnips, 10 acres (10)	100 "
40 acres Clover (10)	400 "
5 acres Rye (8)	40 "
5 acres Rye and Vetches (12)	60 "
10 acres late and early Vetches (10)	100 "
	1250 "
3 acres Italian Rye-grass	30 "
3 acres ditto, second year's crop	40 "
3 acres Potatoes	20 "
1 acre Swedes	5 "
	1345 "
35 acres hay, 1 ton 15 cwt.	60 "

Besides 35 acres lattermath and 35 acres to be grazed

13. Say how many and what kinds of live stock you expect keep.

Two relays of 30 full grown beasts, calculated with the roots and meal, and cake and Clover, and Vetches and Rye, to clear 8*l.* each beast and feeding; or one lot of younger beasts to begin with the Rye and finish with Mangel, Beans, and cake, and calculated by growth and fatting to realise 16*l.* each in the 52 weeks. On the meadow land, and to be fed with straw, roots, and hay in winter, 10 cows to wean 20 calves, 20 yearling beasts, and which may be assisted with Italian Rye, &c., &c., and twenty 2-year old beasts; seven horses and nag, two or three farrow sows, and young pigs as may happen.

14. How long do the mare, the cow, the ewe the sow, go with young? Name the months when you would wish them to bring forth, and give reasons for your choice of the time.

Mare, about 11 months; cow, 9 ditto; ewe, 21 or 22 weeks; sow, 16 weeks. The mare should foal in April or May, as then she can be best spared from work; the Grass is springy and will afford plenty of milk, and the foal will get strong before winter. The cow should calve about February or March, as the milk is not good for cheese-making until the cow has calved some weeks. There will be time to wean the calves before cheese-making commences, and they will get strong before winter. The ewe should bring forth in warm districts as early as February or March; there will be time to wean the lambs and the ewe to again get fresh for the tup. The Grass will be springy when the lambs are beginning to feed, and they will get strong before the time to go to Turnips, and the draught ewes can be got early fat. In the Highland districts, where there are no roots grown, the lambs should not be born before April, as the Grass will not be grown sufficient to produce milk, and they may get starved. The sow should farrow in March or April, as then the skim milk will much assist them. They will get a good size by cheese-making time and will thrive well on whey and Peas, or if no whey they may thrive on roots, &c., till after harvest, when they will be in good place to fatten on small corn and small Potatoes.

15. Give the probable annual consumption of a full-sized farm horse in full work, and sufficiently fed on Oats, Beans, and hay in winter, and on Oats and green food (Rye, Vetches, and Clover) in summer. Give the annual consumption on any other scheme of feeding, for which you might make provision on a light land farm.

91 bushels Oats, 22 ditto Beans, 22 cwt. hay, 9 tons green food, 22 cwt. Oat-straw, 45 bushels Oats, 45 cwt. Carrots, 3 cwt. Linseed meal, 9 tons Clover and Vetches, 22 cwt. Sainfoin hay, cut straw *ad lib.* Or 45 bushels Oats, 91 cwt. bran, cut straw *ad lib.* Or when horses work very hard and many hours on the road, &c., 45 bushels Oats, 45 bushels Beans, 91 cwt. bran, 45 cwt. old hay. I know a roadster team worked (they say)

"16 hours" per day for the 6 days each week, looking and working remarkably well on this food.

16. Say how you would manage as to food, &c., during its first year a well-bred calf to be reared for fattening.

The first four or five weeks it would have full meal of whole milk, and would after be gradually worked down to half new and half skim, till it began to feed freely on Mangel Wurzel and hay, or Grass, as the time of year may dictate; but if I was short of milk I would gradually add Linseed and hay tea. I have known a farmer wean 20 calves during the season with one cow's milk by adding this. Towards the latter part of May it should be turned on the best pastures, and as winter approached should be full fed on chopped hay and roots sliced and mixed; or if the Oat straw is very good, and cut a little before ripe, it will be an excellent substitute for hay. In this case I would add a little Linseed-cake, say 1 lb. per day.

17. Give the routine of operations in the cattle feeding house during a day in February, stating the times of feeding, &c., and the quantities of each kind of food supplied per head.

6 o'clock, a.m., a feed of mixed chaff and sliced roots, and during the time they are consuming this they should be cleaned out or fresh littered, as the case may be. 7 o'clock, a.m., the same as above, with a little Bean meal or Linseed cake mixed with it. 12 noon, a feed of roots and chaff; 4½ p.m., a feed of roots and chaff, and again littered; 5½, the same, with Linseed or Bean meal; 6, a few handfuls of hay, and left for the night. During this time it is calculated that each beast will consume 10 lbs. chopped straw, 1¼ cwt. roots, 2 lbs. Bean meal, 2 lbs. Linseed cake, and 7 lbs. meadow hay. I am fully aware that this ration is not such as is recommended by many feeders, but my object is, 1st, to prevent the animals being choked, by being too eager for their food in the morning; 2d, to induce them to lie down as much as possible; and, 3d, to render them satisfied for the night by a few handfuls of meadow hay, which, after all, is their natural food. I have been astonished at the ease and contentment they will exhibit after this feed, and they will rarely rise till feeding time the next morning.

18. Suppose an ox feeding to 60 or 70 imperial stone, to be ready for the butcher towards the end of its third year; state the kinds and quantities of food it will consume during its last nine months, from June till March.

We should suppose that by June the green food, such as Rye, Clover, and Vetches, will be sufficiently hard to be given without much or any dry food; but if soiling is practised, I hold it to be good to give a little dry food with all green food, until the stalks become hard or the seeds are formed; thus an ox would consume in four months, at 1½ cwt. per day, 180 cwt. Clover, Vetches, and green Italian Rye-grass, and about 14 cwt. sweet Oat straw; the next 10 weeks it would consume about 105 cwt. common and yellow Turnips, and about 7 cwt. chopped Oat straw; the last 10 weeks the roots would be reduced by ¼ cwt. per day, and about 2 lbs. Bean meal and 2 lbs. Linseed in place of it; the straw may be slightly reduced, and about 7 lbs. hay substituted. Thus it would consume in nine months about 180 cwt. Clover, Vetches, and Rye-grass; 105 cwt. common and yellow Turnips; 88 cwt. Mangel Wurzel and Swedes; 4½ cwt. meadow hay; 26 cwt. Oat straw; 140 lbs. Bean meal; 140 lbs. Linseed-cake. If less roots and more straw, then I would add more Linseed; if less straw and more roots, then more Bean meal. Bean meal should be used more largely too with Mangel Wurzel than with Swedes, because it tends to correct the laxative qualities of the Mangel Wurzel. I have seen some very excellent beeves fatten with cut Swedes and English hay *ad. lib.* only.

19. Describe the operations of cheese-making, and say what quantity should be made from good meadow land in a dairy of 50 cows of a productive kind during the month of May.

The operations of cheese-making in Gloucestershire are very simple. The cows are milked about 5 a.m., and 3 to 4 p.m. If the dairy is large, it is made twice each day; if small only once, generally in the morning. The milk is brought and put into a large tub, and reduced or increased in temperature as the case may be, to 80, 85, or 90° of heat. A quantity of rennet, half a pint to 50 gallons, is then added, and left about an hour. The curd is then cut across with the cheese knife, and the whey strained from it; the curd is then cut very small with the cheese knife, (sometimes through a mill lately invented for the purpose, which saves much trouble, and is said to mix the fatty matter more intimately with the cheese), and as much as possible of the serous matter allowed to pass off. The cheese cloth is then put into the vat,* and is filled with the broken up curd, the ends of the cloth turned over the curd, and the whole put into the press, where it is subjected to gentle pressure for about a couple of hours; it is then taken out of the vat, a portion of salt rubbed over the out-side of the new formed cheese, and returned to the vat with a fresh cloth; it is then taken out twice each day for four or five days, getting a little more salt the few first turnings; they are then put on the shelf to dry in a rather dry warm place, when after a day or two they are conveyed to the cheese-room and turned over once each day for a month or so. There are many "whims" in various dairies, such as scalding the curd, pouring hot whey on the out-sides of the cheeses, washing with hot whey, rubbing the cheeses with herbs or the floor on which they lie—but to enumerate all would be tedious. About 1½ cwt. per day, or 46 cwt. for the month of May would, I believe, be a fair yield for 50 cows.

20. If the farm we have supposed had been in Fifeshire instead of Kent or Surrey, what changes in the mode of cropping you have named would have become advisable?

I believe it is pretty generally considered that the Oat crop is the most suited to the climate of Scotland, but the county of Fife being a populous district, and near the sea coast, Wheat should enter into the rotation of crops only in a diminished ratio, say only after Beans, and the Oats should follow the Clover. Potatoes would enter largely into the fallow crops, and Mangel would only be grown in smaller quantities. As the Swede and yellow Turnip would require to be sown earlier, and Vetches, &c., would only be fit to cut later, we could not manage so great a breadth of those "stolen," or intermediate crops, but it is probable the Swede crop would be heavier, the climate being more humid and better adapted to the requirements of the Swede.

(*To be continued.*)

* On some farms there is great complaint that the cheese will "heave and nothing will prevent it," though I have known different management on some of those farms produce different results; and I have heard my mother say that one of those farms (that is, the dairy management) came under her hands, but nobody ever expected to see a cheese that did not heave, as such a thing was never known; but strange to say not a cheese heaved under her system, but she could not tell why it was so, for she was not aware that she deviated from the regular system except in being more particular in allowing the curd a longer time in draining itself without pressure, and keeping the cheese-knife at work longer, and perhaps brisker, than had been the custom there, and allowing the curd to get perfectly cold before putting it in the vats. Now this last seems to me to be the true solution of the problem. Nothing seems more likely to produce fermentation, and consequently heaving, than the putting the curd into cloths and subject it to pressure when at a high temperature, and I would recommend to all where heaving is a fault in their cheese to study this point.

IRISH PAROCHIAL STATISTICS.

By MARTIN DOYLE.

(*Continued from p. 571.*)

THE labourers kept in farmers' houses are sufficiently well maintained, and if unmarried they possess ample means for providing comfortable clothing and even saving some portion of their wages, which they sometimes invest in the purchase of two or three sheep that cost them a very trifling sum for pasturing. But labourers who have families and live at home are generally in very pitiable circumstances. I ought rather to use the past tense, because I am considering what the rates of wages and prices of food have been during the last few years, and therefore previously to the present abundance and anticipated fall in the prices of Potatoes† and meal.

The ordinary rate of wages is 6*s.* a week; it neither rises nor falls as in England, according to the price of bread or any other standard of food; with us the wages are fixed except in the actual period of harvest, when a pressing demand for labourers of necessity causes increased wages. But how stands the case during 11 months in the year? There are eight holidays rigidly observed as non-working days, and the severity of weather will sometimes occasion the loss of a day or half-day; 5*s.* 9*d.* therefore may be stated as the full average weekly earnings of an able-bodied labouring man. The respective conditions of workmen in my own employment may be taken as accurate illustrations of our labourers' circumstances. Two‡ active young men, brothers, are the sons of a petty farmer (col. 8); when not busy at home they are glad to work with me, such extra labour renders their domestic state extremely favourable; they have perpetual occupation of some sort; they possess in their little establishment a horse, two cows, a calf, donkey, pigs, and poultry; their land is well cultivated, and their homestead is respectable, not unlike a Belgian tenement. Another man, who lives at least a mile from the place where he works, has a wife and four children; his lot is hard, he brings a piece of Barley bread every day with him for breakfast and dinner, and my dairymaid gives him milk when she has got it to spare, and this is the diet of the man generally. The cost of food for his whole family per week is—

Three stone of Barley or Indian meal	4*s.* 6*d.*
Salt, soap, and candles	0 6
Meal, treacle, or cocoa	0 9
	5 9

When Barley-meal could have been bought for 1*s.* and Potatoes for 2*d.* per stone, the wages were from 10*d.* to 1*s.* a day, and so they remain though the price of food is one-third more. Here is one of our Irish anomalies, market prices do not regulate the rates of rural labour; however high the price of food may be there are labourers always ready to take the place of any dismissed workman, and the selfish principle leads employers to accept the services offered, without duly considering whether the employed have the means of obtaining the food on which the exertion of their physical strength depends.

In the foregoing instance the wife and a child of the man work in harvest, though not with me. Otherwise without begging this family could not pay 15*s.* a year for the rent of their cabin, or provide any clothing. There is not even a Cabbage garden attached to the habitation, nor have they the privilege of rearing poultry. They have not possessed a pig since the first failure of Potatoes, and while the food of the family consists of Barley meal or of Indian meal, it is obvious that there cannot be any refuse from the table to fill a pig's stomach.

Another man works with me at the same rate of wages, but being childless and having only a wife to support, and occupying one half of a very neat cottage with a good garden at a moderate rent, he is in comfortable circumstances. Another man who ploughs, sows seed, &c., and acts as a working farm bailiff, turning his hands to any sort of labour in progress, has with the earnings of his two little sons 10*s.* a week, a cottage rent free, with a rood of ground for Potatoes and Cabbages, and facilities for rearing and fattening poultry. Yet this family can barely subsist, being five in number.

One person more remains to be noticed, to complete the types of our labouring class. A man about 75 years old works in my garden; his wages are 10*d.* a day; he has an aged wife to support and house rent to pay. Persons unacquainted with the details of the Irish Poor-law system may imagine that the condition of our poor is much ameliorated through its agency; this is not so in reality. We have union houses with poor rates as in England, and medical aid is provided in every parish for the sick poor; but what a difference in the application of the provisions and modes for affording relief in England and here! When the labourer there is worn out by toil and years he receives a weekly allowance according to the number and circumstances of his family, dies in the cottage in which he has perhaps lived all his days among friends and neighbours, and is buried with decency at the expense of his parish. A labourer's widow with a helpless family has a regular allowance of bread and a little money while she continues in want; but in neither of these urgent and pitiable cases, nor in any, are the Irish poor aided from the poor rates unless within their district poor-house. No out-of-door relief is the stern decree of those in authority.

Probably less than one-twentieth of the 52,872 individuals in the 33 electoral divisions of the union (including a very considerable town population) receive in-door relief (externally none), and only 12 persons participate in it of the parochial division under my present view. Financially considered, therefore, we derive little benefit from the rates imposed. While it is possible to avoid it, neither destitute nor infirm poor will enter the poor-house; they look upon a suggestion to go there as unkind, if not insulting, or as a death warrant; their feelings revolt from the notion of abiding there; they greatly prefer to beg, and some would even starve and die at home than become its inmates.

The old gardener and his wife (the latter a faithful and respected servant in some families in which she formerly lived) have been always of irreproachable conduct, but having had a family to bring up and provide for, they had no opportunity of reserving a fund for old age and infirmity; they may soon be destitute of the means of living, and yet I am sure that they will not avail themselves of the really good accommodation afforded to the aged and infirm in the union-house, with which in their minds are associated the ideas of shame and imprisonment.

A short time ago I endeavoured to persuade a labourer's widow, who has four young children, to exchange destitution and the habit of living upon precarious benefactions for the food and clothing and warmth which she and her children might receive in the poor-house, instead of remaining in a damp cabin, struggling against cold, hunger, and nakedness; but this pauper sobbed and cried, and would not for a moment admit the expediency of leaving the miserable den in which she lived; and there she remains and is likely to continue subsisting on private charities, a burden on me and others. I think her case is one that loudly calls for out-door relief. Her objections to the confinement and order observed in a poor-house are perhaps to a pauper in her circumstances quite unreasonable, yet the repugnance is insuperable. Less than the expense of maintenance there for her children and herself would be a real boon to them in their home.

It is saddening to reflect upon the destitution in old age of persons who have honestly and industriously laboured until their physical powers are exhausted by servitude, especially if, as in the instance of the aged gardener and his wife, they have habits and dispositions which elevate them above the classes of paupers that chiefly occupy the poor-houses. Financially considered, the cost to our parish of out-door relief in all such cases as the two preceding ones would be much less than the amount contributed in rates, from which at present very little sensible benefit is now derived in return.

Guardians are so afraid, even where rates are very moderate, that the wedge of out-door relief, if once inserted, would be pushed to extremity, that they will not allow its small end to enter at all into their system of relief. They will not act upon the humane principle which is operative in England, that the feelings of the poor should be considered, and they inflexibly resist all applications for out-door relief.

The result is that our parochial poor are not relieved from the rates levied for the poor (the rare exceptions do not disprove the proposition), and, what is a serious evil, vagrant mendicancy is not suppressed. The police, indeed, have authority to take persons charged with the offence of begging before a magistrate, who may commit the offender to gaol for a month; but few people will incur the unpopularity of making complaints in such cases, or the responsibility of sending comparatively innocent persons to associate with thieves and robbers in a gaol, from which they may come out grievously demoralised, and ready to plunder the farmer's dairy, store-room, or poultry-house in dark winter nights, when gangs of thieves are sometimes confederated for such purposes. The trouble and annoyance also of going to

† August 18.—This day, however, unquestionable evidences of disease in the Potato crop of the district around have appeared.

‡ One of them is now earning 3*s.* a day for mowing Barley and Oats, skilled labour being fully remunerated.

a magistrate, and the disinclination to occasion to the police the fatigue of marching 10 miles with beggars to a gaol, render the Vagrancy Act almost inoperative here. Besides, many of the farmers give alms (in meal or Potatoes) as a moral duty, or from a generous impulse (but mischievously in effect) to the groups of tramping beggars that frequently pass by their doors; and thus the rambling paupers who ought to be confined in workhouses remain a burden on our industrious and poor-rate paying population. The clearing of roads and streets of professional beggars, many of whom are sturdy and insolent, might, I think, be rendered obligatory on the police, without the intervention of private individuals.

Home Correspondence.

Chambers's Drop Drill.—An impression having gone abroad that the drop drill invented by Mr. Chambers, and exhibited by Messrs. Garrett at the recent Chelmsford show, introduces a new feature in the agricultural world, I feel it only due to myself, though far from wishing to detract from the credit due to Mr. Chambers for his useful and efficient implement, to lay my claim to the prior introduction of such a drill before the public. At the Glasgow meeting of the Royal Highland Agricultural Society a drop drill on the principle invented by me was exhibited, and in addition to the high encomiums of the judges received a prize medal as the best drop drill. I also supplied that zealous patron of agriculture, the late Mr. Pusey, with a similar implement to the one exhibited, and have lately received from his steward the assurances of Mr. Pusey's entire approval of its working. To all connected with the science of agriculture the development of mechanism to meet its requirements cannot fail to be a subject of interest, and it is rather in the light of a fellow labourer than a rival I regard Mr. Chambers; but I am, I think, by no means disparaging the merits of that gentleman's production when I venture to question its title to originality. *Thomas Chandler.* [Drop drills have been known many years—the question to be answered is whether the principle has been before applied to water drills.]

Vigour of Vegetable Growth.—In your Paper of August 30 I observe a reply from Messrs. Hardy & Son to my letter of the previous week, in which I endeavoured to call the attention of the public to the curious fact in vegetable physiology that seeds ripened under favourable circumstances originate far more vigorous plants than other seeds of the same kind in the same soil, and I suggested the institution of a series of experiments for the purpose of ascertaining what seeds are improved by this process; I also asked if this fact of increased vigour could be accounted for on any known principle of vegetable physiology. I think Messrs. Hardy & Son quite confirm my view of the question, and in these days of free trade, when we get from them half our bread, half our wool, half our flax, all our hemp, all our silk, and all our cotton (to say nothing of sugar, coffee, tobacco, &c.,) it is too late to talk of being independent of foreigners. If we can get Turnip seed that will produce twice the weight of English seed on the same soil, if we can get Wheat that will produce a quarter more per acre than our own seed, it is surely very desirable to sow such seed. I do not say we shall be able to do this, but the facts mentioned in my former letter lead me to infer that it is very probable we shall be able to do this, and if my life be spared the experiments will be tried; but I again repeat the inquiry, is there any explanation of the facts I before mentioned to be found in any English or foreign book with which you are acquainted? If there is no notice of this to be found, will some of your scientific correspondents endeavour to explain it? *T. G., Clitheroe.*

What becomes of the Reaper?—Many persons may see the present but not the future. I have just been reading Mr. Eve's letter on reapers; what we most want him to inform us is what is to become of his reaper and the 10,000 others at 30*l.* apiece, when the temporary operation of corn cutting is completed? There is such a science as mechanical economics. We have had his fair practical statement respecting this contrivance; let us hope he will favour us with an economical one. *C. B., London.* [Is not the economical aspect of this question most satisfactory to the purchaser, who has by laying out his 30*l.* in this way saved in a single harvest more than 30*l.* in the quality of his corn?]

Grown Barley.—Here as elsewhere the Barley both cut and standing sprouted very much during the late rains. I selected some grains which had thrown out roots, but of which the spear had not appeared; they were just in that state in which as malt they would be ready for the kiln. They were taken from the mow, having been carried, and the roots were rubbed off. When placed in the folds of wet flannel they *all* grew again, first throwing out fresh roots, and then, as you will see by the sample enclosed, the spear, showing that the vegetating power was not lost. As this is contrary to the generally received notion, it is I think worth notice. Can any of your scientific readers tell me what portion of its strength Barley so grown would lose as malt or for feeding purposes? *J. C. Clutterbuck, Long Wittenham, Sept.* 8.

Mr. Boydell's Locomotive Steam Engine.—I have great reason to be obliged to you for the candid and explanatory way in which you have given your opinion respecting the question at issue between myself and (as I must admit) many scientific men, relating to the increased power I say there is obtained by working a pinion at the top of the circumference of the road wheel of the traction engine, as you have brought the question into a small compass, all other points being truly explained by you. But the one of the effect of the motor force upon the carriage itself, independently of the action upon the wheel—that question is at once set at rest by the fact that the pinion, when worked as it is for stationary purposes, has no effect whatever upon the progressive movement of the carriage. It is worked by means of the steam power turning a shaft, the pressure of that shaft in one direction being equal to the force of the steam the other, and not at all the same thing as a man pushing directly at the wheel when the thrust of the foot is in opposition to the forward movement of the axle, or the load pulled. This I am sure you will at once concede, and will, I feel satisfied, promulgate your acquiescence in it as prominently as you have the contrary opinion. [We do not see how by any mode of placing the cylinder or of directing the thrust of your piston rod you can avoid the result to which we alluded.] One of our traction engines is now at Hounslow, near Hatlow, by which we have satisfactorily demonstrated that independently of the propulsion of itself, it will do more in drawing ploughs than as many horses as represent its power, and I think you will be much pleased to see the work done with a trenching plough, which the gardeners of the neighbourhood say is much better done than if it had been trenched in the ordinary way by manual labour. *James Boydell, Camden Works, Camden Town.*

Societies.

HIGHLAND AND AGRICULTURAL: *Shorthorn Breeding.*—A discussion on this subject took place at Inverness the other day, at which the question of purity of breeds was spoken on by Mr. Harvey, of Lillygreig, Aberdeenshire, and others.

It was asked—What are your shorthorns?—where did they come from? and that would be a puzzling question; for, in the improved shorthorn, there was a mixture of not one or two, but of three or four distinct breeds. It had in it a dash of the Danish, a touch of Holland, a little from Galloway, and something from the banks of the Tees. The mixture took place in the very infancy of cattle-breeding, and was so long gone by that it was not easy to say how it originated. It was at the end of last century that the shorthorn began to be regarded as a distinct breed of cattle. He was lately at an exhibition of cattle, at which the Red Galloway appeared to be despised, but it was to these red-skinned animals that much of the excellence of the improved shorthorn was attributable. Collings helped to improve it, and then came another who might be regarded as the head of the school. A hedge-side cow had something to do with it; and though the pedigree of the male head of this race was not well ascertained, it was from Mr. Collings's calf "Bolingbroke" that the present breed sprung. They had now attained great celebrity, and possessed characteristics well entitling them to the designation of a pure breed. For himself, he had cultivated the shorthorn breed for about eighteen years, and he would inculcate on all parties that all who wished to rear this valuable breed of cattle should hold by the principles of purity. As an argument in favour of purity, he would mention, that while other valuable breeds arose from crossing, the shorthorn improved with every successive generation, and that, consequently, it was a great matter to keep them pure. The question had been started, how were they to keep them pure? The breeds of pure shorthorns were in the hands of a few, and were becoming less and less in the number of their changes; and in the very considerable district to which he belonged, it had become a question whether or not to introduce a cross among the pure breed; and if introduced, it would be well to have it definitively settled at what stage they ought to be regarded as pure—whether at the fourth, the fifth, the sixth, or the seventh cross they should be regarded as reverting to the pure shorthorn. He desired that question to be definitively settled. A difficulty would thus be removed, and parties who had taken a great deal of pains to rear another class of stock, through which, it must be admitted, the rents of the farms in some parts of Scotland were in many instances paid, would be satisfied. He had seen, in his own experience, after breeding down to a sixth, seventh, and eighth cross, a bull appear which could not be entered in the Herd Book as a shorthorn from his black and white marks. It mattered not what was the symmetry or what the pedigree of such an animal, the colour was wrong, and it ought not to be admitted into a shorthorn stock-book. As they were arranging their breeds not for themselves only, but for Europe, if they were rigid before in adhering to the principle of purity, they must be still more so now. There was another fact that he would mention. There were not only black bulls but Highland cattle at Paris, and he happened to point out a very nice West Highland cow to a friend, when he remarked, "She is a very good one, but she is too like the shorthorn." He liked the remark, for there stood an exhibitor sticking up for purity of breed. Every breed had its weight at this show, as it had at Paris; let us therefore keep each of them pure. Each has its own points, which will in time develope themselves probably as well as those which have been produced in the shorthorn. It was not merely selection in the breeding stock, nor was it simply the breed, but success depended also upon giving the same attention to preserving the purity of the blood. If they leaned on pure stock, let them stick to pure stock; if they crossed, let them keep to crosses; and if a new breed should arise, in addition to those already existing, let the same prominence in competition be given to it, let it have the same attention at the hands of breeders, the same premiums from our societies, as the three distinctive breeds we already possess.

Mr. Hall Maxwell (secretary) did not desire to take any part in this discussion, but he wished to observe that the resolution submitted by Mr. Harvey embraced two questions. The first was, under what circumstances could shorthorns be advantageously crossed? This was not a question on which he would venture to give an opinion before so many practical men; but the second part of the resolution affected him considerably, as secretary of the Highland Society, and also his friend Mr. Harvey, as secretary to the Royal Northern Society, and the answer to which would greatly assist them in the discharge of their duties, and was—When may an animal with a cross in his pedigree be admitted as a pure shorthorn? An animal might be presented for exhibition without a pedigree, with a taint of a cross in him, and at the same time his points might be so perfectly pure that it would puzzle the eye of a judge to tell in what respect the animal was different from a pure shorthorn, or to say why it should not be exhibited as a shorthorn, as it had all the good points and economical advantages of that breed. There was no good rule to go by. As secretaries they were compelled to admit such animals in the class for which they were entered, and to leave it to the judges to say whether they should be allowed to compete. An objection might be taken by some competitor, and thus a stoppage of a show might occur. Such an animal might gain a prize, and a challenge might be given by some disappointed competitor, on the ground that the animal which had received the prize as a shorthorn was not really a shorthorn. In such a case the question would be referred to the judges, but the judges at Berwick may take one view, and the judges at Inverness may take another view, and no rule had as yet been laid down on the subject, and no answer given to the question whether such an animal was or was not a shorthorn. He had already explained that if such an animal were entered for exhibition as a shorthorn, no matter how many crosses there might be in him, he would admit him, and leave it to the judges, who were not always the same, whether or not the animal would be allowed to compete. This question would be raised at the next show at Aberdeen, and might occasion much difficulty. It would also come before the directors of the Highland Society, and though he would not say that the question would be settled by any decision which might be come to that night, it would be important if an indication of opinion was given as to whether a rule should be laid down, or whether it should be left open for the judges to decide as at present. He therefore ventured to direct their attention to the last question in Mr. Harvey's proposition, with the view of giving some expression of opinion on that point.

Mr. Simpson (Cobairdy) said Mr. Maxwell's question was very difficult to answer, and for his own part he thought the present rule of the Highland Society was the best that, under the circumstances, they could follow—namely, to let any man exhibit in the class he believed his stock to belong to, and let the judges decide whether it is of that class or not. He believed that the present shorthorns were bred from the Galloways, and that it was from them that they derived their short legs. A large breeder in Aberdeenshire, Mr. Grant Duff, of Eden, used to hold that the sixth cross was pure, but from his own experience he could not say that he was prepared to state what were his opinions.

Mr. Cruickshank (Cloves) could say very little as to when a crossed shorthorn became pure; he would make a remark, however, on a topic which had occasioned some discussion in his district, and on which a friend of his in Huntly had written a book. He had observed that when a polled cow was put to a shorthorned bull, the system of the cow seemed to become permanently affected. Some good always remained. He found in his experience that a cross quey, and a polled Aberdeenshire bullock, produced as nice a polled Aberdeenshire bullock as he wished to see in a showyard. He had seen a third or fourth cross exhibited as pure, which could not be detected as pure. There was one thing he would say as to the polled breed, that no animal carried more or better flesh than their crosses. They possessed all the properties of a good butcher's beast, for a farm such as his own at least; and in a third or fourth cross, no practical breeder could refuse them as not pure without a pedigree. As to the time when such crosses became pure animals, he could say nothing.

Mr. M'Combie (Tillyfour) said that he quite agreed with Mr. Harvey, and as completely disagreed with his friend, whom he had long known as an enterprising farmer, Mr. Cruickshank, Cloves. Any mark whatever of impure breeding was most distasteful to the pure breeder—there was nothing he detested so much. A breeder of polled stock hated nothing so much as to see shorthorn marks in his calves. It would be impossible for any one to pass off bulls and heifers as being pure when in fact they were crossed. He wished to say something in favour of the polled breed, and it was, that a good thick polled stot paid better than a large cross one—he got as much for it. He was one of those who depended entirely on his cattle for the means of earning a livelihood, and if he found that the Baker Street butchers began to prefer another kind of animal than that which he supplied, he would begin to think what he was about. But at present he found that he got as much for his small polled beast as was given for the large cross-bred beast, even though a fourth part of the weight more. He had sometimes been at Smithfield, and was lately there in company with a practical dealer, who took him to a place where there passed by three small Galloways, a large shorthorn bullock, and a number of Hereford bullocks as fat as mud. "Now," said this dealer, pointing to these lots, "I will tell you something that may be of use to you in making up your mind upon breeding. You see these different beasts; well, I can just make as much of the small Scotch ones as I can by these great mountains of flesh—as much by your small, firm, broad-backed Scotch ones as by any crosses, however big they may be." To return to the question of purity of breed, he believed that in ninety-nine cases out of one hundred, cross blood could be detected. They might pass muster with some parties, but not with those who knew both classes.

Mr. Brown (Linkwood) approved highly of keeping the breed pure; but at the same time he must say that nothing could be more valuable than the cross between the short-horn and the polled, and he should be sorry to think that it would be considered an unprofitable thing to cross, for few could afford to keep up a pure stock. The country was much indebted to those who kept up the pure breeds—for purity of breed was a great matter in crossing; and for his part he would always endeavour to go to the best and purest bull, and would always try to get him a good cow. He could not speak as to the subject of when crosses became pure, but was inclined to believe that that never took place. He was sorry that the Society had not continued to give prizes for crosses. It took from the interest of the show, and he was not sure that it was improved by the omission.

Mr. Horne (Langwell) said that if he thought the question they were discussing a practical one he would say not a word; but as to the utility of crossing, which was the first question in Mr. Harvey's proposition, he thought no gentleman connected with Scotland could have a doubt on the subject. It was a most fortunate event that crossing in cattle and sheep in Scotland had taken place, for there was many a district which would have paid no rent had there been no cross. He was sure that no gentleman could doubt for a moment that, in breeding crosses, there must be purity on one side at least. One of the sides must be pure, or the cross would indeed be miserable. That opened the question of maintaining the purity of breeds. He did not think that any number of crosses would produce a pure animal—that was the safe doctrine for Scotland to hold by.

Mr. Forbes Mackenzie (late M.P. for Peebles) said that, never having bred a pure animal in his life, he was ill-qualified to address such a meeting on this subject. He quite agreed with Mr. Horne that, before breeding crosses, they must have pure animals to breed from; and, as crossing was so generally followed throughout Scotland, it appeared to him that there were two questions which they ought to dispose of—one, what it was best for the Highland Society to encourage? and the other, what it was best for the country to do? Now it would seem to be better for those gentlemen who lived in high districts, and who had not the means or fitting opportunities for cultivating pure stock—it was better and more profitable for them to breed crosses. But how were they to get good animals unless they had pure sires? and, therefore, it seemed to him again to be right that the Highland Society should give premiums only to pure stock, which, when obtained pure, others should take and do what they liked with them.

Mr. Hope (Fenton Barns) quite agreed with Mr. Harvey as to the importance of keeping the shorthorned breed pure; but as Mr. Harvey had stated the shorthorn was originally a cross, he thought it was still possible to produce a pure shorthorn by crossing. He did not think, however, that it was necessary to run the risk of attempting to produce shorthorns by crossing, for herds of shorthorns now existed all over the country, of every variety that any breeder might fancy; and, in breeding pure stock, they should select animals from herds situated as widely apart as possible, so as to get variety of blood. This was a better course than running the risk of failure; and, therefore, he thought the rule of the Society should be adhered to.

Mr. Harvey replied. So far as he had gathered the collective opinion of the meeting, they were all of one mind with regard to purity. He perfectly agreed with what Mr. Horne remarked with regard to certain portions of the country which gained their bread by their crosses; but according to

the meeting, they ought to have purity in the abstract, and a regular herd-book should be kept. It was hard to call upon a judge who had his own onerous duties to perform, to decide upon the breed of the animals exhibited, and to impose on him the invidious task of telling an exhibitor that his stock was impure. It would be far better to have a herd-book, which should regulate the admission into the show-yard of pure stock. He thought the sense of the meeting would be best expressed by a resolution to this effect, namely—that the polled Highland, Ayrshire, and shorthorn breeds should be kept pure, that regular herd-books be kept, and regular pedigrees made, without showing which cattle of these breeds would be inadmissible into any show grounds; and at the same time the meeting, recognising this principle, that as there is a justly valuable breed of crosses, whether of one kind or another, in this country, at all show-yards there should be a certain amount of prizes given to them. The object of the Society was to encourage agriculture, and he thought it hard, as pure stock was kept chiefly for the purpose of crossing, that those should not be rewarded who just exactly did, or were prepared to do, what the pure breeders only gave them the means of doing.

Mr. Hall Maxwell admitted all Mr. Harvey had said as to the use of herd-books and pedigrees, but if the suggestion was adopted he was afraid the gentlemen of Ayrshire would object to it. The proposition means that no animal shall be allowed to compete without a pedigree taken from the herd-book. Gentlemen who knew the district where the Ayrshire breed is to be found in all its purity, know that many of the farmers there are not in a condition to keep those books. If the resolution were adopted, it would be rendered nugatory by there being no show of Ayrshires. He thought that, while the meeting might express its opinion in favour of herd-books and pedigrees, it might be going too far to adopt the resolution.

Mr. Graham (Barns of Limekilns) confirmed the remark by Mr. Maxwell as to the Ayrshire stock. In his opinion there would be no show of Ayrshires at the Highland Society's exhibitions if the resolution was adopted. At the same time he thought that they had already at their shows as pure a breed of Ayrshires as they had of any other kind of stock. He hoped the premiums for Ayrshires would be raised to the same rank as those for shorthorns, for milk, cheese, and cream were valuable products.

The resolution was then agreed to, in the form that all the breeds should be kept pure, but that no formal recommendation should be sent up to the directors of the Highland Society.

Calendar of Operations.

SEPTEMBER.

BORDER OF THE FENS, *Sept.* 8.—The harvest about here is nearly completed, and with the exception of the extraordinary visitation of five days' continued rain the weather may be said to have been very favourable; but that rain will by many be long remembered. A great deal of corn was already cut and fit for carting when on Sunday morning down it came! Some congratulated themselves upon it, and in many respects it produced most beneficial results, as it renewed the pastures, filled the ponds, and gave life and vigour to Turnips and Coleseed; but when on Tuesday and Wednesday from all quarters it still kept dripping and driving with scarcely any intermission, and Thursday also was showery, how severely was the fortitude and resignation of the farmers taxed at such a critical time, without being able to stir otherwise than patiently to put the sheaves of corn in their places that had been thrown down by the united forces of wind and rain. Some farmers rashly, we might say frantically, mustered their men and shifted the stooks before the rain had ceased, the only consequence of which was that the sheaves got more thoroughly wet through; others were, we fancy, too hasty in carrying on the Saturday. If rain had again set in they would probably have been pleased at having got some of their corn in bad order to escape getting it in worse. Still those who could endure to be quiet were rewarded afterwards by plenty of fine weather, and being spurred to exertion by the damage they had sustained they literally laboured night and day to secure the grain in stacks. This heavy rain ripened the late Wheats in the fens rapidly, and there ensued a great outcry for hands, as much as 25*s.* an acre being given by several persons in remote parts where the labourers were scarce; high prices were generally given, and one bad consequence was that the work was not done so well as usual, it was not prudent to be too particular, therefore sheaves were made too big, reaping was in numerous instances done slovenly, dragging half done or not done at all, and farmers glad to hire anybody as a makeshift to help to get the corn together. Matters are, however, now proceeding in a more regular course, the trim thatch and a little paring puts all to rights, and the hum of the steamer resounds in all parts to test the produce and supply the markets. The yield of Wheat will be collectively large, but by the acre less than an average; the weight is not so heavy as was expected, there being more Wheat below 18 stone net than above that weight; yet for 61 or 62 lbs. per bushel the Wheat will be of good quality where not sprouted, *i. e.* with less tail Wheat than usual, and probably in grinding there will be less bran or offal. Barley has been more injured than Wheat, particularly where it was not tied; all Barley not carted before the 17th is more or less grown. Very few reaping machines have found their way to this locality at present; it is supposed that farmers have been deterred buying them from the imperfect specimens procured by the few enterprising men who first ventured to purchase them; there is little doubt that as soon as anything like certainty of a reaping machine being obtainable that will work without much trouble or keeping in repair, scores of customers will avail themselves of such a welcome and necessary implement. Mowing is much practised here, but compared with the operation of a good reaping machine it must be pronounced a clumsy and defective method of gathering grain; reaping by hand is slow and expensive, and therefore the sooner we grow crops fit for the machine and have a machine fit for reaping tolerably heavy crops the better. *J. W*, *Peterborough.*

Notices to Correspondents.

ABORTION IN COWS: *Cheshire.* The best preventative is to keep them in fair but moderate condition some time before they calve; let them have plenty of exercise, and their bowels rather relaxed before they calve. A little Linseed cake or crushed seed will not be amiss before calving and afterwards. *W. C. S.*

A DOUBLE EAR: *C S.* Unless it be a specimen of Egyptian Wheat, which sometimes has fewer branches than usual, it is not likely to reappear in the plants grown from its seed.

FOUL LAND. *J B H.* We should be disposed to plough the land before scarifying it unless it were a very light soil indeed.

MILK, AND MEAT BISCUITS: *N.* The process of evaporating milk to dryness is done by patient stirring at a temperature below boiling. The vessel containing the milk had better be floated in another containing boiling water. Meat biscuits are fully described in Dr. Lindley's lecture of the series on the Great Exhibition, 1851, published, we think, by Murray.—The price of the book you refer to must be ascertained on application to the publisher. A review does not profess to be an advertisement.

PHOSPHORIC RAT POISON: *A Welsh Sub.* It is generally advertised in our columns. We will extract the recipe as soon as we can obtain a sight of it.

ERRATA. In the paper on Dairy Management, by Mr. Horsfall, as published in the Society's Journal, there are one or two errata. In computing the live and dead weight of cattle, instead of 21 to 12, or 100 to 59 1-7th, it should be 21 to 12, or 100 to 57 1-7th. Also, at the close of the paper, in quoting from Fontenelle the degree of congelation of the olive oil, the word "solidifies" should have been omitted; and at page 265, in the tabular form at the head of it, the gain in Nos. 3 and 4 is calculated wrong, and 184 and 300 should be read 168 and 300.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

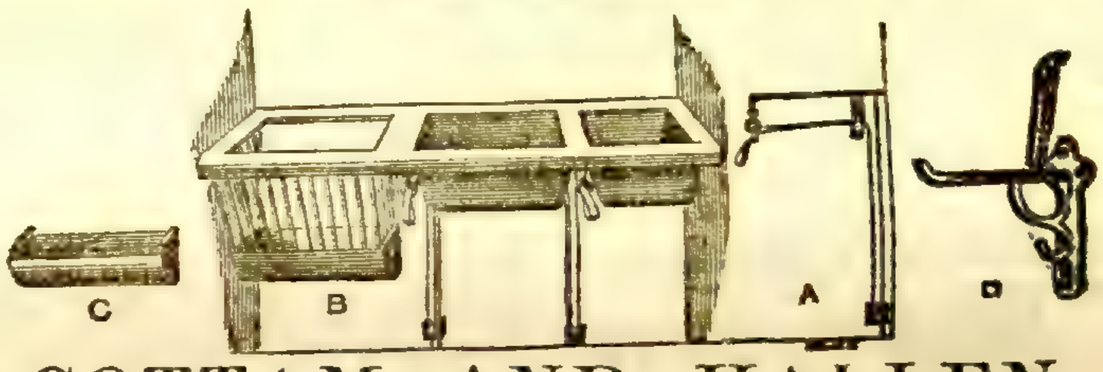
Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

T. GREEN'S NEW INVENTION IN LAWN MOWING AND ROLLING MACHINES,

SOLE MANUFACTURER, IRON AND WIRE WORKS, NORTH STREET, LEEDS.

REGISTERED JULY 24, 1855.—No. 3739.

THE ADVANTAGES OF THESE MACHINES supersede all others by having a small Wheel in front of the Grass Box, consequently will mow verges and round flower beds, without any change of Wheels, or adding the old fashioned Roller, as in others; will also cut either wet or dry, and by the simple adjustment of a thumb screw, in front, can be raised or lowered to cut the Grass any length required; and having two Rollers behind, and a small one in front, they roll the width they cut; they will turn in very little room, and cut at the same time. All the working parts made much stronger than the old machines. The bottom Blades are so constructed that they cannot tear up the ground; they are only drawn, and not pushed and drawn as in other machines, consequently do not require half the power to work them. The three first sizes can be worked by one person with ease; the two latter with a pony or donkey.

LIST OF PRICES (NET CASH):—

13 inches	16 inches	20 inches	24 inches	28 inches	and 32 inches
£5 5 0	£6 0 0	£7 0 0	£8 0 0	£10 10 0	£12 10 0

A quantity of Machines of other kinds at HALF the usual prices.

Testimonial from Joshua Major, Esq., Landscape Gardener, Knostrop.

TO MR. GREEN, LEEDS.—SIR, As I always appreciate public and useful improvements, I most gladly give my testimony to your highly improved Mowing and Rolling Machine. The one sent for my inspection and trial (cutting a breadth of 24 inches) was drawn on flat ground with ease by one person, and although at the time of trial the lawn was wet, it was cut with the greatest nicety. So complete and simple is the invention, that amateur gentlemen, and even ladies, may work either the 16 or 20-inch size with ease and pleasure, providing the Grass is not too long. For extensive places I should say the 24 inches would be most suitable; for even in undulating ground two persons may work it; but in flower gardens, when beds, &c., are crowded, either of the smaller sizes would be best. I congratulate you on your very valuable invention, which in my opinion, entirely surpasses, and must eventually supersede all others, for it is not only free from intricacy and easy to the workman, but extremely expeditious in its operations, and consequently must prove a great saving in the management of Grass lawns, and a great boon to the public.—I am, Sir, your most obedient servant, JOSHUA MAJOR.

Other Testimonials may be had on application to the Manufacturer.

The above Machines are warranted to answer the purpose as described, or may be returned, and may be had of all principal Ironmongers, Nurserymen, and Seedsmen in England; also Mr. CHARLES GARROOD, Superintendent of Agricultural Department, Crystal Palace, Sydenham.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12s.		8 by 6, and 8½ by 6½ ... 13s. 6d.		
7 by 5, and 7½ by 5½ ... 13s.		9 by 7, and 10 by 8 ... 13s. 6d.		
11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	14 0
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...	
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...	
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...	16 0
18 „ 12,	19 „ 12 ...	...	... ...	
16 „ 13,	17 „ 13,	18 „ 13 ...	... ...	18 0
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...	
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...	18 0
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...	

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz. from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

Foreign Sheet Glass, in cases of 200 feet 34s., 38s., 40s., and 42s. per case.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London.

STRONG HORTICULTURAL SHEET GLASS from 2d.; and HARTLEY'S PATENT ROUGH PLATE, from 4½d. per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12s. 6d.; above, 16s. 8d. per box. FOREIGN SHEET, in 200 feet cases, 34s. per case.

PERFORATED VENTILATING GLASS from 1s. 6d. per foot. TILES and SLATES from 6d. each. MILK PANS, 21s. per dozen. HELY'S HAND CHURN, 5s. 6d.; WARING'S BUTTER SLABS, 10s. each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7s. per 100, and the New Aquarium 10s. each.—Catalogues free.

THE COMFORT OF A FIXED WATER-CLOSET for 1l.—Places in Gardens converted into comfortable Water-closets by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can fix it or unfix it in two hours. Price 1l. Also Hermetically-sealed and inodorous chamber commodes, 1l. 2s. and 2l. 4s., and improved Portable Water-closets, with pump, cistern, and self-acting valve. A prospectus with engravings forwarded by enclosing two post stamps.—At FYFE and Co.'s Sanitarium, 46, Leicester Square.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

"TIFFANY," a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3d. per yard or 5s. per piece. A liberal allowance to the Trade when not less than 10 pieces are taken. No orders will be attended to from unknown correspondents unless accompanied by a remittance.

Manufactured for and sold, wholesale and retail, by JOHN SHAW, Nurseryman and Seedsman, 40, Princess Street, Manchester.

BENTALL'S BOTANICAL DRYING PAPER.—The above PAPER is prepared expressly for drying specimens for the Herbarium, for which purpose it has been extensively used for several years past by the most eminent botanists of the day. It possesses all the requisite qualities, preserving form and colour in the best possible manner, and having the peculiar advantage of seldom, if ever, requiring a change of sheets whilst the plants are being dried, thereby saving much time and trouble. Its stoutness and durability also combine to render it economical, making it practically quite as cheap as ordinary papers sold at a lower price. The proprietor has received the most flattering testimonials from Sir W. J. Hooker, Professor Lindley, and many other eminent botanists.

For the convenience of collectors of Foreign as well as British plants the paper is prepared in four sizes, viz. 16 by 10 inches (folded); 18 by 11 inches (ditto); 20 by 12 inches (ditto); and 16 by 20 inches (ditto). Price 15s., 18s., 21s., and 28s. per ream.

Sole Manufacturer, T. BENTALL, Paper Mills, Halstead, Essex. Agent for London: Mr. E. NEWMAN, 9, Devonshire Street, Bishopsgate.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1s. 1½d. and 2s. 9d. per box.

TOURISTS AND TRAVELLERS

EXPOSED TO THE SCORCHING RAYS OF THE SUN, AND HEATED PARTICLES OF DUST, WILL FIND

ROWLANDS' KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discoloration fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of sunburn, or stings of insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per bottle.

ROWLANDS' MACASSAR OIL, a delightful fragrant and transparent preparation, and as an invigorator and purifier of the Hair beyond all precedent.

ROWLANDS' ODONTO, or Pearl Dentifrice, a White Powder, compounded of the rarest and most fragrant exotics. It bestows on the Teeth a Pearl-like Whiteness, frees them from Tartar, and imparts to the Gums a healthy firmness, and to the breath a grateful sweetness and purity.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

A CLEAR COMPLEXION.

GODFREY'S EXTRACT OF ELDER FLOWER is strongly recommended for Softening, Improving, Beautifying, and Preserving the Skin, and giving it a blooming and charming appearance. It will completely remove Tan, Sunburn, Redness, &c., and by its Balsamic and Healing qualities render the skin soft, pliable, and free from dryness, &c., clear it from every humour, pimple, or eruption, and by continuing its use only a short time the skin will become and continue soft and smooth, and the complexion perfectly clear and beautiful. In the process of shaving it is invaluable, as it allays the irritation and smarting pain, annihilates every pimple and all roughness, and renders the skin smooth and firm.—Sold in bottles, price 2s. 9d., by all Medicine Vendors and Perfumers.

DO YOU WANT LUXURIANT HAIR WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing thirteen penny post stamps, to Miss Coupelle, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, &c., of the writer, with many other things hitherto unsuspected.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

FOR BED SORES, &c.—WATER CUSHIONS, AND Water MATTRESSES for Invalids. Inventor and Manufacturer, HOOPER, London. For the prevention of Bed sores, and for affording relief where Sloughing has actually taken place. Also for Wounds, Abscesses, Fractures, Diseased Joints, Paralysis, Spinal Affections, Fevers, Extreme Age, Consumptive and Bedridden Patients generally. WATERPROOF SHEETING for protecting Bedding, and URINALS for Day or Night use. Orders by Post or Telegraph immediately attended to. HOOPER, Pall Mall East; and Grosvenor Street, London.

HOLLOWAY'S PILLS INESTIMABLE FOR THEIR CURE OF BOWEL COMPLAINTS.—Mr. Benjamin Brookhall, of East Retford, suffered severely from a bowel complaint, to alleviate which he had applied a host of remedies, but the results were invariably unsuccessful. The malady at length progressed so alarmingly that it nearly prostrated Mr. Brookhall when he was providentially advised to take HOLLOWAY'S Pills, which he did forthwith, and with such signal success that the distressing symptoms immediately abated, and in a few days he became hale, hearty, and completely cured.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

PLAN AND ESTIMATE FOR CEMETERY.

THE BURIAL BOARD for the Parish of Saffron Walden, in the County of Essex, are desirous of receiving PLANS and ESTIMATES for Laying out and Planting their New Cemetery. The Ground contains about 6 acres, a Plan of which may be seen and further information obtained at my office. The party whose Plan is approved will be paid the sum of Five Guineas; and such Plan to be the property of the Board. The Plans and Estimates must be delivered at the Office of the Clerk to the Board on or before Monday September 22d. inst.

SIMEON JOHN KING, Clerk to the Board.

Saffron Walden, September 13.

CAUTION.

CATTLE.—Purchasers of Guernsey Cattle are informed that there is a duly authorised person to Brand on the Horns of those exported from the Island an abbreviation of the word GUERNSEY, the successive number in each year, and the two last figures of the current year. By exacting this Brand from the Agents, they will be sure of the really pure breed. Any attempted imitation of the Brand will be strictly sued at law. Any further information desired can be obtained from the Secretaries.

N. LE BEIR, } Honorary Secretaries Royal Agri-
W. P. COBU, } cultural Society of Guernsey.

Guernsey, September 13.

GUSTARD WOOD COMMON, BETWEEN WHEATHAMPSTEAD AND KIMPTON, HERTS.

TO BE LET, with immediate Possession, a very desirable COUNTRY RESIDENCE or HUNTING BOX; also suitable for a Trainer, Cattle Dealer or Straw Plait Manufacturer, from the extent of the Premises and great advantages of the Common. The House contains Entrance Passage, two good Parlours, two Kitchens, four Bedrooms with two Dressing-rooms, Brewhouse and Cellar, with Garden, large and well planted Orchard or Paddock, Stabling, and other Outbuildings well supplied with excellent spring and soft water. The whole containing about 3 acres.—For cards to view and terms apply to Messrs. PAGE & CAMERON, Land-agents and Surveyors, 64, Old Broad Street, and St. Alban's.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orné, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

Sales by Auction.

SAPCOTE FIELDS, NEAR HINCKLEY.

IMPORTANT SALE OF SHORT-HORNED CATTLE, HORSES, SHEEP, PIGS, IMPLEMENTS, &c.

MR. STRAFFORD has received instructions from George Townshend, Esq., to offer for Sale by Auction, without reserve, on THURSDAY, September 18, at Sapcote Fields, near Hinckley, Leicestershire (being the day after the Sparkenhoe Farmers' Club Exhibition), a choice selection of SHORT-HORNED CATTLE, consisting of upwards of 30 head of Bulls, Cows, and Heifers, including in their range the blood of Beverley (9964), Carracci (8932), Earl of Leicester (12,815), Earl of Warwick (11,412), General Sale (8099), Ibrahim Pacha (11,597), Jethro Tull (11,616), Mahomed (6170), &c.; also seven valuable CART HORSES of the old Leicester Breed; 150 pure bred LEICESTER SHEEP, descended from the far-famed Dodford and Holme Pierrepont flocks; 20 PIGS, and some IMPLEMENTS. The whole of which are to be sold in consequence of Mr. Townshend leaving Sapcote Fields.—Catalogues, with Pedigrees, and other particulars, may be had on application to Mr. STRAFFORD, 13, Euston Square, London; or of Mr. TOWNSHEND, Sapcote Felds, near Hinckley.

MORDON NURSERY, NEAR MITCHAM, SURREY.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction, on the premises as above, on WEDNESDAY, September 24, at 12 o'Clock, Seven capital Greenhouses, 40 feet by 16, 15 three and one-light Boxes, a useful Horse, Gig, capital Spring Market Cart, Harness; also 1000 Chinese Roses, 1000 Currant Trees, 40 Camellias, about 600 Scarlet Geraniums, Garden Pots, &c.—May be viewed prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London: and of the Auctioneers, American Nursery, Leytonstone, Essex.

IN BANKRUPTCY,

THE REMAINING PORTION OF THE STOCK IN TRADE OF MESSRS. DAWE, COTTRELL, AND BENHAM, SEED MERCHANTS.

MESSRS. PRICE AND CLARK will Sell by Auction on the premises, Lawrence Pountney Lane, Cannon Street, City, on TUESDAY, Sept. 16, at 11 o'Clock for 12, by order of the assignees, 7 Tons of GARDEN SEEDS; 50 Quarters of PEA SEED, including Warner's True Conqueror, Woodford and Flack's Victory, Redman's Imperials, and others; 300 bushels of various GRASSES, 400 Sacks and Bags, Counting House Fixtures and Implements in trade, &c.—Catalogues may be had at the various Seed shops; and of the Auctioneers, 48, Chancery Lane.

CHISWICK GARDENS.

MR. J. C. STEVENS is directed by the Council of the Horticultural Society to announce for Sale by Auction at the Gardens, Chiswick, on WEDNESDAY, Sept. 24, at 12 o'Clock precisely, STOVE, GREENHOUSE, and OUT-DOOR PLANTS, many of which are very rare and exceedingly fine specimens, calculated for Exhibition next season; amongst them will be found about 40 specimens of the original Chinese Tree Pæonias introduced by Mr. Fortune. These and various other plants cannot fail to be objects of great interest to all growers, especially to English and foreign nurserymen, as some are believed to be unique.—May be viewed on the day prior and morning of Sale, and Catalogues had at the Gardens; and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Sept. 23, at 1 o'Clock precisely, a collection of established ORCHIDS in good health, including the following choice sorts:—

Vanda cristata	Saccolabium guttatum
„ suavis (Veitch's)	„ retusum
„ tricolor	„ ampullaceum
„ cœrulea	„ Blumei major
Ærides affine	Cattleya labiata
„ virens	„ elegans
„ cornutum	„ maxima
Phalænopsis grandiflora	Lælia purpurata
Brassavola Digbyana	„ Brysiana,
&c. &c.	&c.

May be viewed on the morning of Sale, and Catalogues had.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.

IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.

250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc., vol. v., p. 20; and Paxton's "Flower Garden," vol. i., p. 11).

300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.

1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.

300 SKIMMIA JAPONICA.

1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.

5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.

10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, November 17, and four following days.

The Stock will be on public view 10 days before each Sale when Catalogues may be had (1s. each, returnable to purchasers, at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

Approved bills at three months' date will be taken of purchasers from 50l. to 100l., and at six months' date of purchasers above 100l.

The Sunningdale Station on the South Western Railway is within about two miles of the Nursery.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge. Established AD. 1700.

THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. MESURE & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly. An inspection is solicited. Silver Levers, four holes jewelled, from 6*l.* 16*s.*; Gold Levers, four holes jewelled, from 16 guineas.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL, has now, in consequence of its marked superiority over every other variety, secured the confidence and almost universal preference of the most eminent Medical Practitioners in the treatment of CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Its leading distinctive characteristics are:

COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES.
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS, AND CONSEQUENT ECONOMY.

OPINION OF C. RADCLYFFE HALL, ESQ., M.D., F.R.C.P.E. Physician to the Torquay Hospital for Consumption, Author of "Essays on Pulmonary Tubercle," &c. &c.

"I have no hesitation in saying that I generally prefer your Cod Liver Oil for the following reasons:—I HAVE FOUND IT TO AGREE BETTER WITH THE DIGESTIVE ORGANS, ESPECIALLY IN THOSE PATIENTS WHO CONSIDER THEMSELVES TO BE BILIOUS: it seldom causes nausea or eructation; it is more palatable to most patients than the other kinds of Cod Liver Oil; it is stronger, and consequently a smaller dose is sufficient."

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.*; Quarts, 9*s.*; capsuled and labelled with Dr. DE JONGH'S Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD & CO., sole British Consignees, 77, Strand London; and by many respectable Chemists and Druggists.

BEDSTEADS, BATHS, AND LAMPS.

WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from...	12*s.* 6*d.* to 12*l.* 0*s.* each.
Shower Baths, from	7*s.* 6*d.* to 5*l.* 15*s.* each.
Lamps (Moderateur) from ...	6*s.* 0*d.* to 6*l.* 6*s.* each.

(All other kinds at the same rate.)

Pure Colza Oil ... ... 4*s.* 8*d.* per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 11*s.* per dozen; Desserts to match, 10*s*; if to balance, 1*s.* per dozen extra; Carvers, 4*s.* per pair; larger sizes, from 19*s.* to 26*s.* per dozen; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per dozen; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s* 4*d.* per dozen; Desserts, 6*s.*; Carvers, 2*s.* 6*d*; black wood-handled Table Knives and Forks, 6*s.* per dozen; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38*s.*	48*s.*	60*s.*
Dessert ditto and ditto "	30*s.*	35*s.*	42*s.*
Tea ditto ... ... "	18*s.*	24*s.*	30*s.*

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen ...	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto	10*s.*	21*s.*	25*s.*
Tea ditto	5*s.*	11*s.*	12*s.*

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding and Bed-hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; 4, 5, and 6, Perry's Place. Established 1820.

CRYSTAL PALACE LIST OF PRIZES—*Continued.*

FRUIT.

CLASS

K.—GRAPES, two dishes of White, Muscat and any other variety.

£3 0 to Mr. S. Snow, Gardener to Earl De Grey, Wrest Park Silsoe, Beds.
2 0 to Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham.
1 0 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham.

L.—GRAPES, the largest bunch of any kinds.

£1 10 to Mr. T. Young, Gardener to Crawshay Bailey, Esq., M.P., Aberdare, South Wales.
1 0 to Mr. G. Tillyard, Gardener to the Right Hon. the Speaker, Heckfield, Hants.
0 15 to Mr. E. Vare, Gardener to the Rev. C. A. Belli, South Weald, Brentwood.

M.—PEACHES AND NECTARINES, six dishes, three kinds.

£4 0 to Mr. Thomas Frost, Gardener to E. L. Betts, Esq., Preston Hall, Maidstone.
3 0 to Mr. W. Hudson, Gardener to Mrs. Barchard, Wandsworth.
2 0 to Mr. G. Tillyard, Gardener to the Rt. Hon. the Speaker, Heckfield, Hants.

N.—PEACHES AND NECTARINES, four dishes, two kinds.

£3 0 to Mr. Thomas Dawson, Panshanger, Herts.
2 0 to Mr. G. Tillyard, Gardener to the Rt. Hon. the Speaker, Heckfield, Hants.
1 10 to Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham.
1 10 to Mr. James Shrimpton, Gardener to A. J. Doxat, Esq., Putney Heath.

O.—PEACHES and NECTARINES, two dishes.

£2 0 to Mr. Thomas Dawson, Panshanger, Herts.
2 0 to Mr. James Lane, Gardener to J. H. Palmer, Esq., Harlingham, Fulham.
1 10 to Mr. J. Gundry, Gardener to T. N. Farquhar, Esq., Sydenham.
1 0 to Mr. John Clark, Gardener to the Earl of Darnley, Cobham Hall, Kent.
1 0 to Mr. George Wortley, Gardener to Mrs. Maubert, Norwood.
0 15 to Mr. S. Snow, Gardener to Earl De Grey, Wrest Park, Silsoe, Beds.

P.—APRICOTS, two dishes, distinct.

£2 0 to Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.
1 10 to Mr. Samuel Evans, Gardener to C. E. Newdegate, Esq., M.P., Arbury, Nuneaton, Warwickshire.
1 0 to Mr. Richard Nicholson, Gledhow Grove, Chapeltown, Leeds.

Q.—MELONS, three kinds, distinct.

£4 0 to Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans.
3 0 to Mr. John Gadd, Castle Garden, Dorking.
2 0 to Mr. James Tegg, Gardener to Baron Hambro, Roehampton.
2 0 to Mr. J. B. Whiting, Gardener to H. T. Hope, Esq., The Deepdene, Surrey.

R.—MELONS, Green-fleshed, single fruit.

£2 0 to Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans.
1 0 to Mr. William Kaile, Gardener to the Earl of Lovelace, Ripley, Surrey.
1 0 to Mr. James Tegg, Gardener to Baron Hambro, Roehampton.
0 10 to Mr. Robert Stringer, Gardener to D. Barclay, Esq., Eastwick Park, Bookham, Surrey.
0 10 to Mr. Thomas Bailey, Shardeloes, Amersham.

S.—MELONS, Scarlet-fleshed, single fruit.

£2 0 to Mr. George Tillyard, Gardener to the Right Honourable the Speaker, Heckfield, Hants.
1 0 to Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.
0 10 to Mr. William Taylor, Gardener to J. Coster, Streatham.

T.—FIGS, Two dishes, 10 fruits each, distinct.

£2 0 to Mr. A. Bousie, Gardener to the Right Hon. H. Labouchere, M.P., Stoke Park, Slough.
1 0 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham.
0 15 to Mr. William Taylor, Gardener to J. Coster, Esq., Streatham.

CLASS

T.—FIGS, Two dishes, 10 fruits each, distinct.

£0 15 to Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.
0 10 to Mr. S. Snow, Gardener to Earl De Grey, Wrest Park, Silsoe, Beds.

U.—CHERRIES, two dishes.

£2 0 to Mr. Thomas Dawson, Panshanger, Herts.
1 10 to Mr. William Hudson, Gardener to Mrs. Barchard, Wandsworth.
1 0 to Mr. R. H. Betteridge, Milton Hill, Abingdon.
0 10 to Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham.

V.—PLUMS, three dishes, distinct kinds.

£3 0 to Mr. S. Snow, Gardener to Earl De Grey, Wrest Park, Silsoe, Beds.
2 0 to Mr. A. Bousie, Gardener to the Right Hon. H. Labouchere, M.P., Stoke Park, Slough.
1 0 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham, Hants.
0 10 to Mr. W. Kemp, Albury Park, Guildford.

W.—STRAWBERRIES, Three dishes. (No prize awarded.)

X.—APPLES, Dessert, 6 dishes, distinct varieties, 12 fruits each.

£2 0 to Messrs. Mitchell & Co., Nurserymen, Brighton.
1 10 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham.

Y.—APPLES, Kitchen, six dishes, distinct varieties, 12 fruits each.

£2 0 to Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans.
1 10 to Messrs. Mitchell and Co., Nurserymen, Brighton.
1 10 to Mr. William Tegg, Gardener to A. Pryor, Esq., Dover House, Roehampton.
1 0 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham.

Z.—PEARS, six dishes, distinct varieties, 12 fruits each.

£1 0 to Mr. C. Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.

AA.—PEARS, three dishes, distinct varieties, 12 fruits each.

£2 0 to Messrs. Mitchell & Co., Nurserymen, Brighton.

BB.—PEARS, single dish for weight.

£1 0 to Mr. George Grover, Westerton Cottage Garden, West End, Hammersmith.
0 15 to Mr. C. Ewing, Gardener to O. F. Meyrick, Esq. Bodorgan, Holyhead.

CC.—PEARS, single dish for flavour.

£1 0 to Mr. J. B. Whiting.
0 15 to Mr. William Taylor, Gardener to J. Coster, Esq., Streatham.
0 10 to Mr. James Williams, Gardener to Mrs. Warner, Hoddesdon.

DD.—VINES, in pots, with fruit, 4 plants.

£6 0 to Mr. William Forsyth, Gardener to Baron Rothschild, Gunnersbury Park, Acton.

EE.—PEACHES, NECTARINES, and any other fruit, in pots, 4 plants.

£6 0 to Mr. W. Kaile, Gardener to the Earl of Lovelace, Ripley, Surrey.
4 0 to Messrs. J. & C. Lee, Nurserymen, Hammersmith.
2 0 to Messrs. H. Lane & Son, Nurserymen, Great Berkhampstead.

FF.—PRIZES FOR FRUIT OF SUPERIOR EXCELLENCE, not specified in the Schedule.

£4 0 to Mr. W. Kaile, Gardener to the Earl of Lovelace, Ripley, Surrey.
3 0 to Mr. James Williams, Gardener to Mrs. Warner, Hoddesdon.
2 0 to Mr. M. Clarke, High Grounds, Hoddesdon.
2 0 to Mr. S. Solomon, Pine Apple Lodge, Peckham Rye.
2 0 to Mr. P. Kay, Market Green, Finchley.
2 0 to Mr. C. F. Harrison, Oatlands Palace Gardens, Weybridge.
1 0 to Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham.
1 0 to Mr. S. Snow, Gardener to Earl de Grey, Wrest Park, Silsoe, Beds.
1 0 to Mr. D. Hutcheson, Quex Park, Margate.
1 0 to Mr. J. Gundry, Gardener to T. N. Farquhar, Esq., Sydenham.
1 0 to Mr. John Monro, Gardener to Mrs. Oddie, Colney House, St. Albans.

AMATEURS' AND COTTAGERS' CLASSES.

I.—AMATEURS.

I.—COLLECTION OF HORTICULTURAL PRODUCE, consisting of Fruits, Flowers, and Vegetables, by Amateurs, with the assistance only of two gardeners.

£10 0 to Mr. F. Fletcher, Gardener to J. F. Young, Esq., Upper Kennington Lane.
7 0 to Mr. James George, Gardener to J. and W. Nicholson, Esqrs., Stamford Hill.

II.—Do., do., do., with the assistance only of one gardener.

£10 0 to Mr. John Craker, Gardener to Miss Bacon, Widmore Cottage, Bromley.
7 0 to Mr. J. James, Gardener to W. F. Watson, Esq., Isleworth.

II.—£5 0 to Mr. L. Glenton, Pagoda Cottage, Blackheath.

III.—Do., do., do., with the assistance of a gardener one day in a week.

£10 0 to Mr. James August, Rose Cottage, Beddington.

II.—COTTAGERS.

IV.—COLLECTION OF HORTICULTURAL PRODUCE, consisting of Fruits, Flowers, and Vegetables.

£10 0 to Mr. Charles Macer, Broxbourne, Herts.
7 0 to Mr. Joseph Turner, Westerfield, Ipswich.
5 0 to Mr. Thomas Woodward, Stoke Green, Coventry.
4 0 to Mr. George Grover, Westerton Cottage Garden, West End, Hammersmith.
3 0 to Mr. Marshal Wortley, Merstham, Surrey.
2 0 to Mr. David Friend, Haling Lime Kilns, Croydon.
1 0 to Mr. George Turner, East Barnet, Herts.
1 0 to Mr. George Bulbeck, Warble Heath Cottage, Oakwood, Chichester.

V.—POTATOES, dish of 12.

£1 0 to Mr. Edwin Amies, Maidstone.
0 15 to Mr. Marshal Wortley, Merstham, Surrey.
0 10 to Mr. Joseph Turner, Westerfield, Ipswich.
0 5 to Mr. Thomas Woodward, Stoke Green, Coventry.
0 4 to Mr. Thomas Dalton, Glasshouse Street, Nottingham.
0 3 to Mr. Richard Stevens, Cheam, Surrey.
0 2 to Mr. David Friend, Haling Lime Kilns, Croydon.

VI.—CAULIFLOWERS, dish of 6. (No prize awarded.)

VII.—CARROTS, dish of 12.

£1 0 to Mr. Joseph Turner, Westerfield, Ipswich.
0 15 to Mr. David Friend, Haling Lime Kilns, Croydon.
0 10 to Mr. Thomas Dalton, Glasshouse Street, Nottingham.
0 5 to Mr. Thomas Woodward, Stoke Green, Coventry.
0 4 to Mr. Richard Stevens, Cheam, Surrey.

VIII.—ONIONS, dish of 12.

£1 0 to Mr. Edwin Amies, Maidstone.
0 15 to Mr. Richard Stevens, Cheam, Surrey.
0 10 to Mr. Joseph Turner, Westerfield, Ipswich.
0 5 to Mr. George Bulbeck, Warble Heath Cottage, Oakwood, Chichester.
0 4 to Mr. David Friend, Haling Lime Kilns, Croydon.

IX.—TURNIPS, Dish of 12.

£1 0 to Mr. Thomas Dalton, Glasshouse Street, Nottingham.
0 15 to Mr. Thomas Woodward, Stoke Green, Coventry.
0 10 to Mr. David Friend, Haling Lime Kilns, Croydon.
0 5 to Mr. Richard Stevens, Cheam, Surrey.
0 4 to Mr. Joseph Turner, Westerfield, Ipswich.
0 3 to Mr. William Hibbert, Russell Street, Upper Sydenham.

X.—CABBAGES, dish of 6.

£1 0 to Mr. David Friend, Haling Lime Kilns, Croydon.
0 15 to Mr. Wm. Hibbert, Russell Street, Upper Sydenham.

XI.—COLLECTION OF POT HERBS.

£1 0 to Mr. George Bulbeck, Warble Heath Cottage, Oakwood, Chichester.
0 15 to Mr. George Turner, East Barnet, Herts.
0 10 to Mr. Charles Macer, Broxbourne, Herts.
0 5 to Mr. D. Friend, Haling Lime Kilns, Croydon.
0 4 to Mr. R. Stevens, Cheam, Surrey.

Crystal Palace, Sept. 12, 1856. (By Order.) G. GROVE, Secretary.

CRYSTAL PALACE.

GRAND HORTICULTURAL EXHIBITION,

SEPTEMBER 10, 11, and 12, 1856.

LIST OF SUCCESSFUL COMPETITORS.

PLANTS.

Class

I.—12 STOVE AND GREENHOUSE PLANTS, in flower.

£10 0 to Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham.
7 0 to Mr. B. Peed, Gardener to J. Tredwell, Esq., Norwood.
5 0 to Mr. E. A. Hamp, Gardener to J. Thorne, Esq., Mawbey House, South Lambeth.
3 0 to Mr. O. Rhodes, Gardener to J. Philpot, Esq., Stamford Hill.
2 0 to Mr. W. Cutbush, Barnet.

II.—6 STOVE AND GREENHOUSE PLANTS, in flower.

£5 0 to Mr. James Morris, Gardener to Coles Child, Esq., Bromley.
3 0 to Mr. Thomas Williams, Gardener to Miss Traill, Hayes, Kent.
2 0 to Mr. George Brush, Gardener to J. Tritton, Esq., Norwood.
1 0 to Mr. George Young, Gardener to William Stone, Esq., Dulwich Hill.

III.—20 VARIEGATED PLANTS, in or out of flower.

£7 0 to Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea.
5 0 to Messrs. J. & C. Lee, Nurserymen, Hammersmith.
4 0 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
3 0 to Mr. R. Parker, Nurseryman, Hornsey Road, Holloway.
2 10 to Mr. George Young, Gardener to William Stone, Esq Dulwich Hill.
2 10 to Mr. Arthur Young, Gardener to F. C. Hills, Esq., Denmark Hill, Camberwell.
2 0 to Mr. William Cutbush, Nurseryman, Barnet, Herts.
2 0 to Mr. Robert Oubridge, Gardener to James Foster, Esq.
2 0 to Mr. James Morris, Gardener to Coles Child, Esq., The Palace, Bromley, Kent.

IV.—10 PLANTS remarkable for fine foliage.

£5 0 to Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea.
3 0 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
2 0 to Mr. R. Parker, Nurseryman, Hornsey Road, Holloway.
1 0 to Mr. Geo. Young, Gardener to Wm. Stone, Esq., Dulwich Hill.

V.—6 SPECIES OF EXOTIC ORCHIDS.

£6 0 to Mr. S. W. Carson, Gardener to W. F. G. Farmer, Esq. Nonsuch Park, Cheam.
4 0 to Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt, Herts.
3 0 to Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts.

VI.—10 CAPE HEATHS, distinct kinds (no prize awarded).

VII.—6 CAPE HEATHS, distinct kinds.

£5 0 to Mr. Thos. Williams, Gardener to Miss Traill, Hayes Place, Kent.
4 0 to Mr. Geo. Brush, Gardener to J. Tritton, Esq., Norwood.
3 0 to Mr. B. Peed, Gardener to J. Tredwell. Esq., St. John's Lodge, Norwood.

VIII.—6 PLANTS OF NEPENTHES WITH PITCHERS.

£10 0 to Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea.
7 0 to Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts.

IX.—12 EXOTIC FERNS, tender, cultivated in pots, distinct kinds.

£5 0 to Mr. H. Smythe, Gardener to the Rev. T. Rooper, Wick Hill, Brighton.
4 0 to Mr. S. W. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, Cheam.
3 0 to Mr. F. Fletcher, Gardener to J. F. Young, Esq., Upper Kennington Lane.
2 0 to Mr. Henry Lavey, Gardener to E. A. De Grave, Esq., Fetcham, Leatherhead.
2 0 to Messrs. Cutbush & Son, Nurserymen, Highgate.
1 10 to Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts.
1 0 to Mr. James Morris, Gardener to Coles Child, Esq., The Palace, Bromley.
1 0 to Mr. R. Parker, Nurseryman, Hornsey Road, Holloway.
1 0 to Mr. T. Gaines, Nurseryman, Battersea.
1 0 to Mr. John Hally, Nurseryman, Blackheath.
1 0 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
1 0 to Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt.
1 0 to Mr. E. T. Childs, Gardener to P. Secretan, Esq., Thornton Heath, Croydon.

X.—20 EXOTIC FERNS, hardy, cultivated in pots, distinct kinds.

£3 0 to Mr. James Morris, Gardener to Coles Child, Esq., Bromley.

Class

XI.—12 LYCOPODIUMS, not less than six species.

£3 0 to Mr. R. Parker, Nurseryman, Hornsey Road, Holloway.
2 0 to Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt.
1 0 to Mr. A Bousie, Gardener to the Rt. Hon. H. Labouchere, M.P., Stoke Park, Slough.
0 15 to Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts.
0 15 to Mr. E. T. Childs, Gardener to P. Secretan, Esq., Thornton Heath, Croydon.
0 10 to Mr. James Morris, Gardener to Coles Child, Esq., The Palace, Bromley.
0 10 to Mr. Thomas Gaines, Nurseryman, Battersea.
0 10 to Mr. John Hally, Nurseryman, Blackheath.
0 10 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
0 10 to Messrs. Cutbush & Son, Nurserymen, Highgate.

XII.—6 ACHIMENES, distinct kinds.

£3 0 to Messrs. Mitchell & Co., Nurserymen, Brighton.
2 0 to Mr. Thomas Gaines, Nurseryman, Battersea.
1 5 to Mr. W. Gedney, Gardener to Mrs. Ellis, Hoddesdon, Herts

XIII.—6 KALOSANTHES, in flower. (No prize awarded.)

XIV.—6 FUCHSIAS, distinct kinds.

£5 0 to Messrs. Mitchell & Co., Nurserymen, Brighton.
4 0 to Mr. W. Weatherill, Gardener to D. M'Neil, Esq., Holloway.
3 0 to Mr. Bragg, Gardener to J. B. Lousada, Esq., Peak House, Sidmouth.
2 0 to Mr. Thomas Gaines, Nurseryman, Battersea.
1 0 to Mr. E. Harper, Gardener to J. F. Bennett, Esq., Archbishop's Place, Tulse Hill.
0 10 to Mr. J. James, Gardener to W. F. Watson, Esq., Isleworth.
0 10 to Messrs. Dobson & Son, Nurserymen, Isleworth.
0 10 to Mr. Robert Oubridge, Gardener to James Foster, Esq., Stamford Hill.

XV.—6 SCARLET GERANIUMS, distinct kinds.

£3 0 to Mr. W. Weatherill, Gardener to D. M'Neil, Esq. Holloway.
2 0 to Mr. H. Lavey, Gardener to E. A. De Grave, Esq., Fetcham, Leatherhead.
1 0 to Mrs. Mary Conway, Earl's Court Nursery, Old Brompton.
0 15 to Mr. John Lewis, Gardener to J. Guy, Esq., Hampton Wick.
0 10 to Messrs. Mitchell & Co., Nurserymen, Brighton.

XVI.—6 SCARLET GERANIUMS, variegated foliage, distinct kinds.

£0 15 to Mrs. Mary Conway, Earl's Court Nursery, Old Brompton.

XVII.—6 NOSEGAY GERANIUMS (various). No prize awarded.

XVIII.—6 CONTINUOUS - BLOOMING GERANIUMS, distinct, such as Unique, Sidonia, &c. (No prize awarded).

XIX.—12 BALSAMS.

£3 0 to Messrs. F. and A. Smith, Florists, Dulwich.
2 0 to Mr. T. Shuard, Gardener to Mrs. Graham, Herne Hill, Dulwich.
1 0 to Mr. Charles Brown, King's Wood, Dulwich.
0 15 to Mr. John Green, Gardener to Sir E. Antrobus, Bart., Lower Cheam, Surrey.

XX.—6 COCKSCOMBS.

£2 0 to Mr. John Bovingdon, Gardener to P. H. Desvignes, Esq., Hither Green, Lewisham.
1 0 to Mr. T. Shuard, Gardener to Mrs. Graham, Herne Hill, Dulwich.
0 15 to Mr. Henry Graham, Gardener to J. G. Cope, Esq., West Hill Lodge, Epsom.

XXI.—12 VERBENAS, in pots, not less than 6 kinds.

£3 0 to Mr. James Shrimpton, Gardener to A. J. Doxat, Esq, Putney Heath.
2 0 to Mr. W. Weatherhill, Gardener to D. M'Neil, Esq., Holloway.
1 0 to Mr. W. Bragg, Nurseryman, Slough.

XXII.—6 LILIUM LANCIFOLIUM, not less than 2 kinds.

£3 0 to Mr. Arthur Young, Gardener to F. C. Hills, Esq., Denmark Hill, Camberwell.
2 0 to Mr. Wm. Barnes, Nurseryman, Camberwell.
1 0 to Mr. S. Woolley, Gardener to H. B. Ker, Esq., Cheshunt.
0 15 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
0 10 to Mr. Thomas Gaines, Nurseryman, Battersea.
0 10 to Mr. John Hally, Nurseryman, Blackheath.

Class

XXIII.—MISCELLANEOUS.

£2 0 to Messrs. Jackson & Son, Nurserymen, Kingston-on-Thames.
2 0 to Mr. Thomas Brocklehurst, The Terrace, Macclesfield.
2 0 to Mr. Charles Turner, Nurseryman, Slough.
2 0 to Mr. Wm. Chater, Nurseryman, Saffron Walden.
2 0 to Mr. John Keynes, Salisbury.
2 0 to Mr. Wm. Bragg, Nurseryman, Slough.
2 0 to Mr. Wm. Saxby, Gardener to E. Edwards, Esq., Dulwich Hill.
2 0 to Mr. Wm. Weatherill, Gardener to D. M'Neil, Esq., Holloway.
2 0 to Mr. R. Sim, Nurseryman, Foot's Cray, Kent.

CUT FLOWERS.

XXIV.—50 ROSES, distinct varieties, 3 trusses of each variety as gathered (Nurserymen).

£4 0 to Mr. James Mitchell, Maresfield, Sussex.
3 0 to Messrs. A. Paul & Son, Cheshunt.
2 0 to Messrs. H. Lane & Son, Berkhampstead.
1 0 to Mr. John Cranston, King's Acre, Hereford.
0 15 to Mr. E. P. Francis, Hertford.
0 10 to Mr. E. R. Greenus, Watford and Rickmansworth.

XXV.—25 ROSES, distinct varieties, 3 trusses of each variety as gathered (*Amateurs*).

£4 0 to Mr. G. Brush, Gardener to J. Tritton, Esq., Norwood.
3 0 to Mr. Samuel Evans, Gardener to C. E. Newdegate, Esq., M.P., Arbury, Nuneaton, Warwickshire.
2 0 to Alexander Rowland, Esq., Rosenthal, Lewisham.

XXVI.—24 ROSES, distinct varieties, single blooms.

£2 0 to Mr. James Mitchell, Nurseryman, Maresfield, Sussex.
1 0 to Mr. Samuel Evans, Gardener to C. E. Newdegate, Esq., M.P., Arbury, Nuneaton, Warwickshire.
0 15 to Mr. E. P. Francis, Nurseryman, Hertford.
0 10 to Mr. George Wortley, Gardener to Mrs. Maubert, Norwood.

XXVII.—24 HOLLYHOCKS, distinct varieties, single blooms.

£3 0 to Messrs. A. Paul & Son, Nurserymen, Cheshunt.
2 0 to Mr. W. Chater, Nurseryman, Saffron Walden.
1 0 to Mr. Charles Turner, Nurseryman, Slough.
0 15 to Mr. W. Bragg, Nurseryman, Slough.
0 10 to Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Leyton.

XXVIII.—50 DAHLIAS, dissimilar.

£10 0 to Mr. Charles Turner, Nurseryman, Slough.
8 0 to Mr. John Keynes, Salisbury.
6 0 to Mr. Henry Legge, Marsh Side, Lower Edmonton.
4 0 to Mr. Charles Kemberley, Nurseryman, Stoke, near Coventry.
2 0 to Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Leyton.
1 10 to Mr. W. C. Drummond, Nurseryman, Bath.

XXIX.—24 DAHLIAS, dissimilar.

£6 0 to Rev. Charles Fellowes, Shottesham, Norwich.
5 0 to Mr. George Holmes, Brooke Lodge, Norwich.
4 0 to Mr. Thomas Leslie, Gardener to Mrs. Alexander, Stone House.
3 0 to Mr. John Sladden, Ash, Maidstone.
2 0 to Mr. A. H. Hogg, Cadland, Southampton.
1 10 to Mr. Robert James, Rochester Castle, Stoke Newington.
1 0 to Mr. C. J. Perry, Handsworth, Birmingham.
0 15 to Mr. Charles E. Allen, Shacklewell.
0 15 to Mr. John Cook, Rosedale Terrace, Ladbroke Grove, Notting Hill.

XXX.—12 DAHLIAS, Fancy.

£3 0 to Mr. Henry Legge, Marsh Side, Lower Edmonton.
2 0 to Mr. Charles Turner, Nurseryman, Slough.
1 10 to Mr. John Keynes, Salisbury.
1 0 to Rev. Charles Fellowes, Shottesham, Norwich.
0 15 to Mr. W. C. Drummond, Nurseryman, Bath.
0 15 to Mr. William Bragg, Nurseryman, Slough.
0 10 to Mr. C. Kemberley, Nurseryman, Stoke, near Coventry.
0 10 to Messrs. J. and J. Fraser, Nurserymen, Lea Bridge Road, Leyton.

XXXI.—24 GERMAN ASTERS, single blooms, dissimilar.

£2 0 to Mr. R. H. Betteridge, Milton Hill, Abingdon, Berks.
1 10 to Mr. John Walker, Thame, Oxon.
1 0 to Mr. Thomas Westbrook, Abingdon, Berks.
0 15 to Mr. James August, Rose Cottage, Beddington, Surrey.
1 10 to Mr. W. Bragg, Nurseryman, Slough.
1 0 to Messrs. J. & J. Fraser, Nurserymen, Lea Bridge Road, Leyton.
0 15 to Mr. George Smith, Wade's Mill, Herts.
1 0 to Messrs. A. Paul & Son, Nurserymen, Cheshunt.
0 10 to Mr. Robert James, Rochester Castle, Stoke Newington.

FRUIT.

FRUIT.

A.—COLLECTION OF TWELVE DISHES, 10 distinct kinds.

£10 0 to Mr. George Fleming, Gardener to the Duke of Sutherland, Trentham.
10 0 to Mr. G. Tillyard, Gardener to the Right Hon. the Speaker, Heckfield, Hants.
7 0 to Mr. Thomas Page, Gardener to W. Leaf, Esq., Streatham.

B.—COLLECTION OF EIGHT DISHES, 6 distinct kinds.

£8 0 to Mr. Thomas Frost, Gardener to E. L. Betts, Esq., Preston Hall, Maidstone.
5 0 to Mr. G. Robinson, Gardener to E. R. Tunno, Esq., Warnford Park, Bishop's Waltham.
4 0 to Mr. William Taylor, Gardener to J. Coster, Esq., Streatham.
2 0 to Mr. William Kaile, Gardener to the Earl of Lovelace, East Horsley Tower, Ripley, Surrey.
1 10 to Mr. Samuel Martin, Silwood Park, Sunning Hill, Berks.

C.—PINE APPLES, COLLECTION OF SIX, 3 distinct kinds.

£1 0 to Mr. B. Peed, Gardener to J. Tredwell, Esq., St. John's Lodge, Norwood.

D.—PINE APPLES, COLLECTION OF THREE, 2 distinct kinds.

£5 0 to Mr. Thomas Dawson, Panshanger, Herts.
3 0 to Mr. Roger Jones, Gardener to the Dowlais Iron Co., Dowlais, Glamorganshire.

E.—PINE APPLE, PROVIDENCE, single fruit.

£3 0 to Mr. Thomas Bray, Gardener to J. B. Lousada, Esq., Peak House, Sidmouth.
2 0 to Mr. A. Stewart, Gardener to the Duke of Devonshire, Chatsworth.

F.—PINE APPLE, CAYENNE, single fruit.

£3 0 to Mr. Thomas Dawson, Panshanger, Herts.

G.—PINE APPLE, QUEEN, single fruit, any variety.

£2 0 to Mr. James Barnes, Gardener to Lady Rolle, Bicton, Budleigh Salterton, Devon.
1 0 to Mr. Thomas Bray, Gardener to J. B. Lousada, Esq., Peak House, Sidmouth.
0 15 to Mr. Thomas Page, Gardener to W. Leaf, Esq., Streatham.
0 10 to Mr. David Price, Gardener to W. Forman, Esq., Denydarren House, Merthyr Tydvil.

H.—GRAPES, boxes of 12lbs weight (Market Gardeners only).

£5 0 to Mr. C. F. Harrison, Oatlands Palace Gardens, Weybridge.
4 0 to Mr. Peter Kay, Market Green, Finchley.
3 0 to Mr. Robert Clark, Turnmoss, Stretford, near Manchester.
1 10 to Mr. John Gould, Redditch.

I.—GRAPES, three dishes, distinct kinds.

£5 0 to Mr. Charles Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.
5 0 to Mr. G. Fleming, Gardener to the Duke of Sutherland, Trentham.
3 0 to Mr. C. Alborough, Gardener to E. S. Kett, Esq., Brooke House, Norwich.
2 0 to Mr. A. Stewart, Gardener to the Duke of Devonshire, Chatsworth.

J.—GRAPES, two dishes of Black, distinct kinds.

£3 0 to Mr. Charles Ewing, Gardener to O. F. Meyrick, Esq., Bodorgan, Holyhead.

For continuation of Crystal Palace List of Prizes see preceding page.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, September 13, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1856.] SATURDAY, SEPTEMBER 20. {Price Fivepence. Stamped Edition, 6d.

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CRYSTAL PALACE FLOWER SHOW.

WILLIAM CUTBUSH AND SON, NURSERYMEN, Highgate, offer a REWARD OF FIVE POUNDS to any Person giving information leading to conviction of the party or parties who purloined the CUTTINGS of their NEW VARIEGATED PETUNIA LAST FRIDAY.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

WILLIAM SHORT, LANDSCAPE and ORNAMENTAL GARDENER, 21, St. John's Wood Terrace, Regent's Park, London.—Ornamental Ground Works, Planting, &c., taken by contract or otherwise. Unexceptionable references can be given.

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MR. THOROLD, of Thorpe Bower, near Norwich, continues to OFFER his SERVICES to ladies and gentlemen in Laying out or re-arranging their Gardens and Pleasure-grounds on correct principles of taste, in any style, or combination of styles, suitable to the requirements of all kinds of residences, upon any scale, and in most cases to produce immediate effect. Mr. T. can give ample references as to his success.

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THE SUBSCRIBER is now prepared to form and enter into CONTRACTS for the above works in any part of Ireland.

Timber, Trees, and Woodland property accurately valued. An early inspection of his varied and extensive Nursery Stock is recommended.—THOMAS BARNES, Merrion Nursery, Dublin.

NOTICE.

MESSRS. STANDISH AND NOBLE, in reply to numerous inquiries, beg to say that BUSINESS is carried on at their Establishment as usual. The Sale advertised to take place at their Nursery will comprise only a small portion of the Stock, and will not in any way interfere with the execution of their orders.—The Nurseries, Bagshot, Sept. 20.

RAILWAY NURSERIES, WATFORD.—Noblemen, Gentlemen, &c., can be *well* supplied with every description of NURSERY STOCK of the *finest quality* and on the most *reasonable* terms, by E. R. GREENUS, at the above establishment. Three minutes' walk from Watford Station.

A THOUSAND LARCH AND FIR POLES for Sale. Horn Lane Farm, Acton.

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AN AMATEUR wishes to dispose of a large Stock of PANSIES, comprising many old and new varieties. Price 6s. per dozen, or where a quantity is taken a considerable allowance made.—Address W. F. DAVIS, jun., St. Mary's Hill, Newbury.

GUERNSEY AND BELLADONNA LILIES, 4s. per dozen.

Fine flowering Bulbs can be supplied during September by B. PAGE & Co., Seed Merchants, Southampton.

Price to the Trade upon application.

GLENNY'S IMPROVED BALSAM SEED from flowers 3 inches across, not approached by any other, 6 classes, 37 stamps: mixed packet, 13 do.; sealed and signed packets only. Other very choice seeds.—Dungannon House, Fulham.

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B. & W. also will dispose of a few packets of Seed, carefully selected from the best named varieties, at 5s. per packet.

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WILLIAM E. RENDLE AND CO., SEED MERCHANTS, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

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Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth. Established 1786.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

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JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual* of *first-rate quality*. JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS.

R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

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DUTCH BULBS.

HENRY MAY intimates that he has received his annual supply of the above in fine condition, direct from Holland, and begs to offer them as below:—

12 fine named double or single Hyacinths, at 6s.
12 fine mixed do. do, for borders, at 3s.;
And all other Bulbs equally cheap.

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DUTCH HYACINTHS, CROCUS, &c., of the first size and quality, can be supplied by CHARLES SOUTHBY, High Street, Clapham, at prices as low as any house in the kingdom. See his Descriptive priced List; to be had free on application.

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The American Nursery Bagshot, Surrey.

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WOOD AND INGRAM beg to offer fine Plants of the above, both Large Flowering and Pompone varieties, at from 6s. to 9s. per doz.—Huntingdon Nurseries.

PRIMULA SINENSIS FIMBRIATA.

WOOD AND INGRAM have a very fine strain of the above, which they are now selling in 1s. packets, post free.—Nurseries, Huntingdon.

NEW AZALEA.

GAINES'S "ROSEA ALBA;" colour rose, with deep margin of pure white—a large fine shaped flower. The above gained a first-class prize at the Horticultural Show at Chiswick. Plants, 15s. each.

NEW AZALEA.

GAINES'S "NAPOLEON THE THIRD;" colour, crimson rose; a great improvement on the seedling he sent out under the name of Holfordiana, being much larger and of greater substance. Plants 15s. each.

NEW SEEDLING CAMELLIA.

GAINES'S COMPACTA ALBA.—Form very fine; petals smooth, and finely cupped; medium size; substance, stout; colour, white with creamy centre. It obtained a First Class Certificate at the National Floricultural Society's Show, March 27. Price, good plants, 21s. each.

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GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

BEST FLAVOURED STRAWBERRY NOW OUT IS BARRATT'S MAGNUM-BONUM. Good Plants, 7s. 6d. per 100. WM. BARRATT'S New List of Strawberries can be had on application.—St. John's Nursery, Wakefield.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21s. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3s. 6d. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

STRAWBERRIES. — Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40s. per 100, or 6s. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready. —Apply to R. S. YATES, St. Ann's Square, Manchester.—Sept. 20.

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H. WALKER, Londonderry, offers the following:—

3000 1-year PEAR TREES, on dwarf roots.
5000 2-year ditto ditto.
200,000 2-year SEEDLING NORWAY SPRUCE FIR.
10,000 MANETTI ROSE STOCKS.

Lists, with prices, on application.

BALSAMS.

MR. J. MILNER, GARDENER to G. W. Tireman, Esq., of Loftus Hall, near Redcar, Yorkshire, is now sending out his magnificent collection of BALSAM SEED, as advertised in the *Gardeners' Chronicle* of July 19, 1856. Terms: Nine packets, assorted colours, 2s.; one over on three to the trade.

N.B. It is requested that all orders to receive attention be accompanied by postage stamps or Post-office order on Redcar.

BALSAMS.

F. AND A. SMITH beg to invite the Public to an inspection of their BALSAMS (put aside for Seed) for which they obtained the Silver Medal at the July Show at the Botanic Gardens, Regent's Park.

Colours:—Blush, pink, white, scarlet, purple crimson, scarlet flake, purple flake, scarlet-mottled, crimson flake, crimson bizarre, scarlet bizarre, crimson maculated, and crimson mottled. —Omnibuses from Gracechurch Street, City, and Oxford Street, to Crystal Palace, Dulwich, passing within five minutes' walk every hour.

AZALEA INDICA "GEM."

J. IVERY AND SON beg to say that good established plants of this fine Azalea will be ready the third week in October. The Subscribers feel it unnecessary to say anything further of its fine properties, except that it has received the highest awards given to seedlings both at the Royal Botanic and National Floricultural Societies. Price 21s. each. A few extra sized blooming plants at 42s.

A List of Nurserymen who have kindly ordered it will appear next month. The usual allowance to the trade. A Descriptive List of all the approved varieties may be had in exchange for one postage stamp.—Dorking Nursery, Sept. 20.

TO BE SOLD, in one Lot, about 60 species of ORCHIDS, in good condition, among which are fine plants of Aerides affine and Odorata major, Vanda teres, Cattleya labiata and bicolor, Saccolabium guttatum, Phalænopsis amabilis, &c. This presents an opportunity seldom to be met with to those who may be commencing the cultivation of Orchids, as the plants are all well established.—For further particulars and lists, apply to Mr. BELL, Gardener, Earham, near Chichester.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER & CO., SEEDSMEN, &C.,

238, HIGH HOLBORN, LONDON,

BEG to announce the arrival of their consignments of IMPORTED DUTCH BULBS, which they are glad to say are of *first-rate quality, as usual.* Their comprehensive CATALOGUE OF BULBS, *the twenty-first Autumnal series,* will be forwarded *free of charge,* and *post-paid* to ALL PARTS OF THE WORLD, upon application.

JAMES CARTER & CO., SEEDSMEN, &c., 238, High Holborn, London.

FIRST CLASS CARNATIONS, PANSIES, PICOTEES, AND PINKS.

CHARLES SCHOFIELD has now ready in strong plants, at greatly reduced prices, the above named Florist's Flowers. A Descriptive Catalogue is just published, which may be had free. Terms very liberal to nurserymen taking large quantities. Cash or reference will be required from parties unknown.

C. S. has also Pansy and Calceolaria Seed selected from the finest show flowers, 2*s.* 6*d.* each packet.

Knowsthorpe, near Leeds, Yorkshire.

MESSRS. E G. HENDERSON AND SON'S NEW BULB CATALOGUE is now published, and may be had post free on application. In addition to an unequalled selection of Bulbs it contains revised and priced lists of GERANIUMS and CINERARIAS. The new plate of 5 choice Geraniums (amongst which are Mrs. Story's new white flowering varieties, the best in cultivation) can be had post free for 12 Stamps.

The ADAIR STRAWBERRY—for particulars of this delicious variety see Catalogue, or back numbers of this Paper. Price 50*s.* per 100 Plants.

The following New Plants are now being sent out:—

Camellia Jenny Lind	Rhododendron Mrs. Dargan
Echites Houtteana	" Earl of Burlington
Azalea The Bride	" Lord Bolingbroke
do. Louis Napoleon	Begonia picta
Rhododendron Countess of Rosslyn	" cinnabarina
" Duchess of Cleveland	" hybrida
" Duke of Hamilton	Dianthus albo nigricans
	Cupressus Lawsoniana

Also their unrivalled seed of CALCEOLARIA, 1st quality, 5*s.* per packet; second ditto 2*s.* 6*d.* CINERARIA, best quality, 2*s.* 6*d.* do. Primula sinensis fimbriata, 2*s.* 6*d.* do.

Parties wishing for their Spring List of 2000 Plants can have the same forwarded post free on application.

Wellington Nursery, St. John's Wood.

MESSRS. E. G. HENDERSON AND SON beg to state that the unequalled Bedding DAHLIA—

CRYSTAL PALACE SCARLET,

is now in full flower (and will continue throughout the season) at their Nursery, and the

CRYSTAL PALACE GARDENS.

The Bulb Catalogue, with revised Lists of GERANIUMS, Cinerarias, and other Florists' Flowers, may be had post free on application.

A Coloured PLATE of Five new GERANIUMS, including Mrs. Story's white varieties, can be had post free for 12 stamps.

NEW STRAWBERRY "ADAIR."

For description of this delicious variety see p. 592, in back number. Price 60*s.* per 100 plants; 40*s.* for 50 ditto; 25*s.* for 25 ditto; 15*s.* for 12 ditto.

The description and prices of the following new plants may be seen in Bulb Catalogue:—

Camellia Jenny Lind	Begonia picta
Echites Houtteana	" cinnabarina hybrida
Dianthus albo nigricans	Azaleas and Rhododendrons (in varieties).

SEEDS.

Calceolaria Seed, 5*s.* and 2*s.* 6*d.* (2d quality) per packet; Cineraria, 2*s.* 6*d.* per packet; Primula sinensis fimbriata, 2*s.* 6*d.* per packet.

The Spring Catalogue, with 2000 Greenhouse and Stove Plants fully described, post free on application.

Wellington Nursery, St. John's Wood.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s.* per bushel.

Address Mr. H. RAYNBIRD, Basingstoke.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

SEED WHEAT.

HARDY'S SELECTED, PROLIFIC, and IMPROVED RED, 12*s.*; and SUPERIOR, TRUE, EGYPTIAN, WHITE, MUMMY, 20*s.* per bushel. Bag, 1*s.*; sack, 1*s.* 6*d.* Carriage paid to London. Post-office Orders must accompany applications. References—J. J. Mechi, Esq., Tiptree Hall; and Rev. G. Wilkins, Wix, Manningtree, Essex.

On receipt of 12 stamps and a full-sized stamped envelope, addressed to any destination, will be sent by post Specimen ears of each variety averaging above 100 grains! Also of Barley, a peculiar and prolific variety, containing double ordinary produce of any other kind! A packet of this or the Wheat grains, to plant 1 rod, for 12 stamps.

Also for another dozen stamps or 1*s.*, "HARDY'S COMPETITION PRIZE ESSAY ON THE CULTIVATION OF CORN," carefully revised for 1856-7.

ABRAHAM HARDY & SON, Seed Growers, &c., Limbourne Brook and Knowle's Farms, Maldon, Essex.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. One Hundred testimonials sent first if desired.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS (the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

REIGATE SILVER SAND, 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered to any London Wharf or Railway. PEAT and LOAM, for Ferns, Heaths, Americans, &c. Samples if required. Terms Cash. Sacks, 2*s.* each, or on hire.

JOHN KENNARD, Swan Place, Old Kent Road, London.

LOAM, BOG, PEAT, LEAF MOULD, SILVER SAND, ROTTED MANURE, GRAVEL, GROTTO MATERIAL, &c., can be supplied in large or small quantities; also every article connected with the Nursery business at the lowest price.—JOSEPH FRYER, Clarendon Nurseries, Camberwell.

NEAT AND DURABLE GARDEN LABEL.—The Advertiser will forward, on the receipt of three postage stamps, a specimen label lettered in oil.

F. H., Lydburynorth, Salop.

GARDEN FRAMES, GREENHOUSES, PITS, &c.—TRANSPARENT SHEETING, a substance for Garden Mats, admitting light to plants, and keeping out frost, 1*s.* per yard, runs nearly 2 yards wide; thick canvas ditto, 1*s.* per square yard; large waterproof capes, to protect a man from wet while stooping down, 3*s.*; cart and waggon covers, 2*s.* per square yard; made-up horses' loin cloths, driving aprons, &c.

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

N.B. 3000 London Police Waterproof Capes, fresh dressed, 18*s.* and 24*s.* per dozen, for gardeners and farm labourers.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. CULLINGFORD'S, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

"TIFFANY," a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when not less than 10 pieces are taken. No orders will be attended to from unknown correspondents unless accompanied by a remittance.

Manufactured for and sold, wholesale and retail, by JOHN SHAW, Nurseryman and Seedsman, 40, Princess Street, Manchester.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

GREAVES & KERSHAW, Warwick.—Sept. 20.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

BENTALL'S BOTANICAL DRYING PAPER.—The above PAPER is prepared expressly for drying specimens for the Herbarium, for which purpose it has been extensively used for several years past by the most eminent botanists of the day. It possesses all the requisite qualities, preserving form and colour in the best possible manner, and having the peculiar advantage of seldom, if ever, requiring a change of sheets whilst the plants are being dried, thereby saving much time and trouble. Its strongness and durability also combine to render it economical, making it practically quite as cheap as ordinary papers sold at a lower price. The proprietor has received the most flattering testimonials from Sir W. J. Hooker, Professor Lindley, and many other eminent botanists.

For the convenience of collectors of Foreign as well as British plants the paper is prepared in four sizes, viz. 16 by 10 inches (folded); 18 by 11 inches (ditto); 20 by 12 inches (ditto); and 16 by 20 inches (ditto). Price 15*s.*, 18*s.*, 21*s.*, and 28*s.* per ream.

Sole Manufacturer, T. BENTALL, Paper Mills, Halstead, Essex. Agent for London: Mr. E. NEWMAN, 9, Devonshire Street, Bishopsgate.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

J. S. MORRIS, ENGINEER, Upper Thames Street, London.—Apparatus supplied and erected for Warming and Ventilating Mansions, Public Buildings, and for Heating Conservatories on the most approved principle. Large experience in this branch of domestic science for many years insures certainty of success. A brief Treatise on the subject forwarded by post.

Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.

TREE TRANSPLANTING BY MACHINE, LANDSCAPE GARDENING, ORNAMENTAL PLANTING, &c.

W. H. RUMBOLD will be happy to execute any of the above on reasonable terms, by contract or otherwise. The Machine will be let by the week with Man. Designs and Estimates given.—Calverly Road, Tunbridge Wells.

HARTLEY'S PATENT ROUGH PLATE GLASS, (1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs; and 1-4th, or 4 lbs. to the foot), for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

IN SQUARES CUT TO SIZES ORDERED.							⅛ s. d.	3/16 s. d.	¼ s. d.
14 by 10,	1½ ft. sup.	if not above	20 in.	long			0 6½	0 8	0 9½
1½ ft. sup.,	3 or if	above	20 & not above			30 in.	0 7	0 8½	0 10
3	"	4	"	20	"	30 in.	0 7½	0 9	0 10½
4	"	5	"	30	"	35 in.	0 8	0 9½	0 11
5	"	6	"	35	"	40 in.	0 8½	0 10	0 11½
6	"	8	"	40	"	45 in.	0 9	0 10½	1 0
8	"	10	"	45	"	55 in.	0 9	0 10½	1 0
10	"	12	"	55	"	65 in.	0 9	0 10½	1 0
12	"	15	"	65	"	75 in	0 10	0 11	1 0
15	"	20	"	75	"	90 in.	0 11	1 0	1 2
20	"	25	"	90	"	100 in.	1 1	1 2	1 3

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10*s.* 6*d.*	8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5½ ... 12 0	9 by 7, and 10 by 8 ... 15 0

Estimates forwarded on application.

London Agents: JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BY ROYAL LETTERS PATENT.

THE COSMOPOLITAN GLASS COMPANY; HELY & WARING, Managers, 296, Oxford Street, London. STRONG HORTICULTURAL SHEET GLASS from 4½*d.* 2*d.*; and HARTLEY'S PATENT ROUGH PLATE, from 4½*d.* per foot. CROWN or SHEET SQUARES, in 100 feet boxes, under 10 by 8, 12*s.* 6*d.*; above, 16*s.* 8*d.* per box. FOREIGN SHEET, in 200 feet cases, 34*s.* per case.

PERFORATED VENTILATING GLASS from 1*s.* 6*d.* per foot. TILES and SLATES from 6*d.* each. MILK PANS, 21*s.* per dozen. HELY'S HAND CHURN, 5*s.* 6*d.*; WARING'S BUTTER SLABS, 10*s.* each. Glass Fern Shades, Bee Glasses, Cucumber Tubes, Hyacinth Dishes, Propagating Glasses, Hand Lights, &c. Flower Labels, 7*s.* per 100, and the New Aquarium 10*s.* each.—Catalogues free.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

DUTCH FLOWER ROOTS.

JAMES CHARTRES AND CO. have much pleasure in announcing that their superb collections of the above, which have given such universal satisfaction for many years, are now ready, and will be forwarded carriage paid to any part of the kingdom. No 1 Collection (3*l.*) contains as follows:—12 Splendid Double and Single Hyacinths for glasses; 12 ditto, do. for pots; 24 ditto, ditto, for borders; 12 splendid Narcis, various, for pots; 12 do. named Early Tulips (single and double); 50 do. mixed late Tulips for borders; 12 do. Double Jonquils; 24 do. named English Iris; 24 do. named Spanish Iris; ½ lb. mixed Double Anemones; 1 lb. mixed Single Anemones; 100 splendid mixed Ranunculus; 100 do. named Crocus, 25 sorts; 100 do. Mixed Blue; 100 do. Mixed White; 100 do. Double Snowdrops; 12 do. Dog's-tooth Violets; 6 Summer Snowflakes.

No. 2 Collection half the above amount. A general priced Catalogue may be had on application.

74, King William Street, City, London.—Sept. 20.

HUGH LOW AND CO. would call the attention of purchasers to their very large and fine stock of the undernamed articles, all of which are in the best possible health, and well worth inspection.

INDIAN AZALEAS, in different sizes and fine named varieties.
CAMELLIAS, with flower-buds of different sizes.
STANDARD SWEET BAYS, with straight stems and fine shaped heads.
ORANGE TREES, of sorts and sizes, both with and without fruit.
JASMINUM GRANDIFLORUM; grafted plants full of flower buds. This is one of the most fragrant winter blooming plants in cultivation.
ERICAS AND EPACRIS, strong flowering plants.
PINUS BENTHAMIANA (true); certainly the handsomest and hardiest of all the long leaved Conifers.

Clapton Nursery, London, Sept. 20.

VIOLETS.—(FOR WHICH SEE ADVERTISEMENTS IN THE *Chronicle* OF SEPT. 11TH AND 13TH).

R. SHACKELL has a quantity of mixed CROCUSES in great variety at 7*s.* per 1000 or 1*s.* per hundred. Also bulbs of the beautiful Poets' or Pheasant-eyed NARCISSUS, at 4*s.* per hundred, or 8*d.* per dozen.

R. S. will supply 50 varieties of Herbaceous plants for 5*s.*; also 50 varieties of plants suitable for rockwork at 5*s.* The above are not named nor in pots.

R. S. has a quantity of well-grown White Pink plants very suitable for potting; they force admirably well, being very profitable for such a purpose, and are offered at 10*s.* per hundred, or 2*s.* per dozen. Wheeler's Imperial CABBAGE plants, 8*d.* per hundred. Those that may have failed with their Parsley can have strong plants at 1*s.* per dozen of a very superior sort. Also herb roots of all kinds. All orders above 10*s.* hamper and package free.

Address, ROBERT SHACKELL, Locksbrook, near Bath.

GEORGE SMITH begs to offer from a fine strong healthy stock of the following new and choice PELARGONIUMS, at 36*s.* per dozen, with plants to compensate for carriage.

Unknown correspondents forwarding Post-office Orders, payable at Islington, will be liberally dealt with.

SHOW GERANIUMS.—(Foster's) Amazon, Countess, Edith, Meteora, Purple Prince, Pluto, Saracen, Sparkler, Iris, Triumphant, The Clipper; (Hoyle's) Admiration, Brenda, Cato, Corsair, Eva, Ermine, Floretta, Leopard, Pallas, Rosaline; (Turner's) Admirable; (Beck's) Rosa Mundi, Margarette; (Dobson's) Sultan, Delicatum, Juliet, and (White's) Pretty Poll.

FANCY GERANIUMS.—(Turner's) Adonis, Attraction, Beauty of Slough, Diana, Masterpiece, Naomi, Ne Plus Ultra, purpureum album, Prima Donna, Queen of Roses; (Henderson's) Amphitrite, Cloth of Silver, La Stella, Queen of the Fête, Reine du Bal, Sweet Lucy, (Titania) and Smith's Dictata. Also a good stock of older kinds of Show, Fancy, French, Spotted, and Scarlet varieties, Verbenas, Fuchsias, &c.

Tollington Nursery, Hornsey Road, Islington, London.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq. Manor House, Bathampton:—"This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq., Swainswick House, whose name is well known to the floricultural world, being the raiser of a great number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British Queen is a very delicate and tender kind—this is one of the hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a Strawberry is required.

Strong well-rooted plants 3*l.* per 100; 1*l.* 15*s.* for 50; 1*l.* for 25; or one dozen for 12*s.*; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurserymen, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

		£	s.	d.
No. 1 Collection, all the most approved sorts		3	10	0
No. 2 " containing smaller quantities ...		2	5	0
No. 3 " for a small garden		1	5	0
100 Hyacinths, in 100 very fine sorts. Purchaser's selection		3	10	0
100 " 50 fine sorts "		2	15	0
50 " 50 superior sorts "		1	15	0
50 " 25 " " "		1	10	0
24 " 12 " varieties "		0	15	0
12 " 12 " " "		0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

DUTCH BULBS.

JAMES VEITCH, JUN., Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are PARTICULARLY FINE and in EXCELLENT CONDITION. Catalogues are now ready, and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their ORDERS EARLY, as the successful cultivation of Bulbs depends in great measure on their BEING PLANTED EARLY IN THE SEASON.—Sept. 20.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

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AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following Bulbs, &c., of the best quality, and all strong flowering roots. Will be ready to send out in the course of the month.

	Per 100		Per 25
Gladiolus Couranti fulgens	42*s.*	Gladiolus Aglae...	30*s.*
" Fanny Rouget	42	" Charles Rouillard ...	25
" fulgens aurea picta ...	42	" Comtesse de Bresson	30
" Mdme. Coudert	50	" Don Juan	25
" Mdme. Herincq	63	" Hector	25
" M. Blouet	42	" M. Corbay	30
" M. Gorgeon	42	" Couranti carneus ...	50
" Triomphe d'Enghien (per 50)	30		

The above are all splendid varieties of Gandavense.

	Per 100		Per 100
Lilium lancifolium album	63*s.*	Lilium aurantiacum per doz.	10*s.*
" " rubrum ...	80	" atrosanguineum ...	42
" " punctatum per doz.	36	Cypripedium spectabile ... per doz.	24
" spectabile ...	80	" calceolus "	9
" superbum per doz	10	" pubescens "	30
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Camellias with flower buds of good varieties, fine healthy plants, 6*l.* per 100 and upwards; Azalea indica, do., do., 4*l.* per 100 and upwards.

Tree Pæonia, 12 fine-named varieties for 36*s.*; Lælia majalis, 84*s.* per dozen. Strong plants.

BULBS! BULBS!

BASS AND BROWN beg to offer the following from their superb collection of ROOTS:—

	s.	d.
HYACINTHS, 25 choice and select varieties	16	0
" per doz., 6*s.* to 12*s.*; separate colours without names ... ... per doz.	3	0
POLYANTHUS NARCISSUS, 8 fine vars., 3 roots of each	9	0
" " mixed vars, per doz.	2	6
RANUNCULUSES, 50 choice vars.	15	0
" mixed, per 100, 5*s.* and 10*s.*; extra mixed	10	0
" Scarlet Turban, per 100, 3*s.*; yellow and golden	4	0
" (Œil Noir, the best black ... per doz.	10	0
ANEMONES, 50 superb double vars.	12	6
" 12 superb vars., 6 roots of each	14	0
" finest mixed double ... ... per 100	6	0
" fine single mixed, rich colours per lb.	4	0
" fine semi-double, beautiful ... "	6	0
" La Brilliante Eclatante, single scarlet, per 100	7	6
GLADIOLUS, 50 splendid vars., early and late	50	0
" fine selections ... ... per doz., 6*s.* to	17	6
" Gandavensis, 3*s.* 6*d.*; floribunda	2	6
" splendid early mixed hybrids, per doz., 2*s.* to	3	6
EARLY TULIPS, 30 splendid vars.	7	6
" 20 " 3 roots of each ...	14	0
" 10 " 6 " ...	12	0
" very fine mixed 6 " per 100	10	6
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" very fine mixed 6 " per 100	10	6
IRIS, 40 splendid English vars., very distinct	21	0
" fine mixed vars., from do. ... ... per 100	10	0
" 40 splendid German vars.	45	0
" 20 do., 15*s.* to 35*s.*: fine mixed form do. per 100	18	0
" pumila, 8 beautiful vars, very dwarf	8	0

The Iris pumila flowers in April and May; the German varieties in May and June, and the English in June and July, and are all of very rich colours.

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CROCUS, 20 beautiful and very distinct vars., 12 roots of each	12	0
" 9 beautiful do., 100 of each	24	0
" separate colours, without names, per 100, 1*s.* 6*d.* to	2	0
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LILIUM LANCIFOLIUM and other Lilies in upwards of 30 varieties; also a large collection of other Roots, for which see Catalogue.

HARDY HERBACEOUS PLANTS.—An extensive assortment, including the finest varieties of Phlox, Pentstemons, Antirhinums, Potentillas, Delphiniums, Rock plants, &c., &c.

Catalogues for the present season, comprising our collection of Bulbs and Roots, Herbaceous plants, Coniferæ, Roses, Fruit Trees, Strawberries, &c.; also Geraniums, Cinerarias, Azalea indica, Stove and Greenhouse Plants, &c.

Goods carriage free (not under 20*s.*) to all the London termini, and all Stations on the London and Norwich Colchester line. Also extra Roots or Plants added gratis with orders of 40*s.* and upwards.

Remittances required from unknown correspondents. Post-office Orders to be payable to BASS & BROWN, or to STEPHEN BROWN, Sudbury, Suffolk.

NEW HARDY RHODODENDRONS.

JOHN WATERER begs to say that he is now prepared to execute orders for the undermentioned RHODODENDRONS in good strong established plants.

RHODODENDRON JOHN WATERER; colour intense crimson with dark spots; immense truss of bloom and fine foliage; 21*s.* each.

RHODODENDRON MRS. JOHN WATERER; bright rosy crimson, dark spots, fine conical truss and excellent habit; 21*s.* each.

RHODODENDRON LADY ELEANOR CATHCART; vermilion crimson with a distinct blotch of chocolate spots; very vigorous grower; 10*s.* 6*d.* each.

☞ We recommend these varieties as being far superior to anything of the kind before offered, and as being perfectly hardy, in proof of which their blooming season is not till from the 10th to the end of the month of June.

The American Nursery, Bagshot, Surrey; near the Sunningdale Station of Waterloo, Wokingham, and Reading Railway.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

ROBERT PARKER begs to offer the following, of which he possesses a large stock in strong and healthy plants:—

		Per dozen
Exotic Orchids	from	42*s.*
Stove and greenhouse Ferns	"	18
Hardy do.	"	9
Selaginellas or Lycopodiums	"	18
Geraniums, show and fancy varieties ...	"	9
Gynerium argenteum (Pampas Grass) ...	"	18

A Priced and Descriptive Catalogue is published, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

TRIFOLIUM INCARNATUM.

TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 20, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Sept. 23—Horticultural ..... 4 P.M.

OUR readers will have observed that a further sale of plants in the Garden of the Horticultural Society is about to take place. It is as well to explain that this measure has been determined upon by the Council in order to make room for some rather considerable changes which they hope to carry into effect.

The greater part of the fine specimen plants to be found in the Sale Catalogue have been hitherto cultivated for the purpose of decorating the Great Iron Conservatory. For the future the Council propose to occupy this house, during winter, with rare evergreen plants in pots which merely demand shelter from severe cold, and in summer can be placed about the Garden in the same manner as Orange trees. During summer it is proposed to employ the house in aid of Exhibitions, should they be revived, or in such other mode as future arrangements may render necessary.

The specimens of Tree Pæonies, all of which are, we believe, original imported plants, have not indeed been employed in the Great Conservatory, but they unfortunately flower at an early period in the spring, before the public can be tempted by fine weather to extend its visit to Chiswick; and are therefore of little use to the Horticultural Society, although invaluable as decorations of private residences. All of them being fine old plants in pots, they will remove with perfect safety, and may be made to flower magnificently next spring.

Another, but much smaller set, consists of stove plants, now removing from the double curvilinear hothouse, which is to be converted into a Fernery, for which it is well adapted. In this way the Council consult that prevailing taste for exquisitely beautiful foliage which is rapidly replacing merely gaudy flowers in the public favour. It is impossible not to regard the change now at work among the lovers of plants, who begin to prefer graceful form to mere spots of colour, as a most satisfactory indication of a great general advance in the good taste of the educated classes. Dress, furniture, architecture, are all now moving upon the same road side by side, and are already unmistakeably affected by the direction into which public opinion was guided by the Great Exhibition of 1851.

In connection with this matter we may mention a little manœuvre executed by WM. WILSON SAUNDERS, Esq., the Treasurer of the Horticultural Society, which promises to place at our command all the Ferns of the whole world at a very small expenditure of money or trouble. It is well known that Ferns are naturally propagated by the small

brown bodies formed on the under side of their leaves and which we shall at the risk of being taken to task by our botanical friends call seeds. These seeds are not, however, what meets the naked eye when the under side of a Fern leaf is examined. The parts which are so easily seen by the naked eye are the seed-vessels; Fern seeds are little angular bodies too minute to be visible, and are expelled by the spontaneous bursting of the seed-vessels, which then remain empty behind. It may therefore and often no doubt does happen that when the brown dust from the back of a Fern leaf is sown, it has no seeds among it, but consists entirely of fragments of the broken seed-vessels. In this way we may explain the general want of success that attends the attempts of those who endeavour to raise Ferns from dried specimens gathered in foreign countries. Such specimens generally have shed all their seed before they reach Europe.

To obviate this difficulty Mr. SAUNDERS requested Mr. WALLACE, the distinguished naturalist then at Singapore, to adopt the following method. A little moderately damp earth being spread flat, the under side of a fresh ripe Fern leaf was pressed upon the earth, so as to detach the seeds and their seed-vessels. The earth was then placed in a vial, corked up and sent to England. The vial was six months on the voyage home; upon its arrival in mid-winter its contents were sown in a shady damp hothouse. In a short time Fern plants sprang up "as thickly as Mustard and Cress," and the plants are now after six or seven months from 4 to 5 inches high.

The process thus described is attended by the very important advantages of securing perfectly fresh seed, and of placing it during its passage home in a situation just as damp as is necessary to maintain vitality unimpaired. The only precautions needed are to be certain that the seed is ripe when pressed upon the earth, to take care that the latter is merely damp, not wet, when corked up, and to keep the vial in the dark. In this way all the Ferns of the tropics may be now procured with the greatest facility.

Some, indeed, may think that we previously knew all about Fern-raising, and that herbaria need only be ransacked to secure supplies of seeds. Never was a mistake greater. We are assured, indeed, that WILLDENOW raised various kinds of Ferns in Berlin from seeds thus procured, and that two plants of Gymnogramma calomelanos were once obtained in the garden at Liverpool from seeds 50 years old taken out of the herbarium of FORSTER. Let us frankly own that we read these stories with incredulity; to our mind such so-called facts are open to great suspicion. Not that we presume to question the good faith of those who are said to have succeeded in the operation; quite the contrary; WILLDENOW, of Berlin, and SHEPHERD, of Liverpool, who thought they had done these things were probably mistaken. They raised something—some sort of Fern—but we are persuaded that the supposed result was owing to one of those accidents which all who are conversant with great gardens know to their cost are so common, or rather so inevitable, in such establishments. We found this opinion upon the general want of success which has attended attempts in this country to repeat the Liverpool and Berlin experiments. Some years ago the late Mr. GEORGE LODDIGES sowed the seeds of some hundred of Ferns preserved in an herbarium, and if any one could have raised them he was the man. But the attempt was a complete failure; the seeds would *not* grow.

We do not mean to say that Fern seeds taken from plants recently deposited in an herbarium will never grow. Probably they will. But it cannot be denied that success is uncertain, and it is far less trouble for a traveller to secure seeds in the way proposed by Mr. WILSON SAUNDERS, and successfully adopted by Mr. WALLACE, than to dry specimens for the purpose, even if, when dried, it were perfectly certain that they would grow. Many sorts might, at a pinch, be sent home in the same vial, either mixed together or separated by some little contrivance, and thus half a dozen bottles which would travel in a coat pocket would do well a duty which a bulky package of dried plants would certainly do ill, if at all.

A VERY interesting paper was published two years since in the Transactions of the Society for the Promotion of Horticulture in the Prussian dominions * by Drs. Braun, Caspary and De Bary on some new or little known diseases of plants which are caused by fungi. Amongst these is one which affects Heaths in winter, and is caused by an extremely minute parasite belonging to the genus *Stemphylium*, which runs over the green leaves, and according to the luxuriance of its growth more or less rapidly exhausts their vitality, so that at last the slightest shock causes them to fall, leaving the stems quite bare, with the exception of little terminal tufts of leaves. The parasite itself is interesting because it exhibits three distinct forms of fruit, all capable of germination, which examined separately might cause it to be considered as a very reduced *Verticillium*, a *Dactylium* and finally a *Stemphylium*. The matter is still farther interesting because it tends to prove that some of those moulds which usually grow on decaying or decayed substances are capable of producing injury to living structures. This point has been carefully considered by De Bary, and we think that he is warranted in the conclusion at which he has arrived. A third point of interest is afforded by the light which is thrown upon the subject by another parasite which has lately attacked Heaths in a large and important establishment, though not confined to them, but infesting various Australian plants, as *Eriostemon*, *Boronia*, *Epacris*, and even Conifers, as *Pinus insignis*, and in all cases alike causing considerable mischief, and which together with the fungi in question belongs to a class not usually considered capable of affecting living substances. Like the *Stemphylium* it is so small as to be quite invisible to the naked eye. A lens shows in some specimens a very delicate colourless mycelium.† In these however there is no fruit, whereas in the fructifying specimens there is no trace of mycelium except under very high magnifying powers. In fertile specimens the parasite presents the appearance of extremely minute pins stuck into the withering leaves. The shaft of these is without

articulations, attenuated at the base, and about the one hundred and fiftieth part of an inch in length and filled with minute granules which pour out when it is broken. This is surmounted by a globose head consisting of a compact central mass from which a number of sporophores radiate, each of which is terminated by three or four sterigmata supporting a straight necklace of globose smooth spores about $\frac{1}{7000}$ of an inch in diameter. The stem itself is hyaline, and the head of spores, which is proportionally large, of a dingy brown.

The only species with which it can be compared is a minute *Aspergillus* which was developed on Rice paste, while Dr. Montagne was making experiments on the growth of the red substance to which the name of blood-rain has been given. Of this we have specimens, and as we can perceive no difference, notwithstanding the difference of locality, we consider them the same with our parasite. It is well known that many species of mould will grow on any substance which affords sufficient moisture, and as the species is so extremely minute, it is possible that it may be very common though it has escaped the observation of most botanists. It is the mycelium which occasions the mischief. When the fruit is perfected, or in the course of formation, the injury has already been accomplished. A thread of the mycelium comes in contact with a perfectly healthy leaf. In the course of a few hours (from eight to 24) the leaf becomes discoloured and soon shows unequivocal symptoms of approaching decay. At first it seemed innocuous to plants with shining leaves as *Camellia* and *Gardenia*, but these at length have failed. There is then the same reason for supposing that it really causes disease as the little *Stemphylium*, and if so the great point is to get rid of a pest which though minute is very destructive. Sulphur in various forms has been tried in vain, and at present no better remedy suggests itself. The difficulty is to find something which may affect the parasite without injuring the mother plant. Sulphurous acid produced by the burning of brimstone will certainly destroy the mould for the time being, but a slight degree of mismanagement may at the same time prove worse in its consequences than the disease, nor is it permanent in its effects. The whole crop of mould may be destroyed to-day, but a fresh crop may appear to-morrow.

It is pretty clear that the mould first originated in the tan with which heat was obtained for the plants, though no evil consequences have been experienced before in a practice of 40 years. Sulphur was indeed applied to the tan, but then of itself it is not destructive to fungi, though sulphurous acid is.‡ A specimen of the raw tan before being used in the propagation house now before us is full of *Aspergillus* as indicated by the presence of *Eurotium*, a secondary fruit of that genus. The *Aspergillus* was not, however, the only enemy. *Penicillium glaucum* was almost as destructive, and as speedy in its operations, a fact which is quite new in the experience of fungi. However indiscriminate it may be in its attacks, it was never supposed capable of making inroad on healthy tissues, and since it is so widely diffused both in the animal and vegetable world, the importance of the fact is very great.

Our figure represents at *a* a fertile thread of *Aspergillus nanus* with its globose head of spores; *b*, a portion of the stem pouring out its granular contents; *c*, the head divested of its spores showing the central nucleus covered with sporophores and sterigmata; *d*, the sporophores, sterigmata, and spores. All more or less magnified. *M. J. B.*

THE WATER FLANNEL (CONFERVA CRISPA).

Two sources of anxiety made their appearance here simultaneously in 1854 on the waters of the beautiful and picturesque lake, and at once threatened to become a serious drawback to the effective character of the landscape, and an enemy of no ordinary magnitude to the principles of economy. They were what is known as the Water Flannel (C. crispa), and a weed of American introduction, Anacharis alsinastrum. I now propose to treat of the former.

In the *Chronicle* of the 16th ult. attention is called to the subject by reference to an article in the *Moniteur des Comices*, which states that M. Payen recently placed before the Central Agricultural Association of Paris specimens of this vegetable matter that had been obtained from Châlon-sur-Saône since the terrible inundation, in the form of an immense felt; and who recommends, from the great quantity of nitrogen it contains, its use as a manure instead of its unprofitable destruction. In the *Chronicle* for 1843, page 735, a correspondent signing himself "R. E." scientifically describes this Conferva; and as one such paper on the subject is sufficient I beg to refer my readers to the valuable matter it contains, quoting but one short passage explanatory of its analytical properties:—"It is cast by the waters on the meadows, and carries with every 1000 lbs. weight of it 400 lbs. and upwards of carbonate of lime, 200 lbs. of carbon, with at least 15 lbs. of the air called nitrogen." Being thus prepared with an analysis of its constitution, I will endeavour to describe how far my experience reaches over its history.

Previous to the year 1853 the channel of the river Trent ran on the east side of the lake, and with every rise and fall of the waters, with every impurity that crept slowly and loathsomely down its shallow windings, the surface of the lake was affected. On the west side a considerable spring flows into it, but it did not then remove aught of the dark coating. Yet, in the face of all this, at the time of heavy rains and floods, a stream of tolerable force would sweep over the entire lake, and carry with it much that was noisome and unsightly. In the spring of the date mentioned that course was averted, the water drained off, and when sufficiently dry was partially mudded, and now the only connection of any consequence between them is towards its extremity, where a dam-way of an average height and about 40 yards across is erected, and it is only when the river exceeds its usual level that their waters mix. The lake, which is of an oblong form, is 85 acres in extent, being about a mile long. At the lower end is a wide fall of about 15 feet in depth; but how silent it is! Not one drop of water booms over its ledge, the overflow being now at what was formerly considered the head of the lake, while further up is a powerful sluice by which it is easily drained. The whole extent of its western shore is lined with a fine array of Oak, Beech, and other trees, whose branches, hanging over and dipping into its clear waters, are used as receptacles for the probationary state of numerous aquatic fowl. In the early part of the year 1854, my attention was directed to small fields of a green, unsightly scum which seemed gradually to collect on the surface, and assume a character different from any other I had hitherto seen there. It proved to be the Water Flannel. It spread after a few days at an alarming rate—a yellow-green mass bubbling and compressing itself into unsightly ridges.

This was in the summer succeeding the altering the course of the Trent, and the first that the lake was wholly supplied with pure water. The current of flood-times was also wanting, and there was nothing to disturb its tranquillity but the winds of heaven; and as it is open only to the east, those from that quarter are alone sensibly felt. The summer passed and the Conferva disappeared. Similar events occurred last year, but as I had nothing to do with its management during that time I can only speak of the disheartening labours and unsuccessful experiments it produced on

* Verhandlungen des Vereins zur Beförderung des Gartenbaus in den königlich Preussischen Staaten. Neue Reihe. Erster Jahrgang.

† In one specimen transmitted the mycelium was brown, but this has nothing to do with the parasite alluded to in the text but is a state of *Polyactis vulgaris*, one of the commonest, of moulds.

‡ It might be well to try the effect of strong fumigation with sulphur on the tan, before it is used by heating. This might easily be effected in a kiln, and moisture applied to bring on heat after the process was accomplished.

the part of others. About the usual time this year it again threw up its formidable and dense fields, and defied all exertions to remove it. A fleet of boats carrying men using all kinds of implements could not keep it under, and it was almost sickening to find in the morning spaces covered with its unsightly verdure which had been left perfectly clear the evening before.

On the 7th of July I was directed to take the matter in hand; and my first attempt was, happily, successful. It had become like a meadow, and a boat could not without great difficulty be pulled through it. It occurred to me that whatever good was to be done must be effected in a great measure from the land, instead of trusting to boats, as more power could be exerted. I set to work with a number of men at once, and got together a quantity of planks, boards, and railings from old fences, and fastened them end to end with stout rope, allowing a space of about six inches between each plank to give them room to play. This wooden chain—about 300 yards long and assisted by smaller ones—I drew across a portion of the lake, and with ropes attached to each end several men drew it gradually towards the shore, skimming and driving before it effectually and with ease the dense accumulation of Conferva, and leaving in its wake the silvery waters. The work went on joyfully till the mass got too heavy for our strength, but the boats, which were large flat-bottomed ones, were now able to come to the rescue; and running up alongside the chain, a good show of men lifted it with 5-tined steel forks into them, and then landed it on the banks of the lake at convenient places. In this way we made considerable progress. Our next plan was to bring one end of the chain round a section of the Conferva and draw it to the shore, leaving it to be thrown out by one set of men while another brought "more grist to the mill." This answered much better than lifting it into the boats, as it saved just the half of both time and labour. However, I considered that an improvement might be made even here, which was by taking as much of one side of the lake as the men could well manage at a time; one party pulling along the shore, and another at the other end in a punt, and getting the Conferva up as near as possible to the flood gates and lifting them, it might be washed wholesale into the Trent. I did so, and found it the most expeditious plan of any. But as I stood and saw it floating rapidly away, the thought struck me that to cast it on the waters thus was absolutely wasting what might be made not only useful, but help to repay in a certain degree the large sums of money expended upon it. The flood-gates were closed at once.

The work went on; the Conferva was drawn to land, and at convenient places thrown into large pits dug for the purpose, and well covered over with soil and quantities of leaf mould that could easily be collected in the neighbourhood. By the 12th the whole extent of the lake was free from its intolerable crust.

While working with the men in the boats the ammonia that escaped from the Conferva was at times almost overpowering; it made us all ill more or less: and a remarkable fact showed itself in the great quantities of dead fish that had got entangled in its filaments and were overcome by the presence of so powerful an agent. Also, on examining carefully a small portion of the Flannel I was astonished at the almost fabulous number of insects that had made it their home. Taking these important facts into consideration, I came to the conclusion that with a little attention a very valuable manure for certain purposes was at my disposal.

This much I have done. I will now speak of what I intend doing; and I hope my remarks will induce others to experimentalise and give the result at some future time. We all know that in inland countries the Asparagus is not brought to such perfection as in those bordering on the sea. My opinion is that by turning the Water Flannel in the month of November, and mixing with it a quantity of salt sufficient to give it as it were an oceanic flavour, and adding to the soil and leaf-mould a good coating of sand, I shall, with other things, such as chopped turf, road parings, &c., have a bed tolerably favourable to the growth of Asparagus. It might also be extensively used, and with advantage, in the kitchen garden as a manure for ordinary crops; and I feel confident that as a top-dressing for American plants—minus the salt of course—it will be found really excellent and efficacious. Nature always illustrates her designs; and in some instances the illustration is so simple that we instinctively ask if more is not intended than what alone meets the eye. Therefore when the Water Flannel was first noticed incrusted over the meadows, it brought directly home to us a subject for inquiry—why came it there, and what are its properties? It was brought there in an unusual manner but by an unerring Providence, to counterbalance by its rich deposit the losses occasioned by the inundation, and by its extraordinary appearance it led man to study its formation, and by analysis to discover the secret wealth it possessed for other purposes than the one exemplified in the meadow. And now that we know what that land-wealth is, how easily it is obtained, and how simple its mode of application, let the agriculturist when the Water Flannel incrusts his meadows, instead of repining, collect and carefully cover it over with soil, and, with a little farm-yard manure thrown with it while turning in the fall of the year, he will have for his Grass lands a fertiliser as economical and profitable as he can desire.

A few days after the lake was cleared, the day being calm and sunny, I noticed spread over its entire suface a yellow green tint, as if the Conferva were again forming. On examining and blowing upon it it resembled the first stage of the formation of cream upon milk; below it the water was clear and bright. The temperature ranged high, and the vane pointed S.W., but there was scarcely a breath of air to be felt. The last thing before it was dark I found the crust to be getting more perfect, and I went to bed anxiously enough. In the morning a tolerable wind blew from the N.W., the glass had fallen to 55°, and not a trace of Conferva was visible in any direction! The water supplied by the water-works company near here is considered to be of the purest order, and yet it will produce this Conferva in 24 hours if exposed to the sun at a high rate of temperature. The year after the lake was relieved from the impurities of the Potteries, when its water was bright and sparkling, and almost wholly supplied by the spring valley rivulet, the Conferva spread over its bosom, choking up its passages, and converting its surface into a massive field of deceitful verdure, and yet there is no account of its having appeared when the lake was fed by the waters of the Trent. Another singular circumstance connected with it is, that its growth is almost entirely retarded by shade; it seems to require the powerful rays of the sun on a calm unruffled surface ere its myriads of seeds germinate and roll into so distinct and tangible a form. Does it then flourish the more readily in waters of the purest character? Does all water contain particles of this vegetable formation, and require but a certain amount of atmospheric action to call it into existence? *Trentham.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. IX.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

COLUMN 2d.—*Numerical relations botanically expressed.*—Under the head of "Hard-word Exercises," at p. 500, I have explained how botanical terms have been coined to express the numerical relations between a floral whorl and its subordinate parts. The second column of our floral schedule is appropriated to the registration of such terms. Thus the two first columns for Ex. 3, "*bulbous* Crowfoot" would stand as follows:—

C. S.	5	pentasepalous	as applied to the calyx
C. P.	5	pentapetalous	" " " corolla
St	∞	polyandrous	" " " flower
P/C	∞/∞	polygynous	" " " flower

The effects of cohesion modify this mode of expressing the number of parts in a floral whorl. Our botanical nomenclature was in great part established before the general laws of morphology were understood. When all the parts which compose a floral whorl cohere, it was considered as consisting of only one part. Thus a calyx with five sepals more or less cohering, is regarded as a monosepalous calyx, less or more divided or cut. A corolla composed of five cohering petals would be styled "monopetalous."

N.B. Cohesions between two or more parts of a floral whorl are rare in comparison with cohesion between them all; but when they exist, the nomenclature would be modified to suit the number of the compound parts or pieces thus formed. A calyx would thus be disepalous if its five sepals were to cohere by two and three respectively.

Cohesion between Stamens.—The termination "-androus" is not retained (like -phyllous, -sepalous, -petalous) in expressing numerical relations depending on the effects of cohesion. The termination "-adelphous" (*brotherhood*) is then substituted for it. This implies that cohesion subsists between the filaments by which the stamens may become collected into two or more separate bundles. Thus a polyandrous flower would further be styled mon-adelphous, di-adelphous, &c., according as the filaments cohered into one, two, &c., bundles. Any precise number of bundles beyond two might be expressed; but in a general way all such cases are styled poly-adelphous.

Where the filaments do not cohere, but the anthers do, the term "syn-genesious" is employed. The cohering anthers in such cases form a tube round the style.

N.B. This description of cohesion is almost exclusively restricted to the very extensive and most natural order Composites (*Compositæ*). In this it is nearly universal, the few exceptional cases occurring among certain tropical weeds.

Another peculiarity in relation to the number of the stamens (when these are either four or six) is expressed by the termination "-dynamous" (*power* or *authority*). Thus, tetrandrous flowers with two stamens longer than the other two, are termed "Di-dynamous," (*two in authority*). Hexandrous flowers with four stamens outtopping the other two, are "Tetra-dynamous" (*four in authority*).

N.B. Didynamous flowers are met with in a few distinct natural orders. Ex. 17, *white* Dead-nettle, is an illustration among "Labiates" (*Labiatæ*). Such as are tetradynamous are confined to the readily recognised and extremely natural order "Crucifers" (*Cruciferæ*), of which Ex. 10, *common* Wallflower, is an illustration.

Cohesion between Carpels.—In expressing the numerical relations determined by the freedom or cohesion of carpels, respect is only paid to the number of free carpels, or else (when the pistil is compound) to the number of free styles. A flower with a simple pistil would be mono-gynous; with several simple pistils (*i.e.*, free carpels), poly-gynous. But a flower with a compound pistil, and consisting of many carpels, would be either mono-gynous or poly-gynous, according as it had one style or many. It would, moreover, be still regarded as having only one style, to however slight an extent the styles of the different carpels may cohere by their lower portions.

N.B. In the following summary (from the 24 examples hitherto noticed) I believe I have inserted all the cases in which the botanical expression for the numerical relations in the different floral whorls would be determined by the results of cohesion, and not with respect to the absolute number of the parts present in a floral whorl. In the whorls not noticed there would be no hesitation about the terms to be employed.

Terms to be adopted.		P. 4.	C. S.	C. P.	St.					P/C Styles
		Monophyllous	Monosepalous	Monopetalous	Monadelphous	Polyadelphous	Syngenesious	Didynamous	Tetradynamous	Monogynous
Examples ...		...	...	...	...	...	...	...	...	...
White Lily.	1									3
Common Primrose.	4		5	5						5
Wild Cherry Plum.	5		5							
Round-leaved Bell flower.	6		5	5					6	3
Common Oxeye-daisy.	8		5	5			5			
Common red Poppy.	9									8
Common Wallflower.	10									2
Sweet Violet.	11									3
White Campion.	12		5							
Perforated St. John's-wort.	13					8				
Common Furze.	14		5		10					
Wood Strawberry.	15		10							
Great Willow-herb.	16		4	4						4
White Dead-nettle.	17		5	5				4		2?
Common Primrose.	18		5	5						5
Common Spurge-laurel.	19	4								
Spotted palmate Orchis.	21	6								3
Yellow Flag.	22	6								3
Common Blue-bell.	23	6								3

Actual Number of Parts present in the Whorls referred to.

N.B. These instances will suffice to induce caution not to trust implicitly to the statistics of first columns (however correctly registered) lest their figures should be a snare, and elicit wrong botanical terms for the facts to be expressed.

Among the Examples which are not monogynous, from having free styles, the following characters are illustrated, viz.

Ex. 20. *perennial* Mercury ... is Digynous.
— 13. *perforated* St. John's-wort is Trigynous.
— 12. *white* Campion ... ... is Pentagynous.

N.B. The following summary includes a general view of *all* the terms which will be needed in expressing botanically the numerical relations to be recorded in the second column.

			As applied to
P. 4.	mon- to poly-	phyllous	Perianth
C. S.	mon- to poly-	sepalous	Calyx
C. P.	mon- to poly-	petalous	Corolla
St.	mon- to poly-	androus	Flower
f	mon- di- poly-	adelphous	Stamens
a	di- tetra- syn-	dynamous genesious	Stamens
P/C	mon- to poly-	gynous	Flower

(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CXXXVIII.

568. PARASITÆ (*Helminthosporium, Cladosporium**). These two genera are so intimately combined that it is difficult to assign their limits. This observation applies more especially to those truly parasitic species which come under our present notice. They are very widely diffused, and occur in South Carolina, America, Ceylon, Hindostan and in other countries, though they are not found everywhere like *Cladosporium herbarum*, which is perhaps the commonest of all vegetable productions. The better opinion is, we believe, that which assigns them to *Cladosporium* rather than *Helminthosporium*, and this view is therefore adopted here.

569. The species which we have more immediately in view is that which attacks various *Pomaceæ*, and not only has the one species been split into five or six, but has

* From ελμινς a worm, σπορα seed; and κλαδος a branch, σπορα seed.

been assigned to almost as many genera. *Phlyctidium*, *Actinonema*, *Asteroma*, and *Spilocæa* have asserted their claims as well as the two placed at the head of our number. This confusion has arisen partly from the very different habit assumed by the species on different plants, or organs, and partly from the proper fruit being often undeveloped. *Cladosporium dendriticum*, such is the name given to the plant by Walroth, arises uniformly beneath the true cuticle under which its mycelium radiates in every direction, in which state, as upon the leaves of the common Service, it is referred to *Actinonema* or *Asteroma*. Sometimes it forms compact almost definite spots, when it is a *Spilocæa*, while very frequently the spots are more diffused, when it is considered an *Helminthosporium* or *Cladosporium*. Late in the year it assumes a very anomalous aspect. The spores germinate and form a dense spongy mass which abounds with conidia, and might readily be pronounced distinct. On the leaves of Pears and Apples, especially the former, it is a dreadful pest, exhausting their strength and often killing the young twigs, while on the fruit it makes unsightly black patches, rendering it unsaleable, and sometimes inducing or else accompanied by extensive cracking, which adds still further to the mischief. When it has once attacked a tree it is very apt to return in the succeeding years. Moreover there is reason to believe that it is so inveterate, that where plants have been attacked by it, a new progeny raised from the seed of the diseased individuals will soon exhibit the parental malady. A singular instance of this is related in the *Gardeners' Chronicle*, 1848, p. 716. All the plants of the common *Pyracantha* raised from a particular packet of Russian seed were attacked by the *Cladosporium dendriticum*, and many of them were severely injured, while neighbouring individuals of the same species did not suffer.

570. Like all parasites which are produced beneath the cuticle there is some difficulty in applying a remedy in an early stage of the disease, nor is there evidence at present to show that sulphur is as certainly destructive to the brown as to the white moulds. In the present instance the better practice would be carefully to gather up the infected leaves as soon as they have fallen, at the same time trimming off the diseased shoots, and at once burning both. The tree might then be painted with sulphur mixed with tragacanth, or with sulphur and lime, in the hope that this might slowly act upon the spores which had been deposited on the buds. It is essential to use something which may make the dressing permanent. Sulphur by itself is insoluble in water, and if merely mixed with water or dusted on, is liable to be washed off before it has effected any good, which it can do only by combination with oxygen to form an acid.

571. *Cladosporium dendriticum* is in general very prolific in spores, but some of the exotic species rarely produce them, and are often found in the form of mere tufts of barren threads. *Spilocæa* which has long been a matter of perplexity to botanists, constituting the black spots so common on Apples, is we believe certainly a mere form, though the matter has hitherto escaped the attention of botanists. The spores are not of the same form or size on every Apple. We have seen them very different on Newtown Pippins from the usual British form. The spores however in the normal plant and in different varieties of it are so variable, that a similar phenomenon in abnormal conditions is not surprising. *M. J. B.*

THE LATE PROFESSOR BOJER.

THE last overland mail from Mauritius brought the intelligence of the death of Professor Wenceslaus Bojer, a name so well known for many years past to the botanists of Europe on account of the many and beautiful specimens which he was the first to introduce to their notice. The pages of the botanical journals both of England, France, and Germany attest the variety of his researches, and the value of his labours in countries which he was the first to visit and explore for the purposes of science.

M. Bojer was born at Prague, in Bohemia, on the 1st of January, 1800. Noticed by the late Emperor of Austria, he was selected by that monarch at his own expense to accompany the naturalist Hilsenberg to explore the island of Madagascar and the eastern shores of Africa; and the rich herbarium which he sent to the Museum of Vienna, and for which he received a pension from the Emperor and the decoration of the Order of Merit, show with what assiduity and talent he had laboured to fulfil the intentions of those who had selected him for so arduous a mission. In the year 1820 M. Bojer visited Mauritius, and after remaining there some time in order to arrange the best collection of new species which his travels in Madagascar had afforded him, he was persuaded by Sir Charles Colville, the governor of Mauritius at the period, to undertake a second voyage to Madagascar. This he did, and after carefully exploring the western shores of this vast island, he crossed over to the continent of Africa and visited Pemba, Monbaza, and Zanzibar, and thence he sailed to the Comoro islands and Agalega. During his six years' absence from Mauritius, his time was principally spent in Madagascar, where he became intimate with King Radama, and this circumstance tended greatly to facilitate his scientific explorations. In 1837 M. Bojer published the "Hortus Mauritianus," a work well known to botanists as an accurate account of the indigenous and exotic species in the island, and a careful resumé of the numerous botanical descriptions scattered through various volumes and memoirs. Professor Bojer intended to publish a supplement to the "Hortus," in which he would have given a detailed account of his own discoveries, together with an extensive list of the Agamous plants of the island; but though this work partly exists in manuscript, from the little encouragement given to purely scientific botany, or science of any kind by the Government, it was never published. M. Bojer introduced some beautiful and new species into Mauritius; our space, however, precludes us from mentioning more than a few; for instance, the splendid tree Poinciana Regia, the Stachychrysum pterospermum, the Colvillea racemosa; the Agathophyllum aromaticum, so esteemed for the delicious liqueur made from its fruit and known as the Crême de Ravensara, the Malgashe name of the tree; the Guilandina Bonduc, and various kinds of creepers; Achyranthes aspera, from the Comoro Islands; Plumbago juncea, from Madagascar; Scævola Kœnigi; a new species of Vangueria, V. edulis; and a great variety of useful and beautiful plants. M. Bojer was latterly engaged on an illustrated monograph of the genus Mangifera, to be published with about 80 varieties of that fine fruit, the plates to which would be coloured and life size. His friends in Mauritius have some idea of bringing out this work by subscription, as a testimony of their esteem for the author, and as an appreciation of all he had done to serve the colony.

M. Bojer was an excellent geologist, chemist, and entomologist, as well as a celebrated botanist; and in the year 1830, together with M. Louis Bouton, Charles Telfair, and M. Jules Desjardins, established the first scientific institution in the colony—the Society of Natural History—now known by the title of the Royal Society of Arts and Sciences, Mauritius. After the death of M. Jules Desjardins, his widow presented his fine collection of natural history to the Government, which formed the nucleus of the museum of Port Louis, and M. Bojer was appointed curator at a very trifling salary. About a year ago Government determined to establish a chair of natural philosophy at the Royal College, and M. Bojer was chosen as Professor. In this new situation, in which his salary was quite inadequate to his merits, he laboured with zeal and success to instil into the minds of the Creole youth of the colony those sound principles of agricultural chemistry and botanical knowledge so important to an island, the commercial prosperity of which depends upon the careful cultivation of the Sugar-cane.

About a year ago an insect of the "borer" species made its appearance in the Sugar-cane, and threatened at one time to spread its ravages through the whole colony. A commission of inquiry was formed, and M. Bojer was appointed its president by the governor. He laboured assiduously for several weeks in the cane-fields, carefully studying the habits and metamorphoses of the insect, and in December last he published his elaborate and excellent "Memoir on the Borer," accompanied with a series of carefully drawn plates, determining this insect as a new species of Lepidoptera, and naming it "Proceras sacchariphagus." M. Bojer was seized at the beginning of June last by an attack of slow paralysis, and expired on the 4th of the same month in the 56th year of his age. He was a member of many learned societies, and was highly esteemed in private life. His friend M. Bouton, the secretary of the Royal Society, pronounced the accustomed oration at his grave. It is supposed that this gentleman will be at once appointed by the Colonial Government to take both the situations now vacant by the death of M. Bojer. His services to the society and to the colony at large during a period of nearly 30 years, his own talent as a botanist and man of science, and his acquaintance with the scientific men of Europe, point him out as the proper successor. The writer of this brief sketch to the memory of his departed friend, and who well knows the scientific position of the colony, feels assured that a more satisfactory appointment in every point of view could not be made. *M.*

Home Correspondence.

The Hyacinth.—As the season has arrived when remarks on this justly admired spring flower may be acceptable to many of your readers, I therefore beg to give them the benefit of my experience in its culture, which if followed will enable them to produce flowers very different from those usually met with. In the first place, much, very much, depends upon the quality of the bulbs, which should be perfectly ripe, and the sooner obtained after their arrival the better, for I consider it highly objectionable to expose them much to the air except just to throw off any moisture they may have attained during their transmission. Always select the largest and best shaped bulbs, rejecting as a rule those that are loose in texture and small; but I find generally that if the base of the bulb is sound and ripe the other portion can be depended upon, and, in fact, this is the only guide to follow in regard to such kinds as Porcelain Sceptre, Prince Albert, and many others of the best sorts which have wretched-looking bulbs; indeed, so much so, that I have seen them thrown aside as useless; it is, therefore, best for the amateur to leave the selection to those who are well acquainted with their properties until by experience he can trust his own judgment. The compost is another important point; this should consist of an equal portion of turfy loam and well decayed cowdung previously prepared by exposure to air, by frequent turnings so as to thoroughly incorporate them; and to this add about one-third silver sand, for they delight in a gritty open soil; I prefer 6-inch or 32-sized pots so as to give plenty of room for their strong roots. Fill the pots about one-third with draining materials—I use broken oyster-shells, although potsherds will do as well—and the remaining two-thirds with the compost; clear the root of all offsets and loose parts, and press tightly into the soil, leaving one-third above the surface; then water them sufficiently to settle the soil, and plunge them a foot at least under coal-ashes or old tan out of doors, or in a cold pit or frame. This is done to cause them to make roots before the crown is excited into growth: this is, I think, the most essential point, for unless the pot is well filled with roots good flowers cannot be obtained. In a month or six weeks, the latter being the better time, take as many as may be required for the earliest blooming, and gradually inure them to light previous to placing them in the forcing pit, and as soon as these show their colour proceed with others in the same manner. The end of September is soon enough to pot the earliest sorts, repeating the operation until the end of November, by which means a succession of flowers can be had from Christmas till April. The finest flowers will be obtained from those not too strongly forced. If for exhibition, I recommend potting not later than the middle of October, gradually bringing them forward as before described. Give them plenty of water, and use liquid manure in a very weak state twice a week. These will be in full bloom during February and March, and I consider that no Hyacinths should be exhibited after the latter month. I look forward to the time when those Blue-bell looking flowers, such as are generally seen, will only be subjects for remembrance, for I am convinced that Hyacinths can be had 9 inches or more in circumference, and with length of spike in proportion. *James Cutbush, Highgate Nurseries.*

Diseased Potatoes.—I was surprised to see my note on the Potato disease transferred to your leading article of August 30. It is however a satisfaction to have a view thus fairly grappled with, by confessedly one of the ablest men of our day and to find that so little can be said against it. That it should be received generally without a wider induction of facts than we at present possess, I do not expect, but that it will eventually prove the true solution of the question I have no doubt. Your able article does much to encourage this opinion, for it clearly shows that the theory of fungi and that of surplus nitrogen labour under precisely as great difficulties. I should not have troubled you with this note had it not been for one passage in your article above referred to, and to submit for consideration another fact which deserves notice. The passage I allude to is "We forbear to remark upon our correspondent's hypothesis that the fluids of the stem are converted into steam (!) which ruptures the tissues and thus causes decay." The note of admiration seems to express doubt about the possibility of this. That electricity, endeavouring to pass through a conductor too small to transmit it, developes enormous heat and converts mechanically entangled water into steam is unquestionable; and part of the mechanical violence following electric discharge is due to this. The heat which fuses metals and ignites combustibles is adequate to the production of steam of any pressure which the envelope of the water will allow to be generated. But, even assuming that the electric discharge from a cloud passed through the Potato stems to the earth, it is by no means proved that the obstacle to the passage of the electricity is sufficient to produce these phenomena. Having lately examined a good many Potato stems which in popular phrase have been "struck by lightning," and the tubers connected with which are more or less diseased, you will, I am sure, excuse my venturing to differ from you in reference to the point in question. These stems are perfectly sound before the storm. After it the internal tissues towards the upper part of the stems are quite destroyed, but the destruction diminishes as the stem grows thicker towards the ground. In a day or two the top of the stem dries up completely, and, after a period of sickness, the remainder dies. The stems above ground present the well-known dark spots, and under ground are completely brown. The destruction of cellular tissue must be the result of chemical decomposition or mechanical violence. I confess the latter appears to me the most probable, but if chemical action take place and the nitrogenised matter of the sap and tissues be oxidized your explanation is by far the best I have yet seen; and, granting the electric origin of the decomposition, which is all I contend for, may in fact prove the true solution. I went yesterday to see a case which bears upon this matter. The place is the garden of a public institution, of about 7 acres in extent, managed by a fair gardener of the old school who is quite innocent of theory. His Potato stems were almost black, and smelt most offensively. He states that they looked well till the first storm of thunder and lightning, but that the "lightning then fell in one quarter upon a spot about a yard, and passed across the rest of that and the whole of the next quarter. Where the lightning fell the Potatoes went diseased directly." He showed me some Lilacs which were struck the same day, of which about half of the leaf (like the upper half of the Potato tops) is dead and dry, the portion next the stalk being yellow only. Some young Beeches near were also struck, but these have only a few small branches in each tree affected, and those which are touched are perfectly killed. Several other cases have come to my knowledge, but I must not intrude farther upon your space. *W. R. B., Wakefield.*

Growth of Araucaria and Deodar at Valnor Park.—

	1850		1851		1852		1853		1854		1855		1856	
	ft.	in	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.
Deodar	12	7	15	1	17	4	19	3	20	0	21	6	24	0
Araucaria ...	3	10	4	8	6	0	7	10	9	6	11	2	12	7½

The measurement of these was begun in 1850. The plants were originally furnished from the gardens at Chiswick. *J. W. Lyon Winder, Valnor Park.*

Green-fly.—It has often struck me that your readers might do good service to each other if they would from time to time record in your Paper the various successes or disappointments which they meet with. For instance no amount of smoke has ever satisfactorily got rid of the green-fly in my houses. Frequent fumigation kept my Geraniums, &c., tolerably clean, but the pest still existed. This year I have immersed all my plants in a mixture of tobacco, ¼ lb.; soft soap, 1 lb.; water, 5 gallons, and although it is now more than four months since they were dipped, I have searched in vain for a single green-fly when cutting them down. Mr. Dobson, of Isleworth, recommends this in his little pamphlet on the Culture of the Pelargonium, and I can testify for the benefit of your readers to its perfect success. Will any of them inform me in return whether they have found any better method of glazing their houses than the usual one with putty, which so soon cracks and lets in water on every side? *J. C.*

Bees.—In your Paper of the 16th inst. your correspondent "G. L." expresses a wish to know how Mr. Lamplugh produced his glass of honey weighing 96 lbs. I will not pretend to answer this question, nor would I recommend him to attempt to fill such a monstrous glass. Its weight and size would render it most inconvenient. But I will tell him the plan which I have successfully pursued for some years. My hives are of straw, 8 inches high, and 15 inches in diameter. On the top is fastened a thick well seasoned board with five

holes in it, each hole 2 inches across, and covered with a piece of zinc. When the bees begin to work freely I remove the pieces of zinc, and place a bell glass 13 ins. deep and 13 inches in diameter on the board, covering the whole with a straw hive. If it is a good season this glass, containing 24 lbs. of honey, will generally be filled by the beginning of July. Now experience has taught me that if I replace this glass with a fresh one the bees will probably sulk, and do very little more during the season; but if I empty the glass of its honey, and replace it the same day, the bees fill it at once and begin working as if nothing had happened, and by the middle of August I get 24 lbs. more, and leave the straw hive full for winter store. The bees should be fed autumn and spring. This is best done by placing a piece of honeycomb on the top board, partially withdrawing one of the pieces of zinc, and by means of a zinc tube inserted through the top of the bell glass, pouring syrup into the cells. *Apis.*

Wellingtonia Disease.—Having noticed the reports on the disease of this Conifer, I think the following statement may be interesting:—I have a plant of it, a seedling from Messrs. Veitch. It was planted out from the pot (having been twice potted to larger-sized pots) about a year and a-half ago. Till lately it has been a beautiful specimen, a perfect cone, and making rapid growth with much corresponding thickness of stem. I may add that it was planted in a very favourable locality, in a large pit filled with loam, broken charcoal, and some dry peat over a gravelly subsoil very dry. It has now several dead branches and blotches like dead wood on other branches, while the points of those branches seem green and flourishing. It is singular that it appeared on this plant at the very same time that the blight has affected the Potatoes, namely, on the change from the long drought to cold showery weather, which occurred about August 5th. There are very fine specimens of Cryptomeria and other Conifers around it, growing luxuriantly and with no sign of disease. The affection of the plant so very closely resembles that of the Potato, that I am inclined to ascribe it in this case to disease, and not to the soil, or to any malformation of the roots. I saw it planted myself, when they appeared in excellent order. *Shannon, Castle Martyr, Cork.*

Use and Purposes of Ammonia in Vegetable Economy.—In two communications on this subject, which appeared in the *Gardeners' Chronicle*, Jan. 10, 1852, and *Agricultural Gazette*, Jan. 7, 1854, I endeavoured to maintain the position that the chief purpose of ammonia is to supply hydrogen, to form, in conjunction with carbon, vegetable matter or fibre—the hydro-carbonaceous substance of all vegetable structures—not of course excluding the appropriation by plants of the nitrogen of the ammonia wherever and to whatever extent their peculiar wants or products may render it necessary, but still regarding the hydrogen as the universal element which all plants equally require to form their very substance and structure, and the nitrogen as only the partial and varying element which all plants do not equally require, being found scarcely at all in many vegetable substances, and existing in others in very different quantities. Permit me now, therefore, to relate the circumstances and results of a small experiment undertaken in the same direction, and for the purpose of ascertaining the comparative effects of administering and withholding ammonia respectively in the cases of two plants of the same kind, placed in all other respects in precisely similar circumstances and conditions. The plant selected was the common Spinach, being of quick and easy growth, and appearing to constitute in its immature state a fair specimen of merely vegetable or hydro-carbonaceous substance. Two 6-inch pots were filled with sea sand, previously well washed in fresh water to remove any saline particles or other soluble matters which might affect or assist the growth of the plants, independently of the treatment they were intended to be subjected to. The seeds were made to vegetate in a very small quantity of common garden mould placed near the surface of the sand in the middle of each pot. These were placed on the top of the lower sash of a window facing the south, the upper sash of which was at all times kept down about 2 inches, so that there was a free and constant circulation of air through the interval between the sashes and the open space above; and there was abundant sunlight and heat, while no rain could gain access to the pots. The plants were plentifully watered twice aweek or oftener, until the water ran from the pots—one with plain water, without addition (of the Edinburgh Company); the other with the same water having dissolved in it 10 grains of carbonate of ammonia to a quart bottle of water, the bottle being kept corked when not used. The seeds were sown on the 27th February, and the plants continued to grow till near the end of June, when they began to run to seed, and the experiment was stopped. At this time they had both attained nearly a foot in height, long and slender, as might be expected under the circumstances; but I am bound to acknowledge that the plant which had been watered with plain water was the strongest and most robust of the two; the other having the appearance of being stimulated into long and weakly growth by the ammonia water, similar to the effect I have seen produced on a Hyacinth in a glass, from the addition of ammonia to the water it was growing in. The result was certainly contrary to my expectation in commencing the experiment, but the thought occurred to me to try the same process with the addition of charcoal to the sand in equally measured quantities, the same sand being used again after being well washed in fresh water. The second set of seeds was sown on 4th July, and the relative rate of growth up to this period, as you will perceive, leaves the preponderance most conclusively in favour of the plant treated with ammonia, being at least three times the size of the other, and weighing 87 grains, while the weight of the plant, not so treated with ammonia, is only 26 grains. Both plants, but far more especially so the one not treated with ammonia, have made less growth in the same time than the two former did; which may be attributed partly to this season of the year not being as favourable to vegetative growth as the spring and early part of the summer, but much more to the circumstance that, notwithstanding the sand being well washed, there may have remained in it nutritive particles of mineral and organic substances which the plants were capable of appropriating to their own wants; and being so used up, the plants in the second part of the experiment were deprived of a resource accessible to the first. But as it is not the absolute but relative and comparative growth attained by the plants respectively, that is of importance in the present case, the latter can be better appreciated and judged of in the absence of all extraneous and independent means of nutrition, not designedly supplied to the plants. My reason for entering so minutely into the details of an apparently trivial experiment is, that the result appears to me to suggest, or even to point not obscurely to a fact in relation to the conditions which limit the useful application of ammonia—viz., that plants cannot beneficially use or appropriate ammonia beyond a certain point, unless carbonaceous matter be present in the ground; and, conversely, that though there may be abundance of carbonaceous matter in the ground, it remains inert and cannot be converted by plants to the purposes of nutrition, unless ammonia be also accessible to them. In the first part of this experiment, where there was either no carbon or only a defective quantity of it in the sand, and both plants had no other source than the atmosphere to depend on for obtaining carbon, the administering of a liberal supply of ammonia only stimulated to an elongated, weak, and watery growth, and the plant which had no ammonia supplied to it was the strongest of the two. In the second part, when charcoal had been added to the sand, the beneficial effects of administering ammonia became manifest in the production of a plant greatly exceeding in weight and bulk that which had no ammonia administered to it, the latter receiving no benefit from the charcoal, which remained inert in the absence of ammonia. With respect to the special object for which this experiment was undertaken, I consider the result as satisfactory as could have been expected from it. By treating one plant with ammonia, a quantity of vegetable substance amounting in its fresh state to 87 grains has been obtained, while the other not so treated has furnished only 26 grains of vegetable substance. As the difference is undeniably due to the action of the ammonia (in conjunction with carbon) the question arises—What is the nature of the additional substance which has been gained in the one case? Is it nitrogenous or anything in which nitrogen remarkably abounds? or, is it merely vegetable fibre or hydro-carbonaceous matter? If the latter, whence has the hydrogen been obtained? We have only the alternative of two suppositions for an answer. Either it has been obtained directly from the ammonia, or the latter possesses some peculiar and inexplicable property, by virtue of which it enables a plant to extract hydrogen from water, seeing that in the case in question the small plant was not able in the absence of ammonia to extract the same amount of hydrogen from water, to fabricate its hydro-carbonaceous substance. It is not difficult to determine which of these two hypotheses is most simple and consonant with correct views. *J. H. H.*

Reviews.

Flora Vectensis. By the late W. A. Bromfield, M.D. Edited by Sir W. J. Hooker and Dr. Bell Salter. 8vo, pp. 678, with a map. Pamplin.

This account of the flowering plants and Ferns indigenous to the Isle of Wight has been prepared from papers left by a most able, industrious, and conscientious naturalist, whose early death in Palestine, in consequence of his too ardent pursuit of botany, was one of the greatest losses which English Natural History has lately sustained. The fine herbarium and library which Dr. Bromfield left behind him would of themselves have recorded his merits even had the present volume never appeared.

The greater part of the work consists of systematical descriptions of plants found in the island, of their localities and uses. Remarks upon their distribution, or the physical peculiarities of the region, are confined to an introduction of 18 pages, illustrated by an excellent map. Interesting as this portion undoubtedly is, the greatest value of the work must, we think, be admitted to consist in the very careful original descriptions in every instance made by the author himself, and evincing a habit of scientific exactness which is we fear less common than is supposed. These descriptions will long remain matters of reference by botanists whose leisure does not always permit them to investigate minute details. To appreciate their true value the student should compare them with those of Smith in his English Flora.

We earnestly recommend the volume to the visitor of the Isle of Wight; it will prove a faithful guide and a constant source of correct information, notwithstanding the too many typographical errors with which the printer is chargeable.

A Practical Treatise on Disorders of the Stomach with Fermentation; the Causes and Treatment of Indigestion, and on Diet. By J. Turnbull. M.D. London, 1856. 8vo, pp. x and 160, with a lithographed plate.

It does not fall within our province in general to review medical works, but some botanical matters are involved in the process of fermentation which occupies so important a point in the study of indigestion, and we therefore make an exception in the instance before us. It is an inconvenience that the word fermentation has been extended by authors far beyond the latitude which is consistent with its etymology or common usage. In the consideration however of dyspepsia, acetic and putrefactive fermentious are principally concerned, though the term is applied to the conversion of starch into sugar, which is one of the first processes of digestion. In healthy digestion the saliva first acts on amylaceous matter, the gastric juice on albuminous matter, the pancreatic on fat, while bile and the common secretion of the surface of the intestines perform a variety of important offices. If the acetic or putrefactive fermentation take place in consequence of the imperfect action of any of these, or is not checked by them, the whole economy is deranged, and dangerous or painful consequences ensue. In these abnormal conditions, as almost necessary concomitants, certain fungi are developed, and it is these which require the aid of the botanist. It is unfortunate, however, that writers on medicine have seldom much time for botanical investigation, and it does not appear that our author is an exception. Whatever merit may be due to other parts, there is little to recommend this portion of the work to especial notice. It might be scarcely fair to judge of his botanical knowledge from the misprint on the plate, and throughout the work, of the word *Penicillium*, for which *Penicillum* is substituted. It does not, however, appear that the author has a distinct notion of what a *Penicillium* is. Two forms of mycelium are figured, one under the name of *Torula*, the other of *Penicillum*; but the one has as much right to the name as the other. Both indeed belong probably to *P. glaucum*, but as other moulds are often developed, they may be infant states of other species. Neither at any rate can be figured as *Penicillium* without an indication that it is merely a mycelium. That he should have neglected this is the more curious, as he refers to the article *Penicillium* in the Micrographic Dictionary, where a sufficient figure is given. In the article Yeast, also in the same work, reference is made to Turpin's excellent memoir, together with an illustrative figure, a memoir which has been strangely neglected in this country. Turpin did not indeed trace the actual growth of the Yeast globule into the mould, but his figures are exactly in accordance with the direct observations recorded in the article Yeast in Morton's Cyclopedia.

It appears probable that *Sarcina ventriculi*, which is so common in malignant disease of the stomach, though found in many other organs, as for instance in the bladder, is but a form of some common mould. Excellent specimens in urine were lately communicated to us by Dr. Rees, but we could neither get them to germinate, nor could we induce fermentation by mixture with fermentible matter, as a solution of malt. We had not perhaps sufficient materials for the latter purpose. In the former instance the *Sarcina* underwent no change though observed frequently for weeks. A very interesting field of discovery then is open, and one which may lead to curious results both physiological and practical. That the *Sarcina* is a mould we do not doubt, because of its development being completely controlled by sulphite of soda and other remedies which are known anti-ferments. Proof of its real nature, however, is requisite, a matter which is commended to those who with the necessary information have opportunities of obtaining fresh and abundant specimens.

We must not close this notice without drawing attention to the interesting facts adduced by the author in proof that many of the more usual condiments, as Mustard, Horseradish, &c., are powerful anti-ferments. This doctrine may perhaps be extended to the use of spices in some forms of malignant fever.

Garden Memoranda.

DIDSBURY LODGE, THE RESIDENCE OF JOSEPH BULL, ESQ.—This interesting place is situated about six miles from Manchester. The gardens belonging to it were laid out about six years ago by Mr. Bigland, of that town, but since that time they have been much improved by means of the introduction of some splendid specimens of Coniferæ from Elvaston. Unfortunately the climate does not suit many of the finer Conifers. Among others we noticed, however, a fine Araucaria imbricata, now making a good start. Vases and statues are liberally dispersed about the grounds, and give the place a varied and finished appearance. At one corner of the garden is a handsome grotto, which in summer forms a cool retreat. It is made of the refuse from glassworks mixed with different coloured stones from Derbyshire. A circular Rosery is also a favourite place of resort; this is filled with standard Roses, but it might be improved by filling the beds with dwarf sorts, to be pegged down under the standards. It has hitherto been the practice to fill the beds under the Roses with bulbs to bloom in spring and annuals in summer. The most conspicuous

feature about the place is an Italian garden in front of the gardener's cottage. This is now gay with all the most showy flowers that are cultivated for bedding purposes; variegated Geraniums especially were most conspicuous. We were informed that everything here is struck in autumn, kept in small pots till the beginning of March, and then repotted into larger ones, so that by planting time they are all coming into flower, which is a great advantage in our short summers. The quantity of glass here makes it a very convenient place for keeping plants through the winter; on each side of the gardener's cottage is a range of houses planted with Vines, Peaches, Figs, &c. Pine Apples we noticed with plenty of good fruit on them; one house was filled with plants in pots; in the other they were planted out in a bed of soil. Between the one set of plants and the other there was, however, no difference. In two Vineries, in another part of the garden, planted five years, there was a capital crop of Grapes well coloured, bunches large, and in every way excellent. The Vines are so close pruned every year that they have the appearance of walking-sticks; they are turned out in winter and the houses filled with stove and greenhouse plants. In order to protect the border from wet, a large tarpauling is put over it before the autumn rains have chilled the soil. The houses are well built, and glazed with Hardley's rough plate glass, which has answered perfectly every expectation formed of it. They are ventilated by means of under-ground air drains, having openings below the hotwater pipes, and grids in the back wall; there is thus a constant supply of fresh air without draught. Some fine specimens of Ericas, Epacris, and New Holland plants were set out of doors to harden. Azaleas were also very fine, and promised a good supply of bloom. The pots which they were in were protected from the sun with common peat laid round them. Camellias had half-rotten dung put over and round their pots, so that every shower of rain washed some of the manure down to the roots. Stove plants, of which there was a good supply, are grown in the Vineries and Pine stoves; a nice plant of Meyenia erecta was just coming into flower, and we noticed a handsome specimen of the beautiful Fern Pteris aspericaulis. The conservatory is a fine architectural building, but like the generality of such structures it is anything but a good plant house. Round the kitchen garden the walls are all wired with galvanised wire, the trees looked very promising, and had no appearance of cankering where they came in contact with the wire. Potatoes showed more signs of disease than crops in open fields; the haulm had been cut off from those affected the worst, in order to dry them before lifting them. *S.*

Miscellaneous.

Glass for Garden Structures.—An experiment has been tried by Mr. Anderson, at Longleat, of considerable interest to gardeners, by way of proving what effect the different kinds of glass now recommended for plant and fruit houses had on the plants grown under them. Five years ago a four-light frame was devoted to the purpose, having one light glazed with Hartley's rough plate, one with Hartley's corrugated, one British sheet, and one with crown glass. During the five years a variety of plants have been grown in this frame, including Strawberries; and Mr. Anderson informs us that no perceptible difference could be detected, either in the growth of the plants, the colour of the flowers, or flavour of the Strawberries. We may therefore infer that as regards cultivation, no great amount of difference exists between the descriptions of glass mentioned; while, to suit particular purposes, one sort may be substituted for another, without causing any detriment to the vegetation they cover. *Turner and Spencer's Florist, Fruitist, and Garden Miscellany for September.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY &c.—Keep New Holland plants which have been placed under glass cool and airy, and avoid crowding, especially in the case of things which are in a growing state, but everything must be allowed sufficient space, so that the foliage may be fairly exposed to light and air, and rather than be under the necessity of huddling specimens too thickly together some of the least valuable should be thrown away. Look sharply after mildew upon Heaths, as this pest is sometimes very troublesome upon plants that have been growing freely in a shady situation in the open air, and are in a rather soft state when taken in doors, and apply sulphur freely on the first appearance of the enemy. Also see that everything is clear of insects. Take advantage of leisure hours to get Azaleas which have made their season's growth nicely tied, as also anything else requiring training, and endeavour to keep everything very trim and neat, in order to compensate, as far as possible, for the paucity of flower among hard-wooded plants at this season. COLD PITS.—Plants which have made their season's growth should be freely exposed to sun and air on every favourable opportunity, in order to get the wood well ripened. But such things as are still in free growth should be encouraged by every possible means while fine weather continues, keeping them rather close, guarding them carefully from cold winds, and giving a liberal supply of water at the root. If anything requires more pot room get such shifted as early as convenient, keeping the atmosphere rather close, and watering very cautiously for some time afterwards until the roots get hold of the fresh soil.

FORCING DEPARTMENT.

PINERIES.—Attend to last week's directions, and endeavour to afford plants on which the fruit is ripening a warm rather dry atmosphere with a moderate circulation of fresh air on dry days, and whenever this can be done without lowering the temperature too much; also keep young stock growing as freely as may be consistent with securing stocky plants, giving them a liberal supply of manure water at the root, and maintaining a moist atmosphere. Be as sparing of fire-heat, however, as circumstances will permit, shutting up early on the afternoons of bright days, but give air rather freely in the early part of the day, which will assist in preventing weakly growth, and after this season the syringe must not be used too freely, even on young growing stock, and where the atmosphere can be kept moist at pleasure by means of tanks, &c., syringing might almost be discontinued for the season; at all events avoid syringing so heavily as to cause water to lodge in the hearts of the plants, which tends to blanch and weaken the foliage. Look over young stock growing in pots, and shift any requiring more pot-room without delay, so that it may get rooted into the fresh soil before winter; and see to having the balls moist at the time of shifting, for neglect of this is a frequent cause of young stock fruiting prematurely. VINERIES.—Vines that are to be forced very early, provided the wood is well ripened, and the leaves mostly off, should be pruned and dressed, keeping the house as cool as possible, in order to prevent bleeding; for it is difficult to get Vines sufficiently dormant at this season that bleeding will not occur to some extent after pruning. And so injurious is this in weakening the Vines that where there is any danger of its occurring to any serious extent pruning should be deferred until the Vines seem to be fairly at rest. It will also be advisable to cover the outside border of the early house with something that will throw off wet in order to keep the roots as dry as possible while the Vines are at rest, and secure having the border in a dry healthy state when forcing is commenced; but this need not be done until there is some appearance of wet. The weather is still very favourable for getting late Grapes ripened, and these should be assisted with a moderate amount of fire heat, in order to get them coloured while bright weather continues, and the sun has some power. FIGS.—The second crop of these will now be getting over, and every possible attention should be given to the ripening of the wood, keeping the young shoots thin and closely tied in, so as to expose them fully to light and air. Also keep the atmosphere rather dry; and the borders can hardly be kept too dry after the fruit is gathered. Any over-luxuriant shoots should be stopped, or cut out altogether where they can be spared, and trees that incline to be of a gross habit should be severely root-pruned as soon as this can be done, without risk of injuring next crop; for unless short-jointed firm wood can be obtained an abundant crop of fruit need hardly be expected. MELONS.—Unless where these are particularly wanted late in autumn, they should be pushed on as rapidly as possible; for besides being very uncertain late in autumn, fruit ripened after damp cloudy weather has set in is seldom good for much. Maintain a brisk steady bottom heat, keeping the atmosphere rather warm also. Keep the Vines clear of laterals, remove decaying leaves immediately they are perceived, and use every means to keep the foliage clear of red spider and in a healthy state.

FLOWER GARDEN AND SHRUBBERIES.

As frost may now soon be expected, any scarce plants which it may be desirable to secure before they are injured should be taken up and potted at once, or carefully covered when there is the least cause to suspect frost. See to securing a good stock of cuttings of the variegated Geraniums before the plants are injured by frost, for although these root more freely in spring than at present, such varieties as Golden Chain and Mountain of Light grow so slowly that spring-rooted cuttings make but very poor plants by turning-out time, hence it is desirable to gain size, even at the expense of the loss of a few cuttings. We do not believe all that has been said in different periodicals about the difficulty of rooting Golden Chain in autumn, for we have experienced no particular difficulty in rooting it at this season; but we may be fortunate as regards convenience, which is simply a flue running underground in the open air; this we cover with a suitable depth of soil, and protect the cuttings by hand-glasses. That cuttings taken from plants growing in the open ground are liable to damp in a moist warm place is well known, and the variegated Geraniums are perhaps more so than most things: but persons who can command a gentle bottom-heat without keeping the atmosphere warm and moist will experience no difficulty in rooting them now. The old plants of these are, however, well worth wintering wherever room can be found for them, for these go much farther at planting-out time, and cover the beds sooner with foliage and flower than either autumn or spring-rooted cuttings; hence they should be carefully guarded from frost until the beauty of the garden is destroyed, when they should be taken up, potted, and stored away for the winter in a cool dry house. Continue to put in cuttings of Hollyhocks, as these can be obtained until there is an ample stock of rooted plants, and do not allow those that were rooted early in the season to suffer for the want of pot room. Cut off the flower stems of herbaceous plants as soon as they become shabby, and endeavour to prolong the beauty of Phloxes, &c., by keeping them well supplied with water at the root. Also keep the beds and everything about the flower garden and grounds trim and orderly.

HARDY FRUIT AND KITCHEN GARDEN.

Look over choice Pears and Apples at short intervals, and gather such of the fruit as may be found to readily part from the tree. Espalier and dwarf standards, or indeed any kind of fruit trees which exhibit more tendency to produce useless wood than such as is likely to furnish fruit, should be root pruned as early as convenient in the autumn, cutting out any useless shoots at the same time, in order to expose the wood expected to bear fruit as freely as possible to light and air, so as to get it ripened. Provision should be made for protecting a quantity of French Beans from frost should this occur, and Cauliflowers should be looked over frequently, turning down a few leaves over the hearts, for these are readily spoiled by frost. Get a lot of brown Dutch or Bath Cos Lettuce planted where they can be protected by frames for spring use; attend to the earthing up of Celery that is likely to be wanted for use soon, keeping it closely soiled up, so as to get it well blanched. Keep the late crop of this well supplied with manure water while growing weather continues. Get Onions dried and stored.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Sept. 18, 1856, as observed at the Horticultural Gardens.

Sept.	Moon's Ave.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain
Friday 12	13	30.142	30.066	72	46	59.0	61	59	N.E.	.11
Satur. 13	14	30.179	29.97	66	45	55.5	60	59½	N.W.	.00
Sunday 14	○	30.224	30.123	67	35	51.0	63	59	S.E.	.00
Mon. 15	16	30.186	30.126	69	44	56.5	60	58½	S.W.	.00
Tues. 16	17	30.130	30.092	68	41	54.5	60	58	W.	.00
Wed. 17	18	29.952	29.798	67	48	57.5	60	58	S.W.	.15
Thurs. 18	19	29.860	29.836	64	37	50.5	60	58	N.W.	.01
Average		30.082	30.001	67.5	42.3	54.9	60.6	58.6		.22

Sept. 12—Cloudy; very fine; rain at night.
— 13—Cloudy; fine throughout.
— 14—Clear and fine; very fine; cold at night.
— 15—Fine; overcast; cloudy.
— 16—Clear; fine throughout.
— 17—Overcast; showers; cloudy.
— 18—Rain; very fine; clear; cold at night.
Mean temperature of the week 2 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Sept. 27, 1856.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	66.7	45.0	55.8	15	0.50 in	2	3	5	2	6	5	5	2
Mon. 22	67.1	46.1	56.6	13	0.40	—	2	8	2	5	6	5	2
Tues. 23	66.1	46.8	56.4	14	1.21	—	6	6	1	6	5	5	1
Wed. 24	65.4	45.6	55.5	13	0.75	2	7	2	1	4	8	5	1
Thurs. 25	65.8	44.8	55.3	13	0.30	2	4	3	2	4	10	4	1
Friday 26	65.1	44.6	54.8	15	0.72	—	4	6	1	8	7	1	3
Satur. 27	65.2	45.1	55.1	17	0.63	—	2	4	2	4	9	6	3

The highest temperature during the above period occurred on the 25th, 1852—therm. 82 deg; and the lowest on the 26th, 1865—therm. 26 deg.

Notices to Correspondents.

BUGS: *J R M.* Spirits of turpentine will drive them away for the moment. We doubt the efficiency of guano.

DISEASES: *R B.* Your Sycamore leaves are infested with *Rhytisma acerinum*, a very common autumn parasite.—*A M.* Your Grapes are attacked by a curious fungus which is quite new to us. It is a *Glœosporium*, differing from all other species in colour. It will be noticed in Vegetable Pathology. For the present we must content ourselves with saying that we do not believe that it is the cause of decay, which you must look for in the condition of your house, as the Vines themselves appear to be healthy.—*M S D.* Your Pear leaves are attacked in a very virulent form by *Helminthosporium pyrorum*. Collect all the affected leaves as soon as they fall, and cut off the parts of the summer shoots which are diseased and carefully burn them. Wash the trees in spring with the solution of sulphur and tragacanth recommended in our last number, or powder them with sulphur as soon as there is the slightest symptom of return. A wash of sulphur and lime might be substituted if there is any doubt about the tragacanth. *M. J. B.*

INSECTS: *S & N.* Your Rhododendrons, &c., are attacked by the young caterpillars of the common yellow-tailed moth (Porthesia aariflua); they are very voracious, and will probably remain in the caterpillar state all the winter. As they are very conspicuous, hand-picking will be easy enough. We know no other remedy.—*Z, Derby.* Your insect is the common ground beetle, Omaseus melanarius. It is found under stones in damp places, and feeds on other insects, &c.—*G R.* The larvæ which have injured your Lettuce seed are those of the Lettuce-seed fly (Anthomyia Lactucæ). The only remedy is to sift the seeds carefully to dislodge the larvæ and chrysalids, and this prevents them being sown with the seed next year. *W.*

INSURANCE COMPANIES: *Two Poor Gardeners.* Next week.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Sqz.* Amaranthus Blitum.—*R. Orwell* No doubt Carix Bönninghausiana; 2, is Bromus erectus.—*Elizabeth.* Limosella aquatica, very nicely selected specimens. — *G Brunton.* Epilobium palustre. — *Floss.* A wretched morsel, quite indeterminable. It looks like a pinch of some Manulea.—*R H Pape.* The names of your Orchids will be given next week.—*C. Brown.* Phytogenia is an old manuscript name in J. Smith's herbarium for a genus of Ferns—to include Polypodium plantagineum of Jacquin—it has been superseded by Fee's genus Dryomeris. Your specimen is now called Dryomeris plantaginea; J. Smith in Bot. of the Voyage of H.M.S. Herald, p. 229. Pteris laciniata, Willd., is a native of St. Vincent's and others of the West Indian islands. There is no Goniophlebium longipes of J. Smith; but there is a Drynaria called longipes, a native of the Malay islands. *S.*

POTHERBS: *J M.* Next week.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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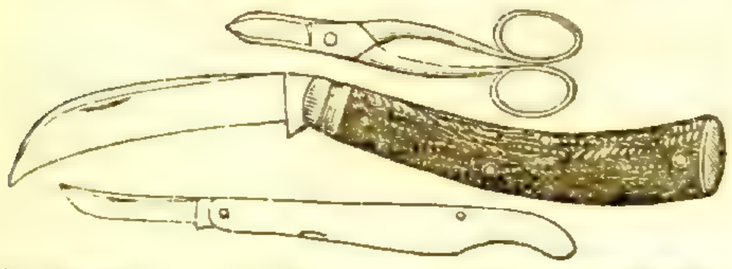

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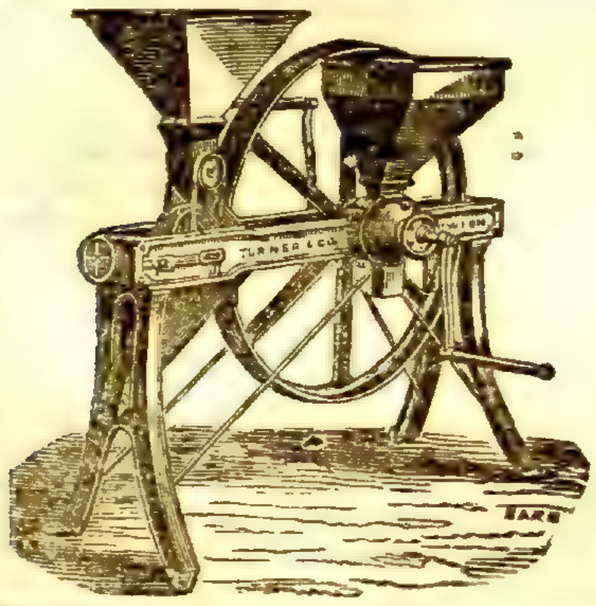


TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

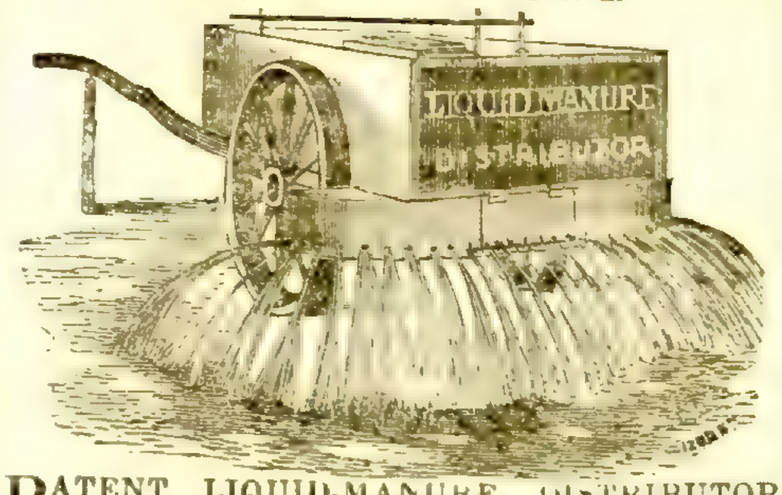
Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER Ipswich.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.—Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

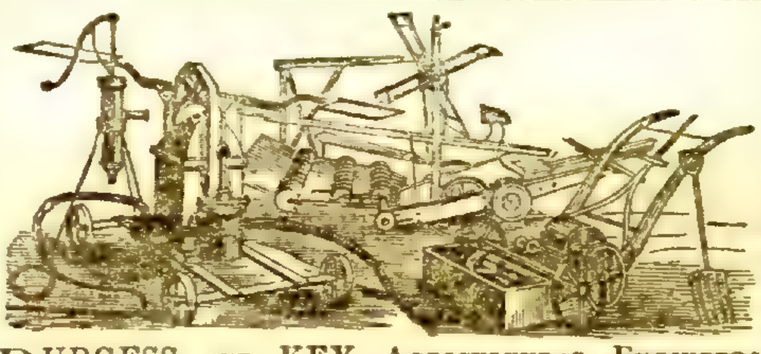
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1 10 0
2½ „ long	3 „ 3 „	gutta percha,	1 14 0
3 „ ditto	3 „ 6 „	or cast iron	2 8 0
3½ „ ditto	3 „ 6 „	flanged pipe,	2 12 0
4 „ ditto	3 „ 6 „	as required.	3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

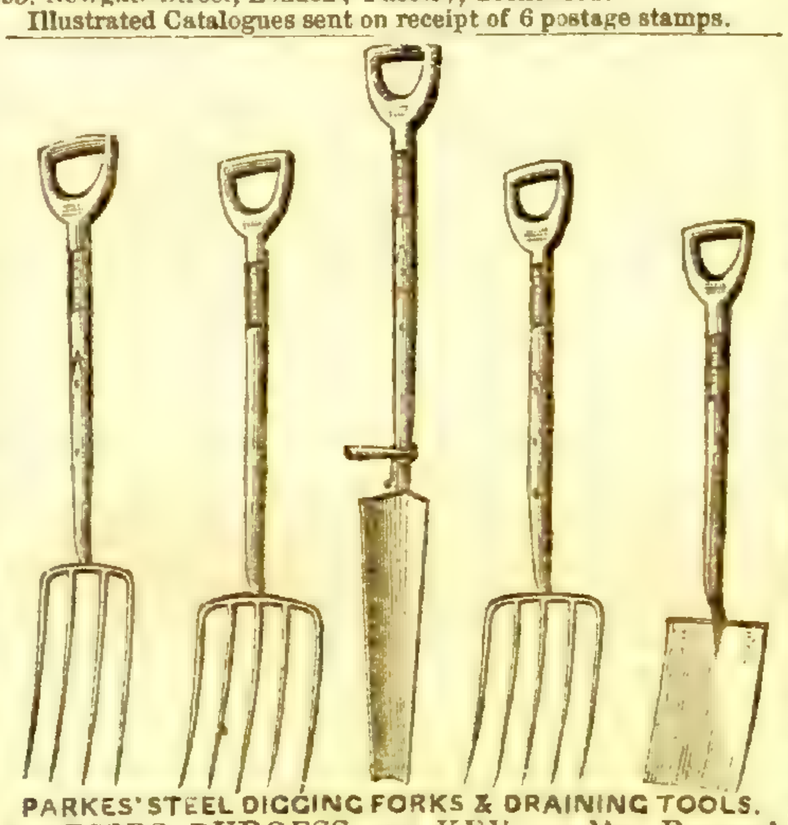
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery. — Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps.

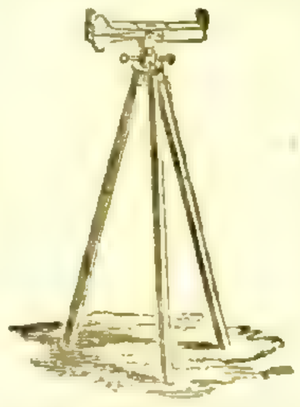
103, Newgate Street London.

IRON FENCE, HURDLES, ETC.

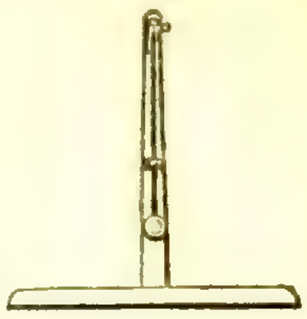
J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.



WEIR'S SPIRIT DRAINING LEVEL.
Price 30*s.*; Case 1*s.*
Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain.
Price 15*s.* Terms cash.
Illustrated Catalogues sent post free.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

FARMS AND ESTATES FOR SALE.

MR. THOS. SCOTT, LAND AGENT, 5, Charing Cross, having lately inspected and valued a considerable number of single Farms and Estates, within an area of from ten to thirty miles round London, is prepared to give particulars to parties intending to purchase either for occupation and residence, or for investment.—Sept. 20.

LAND DRAINAGE.

MR. THOMAS SCOTT, LAND AGENT, 5, Charing Cross, is prepared to take Contracts for large or small quantities. Inspection allowed of Drainage Works now being carried out around London, and references given to gentlemen for whom Contracts have been completed.—Sept. 20.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

SEED WHEAT.

MR. MORTON has a few quarters of healthily grown and perfectly ripened Seed to dispose of. It is of four sorts:—(1), The Whitfield Red Straw, and (2), the Fenton—both white Wheats of good quality and great productiveness, the latter a good deal shorter strawed than the former; (3), the Browick; and (4), the so-called "Tiney's Success"—both productive varieties of Red Wheat, the former yielding rather the bulkier, though at the same time the somewhat coarser produce of the two. They have all been grown on a light sandy soil; and in every case it has been a standing crop of bright unmildewed straw. Price 50*s.* per 4 bushels, including the sack.

Post-office orders to be made payable at Kingston-on-Thames to JOHN C. MORTON, West Moulsey, Surrey.

The Agricultural Gazette.

SATURDAY, SEPTEMBER 20, 1856.

A MANUFACTURER in London has discovered an artificial manure of the exact colour and smell of Peruvian guano and possessing the same fertilising qualities; and he is now prepared to supply the same in any quantities at a low price for shipping abroad or home consumption. So says his advertisement. It is a very important announcement, not less to the users of manures than to the "manure dealers," to whom especially the advertisement is addressed. Of course whatever interest the latter may have in this article being, as it is particularly described, of the exact colour and smell of Peruvian guano, it is exclusively in its possession of equal fertilising qualities that the former are interested. Supposing the truth to be told on that point by the advertiser, the question determining its value to the farmer remains:—What is the cost at which it can be supplied? And we do not doubt the statement that it can be supplied at a "low price." Why, otherwise, should it be offered especially to manure dealers, who must take their profit out of it before it reaches the hands which spread it on the land? In every point of view, then, it is plain that this advertisement contains one of the most important announcements to which the attention of our readers could be directed. We hope that justice will be done to it by those interested in the safe progress of English agriculture.

But how can justice be done to a manure? To look at it and to smell it will not suffice to determine its true character. It may possess the exact colour and the exact smell of Peruvian guano, and yet be nearly worthless. The agricultural value of

Peruvian guano depends chiefly on the quantity of fertilising matter which it possesses in a form unrecognisable by either nose or eye. The ammoniacal smell by which guano is generally known is no test whatever of its real value. Ichaboe guano, for instance, smelt more strongly of ammonia than Peruvian or Bolivian, notwithstanding its inferior quality. It was the higher "potential" value, as Dr. URE described it, of these latter substances—the quantity of their fertilising matters not immediately available and thus less liable to waste—that was the real proof of their superiority. That lies in their ability to increase the produce of the soil, not in their colour or their smell, and the two bear no proportion whatever to each other. Why then should this advertiser lay such stress on his manure being of the exact smell and colour of Peruvian guano? Why, indeed, should he mention this at all?

The advertisement is indeed addressed especially to manure dealers, but we do not see how an honest dealer in manures, any more than the man to whom he sells them, is interested in their colour or their smell. It is the fertilising properties they possess on which alone their value either to the one or to the other must depend: and these cannot be ascertained at once by a customer across the counter: it is a laborious process which alone can put them to the test. The farmer must apply the substance to his crops, and read the result some months afterwards, or the chemist must subject the substance to analysis and ascertain the ingredients of which it is composed. Knowing these, and knowing the market prices at which they can severally be obtained, he can tell at once at what price the compound which contains them can be prepared: knowing these, together with the results for many past years of their application severally as well as in various forms of combination to the crops the farmer grows, he can tell at once what price the compound which contains them ought fairly to command. It is plain that it is the margin between the sum which the manure must cost and the sum which agriculturally it is worth on which the manufacturer and the manure dealer depend for the profits of their operations. The former at as little cost as possible prepares a manure of as great an agricultural value as possible. The latter purchases at the lowest price which the competition among manufacturers induces, and he sells at as high a price as the cost of genuine guano, which is the standard of comparison in the manure market, enables him. But then if he deals honestly with his customers this standard of comparison must be intelligently and honestly applied. It is not a comparison of colour or of smell but a comparison of actual contents that alone determines anything of use to farmers. They must know what the new manure contains, and not be misled by its appearance. Failing actual experience of a manure, then, it is the chemist alone who can with any confidence predict its fertilising properties, and any manufacturer of manure who seeks for custom among honest dealers in manure must show them what of phosphorus, of ammonia, and alkalies, &c., his new manure contains. His announcement of its colour and its smell can only excite suspicion of dishonesty or ignorance.

IN the article on coal by Dr. PLAYFAIR in MORTON's Cyclopedia of Agriculture there is reference made to the enormous waste of ammonia resulting from the careless consumption of coal as fuel both in houses and in foundries. It is estimated at a very large sum of money. That which coal contains is saved where it is distilled, as in gas works, by the products of this distillation being passed through water on its way to the gas holders, and every one knows the consequent effects of gas water as a manure. Were a corresponding saving made in the other cases in which coal is burned, a store of ammoniacal manure would be obtained which would greatly tend to cheapen other sources of ammonia, guano among others.

It appears, however, that the ammonia which gas, as driven off from coal, contains, is imperfectly separated by the usual process, and a great additional saving is effected by a process patented by the Rev. W. R. BOWDITCH, of Wakefield, in which clay is used as the absorbent. The clay, after being used for this purpose for a certain time, becomes charged with a number of ammoniacal ingredients, all of agricultural value, and all tending by their presence in the gas to diminish its illuminating power. So that by their removal two good effects are produced: the company send out a better gas to their customers in the town, and they have at the same time a new manure of considerable agricultural value which they can offer to customers in the country.

The effects of this "new manure" were described in an article written by the Rev. W. R. BOWDITCH some weeks ago in this Journal, in which the very satisfactory experience of its use on Grass and root crops was detailed; and the following by the same pen describes more fully the mode of its manufacture. It appears to us to promise a very important addition to the resources of the farmer.

"The new manure experimented with is a waste product which arises in the purification of gas by my process patented two years ago. In this process common clay is used as an auxiliary to lime in the purification of gas. The clay absorbs and retains, in the form of true chemical compounds, substances over which lime has no power, which are most detrimental in gas, but of great practical value in manure. The clay contains ready formed ammonia in considerable quantity, part of which exists in volatile, but the majority in non-volatile salts. It contains also much nitrogen, variously combined with other substances, which by eventual decomposition in the soil will form carbonate and sulphate of ammonia. It contains a quantity of sulphur, carbon, and phosphorus in forms of combination which experience has shown are valuable as plant food, but the description of which would involve too much technical chemistry to render it suitable in a popular account intended for general perusal. The clay for purification is pulverised and slightly moistened before being placed in the purifier. When saturated it is removed thence a black fœtid mass loaded with impurity. Exposure to the atmosphere oxidizes some of the absorbed substances, and the clay may be used a second time with advantage when the object is to *manufacture manure* as well as purify gas. The saturated clay needs nothing but lying a short time under a shed to dry before it is made fine like guano and applied to land.

"Present experience shows that a ton per acre is an adequate, and a ton and a half per acre a maximum dressing for Grass land; a ton per acre is the maximum quantity for arable land, and when so much as this is put on it should be ploughed down, and not suffered to come into contact with the seed. Half a ton per acre mixed with the manure has operated most beneficially upon Potatoes, and will probably do so upon Turnips. It has not been thus tried, but used alone broad-cast it has grown capital Turnips.

"The cost of producing this manure is comparatively trifling, and when sold at 5*s.* per ton it leaves a handsome profit to the company producing it. The quantity capable of being produced is enormous and daily increasing, one single gas company in London being able alone to produce upwards of 40,000 tons per year. The gas companies in the United Kingdom number, I believe, about 1000, and obviously could supply an enormous demand."

DIARY OF A DAIRY FARM.

SEPTEMBER.

THE work of the dairy generally diminishes greatly this month, the milk is much less in quantity, but being of richer quality the curd is greater in proportion to the quantity of the milk than during the spring and the early part of the summer, and the cheese is fatter, consequently the best toasting cheese is made at the latter end of the season, but of course it must be done before the food of the cows is changed from Grass. Cheese made this month and in October is liable to suffer from the early frost and dampness of the air, which affects the appearance and causes it to become indented and rough in the coat, to prevent which great attention should be paid to frequent turning on dry shelves; these should be often washed, and when thoroughly dry, the cheeses should be replaced upon them; they should never at this season be turned over upon the same space they have previously occupied, and there is generally now shelf room enough to allow of this, which will be an advantage to the late made cheese. It is necessary also at this season to scald the curd to prevent its running out of shape; this will give it a greater firmness than when made without it, and though not recommended in the warm weather it is now good management to adopt it. The process is as follows:—when the curd is taken from the press the first time, the whey being thereby drained from it, it should be broken with the hands into small particles in the cheese tub, when a scald of hot water, which should be mixed with whey and made from 90° upwards according to the weather, should be poured over the curd, and after being well stirred round and gathered to one side of the tub, the scald should be taken from it and the vats filled in the same way as when not scalded.

In selecting cheeses for toasting, those made this month, or even later in the season before the cheese is scalded, are the best. Those which are prevented getting firm by the frost and dampness of the weather, and are rough in the coat, and sometimes run out at the sides, have been proved to be the best toasting cheeses; the fat does not separate from these in toasting, but has more the appearance of rich cream, and is much more wholesome than harder cheese when toasted. In making family or skim cheese, which is usually done at the fall of the year, it is customary with most persons to use very thin vats for the purpose, but thereby the cheese is generally very hard if kept any length of time; whereas it has been proved that if made in vats of about five to the cwt. the cheese in the spring is very superior in quality to that made in thin vats, and there is also a great saving by the small quantity of rind in proportion; there is also much more taste to the cheese. Butter should now be potted for the winter as soon as convenient; it is quite proper it should be done before the fading of the leaves, which will give a better taste if the cows are pastured where they have an opportunity of eating them, and if put in pans in thin layers about 2 inches thick, and salt put between each, it will cause it to separate when cut out, and will not require more salt to be applied to the mass than is usual to fresh butter, and it will cut out for use much more conveniently than when the salt is applied to the quantity, and not the rows separated by a layer of salt between them; it is well to make a little brine to put on the top of the pan, which will exclude air, and the pan should have a cover to it.

Dairy cows should get frequent changes, and the best Grass the farm will supply, for now that the growth is not nearly so rapid as it has been, it is astonishing how soon the keep gets short, and this may be a good deal accounted for by the old saying, on the first coming of frosty mornings, that every beast has *five* mouths; that is to say, the tread of each foot makes useless as much Grass as the one mouth consumes; therefore it will be found a great saving of green food, which it is desirable to make last as long as possible at this season on ordinary dairy farms, that the cows should have a little hay given to them in the yards every morning before they are turned out from being milked, and they should remain an hour to eat it, by which time the frosty appearance on the Grass is gone. This supply of hay will be found to be well spent, inasmuch as the milk is more rich in quality at this season, when the weather also is more favourable for making good butter and cheese, so it is very desirable to keep up the quantity of milk by every possible means within reach. The weaning calves should this month only have access to the Grass fields during the day, having shelter in yards at night, where they should get some chaff of Oat or Barley straw, and their troughs filled with early Turnips cut small to enable and induce them to take readily to eating them. This feeding will materially assist their growth and strengthen them against the winter. Some farmers who annually rear a large number of calves recommend from experience they should get a little oilcake with the chaff in preference to so much green food, as a safeguard against quarter ill or evil, which fatal complaint often carries off many of the most healthy and thriving weaning calves at this season. The quantity should begin from half a pound and increase according to their age and as they seem to thrive upon it, up to 2 lbs. every evening. This somewhat high feeding has proved serviceable in rearing calves for fattening purposes to be ready for the butcher as beasts at two or three years old, and when the Grass fails for their daily food a liberal supply of roots is given them instead; but to rear healthy constitutions for dairy stock, we recommend less forcing feeding, as that given above without the oilcake, which, less fattening, is quite sufficient to produce fine healthy growth.

IRISH PAROCHIAL STATISTICS.

BY MARTIN DOYLE.

(*Continued from p. 620.*)

PROGRESS is clearly perceptible in the style of our local farming, in the extension of green crops, the application of manures, the improvement of live stock in a remarkable degree, and every department of practical husbandry; as also in the size and increased accommodations in homesteads and the humbler habitations of the peasantry in general. But while the farmer has been advancing in comfort and independence, the latter remains stationary in his poverty.

I have shown how miserably he lives even when employed and at home. If sick, and therefore unable to earn wages, he is not allowed a shilling from the poor rates if he remain at home. He may obtain medical advice and medicine gratuitously; but neither nourishing food nor wine nor any other stimulant which his case may absolutely require to effect his recovery is afforded to him; unless some charitable individual supplies his need the patient may perish from inanition. The medical officer who has the charge of the sick person, and is the competent judge of what is necessary in the case, has not authority to supply to paupers confined by sickness in their own homes the nutriments so liberally given in England to persons in similar conditions. The disease may be of such a character as to render the removal of the patient to the distant union-house impracticable, or extremely hazardous; yet if the medical officer gives wine, porter, or nutritious food to save life or promote convalescence, he perhaps does so at his own expense, rather than encounter the uncourteous criticisms of some guardian who not having witnessed the misery of the patient, feels no sympathy with his sufferings, and grumbles so loudly at the out-of door case of relief, that the doctor cannot venture to solicit a prolonged allowance of nourishment for his patient, though his recovery may depend upon this beneficence.

But there are cases in which the sick labourer is inadmissible within the poor-house. He inhabits, suppose, the most miserable hut imaginable, on a lonely heath apart from the habitations of any persons

able or willing to afford him relief; he has a wife and children occupying by day and night the small and wretched room in which he lies, reduced by a lengthened chronic disease to the state of a living skeleton; his wife goes out to beg, and the whole family depend for their existence upon the precarious alms she may have received during the day. Is not this household of paupers to be relieved from the poor rates of the union to which they belong? No! the regulations forbid out-door relief to them, and they cannot be admitted to the union-house because the miserable father has a rood of poor land reclaimed by himself with spade and pickaxe from original barrenness; possessing this, he is not utterly destitute within the stringent letter of the law, and unless he abandons the patch of land which might assist toward the support of his family, he will not be admitted into the poor-house. Such is the law; he clings to his possession, and he dies without parish relief. This is no imaginary case—it is real, and within my own knowledge.

But it may be asked, why was not this pauper sent to the county infirmary? He had been there and dismissed from it as incurable; yet this family were not so destitute as to be legally qualified recipients of parish relief.

Again, the father of nine children, who with their mother occupy a cabin and two acres of inferior land, lives apart from his family in the service of a gentleman who pays him 10*l.* a year; at most he can only devote to his family 6*l.* a year or less than 2*s.* 6*d.* a week. They cannot subsist on this allowance, being too feeble to till the land profitably, and must surrender both house and land to the landlord to whom they cannot pay the rent. Neither in-door nor out-door relief is available to them unless the father leaves his service and joins his family in the poorhouse, making a domestic group of eleven persons at the cost of about 50*l.* a year to the electoral division, closing the door of industry to the father, and affixing the impress of pauperism on the children and breaking down the spirits of the parents. The mother and children will not be admitted; out of door relief is out of the question under any circumstances. If the Board of Guardians in this case had power and inclination to advance a little money to purchase a little seed Barley and seed Potatoes in the spring, and to pay for a few days' horse-work, the family would have been effectually relieved.

Another case: a married woman was sick. She was urged to go to the union-house, where in the sick and infirm ward she would have received due attention and comfort. But unless her husband would accompany, she was inadmissible; he was then receiving 4*d.* to 5*d.* a day with his diet in a farmer's house: is it common sense to urge a man able and willing to earn his own bread and something for his family, to live in a poorhouse, although all he asks for is temporary relief for his wife during sickness? Take a reversed case. The father of a large family working with a farmer at low wages is seized with fever. The doctor directs that he shall be taken to the fever hospital; the family is destitute in the mean time. An English relieving officer would as a matter of course have offered them relief during the father's illness and convalescence; but the Irish officer, according to the spirit of the harsh Irish poor law, says "You must all go to the poorhouse!" The sick man's wife refuses to comply with the mandate. She says she will beg among her neighbours and remain in her cabin, lest it should be levelled to the ground during the absence of the family, (such an act may be committed) and she clings to her domestic roof, and beneath it suffers terrible privations and bitter want. Does not such a case appeal fairly for commiseration and out-door relief?

ANSWERS TO AGRICULTURAL QUESTIONS.

By Mr. Henry Cox, of Minchinhampton, Gloucestershire.

(*Continued from p. 619.*)

THEORY OF AGRICULTURE.

1.—Name the causes to which the increased fertility of land just drained is to be attributed.

The causes of the increased fertility of land after drainage are so many that it would require a volume to describe them all, but I think you will be satisfied with some of them. It is well known that where water is stagnant in the soil, atmospheric air does not penetrate, and it is likewise known that the roots of plants cannot thrive without this element, but the land having been divested of its superfluous water, the air rushes in and supplies its place, converting noxious ingredients into wholesome food for plants. The roots follow the air and appropriate such food as air and water have rendered fit for them. Secondly, plants are always actuated by heat up to say 75°, and two or three degrees is very beneficial to most plants, that is, two or three degrees above the general warmth of the soil; this draining will effect by carrying down the warm showers and warm air into the soil, besides where a large district is drained the surrounding atmosphere becomes warmer and more congenial to the health of plants. Thirdly, rain, which before draining, was the bane of this land, is now become one of the most beneficial elements in its culture, carrying down to the roots and dispersing through the soil ammonia and other elements of fertility. Many ingredients in soils requiring draining are rendered fit food for plants by the admixture of ammonia. In the latter part of Stephen's Book of the Farm, vol. i., it is said:—"It is well known that iron in solution acts injuriously on vegetation, and Berzelius has shown that the crenate and aprocrenate of the protoxide of iron are both soluble in water, and that the same salts of the peroxide, although of themselves insoluble, are easily rendered so by ammonia." There is yet another cause which still puzzles some of the old school, for, say they, "if the Grass withers in dry weather now, how will it be if the water that still remains is taken away?" This is very simply explained, and if those old farmers will examine their turf they will perceive that the ends of the roots of the best Grasses are all dead or nearly dead at the few inches under the surface where the air has been incapable of drying the soil by evaporation. Hence, in many of those soils the crop is much more likely to be injured by drought than in drained soils where the roots have an opportunity of working to a greater depth; and in very many instances the subsoil contains all the ingredients necessary to fertility except atmospheric air, and draining alone will admit this last.

2. State some of the purposes served by fallow operations on the soil, whether during the growth of the crop or otherwise?

One of the purposes served by fallowing is the destruction of weeds, converting them into manure. Another is the absorption of ammonia from the air, and there are those at the present day who will assert that fallowing alone is sufficient to supply the soil with all the organic matters it requires. Although I cannot subscribe to this doctrine, yet it is quite certain that by frequent stirring the soil is rendered much more fertile, not only by the absorption of ammonia, but also by the ready decomposition of substances that would otherwise have remained insoluble.

3. Describe the economical management of a dung-heap, and give reasons for the several processes you recommend?

In the management of a dung-heap I should be guided by the nature of the soil it is to be applied to; if for a clay or heavy adhesive soil I should use means to prevent as much as possible fermentation, by compression or covering with burnt ashes, &c., because I should like the fermentation to take place in the soil itself; but whether intended for heavy or light land I should take every precaution to prevent as much as possible the escape of ammonia either by washing or evaporation. For this reason I would always make the heap on a bed of some absorbing material—clay ashes are excellent, dry turves are likewise very good. When the heap was finished, and it should consist of all sorts of manures, that of the cow being more likely to retard fermentation than that of the horse, and the dung of pigs being almost too strong of itself, it should be well mixed to the height of 4 to 5 feet, and trodden pretty firm, and should then be well covered by 10 or 12 inches of dry loam or clay ashes or other material that would absorb ammonia given off in the process of fermentation. It has been said that fermentation should be prevented altogether; this I cannot agree with (except in the case mentioned above), because fermentation accelerates decomposition, and ammonia is only formed in the dung-heap during the process of decomposition; this salt, however, being extremely volatile every care should be taken to prevent its escape; if the mass should seem too dry, it should be well saturated from time to time with the liquor from the manure-water tank. If all has been carried out in the right way, it will come out a thick, smooth, buttery, and nearly black mass of very highly fertilising matter, one load of which will at least be worth three loads of that which has been lying about in the yards some eight or nine months, and washed by every shower, and evaporated by every burst of sunshine or wind. I should only resort to turning in cases where it was wanted to be got ready very quickly, and would then choose a dull or rainy day for the operation. A little salt is good mixed with the heap.

4. Name some of the ways in which the application of lime to the soil increases its fertility.

The application of lime to soils varies much according to circumstances, the magnesian limes having been known even to encourage sterility; but when lime is made from pure limestone and applied to many soils it much increases their fertility. Thus when applied to peaty soils it not only forms a manure of itself required by all plants, but it quickly converts the fibrous roots into a powerful manure; it also acts as a sweetener of the soil (which is often soured by stagnant water), converting or neutralising acids, and likewise forming new compounds of fertility by decomposing or uniting with mineral ingredients which in themselves were causes of sterility, or at all events injurious to vegetation; it also is beneficial in destroying Mosses and Lichens, &c., and converting them into food for plants. Another very good service lime renders to land is the destruction of slugs if applied in the right way and at the right time; I counted once on a field very subject to those vermin as many as 300 on a square perch of ground; the lime was applied in a caustic state, very early in a damp warm morning in April at the rate of 6 pecks per acre. Two sowers, one following about five to eight minutes behind the other, will effectually destroy them, and render them as good as a dressing of some sorts of manure.

5. Estimate the money value of a manure per ton possessing the following composition:—

Insoluble phosphate of lime	14.2
Soluble phosphate of lime	12.8
Organic matter	*15.5
Gypsum	32.2
Alkaline salts	2.3
Sand	13.5
Moisture	9 5
	100.0

Taking the value of insoluble phosphate at 1*s.* 6*d.* per cwt.; soluble, &c., at 7*s.* per cwt.; ammonia as found in organic matter at 11*s.* per cwt.; gypsum at 28*s.* per ton; and the alkalies at one-third the value of ammonia, we shall find the money value something like 7*l.* per ton

* Containing 1.6 of ammonia.

6. Explain the increased efficiency of bones as a manure obtained by treating them with sulphuric acid.

Bone earth, especially soluble phosphate, being deficient in many soils, bones are rendered more easily available to plants by the decomposition or setting free the phosphoric acid, which the sulphuric acid accomplishes by uniting with the lime in the bone, and forming a new compound (sulphate of lime).

7. Give reasons for the greater value of the manure from full grown fatting beasts as compared with that from young stock in a store condition.

Full grown fatting animals having no requirements for bone earth, and little for nitrogen, more of these ingredients pass off in the excrement than from young stock, which require the phosphate and lime contained in the food to build up their bony structure, and more of the nitrogenous compounds for the furnishing of flesh and muscle.

8. State the way in which the warmth and quietness of feeding animals are found to economise their food.

It is known that any sort of exercise has a tendency to wear away the superfluous matters with which all animals are provided. We find the hare never get fat while in a state of liberty; neither does the hard worked ox. As those products we call fat must have been intended by nature to supply heat to the body, oil to the joints, and fuel to the lungs, it is reasonable to suppose that the more quiet and reasonable warmth they obtain the less will be the requirements on their food, and the more fat they will lay on.

9. Explain the process by which the addition of rennet induces the coagulation of milk.

There are many other acids besides rennet that will induce the coagulation of milk by causing a certain fermentation, and causing the caseous matter to unite and separate itself from the more serous parts of the milk. Casein being composed of very nearly the same gases as flesh, and the gastric juice of animals being destined to convert food into flesh and milk, being a type of a perfect food containing all the parts necessary to the structure of the animal body, it would seem that rennet prepared from the gastric juice of the calf is the right thing after all for the purpose of cheese making.

(*To be continued in our next.*)

TRIAL OF REAPING MACHINES AT COLDSTREAM.

The competition of reaping machines for the premium of 25*l.* offered by the Union Agricultural Society, came off upon the farm of Mr. Phipps Turnbull, Crooks, near Coldstream, on Wednesday last. The crop operated on, in the first instance, was a field of Oats of a fair average strength, mostly standing well up, the land rising in a considerable acclivity from south to north: the furrows were of a very moderate size, and on the whole the crop was perhaps too favourable for the machines, as presenting scarcely any obstacles by which to test their merits in overcoming them. The machines entered for competition were:—

1. Mr. Melrose, Newbigging—a Crosskill's Improved Bell, with serrated knives, crank movement, and canvas roller—two horses propelling.
2. Mr. Suttie, New Mains, Inchture, Perthshire—a M'Cormack's Machine, with serrated cutters and web delivery—two horses working by side draught.
3. Mr. Crosskill, of Beverley's—Improved Reaper, with serrated cutters, and vulcanised India Rubber belts for delivery—two horses propelling.
4. Messrs. Dray & Co., of London's—Champion Reaper, with patented improvements on the original machine known as Hussey's, with diagonal plain cutters, and back delivery of corn in sheaves—two horses working by side draught.

Each machine was allotted (by ballot) a quantity of corn to cut; and they were each to be wrought one hour unless their allotments were sooner cut down. At the close of this trial the Judges found that the different machines had cut the numbers of square yards in the periods undermentioned:—

Mr. Melrose's, 6510 yards, in 59 minutes.
Mr. Suttie's, 4023 yards, in 60 minutes.
Mr. Crosskill's, 4724 yards, in 42 minutes.
Messrs. Dray and Co.'s, 4654 yards, in 58 minutes.

Mr. Suttie's machine, as well as that of Messrs. Dray and Co, lost some time in repairing breakages, the exact extent of which we were not able to ascertain. In this field the whole of the machines seemed to perform their work most satisfactorily. Mr. Crosskill's machine did the work most beautifully, as also did Mr. Melrose's. Both machines left a clean short stubble, and laid down the corn very regularly, but the horses working them appeared considerably distressed. Dray's and Suttie's machines seemed to be much more easily wrought, arising, as it appeared to us, partly from the horses working by side-draught, instead of by propulsion, and partly from these machines being lighter than those of Crosskill's, and cutting a less breadth of corn at a time. Dray and Co.'s little machine, which we understand costs a great deal less money than the others, was very much admired, on account of the simplicity of its machinery, the apparent ease with which it was wrought, and the regularity with which the man laid off the sheaves from the tilting board; in an average crop, standing well up, we consider this a very efficient implement. Mr. Suttie's machine was also wrought with considerable ease to the horses, and required a less number of hands to work it; it did less work than the

others, which has in a great measure been accounted for by the time required in repairing breakages.

After finishing the work in the first field, the machines were transferred to a field of Oats, adjoining, on the farm of Fireburn Mill, occupied by Mr. Dods. The crop here was a good deal stronger than in the first field, besides being a little twisted, and in some places laid down. Here, as in the first field, the machines cut the standing corn well enough; but it was quite evident that the whole of them will require very great improvement before they can be considered efficient implements for cutting laid corn. Dray & Co.'s machine seemed quite unequal to cutting the laid corn. The two Crosskill's got a little better on; but it appeared to us that Mr. Suttie's machine took up the laid corn better than any of the others. They were all, however, deficient at this kind of work, and we trust the deficiencies which were made apparent on Wednesday will induce the able constructors of the machines to set seriously to work, to endeavour to remedy the defects before another season.

At the conclusion of the competition the judges, Messrs. Maddison, Wandon; Dudgeon, Spylaw; Brack Boyd, of Cherrytrees; Dove, Eccles Newtown; and Dr. Murray, Kersknowe, resolved to divide the premium between Mr. Crosskill and Mr. Melrose. The judges, at the same time, commended Mr. Suttie's machine as having taken up the laid corn in a superior manner to any of the other machines.

It has been suggested that at future exhibitions of this description, each reaping machine should be attended by a staff of hands and horses of its own, strong enough for efficiently working it, to enable the judges to ascertain, not only the exact amount of work which each machine is capable of performing, but also the cost at which the result is attained. This seems necessary to enable farmers to make a just comparison of the merits of the different machines, as well as to ascertain whether or not reaping by machines will be really more economical than doing the same work by the ordinary sickle and scythe. *Kelso Mail.*

ON PARMESAN CHEESE.

THE city of Parma, which originally gave name to the celebrated cheese called Parmesan, is situated on the south side of the river Po; but the best and by far the largest quantity of cheeses sold under that name are made near Lodi, on the north side of the Po. The distance between Parma and Lodi is something more than 50 English miles. The river Po, which flows from west to east, bears to the Adriatic Sea the immense body of waters which flow down the southern side of the Alps, on the dissolution of the snows, in each successive summer. The earliest accounts of this river represent it as occasioning at these periods great inundations, and for many miles in breadth on each side there were vast marshes which at present, by the skill and industry of the inhabitants, present some of the very richest pasturages which are known in Europe. In those parts of its course where the river used heretofore to spread desolation and ruin the waters have been confined by immense mounds, or dikes, resembling in character the banks of canals, which have been carried across valleys, where the bed of the former is elevated above the level of the country which it traverses. The quantity of mud which is brought down by the waters of the Po gradually raises the bed of the river, and the banks are from time to time raised and strengthened to confine the waters. Were they now to burst through their bounds the superb pastures on each side would be again laid waste. These flat districts, consisting of rich alluvial soil, bear a considerable affinity to alluvial districts in our own country, but the fields are divided by trees of far more luxuriant growth, and commonly overrun with Vines, bearing fruit to the very summit of the trees from which they hang. In summer the foliage is so dense that the view seldom extends beyond the first or second field along the roadside, and the monotony of the prospect becomes wearisome.

The cattle which are employed in these rich pastures of Lombardy are renovated by the introduction of new blood, principally from Switzerland. The old Italian breed, or, as some termed it, the Hungarian breed, had remarkably long twisted horns, with pale mouse-coloured skin; the best Swiss breeds are short-horned and dappled like the Ayrshire breed. The Swiss cattle in general are good milkers; but they do not last in profit more than four years or so in the hot plains of Italy.

For the formation of a Parmesan cheese the milk of from 50 to 300 cows is required, and as there are no individual farms affording such an extensive stock of cows, it is customary to form a partnership account and to set up a cheesemaker, who manufactures for the neighbouring district. This man is provided with a house and some land, and has the sole management and direction of the process. He is virtually the servant of those who employ him, and liable to be removed if his cheeses do not turn out to the satisfaction of the neighbours. It is necessary, also, that he should be a good accountant, keeping an exact registry of the milk daily furnished by each of the parties, and giving each credit for a proportionate share in the cheese of the day, which is carefully numbered and in due time weighed. In this system good faith and probity are necessarily implied, for without them it could not continue; at the same time the parties interested are, in some measure, a check on each other, having full opportunity daily of observing the quality of the milk which is contributed, and which is brought morning and evening at a given hour to the cheese factory. It is one of the very beautiful rural sights of the north of Italy, to mark the arrival of the milk-bearers coming in from every quarter with extraordinary punctuality, and the groups gradually increasing as they congregate near the cheese-house. The milk is borne on the head, commonly by males as well as females; all are generally neatly dressed, and the daily meeting leads to little intimacies which have their pleasures and enjoyments. The people, I observed, were in every instance extremely well behaved, and appeared cheerful and happy. The evening milk is brought in late, and that of the morning early; in each case to avoid the intense heat of the sun.

The evening milk is set for cream, and it is only the skimmed milk which is used for making the cheese; but the whole of the morning milk is used fresh—the skimmed milk of the preceding evening being added to it, and the process of cheese making begins as early each morning as the mixture of the evening and morning milk can be effected. It is stated that if the evening milk was not deprived of its cream, the cheese would be too rich and soft, liable to maggots, and would not keep; but there were, nevertheless, occasional exceptions to this rule, dependant on the quality of the milk and the nature of the pastures—the poorer qualities of milk admitting of a mixture of the evening cream. It is in these matters that the cheese-maker principally displays his knowledge.

1. The first part of the process, after mixing the two milks, is to heat the whole in a large boiler. The same custom of heating the milk prevails in Switzerland. The bottom of the boiler is the gauge for the size of the cheese, and the sides expand in a curve. The following figures give the dimensions in inches:—

Upper diameter	54 inches
Lower ditto	20 „
Height or depth	40 „

The boiler has a strong iron moveable handle, by means of which it is suspended on a swinging bar or crane, which turns on a vertical axle. By means of this crane the boiler or cauldron can be readily moved off or on the fire as occasion requires. The fire is made below the level of the floor; and it is guarded by a semicircular wall or back which is made to fit the boiler, so that when the boiler is brought to swing over the fire, the spreading upper rim covers and rests on the top of the back wall and checks the issue of the smoke, which is carried by the draft of air in the front up the chimney and flue which is constructed in the back wall. The fire is made with faggots, and the heat can be regulated very easily, either by increasing the blaze, or drawing out the fire, or by swinging the boiler round off the fire altogether.

2. After having been heated so as to bring a thick skim to the surface the cauldron was swung round from off the fire; and having been left to cool to a certain temperature the rennet was added.

3. The rennet is prepared at the city of Piacenza, situated about half-way between Lodi and Parma, where they are celebrated for it. A small ball of it, about the size of a large Orleans Plum, was rubbed down in a sieve with some of the boiled milk into the caldron; and such parts of the rennet as did not pass through the sieve were thrown away. The refuse appeared to consist of some thin pieces of skin merely. The milk was tepid when the rennet was added, and it was left to stand for an hour and a half, at the end of which time the milk was coagulated.

4. When the coagulation was very decided the cheese maker took out a portion in a thin wooden bowl, and seemed carefully to examine its weight and consistency. He waited a while longer and made a second trial, when matters proving satisfactory, the whole mass in the cauldron was cut up, first with a sharp shallow wooden bowl, as far as the arm could reach down, and then with an instrument in shape like a churn staff or dash, except that the circular head was thinner and was not perforated.

5. When the curd was pretty well cut up, a dose of saffron was thrown in for colouring, after which a Thorn brush was used for dividing the curd still more minutely, and producing the granulation by which these cheeses are distinguished by name in Italy, not being called Parmesan, but *Formaggio di grano*, that is granulated cheese. The Thorn brush is selected with a convenient straight stem, and the branches after being bent inwards, are drawn together and tied by bands of cord. It appeared a very simple and most effectual implement for the purpose, and in the hands of the operator the curd was reduced to small grains after about 20 minutes of pretty active work constantly stirring. The points or extremities of the branches are all laid the same way towards the leading one.

6. After the granulation of the curd was complete, the fire was again made to burn brightly, and the cauldron having been swung over it was left until the contents were too hot for the hand to bear. It was then removed from the fire and left to stand until the whey became quite clear at top.

7. The instrument like the churn dash, with a circular hand, already described, was now used again for the purpose of compressing the granulated curds, and forcing them downwards into the receptacle or gauge at the bottom of the boiler. After this operation it was allowed to stand for a considerable time, during which it was becoming more compact and coagulated.

8. Next was used an instrument like a small thin oar, or what is called a paddle, which was put down so as the blade might go round the curd at the bottom of the cauldron and prevent it from adhering to the sides of the vessel. Then after being detached the curd was again patted down with the former rounded-headed instrument, and this was repeated several times until the mass was brought into a desirable state for being removed from the whey. Then it was gradually and carefully worked up to the surface principally by means of the paddle and the staff, and finally caught in a cloth, hauled out by hand, and deposited in a flat round vessel of the size of the cheese, and then carried to the press-room, which was much on the plan of those in use in Switzerland, England, and other cheese countries.

The process which I have described I was an eye-witness of on the estate of an old acquaintance, in the territory of Parma. We set out at six, and when we arrived found the milk in the cauldron over the fire. The operations were not over until late in the afternoon.

The cheese here commonly weighed 3½ *pesi* of 25 lbs. each; that would be 87½ lbs. each cheese. The number of cows for such a cheese, taking one with another, would be about 100. But if each cow was in full profit 70 cows would be enough for such a cheese.

The cheeses are not sold until after six months' keeping in the store-room. The most valuable large cheeses are enclosed in leaden cases for exportation. But these are the very large cheeses made about Lodi, and which are mostly exported from Genoa. [The above, written some years ago, has been extracted from the manuscript journal of a tourist.]

LEAF FEEDING.

IN the good old times when farmers were satisfied, without farther inquiry, with what was brought before them most obviously; when they prided themselves in jogging on in the way their fathers had trod before them; when kind Nature was allowed to work out her own work without any impertinent attempts to assist her, or rather when she was considered an annoying jade who continually thwarted them and compelled them to be ever in battle array against her; when a descent into the laboratory she was working in under their feet with ceaseless energy would as soon have been contemplated as a plunge into Etna or a trip to the infernal regions; Nature, or rather Nature's God, gave what man in his misjudging regarded as a curse, but a blessing in disguise, that weeds should spring up among the crops he cultivated for his daily bread, and that they should obstinately contend with the interlopers for their natural rights, and assist with indigenous power their demands on the sustenance their mother earth contained in her bosom; man was then compelled, in his attempts to extirpate these denizens of the soil, unwittingly to assist Nature in effecting more rapidly the changes she was making in the crude materials of her laboratory. Now, however, thanks to the lights which have broken in upon us, there are some of us who begin to believe that something more is done than the destruction of weeds in the operations we undertake with that view, that in rendering the soil pervious to the influence of the air above it, of the dews that fall on it, our manipulations assist the labours of Nature in reducing to fertility matters else unfit to afford nutriment to the cherished children of our cares. Yet still there are few, very few tillers of the soil who are not governed in their surface stirrings alone by the appearance of weeds; few, very few, indeed, are there who work the soil merely to assist Nature, and fortunately, or rather providentially, weeds spring up so rapidly that the attentive destruction of them, desultory as it is, is very aiding to the chemical actions going on. How far more repeated workings of the surface would increase the fertility of the soil is yet to be tried. Mr. Smith, by the amount he bestows on it, is able to obtain repeated crops of Wheat; the question is, would not still more frequent stirrings render such an amount of inorganic matters soluble, and cause to be absorbed such an amount of organic ones, as would give a fertility sufficient for green crops. It is vain to calculate the quantity of ammonia in the superincumbent atmosphere that may fall on the earth in the 12 months, the thing is to render a field capable of absorbing all that falls on it; under ordinary, nay, under the best tillage, no field drinks up all nor anything like it, while those which are allowed to remain unworked take in but very little, perhaps no more than a part, and a very small part, of what very heavy rains bring down, for much of it runs off by the furrows into the ditches and water streams; all that falls on such land in dews and light rains evaporates and ascends again into the air, to fall on other fields. Evelyn, I think, said long ago that a crude and inferior under soil dug up and turned every month for a year would become fertile earth. What would be the effect on a field whose surface was never allowed to reject atmospheric inflow? About 12 years ago I proposed an experiment with Barley by hoeings weekly, by the fortnight, and monthly, and left unstirred, but I was disappointed.

But I think there are other and greater advantages gained by repeated hoeings of a growing crop than the destruction of weeds, the admission of oxygen to act on the carbon on the soil, the inflow of atmospheric or organic elements to form soluble combinations with the inorganic constituents of the soil, or the disintegration, which is an effect of the manipulation. The older readers of the *Agricultural Gazette* may recollect that under the head of "Application of Manure" in the year 1844 I offered views on this subject which have never been controverted. I therein submitted that plants received food by their leaves in the ascending flow of nutritive matters from the soil, and that the more continuous was the supply of these matters, and which would be given by every breaking up of surface, the

more luxuriant would be the growth of plants so fed. If in this I am correct we are here offered a very strong reason for very repeated hoeings, indeed repeated as often as the surface shall become by any means so closed up as to prevent the ascent of gaseous fluids.

I think there are very strong, perhaps incontrovertible arguments in support of this opinion. The pores by which leaves receive gaseous matters appear to exist in their under surfaces, and therefore most convenient to receive an upward current; and it is said that when leaves have been by man's hand reversed they have not thriven till by their own effort they have recovered their original and natural position.

That such gaseous fluids do proceed from fresh stirred ground is evidenced by our very sense of smell. But the probability of all, even the inorganic constituents of plants being so supplied to the leaves of plants from the soil is much sustained by the following extract from Liebig's "Chemistry of Agriculture." How much more wonderful and inexplicable does it appear that bodies which remain fixed in the strong heat of a fire have under certain conditions the property of volatilising and, at ordinary temperatures, of passing into a state in which we cannot say whether they have really assumed the form of gas or are dissolved in one. Steam or vapours in general have a very singular influence in causing the volatilisation of such bodies, that is, of causing them to assume a gaseous form. A liquid during evaporation communicates the power of assuming the same state in a greater or less degree to all substances dissolved in it, although they do not of themselves possess that property.

"Boracic acid is a substance which is completely fixed in the fire; it suffers no change of weight appreciable by the most delicate balance when exposed to a white heat, and therefore it is not volatile. Yet its solution in water cannot be evaporated by the gentlest heat, without the escape of a sensible quantity of the acid with the steam."

Now, if it is possible that the matters composing a plant be received by the leaves, and that its roots do descend into depths, under favourable circumstances, at which soluble matters must exist in smaller amount than they do in the medium through which they have passed to reach such depths, does it not become very probable that with the exception of water they are much nourished by what they take in their leaves, if not more so than by what they can receive by their roots.

But it might be said the cost of these frequent stirrings would exceed the profits. I think not, for the stirrings need not be but superficial, sufficient only to break the crust, and again the profit would not rest with a present increase of crop, nor even in the increasing fertility of the soil, but in the disposition it would give to that produce, as seed for future crops, to a continually augmenting productiveness. I firmly believe that the adoption of a system founded on this principle would give us so much greater harvest returns as would enable us to grow corn enough for our population were it much higher than it is. I know it would in Ireland. It would indeed give us the "sort," and we should in its production avail ourselves of the "circumstances." *J. M. Goodiff, Scrably, Co. Cavan.*

Home Correspondence.

Steam Cultivation.—About nine years ago some agricultural machinery was patented by Lieutenant-Colonel Sir John Scott Lillie, of Fulham, Middlesex, the most novel feature being the employment of a fixed drag-rope (secured at both ends of the field by grapnels), along which a travelling steam-carriage propels itself backward or forward by a rigger of peculiar shape. Now as in the recent invention of Messrs. Fisken a ploughing-machine is propelled by a grooved rigger winding, as it were, along a fixed rope (though its claim to originality does not rest on this point), it may be advisable to mention some early applications of this idea. In 1812, Messrs. Chapman patented a method of "facilitating the means and reducing the expense of carriage on railways and other roads," which chiefly consisted in the use of a chain (or it might be a rope or band) stretched along the road, and properly secured at each end, and at suitable intervals, and in the passing of this chain round or partially round a barrel or grooved wheel in such a manner as not to slip when this wheel, which is attached to and actuated by a locomotive engine, is put in motion. The chain may be tightened at each end by small horizontal barrels or windlasses; and at intervals along the road are placed Y's or forks, into which the chain falls; so as to hold it firmly against the horizontal strain of the travelling engine and yet allow it to rise in order to pass round the rigger. The chain may be passed one or more turns round a barrel having chocks or wedges like those of a capstan, so that the chain slides into its proper position without overlapping itself; but the patentee proposes to pass it partially round a rigger having an angular groove fitted with V forks to keep the chain from slipping; the chain being turned back upon two guide sheaves, so that it does not cross itself, like the cord of a drill-bow. As a further precaution against slipping, a couple of compressing wheels are provided, to press the chain tightly into the groove on the retiring or slack side; each of these wheels being set in action alternately according to the forward or backward motion of the carriage. Another part of the scheme was to use an endless chain of limited length for travelling an unlimited distance; the chain being continually laid down some 50 feet in front of the engine in the Y forks on the road, and taken up by the rigger (if a rope be employed it must have knots about it for the forks to hold by). The principal intended use of the invention was for conveying coals from the Durham collieries; but travelling upon common roads, on stoneways purposely laid, and at a speed of 7 or 8 miles an hour, was also proposed. For a time this scheme was put into practical operation at the Heaton Colliery, but failed, owing to the waste of power arising from the excessive friction of the chain. This failure of the principle for rapid locomotion, however, forms no valid objection to it when applied to the short journeys, and at the slow pace of field implements, particularly where we have a different construction of details. On July 23, 1846, Peter Claussen patented an arrangement of riggers for propelling boats, implements, &c., by a fixed rope, in which the sawing action resulting from crossing the rope, and the excessive friction caused by the guide-pulleys and other contrivances for guarding against this wear appear to be mainly avoided. Instead of a single grooved rigger, the patentee employs two, arranged with respect to each other like the letters O O, the rope being passed first under both, then up over both, and then again underneath them, in the same way as with common pulleys, thus lying in the groove on only the outside half (as it were) of each rigger. The length of rope in contact with the riggers will be just the same, therefore, as if it passed one turn round only one rigger. It is evident that as the rope is kept distended in a loop by the riggers it has a tendency to draw them close together, which would cause considerable friction if their axles were merely supported in bearings; but affixed to each is a friction-wheel of about the same diameter as the rigger; and a third friction-wheel being interposed between the two, holds them apart, so that all the stress is taken with a simple rolling instead of rubbing action. The rope is fixed, say, at each end of a field, and tightened to prevent slipping; and upon motion being communicated to one or both riggers, they travel along the rope, taking their bearing-frame and connecting machinery and implements along with them. By having double grooves on each rigger, and compressing rollers to nip the straight part of the rope as it passes beneath the riggers, there will be no necessity for tightly stretching it, though the wear of the rope will be greater. It is very possible that this clever arrangement may be inapplicable for propelling boats and barges on rivers and canals, or vehicles upon roads and railways (as proposed by the inventor), but for short distances in which the tension of the rope can be maintained, I can see no valid objection against it. But to come now to Sir John Lillie's invention: he passed his rope one turn round what he calls a "whelp-wheel,"—that is, a wheel furnished with projections on each arm having notches in which the rope is firmly held; and these projections were adjustable in slots, so as to lengthen or shorten the radius between the notches and the axis in order to vary the speed of progression. The whelp-wheel geared with a pinion on the crank-shaft of the engine, and could be turned either way, to propel the carriage backward or forward. The carriage had two sets of travelling-wheels; namely, three fixed in a straight-forward direction, and three transversely for moving sideways upon the headland. Two of the latter were "lifting-wheels," being raised or lowered by means of screws attached to one end of their axles. Instead of this arangement, however, the carriages might be hauled on light platforms running on rails at right angles to the direction of the work, and then be drawn sideways by means of "crabs," in orderto take up a fresh line of ground. To facilitate the onward movement of the machine, an endless railway was provided for the bearing wheels, consisting of broad flat pieces of iron or wood connected to each other by hinge joints, and passing round square-stave or skeleton drums supported by the frame work of the carriage before and behind, and these self-laying rails were preceded by small double mouldboard or ridge ploughs, which cleared level furrows or paths for their reception. In certain cases the patentee proposed to draw the cultivating carriage by a travelling rope, band or chain passing round drums attached to steam-engines at both ends of the field; the two engines being shifted forward at intervals upon temporary rails. In other cases he would use only one steam-engine stationed on the headland and working an endless rope by means of a drum or whelp-wheel; the rope passing round a pulley upon a movable platform at the other end of the field. The mode of anchoring is worthy of note as bearing a strong family likeness to that employed by some subsequent inventors; the grapnels are made to hold in the bank of a ditch or other cutting, a plank being placed between them and the upright face of the trench. Here we have the principle of a long plate presenting its resistance side-ways in a shallow hole or furrow. With regard to the tilling part of the machine, any traction implements may be attached; and by extending shafts or arms on each side the carriage several ridges or lands may be acted upon by the carriage traversing up and down the same track. But the inventor particularly claims a revolving tiller, consisting of an axle extending across the carriage frame, and around which are fixed radial or curved pins like harrow-tines, hoes, or other suitably shaped points for breaking up the land; and by means of a pinion upon the end of this axle gearing with a spur-wheel bolted to one of the bearing-wheels of the carriage (or with the whelp-wheel according to convenience), it is driven with considerable velocity. It appears that the teeth would pass through the soil in the direction of the machine's advance, and thus have a tendency to retard it. Coulters or cutting irons also, attached to the frame, preceded the revolving instruments, and by scarifying or slicing the land into narrow longitudinal slips, facilitated their comminuting action. Another part of the patent refers to a mowing apparatus, consisting of horizontal scythes fixed upon endless straps or chains, and brought rapidly across the front of the machine as it slowly progressed. *I. A. C.*

Reaping Machines.—The adjourned trial of reaping machines at Boxted Lodge proves that the makers have disregarded the pointed criticism of Mr. Fairbairn upon the engineering qualities of their machines, and set at nought the valuable suggestions and instructions afforded them by that talented engineer in his official report upon that class of implements at the Paris Exhibition in 1855. The judges "regret to observe that very little improvement has been made in this class of machines since last year." Your readers may also lament that the judges (practical men) suggested no improvements, but threw the wet blanket over progress by scattering the rewards of the Society upon "stand-still" machinery—upon imperfect implements, showing no improvements since last year's exhibition and award. Having extensively used for the last three years the machine considered by the judges for "reaping only decidedly the best machine," I feel that good service may be done by stating its defects discovered in practice. I do not find fault with the work performed; the stubble is well and evenly cut, and the straw is generally laid conveniently for the binders; the American's clever invention deserves our warmest thanks, but I regret being unable to award an equal meed of praise to our mechanists in the construction of the machine. The amount of friction caused by the working of a rapidly moving crank by small gearing keeps the bearings heated, and calls for the power of three strong active stepping horses to give the velocity required to prevent the choking of the knife. The driving-wheel being closed permits the accumulation of earth, causing dragging when the soil is in the least damp, and prevents the use of the machine long after the grain is dry and ready for cutting. The above objections are so fully met by Mr. W. Fairbairn in the report alluded to, that I shall be glad if you have space in your valuable journal for his concluding observations to stimulate the machine makers and to remind judges of their short-comings. "On a careful examination of the several machines entered for the prizes, it will be observed that in every one of them an attempt was made to effect a certain purpose by certain means of transmission, calculated to retard rather than facilitate the progress of cutting. In machines of this description where horses are employed as a motive power, it is desirable to make the action as easy as possible, and to effect the motion of cutting, reaping, &c., with as light wheels and gear as practicable. Now, these small wheels and their attachments at present in use appear to me to be the very worst and heaviest parts of the machine, and I would earnestly urge upon the makers of reaping machines the absolute necessity of increasing the diameters and dimensions of the gear which works the cutters, and at the same time to fix and attach the journals and ends of the shafts into one casting, so that they cannot vary in position, but must move, and, technically speaking, go and come with the machine. These alterations being made, the proper clearing apparatus being attached to the receiving boards, we might then look forward to the labours of the harvest being performed with much greater certainty and effect than is now accomplished by the present means." *R. S. G., Mells.*

Common Things.—Among the common things connected with agriculture, good roads on a farm are of the greatest importance, and yet how generally are they neglected. The difference of power required to move a loaded waggon on a turnpike and through a common country lane is very considerable; the strength of an additional horse is necessary to drag the vehicle over a bye-way. Independent of the advantage of having an easy communication with all parts of a farm, as well as the public road leading to market, the saving in wear and tear where the lanes are in tolerable order is great. Repairing roads being an operation which may be performed at any time of the year, when labourers and teams are not otherwise employed, it cannot be considered a costly work; indeed, the preservation of horses, harness, &c., will balance the account of £ s. d. The satisfaction of feeling the animals suffer less and do more on good than bad roads, and knowing the farrier's, wheelwright's, and saddler's bills diminish under the improved system, will amply compensate the farmer for his outlay. As to materials, anything hard will answer the purpose—even filling the ruts with the stuff squeezed out will be better than nothing.—The fact cannot be too often repeated that there is no manure equal to that made in the farm-yard if properly attended to. The mixture generally consists of the refuse from cows, horses, pigs, &c., and different kinds of straw. At certain intervals, depending upon the quantity collected, the manure should be turned over once with layers of road dirt, ashes, or burnt weeds, particularly one at the bottom about 6 inches deep in order to catch the drippings, and also one at the top, to prevent evaporation. If the weather is dry during the operation of putting together, a soaking with manure water will improve the compost. Some doubts may exist as to to the fertilising power of the drainings of the farm-yard, collected in tanks and distributed over Grass land. In the winter of 1855 and spring of 1856 a small piece of pasture was dressed five times with

manure water, which had been kept in a closed reservoir for some weeks, and was exceedingly disagreeable during the process of carting out. The effect was not such as to warrant a repetition of a similar experiment, indeed a portion of the same land covered with manure from a heap once turned over produced twice the weight of Grass and Clover. Mr. Mechi's success can scarcely be classed under manure watering, as it is usually understood, but may more properly be denominated dressing with animal soup, his tanks receiving dead carcases, &c., which are mixed together by the action of a powerful steam-engine. It is a question whether common manure-water has not a more beneficial influence on arable than pasture, the former absorbing the moisture rapidly. When a prepared manure-heap has to remain some time before use, it is recommended to cover it with thatched hurdles placed as a span roof which would throw off the rain and snow. *Falcon.*

Miscellaneous.

Horn Dust.—Very considerable variety occurs in the quality of this substance, owing to the intermixture of sand and other impurities. The two analyses which follow illustrate this very clearly :—

	I.		II.
Water	8.17	...	9.85
Organic matter	85.11	...	65.17
Phosphates	3.58	...	3.84
Carbonate of lime	1.15 }	...	4.85
Alkaline salts	1.35 }		
Sand	0.64	...	16.29
	100 00		100.00
Ammonia	15.68		10.89

The first consists entirely of horn in a state of great purity, but the second contains 16 per cent of sand, and a much smaller quantity of ammonia. The former, reckoning the ammonia and phosphates at the usual rates, is worth exactly 9*l.* per ton, and the latter only 6*l.* 7*s.* *Professor Anderson in Journal of Agriculture.*

Calendar of Operations.

SEPTEMBER.

BERWICKSHIRE MERSE FARM, *Sept.* 8.—At length is harvest commenced, but it is beyond mortal foresight to say when it will end. Looking at the green Wheat—not an acre cut, nor likely soon to be—with the present unfavourable weather, one might seriously wonder when the new crop could be secured, and in what condition. The heavy rains that ushered in the month of August had less injurious effect on the Wheat than on the other cereals, but the very cold east winds following brought everything to a standstill; and, consequently, at our usual starting time (the 25th day) we were shocked at the sickly green hue presented by the fields. It was only during the week just closed that cutting became general, and it is a common remark that seldom has corn been cut so green, for people have got tired of waiting so long for it. The weather was for a few days all that could be desired, but too bright to last, for on Saturday morning we awoke to all the horrors of a sea fog, which gradually drew to rain, and heavy too at night. Yesterday was a day of unmitigated rain, and much Wheat which stood its previous trials has succumbed at last. The sky is still cloudy and unsettled, and the sun at intervals scorching, so that unless we have a good rousing breeze immediately the soaked Barley sheaves will be in great danger of sprouting. The preliminary portion of our statistical returns, just published, indicates a large annual decrease in the extent of land under Barley, a fact that has enhanced the value of that grain to an extraordinary extent, and with a continuance of humid weather may raise the price still further. Oats, where sound, are a much better crop than was expected from their appearance at Midsummer, having profited by the earlier rains; but a considerable extent of the Potato variety was attacked by grub, and, as usual, totally destroyed. Though the entire Wheat break is unusually late, still the earlier portions, with propitious weather, promise a good crop. The great extent of late spring Wheat is "as green as Leeks," and no conjecture can yet be made as to how it will stand the many vicissitudes of its homeward career. The rains have much improved the later sown Turnips, and the crop generally will be much better than was anticipated. Above all there is no "finger-and-toe." This, we think, must be attributed to the rapid advance of draining and liming, operations that have long been familiar here, but have been kept in abeyance by want of capital consequent on the ruinous prices which followed the year 1847. Potatoes have been hitherto strong and healthy, but begin in some places to show the blight. The hay crop stood a very long time a-field, after being indifferently made, and was not finally stacked till the middle of last month. The almost total failure of Clover makes it but very middling provender. Thick fog again to-night, and no sign of wind. *J. T.*

Notices to Correspondents.

ALGAROBA PODS: *Correspondent.* It is said that there is an objection to their use for horses in the insufferably bad smell they produce in the stable.

CAPONS: *Correspondent.* The operation is out of date both as regards the fashion and as regards the season of the year. An experienced operator so early as the middle of last month chose only three out of six birds for it, and of these three one died.

JERSEY COW: *E T.* Mr. Spooner will perhaps be able to advise you next week.

FUNGI IN GRASS: *W I.* We have to make an inquiry and will answer next week.

NAMES OF WHEAT: *L O.* We cannot be sure of obtaining different kinds, because they bear different names. The "Kentish High Back" and the "Golden Drop" are we believe the same. Bristol Red we have, but are not acquainted with any so called "Kent Red." Browick Red and Spalding's Red are we believe different—they are very productive though coarse. Tiney's Success is very productive and not so coarse. Your safest and best plan is of course to obtain it from Mr. Tiney himself, who is bailiff to General Arbuthnot, at Woodford, near Kettering.

POTATOES: *Curle.* We would apply the guano when planting, and the salt broadcast over the surface of the land during wet weather afterwards. 3 cwt. of the former and 2 cwt. of the latter will be a good dressing. Superphosphate of lime is not nearly so good as guano for Potatoes.

POTATO DISEASE: *Bushey.* If it appeared in growing Potatoes we would watch the crop, taking care that the advantage of growth was not balanced by rapidity in the progress of the disease, dig up when the crop was most valuable, and boil the bad Potatoes, storing them up for pigs.

POULTRY: *T S* Choose them for plumage and shape. The cock must have a broad black breast, fine head, brilliant eye, rather long legs, large wings sitting close to the body, a long glossy black tail, saddle feathers of a very bright red. The pullets must be neat and match well in every respect.

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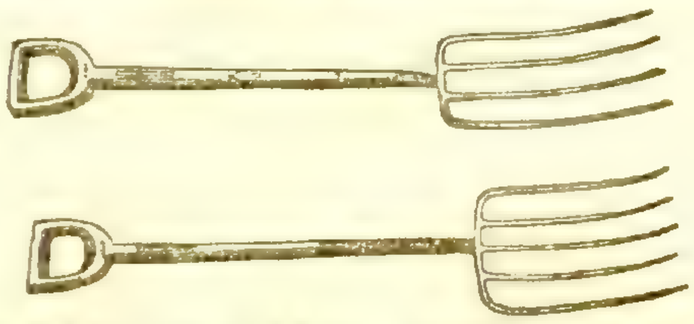

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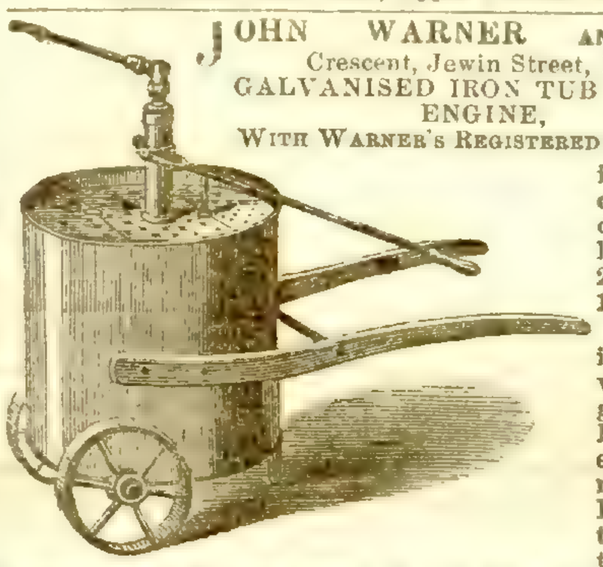

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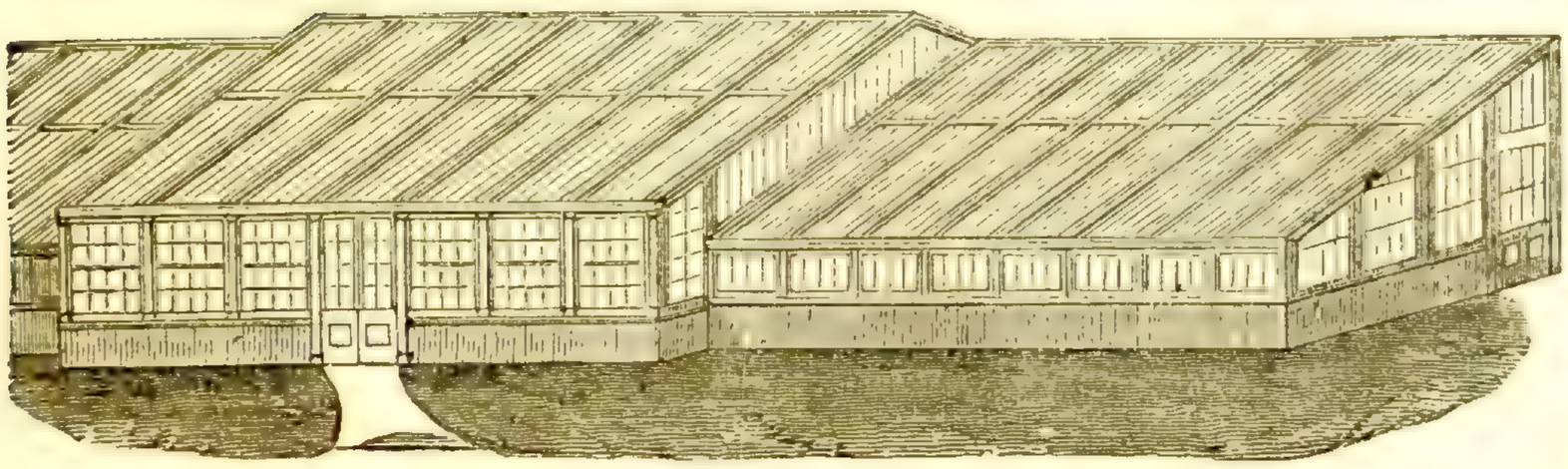

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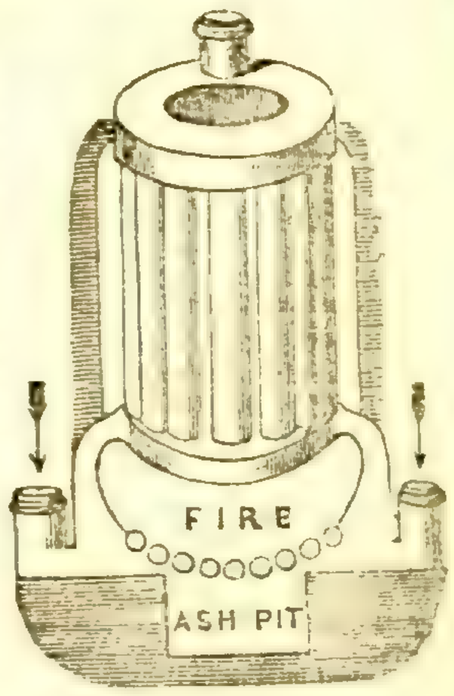

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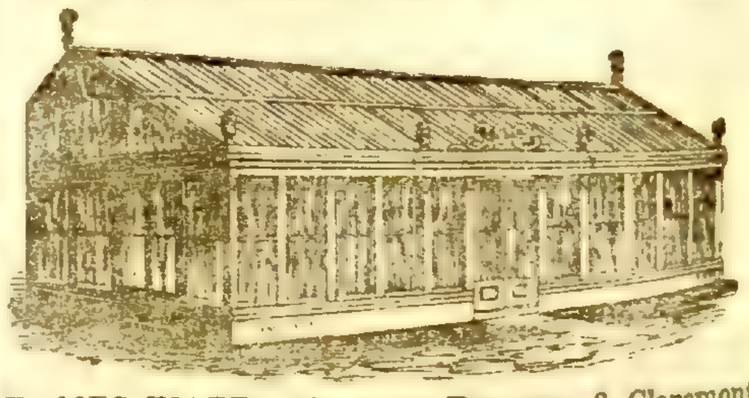

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 39.—1856.] SATURDAY, SEPTEMBER 27. {Price Fivepence. Stamped Edition, 6*d*.

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— — plant sale	647 *b*	Tobacco	646 *b*
Irish statistics	650 *b*	Village Hort. Societies	646 *a*
Lawns and daddy long legs	645 *c*	Vine borders, covering for	648 *c*
Manure, sulphate of iron as	646 *a*	Wellingtonia, history of	643 *c*
Methylated spirits, report on	646 *c*	Wirksworth Farmers' Club	652 *a*

BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, October 2, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD. HORTICULTURAL ERECTIONS on the best improved principles.

*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

WILLIAM SHORT, LANDSCAPE and ORNAMENTAL GARDENER, 21, St. John's Wood Terrace, Regent's Park, London.—Ornamental Ground Works, Planting, &c., taken by contract or otherwise. Unexceptionable references can be given.

RAILWAY NURSERIES, WATFORD.—Noblemen, Gentlemen, &c., can be *well* supplied with every description of NURSERY STOCK of the *finest quality* and on the most *reasonable* terms, by E. R. GREENUS, at the above establishment. Three minutes' walk from Watford Station.

NEW AZALEA.

GAINES'S "ROSEA ALBA;" colour rose, with deep margin of pure white—a large fine shaped flower. The above gained a first-class prize at the Horticultural Show at Chiswick. Plants, 15*s*. each.

NEW AZALEA.

GAINES'S "NAPOLEON THE THIRD;" colour, crimson rose; a great improvement on the seedling he sent out under the name of Holfordiana, being much larger and of greater substance. Plants 15*s*. each.

NEW SEEDLING CAMELLIA.

GAINES'S COMPACTA ALBA.—Form very fine; petals smooth, and finely cupped; medium size; substance, stout; colour, white with creamy centre. It obtained a First Class Certificate at the National Floricultural Society's Show, March 27. Price, good plants, 21*s*. each.

P.S GAINES's Importation of Dutch Bulbs are very fine this season.—Nursery, Surrey Lane, Battersea.

HOLLYHOCK SEED.

CHATER AND SON offer the above, saved from their best flowers, in packets of 200 seeds, 1*s*. 6*d*., or 18 varieties, separate packets, named, 5*s*. Also strong plants in pots of the leading sorts of Hollyhocks and Pansies now ready. Price on application.—Nurseries, Haverhill.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Sept. 27.

CHRYSANTHEMUMS, CAMELLIAS, FERNS.

CHANDLER AND SONS have now ready for sending out fine bushy plants both of the large and small varieties of CHRYSANTHEMUMS, from 9*s*. to 12*s*. per dozen. Also fine healthy young CAMELLIAS well set with flower-buds, 30*s*. per dozen and upwards. A great variety of FERNS at moderate prices.—Wandsworth Road, Vauxhall.

CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, is sending out young Plants of 15 of his best half Shrubby Calceolarias, which were so much admired this season. Price 21*s*. the set, hamper included.

Choice Calceolaria Seed, 2*s*. 6*d*. per packet. From unknown correspondents a Post-office order is respectfully requested.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery Bagshot, Surrey.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, said to be the finest ever yet offered to the public, for which he begs to refer to his Descriptive Prospectus and Testimonials of Nurserymen who have grown them for trial. Price 15*s*. the set.—Address, Mr. E. RAPER, Florist, 53, Regent Street, Leamington

FOR PRESENT SOWING.

NEW SEED JUST HARVESTED.

ITALIAN RYE-GRASS, TRIFOLIUM INCARNATUM, PERENNIAL WHITE CLOVER, | MUSTARD, RAPE, COW GRASS, PERMANENT PASTURE GRASS SEEDS.

SUTTON & SONS, Seed Growers, Reading.

TRIFOLIUM INCARNATUM.

TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

HOME GROWTH.

NEW EARLY WINTER VETCHES.—*This is a very superior sort, and comes* TWO OR THREE WEEKS *earlier than the common variety. The Subscribers can strongly recommend them.* Price 25*s*. per bushel, or 3*s*. 6*d*. per gallon. Only a few bushels remain.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s*. per bushel.

Address Mr. H. RAYNBIRD, Basingstoke.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

STRAWBERRY PLANTS. — CUTHILL'S three sorts, sure and great bearers. See former Advertisements. Also his three Pamphlets. New Cucumbers, &c.

JAMES CUTHILL, Denmark Hill, Camberwell, London.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

STRAWBERRIES. — Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40*s*. per 100, or 6*s*. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready. —Apply to R. S. YATES, St. Ann's Square, Manchester.—Sept. 27.

THE FILBERT PINE STRAWBERRY.—This variety has now been proved at the Royal Gardens and other places to be the best and most useful Strawberry grown. It produces very little foliage, is exceedingly prolific and rich flavoured, firm, and comes in with the British Queen, and remains in bearing until very late. It is a most valuable variety for the northern districts, as it produces very little more foliage than the Black Prince, and there is a certainty of getting a crop from it. Plants now ready, 7*s*. 6*d*. per 100.

CHARLES TURNER, Royal Nursery, Slough.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

FINE HERBACEOUS PHLOXES, blooming from June till November, of the most varied and beautiful colours, from 12 to 30 inches high, some sorts excellent for bedding. Strong Plants, from 6*s*., 9*s*., to 12*s*. per dozen; or for bedding 2*l*. to 3*l*. per 100.

BIRCHAM & WARD, Hedenham Rosery, Bungay, Suffolk.

B. & W. also will dispose of a few packets of Seed, carefully selected from the best named varieties, at 5*s*. per packet.

PINE PLANTS.—Clean healthy plants may be had of the best sorts at from 1*s*. to 10*s*. each.—Inquire of R. NEWMAN, New Inn, Steadham, Midhurst.

PINES.—Plants for Sale, 50 Fruiting and 100 Succession. Good strong healthy Plants, chiefly Queens. Price on application.—T. S., Post Office, West Ham, Essex.

H. WALKER, Londonderry, offers the following:—
3000 1-year PEAR TREES, on dwarf roots.
5000 2-year ditto ditto.
200,000 2-year SEEDLING NORWAY SPRUCE FIR.
10,000 MANETTI ROSE STOCKS.
Lists, with prices, on application.

ONE HUNDRED AND FIFTY THOUSAND VERY SUPERIOR LARCH, well-grown healthy plants, from 2½ to 3 feet in height, suitable for immediate planting. Price moderate.—Apply to THORNHILL & DICKSON, Nurserymen and Seedsmen, Bristol.

Gooseberry and Currant Trees, Trained Fruit Trees, and every description of Nursery Stock. Also an unrivalled assortment of Dutch Flower Roots, Catalogues of which are forwarded post free. Large new Russian Mats, 20*s*. per dozen.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

DUTCH HYACINTHS, CROCUS, &c., of the first size and quality, can be supplied by CHARLES SOUTHBY, High Street, Clapham, at prices as low as any house in the kingdom. See his Descriptive priced List; to be had free on application.

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual of first-rate quality.*

JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their FIRST IMPORTATION of the above have arrived in EXCELLENT condition. DESCRIPTIVE CATALOGUES, which contain *their celebrated system of culture, can be obtained free on application.*

Highgate Nurseries, near London.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.

THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.

CHARLES ALEXANDER, Nurseryman and Seedsman, 30, West Register Street, Edinburgh.

DUTCH BULBS.

R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

DUTCH BULBS OF SUPERIOR QUALITY AT LOW PRICES.

Anemones, early flowering, brilliant colours	5*s*. per 100.
Hyacinths, Dutch mixed, all colours	21*s*. per 100.
" " named, separate colours	6*s*. per doz.
Narciss, mixed	1*s*. per doz.
Tulips, Dutch, mixed, early sorts	6*s*. per 100.
Crocus, Dutch, mixed, all colours	10*s*. per 1000.
Iris, mixed, all colours	5*s*. per 100.

The above, with every other kind of Flower Roots, equally moderate in price, may be had of WILLIAM DENYER, Seedsman and Florist, 82, Gracechurch Street, London.

Descriptive and Priced Catalogues forwarded on application.

DUTCH BULBS.—TO THE TRADE.

CLARKE AND CO. beg to inform the Trade they have imported a first-class assortment of DUTCH BULBS, which have been received in fine condition.

They further beg to say they are in expectation of receiving a second supply about the end of the ensuing week from the best growers in Holland, and that early orders would ensure the finest Bulbs. Wholesale Catalogues forwarded on application.—CLARKE & Co., Seedsmen and Florists, 86, High Street, Borough, London.

BULBS, TUBEROUS PLANTS, AND THEIR ALLIES.

LOUIS VAN HOUTTE'S CATALOGUE, No. 60, is to be had at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

N.B. His Catalogue, No. 61, containing: Azalea indica, Ghent Azaleas, Camellias, Rhododendrons, &c., will be ready in a fortnight.

R. B. KEMPTON, SEEDSMAN and FLORIST, 22, Wigmore Street, Cavendish Square, has the honour to inform his patrons and the public that his CATALOGUE of DUTCH FLOWER BULBS, &c., is now published, and can be had on application. R. B. K. was 15 years with the late Mr. James Carter, of High Holborn.

ROSES.—CATALOGUES forwarded free of *charge* and POST PAID TO ALL PARTS OF THE WORLD, upon application to JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

ROSES.—The DESCRIPTIVE CATALOGUE of ROSES by Mr. RIVERS for the present Season is now ready for delivery, and will be sent free on application. It is so arranged as to be a true guide for the Amateur in selecting Roses.—Nurseries, Sawbridgeworth, Herts.

FRUIT TREES.

MR. RIVERS has now ready his DESCRIPTIVE CATALOGUE of FRUITS, consisting of 32 [illegible] compiled with great care, and contains much original [illegible] matter. Sent free for six postage stamps.

Nurseries, Sawbridgeworth, Herts.

FERN CATALOGUE.

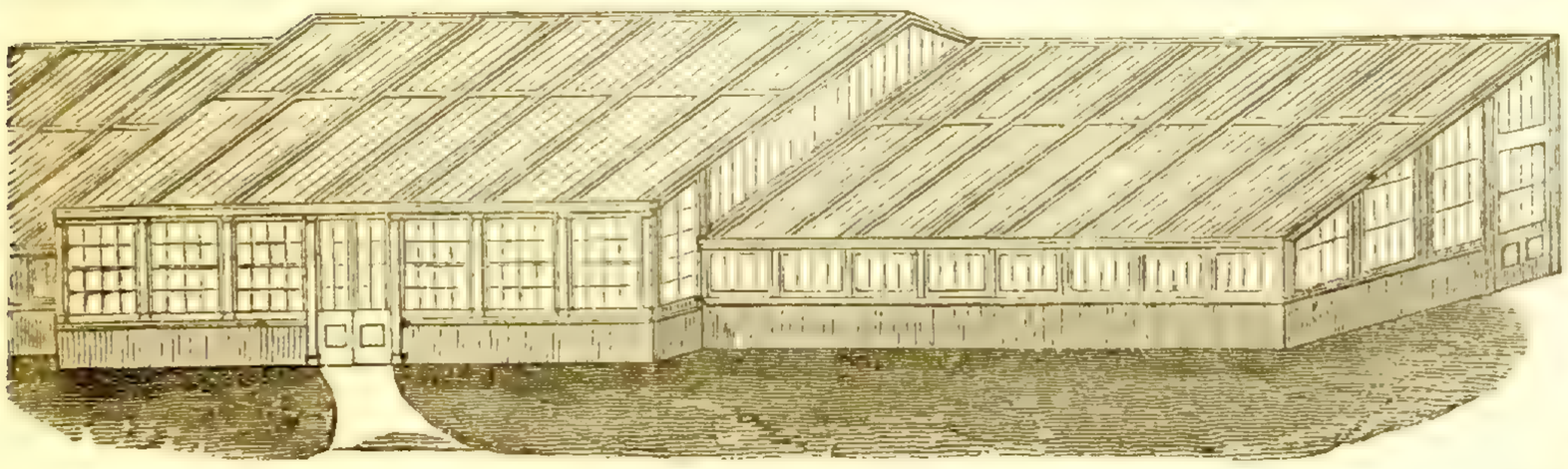
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Lewisham, Cray, Kent.

CATTELL'S EARLY BARNES & RELIANCE CABBAGES, ALSO, DEPTFORD, PARAGON, KING, IMPERIAL, &c.

JOHN CATTELL has now ready Bedded Plants of the above well known best kinds for Early Spring Cutting, at 5*s*. 6*d*. per 1000; also Red, for Pickling, of first-rate Stock, at 1*s*. per 100, or 7*s*. 6*d*. per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London carriage free to the Edenbridge Station of the South-Eastern Railway, carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

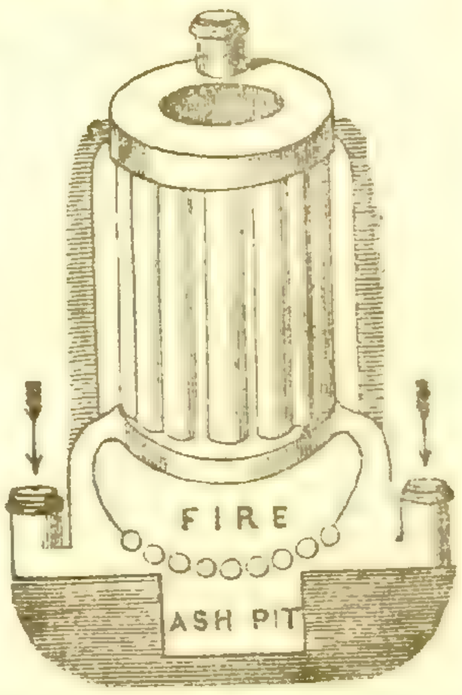
JOHN WEEKS & CO., KING'S ROAD, CHELSEA.

HORTICULTURAL BUILDING, AND HEATING BY HOT WATER.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



HEATING EXTENSIVELY BY ONE BOILER, COMMONLY CALLED

"WEEKS' ONE-BOILER SYSTEM."

Buildings of every description, Dwelling Houses, Churches, Warehouses, Horticultural Buildings, &c., separately or combined, and to any extent, can be effectually heated by ONE BOILER.

J. WEEKS & Co. refer to their own extensive Establishment, the whole of which is heated by *one boiler*, and may be seen in constant operation, warming Hothouses, Greenhouses, Conservatories, &c., upwards of 1000 feet in length, the water in the various houses circulating through upwards of 5000 feet of pipe, and the whole so fixed and regulated that any one of the houses can be heated separately, or the whole together, and any part regulated at pleasure.

J. WEEKS & Co. have also great pleasure in referring to the extensive Nursery of Messrs. Edward Henderson & Co., Wellington Road, St. John's Wood.

We will here quote Mr. Henderson's own words, expressing his approval of our ONE BOILER SYSTEM. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than 2 sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 900 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to numerous seats of the Nobility and Gentry in various parts of the country where *one Boiler* has been fixed to warm a great number of houses, &c., and frequently the dwelling-house also from the same boiler.

In some instances *our one Boiler* is doing the work formerly done by 20, so that in these cases the great number of fires, stokeholes, and chimneys, are entirely dispensed with.

At his Grace the Duke of Leeds', Hornby Castle, Yorkshire, *one of* J. WEEKS & Co.'s *Boilers is heating* 10,000 feet of 4-inch pipe, and one of the houses, a large Conservatory 190 feet long, is situated upwards of 500 feet from the Boiler.

J. WEEKS & Co. make their Tubular Boilers of all sizes on the same economical principles; nearly 4000 of which of different sizes are in operation at the seats of the Nobility and Gentry throughout the Kingdom and on the Continent.

The Nobility and Gentry about to erect Horticultural Buildings or to fix Hot-Water Apparatus will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Conservatories, Greenhouses, Hothouses, Pits, &c., erected and in full operation, combining all modern improvements in the various branches of the Horticultural science, so that a lady or gentleman can select the description of house best adapted to the purpose for which it is required.

As an *Horticultural Establishment* it is also an unlimited source of attraction, containing New and Rare Plants in great variety.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in pots.

FRUIT TREES and SHRUBS of every kind.

The SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., BUILT upon the most scientific principles, combining all the improvements of the day. HORTICULTURAL WORKS of every description, and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers, KING'S ROAD, CHELSEA.

NEW STRAWBERRIES, &c. — Underhill's Sir Harry, 10s., 20s., 30s. per 100, all bedded out, the last with balls; Kitley's Caroline Superb, 15s. per 100; Tiley's Rival Queen, 60s. per 100; Black Prince, Goliath, Victoria Old Caroline, British Queen, Keens' Seedling, Alice Maude, &c., 2s. 6d. New Verbenas of 1856, 3s. per doz.; new Petunias of 1856, 4s. per doz.; Double White do., 2s. 6d. per doz.; new Fuchsias of 1856, 6s. per doz., not fit yet; Phlox Countess of Home, 6s., 9s., 12s. per doz. (12 good Phloxes); Veronica variegata, 6d. each; fine named Pansies, 2s. 6d. per doz.; Primula sinensis alba flore pleno, 12s. per doz.; Delphinium cardinale, 2s. 6d., 3s. 6d., 5s., and 7s. 6d. each.; Alfred Salter Chrysanthemum, 6d., 9d. 1s. each; others, 3s. per dozen.—EDWARD C. KAVANAGH, Nurseryman, Taunton.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq., Manor House, Bathampton:—"This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq., Swainswick House, whose name is well known to the floricultural world, **being the raiser of a great** number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British **Queen is a very delicate and tender kind—this is one of the** hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a strawberry is required.

Strong well-rooted plants 3*l.* per 100; 1*l.* 15*s.* for 50; 1*l.* for 25; or one dozen for 12*s.*; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurserymen, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

GEORGE SMITH begs to offer from a fine strong healthy stock of the following new and choice PELARGONIUMS, at 36*s.* per dozen, with plants to compensate for carriage.

Unknown correspondents forwarding Post-office Orders, payable at Islington, will be liberally dealt with.

SHOW GERANIUMS.—(Foster's) Amazon, Countess, Edith, Meteora, Purple Prince, Pluto, Saracen, Sparkler, Iris, Triumphant, The Clipper; (Hoyle's) Admiration, Brenda, Cato, Corsair, Eva, Ermine, Floretta, Leopard, Pallas, Rosaline; (Turner's) Admirable; (Beck's) Rosa Mundi, Margarette; (Dobson's) Sultan, Delicatum, Juliet, and (White's) Pretty Poll.

FANCY GERANIUMS.—(Turner's) Adonis, Attraction, Beauty of Slough, Diana, Masterpiece, Naomi, Ne Plus Ultra, purpureum album, Prima Donna, Queen of Roses; (Henderson's) Amphitrite, Cloth of Silver, La Stella, Queen of the Fête, **Reine du Bal, Sweet Lucy, (Titania) and Smith's Dictata.** Also a good stock of older kinds of Show, Fancy, French, Spotted, and Scarlet varieties, Verbenas, Fuchsias, &c.

Tollington Nursery, Hornsey Road, Islington, London.

UNUSUALLY FINE SPECIMENS, WHICH WILL GIVE IMMEDIATE EFFECT TO A CONSERVATORY.

WILLIAM MASTERS AND SON being about to convert a Plant House into an Orchard House have the following remarkable Specimen Plants to dispose of:—

URANIA SPECIOSA, leaves 7 feet long, 2 feet broad.
FICUS ELASTICA, 9 to 10 feet.
" INDICA (Banyan Tree), showing how roots from the branches become trunks, 8 feet.
PHŒNIX DACTYLIFERA, Date Palm, 5 feet.
CARYOTA URENS, Sugar or Wine Palm, 10 feet; breadth of leaves, 5 to 6 feet.
LANTANIA BORBONICA, Paul and Virginia Fan Palm, 9 feet; breadth of leaves, 4 to 5 feet.
PSIDIUM CATTLEYANUM, fruiting Guava, 9 to 10 feet.
PANDANUS ODORATISSIMUS, Screw Palm, 5 to 6 feet; length of leaves, 5 feet.
ARAUCARIA EXCELSA, Norfolk Island Pine, perfect specimen, 7½ feet high, 4½ feet through.
" BRAZILIANA, 7½ feet high, 4 feet through.
AGAVE AMERICANA, in fine health, may reasonably be **expected to flower in a year or two, 4 to 5 feet high, 6 to** 7 feet through.
RHODODENDRON ARBOREUM HYBRIDUM, height 9 feet, 8 to 9 feet through; very handsome.
ASTRAPŒA WALLICHI, Lightning Tree, 6 to 7 feet.
PHYLLANTHUS JUGLANDIFOLIUS, 10 feet.
BREXIA SPINOSA, 10 feet.
MUSA, several specimens, 4 to 9 feet.
ALPINIA NUTANS, 5 feet.
COFFEA ARABICA, Coffee Tree, 5 feet.

The heights are measured from the surface of the pots or tubs in which the plants are growing.

Prices will be given for each plant separately or for the whole, upon application.—Exotic Nursery, Canterbury.

This advertisement will not be again inserted.

BEAUTIFUL FLOWERS.—12 packets, each packet containing 100 Seeds, 1*s.*; sent post free, 1*s.* 2*d.* Calceolaria, Heliotropium, Hollyhocks, Petunia, Verbenas, Fuchsias Geraniums, and other choice Seeds, 6*d.* per packet. Catalogue on application.

DWARF GERMAN (10-weeks) STOCKS, as imported, 36 varieties, each variety 3*d.* per packet.

WM. CULLINGFORD, 1, Edmund Terrace, Ball's Pond, Islington.

NEW AND CHEAP PLANTS, DUTCH FLOWERING BULBS, &c.

HENRY WALTON, Edge End, Marsden, near Burnley, is now offering the following at the reduced prices annexed:—

FUCHSIAS—Admiral Boxer, Charlemagne, Conqueror, Countess of Burlington, Donna Joaquina, General Williams, **Favourite, Ranunculæflora, Venus de Medici, Volcano di Aqua, Wonderful, and Prince of Wales, 1*s.* 6*d.* each, or 12*s.* per doz.** post free; extra strong plants, 2*s.* 6*d.* each.

PETUNIAS—New varieties of last season, 1*s.* 6*d.* each, or 12*s.* per doz.

VERBENAS—New varieties of last season, 1*s.* each, or 9*s.* per doz.

GERANIUMS—**Strong plants,** Dido, Fidelia, Gem of the West, Grand Sultan, Jessica, Lydia, Omar Pacha, Pandora, Petruchio, Phaeton, Seraskier, Topsy, Una, Vesper, and Yerda; the above, 15*s.* per doz. Attraction, Carlos, Duchess of Wellington, Eugenie, Empress, Eliza, Glowworm, Governor General, Indian Chief, Lord of the Isles, Leah, Lucy, marginatum, Neatness, pictum, Purple Perfection, Rebecca, Regalia, Rosa, Rhoda, Tamberlik, Virginia and Zeno: the above 12*s.* per doz. Ambassador, Commissioner, Commander, Harriet, Incomparable, Jupiter, Leonora, &c., at 6*s.* and 9*s.* per doz. Fancy varieties, 9*s.*, 12*s.*, and 18*s.* per doz.

CINERARIAS—6*s.*, 9*s.*, and 12*s.* per doz.

HYACINTHS—(descriptive lists of which are now ready, and may be had on application) named sorts, 8*s.*, 9*s.*, and 12*s.* per doz. Mixed ditto for borders may be had in separate colours, 4*s.* per doz., or 25*s.* and 30*s.* per 100.

A Descriptive List of choice Geraniums, Pansies, Carnations, Picotees, Pinks, &c., may be had for one postage stamp.

AZALEA—Indica, Extransi, Criterion, Ivery's Beauté d'Europe, Gledstanesi formosa, magnifica, striata formosissima, Duke of Devonshire, Perryana, rosea elegans, amœna, Broughtoni, variegata, Glory of Sunninghill, Murrayana, Minerva, Vesta, Prima Donna, and alba magna; selections from the above, 12*s.*, 18*s.*, and 24*s.* per doz. (strong plants).

Sonerila margaritacea, 2*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Gonocalyx pulchra, 5*s.* and 7*s.* 6*d.* Cuphea eminens, 1*s.* 6*d.* and 2*s.* 6*d.* Cassia floribunda, 2*s.* 6*d.* Vaccinium erythrinum, 3*s.* 6*d.* and 5*s.* Mandirola Roezli, 3*s.* 6*d.* Meyenia erecta, 5*s.* to 10*s.* 6*d.* Passiflora Decaisneana, 3*s.* 6*d.* Cereus MacDonaldi, 3*s.* 6*d.* to 5*s.* Impatiens Jerdoniæ, 2*s.* 6*d.* to 3*s.* 6*d.*

Choice Cineraria Seed, 1*s.* 6*d.*, and 2*s.* 6*d.* per packet.

It is respectfully requested that Post-office orders be made payable at Marsden, Lancashire; a remittance or reference required from parties unknown.

The plants named above are all strong and healthy plants, and **cannot fail to give satisfaction to every purchaser.**

FIRST CLASS CARNATIONS, PANSIES, PICOTEES, AND PINKS.

CHARLES SCHOFIELD has now ready in strong plants, at greatly reduced prices, the above named Florist's Flowers. A Descriptive Catalogue is just published, which may be had free. Terms very liberal to nurserymen taking large quantities. Cash or reference will be required from parties unknown.

C. S. has also Pansy and Calceolaria Seed selected from the finest show flowers, 2*s.* 6*d.* each packet.

Knowsthorpe, near Leeds, Yorkshire.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

HUGH LOW AND CO. would call the attention of purchasers to their very large and fine stock of the undernamed articles, all of which are in the best possible health, and well worth inspection.

INDIAN AZALEAS, in different sizes and fine named varieties.
CAMELLIAS, with flower-buds of different sizes.
STANDARD SWEET BAYS, with straight stems and fine shaped heads.
ORANGE TREES, of sorts and sizes, both with and without fruit.
JASMINUM GRANDIFLORUM; grafted plants full of flower buds. This is one of the most fragrant winter blooming plants in cultivation.
ERICAS AND EPACRIS, strong flowering plants.
PINUS BENTHAMIANA (true); certainly the handsomest and hardiest of all the long leaved Conifers.

Clapton Nursery, London, Sept. 27.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.
CUPRESSUS LAWSONIANA.

MESSRS WATERER AND GODFREY have much pleasure in offering the above fine plant raised from seed sent home by Mr. W. Murray, who in describing it in connection with other rare Pines, such as nobilis, grandis, Jeffreyi, Benthamiana, &c., says, "It was the handsomest tree in the whole expedition. It grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like a Spruce and hang down at the tip like an ostrich feather, the top shoots droop like a Deodar, and the timber is good, clear, and workable." Seedling plants will be sent out in August upon the following terms, and orders executed strictly in rotation. One plant 21*s.*; six plants, 4*l.* 10*s.*; 12 plants, 7*l.* 10*s.*—Knap Hill Nursery, Woking, Surrey.

NEW GERANIUMS OF 1855.—Fine strong healthy plants of the whole of the Show and Fancy varieties raised by Beck, Dobson, Foster, Foquet, E. G. Henderson and Sons, Hoyle, Turner, and others, can now be had of JOHN WESTWOOD at the Floral Nursery, Acton Road, Turnham Green, near London, at 36*s.* per dozen; also all the varieties let out in 1854, 2*s.* each, or 1*l.* per dozen, carriage to any of the London Railway stations included, and where 24 or more are taken no charge will be made for hamper, &c., and extra plants will then be given to compensate for further carriage. For particulars of various other plants now on sale at this Nursery at reduced prices, see Advertisements in the *Gardeners' Chronicle* of September 6th and 13th. A full descriptive Catalogue of Show, Fancy, Bedding, and French Geraniums, will be shortly issued gratis to all applicants. J. WESTWOOD has much pleasure in stating that having expended much money and labour in testing and completing his stock, it is now the largest and most perfect of its kind in existence, and well worth inspection.

MESSRS. E. G. HENDERSON AND SON beg to state that the unequalled DAHLIA—
CRYSTAL PALACE SCARLET,
proves itself the finest Bedding Plant in cultivation, and by far the most showy and free blooming Dahlia ever offered to the public. It may be seen in full flower at their Nursery, and the
CRYSTAL PALACE GARDENS.

The Bulb Catalogue, with revised Lists of GERANIUMS, Cinerarias, and other Florists' Flowers, may be had post free on application.

A Coloured PLATE of Five new GERANIUMS, including Mrs. Story's white varieties, can be had post free for 12 stamps.

NEW STRAWBERRY "ADAIR."

For description of this delicious variety see back numbers. Price 60*s.* per 100 plants; 40*s.* for 50 ditto; 25*s.* for 25 ditto; 15*s.* for 12 ditto.

The description and prices of the following new plants may be seen in the Bulb Catalogue:—

Camellia Jenny Lind
Echites Houtteana
Dianthus albo nigricans
Begonia picta
" cinnabarina hybrida
Azaleas and Rhododendrons (in varieties).

SEEDS.

Calceolaria Seed, 5*s.* and 2*s.* 6*d.* (2d quality) per packet; Cineraria, 2*s.* 6*d.* per packet; Primula sinensis fimbriata, 2*s.* 6*d.* per packet.

The Spring Catalogue, with 2000 Greenhouse and Stove Plants fully described, post free on application.

Wellington Nursery, St. John's Wood.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in introducing this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited this season at the Royal Gardens, and Mr. INGRAM has forwarded the following testimonial as to its merits:—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour—like that of an Apricot—soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "THOMAS INGRAM.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. POWELL of the Royal Gardens writes:—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side: flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

DWARF-TRAINED TREES ... ... 15*s.* each.
MAIDEN do. ... ... 10*s.* 6*d.* do.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Plants can be had of Messrs. PETER LAWSON & SONS, Edinburgh; Messrs. DICKSONS & Co., Edinburgh; Messrs. JAMES DICKSON & SONS, Edinburgh; and the principal Nurserymen.

Royal Nursery, Slough.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

DUTCH BULBS.

JAMES VEITCH, JUN., Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are PARTICULARLY FINE and in EXCELLENT CONDITION. Catalogues are now ready, and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their ORDERS EARLY, as the successful cultivation of Bulbs depends in great measure on their BEING PLANTED EARLY IN THE SEASON.—Sept. 27.

BULBS.—FOR BASS AND BROWN'S Advertisement of BULBS and ROOTS see the third page of the "Cottage Gardener" of September 20th.

Choice and sorted collections of Hardy Bulbs and Roots, 20*s.*, 40*s.*, and 60*s.* per collection.

CATALOGUES for the present season of the following may be had on application, viz.:—

Bulbs and Roots.
Herbaceous Plants.
Hollyhocks.
Phlox.
Coniferæ.
Hardy Shrubs and Climbers.
Roses.
Fruit Trees.
Strawberries.
Geraniums.
Cinerarias.
Azalea indica.
Stove and Greenhouse Plants.
Winter-flowering ditto.

Sudbury, Suffolk.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

		£	s.	d.
No. 1	Collection, all the most approved sorts	3	10	0
No. 2	" containing smaller quantities ...	2	5	0
No. 3	" for a small garden	1	5	0
100	Hyacinths, in 100 very fine sorts. Purchaser's selection	3	10	0
100	" 50 fine sorts "	2	15	0
50	" 50 superior sorts "	1	15	0
50	" 25 " " "	1	10	0
24	" 12 " varieties "	0	15	0
12	" 12 " " "	0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

WILLIAM E. RENDLE & Co, Seed Merchants, Plymouth.

NEW IMPORTED DUTCH ROOTS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

A Descriptive Price Current of Dutch Roots is just published, and can be had in return for one postage stamp.

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

DUTCH FLOWER ROOTS.

JAMES CHARTRES AND CO. have much pleasure in announcing that their superb collections of the above, which have given such universal satisfaction for many years, are now ready, and will be forwarded carriage paid to any part of the kingdom. No 1 Collection (3*l.*) contains as follows:—12 Splendid Double and Single Hyacinths for glasses; 12 ditto, do. for pots; 24 ditto, ditto, for borders; 12 splendid Narcis, various, for pots; 12 do. named Early Tulips (single and double); 50 do. mixed late Tulips for borders; 12 do. Double Jonquils; 24 do. named English Iris; 24 do. named Spanish Iris; ½ lb. mixed Double Anemones; 1 lb. mixed Single Anemones; 100 splendid mixed Ranunculus; 100 do. named Crocus, 25 sorts; 100 do. Mixed Blue; 100 do. Mixed White; 100 do. Double Snowdrops; 12 do. Dog's-tooth Violets; 6 Summer Snowflakes.

No. 2 Collection half the above amount. A general priced Catalogue may be had on application.

74, King William Street, City, London.—Sept. 27.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to announce that his new CATALOGUE of FLORISTS' FLOWERS is now ready, and may be had on application. It contains descriptive and priced lists of the following:—

Carnations
Pinks
Auriculas
Alpines
Phloxes
Lancashire Show Gooseberry Trees
Picotees
Pansies
Polyanthuses
Double Primroses
Belgian Daisies
Currants
&c., &c.

PANSIES.

R. SHACKELL has a variety of YELLOW PANSY, which he has named SHACKELL'S PERPETUAL YELLOW. It forms a beautiful yellow bed—one that summer's heat and winter's cold has not any effect on. It blooms all the winter if the weather is open. It is a beautiful yellow and good shape for a border. Price 10*s.* per 100, or 2*s.* per dozen.

R. S. has good healthy plants of Pansies with blooms on them, in great and good varieties, at the same price as the former specimen blooms; can be had if a stamped envelope is sent.

R. S. has good plants of the beautiful little Rose De Maux, at 6*s.* per dozen, or 25*s.* per 100, also plants of the Heleborus niger or Christmas Rose, at 6*s* per dozen.

R. S. would enter into arrangements to supply any one with bouquets of Violets at 5*s.* per 100.

If the order be above 10*s.*, hamper and package included. Orders taken at his shop, 5, Broad Street, Bath.

Address, ROBERT SHACKELL.

ROSES, ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—September 27.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

AZALEA INDICA "GEM."

J. IVERY AND SON beg to say that good established plants of this fine Azalea will be ready the third week in October. The Subscribers feel it unnecessary to say anything further of its fine properties, except that it has received the highest awards given to seedlings both at the Royal Botanic and National Floricultural Societies. Price 21*s.* each. A few extra sized blooming plants at 42*s.*

A List of Nurserymen who have kindly ordered it will appear next month. The usual allowance to the trade. A Descriptive List of all the approved varieties may be had in exchange for one postage stamp.—Dorking Nursery, Sept. 27.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3*s.* 6*d* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

DUTCH AND OTHER BULBS.

JOHN CATTELL has in addition to his usual supply of DUTCH BULBS (which are of the finest sorts and quality), a large stock of the beautiful sky blue SQUILL, viz., Scilla Siberica, which is without exception the hardiest and most showy of our early spring flowers. Strong Bulbs 3*s.* 6*d.* per dozen; 25*s.* per 100, or 10*l.* per 1000. J. C. is also a large grower of the Japan and other Lilies, Tropæolum tricolorum grandiflorum or Javattæ, azureum and brachyceres; splendid hybrid Amaryllis in great variety, Vallotas of sorts, Scillas, Gladiolus, Alstrœmerias, &c., and is enabled to supply them at very moderate prices. A Priced Catalogue of the whole is just published, and may be had gratis on application.

Nurseries, Westerham, Kent.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 27, 1856.

THE history of WELLINGTONIA is not yet exhausted. M. JULES RÉMY, whose account of the road from California to Mormonland we gave the other day (p. 611), has published some very interesting details respecting this famous tree. Coming as they do from a skilful naturalist, of undoubted exactness, they have a much higher value than any previous newspaper reports, and deserve to find a place in our columns. We translate his words, as reproduced in the *Flore des Serres.*

At 5 leagues from Murphy, in following the course of one of the affluents of the Stanislas river, which finds its winding murmuring way at the bottom of a deep wooded valley at the entrance of the Sierra Nevada, the traveller stops in amazement at the edge of a little basin about 2 miles across and some 1490 yards above the sea. Here stand the giants of the vegetable world. At the sight of these colossal Conifers, which seem to belong to some other planet, it is impossible to restrain one's feelings of admiration.

Ninety of these gigantic trees, the smallest of which is not less than 15 feet in diameter, are confined in a space of 50 acres, where they stand above other species of their race just as Lombardy Poplars overtop the Pollard Willows that accompany them in Europe. Yellow Mosses and Lichens floating like long tresses adorn their proud trunks; while a parasite of the genus *Hypopitys* attaches itself to their roots, and gracefully surrounds their base with stems two feet high covered with flowers and transparent rose-coloured floral leaves.

Most of these great trees appear to have had their tops broken by the weight of snow which collects during winter on their terminal branches. Many moreover are injured at the base by fire, ascribed to the ignorance of the Indians. One of the trees was stripped of its bark, two years ago, to the height of 100 feet by some United States people; nevertheless it continues to live at the point, as if these monarchs of the forest were subject to laws altogether peculiar to themselves. A spiral ladder has been formed upon the same tree by means of steps cut into its body.

In the holes formed by fire at the base of several of these trees whole families might establish themselves. A carriage drawn by several horses would run with ease along one of them which lies on the

ground; for the bark is usually furrowed, so as to appear as if the trunk were formed of fluted columns. Each monster has received an English name from their owner, who acts as cicerone to visitors. The following is a list of the more remarkable.

The BIG TREE was 95 feet English in circumference, and 300 feet high. Five men were employed for 25 days in cutting it down. Their method of effecting this was as follows. They first formed a circle on the circumference at seven feet from the ground. Then by means of an enormous auger a multitude of holes were formed close together so as to destroy the equilibrium of the colossus, and bring it over. Its fall was attended with a deafening noise as loud as the discharge of a battery of heavy artillery. Three weeks were consumed in this work of Vandalism and in stripping the carcase of its bark to the length of 52 feet. Its diameter, measured by Mr. BRENCHLEY at six feet from the soil, was 23 feet seven inches without reckoning the bark, which was at least three feet more. A place for bowls and a house have been constructed upon its fallen trunk, and the stump, which has been planed, is surrounded by a summer house furnished with seats where the curious may meditate upon the surrounding objects. Some travellers have endeavoured to determine the age of this Big Tree, which however notwithstanding its name is not the biggest of the group, as will be seen presently, but was only the most perfect and handsomest before it was upset. Having counted the number of rings on 12 inches only of the radius they multiplied the sum thus obtained by the semi-diameter, and obtained a product which led them to estimate the number of springs which this noble tree has experienced at 3000. But having made no allowance for the difference in the rate of growth of different rings of wood they fell into a rather considerable mistake. A careful examination does not allow the age of our vegetable Methusalem to have much exceeded 2000 years. And when reduced to this figure its age is still respectable enough to occupy the mind of the philosopher with reflections upon the many revolutions that have convulsed the world since the germination of our tree.

The MINER'S CABIN is 80 feet in circumference and 300 feet high.

The THREE SISTERS are placed so as to look as if they sprang from the same root. These three trees are intact and form the most beautiful group of the "Mammoth Grove," the name given by the Americans to the basin in which the Wellingtonias stand. Each is 300 feet high and 92 feet in circumference. That in the middle rises to the height of 200 feet without a branch.

The PIONEER'S CABIN is an enormous tree, with the trunk broken off at 150 feet from the ground.

The OLD BACHELOR is 300 feet high and 60 feet in circumference.

The HERMIT, thus called because it stands alone, is 300 feet high and 75 feet in circumference. It has been burnt on one side of its trunk. It is calculated that it contains 725,000 cubic feet of timber.

The HUSBAND AND WIFE are each 60 feet in circumference, and their trunks, which are 250 feet high, come together at the summit.

The FAMILY GROUP consists of 26 trees standing close together, and includes "Father," "Mother," and 24 children. The Father was blown down many years ago, and measures 110 feet in circumference at the base. It is thought that he must have been 425 feet high. In falling he smashed himself against a neighbour at the height of 300 feet, and *at this point he is still 40 feet in circumference!* The fragment of the trunk which is now prostrate is half buried in the earth, is hollow from end to end, and detains towards one extremity the waters of a spring which he covered in his fall. The Mother is 91 feet in circumference and 327 feet high. The children are rather smaller.

The SIAMESE TWINS AND THEIR KEEPER. The bodies of the Twins separate at 40 feet from the soil, and are each 300 feet high. The Keeper, who stands by their side, is 325 feet high and 80 in circumference.

The OLD MAID stands alone; her head is naked and bent; she is 200 feet long and 60 feet round.

ADIE AND MARY are thus called after two young American girls who first drove through the Mammoth Grove. These are two very beautiful trees, 300 feet high and 60 feet round.

The HORSEBACK RIDE is an old hollow prostrate trunk, on which you can ride on horseback for 75 feet. This aged trunk is 250 feet long.

UNCLE TOM'S CABIN is so called because its base is hollowed into a wide and deep cavern, entered by an opening 27½ feet wide and 10 feet high. Twenty-five persons can be seated in this grotto-like cavity. The tree is 300 feet high and 90 feet round.

MASTER SHELBY, named after the owner of Uncle Tom, stands 15 feet off the last, and is not quite 300 feet high.

The BRIDE OF CALIFORNIA is 280 feet high, and 700 round.

The BEAUTY OF THE FOREST is a very upright tree, almost without branches to the top, where it is capped with verdure. This is 300 feet high and 65 in circumference.

So much for M. RÉMY's personal observation of the Wellingtonias in the Mammoth Grove of Calaveras. According to M. CARRIÈRE the species is now known to occur elsewhere on the Sierra Nevada, especially in Carson Valley, but very inferior in size, owing to the destructiveness of men; and also as high as 50° N. latitude, whence an officer of the French navy has brought cones identical with those from California.

The article which furnishes us with the preceding matter also contains some new accounts of the great DECIDUOUS CYPRESSES (*Taxodium distichum*) of Mexico, supplied by M. RENAULT, a French gardener established in that country. He reports them, after personal inspection, to be true Deciduous Cypresses. About 200 are found within the fortress of Chapultepec. Of these the largest is 43½ feet (round) at the ground, but at 6 feet from the ground it is only 34 feet. It is about 120 feet high. At 15 feet from the ground it divides into three branches of equal size. Most of the side branches bend towards the ground, and one, which springs from about 75 feet from the ground, nearly grazes it. The root-humps, or exostoses, are few and the largest is not more than 18 or 20 inches (high?) The soil in which the trees grow is scarcely more than 3 feet deep; the subsoil consists of a pan (*couche pierreuse*) which prevents the infiltration of water, so that it is often found at 2 spades deep. In the rainy season the soil is occasionally under water.

The famous Taxodium of the cemetery of Popolta, near Tacuba, has been called the *Cypress of Montezuma;* this is the tree that sheltered CORTEZ. It is now wholly disfigured by lightning, by which it has been frequently struck. It is not above 90 feet high; its trunk is covered with bosses, and is remarkable for being thicker at some distance from the ground than at the base. At the ground level the circumference is 40 feet, and six feet higher 50 feet.

It appears from these statements that the Deciduous Cypresses of Mexico are not so large as has been reported; not larger we suspect than specimens to be found in the swamps of the United States.

THE Potato mould is extremely prevalent this year, though it has been somewhat kept in check by the continued dry weather. In some districts the tubers have been much affected, while in others little if any damage has been sustained. The increase of the mould, like that of most other fungi, is highly favoured by thunderstorms. It is not surprising then that they should be regarded as the cause of evil, though an attentive examination would have shown many previous indications of the presence of the parasite. The Botrytis has been found on previous occasions on Tomatoes, Anthocercis and one or two other Solanads, but we had never heard of its attacking beds of Petunia till the present year. We have an undoubted specimen before us, communicated from Bristol by Mr. H. O. STEPHEN, with every botanical characteristic of the species, and with equally destructive consequences. We hope that if any of our readers suffer from this parasite in their flower garden, they will try the effect of sulphur upon it, if the disease is not too far advanced. The mould grows quite as much on the upper as the under surface of the leaves of the Petunia, and is therefore more accessible than in the Potato. It is however useless making any experiment if the malady has advanced so far as to affect the stems. *M. J. B.*

THE last HORTICULTURAL EXHIBITION at the Crystal Palace was one of those displays of all that is rare and beautiful among fruits and flowers which are only to be seen in the vicinity of the metropolis. The attempt to have such a show in September, when most of the great patrons of horticulture and those who can leave the din and bustle of London are rusticating in the country, was probably regarded by some as a bold experiment; but we believe there are few who entertained a doubt as to its success; especially when they saw how liberal the management had been in offering so large a sum of money in the shape of prizes; and the collection brought forward for competition was the best evidence that could be adduced to show the directors how highly their exertions for the encouragement of horticulture were appreciated by the gardening community.

The weather was most favourable, and a very large number of visitors attended. It was good policy, in our opinion, to continue the Exhibition three days, as it enabled every one who had a taste for gardening to enjoy a rich treat, and that, too, on the second and third days without any additional charge being made beyond what is usually paid for admission to the Palace and ground on ordinary occasions.

As a whole the Exhibition was deserving of much praise; but there were some of the arrangements faulty, and by no means in harmony with the order, neatness, and beauty which are seen in almost every corner of the Palace. The plants were arranged on a stage along the centre of the nave north of the transept, while the fruit, with such florists' flowers as Roses, Dahlias, Hollyhocks, China Asters, &c., and the cottagers' productions* occupied another stage along the centre of the southern nave. Although the plant department lacked many of the beautiful Orchids and other favourites so familiar to us in the great floral displays we are accustomed to see in the early part of the season, it contained an immense variety of novelties of another kind, such as Ferns, Lycopods, and Selaginellas, &c., which attracted a large share of public attention, and altogether formed quite a new feature in the Exhibition. All the specimens were admirably grown, and in the most perfect health. We remarked with no surprise, and much satisfaction, that while crowds were admiring the elegant and varied forms of these singular little plants, their more showy neighbours, such as Balsams and Cockscombs (of which by the by there were some excellent specimens), were passed over almost unnoticed. Here, again, is further proof how the taste of the public is improving. Dahlias and China Asters were shown in great variety, and in such perfection as to excite the admiration of every one who remembers what the form of those flowers was 20 years ago.

But the chief feature of the Exhibition was, as we have stated, the show of fruit, of which there was an immense collection, consisting of Pines, Melons, Grapes, Peaches and Nectarines, Plums, Cherries, Pears and Apples, Figs, &c. There were many beautiful examples of good cultivation, and it may be truly said that those who were not so fortunate as to obtain prizes had no reason to be ashamed of the specimens they exhibited. One thing however must have been evident to every one who took an interest in this part of the exhibition, that to stage fruit is by no means the best way of showing it to advantage. When a stage is preferred to a flat surface it never ought to be much higher than that of an ordinary table, and in all cases there should be a division down the centre covered with green baize or some other cheap material so as to prevent more being seen than the eye can easily examine in passing. In the present case, the stage was much higher than it ought to have been, and too narrow. The fruit on the upper tier was so elevated as to be completely hid from the sight of all ordinary spectators; and many exhibitors must have regretted to find the objects of their care and anxiety in the position they occupied. The want of such a screen as we have just mentioned down the centre was apparent to every one, from its permitting them to see the props and other expedients resorted to by exhibitors in order to display their boxes of fruit to the best advantage; and we should hope that those whose duty it is to look to this matter, which is really of importance, will remedy the defect against another season.

VEGETABLE PATHOLOGY.—No. CXXXIX.

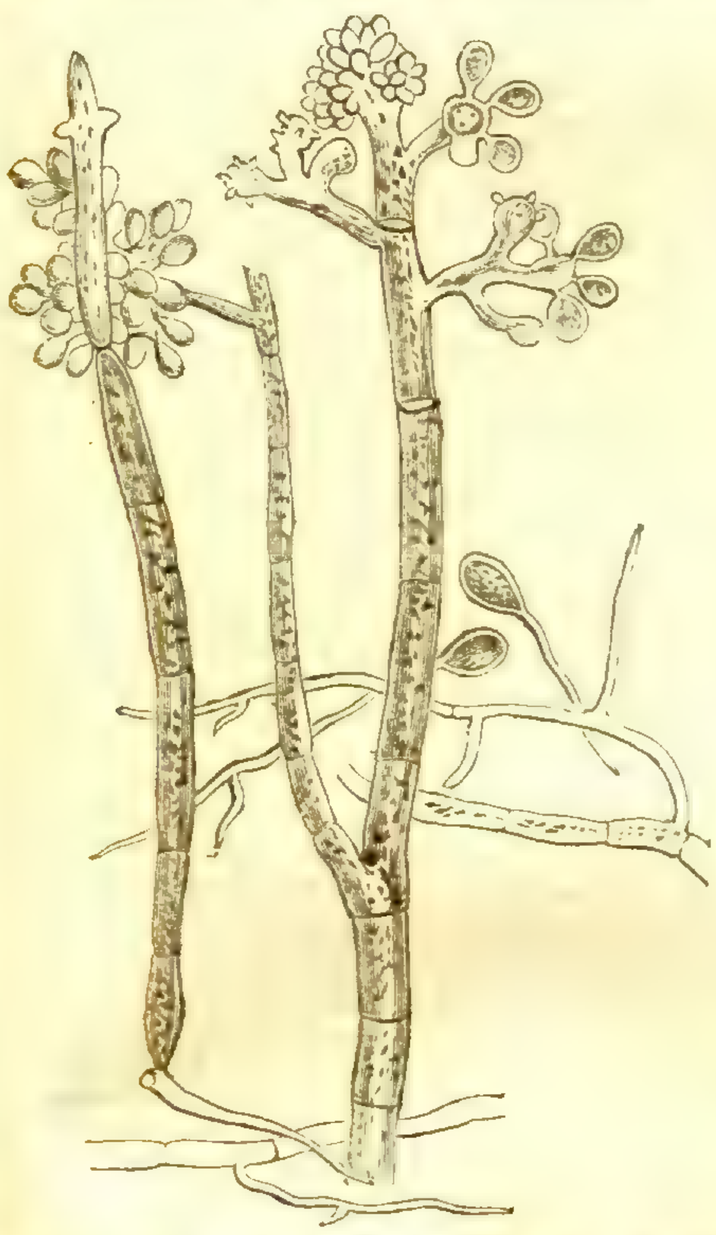
572. PARASITÆ (*Polyactis*†). The moulds which belong to this genus are amongst the very commonest productions upon decayed or decaying vegetable substances. A dry leaf lying on the surface of the soil of a frame or garden pot, a plant which has just damped off, a diseased Cucumber, &c., are soon covered with some one of the species, a good example of which is afforded by the annexed woodcut of *Polyactis fascicularis*, Corda. The principal distinction between *Polyactis* and *Botrytis*, taking the parasitic species, as for example *B. infestans*, for the type of the latter genus, consists in the articulate slightly carbonised stem and difference of habit, the one growing on vegetables already more or less decomposed, the other on healthy plants, healthy that is till they have been attacked by the parasite.

573. Facts, however, have lately come to light which tend to prove that such moulds though not truly parasitic in their nature may at times act as parasites. They are developed on decaying matter, from which the mycelium spreads in the guise of long straggling threads over living leaves, the fine tips of which, as it should seem, enter the stomates, without however deeply

* A correspondent speaks in favourable terms of the experiment of giving prizes to cottagers for their productions, taken as a whole; but he doubts greatly whether the subjects of exhibition came in all cases from cottagers properly so called. In his opinion the Crystal Palace Company was imposed upon in more than one instance.

† From πολυς many, and ακτις a ray, in allusion to the frequent division of the upper part of the plant.

penetrating into the tissues, and by their decay acting as a putrefactive ferment, from which death ensues. This statement is indeed at present partly theoretic, but it is of such importance that it is worth stating even in the absence of positive proof as to the mode of action. It is not indeed quite certain whether sulphur acts upon these carbonised moulds as speedily and certainly as upon those which like the oidioid state of *Erysiphe* are of a pure white, and we have evidence before us that very delicate plants may sometimes be injured by the application of sulphur, a fact which is not surprising, as the effect is probably produced by the conversion of a portion of the sulphur into sulphurous acid, a substance which even when so produced may easily exist in such a degree of concentration as to be fatal to delicate tissues. The effect of brimstone fumes, which are the same thing, on plants of any delicacy, even when slightly mixed with the atmosphere is known more or less by fatal experience to every cultivator. The great desideratum at present in the cultivation of plants is to find some substance which will act upon the darker coloured fungi without affecting the plants on which they are developed. Since however when once generated they appear to be peculiarly difficult of control, the great point is to prevent their growth at first, or at any rate to preclude the appearance of a new generation. To the first of these particulars it is needful that all the materials of which soil is composed should be in a thorough state of decomposition. If half decayed fragments of vegetables exist either in contact with the roots or on the surface, mischief is frequently communicated by the moulds which are generated upon them. Where plants of the same kind are crowded in pots and one of them perishes and becomes mouldy the rest are very apt to follow, not by inherent decay but from contamination of the dead plant, and it is this fact which makes it necessary to remove dead leaves which have



performed their functions from crowded cuttings. Supposing, however, these moulds to have become inveterate, the only hope will be in the removal of the whole affected stock and thorough cleansing of the walls and washing with lime and corrosive sublimate. This is the only remedy in bakehouses where bread is subject to acquire a ropy fermentation, an evil which is due to the development of the spores of some noxious fungus, many instances of which have been recorded in France, and the same may be said of those silkworm establishments which have been affected to a ruinous extent by the mould which produces the disease called muscardine.

574. In conclusion of our remarks on *Hyphomycetes*, it will be well to advert to a paper just published by Tulasne in Annales des Sciences Naturelles on the dualism of fungi. Many facts have from time to time been brought forward to this effect, commencing with the speculations of Fries some 20 years ago. The subject has been followed out to a great length by Tulasne, who now extends the matter to a degree which could scarcely have been anticipated. Not only does he believe that the greater part of the naked-spored *Pyrenomycetes* are mere conditions of species which normally bear their fruit in definite number contained within sacs called asci, but he believes that far the larger part of the black moulds, as *Helminthosporium*, *Graphium*, &c., are the conidioid state of *Sphæriæ*. Nay, more, that *Stilbum*, *Atractium* and some other genera belonging to a very different series belong to the same category. It is evident that these notions can only be confirmed by long series of observations. Direct experiment unhappily can scarcely be brought to bear upon them in many instances. A few cases however well established will go a great way to their confirmation, and when the facts are once received as established truths, the whole subject of mycology must undergo revision. In a transition state confusion will probably be worse confounded than ever, but order will at length rise out of the chaos, and many a present cause of perplexity be removed for ever. *M. J. B.*

Home Correspondence.

Orchard Houses.—A short time ago you advised your readers to inspect the orchard house at Chiswick, and in truth it was well worthy a visit. But there was, at the same time, an object in the Society's Gardens still more deserving attention, namely, the magnificent Peach wall, covered with trees in perfect health, well clothed with foliage to the very bole, and loaded with fine fruit. As Chiswick possesses, I imagine, no natural advantages over many other places in the valley of the Thames, this unusually successful Peach culture must be attributed solely to the skill of Mr. Thompson. Upon comparing the health of the trees on the wall and in the orchard house (and I may also add the amount of their crops), the question naturally arises whether any one who possessed such a wall would care to have an orchard house. For a year or two past, communications have appeared in your journal from parties who have erected structures of the latter description, and have been more than satisfied with the results. I regret to say I cannot add my testimony to theirs. And as, at the present time, many persons are proposing to build orchard houses, I would wish, not to dissuade them from building, but to prevent disappointment by moderating their expectations. If any choose to say that my want of success has been the result of ignorance, so let it be. I simply give my evidence; *valeat tantum.* As soon as Mr. Rivers's pamphlet appeared I read it, and no fairy tale ever charmed me more; an orchard house was soon built, and cultivation commenced. In order to compare my progress with that of others, the orchard houses at Sawbridgeworth have been several times visited, as also Lane's at Berkhampstead, &c. As the subject is likely to interest many of your readers, I will, at the risk of being thought prolix by the remainder, enter into some detail as regards various descriptions of fruit. Strawberries succeed very well, and much further from the glass than gardeners of the olden time thought possible. They stand in front of the larger pots, and therefore may be said to take up no room whatever. They ripen several weeks before Strawberries out of doors, and most desirably anticipate the fruit season. Those who want very early fruit will of course take Black Prince and Keens' Seedling, but those who prefer flavour will wait for British Queen and the old Carolina Pine. The plants of the latter are always vigorous and the quality excellent. Green-fly and the spittle insect are abundant on Strawberries in orchard houses. Of Apricots I have had few indeed, but those few were superior in quality to any I ever tasted. I observed that Lane had no crop last year, nor do I see much at Chiswick this. The trees flower abundantly, some set, but soon drop. This year I followed the advice given by Rivers in your columns, namely, to place the trees close to the open ventilator, but on five trees I have not a single fruit. I have tried keeping them in the open air, plunged under a north wall to retard them, and not putting them into the orchard house until the blossom showed colour, but without success. Plums often produce well enough, but the Greengages are far inferior in quality to good wall fruit. Both they and other varieties have an acidity mixed with their sweetness, showing an unkindly maturation. The only exception I have met with is the Jefferson, which really ripens to the stone, but grown under glass is comparatively flavourless. Coe promises well this year. I may remark that in the later editions of Rivers's pamphlet it is recommended to exclude Plums from the house during the hotter months. With Grapes I have failed in 11-inch pots — berries too small. Of Pears, the cultivation has been too limited to enable me to say much. From Figs in an orchard house, without heat, a first crop alone can be expected. I have now and then had a few second crop fruit, but not good. Having tried almost all the well known sorts, I find the Brown Turkey the only one that can be absolutely depended on for a crop in all seasons, but it may be observed that the same may be said of this variety not only against a wall but even without one, at least in the warmer parts of England. The small white Ischia Figs when you can get them are perhaps the nicest to the taste. Peaches and Nectarines flower beautifully, and set sufficiently well. The trees are almost entirely free from blister and green-fly. The latter, when they appear, are easily crushed. The red spider is the only formidable enemy. In order to keep him in check, I syringe the house every evening in summer, just as the sun goes off, and keep the ventilators closed for two or three hours, so as to produce the moist heat which these insects dislike. At other times, abundant ventilation, watering the plants well at the roots, as also the earth between the pots. With respect to ventilation, the difficulty is to have enough to keep down red spider, and at the same time not to retard the fruit too much. It is desirable that the fruit should ripen rather before, certainly not later than the same sorts on the open wall. And now as to the quantity of fruit to be expected. Rivers suggests that a house 10 feet long will hold 20 trees, which will give, when in full bearing, from 40 to 60 dozen of fruit (p. 14). My expectations were always more moderate. For a tree in an 11-inch pot I considered eight fruit quite enough; but even this number I never got to swell fully and ripen satisfactorily. Much of the fruit after colouring perfectly, but not swelling sufficiently, falls off all but ripe; the remainder then begins to swell. In this way an early Grosse Mignonne (probably the same as the Pourpre Hâtive Veritable, and a most desirable variety) set two fruit—one fell off, and the other weighed no less than 6½ ounces. The trees have been duly supplied with guano-water until they commenced ripening, after which plain water or soot-water was used. Possibly it may be better to continue the stronger aliment, and I purpose repotting the trees in 13-inch pots. As to the quality of the fruit, the best may equal the average run of wall fruit; but certainly does not surpass it. To conclude. To an amateur, who has no walls, but who takes personal pleasure in the cultivation of fruit, an orchard house is a most desirable acquisition. On a cold spring day it is delightful to take refuge under glass, and see yourself surrounded with bloom, with the promise of a crop of Strawberries, Figs, and Peaches, all in their due season; but to those who have already an ample and well stocked wall, I cannot recommend the erection of an orchard house. *S. B.*

Ammonia.—In the experiments of "J. H. H.," as detailed in page 631, on the "Use of Ammonia in Vegetable Economy," the charcoal absorbs the ammonia which it afterwards gives off to the roots of the plant; whilst in the absence of the charcoal the ammonia either filters through the sand or evaporates. Charcoal, as you are aware, will absorb many hundred times its volume of ammonia. *A New Subscriber, Croydon.*—Has any one ever tried the experiment of growing a plant in an atmosphere containing a considerable quantity of ammonia, taking care to prevent this atmosphere from coming in contact with the soil in which the plant grows? In M. Ville's experiments, I believe, the ammonia from the air may have entered the plants through the soil and roots, and not by the leaves as some people suppose. Why not have a number of plants growing in one pot, bend some of them on one side, and introduce them under a glass-case in which a small piece of carbonate of ammonia is placed, and introduce some of the other plants under another glass-case having no ammonia? A comparison might then be made between the rapidity of growth of the plants in the ammoniacal atmosphere, in the common atmosphere, and in the common atmosphere uninfluenced by the protection, &c., of the glass case. Will some one inform me if he knows of any experiment proving that ammonia is absorbed by the leaves of any plant? *J. A. Clarke, Long Sutton.*

Lawns and Daddy Long Legs.—For the last four or five years our lawn (down turf) has been infested with what we call daddy long legs. Early this spring it was so bad from grubs that we were fearful we should be obliged to relay the whole of it; but by the use of a very heavy roller and guano, together with a wet season, the lawn is looking as well as ever, and we had hoped that we had got rid of the pests. Within the last three days, however, they have made their appearance more numerous than ever. Will some of your correspondents therefore give us the natural history of this pest and point out a remedy? We kill all we can find, but without any beneficial result. *A Gardener, Broadwater, Sussex.*

Glass for Garden Structures.—I have several Pine-houses, all well ventilated, glazed with Hartley's rough plate glass one-eighth of an inch thick in large squares. My gardener tells me that it makes the houses too dark and too close; he also thinks that the fruit does not grow so large, is inferior in flavour, and sour compared with that grown under crown and British sheet. All the succession plants look green and healthy and are growing rapidly, but at this season they seem to draw a little. Some of your readers doubtless have tried this glass for Pines, and if they would communicate their experience it would confer a benefit on many. *H.* [We wish Mr. Bradley of Somerleyton would say.]

Oxalis Bowei.—It may not be generally known that this succeeds well as a bedding plant. It produces its beautiful rose-coloured flowers in great profusion, until destroyed by frost in autumn; and when planted in contrast with other gay colours I have always found it to be greatly admired. The bulbs should be potted the third week in March, and plunged in a gentle bottom heat. I put three bulbs in a 3-inch pot; when they have grown about 2 inches I shift them into 4-inch pots, and gradually harden them off in frames with other bedding plants. They are planted out about the middle of June, by which time they will be nicely in bloom; it is necessary to support the flower stems with small stakes when first planted out, for if this is not done they are liable to be blown off. Until the plants have established themselves firmly in the ground, a situation rather sheltered from the wind, and well exposed to the morning sun, should be chosen for them, as they show themselves to most advantage during bright sunshine. *William Adderley, Gardener to W. Harryman, Yotes Court, Mereworth, Kent.*

Potato Disease.—Having, like many others, paid some attention to this disease, a medical friend jocularly inquired of me one day if I had discovered its cause. My reply was, "Have you, doctor, discovered the cause of the cholera? because I think the discoveries will be simultaneous" For several years I have ceased to take the interest I once did in this mysterious scourge, but I am glad that others are more persevering, although I fear the explanations given are still far from satisfac-

tory. In your recent numbers the blight is attributed to thunderstorms, and the appearance of the embryo decay in the gardens and fields opportunely favours the theory. I suspect, however, that the period of the growth of the plant in most cases is a more certain antecedent than a local thunderstorm. At all events I have generally found that the disease begins in this country in the southern parts of the kingdom, and gradually travels northwards, that is, as the climate deteriorates the crops are later and so is the blight. As a further proof of this theory I may mention that the end of April is about the time when we generally have our forced Potatoes, and although we are not much accustomed to thunderstorms in the month of March, I have very frequently observed on the stems and leaves of the plants under glass, the very unmistakeable blotches with which we are familiar at a later period in our gardens and fields. I am therefore rather sceptical as to the theory of thunderstorms being the proximate cause of the disease. *J. S. R., Perthshire.*

Sulphate of Iron as Manure.—The paragraph at page 613 on the "Destruction of Dodder," leads me to ask if any of your correspondents can give any account of the results of using sulphate of iron as a manure on chalky or limestone soils. It is curious that the improved medical treatment for the eradication of worms in children should be analogous to that for removing the vegetable parasite; and I have little doubt that it is mainly from the tonic action of the sulphate of iron that the Lucerne is enabled to divest itself of its pest. *A New Subscriber.*

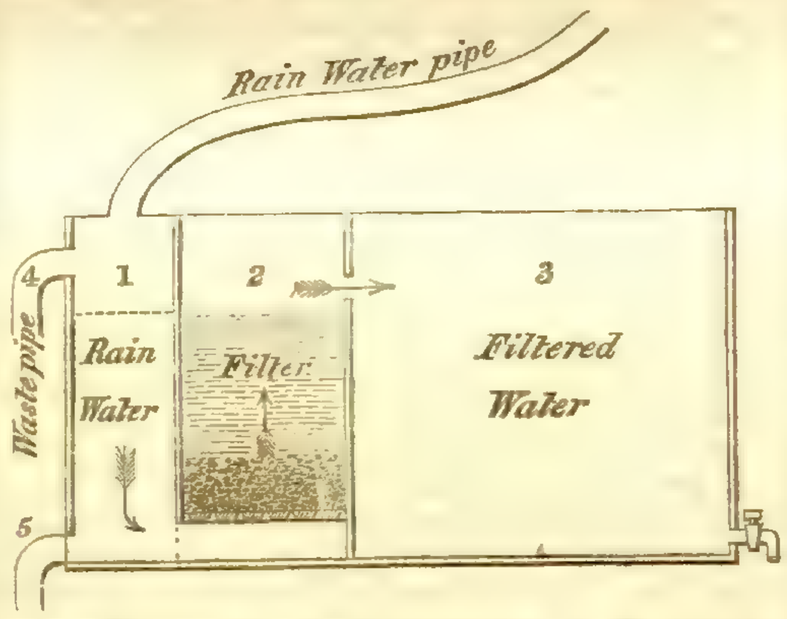
Heliotrope Miss Nightingale.—During the summer, in consequence of an advertisement in your paper, I was induced to apply to Mr. Field, of Kensal New Town, for a plant of the above-named Heliotrope. The advertisement described it as having a flower half an inch in diameter, and a truss of 7 inches. The plant I received, although kept in a greenhouse and put into a large pot, has only produced a few small trumpery blossoms. Has any one else had a plant from the same place, and if so how has it turned out? *W. M. A.*

Frost occurred here on the night of the 19th inst. with unusual rigour. During the preceding evening there was a keen N.W. wind; towards morning a registering thermometer indicated 27½°. Tender annuals and bedding plants have suffered greatly; they now present a mass of unsightly ruin, eliciting astonishment from many neighbours whose summer products are still mantled in all their autumn glory. *J. R. T., Gr. to G. S. Wintle, Esq., Hucclecote Gardens, Gloucester.*

Hitcham Village Horticultural Society.—I took advantage of an invitation from Prof. Henslow again to visit the autumnal meeting of this Society. I send you a short notice because I know you gladly circulate as widely as possible any information connected with the welfare of the poor. Village horticultural societies, the expression of a great and philanthropic theory, may now be fairly classed among the institutions of the country. They aim at the progress, the welfare and the happiness of a class who are only able to rise out of ignorance, drunkenness, and too often crime, in proportion as they receive assistance from those above them in worldly means and station. Leave a man to the full impulse of his own ungoverned and selfish passions—leave him in ignorance and neglect, and his career is easily foretold. How many thousands of human beings have been utterly and hopelessly ruined by the beer-shop! How many hearths made desolate, hearts broken, characters lost, are to be scored up against these wretched hot-beds of vice! And yet there are thousands of human beings who heed little what is the early career of the labourer. Satisfied with a few general principles handed down from father to son, they rest contented with the ignorance and neglect, and their offspring drunkenness and vice, which have hitherto borne such bitter fruit. Of late years thinking men have thought it worth attempting to raise the sphere of the labourer by giving him education. With knowledge they have wisely thought it right to give the means of enjoying it. A man who looks upon a flower admires its colours and smell, but he who knows the position and uses which this flower holds in the great scheme of animated nature, has greater pleasure still. To those of the senses he adds those of the intellect. The grounds of Hitcham Rectory were as usual prepared with much care for the reception of the exhibitors and visitors. On one side was a long tent for the cottagers' productions. Each class of exhibited specimens was marked out by letters corresponding to the list of prizes. The productions were as good as usual; Potatoes particularly good. We observed that the judges gave the first and third prizes in this class to the Fluke, a new Potato in this district, which is described as a good bearer, and dishes up well. At the top of this tent we also noticed a most elaborate model of a gentleman's house and garden, with flower beds, walks, shrubberies, fountains, and visitors all carefully and beautifully modelled. We were told that this was the production of the Miss Henslows during the past 24 hours. On the other side of the lawn the usual marquee museum was stationed, and its contents were explained to the people during the day in one of Mr. Henslow's lecturets. In the centre of the lawn was placed a plan of the immense trunk of the Wellingtonia gigantea, or Mammoth Tree of California, with a diagram showing its relative size in comparison with other trees and buildings; length, 363 feet; diameter at base, 31 feet. The base was shown by a wooden model, the length by a piece of tape attached to the upper circumference of the model and carried out 363 feet. Near this we saw a portion of the Bamboo which grew 60 feet at Kew in six months. Our attention was next directed to a collection of Pumpkins, the chief of which weighed 80½ lbs. We were amused by hearing that Pumpkins are in great demand by Apricot-jam makers in London! On other parts of the lawn we saw various huge heads of mammoths, aquaria, &c., and for the amusement of the juveniles swings, whirligigs, &c. There were a great number of people present during the day, and among them Lord and Lady Henniker with a large party, who drove over 18 miles to be present. The noble lord has a similar society in his own parish formed upon Mr. Henslow's model, and which has succeeded admirably. We hope to hear of many others in due time. Of course a good deal of labour is required from those who superintend these associations. A little method will lighten this much. If any one wishes to see how this is brought to bear upon the arrangements at Hitcham, I am sure that Prof. Henslow will be delighted to see them next year. *B*——.

Potherbs.—Having lately visited a horticultural exhibition at Perran Wharf in this county (Cornwall) I noticed there some baskets of potherbs, for which prizes were awarded; but the question arose (among a few parties who felt an interest in the proceedings) what are potherbs, or to what extent may the list of them be carried? This was not easily answered by the persons then present. Will you therefore kindly furnish a list of such plants as may be considered to come within the meaning of the word potherb? *J. M.* [Potherbs and sweet herbs are often confounded with one another. The former are generally understood to apply to such herbs as are only used for the purpose of flavouring soups and sauces, &c. They comprise Parsley, Green and Golden Purslane, Tarragon, Fennel, Chervil, Dill, Pot Marjoram, and Pot Marigold. Sweet herbs are more aromatic and form an important ingredient in gravies, stuffings for most kinds of luscious strong meats. It is the copious and judicious use of them that gives in so great a degree the cookery of the French its superior flavour. The sorts most in request are Sweet and Bush Basil, Pot and Sweet Marjoram, Green and Red Sage, Summer and Winter Savory, Spear Mint, Tansy, and the Common and Lemon-scented Thyme. *B.*]

Filters.—I take the rain-water off the roof of my house into a slate cistern, at one end of which is a compartment made for filtering the water from the impurities taken up on the roof. The rain-water is conducted to the bottom of the filter, through which it is compelled to rise—the overflow being delivered into the cistern. In heavy rains the water pours in so rapidly as to disturb the filtrating medium, and the consequence is that the water thus rendered turbid is mixed with the clean, and all is fouled. Can you suggest to me such materials and arrangement for filtering, as will allow of a rapid percolation, and yet sufficient to remove the impurities taken up on the roof? I have used coarse and fine gravel in layers, and on the top sand or granulated animal charcoal. The depth about 3 feet. *J. G.* [We do not think you can employ any better materials for the purpose of filtering your rain-water than those you mention; and with the view of preventing the filtering medium from being disturbed by heavy rains



we would suggest such an arrangement in the construction of your cistern as is shown in the accompanying sketch. In this it will be seen that the cistern is divided into three compartments—the first receives the water in its impure state from the roof of the house, the second contains the filtering material, and the third, which is of course very much larger than either, holds the main supply of water after it has undergone the filtering process. The water in 1 and 2 will always stand at the same level, and in case of rain, whatever addition is made to 1 will immediately pass upwards through the filtering materials and flow into the large compartment 3. When all are filled the filter will cease to act, and the superabundant water will then pass off *by the waste pipe at* 4. As there will invariably be some deposit at the bottom of division 1, we should recommend a pipe of rather large dimensions being placed at 5, so as to enable the water to be drawn off occasionally for the purpose of cleaning and removing whatever impurities may have accumulated in it, as well as in the filter. *B.*]

Tobacco.—Some of your readers may not be aware that the leaves of Virginian Tobacco grown in this country may be so harvested as to resemble the Tobacco of commerce, making allowance for difference of climate. Such Tobacco must be more effective when used for fumigation than that which is dried in the ordinary way. I will, therefore, proceed to describe the method I have found to succeed. Towards the middle or latter end of March sow in, say, a 6-inch pot, and cover the seed lightly with sand or fine soil—place the pot in a forcing-house or hot-bed—prick the plants off early, as they are apt to damp, in same size pot; when strong enough pot them off singly in 3-inch pots. Plant them out towards the latter end of May, or when safe from frost. I prefer dry weather for planting them out, as slugs are very fond of chewing Tobacco. Water them if required each evening for a week; in their early growth a little liquid manure is useful applied so as not to touch the leaves. Plant the rows 3 feet apart, the plants 2 feet apart in the row. The wind has great power over them, and they easily snap off; therefore as soon as they will allow of it take off the two or three bottom leaves and earth them up all round the stem; after a time, viz., so as to be beforehand with the destructive power of the wind, again break off two and sometimes three of the bottom leaves, and raise a good bank round each stem. When the most forward plants are about 4 feet high, drive in three stakes to each row of about a dozen plants; the stakes before being driven into the ground should be about 5½ or 6 feet long. Tie some small hollow cord from stake to stake at such a distance from the ground as to prevent the plants being broken off by the wind, which otherwise would happen in spite of the previous earthing up. Tie a piece of string to the cord opposite each plant, then tie the string round the stem of each plant, not in a knot but in a bow, in order that as the plants grow you may easily untie the strings and raise the cords. Cut off the flowers before they open, except such as you wish to seed. It increases the size of the leaves to break off the laterals as they show. The lower leaves must be taken off as fast as they become ripe, that is, when the green of the leaf is slightly tinged with yellow, and the leaf feels thick and firm to the touch. I wish to be understood that the leaves must not at all wither, but be mature. Be careful to gather them when not damp with rain or dew. To cure the leaves place a dozen or a dozen and half one on the other, put them in a store-room not exposed to sun and wind; in three weeks or a month they will become of a dark brown (but examine them at a fortnight). Single them out to dry in the same room; if a few of the leaves require more time than the rest, put them in parcels by themselves. They must be wrapped up in paper 2 or 3 lbs. in a parcel when in a tough dry state, and placed on a shelf in a dry cellar. Tobacco so cured will keep for years and improve with age. I have managed Tobacco thus for a dozen years; when in good soil I have had some of the plants 9 feet high, and have averaged 4 oz. of dried leaf to each plant. *Samuel Vines, Fairford, Gloucestershire.*

Red Spider.—I erected a conservatory last year, and being plagued to lead off the water from the roof put a slate tank inside and carried in a pipe from the gutter. In addition to having a supply of water at a moderate temperature, I find I am free from red spider. Two other instances have been lately brought to my notice where the presence of water in a conservatory has been accompanied by a freedom from this pest. In one case it had previously existed, but this year owing to a pan of guano water being kept in the house for watering, and it being more convenient to have it in the house (a small one in a town) than outside, it seems to me as if the slight moisture caused by the evaporation from this small body of water will relieve us from this plague. *Nemo.*

Societies.

HORTICULTURAL, *Sept.* 23.—Wm. Wilson Saunders, Esq., Treasurer, in the chair. At this meeting, summoned for the mere purpose of electing such candidates as have lately been proposed under the new regulations, the following were ballotted for and duly elected, viz.:—

The Earl of Pomfret	James Clarke, Esq.
Sir Proby Cautley, F.R.S.	Jonathan Clarke, Esq.
Sir Wm. Macarthur	John Henry Lance, Esq.
Dr. R. Wight, F.R.S.	R. Warner, Esq.
Mrs. M. A. Lloyd Wynne	Thomas Grissell, Esq.
Mr. W. Barron	Mr. Joseph Henderson
Archibald Campbell, Esq.	John Drewitt, Esq.
Henry Fowler, Esq.	G. S. Wintle, Esq.
Samuel Gurney, Esq.	

Reviews.

Reports on the Use of Methylated Spirits in the Arts and Manufactures. Eyre and Spottiswoode, 8vo, pp. 55.

The name of methylated spirit is given to alcohol flavoured with 10 per cent. of wood spirit, otherwise known as wood naphtha, pyroxylic spirit or methylic spirit, and now procurable *duty free* under the provisions of the Act 18 and 19 Vict., cap. 38. It had long been felt as a great impediment to competition with foreigners in various branches of industry, that all the spirit used in this country was subjected to a heavy excise duty, from which spirit in other countries is free. One consequence was that an enormous quantity of illicit spirit found its way into consumption, so that while trade was oppressed the revenue did not gain in proportion. To such an extent was the illicit trade carried that Mr. Alexander Christie speaks of four houses alone having to his certain knowledge consumed for years not less than 500 or 600 gallons weekly. In order to counteract this double evil the Chairman of Inland Revenue in 1854 directed Professors Graham, Hoffmann, and Redwood, to inquire whether no means could be found of enabling spirit to be sold duty free which

should be fit for nothing but manufacturing purposes, and be absolutely undrinkable, so that it might not be applied to purposes for which it was not intended. These eminent chemists reported that by mixing 10 per cent. of wood naptha with strong alcohol, the latter would become so nauseous as to be rejected by even the most depraved taste, and that by no known process could it be deprived of that quality. Acting upon this advice, the Board of Inland Revenue determined upon recommending to the Treasury that an act should be passed enabling manufacturers to procure methylated spirit duty free; and it appears from the report before us that the result has been in the highest degree satisfactory. Manufacturers of various kinds, professors, keepers of museums, and physicians, testify to the very great advantage with which the measure has been already attended: and we believe that this repeal of the spirit duty is not less important in its way than that of the duty on glass, soap, and bricks, all of which have been completely relieved since the Excise has been under the wise and liberal direction of Mr. John Wood, whose name must be held in perfect reverence by all who are anxious that the springs of industry should be relieved from the undeniable evil of fiscal pressure. We observe that the methylated spirit is already superseding other fluids in the preservation of museum objects, hitherto a most costly part of all such establishments; and, notwithstanding the occasional presence of accidental impurities, we can entertain no doubt that it will eventually be universally employed in this way. We may perhaps add, for the information of those who are unfamiliar with manufacturing processes, that the methylated spirit has already been used for the following important purposes, viz., largely in chemical analyses, for moistening explosive substances in military laboratories, the preparation of fulminating mercury for gun caps, ether, chloroform, oleic ether for lubricating machinery, French polishing, varnish making, as a solvent of shell lac in hat making, in painting the inside of brewers' vats and casks, and in the fabrication of spirits of nitre, and other chemicals.

Garden Memoranda.

DANGSTEIN, NEAR PETERSFIELD, HANTS, THE SEAT OF R. H. NEVILL, ESQ.—This delightful residence is beautifully situated amongst the Hampshire Downs, about four miles from Petersfield. The site for the mansion has been well chosen; it stands on the side of a hill well backed with wood and with a fine bold foreground, peculiarly characteristic of the scenery of that part of the county of Hants. It is only within the last few years, since it became the property of Mr. and Lady Dorothy Nevill, that Dangstein has been heard of in the gardening world. Now however without doubt it may safely be said to vie with most of our finest gardens in the richness of its collections of fine exotic plants, the extent of late improvements and garden erections, and in the general order in which the whole place is kept. The grand features of the Dangstein gardens are two splendid houses lately erected, one for the growth of tropical fruits, Palms, and other fine foliaged plants, Orchids, &c.; the other solely for Ferns.

The tropical fruit house, built in 1854, covers a space of 80 feet by 50 feet, and is 30 feet high in the centre, with wings or sides for the cultivation of Orchids and smaller specimens of variegated foliage, and young plants of botanical interest or peculiarity. This collection is in the most luxuriant health and in the best possible keeping. Amongst the host of valuable and interesting plants in this house we noticed some splendid Musas loaded with fruit, Nutmegs, Cinnamon, Mangosteen, Guava in fine fruit, the Jaffna Cocoa Nut, Coffee tree in fruit, all the Tea trees, Arrow-root, Ginger, the Zebra Wood, the Deadly Upas tree, the Gamboge tree, the Screw Pine, the Chinese Ricepaper plant (Aralia papyrifera), Bamboo, the Papyrus antiquorum very fine, Cotton trees (Gossypium arboreum), the Cocoa Nut Palm, and the Wax and other Palms, a splendid specimen of Medinilla magnifica, and many other of the finest flowering stove plants. Of the three wings adjoining this house one is devoted to Orchids and Pitcher plants. Among the former were fine specimens of Vanda suavis, tricolor, cœrulea and Roxburghi, Saccolabium Blumei, and its larger variety guttatum, Aerides Larpentæ, retusum, and præmorsum, crispum, suavissimum, affine, Fieldingi (Fox's Brush), maculosum, odoratum; a splendid specimen of Miltonia spectabilis in fine flower; Dendrobium, many kinds; Cattleya labiata, Angræcums, Odontoglossum, &c.; a beautiful plant of Peristeria elata coming into fine flower, &c. In this wing are also successfully cultivated the various kinds of Nepenthes and Sarracenias, with Cephalotus follicularis, the Sarracenia purpurea being far finer than it is usually seen. Here also was a fine collection of Anæctochiles doing well, and the rare and remarkable Lattice plant (Ouvirandra fenestralis). In the centre of this house is a tank with Water Lilies, &c. One of the other two wings was filled with a general collection of stove plants well grown into specimens, intermixed with variegated plants, such as Dracænas, Marantas, Caladiums, Rhopalas, Pandanus, Coleus, variegated Pine plants, Crotons, Aphelandras, variegated Hydrangeas, &c. Here was also the Vegetable Ivory, the rare Stangeria paradoxa, &c. The third wing is at present filled chiefly with tender Araucarias, Dacrydiums, Epacris, Ericas, and a general collection of New Holland plants. But it is in contemplation to build a large house purposely for such plants, when this wing will also be filled with stove plants.

A Fernery was built during the summer of 1855, and covers an area of 52 feet by 26 feet; it is in the form of a span with a high back and end wall, which are already clothed with Ferns and Lycopods. The walls being built up like rockwork have a very natural and pleasing effect. The stands for the Ferns are also built up roughly, and being studded with all kinds of Lycopods have already the appearance of having been planted for years. The collection of Ferns in this house is of the first order, and all in luxuriant health. We have never seen so large and so varied a collection as is congregated here doing altogether so well; there is a total absence of an unhealthy plant amongst them. Here we noted Cibotium Schiedei, a splendid plant (which was purchased at the sale of plants at Chiswick last autumn), and Platycerium grande and Stemaria; the Bird's Nest Fern, splendid specimens; Cyathea elegans and other tree Ferns; Drynaria coronans; Pteris aspericaulis and Gleichenia microphylla, both yet rare and both doing admirably; Dicksonia antarctica, very good; fine Blechnums, Davallias, Hemitelias, Gymnogrammas, Nothochlænas, Adiantums, Cheilanthes, Nephrolepis, &c.; all the kinds of Lycopods. In this house is a beautiful specimen of the true Dragon tree; this was presented to the Dangstein collection by that indefatigable collector, Mr. Skinner, who obtained it (by permission) from the ancient and celebrated specimen (see Humboldt) in the garden of the Marquess de Souzal, in Oratava, Island of Teneriffe. The base of the branch obtained by Mr. Skinner, and from which this plant was raised, is now in the museum at Kew.

Attached to this Fernery, and looking into it is Lady Dorothy Nevill's museum, in which is being collected all that is rare, interesting, and remarkable in botany. Here are specimens of woods, of Cotton, of tropical fruits, dried and preserved; indeed everything that can interest and instruct is here to be seen. There is also a very extensive and excellent botanical library. On the table lies the catalogue of the Dangstein collection, most elaborately and beautifully written in various colours by Lady Dorothy herself. Here also lies the book for visitors names, clearly indicating that wherever things are worth seeing, no matter how far by railroad, there persons will go. The collecting together this rare assemblage is solely to be attributed to the great love of botanical pursuits entertained by Lady Dorothy Nevill, and her ladyship's fondness for plants and good taste in all that pertains to gardening has been well supported by Mr. Vair, the intelligent and persevering gardener at Dangstein. The state of the whole collection does him much credit.

The houses stand on terraces, and beneath them is a lovely dell which it is in contemplation to take into the pleasure ground and plant with rare Conifers. A better situation could not be found for such plants. The kitchen gardens are not large; but well stocked and cropped. In them is a Peach tree case and a range of Vineries 120 feet long, and outside an orchard-house, 90 feet long, well filled with pot fruit trees of various kinds well set with fruit buds for next season. A span-roof forcing-house, 100 feet long, is now in course of erection. This is for forcing early vegetables, &c. There is also a house in which Lady Dorothy has all the new seeds received from abroad raised, of which her ladyship's friends appear to send abundance. The heating of all these structures has been done by Messrs. Haden, of Trowbridge, and is by hot-water pipes combined with hot air. It appears to answer well.

Near the mansion is a sunken flower garden gay with the ordinary bedding plants, and at the exit from it to the Rosery stand a pair of very fine Cupressus torulosa from 25 to 30 feet in height. Beyond the Rosery is a Pinetum, in which the various trees are doing well.

Such are a few of the particulars of Dangstein, a place hitherto but little noted for its gardens and grounds; but destined we believe to be inferior to no other in such departments of gardening as the noble lady who directs the operations may devote her attention to.

One thing more may be said of Dangstein, that from the potting-shed and tool-house to the Palm-house all is order, and affords an instance of what may be done in a very short space of time where there is good taste and enthusiasm to design and direct, and perseverance and practical judgment to perform.

Miscellaneous.

Sale at Chiswick.—Some of the plants sold here on Wednesday realised fair prices, as will be seen by the following account of a few of the lots:—Mammillaria globosa, cirrhifera and auriceps fetched 1*l.* 6*s.*; Gasteria conspurcata, a species of Aloe, and Agave filifera, 1*l.* 12*s.*; Polygala Dalmaisiana, 10*s.*; Theophrasta Jussiæi, 3*l.* 3*s.*; Pæonia Moutan salmonea, 3*l.* 5*s.*; P. M. atrosanguinea, 5*l.*; a variety of P. M. versicolor, 5*l.* 10*s.*; and a variety of P. M. atropurpurea, 3*l.* 10*s.* The Chinese tree Pæonies produced on an average about 2*l.* each.

Food, Cheap and Good.—The Stew.—In respect to stews, I thought I had been sufficiently explicit; but a few recipes will, perhaps, render their improved preparation more readily obvious. The following recipe, for instance, was put in practice recently. I propose to term it the Improved Irish Stew.—It would not be easy to devise a better one. Certainly, the ordinary procedure for an Irish stew realises results in no respects comparable. I purchased a joint, also some common coarse meat, intending to have it converted into a stew. This stew-piece weighed just 5 lbs., of which 1 lb. proved to be bone. This pound of bone was put down to simmer with 3 quarts of water, half an ounce of pepper, and half an ounce of salt. Towards dinner-time, 3½ lbs. of the meat, cut into slices, also a slice of ham, divided into small portions, were placed in a pan over the fire, with a little of the soup, and slowly fried on the alternate sides till three parts done. Meantime, the residuary half lb. of meat was chopped up with 3 oz. of suet taken from the roast, and made into balls about the size of nutmegs. The meat being taken out of the pan, the forcemeat balls, a little more soup being added, were nicely browned in turn, sharing the pan, however, with a spoonful of common brown sugar and a slice of toast, cut into morsels the size of dice. The pan was well cleared out with fresh soup. All the ingredients, less the bones, were now joined together, adding 3 lbs. of raw Potatoes, carefully peeled, and cut into quarters; also half a lb. of flour, rolled with a little butter, and cut into short lengths. When the Potatoes were quite done, but not mashed, the stew—the fluid portion reduced about one half, and emitting a most savoury odour—was served, and approved itself amply worthy of the thought and care which had been bestowed upon it. Every ingredient was weighed or measured, according to the terms of the recipe, in writing, with which the cook was furnished, as thus:—Improved Irish Stew.—Meat, bones inclusive, 5 lbs.; beef suet, 3 oz.; butter, 1 oz.; ham, 1 slice; Potatoes, 3 lbs.; sugar, 1 tablespoonful; bread, toasted, 1 slice; flour, ½ lb.; pepper, salt, of each ½ oz.; water 3 quarts. We fared sumptuously on this excellent stew, the projection of which afforded me, I am sure, not less gratification than would have done the famous powder of projection of the alchemists, which was to turn base metal into gold. A stew, even containing not a lb. of whole meat, also treated as above, and with the various other ingredients, would, I feel convinced, form no despicable fare. Unskilful hands might, indeed, have converted these 4 lb. of coarse beef, for 1 lb. was bone, into a wretched steak, or into broth yet more wretched. A little thought and skill, however, had realised a dish not unworthy a king. It is quite unnecessary, however, to include all the preceding ingredients, or the very same ingredients, so be it the principle of preparation be adhered to. It is also optional to make a stew half or quarter the size. I only wish to show that, out of the very humblest, and, so to speak, meanest ingredients, a wholesome, nourishing meal may be prepared—a meal which, modified to suit individual resources, lies within the compass of the very poorest. A stew such as this with bread, the confection of which I have already described—if the knowledge of preparing both were once diffused—might be laid at pleasure on almost every table. For people must be fed, and wholesome, savoury, and sufficient fare, I assert, may be prepared, the ingredients being otherwise the same, at a less cost than fare comparatively unwholesome, unsavoury, and unsufficing. Our good cook used to make such a dreadful affair of her Irish stew—a clarty mash of meat and potatoes, without flavour or zest—that I told her I would think the matter over, and furnish her with a recipe "reduced to principles." I need hardly observe that fish, or fowl, or game, may replace the beef. If fish, the fish—say a salmon, or turbot, or cod, or haddock, in whole or in part, according to size and requirements—must be skinned, and the meat separated from the bones. The bones themselves will be simmered with a suitable quantity of water and seasoning, and the meat, or soft portion, treated precisely as the meat was treated. The liver may be chopped up with bread crumbs, rolled into little balls, and fried. In short, the dish, unless something better can be thought of, had better be prepared, in essence and detail, as was the meat stewed already described. The result, as I can affirm from experience, is admirable. I hope those who may honour these remarks with their perusal will not impeach my seriousness when I tell them I have dined, and sumptuously too, on various fish, some of which the very poorest here habitually reject. I have seen excellent fish—fish, with a little skill, susceptible of being converted into delicious fare—cast aside along the shores, or given to swine. In fact, *all* fish, as a general rule, may be eaten. An else insipid fish—the whiting or the plaice, to say nothing of the bret or the flounder, or the halibut—if the meat be cut off in collops, and fried with eggs and Parsley and bread-crumb, stewing the bones in a little water and seasoning to furnish a sauce, becomes a dish fit for a prince. Fish, indeed, constitute a most important and available article of nutriment, and should be vastly oftener used than they are. A dozen good oysters or more added to the fish stew, some five or 10 minutes before serving, form a capital addition. Oysters, indeed, or clams, or other shell-fish, plain or fried, are good in any stew; but, if kept in longer than I have said, they become tough and leathery. Mushrooms, fresh or dried, are likewise very desirable; and so is a slice of cow's liver, fried with bacon or dripping, and then cut small. Dried liver, however, grated or whole, may be substituted. I do not mean that all these things should be introduced into one dish, but they do very well to alternate. It is not, indeed, generally known that dried liver furnishes nearly as good a zest as Mushrooms, and, certainly, nothing can be a cheaper one. These things are worthy of attention, since nobody will pretend to say that well-flavoured, savoury, nourishing fare is not preferable to the reverse. When a fowl or game stew is attempted, the giblets and more bony portions should be stewed with water and seasoning to form the soup or fluid portion; the liver should be chopped up with crumbs and butter, and fried to form savoury balls, while the meat

as before, should be browned in the pan. Compare a dish of this kind with, perhaps, a tough, flavourless fowl, or meat boiled in any quantity of water, and the result will be very apparent. Any kind of roots, of pulse, or vegetables, fresh or dried, according to their kinds, Celery—fine herbs, and Onions—may be added at pleasure. I have seen Negro cooks prepare dishes—oysters, fowl, game, fish, rice, vegetables, ingredients as they came to hand—which it would be impossible to praise too highly, and often I should hesitate to say how cheap. These people are not afflicted with the notion that a thing cannot be very good, unless it happened to be very dear. They go straight to their point, without a thought about the matter, or the "delicacies of the season," and they succeed accordingly. If, indeed, they knew no better, the *climate* would forbid their cooking a big expensive joint, and eating it warm one day, and perhaps for a succession of days cold. The poorest of them seems to understand the business better than do the great majority of our professed cooks. They possess a *practical* knowledge which, to our poor working men and women, could they only realise it, would, so to speak, prove inestimable. They possess *no* rambling, costly, disease-engendering, substance-wasting, preposterous cooking-books; and yet, singular to say, *they know how to cook!* If you take in a young woman to cook here, ten to one but she spoils your food, while a professed cook wastes it; and very probably both alike scorn to be instructed. They are ignorant of principles, and in practice they are simply barbarous. They should be furnished with simple *written* or *printed* directions, while the strictest compliance should be insisted on. People in numbers, young and old, and of all classes, lose their health, and eventually their lives, from the unsatisfactory nature—at one time insufficient, at another in excess—of their food. They cannot tell how to help themselves! They know no better. They never knew any better. They suffer, and are silent. It is a subject really well worth looking into; and I should experience a thrill of pleasure if I could only induce mothers and heads of families generally, by the perusal of these remarks, undertaken for their benefit, and out of the usual line of my pursuits, to turn their thoughtful attention to a most interesting, curious, and, at the same time, highly useful inquiry. Not taking things too much on trust, let them just consider a little daily—for it is a daily need—what food is really meant for, and how it may be most effectively, and cheaply, and agreeably rendered subservient to the ever-pressing inexorable necessities of our exigent and else suffering animal nature. *Henry M'Cormac, M.D., Consulting Physician to the Belfast Hospital, &c., Belfast.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In cases where there are many stove plants in this house it will be necessary in the event of the weather becoming cold and wet to use a little fire-heat; but be as sparing of this as circumstances will allow, particularly if there are other things in the house likely to be injured by being kept too warm. And in this case it will be advisable to dispense with stove plants even at the expense of rendering the house somewhat bare of flowers rather than to keep them here and run the risk of injuring other things on their account. Be careful not to over-water things brought from the stove and also to use water at a temperature of 70° or 80° for these, as watering plants that have just been brought from a warm house with cold water injures the young and tender roots, shortens the duration of the blossoms, and often ruins the plant. Use weak manure water for Salvia splendens and gesneriflora so as to preserve the plants in a vigorous state and keep them blooming as long as possible. Give air freely on fine days and thin out the twiners on the roof wherever this can be done with propriety, so as to expose the plants to all the light possible. Give attention to securing a plentiful succession of things for maintaining the gaiety of this house during winter.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water, and give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil, where the principal roots should be, in a healthy state. Use the syringe very sparingly, and only to dew the plants, as heavy syringing after this season is apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given. Any young plants growing in pots which may require re-potting should be seen to at once so as to allow of getting them established in their fresh pots, while they can be kept moderately warm. See that the balls are in a proper state as to moisture before re-potting, as neglect of this is a frequent cause of young plants fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots. VINERIES.—Should wet weather set in we would advise covering the border of the early house with dry stable litter, Fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border dry. Nothing answers better for this purpose than clean straw, provided the border slopes from the front of the house, and in this case it is easily thatched so as to throw off the wet entirely. But straw is too scarce in many parts of the country to be used for this purpose, and wooden shutters would be found cheaper in the end; nevertheless where straw can be obtained, it will be found to answer the purpose perfectly. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary. Let no pot plants requiring watering remain in houses where the Grapes are ripe and expected to hang for any length of time. PEACHES.—As the trees will now be freely exposed to the air day and night, very little attention will be required here for the present. The foliage should, however, be kept clear of red spider, by an occasional washing with the engine where necessary, so as to preserve it in health until it has performed its functions and decays naturally. If any trees have to be removed here from the open wall, this may be done immediately the present crop of fruit is gathered, as the removal, if very carefully effected and the tree properly attended to afterwards, will not prevent the wood ripening, and there will be plenty of time for the trees to make fresh roots and get sufficiently established to carry a crop of fruit next season if not forced too early.

FLOWER GARDEN AND SHRUBBERIES.

Unless alterations are in hand, the principal work in this department will now be confined to mowing and cleaning, and if neatness is to be maintained this will require constant attention; also see to getting gravel walks thoroughly cleared of weeds and moss, and roll them frequently when wet to keep the surface level and smooth. Continue to afford young stock in pits and frames careful attention, and endeavour to get it well rooted and strong without keeping it so close or warm as to render it sappy and liable to damp off on the first approach of winterly weather, as is often the case with stock got up in heat late in autumn, and then stored away in cold pits for the winter. Admit air freely therefore to all plants that are rooted sufficiently to bear it without flagging. Newly potted off things should, however, be placed on a gentle bottom-heat, which will impart a little warmth to the soil and encourage the formation of roots; but sufficient air should be given to prevent anything like weakly growth. Cuttings of Calceolarias, Scarlet Geraniums, &c., may still be put in where it is considered that the stock of these things is likely to be deficient. Scarlet Geraniums will root almost anywhere; but Calceolarias are not quite so accommodating, as cuttings taken from plants in the open ground are very liable to damp off in heat; these will be found to do very well however in a close pit or frame where there are the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance of rooting them, and also be prepared to protect Scarlet Geraniums and other things which it may be intended to take up and winter, for we may expect frost any time after this season, and if such things can be protected so as to prevent the foliage and wood being much injured, they are much more easily wintered. Attend to former directions, and lose no time in getting preparations made for the removal of large trees and shrubs, as both the season and the weather are now very favourable for this kind of work, and ground intended to be planted with young stuff from the nursery cannot be turned up too soon.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit remaining out of doors frequently, and gather it as it becomes fit, as if left to get over ripe it will be liable to be blown down and bruised should high winds occur; also examine that stored in the fruit room frequently, as there will occasionally be a few decaying fruit found for a few weeks after housing, and these should be removed as soon as they can be perceived. Keep the fruit room cool and airy in order to allow of the escape of the moisture given off by the fruit, which is considerable for a few weeks at first. Examine Plums or any other fruit protected by covering occasionally to see that they are not spoiling. Where it is intended to make any fresh plantations of fruit trees this season, the ground should be prepared at the earliest convenience and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather so as to have it in a mellow state when wanted for use. If not already done clean and dress Strawberry plantations, clearing away all useless runners and giving a good dressing of manure where necessary, but be careful to select that which is thoroughly decayed and which can be covered without the necessity of digging deep or injuring the roots. The principal crop of Celery should now be kept rather closely earthed up, using quick lime and soot freely to destroy slugs, and if these are troublesome go over the rows every morning for several successive days and apply quick lime or pick up the pests.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Sept. 25, 1856, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 19	20	29.865	29.851	60	36	48.0	58	58	N.W.	.00
Satur. 20	21	30.043	29.997	58	29	43.5	57	57	N.	.00
Sunday 21	(	30.042	29.616	66	41	53.5	57	56½	W.	.12
Mon. 22	23	29.510	29.344	65	47	56.0	57	56	S.W.	.18
Tues. 23	24	29.295	29.175	66	45	55.5	56	56	S.W.	.04
Wed. 24	25	29.381	29.070	66	42	54.0	57	56	S.W.	.20
Thurs. 25	26	29.510	29.241	63	39	51.6	57	56	S.W.	.05
Average		29.648	29.456	63.4	39.8	51.6	57.0	56.5		.59

Sept. 19—Clear; quite cloudless; very fine.
— 20—Clear, with cold north wind; cloudy and cold; slight frost.
— 21—Fine; cloudy; rain at night.
— 22—Clear and fine; showery; fine at night.
— 23—Clear; overcast; cloudy, with bright sun at intervals; showery.
— 24—Clear; heavy showers; cloudy.
— 25—Clear; heavy clouds; thunder storm 5—6 P.M., fine at night.

Mean temperature of the week 4½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Oct. 4, 1856.

Sept. and Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	64.9	44.6	54.7	14	0.80 in.	—	3	4	1	8	7	4	3
Mon. 29	64.8	45.3	55.0	19	0.46	1	3	3	3	5	10	2	3
Tues. 30	64.1	43.9	54.0	18	0.58	3	2	3	2	5	7	7	1
Wed. 1	63.3	45.3	54.3	17	0.53	2	3	2	2	6	9	4	2
Thurs. 2	63.7	43.0	53.3	17	0.48	2	4	1	—	6	8	5	4
Friday 3	62.7	43.8	53.2	15	1.01	2	3	1	1	9	8	4	2
Satur. 4	64.3	43.9	53.6	15	1.06	—	5	2	—	6	13	3	1

The highest temperature during the above period occurred on the 29th 1832—therm. 79 deg.; and the lowest on the 2d, 1853—therm. 27 deg.

Notices to Correspondents.

ACORNS: *W Pearson.* They belong to some narrow-leaved form of Quercus pedunculata.

CAMELLIAS: *Amateur.* Your Camellia leaves are covered with honeydew and soot fungus. The best remedy is lime water, with which the parts affected should be well washed ‡

GRAPES: *H S Newman.* Your bunch of Grapes is a very remarkable instance of sport in colour. The berries on the lower part of the bunch were decidedly well coloured Black Frontignans; those next the stalk were White Frontignans, with the exception of one black and another streaked. We counted 15 black berries and 12 white. Whether the Vine has previously shown a disposition to produce party-coloured fruit, or any other information you may possess respecting it will be acceptable.——*Vitis.* For a late Vinery, Oldaker's St. Peter's is as good a sort as you can plant. A plant of the White Muscat of Alexandria may be introduced in the hottest part of the house, and elsewhere you may have one of the Calabrian Raisin. After Grapes have ripened, and their footstalks have become dead, they do not affect the vegetation of the plant, and may hang without injuring it till pruning is necessary to be performed.‖

INSECTS: *H T.* Your Pear tree leaves are infested with the slimy grub or larva of the small black-winged sawfly (Tenthredo Æthiops). Dust the leaves well with powdered lime, or syringe them with lime water. *W.*

INSURANCE COMPANIES: *B G and C C.* We know nothing of either. No. 1 we should be shy of. The President of No. 2 is so good a man that we cannot distrust him. Ask your master to inquire of his bankers.

NAMES OF FRUITS: *W T.* 1, Beauty of Kent; 2, Minchall Crab; 3, Ribston Pippin; 4, Hawthornden.—*A Sub.* 1, Queen Mother; 2, Coe's Golden Drop; 3, Imperatrice (?); 4, Mirabelle; 6, Washington; 7, Orleans; 8, Shropshire Damson. *James Cuthill.* Your Plum from amongst those sown for stocks is a Black Bullace, the uses of which are well known.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Mary.* Doodia caudata, a native of New Zealand, not quite hardy. *S.*—*W S T.* Acer Negundo.—*R H Pap.* Oncidium micropogon and Dendrobium cumulatum.—*Donald.* All the four numbers are young states of species of *Erysiphe.* They were formerly referred to the genus *Oidium. M. J. B.*—*S V.* A mere leaf cannot be named. It is apparently some Fumewort.—*C M H.* Clethra alnifolia.—*H W.* Triticum repens, the common Couch Grass.

MANSION: *An Old Subscriber.* The questions should be answered by an architect; we will, however, advise you as well as we can. Point with Portland cement. Build a portico 6 feet deep, in the same style as the present battlements. If a mere frame to the door, supported by pilasters, is all you can manage, then let the pilasters be square. A portico to cross the road would be too much for the size of the house itself. We think the low wall will be a decided improvement; only take care that the vases which are to terminate it are themselves in good taste.

PLATTER PIPPIN: *E S.* On Sept. 3, 1844, a certificate was awarded "to S. Platter, a cottager at Aylsham, for specimens of a seedling Apple. Being of last year's growth, they were a little shrivelled, but were nevertheless in good preservation. They were stated to have been, until within the last few weeks, quite firm and juicy; they looked like some sort of Russet, and had the useful property of being preserved in good condition over a second season."—Proceedings at the Meetings, p. xxvii. The above Apple was sent by S. Parmeter, Esq., v. *G. C.*, p. 606, vol. 1844.

STRAWBERRIES: *Inquirer.* You cannot do better under the circumstances than use guano-water. Apply it in spring when the plants are in a growing state.‡

THE DESSERT: *C J B.* We do not think there is any universal law regulating the respective duties of gardener and housekeeper in dishing up fruit for table. If the gardener possesses sufficient taste, as most do and all should, he should certainly be authorised and required to prepare it for table with his own hands, without the interference of butler or housekeeper. That gardeners are sometimes grievously wronged by the manœuvres of upper servants is undeniable and surely ought to be remedied. We have no doubt that most deserving men have even lost their places by such means.

VINE BORDERS: *C C.* The cheapest of all coverings for these is straw; but many object to it on account of its unsightly appearance. Asphalte felt fixed on frames would probably be found to be cheaper than tarpauling. The best material is wooden shutters.‡

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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(Established 1840)

Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.
EDWARD PURSER, Secretary.
40, Bridge Street, Blackfriars, London.

LOAM, BOG, PEAT, LEAF MOULD, SILVER SAND, ROTTED MANURE, GRAVEL, GROTTO MATERIAL, &c., can be supplied in large or small quantities; also every article connected with the Nursery business at the lowest price.—JOSEPH FRYER, Clarendon Nurseries, Camberwell.

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The Directors of the above Company (many of whom are extensive agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but genuine quality, cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact; ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied.

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

Offices—109, Fenchurch Street, London.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

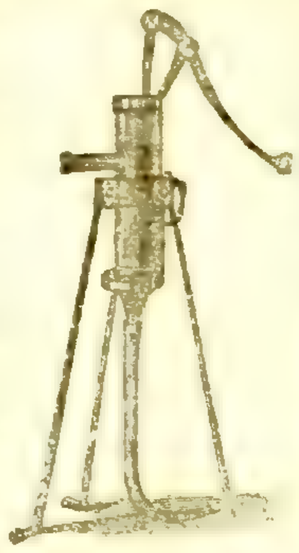
The public are cautioned against spurious imitations. As security to the purchaser every bag contains 2 cwt., and is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

NEW PARING PLOUGH.

MR. WOOFE having now completed his PLOUGH for Paring Land for Burning, to satisfy certain individuals he will undertake to accomplish any set number of acres in least possible time, most perfect manner, and with least distress to horse and holder, for 20*l.*, against the party's implement who so unneighbourly copied and patented his in its then unfinished state at the beginning of the year, or any other implement of the kind in the kingdom.—Weston-Birt, near Tetbury.

P.S. Paring stubble now 1¼ acre daily, one horse and a boy, with somewhat less labour than ploughing such land with pair of horses in the regular way. W. W.—Sept. 27.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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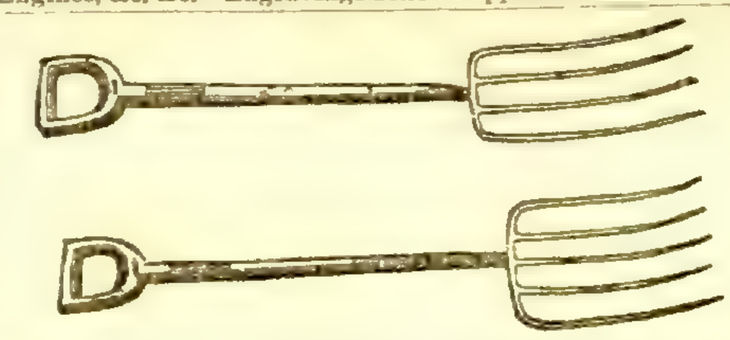
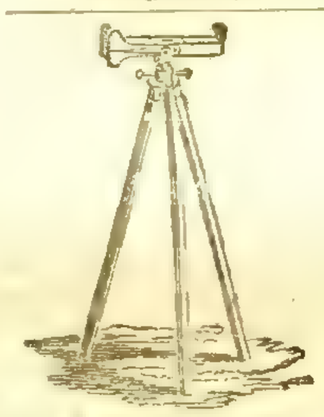
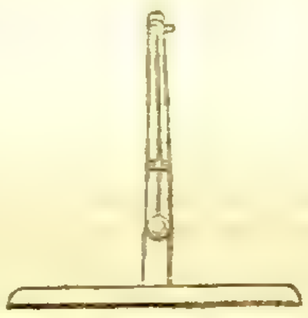


AMERICAN STEEL DIGGING FORKS.
GREAT REDUCTION IN PRICES.
Wholesale Agents: WILLIAM DRAY & Co., Agricultural Engineers, Swan Lane, Upper Thames Street.



WEIR'S SPIRIT DRAINING LEVEL.
Price 30*s.*; Case 1*s.*
Requires no graduated staff or computation. Any labourer an use them.



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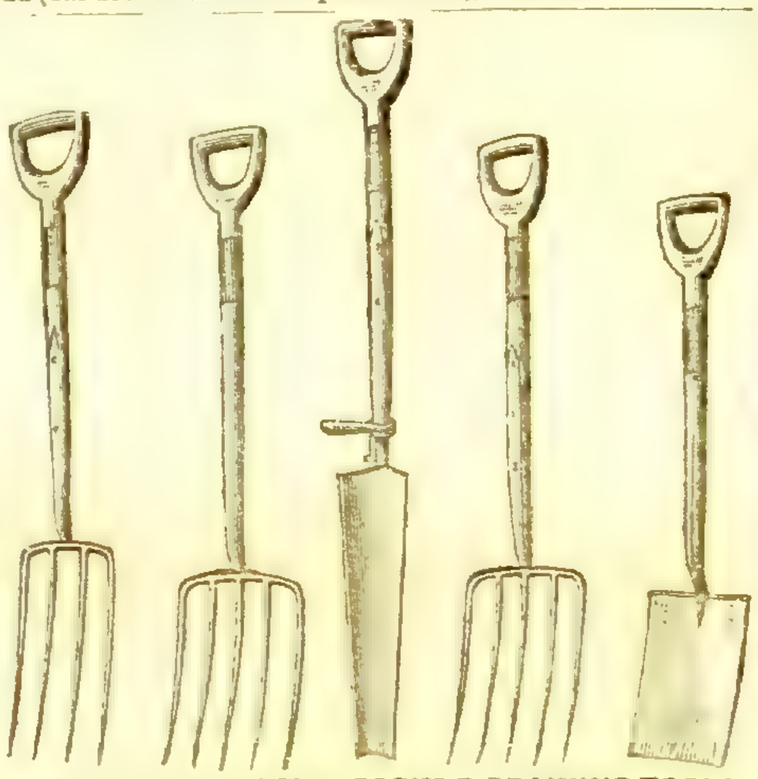
Price 15*s.* Terms cash.
Illustrated Catalogues sent post free.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.



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MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements, on receipt of eight postage stamps. 103, Newgate Street London.

LAND DRAINAGE.

MR. THOMAS SCOTT, LAND AGENT, 5, Charing Cross, is prepared to take Contracts for large or small quantities. Inspection allowed of Drainage Works now being carried out around London, and references given to gentlemen for whom Contracts have been completed.—Sept. 27.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

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The extension of Works into nearly all the Counties of England requiring a larger Capital, the Directors have determined to issue some of the remaining SHARES of 25*l.* each, 2*l.* 10*s.* per share payable on allotment, or the whole amount can at once be paid up. Dividends paid in the last ten years have averaged 5*l.* 12*s.* per cent. Applications for Shares to be made to the Secretaries.—By order of the Board,
BIDWILL & BRODIE, Secretaries.
Offices of the Company, 9, Bedford Circus, Exeter; and 30, Parliament Street, London.

HIGHLAND AND AGRICULURAL SOCIETY.
EDINBURGH VETERINARY COLLEGE.

The Committee of the Highland and Agricultural Society of Scotland, appointed to superintend the Veterinary College, hereby intimate that the Session will commence on WEDNESDAY, November 5, at 2 o'clock.

THE COURSE OF STUDY INCLUDES THE FOLLOWING CLASSES:—
1. Zoiatrics, Veterinary Medicine and Surgery Professor DICK.
2. Zootomy, Veterinary Anatomy and Physiology, Mr. GAMGEE.
3. Chemistry ... ... Dr. ALLEN DALZELL.
4. Veterinary Materia Medica and Pharmacy Dr. ALLEN DALZELL.
Anatomical Demonstrations ... Mr. GAMGEE.

By Order of the Committee,
Edinburgh, Sept. 27. J. HALL MAXWELL.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l.* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS,
Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

The Agricultural Gazette.
SATURDAY, SEPTEMBER 27, 1856.

MEETINGS FOR THE ENSUING WEEK.

Sept. 30 { South-West Middlesex Agricultural Society, at Hampton.

THE variety which is met with in all agricultural plants has been viewed by some with regret rather than considered as a matter for congratulation. If, however, we look into the origin of varieties, we shall find that they are unavoidable departures from the original type, being the result of cultivation, which surrounds the plant in question with circumstances widely differing from those to which it is naturally subjected. If these conditions are made to change, so, to a greater or less extent, must the forms which they induce.

Thus, if we look into the history of any of our crops, whether of grain or roots, we shall find that the varieties in vogue have been constantly changing and accumulating. Fifty years since and a Wheat crop on the lias clays of Gloucestershire would have consisted of a coarse cone Wheat grown on the tops of high ridged lands, and even there much infested with the wild Oat (*Avena fatua*), and other weeds,

which almost exclusively occupied the furrows. Now, however, a much larger crop of fine red and white Wheats can be grown on the same soil, or rather in the same locality, for the soil by draining and other ameliorating influences is quite altered, and with it has come about a change of climate, so that large crops of fine Wheat can now be grown where but precarious crops of a much coarser sort were the rule.

It is with sorts of plants as with breeds of animals: they cannot stand still at any one given point. We may get a cross of either that will give us just what we want, but if we constantly breed from those retrogression will be the inevitable result. If, however, we have skill and judgment to ascertain the sources of our breed of animals, we can manage so as to maintain our cross in considerable purity, and just so is it with plants; we can from time to time choose examples to breed from, we can change their position or treatment, or we can even cross one sort with another, and thus by false hybridisation get different qualities. With plants there is, if possible, a greater liability to a wearing out of any peculiarity than with animals. New sorts are therefore continually necessary, and we venture to suggest to those who are engaged in introducing them a plan of operations differing from the one usually adopted.

All new forms we now meet with are but partial departures from some closely allied state, and possess therefore but a small range of new adaptations to our various requirements. We venture to recommend an attempt at the production of new varieties, not from varieties already established, but from species. Florists, we believe, constantly appeal to original species for new varieties, and agriculturists and seedsmen should follow their example. May it not be possible that by reverting to the original and natural sources of all our varieties, we shall obtain a stock more certain to reproduce itself, and more likely to yield a vigorous and healthy produce?

At a late meeting of the Imperial Agricultural Society of France, M. POMMIER produced a sample of what he considered GUANO from one of the West India islands. The substance having been analysed by M. PAYEN was found to consist of the following substances:—

Matter soluble in water (containing chlorides and sulphates)	2.80
Sulphate of lime	13.82
Phosphate of lime	25.20
Phosphate of alumina	2.40
Carbonate of magnesia	3.36
Carbonate of lime...	20.82
Siliceous sand	31.60
Total	100.00

M. PAYEN added that this guano could have no other value than what belonged to the phosphate of lime, and could not be employed without being pulverised, which would cost 10 francs per 1000 kilos. Such being the case, the mere freight of the article would be more than its market value. It therefore could not only not be considered as a guano, but could have no agricultural applicability.

A MACHINE for digging Potatoes has been lately in successful operation in several parts of Scotland and Ireland, to which, from the uniform reports of its efficiency, it is right that the attention of our readers should be drawn. The inventor is a Mr. HANSON, whose address may no doubt be ascertained by application at the Albert Model Farm, Glasnevin, Dublin, where his implement underwent its last public criticism. We understand that it consists essentially of the framework, coulter, share, and mouldboard of a common plough, and that by a pinion working into a wheel which acts as sole plate in taking the weight of the plough motion is given to a set of revolving forks placed so as to operate on the furrow slice just as it leaves the turn-furrow. These forks fairly disintegrate the whole mass of earth as it is lifted, and scatter the Potatoes which it may contain over the surface of the ground on which the plough has already operated.

We are told of the machine that in its trial at Glasnevin last week it performed its work admirably, completely lifting the drill from the bottom with the inclined sock, while the revolving forks completely separated the Potatoes from the earth, throwing them up in the air, where they were caught by a netted screen, and deposited compactly on the surface for the gatherers.

The judges appointed to determine the merits of the implement reported—

1st. That HANSON'S patent Potato digger worked well, and that it is an implement which can be generally used efficiently and economically in and on most of soils which are put into a proper state of cultivation for the Potato crop by drill husbandry.

2d. That this implement, besides being a good Potato raiser, is a valuable cultivator or pulveriser of the soil, by its throwing up the soil in the air, casting up a considerable portion of it upon the *screen* of the machine, thus completely mixing the manure and soil, besides scattering any weeds free of soil upon the surface, so as to be easily collected by the harrows and weed-rake.

3d. That thus this machine is an important preparatory implement for putting in autumn Wheat or Oats, inasmuch as it completely mixes the soil and manure, and pulverises the ground evenly for the reception of the seed.

4th. That the machine is simple, strong, easily managed, and can be worked by two horses with ease.

AGRICULTURAL STATISTICS IN IRELAND.

The importance justly believed to be attached to the obtaining correct agricultural statistics of all countries generally, but of such countries as are purely agricultural or nearly so more especially, will plead my apology for now attempting to trespass on your pages, and on the attention of your readers by a few remarks on the statistics of Ireland, a country perhaps the most purely agricultural on the globe but certainly the most so in Her Britannic Majesty's dominions. If any of your readers doubt the importance of having such statistics correctly ascertained, he need but glance back over the various newspapers published throughout Great Britain and Ireland for the last six months, and if I mistake not he will see those of all shades of politics and polemics, from the great *Times* in London to "Paddy Kelly's Budget of Fun" in Dublin, stuffed more or less with our statistics as paragons of excellence. And why should they not be considered so when our popular viceroy has been found leading the van on many important occasions, but more especially on such occasions as the great meeting of our Agricultural Improvement Society of Ireland lately held at Athlone, when his Excellency dealt largely in figures which the majority of those who heard him and many of those who read his speech believed to be "as true as gospel?" He said, "I wish however not to deal in generalities on a subject of this sort. I derive my information from the very valuable returns collected by the constabulary of this country; and this is a matter in which I conceive that you in Ireland have got a material start over your proud neighbours in England." His Excellency further said, "These returns, as you are well aware, are collected annually, and be it spoken to the great credit of the Irish gentry, farmers, and people, they are supplied voluntarily, and rare indeed are the instances in which the information requested is not supplied with alacrity and good will." There is no doubt whatever that in so far as "the gentry" or landed proprietors generally are concerned much "alacrity and goodwill" may have been manifested. But giving them credit for all the "alacrity and goodwill" and the absence of all exaggeration on their parts, what proportion of the gentry of Ireland is sufficiently versed in such matters as to give returns on which the least reliance can be placed? Not one in every 20, except in so far as farm stock only is concerned; and as to the farmers and people generally, how many amongst the farming classes, admitting (which we could not admit) their willingness to give the desired information, calculated to give it with any degree of accuracy? Not one in a hundred. But supposing they were all so qualified, how many of them would show that "alacrity and goodwill" so boasted of by his Excellency? Not one in every thousand. Such is not the feeling of my countrymen, and no man regrets the absence of that feeling more than I do, and it is with pain I quote one of the best of Ireland's sons, namely the late Gerald Griffin. "The peasantry of Ireland have for centuries been at war with the laws by which they were governed, and watch their operation in every instance with a jealous eye. Even guilt itself, however naturally atrocious, obtains commiseration in their regard from the mere spirit of opposition to a system of government which they consider unfriendly. There is scarcely a cottage in the south of Ireland where the very circumstance of a legal denunciation would not afford even to a murderer a certain passport to concealment and protection. To the same cause may be traced in all likelihood the shrewdness of disguise, the coolness and the affected dulness, the assumed simplicity, and all the inimitable subtleness of evasion and of wile which an Irish peasant can display when he is made to undergo a judicial scrutiny and in which he will frequently display a degree of gladiatorial dexterity that would throw the spirit of Machiavelli into ecstasies." And this, I assure you, can be said with as much justice of the same peasantry in regard to the agricultural statistics sought for by the Irish police as if the same police were seeking for the haunts and whereabouts of a "Terry alt" or a "Molly M'Guire," not alone "in the south of Ireland," to which Griffin alludes, but to the east, west, north, and centre of Ireland, for they believe the information sought for by the police is for anything and everything but "their advantage;" nor is their evasion in such matters confined to the police queries, for they would observe the same towards all men, and on all occasions, with very rare exceptions, touching land, its valuations, and management, but none more keenly than in the very statistics now under consideration. But supposing that the gentry and the people possessed all the necessary qualifications required in them to supply this information and all the desired willingness to communicate it, was adequate time allowed the police or did they take the necessary steps to obtain it? No, they did not. In proof of this I could give you examples, innumerable examples, that I have seen in every year and on various parts of Ireland since this scheme was first broached; one or two such examples may suffice, being those under my own eye and regarding which I challenge contradiction. I hold and manage a farm here on my own account; I manage four or five others in this locality for one of my employers; and from neither of these farms could the police get authentic information regarding them except through me personally, and strange to say that though the police know me well, and though they know there are few who could and who more willingly would give them reliable information, not one of them ever applied to me for it either as regards my own farm or those others I am managing. If I am told they could obtain the necessary information through their own knowledge of this locality, to this I must say, impossible, were I even to give credit to the police for possessing the necessary education to qualify them for such an undertaking. But when I know that not one of those policemen, nor any other of the many policemen I have met in any part of Ireland since "the Peelers" were established about 35 years ago in Ireland, ever possessed such qualifications, am I not justified in pronouncing this vaunted scheme to be in reality a "mockery, a delusion and a snare?" Again, the period selected for obtaining these statistics was the reverse of opportune, for since these returns were said to have been sought for and made up, cropping of various kinds to a great extent had been done of which the cultivators of the soil had at the time but little if any idea. For instance, on the townland where I reside there were nearly 50 acres of Flax sown since the middle of June last,* before which those who sowed it had no idea of being in a position to do so. So with Turnips, nay even of Oats itself. Some who had Oats growing then apparently healthy ploughed the land on which they were growing, so bad did the appearance of the crops turn out to be, and sowed Turnips on the same land. These are facts.

In thus pronouncing an utter condemnation of the accuracy of this scheme, I wish it to be particularly understood that no man values more highly than I do the importance of having agricultural statistics accurately obtained, or as nearly so as circumstances will admit, but which never can be done by such a body as our Irish police; who, though perhaps the best organised staff in her Majesty's dominions for the duties which they have learned to perform, are not the men to supply agricultural statistics, whatever they may do in enforcing the destruction of weeds along the road and roadsides, for which they have now ample time, having little else to do. *Query*, would not an act of parliament be necessary to justify their enforcing this so much required operation? I think it would, and I think also that until such an act be obtained their attempts at the destruction of weeds, though backed by county surveyors, Poor-law guardians, grand juries, the celebrated Registrar-general, Mr. Donnelly, nay the Commissioners of Police and the Lord Lieutenant himself, will be as futile as their attempts to collect agricultural statistics. *Edward Carroll, Cranemore House, Newtonbarry.*

ANSWERS TO AGRICULTURAL QUESTIONS.

BY MR. HENRY COX, OF MINCHINHAMPTON, GLOUCESTERSHIRE.

(*Concluded from p. 685.*)

RECENT AGRICULTURAL PROGRESS.

1. State the principal additions made of late years to the number of our agricultural implements.

Locomotive steam engines adapted to threshing corn, brick and drain tile machines, reaping machines and cheese-making machines, steam ploughs and steam draining ploughs, digging machines, drills with cups and levers for coulters, horse rakes and lever harrows, pulping machines for roots, liquid manure drill, and last not least the great steam horse; and there have been such improvements in nearly all our farm implements, such as horse hoes, harrow, wheel, and clod-crushing rollers, as almost to claim the title of new.

2. Name those crops the cultivation of which has been either introduced or very largely increased during the past few years.

Mangel Wurzel, although grown to some extent 30 or 40 years ago, is now much increased in culture. Italian Rye has been introduced and is very largely increased within the last few years. Trifolium incarnatum is too of recent introduction, but the culture of all fallow crops has much increased.

3. What is the most important improvement now generally adopted in the management and cultivation especially of clay soils?

The old system of managing clay land was Wheat, fallow, Oats, Beans, Wheat, and fallow, and so on; but since draining has been introduced largely into this description of land a deeper system of culture has been practised with success; Clovers have been introduced with profit; Mangel Wurzel has been introduced instead of bare fallow, and has produced great crops; Kohl Rabi and Cabbage have likewise been found to thrive in those soils.

4. Describe Mr. Smith's (of Lois Weedon) system of cultivating Wheat, and state the principles on which his experience of its success receives its explanation.

Mr. Smith professes to grow Wheat on only half his land, that is, in alternate strips of about a yard each,

* It will surprise our "proud English neighbours" to hear of Flax being sown as late in the season as the 16th of July, "the flight of Mahomet," on land not capable by ordinary treatment to produce three barrels of Oats of 14 stones of 14lbs each stone to the barrel, and on which the grower expects three tons at least of Flax to the acre, and of a quality to hope worth 5*l.* sterling per ton. Such I assure you is the fact, and if his expectations be realised, as I have no doubt whatever they will, I may hereafter trouble you with a notice of Flax growing in this locality.

cultivating the intermediate strips very deeply as long as he can get between the strips of Wheat, which I presume at harvest time nearly or quite meet; the strip that is cultivated this year will be Wheat next year, and so on. No doubt Mr. Smith's land is rich in inorganic ingredients, and by breaking up a few inches of the subsoil every year he continues to call into practice those elements which have long lain dormant, and by the frequent stirring it gets it imbibes some portion of ammonia from the air and water, and there is no doubt chemical changes take place on the soil coming in contact with the atmosphere that supply a still larger quantity.

5. Name such recent geological discoveries as have been already used, or which promise to be made use of in agriculture.

I am not well versed in geology, but I think the greatest discoveries likely to benefit agriculture are the bringing to light the coprolites and the riches of the green sand in our own country, and the beds of bone earth in Spain.

6. Describe the cultivation of Italian Rye-grass, its probable produce under given circumstances, and the soils and locality to which it is best suited.

Italian Rye-grass is cultivated now in many ways. Some mix it with the seeds of Clover and common Rye, and sow with Barley or spring Wheat; but the most approved way is I think to sow by itself in the month of March or April. The surface of the ground should be made firm before sowing, and the seed slightly harrowed in, and the roller again passed over. The productiveness of the crop varies much according to the quantity of manure applied. About 10 tons at each of three cuttings is a very good crop, but it may be forced up to five such cuttings, and I have heard it asserted that 100 tons of green food may be grown per acre of this Grass; from 3 to 4 bushels per acre is the usual quantity of seed. Its proper place is I think near the homestead or feeding stalls, where it can be very liberally supplied with manure water. Nothing seems to make so quick a return for any expense incurred in manure as Italian Rye-grass. I have seen accounts of upwards of a ton of guano in solution with water being profitably employed on this crop per acre. I have seen some very fine pieces of it on clay soils, but from all the accounts I have read it seems to have produced the most astounding results on what had formerly been a blowing and almost barren sand; but from its very gross feeding habits I should scarcely recommend it into a common rotation in very great quantities, as it feeds on nearly the same ingredients as the Wheat plant; or in other words I do not consider it at all an ameliorating crop. I should say it is the best crop that could be grown where the liquid manuring system is adopted. Horses and most other cattle relish it much.

STEAM CULTURE.—BOYDELL'S TRACTION ENGINE.

WE have now arrived at the *£. s. d.* view of cultivating our lands more economically by steam than horses, that which is likely to procure for the subject the serious attention of practical farmers. During the past 14 days Mr. Boydell has been ploughing land on the lands of Steam Farm, Hatton, occupied by Mr. John Middleton, and Butts Farm, Hanworth, occupied by Mr. James Middleton, with his traction engine—the one exhibited at Chelmsford—turning up a fallow 9 inches deep, at about one-fifth of the expense it could be done at by horses in the district, the quality of the work being declared by all who examined it superior to that in the same fields ploughed by horses. The trials having been advertised, we attended on Tuesday and Friday, the 16th and 19th inst., and shall present the readers of the *Agricultural Gazette* with a brief account of what came under our observation.

On Tuesday the engine was trench-ploughing a small field on Steam Farm with two of Cotgreaves' trench ploughs, Mr. Cotgreaves himself superintending them. The work was being done about 12 inches deep, and at the rate of 5 acres per day, or half an acre per hour. The engine to appearance would have hauled nearly another plough, as it was never working up to its full pressure of steam; but the two ploughs being all that were at command we had not an opportunity of bringing this to the test of experiment. The quality of the work gave great satisfaction, especially to the market gardeners of the neighbourhood, some of whom offered to give 30*s.* per acre for land so trenched, assuring Mr. Middleton, who lets out engines, that a large area of the market-garden grounds of the capital could be had at this rate.

The daily expense of the engine and hands was estimated at about 30*s.*, so that the cost per acre would be 6*s.*; consequently the profit would be 24*s.* per acre at the above estimate, equal to 6*l.* per day—36*l.* per week.

On Steam Farm there was also a good deal of ploughing done by the engine in two large fields with four of Howard's P P ploughs, the depth of the furrow being 9 inches, and the rate of ploughing from 8 to 10 acres per day. The quality of the work was superior, fully equal to what could have been done by four horses in each plough. Both fields were well adapted for traction-engine work, being comparatively level and of great length.

On Friday the engine was at work in a large field on Butts Farm. It was again hauling four common ploughs, ploughing 9 inches deep, and at the rate of an acre per hour when timed. The field was still better adapted than any of the former, being nearly as level, of greater length and rather lighter in quality of soil. Both fields on Steam Farm, although of a gravelly character, were yet rocky hard in the bottom, but here the soil was more friable and sandy, consequently the ploughs were more easily held, enabling the ploughmen to make far better work than that done by them with horses in the same field.

The steady equal draught of the "steam horse" deserves special notice, as it differs widely from that of horses. Accustomed to the latter we think little about the irregularity of their traction force when holding the plough behind them, but we have only to examine their mechanism and the ever-varying position of the fulcra (footprints on the ground) over which their muscular force acts, and compare them with those (the endless rails) of the traction engine, to perceive that the difference is great and wholly in favour of the latter. In point of fact Howard's P P ploughs after being entered behind the steam horse almost went alone, for we saw Mr. Middleton remove his hand from one of them for a considerable distance, and how much further it would have gone cannot be said.

The expense of ploughing 9 inches deep with four ploughs is thus given:—

	£.	s.	d.
An engine-man, or stoker, at 4*s.* per day ...	0	4	0
A steersman and four ploughmen at 2*s.* 6*d.* do.	0	12	6
10 cwt. of coals at 1*s.* do.	0	10	0
Tear and wear, &c., do.	0	10	0
Total expense do.	£1	16	6

The sum of 36*s.* 6*d.* per 10 acres would be something less than 3*s.* 8*d.* per acre; but say 2*l.* per day and 4*s.* per acre.

The value of the work done was estimated at from 20*s.* to 24*s.* per acre; say the lowest of these two figures, which would give 10*l.* per day, so that deducting the 2*l.* (the expense of the engine), we would have 8*l.* as the profit per day over our present system, 48*l.* per week, or the prime cost of the engine in some 10 weeks work!

When the engine was timed it was ploughing fully an acre an hour, but at that time it was going rather over its ordinary pace. In point of fact the boiler is only calculated to keep up a maximum pressure of 45 lbs. of steam per square inch, and with the most successful stoking it seldom much exceeded this pressure, while it very frequently fell below it. Midland we found it one time as high as 50 lbs., and at another as low as 35 lbs. We may also mention here that we had the diameter of the cylinder measured and found it 6½ inches. Probably at the ordinary pace of the engine it was ploughing at the rate of 8 acres per day of 10 hours. We insisted very hard on Tuesday for a 10 hours' trial without intermission, but owing to the urgent demands of visitors, some of them from the continent of Europe, the East and West Indies, and United States of America, to see it trench-ploughing, &c., &c., our request was found impracticable on any of the days advertised for public trial.

At 8 acres per day the expense per acre would be 5*s.*, and the profit per day 6*l.*, per week 36*l.*, over the present system; a profit which would soon pay off the prime cost of an engine. In the provinces the expense of such ploughing would probably be on an average only 16*s.*; at 10 acres this would yield 8*l.* or 6*l.* of daily profit; at 8 acres, 6*l.* 8*s.*, or 4*l.* 8*s* of profit, allowing the expense of the engine in each case to remain as before.

There was no two-horse or 6 inches deep furrow work done, and therefore we cannot say from experiment what the expense of such was; but we may safely conclude that at 10 acres per day it would not be more than 2*s.* 6*d.* per acre, and at 8 acres per day 3*s.*

Such are the leading facts which we gleaned from two days spent with the Messrs. Middleton. That they involve a revolution in agriculture no one will deny who comprehends their importance. To those of our readers who have hitherto been opposed to Boydell's steam horse entering their fields, the above results may appear startling and even incredible, but to such we say go and judge for yourselves, and be guided by facts, not opinions, for experience will soon settle the question of direct traction *versus* indirect, or the steam-horse *versus* rope-tackle systems otherwise than many imagine. At the same time it is not to be concluded from this that we are advocating the exclusive use of the "steam horse," for, on the contrary, we aver that few farmers when steam culture is thoroughly established will be found wanting rope traction of some kind or other; but this we affirm without fear of contradiction, that the day is not far distant when the farmer or implement maker who hauls about his portable engine from place to place with horses, will be considered as belonging to the old school. We ourselves hope very soon to witness far more triumphant results in favour of direct traction than the above, for several of our most intelligent and leading agriculturists have traction engines of an improved construction, and with better implements for tillage, nearly ready to enter the field than what were used on the above occasion.

Home Correspondence.

Surface Burning Earth and Stubbles.—We beg your indulgence for a space to set this subject of ours on a right footing. It has been misconstrued, and we do not think it was intentionally, as appears from a friendly letter and reply we have received from Mr. Baker personally, which implies that he is not opposed to our principles as we expected, but only (and very justly, too) to all false statements. We did not attempt to arrogate anything to ourselves, as the practice is as old nearly as the hills; but we simply begged to draw attention to "our successful operation of it at that present dry time." The difference between Mr. Baker's statement and the cost of ours only appears in his burning and paring more earth, and more deeply than ourselves in the operation, though no doubt paying better in the end (even if he had used dust coals, as some do, to keep their fires up when wet overtakes them). With this exception, however, we believe, in our humble opinion, that burning the earth to a red hot bricky colour and substance destroys the organic properties of the soil too much, and on very many soils does not so much real service as partially burning it; and it will be recollected, and for this reason it was, that we only pretended to "burn" some and "scorch" the rest of the soil sufficiently to kill all living substances the fires were composed of, the steam and smoke enriching the soil in no small degree. Of course Mr. Baker's description of his broad-sharing with four horses instead of ours with three, would make his expense more than ours; but his account in this item differs only 6*d.*, though the expense of implements, irons, &c., was intended to be included in both statements. But he "crosses" the land with three horses, which swells his account 3*s.* 6*d.* more than ours, we finding it unnecessary for this operation, on account of our rowed Wheat crops being so well cultivated in spring with the scarifier, and by repeated hoeings; 9*d.* more is set down for harrowing, whilst our raking answered for this. Burning is set down in Mr. Baker's item at 1*l.* 6*s.* 8*d.*, whereas we expended and noticed only 15*s.* We did not note 10*s.* or 12*s.* per acre; this is an error of our friend Mr. Baker's, who no doubt took it from the *Gardeners' Chronicle and Agricultural Gazette* of September 13th, where we observe the editor wrote himself—"The expense of these operations need not exceed 10*s.* or 12*s.*," &c. This was a paragraph of his own words in the leading article of that paper. Again, we used no eight trusses of straw, and no wood or bushes, and here is brought to view 8*s.* more expense than ours; we having made shift without any. Lastly, we left out of our account the spreading altogether; and here again is 4*s.* 2*d.* more, thus swelling his total, and making in all more than our expenses per acre:—

	£	s.	d.
4 horses. &c., broadsharing	0	0	6
3 ditto crossways...	0	3	6
Harrowing	0	0	9
Burning	0	11	8
Spreading	0	4	2
Straw	0	4	0
Wood and bushes	0	4	0
Expense per acre more than ours	1	8	7

It gives us great pleasure to be able to set differences of this sort right in so friendly a manner by personal correspondence and common civility, at a trivial expense and trouble. Thanks to the penny postage for this. *A. Hardy & Son, Maldon.*

Arbitration among Patentees.—Allow me to suggest the importance at the present time, when inventive talent has been brought to bear on agricultural machinery to so great an extent, and when a number of minds may each be directed towards the accomplishment of a similar object, of establishing some sort of tribunal for economically settling the rival claims of patentees. The present law courts are so expensive that unless the object in dispute is of universal adoption, the patentee when he enters them to defend his invention from innovation or attack must bid adieu to all pecuniary reward for his own labour and ingenuity. I certainly think that a large portion of the heavy fees which are still inflicted on patentees should be devoted to this purpose. No honourable inventor would object to submitting his claims to such a court of arbitration, and I doubt not that the Royal Agricultural Society of England would lend their influence towards the protection of inventors, and would refuse admission to their show yards to implements that can be proved to be invasions of others' inventions. The distinguishing feature of the present time with regard to inventions is, as before alluded to, the union of several minds in the perfection of one implement. This has of late been abundantly shown in our reapers, steam ploughs, threshing machines, drills, and particularly the water drills; and it is of the greatest importance to the public that each inventor should be protected and rewarded to the extent of his own invention. Few persons at the present day who have had opportunities of judging are disposed to doubt that ploughing by steam will be rendered practical and economical, but whether by Fowler's or by Boydell's principle, or by some new machine combining both principles or improving on either we will not venture to say. We should, however, greatly regret that Fowler's merits should be passed over, or that Boydell should go without his reward, or that either should be called upon to waste large sums of money in defending their inventions from the innovations of others. *W. C. Spooner.*

White Clover.—A question has been asked as to the unusual prevalence of the perennial White Clover this year. Allow me to suggest that it may principally be attributed to the dry seasons we have had during the last few years, which has been somewhat unfavourable to the various rank Grasses which delight in moisture, and has consequently enabled other Grasses for which dry weather is favourable, such as the White Clover, to obtain the supremacy. There are abundant proofs that the soil contains a vast quantity of the seeds of plants which are prevented from vegetating by unfavourable circumstances, or by the superior vigour of other indigenous plants. In addition to the cause we have assigned we may also urge that at this period of the

year the White Clover drops its seeds, which are numerous in proportion to the number of plants, and thus in favourable years the growth of this plant is likely to increase each year, which fact is consistent with our observations during the last few years. We may add that we have found the application of the earthy phosphates extremely conducive to the growth of the White Clover. *W. C. S.*

Failure in Oats after Green Crop, Dumfriesshire.—It is a general complaint among the farmers of this district that the Oat crop after green crop is a comparative failure this season, whereas in former years they used to reckon with certainty on a good crop after green crop. The ground, which is variable, from light gravel to retentive clay, was manured as usual, in some cases with farm-yard dung alone, in some with farm-yard dung and guano together, and in some with guano alone, and the result is the same in all cases. Can you assign a reason for this change? Is it attributable to the weather? The month of July was extremely cold, sometimes the thermometer was near the freezing point, while August was for most part excessively hot. *Ignoramus, Nithsdale, Dumfriesshire, Sept.* 20. [In what form does the failure appear? It may arise from abortive ears, from a stunted growth, from blanks in the crop, from injury by being laid, from mildew, &c. Each of these appearances would indicate a separate cause.]

The Crops.—As the Oat is *par excellence* the corn crop of Ireland, it may be satisfactory to say that in this part of the country in the present year it is generally a superior crop both in stook and under the flail; there are no doubt some light crops of it, as must be the case where people will take successive crops of it till the ground gives little but weeds. Our Potato crop also is excellent, abundant, and mealy, and, although the leaves are blighted, the stems or stalks of the main crop remain green and succulent and the tubers not injured to a serious amount, indeed not more of them than can be beneficially used up by swine or made into boxty (bread made of grated Potatoes), a great favourite with the Irish peasant, so that as yet no loss can be said to have been incurred. "B.," in the *Chronicle* of the 13th of September, appears to favour the hypothesis of eletrical affections, and subscribes to the opinion of those who ascribe the disease "to atmospherical causes arising from the electrical changes that are continually taking place, producing a certain condition in the air unfavourable to the health of the plant, and occasioning such a check to its growth as to bring on disease and hasten its decay." "B." produces in support of this opinion data of the state of the weather immediately preceding the appearance of the disease from the first year of its notice (1845) to 1853 in the west of England, taking periods not prior to the 18th June nor extending beyond the 13th August, whereas it is notorious that forced and other early Potatoes were reported in each year from other places to have shown disease much earlier, even, I believe, so early as March; and further, he seems to confound the primary cause of disease with those causes which affect the progress of it, so as to render all his data illusory. For the disease occurring previous to these atmospherical changes on which he relies must have a primary cause independent of them. Yet although it may well be disputed that these atmospherical changes produce the disease, yet, I think, it admits of little doubt that after it exists they do promote and further the progress of it, as being most favourable to the spread of mildew, and in ascribing the disease to a fungus I am certainly borne out by the prevalence of mildew affections over so many of the vegetable productions of the earth, since we observed it in the Potato make its first great swoop. But "B." says that these electrical changes which are effectual in this disease are continually taking place, and he is correct; wherefore, then, is the appearance of the disease confined to such narrow limits of time as from the 18th of June to the 13th of August? Why do they not operate previous to these periods on the crop generally? "B." further says that these changes produce "a certain condition in the air unfavourable to the health of the plant, and occasioning such a check to its growth as to bring on disease and hasten its decay." Without wishing to question this being the case under his experience, I must be permitted to say it is very far from being so in Ireland, for it has been generally and in every year and place remarked that never do the crops of Potatoes appear so healthy, so luxurious, so promising as when attacked by the disease, and that under the earlier indications of it, that is while the leaves are but partially injured, this luxurious condition is maintained, and that even after the leaves are withered and burnt up, those kinds of Potatoes which have the property of most resisting the disease retain very long, certainly for a month or more, a fine succulent green stem or stalk, the tubers being abundant and of large growth; indeed everything about them, with the exception of the disease, showing a vigorous life; and in 1845 no crop could exceed in apparent health, of unchecked growth, with less appearance of decay till the time of full and perfect ripeness; no disease was indicated, nor the slightest suspicion entertained of it, till they were dug, and housed, and pitted, and then they went with a wet sail. The crop indeed that year was magnificent. *J. M. Goodiff.*

Farmers' Clubs.

WIRKSWORTH: *On Cheese Making.*—We give here the substance of a lecture on cheese-making delivered at a meeting of this club some years ago by Mr. Mark Abbott, which appears to deserve a wider publication than it has yet received.

Having paid much attention to the details of cheese-making for the last few years, the observations I have to make to-day will be of a practical nature. In the first place, I may state that the milk from which cheese is made consists of three distinct parts,—cream, curd, and whey. The art of cheese-making consists in the complete extraction of the whey, and in the proper compacting and curing of the curd, and of keeping and drying the cheese until it is ready for the market. One very important part of the process is, to thoroughly separate the whey from the curd, without extracting the butyraceous matter at the same time; if this is not attended to, the cheese will heave, and be of a bad flavour and quality. Much injury is done by too much handling of the curd; if a warm hand is applied, it is sure to facilitate the escape of butter, which passes off with the whey in the form of oil.

I will now state to you as briefly as the subject will admit the mode I adopt in making cheese. My plan is, to make cheese only once a day, commencing in the morning. The evening's milk, as taken from the cows, is poured through a sye or sieve, into a tin pan floating in a cistern of cold water (for the purpose of cooling down the milk to make it keep sweet), and is generally left there during the night. The morning's milk, as taken from the cows, is mixed with the cooled evening's milk; the heat of the mixture will mostly in summer be about 75° or 76°, which is the heat I set the milk with the rennet for coagulation in the summer months; in winter I consider 78° to 80° not too warm, or in frosty weather 82° to 84°, which latter heat I seldom or never exceed. The reason why it is put together so much warmer in the winter is, from its cooling down so much faster in the process of making, and if this was not done, becoming too cold for the thorough extraction of the whey. If at any time it is thought the evening's and morning's milk will not, when mixed together, bring the temperature to a sufficient height, a portion of the evening's milk is warmed for that purpose, by floating it in warm water in the side boiler in the kitchen (care should be taken when heating milk for the cheese not to raise the temperature above 100°; if it should happen to be higher than that, it will cause a toughness in the curd and cheese); when that is done, the milk is measured with a graduated rod made for the purpose, the rennet put in, and if it is to be a coloured cheese, the annatto is also added: one pound of Fullwood's Black Imperial Annatto I find quite sufficient to colour 25 cwt. of my cheese. The colouring and rennet having been put in the milk, it is well stirred with the dish, covered lightly with a cloth, and left to coagulate. In about an hour it is cut in intersections of about six inches apart, and allowed to stand another hour, when it is broken down carefully with a curd-breaker. I may here remark, that the warmer the milk is at the time of setting together, the sooner will coagulation take place, but the curd will, in consequence, be tougher and less in quantity; on the contrary, the cooler the milk the longer will the curd be in forming, and the more tender its quality, but its quantity will be greater. Immediately after the curd has been broken down, it is carefully collected together with the milk dish, and allowed 10 or 15 minutes to settle down, when the sinker or curd-gatherer is applied, for the purpose of taking off the whey and consolidating the curd. The curd-gatherer is in form something like a soup plate, made in size to fit inside the cheese tub, the upper part or rim, finely perforated with holes, to allow the whey to escape upwards and pass into the well, or hollow part of the curd gatherer, from which place it is laded out. The curd-gatherer is pressed carefully and gradually down by the dairy-maid, whilst another person lades out the whey: when the curd-gatherer comes in contact with the curd it requires some additional weight; I use a can with more or less whey in it according to the weight required. When the whey has ceased rising into the well, the curd-gatherer is taken off, and about six inches cut and taken from the outside or edge of the curd, and laid in the centre of the cheese tub upon the other curd, and the whole cut in intersections; the curd-gatherer is again applied with a weight resting upon it sufficient to press out the whey gradually; this operation is repeated two or three times, or until the curd is sufficiently consolidated for cutting into lumps and putting under the screw press for the further extraction of the whey; the cloth used for containing the curd whilst under the screw is coarser and stronger than the ordinary cheese cloth, and is commonly called screw cloth. When taken from the cheese pan as before stated, it is put into the screw cloth, suspended over the screw press, and allowed to drain for about ten minutes, after which it is tied in the cloth and the screw applied carefully and gradually; when the whey ceases to run, the pressure is taken off, and a portion of curd cut from the outside all around, and laid in the centre upon the other part of the curd, which part is also cut in intersections with a large dull knife, and the board and press again applied. This operation is repeated two or three times, or until it is considered sufficiently dry for grinding in the curd mill. Great care should be used while under the screw not to press too hastily or too heavily; if this is not attended to in this case, and indeed in every other part of the process of cheese-making, a considerable portion of the butyraceous matter will be forced out, and the cheese of course deteriorated. The curd is then weighed and ground in the mill, allowing about 33 lbs. curd to a 16 in. diameter cheese, which, when dry and ready for the market, will take about five cheeses to the cwt.: about eight oz. salt is at this time intimately mixed with every 33 lbs. of curd; the ground curd is then put into cheese vats, in which has first been placed clean dry cloths; the cheeses are now put under the screw, and left without any pressure about an hour, after which the screw is applied lightly at first and gradually increased. It will generally be two or three o'clock in the afternoon by the time the curd is ground and put under the screw; about seven in the evening it is taken from the screw press, turned, a dry cloth applied, and put under the lightest stone press. On the second day it is removed to a heavier press, the cheese is turned twice, morning and evening, and clean cloths applied each time of turning. On the morning of the third day the cloth is removed, and a little salt applied externally, and remains 48 hours longer under the heaviest stone press, and is turned every morning and evening, a little salt being applied each time of turning; it is then taken from press and remains about three days on the salting stones, where it is turned and salted every morning; the cheese is then wiped clean and dry, put on the cheese turner in the dairy, where it remains about 14 days, more or less according to the state of the weather, and is turned every day, after which it is removed to the warm cheese room, and is kept on a cheese turner three or four weeks longer; afterwards, laid on the common plaster floor. Cheese made in this way will be ready for the market in seven or eight weeks from the time it was taken from the press.

I consider there is a great advantage in making cheese only once a day, and commencing in the morning. It gives the dairy-maid sufficient time to go through all the operations carefully, which could not be the case if the cheese had to be made at night, some part of it by candle-light, and from the servants being tired they would be very likely to slight some part of the process in order that they might get off to bed. It is essentially necessary that there should be sufficient time allowed for the dairy-maid to go through the whole of the process gradually and carefully; where there is hurry and bustle there is sure to be much mischief—much waste of quantity and quality. The evening's milk must be cooled, or it would not keep sweet in hot weather, nor would the cheese be so rich and tender. By putting the cheese together at 75° or 76° in summer, you produce a curd rich and tender, and much greater in quantity than if it was put together at from 85° to 95°, as is done in some dairies. Milk as soon as taken from the cows will in summer be about 90°; I have known some dairy-maids put it together in that state, consequently there is a great loss (at all events of quantity) by those who adopt that plan. [The remainder of the lecture we shall give next week.]

Miscellaneous.

Trial of Reaping Machines at Woolmet.—The following report of a day's comparison of several reaping machines is taken from the *North British Agriculturist*:—

"The trial of Harkes' machine for the premium of 50*l.*, offered by the Highland and Agricultural Society for a reaping machine more effective in operation and more economical than any in use, took place on Thursday, on the farm of Woolmet, in the occupation of Mr. Gibson. Besides Harkes' machine, there were three others upon the ground, viz., Dray's Hussey, improved by Mr. Gardner, Stirling, and exhibited by Mr. Forrester, near Stirling; M'Cormack's, improved by Lord Kinnaird, and exhibited by Mr. Guthrie, Inchture, Perthshire; and Crosskill's Bell, exhibited by Mr. Wilson of Cowden. The only implement on trial was Mr. Harkes'—the others were brought for the purpose of comparison. This machine is upon the same principle as that of Smith's of Deanston—a circular cutting knife, with the edge slightly serrated. The diameter of the cutting knife is 6 feet, and the breadth nearly 3 inches. The two driving wheels are 3 feet in diameter, and with the horses moving at the rate of 2½ miles an hour, the knife makes 260 revolutions per minute. The motion is communicated from the driving-wheels to the knife from above. The cutting apparatus can be lowered or raised with facility by a lever. A canvas covering, from the inner edge of the knife, 2 feet 2 inches in height, carries round the grain as it is cut. The first swathe was laid to the standing corn, and the machine returned, making another cut, laying the double swathe on the ground. The horses walk behind the machine, and draw by swingle-trees on the same principle as Bell's. The weight of the machine is about 15 cwt.; price 25*l.* The first trial was made in a field of Wheat—variety, red chaff. The crop was level, and above medium luxuriance; only small spots were down. The previous crop having been Potatoes, the Wheat was clean and stiff in the straw, and otherwise favourable for machine reaping. The field was level, the surface smooth, and the furrows almost obliterated. The action of Harkes' reaper disappointed expectation. The breadth of the cut did not exceed 4 feet, and was frequently not more than 3; the stubble was unequal, the swathe irregular; and upon the grain being lifted, a very considerable quantity of Wheat pickles was lying upon the ground. The loss of grain from this shedding was estimated by some at nearly 2 bushels an acre, and this with a crop rather under than over-ripe. The amount of work done was not estimated—the judges, after a few turns of the machine, appeared to be satisfied that it did not come up to the requirement of the premium. The opinion of those present was divided between the working of Lord Kinnaird's M'Cormack and Garner's Hussey—the latter being the greater favourite. The principal improvement effected by Mr. Gardner is the substitution of a serrated cutter for the smooth cutter employed by Mr. Dray. Nothing could exceed the smoothness and the lowness of the stubble left by Gardner's Hussey, and the cut grain left the machine in equal quantities, ready for lifting for the binders. Those persons employed in lifting and binding the grain from this machine were expert, and performed the operation with a neatness and speed which showed what a little practice can effect. As the price of this machine is only 20*l.*, many of the farmers present would have given orders for it had not their harvest operations been so far advanced. This machine cut, in 46 minutes, 3 roods 15 poles, being at the rate of 1 acre in 54 minutes. Lord Kinnaird's M'Cormack cut with facility, but occasional stops took place, especially when the edge of the machine became depressed, and the guards of the cutter raised the soil, and prevented the action of the cutter. Where the crop was thick and strong, the machine appeared not

to be equal to the work. The delivery webs being that of Bell's, laid the grain equally. It cut 2 roods 17 poles in 37 minutes, or an acre in 61 minutes. Crosskill's Bell did not operate satisfactorily. One of the keys connected with the delivery-web came out more than once, causing several stoppages. This defect in workmanship has proved more than once the cause of disappointment and failure in this machine. The time taken was not tested. After completing their portions in the Wheat field, the machines were removed to an adjoining field of Oats—variety Birley—the crop standing, of medium thickness and length of straw, and being no more than a fair average crop. In this field the operation of Gardner's Hussey was even more decided, and a *furor* was produced among the agriculturists present in its favour. After a careful trial the judges issued the following report:—"The judges are of opinion that Mr. Harkes has not only failed to establish that superiority which is requisite to entitle him to an award, but that his machine, in its present state, is inferior to any of the others which were brought forward, viz., a Crosskill exhibited by Mr. Wilson, Cowden; a Hussey's, altered and exhibited by Mr. Forrester, Stewart Hall; and a M'Cormack's, altered and exhibited by Lord Kinnaird. Except as regards the stoppages of the Crosskill, the whole of these worked to the satisfaction of the judges; but, on the whole, they are disposed to accord the superiority to Mr. Forrester's machine. At the same time, it is due to state that Lord Kinnaird's did excellent work and surpassed any of its former appearance. Crosskill's was so much impeded by failure of parts of the machinery from defective workmanship, as to prevent the judges from instituting a proper comparison between it and the more regular performance of Forrester's and Lord Kinnaird's. Although Mr. Harkes has failed in showing that his machine is as yet superior either in efficiency or economy, it appears to the judges that, in principle, it approaches that simplicity which is desiderated, and that it may yet succeed, if subjected to such alterations and improvements as further experience may suggest.—JOHN MILLER, Chairman."

Calendar of Operations.

SEPTEMBER.

COUNTY WEXFORD, *Sept.* 11.—Our yield of Barley here is unprecedently great—price ditto. Beans suffered from blighting weather about six weeks ago, and have not filled well—produce about a third less than last year. The most promising and luxuriant Potatoes, especially Primroses, are diseased from the same cause in some instances, but half the tubers are sound; generally one-fourth is gone. Some other sorts in the same fields have not been injured. My own Potatoes (as to main cup) with lime compost are perfectly good.

MID-LOTHIAN, *Sept.* 18.—Except spring sown Wheat and some late patches of Oats all the cereal crops are cut. In the early part of last week a considerable quantity of rain fell, but for the last eight days the weather has been all that could be wished. The crop is being rapidly carried in first rate order, and if the fine weather continues a few days longer, the principal part of it will be secured. Generally speaking grain has bulked well when cut. It gives promise of a full average yield. Wheat was scarcely of so good a colour as could have been wished but the sample will not be injured in any way, particularly as there has as yet been no sprouting. The Turnip crop, which was very backward for some time, has made great progress, and may now be regarded as nearly an average.

Notices to Correspondents.

BEETROOT SUGAR: *A Farmer.* The following passage taken from a letter by Mr. Caird to the *Times* partly answers your question; but it must be remembered that a Beet grown here, and one grown in Germany are two different things:—"The manufacturers of Beetroot sugar are the great employers of labour, the capitalist farmers of this part of Germany. We have not in England any such large capitalists engaged in agriculture, for they unite the business of the farmer and cattle feeder on the largest scale with those of sugar boiling and sugar refining. The sugar factories are very extensive and costly in construction and machinery, and are managed with great economy and skill. The business has been established here only about 15 years, but it is constantly extending under the encouragement of increasing profits, caused partly by a higher price and partly by a greater yield of sugar under improved processes. The yield, which some years ago was as one to 16, has now been increased to one in 12. The molasses, after the sugar is extracted, are made into spirits, and the refuse, if not used on the premises for fattening cattle, finds a ready sale as food for milk cows at about 20*s.* a ton. The growth and manufacture of the crop furnishes a continuous source of employment to a large body of labourers, nearly all the year round. The sugar is said to have last year yielded a clear profit to the manufacturer of 15*l.* a ton, and as a duty equal to 10*s.* a ton is levied by the Government on the raw Beet when it goes into the factory, it would be difficult indeed to name an agricultural crop so beneficial to all concerned with it as sugar Beet. It can only be produced to advantage, however, on a rich friable loam of the best quality: but, as under favourable circumstances the raw Beet will weigh 20 tons an acre, the gross value of this crop far exceeds that of any other agricultural crop that can be grown in this northern climate. As a source of revenue to the Government, none of our excisable crops can approach it, for at the rate already stated, it must yield a duty of nearly 10*l.* an acre to the Prussian Government. The rate of duty has been doubled within the last two years, without in any way diminishing the progress of this remunerative trade. The great landowners have factories for the conversion of their sugar Beet, but the baners, or yeoman proprietors, generally let their land to the sugar makers at high rents for this special crop."

BENTALL'S BROADSHARE: *Sub.* It is to be had at various prices from 7*l.* upwards. Apply to any implement salesman.

CHANGE IN MILK: *E T.* If the udder feels hard or tender we would recommend hot fomentations twice a day for some time continued, and a little camphor ointment rubbed in afterwards. One or two pounds of Linseed cake or Linseed-meal given with her food daily, will also be of service. If her bowels are confined give 1 lb. of Epsom salts. *W. C. S.*

COW: *G P.* You should discontinue milking at least two months before calving.

GAS WATER: *C L.* No 'purification' is needed. It is the better for being thrown over a heap of earth or other matter, which will act upon it as a sponge. If put directly on the land, except in wet weather, when it is immediately diluted and spread throughout the soil, it is likely to burn the Grass, without however destroying the root, which throws up a stronger crop than ever.

GRASS MOWN TWICE: *H B.* You had better feed off close with sheep. You will get a better crop than if you let the aftermath remain undisturbed.

INDIAN CORN: *R Gough.* We should prefer Barley-meal to Indian Corn, weight for weight, for fattening pigs.

MARKETS: *Subscriber.* Many thanks. We have not room for the fuller reports which other papers give. Your reference to the wool market shall be attended to.

SCARLET RUNNER BEANS: *Plaistow.* We know nothing against their use for pig feeding, unless it be their price.

WATER MEADOWS: *Readingensis.* The only book we know is by Stephens—an old work. You will find chapters in all systematic works on agriculture, as for instance in Blackie's "Cyclopedia," where the subject is discussed by Mr. Hugh Raynbird, of Basingstoke.

WINTER BEANS: *J G.* Inquiry of the nearest seedsman is likely to obtain them. We cannot ask the question here except in our advertising columns.

VALUABLE IMPROVEMENTS IN MOWING MACHINES.

BY ROYAL LETTERS PATENT.

Under the Patronage of Her Majesty Queen Victoria, and His Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON,

ARBROATH, FORFARSHIRE.—PATENTEES.

A. SHANKS AND SON, while soliciting the attention of the Nobility, Gentry, and Gardeners to their Horse and Pony MOWING and ROLLING MACHINES, the completeness and superiority of which are now well known, at the same time respectfully solicit notice to their new HAND MACHINE, specially adapted for mowing small lawns, verges, around flower beds, &c., and which has now undergone a trial amply sufficient to enable the Patentees with all confidence to offer it as the cheapest as well as the most efficient and complete machine extant. The improvements effected by the Patentees enable the machine to be worked with perfect ease by one person. It requires no change of wheels or rollers in mowing verges; will cut close to the edge of flower-beds; has great facilities for quick turning, cutting and rolling at the same time; the length of the cut can be effectually regulated in a few seconds by merely turning a screw, and being simple as well as complete in its construction the machine can be easily worked and managed by a common labourer. The machines are fitted with due regard to strength and durability, and consequently not at all liable to get out of order. The work is executed with great rapidity, and in a manner vastly superior to mowing with the scythe, while the simultaneous operations of rolling and close cutting greatly improve and beautify the turf. The Rolling and Mowing Machine is now in common use at all the Royal Gardens, Windsor, Kew, Buckingham Palace and Osborne.

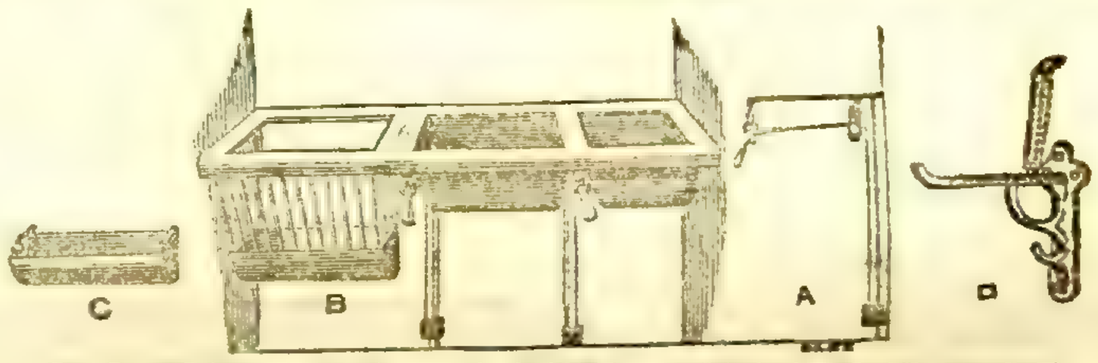
Illustrated Price Lists forwarded on application.

N.B. A. SHANKS & SON finding that their Patented Improvements are pirated, beg to caution the public against purchasing Machines with their improvements without *their name and address marked on the Machines.*

A. SHANKS & SON also supply Fleming's SALTING MACHINES, for destroying Weeds, &c., on Gravel Walks, Court Yards, &c., particulars and prices of which will be learned on application.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron, light and durable.

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COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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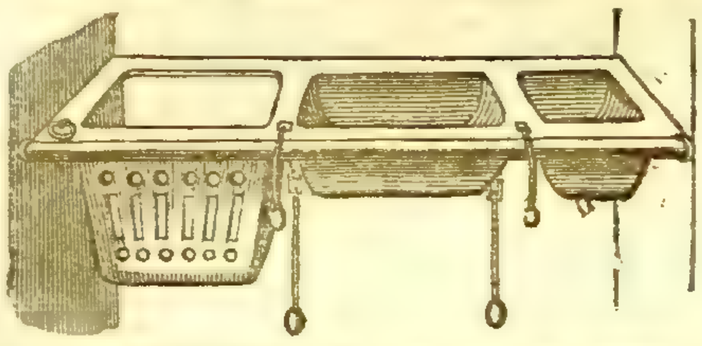

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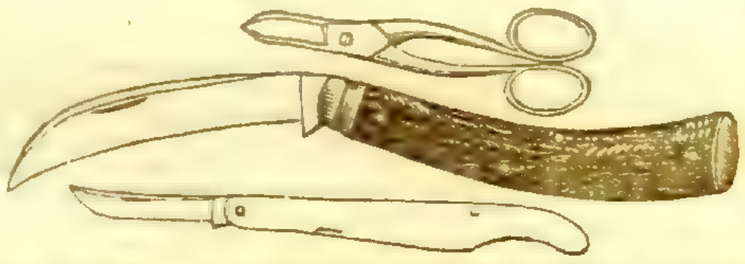
PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

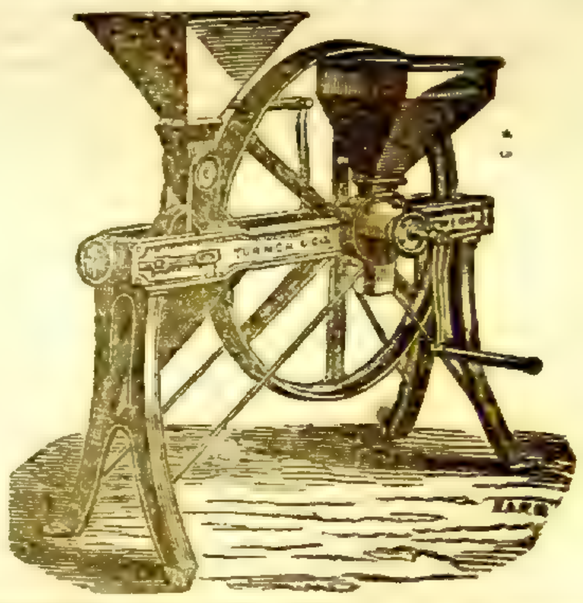
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.

Established 1738.



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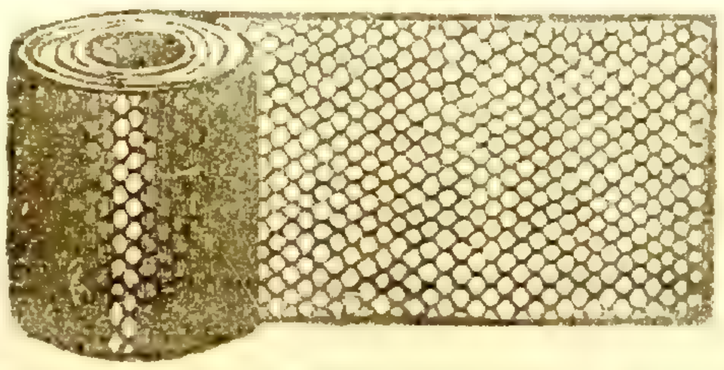

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RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

CAUTION.

CATTLE.—Purchasers of Guernsey Cattle are informed that there is a duly authorised person to Brand on the Horns of those exported from the Island an abbreviation of the word GUERNSEY, the successive number in each year, and the two last figures of the current year. By exacting this Brand from the Agents, they will be sure of the really pure breed. Any attempted imitation of the Brand will be strictly sued at law. Any further information desired can be obtained from the Secretaries. N. LE BEIR, W. P. COHU, } Honorary Secretaries Royal Agricultural Society of Guernsey.

Guernsey, September 27.

GLOUCESTER PROPOSED CEMETERY.—The PIECE of GROUND selected as a site for a BURIAL GROUND having been approved by the Secretary of State, the Gloucester Burial Board are now ready to receive PLANS for LAYING OUT and PREPARING the same. All Persons desirous of furnishing such plans may obtain further particulars on application to Mr. John Hanvey, City Surveyor, Gloucester. Plans to be delivered to the Clerk on or before October 20th.—By Order of the Burial Board, A. H. JENKINS, Clerk.

Gloucester, 27th Sept., 1856.

FARMS AND ESTATES FOR SALE.

MR. THOS. SCOTT, LAND AGENT, 5, Charing Cross, having lately inspected and valued a considerable number of single Farms and Estates, within an area of from ten to thirty miles round London, is prepared to give particulars to parties intending to purchase either for occupation and residence, or for investment.—Sept. 27.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

TO BE LET, A NURSERY AND SEED BUSINESS in the neighbourhood of London, only two miles from Hyde Park Corner on the Western Road. This is an opportunity seldom to be met with to any country Nurseryman desirous of forming a Metropolitan connection. The best situation in London. A capital will be required.—W. Y., *Gardeners' Chronicle* Office.

TO BE SOLD, in one Lot, about 60 species of ORCHIDS, in good condition, among which are fine plants of Aerides affine and Odorata major, Vanda teres, Cattleyas labiata and bicolor, Saccolabium guttatum, Phalænopsis amabilis, &c. This presents an opportunity seldom to be met with to those who may be commencing the cultivation of Orchids, as the plants are all well established.—For further particulars and lists, apply to Mr. BELL, Gardener, Eartham, near Chichester.

Sales by Auction.

BULBS, ROSES, &c.

MR. HASLAM will Sell by Auction the above, at the Mart, on WEDNESDAY, October 8, and FRIDAY, October 10 next, and every succeeding WEDNESDAY and FRIDAY till December 5.—Epping, Sept. 27.

TO BREEDERS OF SHORT-HORNED CATTLE.

TO BE SOLD BY AUCTION, on TUESDAY, the 7th October next, at Pound, near Plymouth, Devon, the whole of Sir Anthony Buller's well-bred Stock of SHORT-HORNED CATTLE.—Catalogues containing their pedigrees may be obtained on application to Mr. DANIEL WARD, Auctioneer, Milton Abbott, near Tavistock; and to Mr. PARSON, Land Agent, 8, Cornwall Street, Plymouth.—September 27.

CROYDON.
SECOND PORTION OF THE STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the proprietor to submit to public competition by Auction, on the premises, Sion Nursery, Croydon, on TUESDAY, October 21, and following days, at 11 o'Clock each day, the valuable NURSERY STOCK, extending over 7 acres of ground, consisting of a large assortment of Ornamental Trees, Evergreens, and Deciduous Shrubs, of which Catalogues are being prepared, and will be forwarded on application.—May be viewed one week prior to the Sale: Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

RIVERHEAD, KENT.

IMPORTANT SALE OF NURSERY STOCK, SEVERAL NEWLY-ERECTED GREENHOUSES, PITS, FRAMES, HOT-WATER PIPE, BOILERS, QUANTITY OF BRICKS, SLATES, PAVING AND ROOFING, IRON HAND-LIGHTS, BELL GLASSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by the Trustees of Mr. William Finnis Smith to submit to an unreserved Sale by Auction on the premises, Riverhead Nursery, Riverhead, near Sevenoaks, Kent, on MONDAY, October 27, and following days, at 11 o'Clock each day, in consequence of the number of Lots, the whole of the valuable Nursery Stock extending over 14 acres, consisting of a large collection of Fruit and Forest Trees; Evergreens and Deciduous Shrubs in great variety, a rich assortment of American Plants and Ornamental Trees; about 100,000 Ash, 50,000 Spanish Chesnuts, 20,000 Alder, 200,000 Larch Fir, 50,000 Willow, 10,000 Birch, &c. Also the Greenhouse Plants, comprising fine double Camellias, Azalea Indica, Epacris, Ericas, Fancy, and other Pelargoniums, &c.; together with a useful Horse, an excellent Stack of Meadow Hay, two Carts, a capital Iron Roller, Syringe, three sets of Harness, Garden Pots, and numerous other effects.—May be viewed one week prior to the Sale; Catalogues may be had 6*d.* each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, October 7, at 12 o'Clock precisely, a selection of very choice POULTRY, including Silver Spangled Hamburghs, Gold and Silver White and Black Polands, &c., bred from Birmingham prize Birds, from the yard of F. Edwards, Esq., of Bulstrode Park; Coloured Dorkings from the Rev. F. Thursby; Cochins and Spanish from several celebrated breeders; about 80 lots of Pigeons, including a selection from the celebrated stud of J. Bult, Esq.—Catalogues by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

THE LODDIGES COLLECTION OF ORCHIDS.

MR. J. C. STEVENS begs to announce that the Fourth Sale of this important Collection of ORCHIDS is fixed to take place at his Great Room, 38, King Street, Covent Garden, on TUESDAY, September 30, at 1 o'Clock precisely. The Plants are in excellent health, and comprise many of the most rare and splendid varieties in cultivation.—May be viewed on the morning of Sale, and Catalogues had at the Offices, 38, King Street, Covent Garden, London.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.
IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.
250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc., vol. v., p. 20; and Paxton's "Flower Garden," vol. i., p. 11).
300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.
1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.
300 SKIMMIA JAPONICA.
1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.
5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.
10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, November 17, and four following days.

The Stock will be on public view 10 days before each Sale when Catalogues may be had (1*s.* each, returnable to purchasers, at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

Approved bills at three months' date will be taken of purchasers from 50*l.* to 100*l.*, and at six months' date of purchasers above 100*l.*

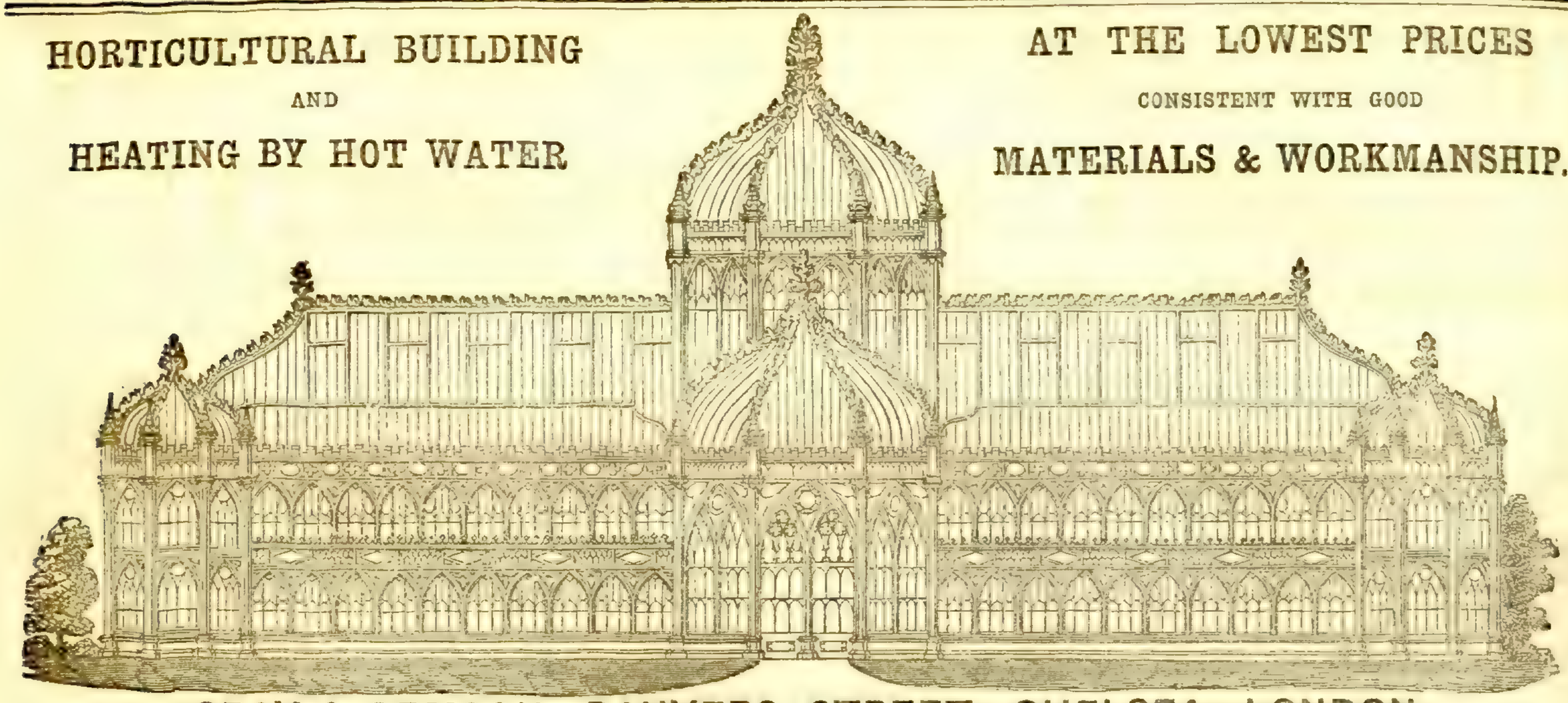
The Sunningdale Station on the South Western Railway is within about two miles of the Nursery.

EXTENSIVE AND IMPORTANT SALE OF EVERGREENS, ORNAMENTAL SHRUBS AND TREES, AT THE CLIFF VALE NURSERY GROUNDS, WETLEY ROCKS, NEAR LEEK, IN THE COUNTY OF STAFFORD.

MESSRS. EDWARDS respectfully inform the Nobility, Gentry, Landscape Gardeners, &c., that they have received unreserved instructions from Messrs. Fox, Grosvenor, and Hill, who are about to dissolve partnership, to offer for Sale by Auction on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, October the 14th, 15th, 16th, and 17th, at their extensive and well-stocked Nursery Grounds, Wetley Rocks, all the very choice and valuable Ornamental Shrubs, Evergreens, and Fancy Trees, comprising every variety of variegated Hollies, Araucaria imbricata, Cedrus Deodara, Cedars of Lebanon, Canadian, Cembra, and other hardy Pines; Irish and English Yews; Arbor Vitæ; Aucubas; Red and White Cedars; Tree Pæonies; Scarlet and White Rhododendrons; Laurels, Azaleas, Kalmias, Ledums, and other American Plants; fine Weeping Ash, Elms, Willows, Beech and Limes. Also an extensive assortment of Ornamental Trees, comprising the varieties of Ash, Beech, Laburnums, Chesnuts, Oaks, Sycamores, and Thorns, all of which are young and well adapted to remove. The Stock will be on public view one week prior to the Sale. Catalogues will be ready for distribution 10 days before the Sale, and may be had at the Railway Hotel, Stoke-upon-Trent; at the Nursery Grounds, Wetley Rocks; and from the Auctioneers, Newcastle, Staffordshire. The Cheddleton Station on the North Stafford Railway is about a mile from the Nursery Grounds, and there is a Loading Wharf at the Station, where every facility is given to the conveyance of property. Lunch will be provided at 11 o'clock, and the Sale will commence each day precisely at 12 o'clock. The order and arrangements of the Sale will be laid down in the Catalogues, and will continue in the order of the Lots each day successively, and the Auctioneers can with confidence recommend this important and extensive Sale to the notice of gentlemen requiring first-class Plants and Shrubs.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

HOT WATER PIPES (Cast Iron) at WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—Deane, Dray, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

HOT WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators: Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. Tayler, Battersea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
Kensal Green, Harrow Road, London.

JOHN TAYLOR and SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

J. S. MORRIS, Engineer, Upper Thames Street, London.—Apparatus supplied and erected for Warming and Ventilating Mansions, Public Buildings, and for Heating Conservatories on the most approved principle. Large experience in this branch of domestic science for many years insures certainty of success. A brief Treatise on the subject forwarded by post.

Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

POULTRY, &c., SHOWS.—IMPROVED PORTABLE WIRE PENS for Poultry and Pigeons, furnished on hire by Thos. P. Hawkins, General Wireworker, 27, Dale End, Birmingham.

WIRE GAME and POULTRY NETTING and WIRE GOODS of every description.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

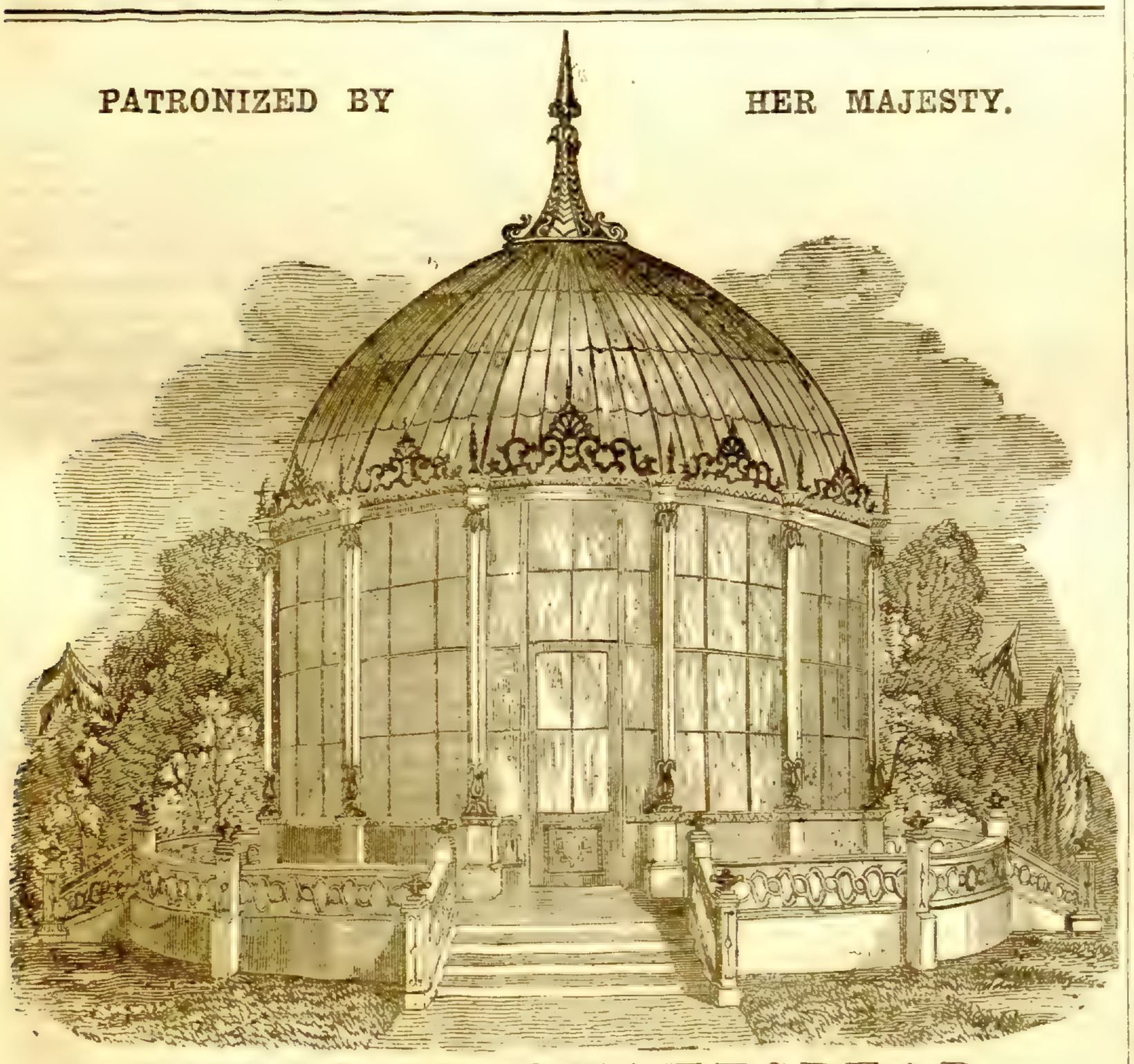
The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

NEW TWINE NETTING, Tanned if required, 1 yard wide, 2*d.* per yard; 2 yards wide, 4*d.* per yard; 4 yards wide, 8*d.* per yard. Half-inch mesh ditto, 2 yards wide, 8*d.* per yard. The ELASTIC HEXAGON GARDEN NETTING, 76 Meshes to the square inch, effectually excludes birds, wasps, flies, &c. from fruit trees, flower or seed beds, 4½*d.* per square yard. TANNED NETTING, 2 or 3 yards wide, 1½*d.* per yard; 4 or 6 yards wide, 3*d.* per yard. At W. Cullingford's, 1, Edmund Terrace, Ball's Pond, Islington.

*** Samples exhibited, with prices attached, in the South-west Gallery of the Crystal Palace, Sydenham.

PATRONIZED BY HER MAJESTY.



WILLIAM SHAKESPEAR,
(SUCCESSOR TO CLARK AND JONES),
Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,
55, LIONEL STREET, BIRMINGHAM.

WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c., for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the superior mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship. *Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.*

ESTABLISHED IN THE YEAR 1818.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, September 27, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1856.] SATURDAY, OCTOBER 4. {Price Fivepence. Stamped Edition, 6*d*.

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WILLIAM BARRATT, LANDSCAPE GARDENER, WAKEFIELD.
HORTICULTURAL ERECTIONS on the best improved principles.
*** An extensive stock of FRUIT TREES, ORNAMENTAL SHRUBS, EVERGREENS, FOREST TREES, ROSES, and THORNS.

WILLIAM SHORT, LANDSCAPE and ORNAMENTAL GARDENER, 21, St. John's Wood Terrace, Regent's Park, London.—Ornamental Ground Works, Planting, &c., taken by contract or otherwise. Unexceptionable references can be given.

GENTLEMEN, NURSERYMEN, GARDENERS, AND OTHERS having Surplus CHOICE FRUITS, VEGETABLES, and FLOWERS to dispose of during the Winter and Spring, will meet with a CASH Purchaser by forwarding to
GEORGE TAYLOR, JUN.,
FRUIT SALESMAN,
St. John's Market,
Liverpool.
Contractor and Commission Salesman for Choice Garden Produce.
Reference—The Bank of Liverpool.

GRAPE VINES IN POTS.
JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

HOLLYHOCK SEED.
CHATER AND SON offer the above, saved from their best flowers, in packets of 200 seeds, 1*s*. 6*d*., or 18 varieties, separate packets, named, 5*s*. Also strong plants in pots of the leading sorts of Hollyhocks and Pansies now ready. Price on application.—Nurseries, Haverhill.

SUPERB NEW CINERARIAS.
E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, said to be the finest ever yet offered to the public, for which he begs to refer to his Descriptive Prospectus and Testimonials of Nurserymen who have grown them for trial. Price 15*s*. the set.—Address, Mr. E. RAPER, Florist, 53, Regent Street, Leamington.

LARGE EVERGREEN SHRUBS.—Several Hundred Evergreen Shrubs of large size and fine growth to be disposed of. They were planted by us three years ago in a gentleman's Shrubberies near London, which now require thinning. This is an excellent opportunity for any one wishing to give immediate effect to new ground work, as they transplant with good balls of earth.—Apply to Messrs. J. & C. LEE, Nurserymen and Seedsmen, Hammersmith, near London.

HEATHS AND EPACRIS.
MESSRS. J. & J. FRASER have to offer the above in fine healthy plants and full of flower buds. If a large quantity is taken the price will be very moderate. A list of the varieties with price may be had on application.
The Nurseries, Lea Bridge Road, Essex.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

H. WALKER, Londonderry, offers the following:—
8000 1-year PEAR TREES, on dwarf roots.
5000 2-year ditto ditto.
200,000 2-year SEEDLING NORWAY SPRUCE FIR.
10,000 MANETTI ROSE STOCKS.
Lists, with prices, on application.

KINGSBRIDGE NURSERY, DEVON.
THOMAS MOORE has for sale a large number of English YEWS, 3 feet.

Fix Oaks in pots	3 to 4 feet.	Filberts	3 to 4 feet.
China Privets	3 to 4 „	English Elms	8 to 12 „
Bays	3 to 4 „		

Silver striped Euonymuses, 18 inches. The Shrubs are all fine bushy plants, and to be sold cheap.

FOREST TREES.—The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.
DAVID REID & SON, Nurserymen and Seedsmen, Edinburgh.

CHOICE FRUIT TREES.—Fine Standard and Dwarf Trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3*s*. each, or 30*s*. per dozen.

	s.	*d*.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per doz.	3	0
Filberts, new, thin-shelled and red-skinned, per doz.	4	0
Strong Vines, in pots and out, best sorts, per doz.	18	0
Peaches, Nectarines, Apricots, and Cherries, grown expressly for pot culture, per dozen	18	0

See Advertisement for Greenhouse and American Plants.
J. & H. BROWN, Albion Nursery, Stoke Newington, London.

BULBS FOR PRESENT PLANTING.
CARRIAGE FREE, EXCEPT SMALL PARCELS

	£.	*s*.	*d*.
HYACINTHS, the best imported by name, per dozen	0	10	6
„ Fine mixed for Beds (all double) per 100	1	10	0
ANEMONES „ „ („) „ ...	0	5	0
„ „ „ (single) „ ...	0	4	0
TULIPS, fine mixed early, for pots or borders „ ...	0	7	6
CROCUSES, mixed for open ground, (per 1000, 12*s*. 6*d*.)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free. N.B. New Early Peas, Radish, Horn Carrots, &c., now ready.
SUTTON & SONS, Royal Berks Seed Establishment, Reading.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

DUTCH AND CAPE BULBS.
JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual* of *first-rate quality*.
JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ETC.
WILLIAM CUTBUSH AND SON beg to intimate that their FIRST IMPORTATION of the above have arrived in EXCELLENT condition. DESCRIPTIVE CATALOGUES, which contain *their celebrated system of culture, can be obtained free on application.*
Highgate Nurseries, near London.

DUTCH BULBS.
R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.
THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.
CHARLES ALEXANDER, Nurseryman and Seedsman, 30, West Register Street, Edinburgh.

DUTCH HYACINTHS, CROCUS, &c., of the first size and quality, can be supplied by CHARLES SOUTHBY, High Street, Clapham, at prices as low as any house in the kingdom. See his Descriptive priced List; to be had free on application.

DUTCH BULBS OF SUPERIOR QUALITY AT LOW PRICES.

Anemones, early flowering, brilliant colours ...	5*s*. per 100.
Hyacinths, Dutch mixed, all colours	21*s*. per 100.
„ „ named, separate colours ...	6*s*. per doz.
Narciss, mixed	1*s*. per doz.
Tulips, Dutch, mixed, early sorts	6*s*. per 100.
Crocus, Dutch, mixed, all colours	10*s*. per 1000.
Iris, mixed, all colours	5*s*. per 100.

The above, with every other kind of Flower Roots, equally moderate in price, may be had of WILLIAM DENYER, Seedsman and Florist, 82, Gracechurch Street, London.
Descriptive and Priced Catalogues forwarded on application.

WANTED IMMEDIATELY,
GRAPES, PINES,
PEACHES, MELONS,
AND OTHER CHOICE FRUITS.
Apply or forward to
GEORGE TAYLOR, JUN.,
GROWERS' SALESMAN,
St. John's Market,
Liverpool.

STRAWBERRY PLANTS.—CUTHILL'S three sorts, sure and great bearers. See former Advertisements. Also his three Pamphlets. New Cucumbers, &c.
JAMES CUTHILL, Denmark Hill, Camberwell, London.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.
N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.
JAMES KITLEY, Lyncombe Vale Nursery, Bath.

SUPERB NEW STRAWBERRIES.
WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.
*** Underhill's SIR HARRY 30*s*. per 100; 18*s*. per 50; 10*s*. per 25, strong plants.

THE FILBERT PINE STRAWBERRY.—This is a misnomer. The Strawberry was raised at Manor Farm in 1849, and sent out as "Myatt's Seedling." Though not of a large size it is a first-rate variety. See Mr. Turner's advertisement. Strong plants, 5*s*. per 100.
Manor Farm, Deptford.—Oct. 4.

CHRYSANTHEMUMS, CAMELLIAS, FERNS.
CHANDLER AND SONS have now ready for sending out fine bushy plants both of the large and small varieties of CHRYSANTHEMUMS, from 9*s*. to 12*s*. per dozen. Also fine healthy young CAMELLIAS well set with flower-buds, 30*s*. per dozen and upwards. A great variety of FERNS at moderate prices.—Wandsworth Road, Vauxhall.

A PRICED CATALOGUE OF PLANTS, including RARE and HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS and CLIMBERS, GREENHOUSE PLANTS, AZALEAS, ERICAS, EPACRIS, CAMELLIAS, GERANIUMS, CARNATIONS, PICOTEES and PINKS, HOLLYHOCKS, PHLOXES, CHRYSANTHEMUMS, HARDY HERBACEOUS PLANTS, &c. &c.—Cultivated and Sold by YOUELL & Co., Royal Nursery, Yarmouth, Norfolk, is now ready, and will be forwarded on application.

FRUIT TREES.
MR. RIVERS has now ready his DESCRIPTIVE CATALOGUE of FRUITS, consisting of 32 pages. It is compiled with great care, and contains much original and useful matter. Sent free for six postage stamps.
Nurseries, Sawbridgeworth, Herts.

ROSES.—The DESCRIPTIVE CATALOGUE of ROSES by Mr. RIVERS for the present Season is now ready for delivery, and will be sent free on application. It is so arranged as to be a true guide for the Amateur in selecting Roses.—Nurseries, Sawbridgeworth, Herts.

ROSES.—CATALOGUES forwarded free of *charge* and POST PAID TO ALL PARTS OF THE WORLD, upon application to JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

ROSES, ROSES.
GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—October 4.

ROSES.
J. AND J. FRASER'S Catalogue for the present season is now ready, and may be had on application.
J. & J. F. have a large and fine stock of Dwarf Roses, consisting of the best sorts of Hybrid Perpetual and other autumn flowering kinds suitable for planting in masses or for potting. Price per dozen or hundred (according to the quantity required) may be had on application.
The Nurseries, Lea Bridge Road, Essex.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.
Royal Nursery, Slough.

AMERICAN PLANTS.
JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.
The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.
MESSRS. WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c. of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5*s*.	0*d*.
Do. 12 do. do.	2	6
Good mixed	1	0

VINES FOR FRUITING IN POTS.
MESSRS. J. & J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to invite attention to their fine stock of the above. Price 5*s*. and 7*s*. 6*d*. each.
Strong Vines for planting out, 3*s*. 6*d*. each. A list of the sorts may be had on application.

PANSIES! PANSIES!! PANSIES!!!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4*s*. per dozen.—Address W. H. DAVIS, Jun., St. Mary's Hill, Newbury.

GLENNY'S IMPROVED BALSAM SEED from flowers 3 inches across, not approached by any other, 6 classes, 37 stamps; mixed packet, 13 do.; sealed and signed packets only. Other very choice Seeds.—Dungannon House, Fulham.

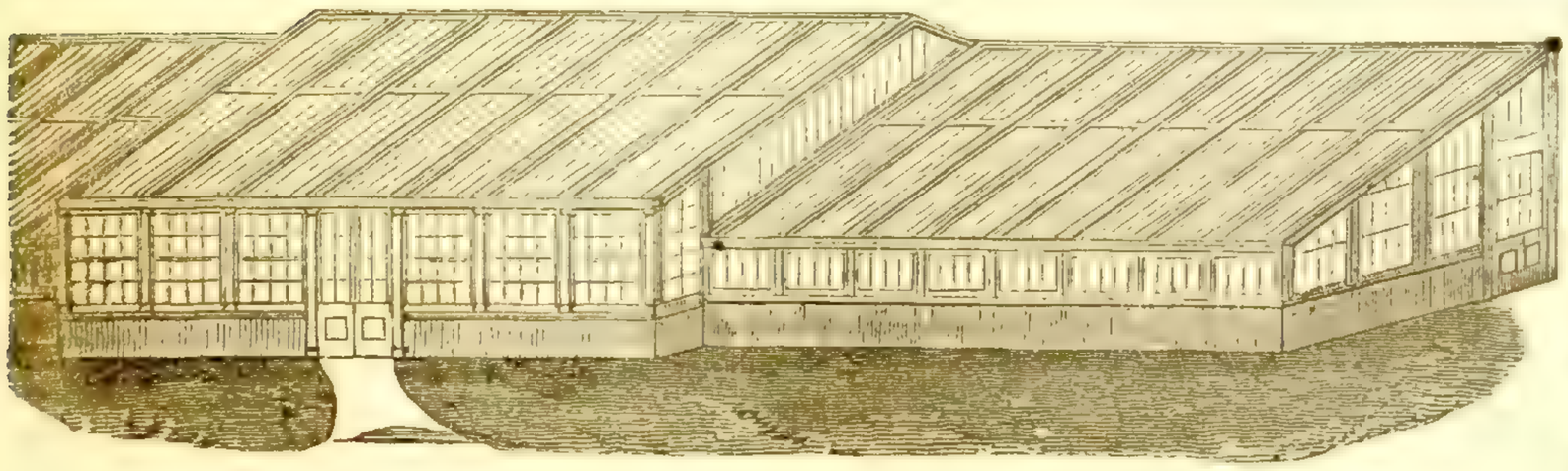
WANTED TO PURCHASE,
EITHER BY CONTRACT OR OTHERWISE,
CHOICE FRUITS AND VEGETABLES.
Apply to GEORGE TAYLOR, JUN.,
FRUIT SALESMAN & CONTRACTOR FOR CHOICE GARDEN PRODUCE
St. John's Market, Liverpool.
Payment Nett Cash on Delivery.

TRIFOLIUM INCARNATUM.
TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

HOME GROWTH.
NEW EARLY WINTER VETCHES.—*This is a very superior sort, and comes* TWO OR THREE WEEKS *earlier than the common variety. The Subscribers can strongly recommend them.* Price 25*s*. per bushel, or 3*s*. 6*d*. per gallon. Only a few bushels remain.
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

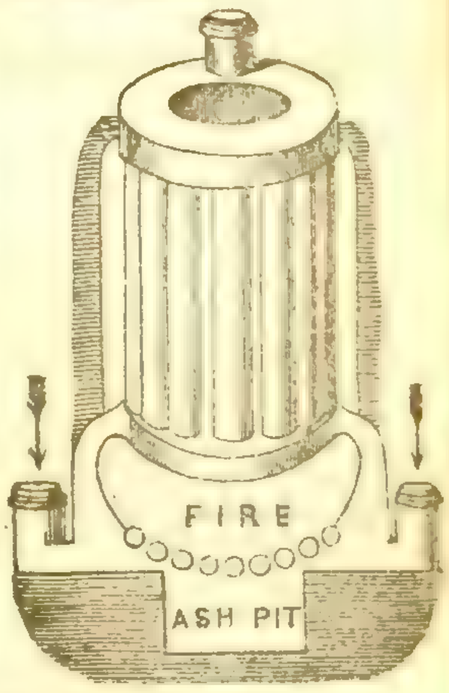
JOHN WEEKS & CO., KING'S ROAD, CHELSEA.

HORTICULTURAL BUILDING, AND HEATING BY HOT WATER.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



HEATING EXTENSIVELY BY ONE BOILER, COMMONLY CALLED

"WEEKS' ONE-BOILER SYSTEM."

Buildings of every description, Dwelling Houses, Churches, Warehouses, Horticultural Buildings, &c., separately or combined, and to any extent, can be effectually heated by ONE BOILER.

J. WEEKS & Co. refer to their own extensive Establishment, the whole of which is heated by *one boiler*, and may be seen in constant operation, warming Hothouses, Greenhouses, Conservatories, &c, upwards of 1000 feet in length, the water in the various houses circulating through upwards of 5000 feet of pipe, and the whole so fixed and regulated that any one of the houses can be heated separately, or the whole together, and any part regulated at pleasure.

J. WEEKS & Co. have also great pleasure in referring to the extensive Nursery of Messrs. Edward Henderson & Co., Wellington Road, St. John's Wood.

We will here quote Mr. Henderson's own words, expressing his approval of our ONE BOILER SYSTEM. He says:—

"*I am more than satisfied with the extraordinary results of what* Messrs. JOHN WEEKS & Co. *have done for me in heating a great number of our hot-houses from* ONE BOILER. *It is almost impossible for me to express my satisfaction sufficiently strongly. The effect and great saving produced is truly wonderful; less than 2 sacks of coke in 24 hours is all that is used to heat a variety of hothouses, &c., nearly 300 feet in length, and these various houses are to some extent widely separated, as 300 feet stand in one direction, 150 feet in another, 200 feet in another, and so on, including our large newly laid-out winter garden.*"

Messrs. JOHN WEEKS & Co. can also refer to numerous seats of the Nobility and Gentry in various parts of the country where *one Boiler* has been fixed to warm a great number of houses, &c., and frequently the dwelling-house also from the same boiler.

In some instances *our one Boiler* is doing the work formerly done by 20, so that in these cases the great number of fires, stokeholes, and chimneys, are entirely dispensed with.

At his Grace the Duke of Leeds', Hornby Castle, Yorkshire, *one of* J. WEEKS & Co.'s *Boilers is heating* 10,000 feet of 4-inch pipe, and one of the houses, a large Conservatory 190 feet long, is situated upwards of 500 feet from the Boiler.

J. WEEKS & Co. make their Tubular Boilers of all sizes on the same economical principles; nearly 4000 of which of different sizes are in operation at the seats of the Nobility and Gentry throughout the Kingdom and on the Continent.

The Nobility and Gentry about to erect Horticultural Buildings or to fix Hot-Water Apparatus will find at our Horticultural Establishment and Hothouse Works, King's Road, Chelsea, an extensive variety of Conservatories, Greenhouses, Hothouses, Pits, &c., erected and in full operation, combining all modern improvements in the various branches of the Horticultural science, so that a lady or gentleman can select the description of house best adapted to the purpose for which it is required.

As an *Horticultural Establishment* it is also an unlimited source of attraction, containing New and Rare Plants in great variety.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in pots.

FRUIT TREES and SHRUBS of every kind.

The SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all of the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., BUILT upon the most scientific principles, combining all the improvements of the day. HORTICULTURAL WORKS of every description, and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers, KING'S ROAD, CHELSEA.

CAMELLIAS, AZALEAS, &c.

YOUELL AND CO. beg to offer fine strong healthy Plants of the following, so desirable for autumn and winter decoration.

CAMELLIAS.—Fine plants, well set with flower buds of the handsomest varieties, 24*s.* to 30*s.* per dozen.

AZALEAS.—A splendid collection of all the best kinds, 12*s.* to 18*s.* per dozen.

RICAS.—Fine plants, including the best hard-wooded kinds, 12*s.* per dozen.

PACRIS, of which we possess an extensive stock of fine bushy flowering plants of the finest varieties, 12*s.* per dozen.

GREENHOUSE PLANTS.—To those forming a collection or making additions to what they already possess, we are enabled to offer to advantage a fine stock of the handsomest leading kinds at 18*s.* per dozen, or 6*l.* per 100.

TREE CARNATIONS.—A large quantity of the most showy varieties, for winter blooming, 12*s.* per dozen.

PHLOXES.—All the new and handsome varieties of recent introduction, 9*s.* per dozen.

HYACINTHS.—An extensive collection of the most approved kinds adapted for glasses or pot culture, 9*s.* per dozen; together with a general assortment of other Dutch Bulbs.

CHOICE FRUIT TREES (WARRANTED TRUE TO NAME).

YOUELL & Co. beg respectfully to offer the following:—

APPLES, Standard, in best selection, good heads			9*s.*	per doz.
" Dwarf	"	"	6*s.*	"
" Trained	"	"	30*s.*	"
PEARS, Standard	"	"	12*s.*	"
" Dwarf	"	"	8*s.*	"
" Trained	"	"	30*s.* to 42*s.*	"
PLUMS, Dwarf	"	"	9*s.*	"
" Trained	"	"	36*s.*	"
PEACHES, Dwarf-trained, in fine strong trees,			36*s.* to 60*s.*	"
NECTARINES "	"		36*s.* to 60*s.*	"
APRICOTS "	"		36*s.* to 60*s.*	"
CHERRIES, Standard, in fine variety			12*s.*	"
" Dwarf	"		9*s.*	"
" Trained	"		36*s.* to 42*s.*	"
FILBERTS			6*s.*	"

GOOSEBERRIES, 50 of the finest varieties by name, good bushes, selected for size and flavour, 30*s.* p.100; 4*s.* "

CURRANTS.—Improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4*s.* per dozen: Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6*s.* per dozen. These are the most desirable kinds in cultivation, and are highly recommended.

STRAWBERRIES.—A collection comprising all the very best of the "proved" varieties, 3*s.* 6*d.* per 100.

RASPBERRIES.—Per 100.

Fastolff Raspberry (true)	10*s.*	Large White	18*s.*
Belle de Fontenay	25*s.*	Magnum Bonum	25*s.*
New Monthly Fruiting	18*s.*		

Catalogues will be forwarded on application. All orders of 2*l.* and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

CAMELLIAS.

J. HENCHMAN, JUN., is now sending out healthy plants full of flower-buds of the following five blooming varieties—Double White, Fimbriata, Imbricata, Leeana superba and Candidissima; small plants, 21*s.* per dozen; second size, 24*s.*; fine well furnished plants, 30*s.*; and a few very choice plants at 36*s.* per dozen. These plants are all home-grown and established in the pots, and therefore not liable to cast their buds, as is the case with the foreign imported plants.

Choice Indian Azaleas, worked and on their own roots, bushy plants well set for bloom, at 15*s.*, 18*s.*, 24*s.*, and 30*s.* per dozen.

Edmonton, near London.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20*s.*
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20*s.*
25 American Azaleas, do., do., do., 16*s.*
Hardy Heaths, Ledums, and Kalmias, per doz., 6*s.*
12 " Rhododendrons, including scarlet, white, and rose, 12*s.*
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15*s.*
Greenhouse Azaleas, best new vars., per doz., 12*s.* to 18*s*
Camellias, fine sorts, well set with buds, per doz., 30*s.*
50 choice hard-wooded Greenhouse Plants, one of a sort by name, 45*s.*
12 Orchidea Plants, one of a sort, fine species, 40*s.*
24 choice Ericas, one of a sort, small pots, by name, 16*s.*
24 Cinerarias, best vars., not named, 8*s.*
12 fine Chrysanthemums, new, large and small flowered, 6*s.*
Best Climbing Roses of sorts, per doz., 6*s.*
Fine Standard and Half Standard Roses, 12*s.* to 15*s.* per doz.
Fine Cedar Lebanon, 2 to 4 feet, suitable for exposed places, 12*s.* to 20*s.*
Hyacinths and other Dutch Flower Roots in any quantity.

New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.

Albion Nursery, Stoke Newington, London.—Oct. 4

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	*d*
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

NEW PELARGONIUMS.

JOHN SCOTT, FLORIST, Bathford, near Bath, can supply the following Geraniums, package and hamper included, at 40*s.* per dozen:—Foster's Amazon, Admiration, Admirable, Brenda, Countess, Corsair, Clotilde, Cato, Eva, Eminée, Edith, Floretta, Iris, Leopard, Meteora, Prince of Wales, Pallas, Purple Prince, Pluto, Rosaline, Saracen, Sparkler, Triumphant, The Clipper.

The following at 18*s.* per dozen:—Phaeton, Wonderful, Fair Ellen, Serena, Seraskier, Topsy, Petruchio, Jessica, Pandora, Lord Raglan, Grand Sultan, Yerda, King of Portugal, Una, Omar Pacha, Queen Eleanor, Vesper, Attraction, and Conqueror.

A remittance requested from unknown correspondents.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now ready to send out strong well-rooted plants of the above unequalled new Seedling Strawberry, which has been grown and thoroughly proved against more than 20 of the newest and choicest varieties yet sent out.

Numerous persons when walking over E. T.'s Strawberry beds and tasting the fruit of various kinds, have always been of opinion that the flavour of this Strawberry has surpassed all that they had ever before tasted. The word was generally, "It is quite equal to that fine Strawberry the British Queen, if not better." More than a hundred names could be mentioned if requisite who have all given the same opinion. I here mention the names of two gentlemen who are great growers, and very particular with regard to the quality and flavour of strawberries.

Opinion of C. Maude, Esq., Manor House, Bathampton:—"This is one of the finest flavoured Strawberries I have ever tasted. I should have thought it had been the true British Queen from its fine flavour, and should not have known the difference except from its being brighter in colour, and free from the green top which the Queen always has."

C. Sainsbury, Esq., Swainswick House, whose name is well known to the floricultural world, being the raiser of a great number of the finest seedling Dahlias that have ever yet been sent out:—"This is one of the finest flavoured Strawberries I have ever tasted, and should like to have plants of it."

The advantage of the above splendid Strawberry over that fine variety the British Queen is as follows:—The British Queen is a very delicate and tender kind—this is one of the hardiest and most productive fruiters that has ever yet been grown; berries very large, fine shape, and of a most splendid colour. It also possesses the following fine property, which is seldom to be met with in any other kind, viz., firmness of texture, so that it may with safety be sent to any distance without injury, and kept for many days when ripe without decay or loss of flavour. It will prove to be one of the best varieties ever yet offered to the public for every purpose for which a Strawberry is required.

Strong well-rooted plants 3*l.* per 100: 1*l.* 15*s.* for 50; 1*l.* for 25, or one dozen for 12*s.*; the 25 or the dozen sent postage and package free. A Post-office order is expected to accompany all commands.

EDWARD TILEY, Nurserymen, Seedsman, and Florist, 14, Abbey Churchyard, Bath.

MESSRS. E. G. HENDERSON AND SON beg to state that the unequalled DAHLIA—

CRYSTAL PALACE SCARLET,

proves itself the finest Bedding Plant in cultivation, and by far the most showy and free blooming Dahlia ever offered to the public. It may be seen in full flower at their Nursery, and the

CRYSTAL PALACE GARDENS.

The Bulb Catalogue, with revised Lists of GERANIUMS, Cinerarias, and other Florists' Flowers, may be had post free on application.

A Coloured PLATE of Five new GERANIUMS, including Mrs. Story's white varieties, can be had post free for 12 stamps.

NEW STRAWBERRY "ADAIR."

For description of this delicious variety see back numbers. Price 60s. per 100 plants; 40s. for 50 ditto; 25s. for 25 ditto; 15s. for 12 ditto.

The description and prices of the following new plants may be seen in the Bulb Catalogue:—

Camellia Jenny Lind
Echites Houtteana
Dianthus albo nigricans
Begonia picta
" cinnabarina hybrida
Azaleas and Rhododendrons (in varieties).

SEEDS.

Calceolaria Seed, 5s. and 2s. 6d. (2d quality) per packet; Cineraria, 2s. 6d. per packet; Primula sinensis fimbriata, 2s. 6d. per packet.

The Spring Catalogue, with 2000 Greenhouse and Stove Plants fully described, post free on application.

Wellington Nursery, St. John's Wood.

NEW PURPLE LILAC,
SYRINGA VULGARIS *var.* BLANDII.

W. H. BLAND has great pleasure in offering the above valuable Flowering Shrub, which has proved the last three seasons quite superior to any other Lilac in cultivation. It was submitted in June 1853 to Dr. Lindley, when he pronounced it very superior to any other variety, and in the June No. of the present year, p. 392, he again refers to it thus—

"LILAC: *W H B.* The specimen now sent fully confirms what we said of the variety in 1853; it is a handsome purple Lilac, closer in the bunch and firmer in the flower than any Lilac of the kind that has come under our notice."

With such excellent authority any further comment would be superfluous, excepting to remark that the plants now offered are in the finest possible condition, and may be had at the following prices, viz., 5s. each, three for 12s., or six for 21s. Prices for wholesale orders on application.

Mr. T. BARNES, Dane Croft Nurseries, Stowmarket, is appointed Agent for the sale of it.

Remittances requested from unknown correspondents.

W. H. BLAND, Nurseryman, Fordham, Cambridge.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglassi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them grafted
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Weareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants referred to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

AZALEA INDICA "GEM."

J. IVERY AND SON beg to say that good established plants of this fine Azalea will be ready the third week in October. The Subscribers feel it unnecessary to say anything further of its fine properties, except that it has received the highest awards given to seedlings both at the Royal Botanic and National Floricultural Societies. Price 21s. each. A few extra sized blooming plants at 42s.

A List of Nurserymen who have kindly ordered it will appear next month. The usual allowance to the trade. A Descriptive List of all the approved varieties may be had in exchange for one postage stamp.—Dorking Nursery, Oct. 4.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, NURSERYMAN, Longton, Staffordshire, has great pleasure in again recommending the above variety of Rhubarb, sent out for the first time in 1854, feeling confident from its superior quality and reduced price to meet with a continuance of demand. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11, 1853.

"Very good, and a most beautiful crimson; compared with others it is remarkable for the small amount of acidity it contains."—ED.

Price—Year-old plants, 1s. 6d. each, or 6l. per 100; Two-year old, 2s. 6d. each, or 10l. per 100. With usual discount to the trade.

Orders addressed to ROBERT SALT, Nurseryman, Longton, Staffordshire, or to the following agents will meet with strict attention:—Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Francis and Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester; James Dickson & Sons, Nurserymen, 112, Eastgate Street, Chester; Burgess & Kent, Nurserymen, Penkhull, Staffordshire.

A remittance from unknown correspondents.—Longton, Oct. 4.

GEORGE SMITH begs to offer from a fine strong healthy stock of the following new and choice PELARGONIUMS, at 36s. per dozen, with plants to compensate for carriage.

Unknown correspondents forwarding Post-office Orders, payable at Islington, will be liberally dealt with.

SHOW GERANIUMS.—(Foster's) Amazon, Countess, Edith, Meteora, Purple Prince, Pluto, Saracen, Sparkler, Iris, Triumphant, The Clipper; (Hoyle's) Admiration, Brenda, Cato, Corsair, Eva, Ermine, Floretta, Leopard, Pallas, Rosaline; (Turner's) Admirable; (Beck's) Rosa Mundi, Margarette; (Dobson's) Sultan, Delicatum, Juliet, and (White's) Pretty Poll.

FANCY GERANIUMS.—(Turner's) Adonis, Attraction, Beauty of Slough, Diana, Masterpiece, Naomi, Ne Plus Ultra, purpureum album, Prima Donna, Queen of Roses; (Henderson's) Amphitrite, Cloth of Silver, La Stella, Queen of the Fête, Reine du Bal, Sweet Lucy, (Titania) and Smith's Dictata. Also a good stock of older kinds of Show, Fancy, French, Spotted, and Scarlet varieties, Verbenas, Fuchsias, &c.

Tollington Nursery, Hornsey Road, Islington, London.

HARDY ORNAMENTAL TREES, LARGE EVERGREENS, AND SPECIMEN CONIFERÆ.

WILLIAM YOUNG begs to call attention to his immense stock of the above, which he can offer at very reasonable prices, and the great care he has taken to render them all good rooted and safe for removal enables him to recommend them with confidence to all engaged in planting.

Those who are planting new grounds, where an established appearance is required, will find these plants particularly adapted to the purpose, and such as are seldom to be met with in the trade.

The Specimens of Coniferæ are all grown as single plants, consequently are all handsome and well furnished, especially suited to the Park or Lawn.

The following abridged list will give some idea of the Stock from which purchasers may select:—

Abies alba (White Spruce) ... ... 6 to 10 feet high
" canadensis (Hemlock Spruce) ... ... 6 to 10 "
" Douglassi ... ... 6 to 15 "
Several hundreds of this most noble tree, all as handsome as it is possible to grow them.
Abies Menziesi ... ... — ... 8 to 10 feet high
" nigra ... ... 4 to 6 "
" orientalis ... ... 3 to 4 "
Picea Pinsapo ... ... 5 to 7 "
and as much in diameter—perfect plants.
Pinus austriaca ... ... 6 to 10 "
A valuable tree for exposed situations; grows very rapidly.
Pinus Cembra ... ... 5 to 8 feet high
" excelsa ... ... 8 to 10 "
" insignis ... ... 3 to 5 "
" Montezumæ ... ... 3 to 5 "
" monticola ... ... 6 to 8 "
Cedrus Deodara, several thousands of fine plants from ... ... 3 to 15 "
" Libani ... ... 6 to 10 "
Araucaria imbricata ... ... 3 to 7 "
Cryptomeria japonica ... ... 4 to 6 "
Juniperus chinensis (Chinese Juniper) ... 6 to 7 "
This is one of the most handsome and hardy of all Junipers.
Juniperus cracovia ... ... 4 to 5 feet high
" virginiana (Red Cedar) ... ... 6 to 8 "
" hibernica (upright) ... ... 5 to 6 "
Taxodium sempervirens ... ... 4 to 10 "
A very rapid growing tree, much valued in California for the durability of its timber.
Thuja orientalis (Chinese Arbor Vitæ) ... 6 to 8 feet high
" pendula ... ... 3 to 4 "
" Weareana ... ... (very fine) 5 to 8 "
Libocedrus chiliensis ... ... 3 to 4 "
Wellingtonia gigantea, stout seedling plants.

Several thousands of SPRUCE and SILVER FIRS from 6 to 12 feet high, indispensable where a screen is required.

Of Yews and Green Hollies here is the largest stock in England consisting of fine plants from 6 to 10 feet high.

Fanned Yews, for hedges, furnished quite to the ground, 6 to 10 feet.

Tree Box, 6 to 8 feet.

Handsome Evergreen Oaks, 6 to 8 feet.

Quercus Exoniensis (New Leucombe Oak), 8 to 12 feet. A fine evergreen Oak.

DECIDUOUS TREES.

Ash (Weeping) worked on straight stems ..	8 to 10 feet.	Limes	8 to 12 feet.
Beech (common) ..	8 to 10 "	Planes	8 to 10 "
" (purple) ...	6 to 10 "	Oak (English) ...	8 to 10 "
" fern-leaved)	6 to 8 "	Sycamore... ...	8 to 10 "
" (variegated)	6 0 "	Single and Double Scarlet Thorns	
Hornbeam ...	8 to 10 "	Tulip Trees	
Horse Chestnut ...	8 to 12 "	Weeping Willows	

A fine collection of HARDY RHODODENDRONS, AZALEAS, HEATHS, and other AMERICAN PLANTS.

W. Y. again begs to state that no plants but such as are quite safe for transplanting will be sent away from the Nursery under any circumstances.

The great facility now afforded by railways enables goods to be easily and expeditiously transmitted to any part of England at moderate cost.

Purchasers will be liberally treated in respect of carriage. The Nurseries are about an hour's ride from London on the South-Western Railway, and two miles from Godalming station.

Milford, near Godalming.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

GROVE NURSERIES, MIDDLE BARTON, NEAR WOODSTOCK.

J. SODEN AND SON tender their grateful acknowledgments to their numerous patrons for the liberal support they have received in business for several years, and give notice that the partnership hitherto subsisting between them was dissolved September 15, 1856, JOHN SODEN the elder having retired from business in favour of his Son and late partner, and Mr. Edmund Butcher, who for several years filled the situation of Head Gardener to the Earl of Jersey, at Middleton Park, and for whom he solicits a continuance of the patronage so generally and so long conferred upon himself.

SODEN & BUTCHER beg to assure the Nobility, Gentry, Clergy, Agriculturists and the Public that every exertion shall be used on their part to maintain the position of the Grove Nursery at Middle Barton. The stock (which is very fine) consists of trained Fruit Trees of all kinds, Standard and Dwarf Apples and Pears, Plums and Cherries, Forest Trees, ornamental and evergreen Trees and Shrubs, Greenhouse Plants, Bulbs, Agricultural and Garden seeds, Catalogues of which will shortly be published; the Bulb Catalogue is now ready and may be had on application.

All demands against the late Firm and all debts due thereto may be settled with Mr. JOHN SODEN, Senr., at Steeple Aston, or with Messrs. SODEN & BUTCHER, at the Grove Nursery, Middle Barton.—Oct. 4.

There will be a vacancy for an Apprentice in November.

NEW GERANIUMS OF 1855.—Fine strong healthy plants of the whole of the Show and Fancy varieties raised by Beck, Dobson, Foster, Foquet, E. G. Henderson and Sons, Hoyle, Turner, and others, can now be had of JOHN WESTWOOD at the Floral Nursery, Acton Road, Turnham Green, near London, at 36s. per dozen; also all the varieties let out in 1854, 2s. each, or 1l. per dozen, carriage to any of the London Railway stations included, and where 24 or more are taken no charge will be made for hamper, &c., and extra plants will then be given to compensate for further carriage. For particulars of various other plants now on sale at this Nursery at reduced prices, see Advertisements in the *Gardeners' Chronicle* of September 6th and 13th. A full descriptive Catalogue of Show, Fancy, Bedding, and French Geraniums, will be shortly issued gratis to all applicants. J. WESTWOOD has much pleasure in stating that having expended much money and labour in testing and completing his stock, it is now the largest and most perfect of its kind in existence, and well worth inspection.

The Gardeners' Chronicle.
SATURDAY, OCTOBER 4, 1856.

THE FINEST OF climbing ROSES is the "Cloth of Gold." The finest of yellow Roses is the Cloth of Gold. The finest of Noisettes is still the Cloth of Gold. And yet how few know it except as a dwarf, grown in a pot or a border, and bearing there a scanty supply of its noble blossoms. Nevertheless it yields to none in the power of flowering, producing, if properly managed, enormous quantities of golden balls.

In the year 1846, while still a novelty among Noisettes, Mr. RIVERS described it in the following words:—"We have recently had a few additions to this class, and two are worthy of especial notice; these have been raised at Angers, from Noisette Lamarque, and no Roses have perhaps so well rewarded with their beauty the care of a cultivator: the first in merit is Noisette Cloth of Gold, called in France Chromatella. One would suppose, to see this Rose in bud, that it could not be a yellow Rose, as the extreme outer petals are nearly of a cream colour, but when expanded it is one of the most brilliant and beautiful of yellow Roses, with petals thick and waxy, bearing exposure to the hottest sun without fading. In habit it is very robust, bearing in this respect much resemblance to Jaune Desprez; its leaves are large, shining, and the whole plant, when in luxuriant growth, most beautiful. While rare, as at present, it would not be prudent to expose it during the winter in the open border; a south wall will probably be the best situation for it, as it seems to delight in heat: but when more abundant it may doubtless be planted out as a pillar Rose, for which it is admirably adapted, as it makes shoots four to six feet in length in one season: cultivated in this manner it will doubtless require protection." No statement could be more accurate; its merits still remain unquestioned, and yet we never see it except under the circumstances just described. Some say it won't flower; some think it tender; they are most unjust. It is perfectly hardy, of a vigorous constitution, and will bear no end of flowers when kindly treated.

At Hethel Hall, in the county of Norfolk, once a seat of the Beevor family, situated in a village of the same name, known to the lovers of trees as the place where the most ancient Thorn in England is to be found, there exists a specimen of our Cloth of Gold Rose, unsurpassed even in the west of England, where the finest examples of the variety are said to grow. Planted some 10 or 15 years since by the Rev. F. BICKMORE, and now belonging to WILLIAM BICKMORE, Esq., the reverend gentleman's successor, it covers half the south-east side of the house, occupying a space of little less than 500 square feet. The stem at the ground is 10 inches round; the vigour of the plant is everywhere in proportion; the leaves present the most robust health, and in the middle of September many flowers as large as the fist still remained to show what the summer magnificence had been. Mr. WILLIAM BICKMORE informed us that

the wall had been one mass of yellow blossoms, finer by far than those we saw.

What is the explanation of this horticultural phænomenon? How has it happened that a Rose reported to be tender, and a bad flowerer, and even an unwilling grower after a year or two has selected for a display of its powers a county not famous for its warmth, and a situation in which no advantageous circumstances are discoverable. The only peculiarity in its place is that it stands within two feet of a gravelled road which falls towards the wall and conducts the rain-water to the roots of the Rose after every shower. It is thought indeed, from the swollen and grooved condition of the main stem next the ground, that the scion of the Rose has sent its own roots into the soil and is independent of the stock, an opinion the truth of which we can neither confirm nor deny. We have nothing here likely to have produced such a specimen.

Certainly it is not in Norfolk air, in Norfolk soil, or in Norfolk rain that the explanation is to be found. The secret is good management. This Rose tree is never pruned more than is absolutely necessary to prevent the branches smothering each other. We entertain no doubt that as fine growth, as profuse bloom, and as exuberant health is to be secured anywhere south of the Humber where the aspect is warm, the soil well drained, the border freely acted upon by the sun, and the management the same as Mr. Bickmore's.

This opinion is we think confirmed by the following memoranda with which we have been favoured by some of the most experienced of our Rose-growing friends, to whom we put the simple question—"How should the Cloth of Gold Rose be grown?"

Messrs. Wood, of the Woodlands Nursery, Maresfield, say:—"The Cloth of Gold Rose grows and blooms well planted and trained against a wall or trellis work with either a west, east, or due eastern aspect, and even north if in a sheltered place where the north and north-eastern winds cannot touch it. Due east is preferred. If planted west the afternoon sun takes its colour from it. It requires no pruning (except the dead wood), but plenty of space to grow, and the long shoots it makes being very pliable can be turned back and trained to the work, and be made a good covering, if on trellis-work. It being a very rapid grower the more room it has to grow the better it flowers. It grows and blooms better grafted on the Manetti stock than on the Dog Rose."

Messrs. Lane, of Berkhampstead, remark that:—"The most successful way to grow Cloth of Gold is to plant it against a warm wall (south), and not to prune it."

Mr. Francis, of Hertford, writes to the same effect:—"The Cloth of Gold Rose," he remarks, "we have found flower freely and fine from the first year's buds, but seldom after, appearing to lose all its propensity to flower in its rapid growth. Where it is planted out against a south or west wall, budded on a stock and left to grow on a Briar, it will flower freely every year; its habit is to flower at the end of the shoots and on side laterals, therefore it should be very sparingly pruned. It may be seen to perfection at Earl De Grey's, Wrest Park, Silcoe; Wm. Parker's, Esq., Ware Park; and the Rev. Philip Honeywood's, Minks Hall Rectory, where it flowers regularly every year."

Mr. Mitchell, of the Piltdown Nursery, says:—"I get my best blooms from maiden plants worked low on the Briar; if they grow very strong shorten the shoots in order to get blooming wood. For early bloom I plant to a south-east wall, worked on the Briar trained like a Peach tree; I then have the largest and most magnificent blooms early in the spring."

Finally, Mr. Wm. Paul, of Cheshunt, has favoured us with the following very detailed relation:—"To flower the Cloth of Gold Rose successfully is one of the nice points of gardening which draws largely on the knowledge and skill of the experienced cultivator. By nature it is a shy bloomer; it grows vigorously, producing fine masses of broad handsome foliage, but seldom ripens the wood sufficiently to flower well. Such being the case we believe it requires special treatment to overcome these tendencies. But what are the facts? It is ordinarily planted in company with other Roses, the Aimée Viberts, the Géant des Batailles, and similar free flowering hardy kinds, subjected to the same commonplace treatment, and then in most cases discarded, because the cultivator while acknowledging its beauty considers it intractable, and therefore practically worthless. We cannot help thinking that this frequent and inconsiderate dismissal of *the finest of climbing Roses* is much to be deplored, and shall endeavour to point out the means of flowering it with the view of inducing more appropriate cultivation.

"The Cloth of Gold Rose is in the best position when trained against a south or south-east wall where not too limited for space—the front of a cottage for example. Choose a good healthy plant on its own roots and plant it out in the month of May. Secure, first, a thorough drainage at the root; next, a good holding soil, well loosened to the depth of 18 inches and not too rich. Roses in general like a rich soil, but here we recommend the use of turf and leaf-mould in place of manure. This may seem a trifling distinction, but it is these nice points in cultivation which make so wide a difference in the results. The plant has a tendency to grossness, and a moderate diet is usually followed by moderate growth, wood well ripened and set with flower buds instead of wood buds. Having obtained this point, care must be taken in pruning not to cut away the flower-producing eyes. Over and over again have we seen the flowering destroyed by the mere fashion of pruning. It is well even during the growing season (summer) to regulate the growth by stopping any gross shoots that may appear, thinning out others where crowded, that the sun and air may find free access among the leaves and branches. In spring (April) pruning may be performed. If summer thinning has not been attended to, cut out crowded shoots (also gross, weak, and unripened shoots, unless required to fill blank spaces) shortening the few well and regularly placed shoots but little, for it is not from the base but *from the middle and points of well-ripened shoots* that the flowers usually spring. This, again, is not the pruning recommended for Roses in general, although applicable to this special case.

"The Cloth of Gold may also be grown as a Tree Rose submitted to the same soil and treatment as above described, tying the branches down to a hoop or to the ground to keep them from being broken by the wind. We have obtained flowers on the Cloth of Gold as a Tree Rose ten months after budding by carefully selecting for use flower-producing buds. Where there is a plant on a wall treated as above described there will usually be no difficulty in sparing a few such for this purpose. The flowering of this variety as a Tree Rose is however more uncertain than when the plant is trained against a wall, as the difficulty is greater in regulating the growth and ripening the wood; the plant is also less conveniently protected in winter, which is necessary in case of severe frost, on account of the tenderness of the bark. Against a wall a mat hung over one plant is sufficient protection, allowing it to remain till the sun no longer reaches it.

"We have seen many of these plants growing in various parts of Great Britain and on the Continent, nine-tenths of them flowering but sparingly or not at all. By far the finest ever met with was found trained against the front of a house facing the river Dee, between Aberdeen and Ballater. It was the month of September, and the flowers and flower-buds hung in magnificent profusion, presenting to the eye a mass of large egg-shaped yellow Roses. The waving corn was bright and ready for the sickle, but the deep rich tone of these yellow Roses impressed everything around them with a dark and dingy hue. This was a case of special treatment, in which knowledge and attentive cultivation were found triumphing over the mere routine of ordinary gardening."

Let us hope that after these explanations the Cloth of Gold will at length receive the honour which is so justly due to it as the noblest of the Yellow Roses.

The Hethel named in the preceding remarks is famous for something more than a Rose. Hethel Old Thorn is one of our vegetable patriarchs, a still living witness perhaps of Roman conquest, Danish forays, and Druidical superstition. According to tradition, it is mentioned as "the old Thorn" in a deed dated early in the 13th century; and it is reported to be described in one of the "Chronicles" as the mark for the meeting in an insurrection of the peasants in the reign of King John. We should be much beholden to any antiquarian reader who can point out the Chronicle in which this statement is to be found.

That the tree is of very high antiquity cannot be doubted. Mr. Grigor, who described it with an inexact figure in his Eastern Arboretum in 1841, gives the following measurements:—"At one foot from the base of the trunk, twelve feet and an inch in circumference; and at five feet high fourteen feet and three inches; while the circumference of the space over which the branches spread is thirty-one yards. Its trunk is reduced to a mere shell, and though somewhat divided, it has none of that shattered appearance which we sometimes observe in the Oak. The ramification of the top has assumed a style which we can neither trace in the Oak nor in any tree of its own species, the branches forming a thick grotesque mass most curiously interwoven. It is covered all over with Lichen and crowned with Mistletoe, adding still more to the effect which age confers upon such objects."

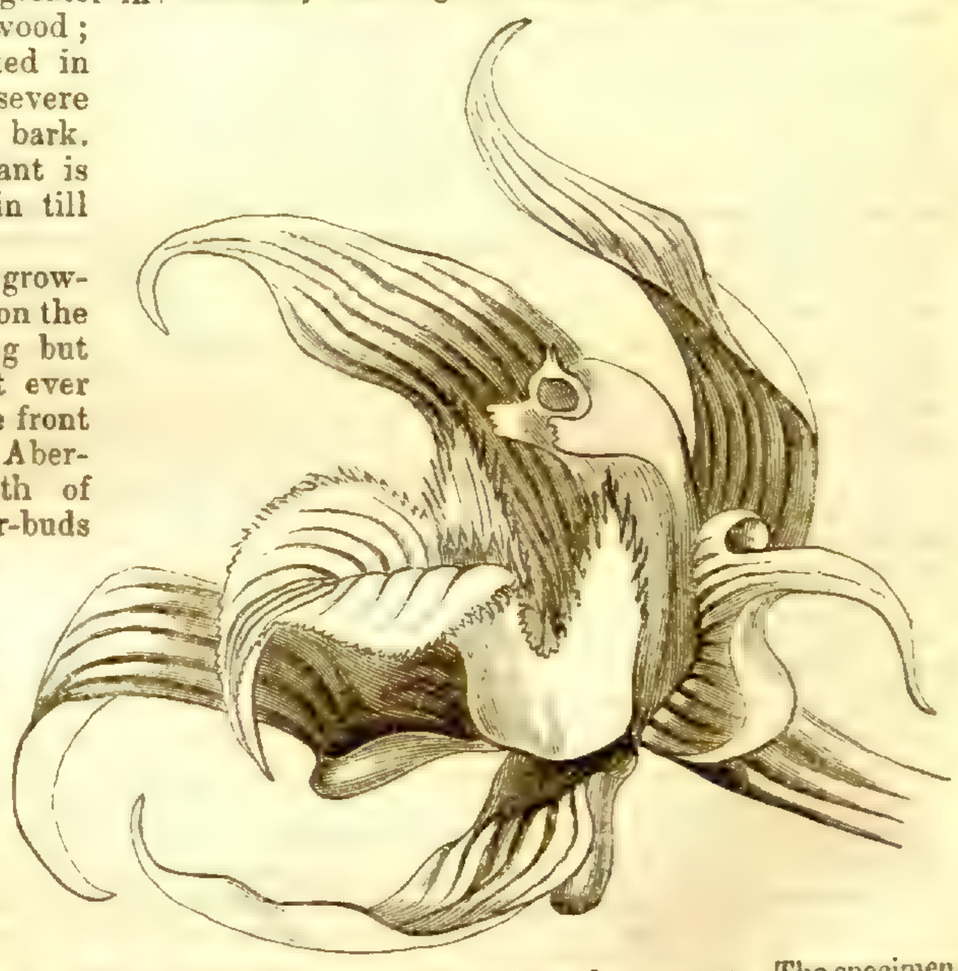
Mr. Hudson Gurney, upon whose property it now stands, adverts in the Eastern Arboretum to a circumstance unnoticed by the author of the work. "Not only," he says, "the bark of the hollow tree is as hard and as heavy as iron, but *every branch, most curiously intervolved, is a hollow tube*, into which you may put your arm, all the interior wood being gone." What adds to the singularity of the tree is that many of the branches are slit up one side, so that they look like planks half rolled up, or as if the trunk had been gradually split asunder into long strips which afterwards turned their edges inwards, nature repairing the wounded surfaces. Similar instances of this peculiar mode of growth occur in the same neighbourhood, which is rich in old Hawthorns; several, for instance, may be seen on Mr. Edward Freestone's property at East Carleton. It would be interesting to hear from those who live near ancient Hawthorns in other parts of England, whether they find this peculiarity in the specimens within their observation. The greater diameter of Hethel old Thorn at five feet high than at the ground level, observed by Mr. Grigor, is caused by the spreading asunder of the involute divisions in question.

We rejoice to add that this relic of ancient times is still in good health, and carefully protected from injury by a fence maintained by direction of Mr. Hudson Gurney.

New Plants.

183. Galeottia fimbriata, *Linden Cat.*, aliàs Batemannia fimbriata, *Linden and Rchb. fil.*

In one of his catalogues M. Linden published this plant under the name we have here adopted. Subsequently in conjunction with M. Reichenbach he referred it to Batemannia. Whatever may be hereafter the fate of the genus Galeottia, it can never be united with Batemannia, which ought perhaps to merge in Maxillaria. Galeottia, with its great ribbed crest, two-winged column,



and saccate sepals is quite a form *per se*. The specimen from which the annexed cut was drawn flowered at Cheshunt in the garden of Henry Bellenden Ker, Esq., who had imported it from some part of South America. Plants having been sold by Mr. Stevens among one of Warczewitz's collections in Feb. 1852, it doubtless exists elsewhere. The habit is that of some stemless Maxillaria. The pseudo-bulbs oval, two-leaved. Leaves about 6 inches long by 1½ broad, tapering to the base. The flowers, of which the cut shows the natural size, grow in a two or three-flowered raceme from among leafy bracts. They are of a pale brownish yellow colour striped with crimson. The lower sepals have a conspicuous sac near the base. The lip is cucullate, three-lobed, fringed, with the side divisions erect and small, while the middle is much larger, ovate, and very taper pointed; at its base is a large appendage formed of eight deep sharp-edged ribs, in front of which five small horn-like processes project.

Warczewitz found it on Quindios and at the sources of the Marañon; Wagener in the woods of Ocaña, at the height of from 4000 to 5000 feet.

VEGETABLE PATHOLOGY.—No. CXL.

575. Parasitæ (*Coniomycetes: Æcidium**). — The order *Coniomycetes* contains far the larger portion of the fungi which are injurious to the farmer, and especially those which affect Cereals. The first genus which comes

* From κονις dust and μυκης a fungus, in allusion to the multitudinous dust-like spores; and αικια a wheal, and ειδος resemblance, from the spots appearing like superficial wounds.

under notice, taken in its larger sense as comprising *Peridermium*, *Rœstelia*, *Graphiola* and *Cronartium*, besides typical *Æcidia*, is not however one with which he is much concerned, except his farm comprise the manufacture of cider and perry, as is often the case in the west of England, when he will occasionally suffer considerable loss.

576. *Æcidium* proper has however some interest for the farmer, because one species is connected with the question as to the baneful influence of the Berberry on Wheat. The notion has undoubtedly arisen from the fact that the Berberry is so often rusty with *Æcidium Berberidis*, which has been confounded with the rusty appearance which so constantly precedes mildew in Wheat, and which is in fact the young condition of the plant by which it is caused. *Æcidium* consists of a tuft of long orange-coloured necklace-like strings of spores contained within a membranous sac which opens above in a radiating manner so as to present a very elegant appearance. The spores germinate as observed by Tulasne, and produce broadly cymbiform secondary spores of two orders. The spores of *Puccinia graminis* are brown and uniseptate, and on germination equally produce two kinds of secondary spores. Moreover in *Æcidium* there are spermatogonia filled with minute spermatia which are discharged in the form of little gelatinous drops or tendrils. In *Puccinia* spermatogonia are far more rare, but they have been observed by Tulasne. There is no doubt then that *Æcidium* is as perfect a plant as any neighbouring genus, and cannot therefore with any probability be supposed to be a condition of *Puccinia*. Authorities besides, whether scientific or practical, are by no means uniform on the influence of the Berberry, nor has experiment confirmed the common notion. Mr. Knight's experiments were not solitary, and led to no positive result, though in one instance, which if solitary might have misled him, there seemed to be some evidence in favour of the effect of the Berberry on Wheat. Staudinger, Hornemann, and Jussieu came on the contrary to a positive conclusion that the plant exercises no baneful influence. It should be remembered, moreover, that no districts are more subject to mildew than the fens, where the Berberry is wholly unknown except in gardens, and that the plant is comparatively rare in England, though abundant in some localities.*

577. Species of *Æcidium* proper occur on many plants of very various orders. Though there are undoubtedly many different species, it is quite certain that they have been multiplied beyond all reason, each different genius being for the most part supposed to produce its own species. The injury is not always considerable, but in some cases, as *Anemone coronaria*, *Sambucus canadensis*, *Euphorbia*, &c., the matrix is more or less distorted, sometimes acquiring in the Elder the peculiar appearance which is known under the name of Stag's Horn in the Ash and some other plants. In these cases the parts affected die as soon as the fungus has attained its full development, or shortly after, but if the leaves are affected without any general change of structure, the plant if perennial suffers only a temporary check which may be completely remedied the next season. In the Gooseberry the leaves are not the only part which suffer, but the fruit is often affected, acquiring sometimes a peculiar nauseous taste. And the species is sometimes so abundant as to diminish sensibly the saleable produce. The fruit of the Berberry likewise is affected as well as the leaves, and is then generally more or less distorted.

578. The spores vary in colour from white to pale orange, scarlet and brown, and the investing membrane, which with the aid of a needle may be picked out perfectly entire from the surrounding tissue, varies considerably in the degree of development and mode of rupture, and hence in a few cases the species are not easily distinguished from *Uredo* without attentive examination. *M. J. B.*

* See Henslow's Report of the Diseases of Wheat, in Journal of the Royal Agricultural Society; Staudinger on Ergot and Rust, in Isis, 1832, p. 262; and report on his paper by Montagne in Archives de Botanique, vol. ii., p. 283; and article Mildew in Morton's Cyclopædia.

ON THE INFLUENCE OF WOODED SURFACES IN PREVENTING INUNDATIONS.

The following note, addressed to the Inspector of Forests by M. Millet, was read before the Société Impériale et Centrale d'Agriculture :—

Inundations are nearly always produced when a considerable quantity of snow is quickly thawed, or after heavy rains; and above all when these two circumstances are combined. It may be affirmed that an inundation will take place whenever the principal stream and its tributaries receive more water from their gathering-ground in a given time than they can carry off. Hence it is very evident that inundations would seldom or never occur if the snow or rain-water were subjected to certain conditions which would render their flowing off slow and regular; therefore, the natural conditions, of which the immediate effect is to render the melting of snow and the running off of rain-water on no occasion either too sudden or too rapid, are assuredly the best means of preventing inundations, or at least the most effectual ones for diminishing their intensity.

Now, wooded ground unites these conditions in a remarkable degree. With regard to the melting of snow, no one is ignorant of the fact that snow thaws much more slowly on woody ground than on surfaces not so covered. Persons who live near woods, or who are in the habit of frequently passing through them, will have observed that the beds of snow are some weeks, and in some cases several months, longer in thawing than those in the open country. The consequence is, that on wooded ground snow-water is only produced and runs away in small quantities at a time, gradually sinking in the ground, and never collecting in large quantities so as to suddenly form a torrent or swell the tributaries of a river. It is quite different with ground that is not covered with wood, and especially with that which is absolutely naked. There, indeed, the heat of the air, the solar rays, rains, &c., hasten the thaw, frequently producing in a short time a considerable body of water, which, in consequence of its volume, flows rapidly towards the principal stream of the valley, and causes it to overflow, because it receives more than it can carry away.

With regard to rain, this is what takes place: the rain-water which falls upon a wooded surface is, to a great extent, retained on the leaves, shoots, branches, and trunks of the trees, as well as by the underwood and Briars; it is absorbed in a great measure by the leaves, Lichens, Mosses, and by the bark of the branches and stems. When the wood is in leaf, especially when it is thick, the rain, even when heavy, only reaches the soil at the end of some hours, and in some cases only after the lapse of several days. These are facts of every-day occurrence, and may be observed at all times in the forests of evergreen resinous trees. Retained by an almost infinite number of small surfaces, the water is sometimes to a great extent again evaporated, and in any case the portion which reaches the soil is in part retained and absorbed by plants, such as Mosses and Lichens, and by the humus which takes it up in great quantity. Here is a striking instance of those small causes which, in nature, produce such grand effects. It is only after having passed through this series of retarding influences, and after having traversed so many absorbent surfaces, that the remaining portion of the rain-water reaches the soil; and there again it meets with a multitude of roots and fibres which frequently take it up in large quantities, and invariably present an obstruction which prevents it from flowing away too rapidly and suddenly by the surface.

Wooded ground has therefore the effect, as regards inundations, of regulating and distributing the flow of rain and snow water, so as to render it harmless. In nature all is harmony; when the imprudence or avarice of man destroys that harmony, disturbance and commotion is the consequence. The cutting down of woods and copses has produced that disturbance and commotion of which we have now to deplore the sad results.

I do not think that the beneficial effects of wooded ground can be seriously called in question. To deny the influence of surfaces covered with wood upon the distribution and regular flow of water is the same as to deny the influence of light upon vegetation, or that of heat upon the maturation of fruits. If there were still unbelievers, I would say to them, you have not yet observed; observe, and you will be convinced. I do not wish to decry any system of preventing inundations; but facts clearly show the uselessness, if not the danger, of artificial works for that purpose. If we wish to master water we must resist it whilst it is in drops, whilst still a rivulet; we must not wait till it becomes a river or torrent. Besides, great artificial works, even admitting them to be effectual, are extremely expensive. Planting is also attended with expense; but the outlay is amply compensated by the return. Lastly, it cannot be denied, that to completely clothe the mountain slopes with wood, or at least those parts which have greatest influence on the descent of water, is an object that could be effected for a less sum than that representing the amount of property quickly sacrificed by the disastrous inundations themselves.

ON THE INFLUENCE OF EXPOSURE UPON THE ELEVATIONS WHICH PLANTS ATTAIN UPON MOUNTAINS.

(From Alph. De Candolle's Géographie Botanique Raisonnée.)

Comparative observations upon the height to which species ascend on the north and south slopes of individual mountains, and especially of isolated mountains, are very rare. The most exact travellers have neglected this point of research, or have not met with mountains favourable for conducting such observations. The following are the general results deduced (by M. de Candolle) from several very valuable tables (for which we must refer our readers to his work itself).

1. From observations taken in Switzerland and South Germany (mean lat. 47° N.) it appears that the Beech (Fagus sylvestris) and Silver Fir (Abies pectinata) ascend 564 feet higher on southern slopes than they do upon northern.

2. From observations taken by M. Martins on Mount Ventoux in lat. 44° 10′ N.; height, 6278 feet; soil, calcareous; slope, 19° 30′ towards the north and 10° towards the south, it appears that eight species observed ascend 450 feet higher on the south side.

3. From observations made upon Mount Etna, lat. 37° 44′ N.; height, 10,908 feet; soil, volcanic, the mean limit of 13 species, both wild and cultivated, is 1145 feet higher on south and east than on north and west exposures.

Now in Switzerland the mean annual temperature decreases 1° 9′ for every 315 feet, whence it follows that an exposure to the south is there equal to a difference of 2° over one to the north, for the plants ascend 564 feet higher on that exposure. On Mount Ventoux (an isolated mountain) the decrement is 1° for every 262 feet, whence a southern exposure there is the equivalent of a little less than 2°; for plants there ascend 450 feet higher on the southern slopes. Lastly on Etna the decrement is 1° for every 274 feet, and the consequent effect of a southern exposure is about 4°; for plants there ascend 1145 feet higher on the southern slopes.

The great difference between the results obtained upon Mount Ventoux and upon Etna are due to the higher northern latitude of the former (7°), and this shows that the direct effect of the heating and chemical rays of the sun is twice as great in lat. 37° as it is in lat. 44°—47°.

Another method of ascertaining the direct influence of the sun's rays upon vegetation is detailed in the following experiment. "In 1847," says M. De Candolle, "I sowed in the Botanic Garden of Geneva two series of seeds of annual plants; one set in a place fully exposed to the sun, and 3 feet to the southward of a wall; and the other in a position half shaded by large trees to the southward of the bed. To appreciate the effects exactly I calculated the number of days required to bring each to perfection, and the temperature during these days, and then multiplied these data according to the method proposed by M. Boussingault. I thus ascertained the amount of heat required for each plant expressed in terms of the degrees of a thermometer hung in the shade. The plants growing in the shade (supposing that shade to have been absolute) would have received exactly that amount of temperature together with a diffused light; those planted in the sun have received an apparently less amount of heat, which has been made up for by the direct rays of the sun. Thus Cress, Lepidium sativum in the sun, sown May 24, flowered July 12, ripened seed August 9: ditto, ditto, in the shade, sown May 24, flowered July 13, ripened seed August 17. The product of the number of days multiplied into the sum of the mean temperatures for the period between sowing and flowering is in the sun 798, in the shade 819; difference 21; which is due to the direct effects of the sun's rays. The product of the period between flowering and fruiting is in the sun 515, and in the shade 646; difference 131; also due to the effect of the sun's rays." *J. D. H.*

CULTIVATION OF SKIRRET.

The Skirret (*Chervis Fr.*, *Sium Sisarum L.*) belongs to the family of Umbellifers. It is a perennial plant with bunches of fusiform, fleshy roots from 6 to 10 inches in length, and from ¾ to 1½ inch in diameter, somewhat crooked, of a russet colour externally, the flesh being white. The stem is cylindrical, channelled, and frequently exceeds 3 feet in height; the leaves are alternate sheathing, reddish at the base. The flowers are small, white, sweet-scented, disposed in an umbel surrounded by an involucre, with three reflexed leaflets. The grain is oblong-oval, a little curved, almost cylindrical, rather thin and narrow, flattened at one of its extremities, and marked with 5 longitudinal furrows; its colour is brown, sear yellow, or greyish white.

This plant is a native of Northern Asia; one of its varieties has been cultivated in China from time immemorial under the name of *Ninzy*. It is there much esteemed, and the property of restoring the vital forces is attributed to it. Introduced to this country in 1548, the cultivation of Skirret extended in gardens and fields, and the roots were used as a luxury on the tables of the rich.† According to Linnæus it was cultivated in his time in almost every garden; but at the present day its cultivation has been almost entirely abandoned for that of the Potato, and to such an extent that it is hardly mentioned, and even completely omitted, in most modern works. It is astonishing that greater attention was not paid to it when the Potato disease rendered a substitute for that tuber desirable.

Among those who have paid most attention to the revival of the cultivation of the Skirret, Professor Sacc should be mentioned as the principal. That learned chemist has shown that of all alimentary roots this is the richest in nutritive substances, as is shown by the following analysis :—

Water	62.41
Starch	18.09
Woody fibre and ashes	7.91
Cane sugar	6.60
Caseine	2.09
Soluble salts	1.37
Pectic acid	1.00
Gum Arabic	0.53

The Skirret is likewise so easy of digestion that it was formerly recommended as one of the best analeptics.

The flesh of the root is white, firm but tender, floury, sometimes, however, a little fibrous. Its flavour is mild, sugary, with a slight flavour resembling that of Celery. A few minutes is sufficient to boil it. It is also eaten fried, and it makes very good soups. M. Huzard thinks that if it could be grated finely whilst raw, and allowed to dry for some time, it would make excellent and very nourishing broth.

In field culture Skirrets may be of great service

† Some authors attribute a more ancient date to the cultivation of the plant, grounding their opinion on the fact that Tiberius during his stay in Germany found these roots so delicious that he exacted an annual tribute of a certain quantity of them; but it appears that this so-called Skirret of the ancients was in reality the Parsnip.

either as a root crop, much liked by cattle, or for furnishing starch, sugar, and alcohol. The valuable property which it possesses of remaining in the ground without being injured by frost allows of the workmen and teams being employed in the winter season. But whilst we participate in the hopes formed on this subject by Messrs. Sacc and Huzard, we must confine ourselves here to the garden culture of this plant.

The Skirret requires a soil that is soft, light, deep, well worked, rich, moist, or even rather damp. It grows remarkably well in ground which has been manured in the previous season with cow-dung, such as that which has been cropped with Cabbage or Broad Beans. On account of the length of the roots the soil should be rather deeply trenched.

The plant is propagated by seed, or by divisions of the roots. The grains preserve their germinative power for two years, according to M. Vilmorin, and for three or four years according to Rozier and other agriculturists. A pint of the seed weighs 5¾ oz. 52 grains; and a quarter of an ounce contains 1858 seeds.

The seed is sown broadcast, or better in drills, to allow of hoeing and weeding. February is preferred for making the sowing in the south of France, March in the central portions, and April in the north. Nevertheless, it may be also sown in September, as the plant is quite hardy. When the seedlings have acquired sufficient strength, they should be thinned to 6 or 7 inches apart. The surplus plants may be used for transplanting if required. The Skirret may also be propagated by divisions of the roots, planted at 8 inches apart every way. Each division, in order to give a good crop, should be furnished with a bud, and should be taken from a cluster recently dug up, say the evening before, or still better the same day it is to be planted. The plants so propagated are usually more forward in their vegetation than those raised from seed; but the latter produce the largest and tenderest roots.

When the roots have been used, the crowns may be turned to account by planting them at 8 inches apart in the kind of soil above recommended. They grow in winter, forming in early spring large tufts, and yield some seeds from which, if gathered and sown immediately, a root as thick as the finger can be obtained; but this mode is not so good as the preceding.

Hoeing and weeding performed pretty frequently and at the proper time encourages the growth of the roots to a remarkable extent; but to obtain them tender and delicate, which is most desirable, frequent but moderate waterings should be given, especially during very hot weather. As the plant is impatient of drought it is a good plan to earth it up like the Potato. Lastly, as the flower stem is produced the first year, some authors recommend it to be cut off in order to increase the size of the roots; these stems may be given to cattle. Care should however be taken to reserve some uncut for seed.

The roots are taken up with a fork. This operation is commenced in November, and continued throughout the winter as required. In case of severe weather a sufficient quantity should be taken up and kept in the root cellar.

In the south the seed ripens in September, but later in the north. That of the second year is to be preferred. After gathering it should be dried for some days in the sun, cleaned, and stored in a dry place.

From want of sufficient data we cannot state the produce per acre of Skirrets. M. Huzard thinks it cannot be inferior to that of the Potato; M. Sacc considers it superior to that of any other root crop. In his experiments, made, it is true, upon a very small scale, and under the most favourable circumstances, bunches of roots were produced weighing from 10½ oz. to 4 lb. 2 oz, and on an average 1 lb. 14½ oz.; this would make the produce the enormous quantity of 79 tons 13½ cwt. per acre; but this is evidently an exceptional case. There is no doubt, however, that for the quantity and quality of its produce this plant merits, in a high degree, the attention of horticulturists. *A. Dupuis in Revue Horticole, Aug.* 1856.

[Note. Since the French call this plant *Chervis*, it is necessary to remark that it has nothing to do with our English Chervil, *Chærophyllum sativum* (aliàs *Anthriscus Cerefolium*, aliàs *Scandix Cerefolium*), which is merely a small salad named in French *Cerfeuil*.]

Home Correspondence.

Orchard Houses.—It is to be regretted that your agreeable and zealous correspondent "S. B." has not succeeded fully in his orchard-house culture; he seems to me in a slight degree to lack practical skill, and has perhaps been a little too careful in shutting up his house, neither has he used the syringe enough. I have never yet failed in obtaining full crops of Peaches and Nectarines, and have never been troubled with red spider, owing, I presume, to my simple mode of culture, something as follows: As soon as the fruit has arrived at the size of a Horsebean, my man (not a regular gardener) has opened the house about 7 A.M., syringed the trees shortly after, and if required given them some water; about 6 P.M. he has again syringed them and shut up the house. And now a word about syringing—with me this has not been a gentle shower on the surface of the leaves, but each tree is singled out and the syringe forcibly used to the under surface of the leaves. This treatment has been followed till about the middle of July, when all the ventilators and doors have been thrown open and kept open night and day till the middle of September, or at least till stormy and windy weather has made it more agreeable to have them closed. By this treatment my Peaches have not perhaps been quite so early as they would have been, yet I had the Early York ripe the first week in August last, and the Early Grosse Mignonne ripe the second week in the same month, but they were large, of good flavour, and the trees with leaves so large and clean as scarcely to be like those of Peach trees. On several of my trees in 13-inch pots, and four years old, I had upwards of two dozen of fruit, and they are full of well developed blossom buds for another year. In 1854 I had such a crop of Apricots on my potted trees that some of the branches broke down with their burthen; in 1855 the crop was less, owing to the trees being exhausted by the too heavy crop of the previous year. This year my crop nearly failed, owing to the severe frost of March 31st (thermometer at 18°) destroying the greater portion of the blossom, the trees being placed in a very airy part of the house. A friend near Devonport has an orchard house nearly 100 feet in length, in which he has succeeded in growing finer crops of Apricots than have ever been seen in that part of Devonshire; it appears, therefore, that Apricots may be grown in orchard houses. I am inclined to think Mr. Rivers quite correct in recommending Plums that ripen in summer to be placed out of doors; but this should be taken with some qualification, and applies more particularly to the warmer parts of England, for in an orchard house in the vale of Gloucester, a lean-to built with boards for its walls and well ventilated through the crevices of the boards as well as by its regular ventilators, Peaches have not ripened well, but Plums (Greengages, Jefferson's, and others,) have been of the most delicious flavour, and a dish of Reine Claude de Bavay placed on the table in November, 1855, was described as quite exquisite. Pears also ripened in the same house are always of fine flavour. This seems to tell us that in a cooler climate than we have in the near neighbourhood of London Pears and Plums may remain under glass to ripen their fruit with advantage. I may mention here how necessary it is to "leave well alone." A friend on talking to the foreman of a nursery was advised to take his trees out of the pots, to cut off all the roots at bottom that were twisted round the pots and to repot them; he lost his crop of fruit, and so did the employer of his adviser. My trees remain in their 13-inch pots, and have not been shifted for four years; they are this year I think more vigorous than ever, and their fruit has been as large or larger than in any previous year. Many of them are trees that have borne from two to three dozen measures from 7 to 9 inches in circumference. With regard to Figs, as far as my experience has gone, "S. B." may add the White Marseilles to his collection for the orchard house, and perhaps the Angelique, which I have found a nice white Fig and a great bearer. *O. H.*

Instinct v. *Reason.*—I was sitting in my dining-room yesterday afternoon (Sept. 25), when there suddenly came on so violent a squall of wind and rain that I rose from my seat and went to the window to observe the effect on the trees in my garden. My window looks towards the north, the wind was from the N.W. All at once my eye was attracted by some small object running near me. It proved to be a spider darting towards the centre of its geometrical web, which was stretched obliquely from the west corner of the upper sash, in such a way as to be only partially sheltered from the wind and rain. "Look here," I said to my companions within, "here is a spider whose web is violently agitated by the wind, and he imagines that he has secured a booty." He had stationed himself in the centre of the web, and was feeling the radii to discover whereabouts the prey was limed. But no! the wily hunter knew his business better than I. Presently I saw his jaws at work; a cord suddenly slackens and collapses—then another—a portion of the web hangs loose. As an A. B. seaman gathers in the flapping folds of a topsail, so he draws under him the loosened meshes of the net. Onward he advances, warily but nimbly, severing a cord here, huddling together his spoiled work there. After the lapse of perhaps a minute a third part of the web was clean destroyed; but not a single thread which formed the substantial framework was even slackened. The destroyer of his own handiwork then swung like a pendulum, till the line which supported him was perpendicular to his cell, to which he hastily retired, carrying the débris with him. What remained of the web was perfect, as far as it went, being that portion which was least exposed to the weather. It is not for me to say that this series of operations resulted from any reasoning process in the brain of the contemptible insect; but thus much I hesitate not to say that, in my humble judgment at least, if a human being possessed of the highest intellectual development had suddenly found himself so circumstanced and after due deliberation had decided that his wisdom would be to destroy a part of his machinery in order to save the whole, he could not have carried out his intention more skilfully than did this poor hairy spinner. If however the latter was guided merely by instinct, will one of your learned readers kindly favour me with a definition of instinct, as this is a simple, unadorned, uncoloured, and unexaggerated narrative of facts, related by one accustomed to observe incidents in natural history, and aware of the importance of extreme accuracy. I think it necessary to verify my statement by giving my name in full. To-day web, cell, and spider are all gone, but whether they still exist in some more sheltered spot, or whether a hungry robin has demolished the weaver and his work I cannot say. *C. A. Johns, Callipers Hall, Rickmansworth.*

Hybrid Melon.—The Melon, of which I send you a specimen, was cut from a plant raised from a seed of a green-fleshed Beechwood Melon; it had no doubt been hybridised by a scarlet-fleshed China Melon which grew alongside of it in the same house. An opinion of its merits would much oblige. *W. I., Cranmer Hall, Fakenham, Norfolk.* [The specimen sent was oval in shape, measuring 14½ inches in girth the one way and 16½ inches the other. Skin smooth, slightly ribbed, pale green in colour, very hard and a quarter of an inch thick. Flesh a beautiful deep orange, about an inch in thickness, tender, and delicious. Altogether quite a first-class variety.]

Cynips Quercus pedunculatæ.—When at Dawlish in Devon, in March 1853, I was struck with the profuse occurrence of an Oak gall, then new to me, on all the scrubby Oak bushes which about Dawlish form so large a proportion of some of the badly managed hedges. This gall, which has already been so ably described in your pages, threatens to cause no inconsiderable injury to plantations of young Oak, and therefore its gradual spread through the country is much to be deplored. That it is so spreading may be gathered from the following notes. Previously to March 1853 I was staying for some time at Weston-super-Mare, but though I botanised much among the scrub Oaks which abound on the neighbouring heights, I did not observe any of the galls upon them. I am, however, informed by Mr. Chas. Pooley, who sojourned a short time at that place this summer, that the gall is there met with at present in considerable abundance. Since 1853 I have searched most diligently for any sign of the pest in Gloucestershire, but in vain, until the present month, when in one of the rambles of the Cotteswold Club T. B. Lloyd Baker, Esq., the president, found several of the galls on the Oaks growing upon the elevated scarp of the Cotteswolds in Uleybury Wood; and since then, in a ride through Oakley Park, the seat of the Earl Bathurst, at Cirencester, I noticed a slight sprinkling of the gall on a small tree in one of the wood rides near the Cathedral Firs. To what extent it has attained in this district I am unable to say; but I feel convinced that it is only just making its appearance here in its march westward, but judging from the quantities I have seen elsewhere, I should expect that without some check its spread will speedily be a matter of serious import, and as anything which can limit its increase is I think a subject worthy of attention, I beg to offer the following suggestions as easy of adoption in the present stage of the progress of the pest. At the present moment the larva of the cynips which is the cause of the gall will be found quietly ensconced within his globular home, so that from his not yet having eaten his way out the galls are quite without aperture; if therefore the galls be now gathered wherever they may be found and dried the larva is destroyed, and of course with it the fecundity that might have resulted from the perfected insect. Now it has been suggested that the galls are nearly if not identical with the nut-gall of commerce and in its present state may safely be said to contain as much as one-third the amount of gallic acid of the best Aleppo galls, a circumstance which would repay the cost of gathering them. In the present state of the case, therefore, it seems advisable to instruct boys to gather the galls from the young trees, which, if not found marketable at once, can easily be kept in a dry state. This operation whilst it will check the spread of the evil will, at the same time, relieve each individual tree, for it must not be forgotten that vigorous trees become impossible if the sap of youth is thus to be expended in the production of the excrescences forming the gall, as these, like early fruiting, will assuredly bring about premature old age; and thus the King of the Forest seems in danger of a degeneracy in might, whilst the property of the landowner is likely to suffer much from even a little fly unless the matter be promptly attended to. Doubtless the subject will receive greater attention by and bye; but it seems necessary that it should be looked into before it becomes too formidable for anything of service to be done. *J. B.*

The Early Grosse Mignonne Peach.—Your correspondent "S. B." errs I think in judging this to be the Pourprée Hâtive Véritable; for many years it has been described in the Bon Jardinier under its name as above, and has always borne a high character. The Peach Pourprée Hâtive Véritable seems to me a myth, for I have never yet met with it either in France or England, and yet I have most industriously sought for its name in all the catalogues of French nurserymen from the Rhone to the Rhine. I have not, however, had an opportunity of consulting either Duhamel or Poiteau. *Persica.*

Hartley's Patent Rough Plate Glass.—I beg to inform you that we do not grow Pines here. I therefore cannot assist your correspondent who seeks information as to the effect the above-named glass has on that fruit. We do however grow Peaches, Nectarines, Plums, Cherries, Apricots, Figs, and Strawberries, &c., under it, and Heaths, Epacrises, Azaleas, Geraniums, Calceolarias, Mimulus, Fuchsias, &c., in the houses and pits. The winter garden is also glazed with it. I think therefore I have named variety sufficient to test its merits, with which we are perfectly satisfied. I however leave you to judge, from the condition of the things you saw when here, of our success with any of the above named which you did not see. I may however add that I have found plants of almost all kinds to succeed under it perfectly. I would not change it for sheet glass unless the

latter was of the best quality, as burning would be a ten times worse nuisance than the supposed slight diminution of flavour of which your correspondent complains. I would not, however, recommend it for pits or frames (without some hesitation) for winter forcing, because you cannot see through it how things are going on. However bad the weather may be the lights must be opened for that purpose, a practice which does not at all times answer. *William Breadley, Somerleyton.* [It was impossible for plants to be in better health than at Somerleyton early in September. The winter garden, the prettiest thing in England, was magnificent.]

Gas Water as a Manure seems at present to occupy some attention. I have used from 600 to 1000 gallons a week of it for the last seven years with the most satisfactory results. When convenient, it is used on the land intended for Mangels and Swedes; we have never been able to put it on thin enough for corn, which it always made grow so strong that it falls down before it gets into ear. Where it had been used for Potatoes last year we had to flag the Wheat this; it did not improve the Potatoes, which it made run to haulm. The first time I used it was on a poor gravelly headland by an Elm-tree hedge, where we never could get anything to grow; as far as it went, there was as fine a crop of Stone Turnips as you could wish to see—on the unwatered piece as usual nothing. If put on Grass the horse should move quickly and make no stoppages. I have all mixens saturated with it—dung, ashes, earth, &c. *James M. Ronald, Bromley.*

The Singleton Fig.—Can any of your correspondents tell me in what respect this sort differs from the White Ischia? Judging from its description it is exactly like it in size, in shape, in colour, and in its rich luscious flavour "like a lump of sugar." The habit of the tree also bears a close resemblance, as it is dwarf and very prolific. The Nerii Fig, which was exhibited last year by Mr. M'Ewen (then of Arundel) and others, seems to be the same kind. It appears to me quite necessary that all doubts about the names of fruits should be put at rest as quickly as possible, and your pages are most certainly the best medium we possess for such a purpose. The White Ischia Fig will ripen well in a warm orchard house, with its walls formed of brick, in the south of England; but does not ripen well in a cool boarded orchard house. With gentle forcing it succeeds admirably in pots, and well deserves a little extra care in its cultivation. *Observer.*

Quercus sessiliflora.—I am informed by your correspondent, "A Welsh Subscriber," p. 470*b*, that "Llanrwst" in that communication is misprinted for "Lannerch." Some days ago when I was in the Forest of Dean, I was told that it was the opinion of the officers of the forest and of the royal dockyards, that the timber of Q. sessiliflora suffered more damage from the effect of a shot in splitting and splintering the wood in its passage, than the timber of Q. pedunculata suffered from the same cause. If this be so, then is Q. pedunculata preferable for the use of the royal navy. But unless the fact has been established beyond dispute by well authenticated experiment, made either for the express purpose or casually on ships known to have been built of Q. sessiliflora, it would form a most interesting matter for direct experiment by officers of the navy or the Ordnance. The results would now be certain to be chronicled by the Director of the Royal Gardens at Kew, and the pieces of each species experimented upon if too large to be admitted into the museum would no doubt be well disposed of in some part of the grounds, with inscriptions explanatory of the mode of experiment and the effect produced. *Diss.* [It is very much to be regretted that the Ordnance officers do not take this matter in hand and settle the question. They have the means and no one else has. But they must have better advice than they are likely to find in the Forest of Dean.]

Grapes in Pots in Orchard Houses.—I have to-day gathered a bunch of Grapes from one of my bush Vines in my orchard house, which weighs 1½ lb., less half an ounce; there are still two bunches on the Vine, each of which weighs upwards of 1 lb.; the berries are very large. This Vine is three years old, and is in an 11-inch pot; its roots have struck through into the border, which is deep and rich. Several other Vines in the same house have borne excellent crops and produced large bunches. *Vitis.*

Names of Strawberries.—So numerous have been the seedling Strawberries raised within the last few years, that I find one grower advertising 40 and another 50 varieties. This fact alone should, I think, deter any one from giving "synonyms," which I fancy has occurred in one of our leading establishments. Mr. Turner, of the Royal Nursery, Slough, advertises in your last number a Strawberry which he calls the "Filbert Pine," "proved at the Royal Gardens to be the best and most useful Strawberry grown." At the July exhibition at Chiswick in 1854, Mr. Ingram staged some half dozen varieties of Strawberries, and among them was one named "Filbert," which I take to be the same as is advertised by Mr. Turner. This Strawberry I distinctly recognised as a seedling raised at Manor Farm some years since, and sent out as "Myatt's Seedling," and by this name I think it should still be known. *W. Myatt, Manor Farm, Deptford, Oct. 4.*

Page's Blight Composition.—Will you insert a paragraph in the *Chronicle* soliciting the opinion of gardeners generally whether they consider this useful in destroying insects upon fruit and other trees. I have myself failed with it, and after immersing insects in it for more than 12 hours I found them still alive, whilst I have destroyed numerous plants by using it. I have tried it all strengths and do not find any benefit from it. I have refused to pay Messrs. Page and Co. for it upon public grounds, as I consider I should not be using my customers justly in offering to sell them an article which I myself consider perfectly useless. The opinion of the readers of the *Gardeners' Chronicle* will determine me whether I am right or wrong. Should there be a great majority against it, I think I shall be justified on public grounds in letting them try the result in a court of justice. *J. Scott, Crewkerne.* [We are unacquainted with the merit of the composition. The only report we have seen came from Mr. Gordon in the Garden of the Horticultural Society, who found no advantage in it over well-known washes which every gardener makes for himself.]

Garden Memoranda.

ROYAL NURSERY, SLOUGH.—Hollyhocks and Dahlias have bloomed beautifully here this season. Among the former we noticed very fine examples of Miss Ashley, soft creamy blush; Argo, a very fine yellow; Miss Nightingale, pale lemon; and Standard, deep salmon. Among Dahlias, the following fine kinds were in excellent condition: Yellow Beauty, Duchess of Wellington, creamy blush; Lord Palmerston, a very fine deep scarlet; Eclipse, dark purple; Perfection, Bessie, Captain Ingram, Colonel Windham, Miss Burdett Coutts and Lollipop. One of the new continental fancy varieties Magicienne, crimson purple with white tip, looked as if it would be an acquisition. Among two-year old seedlings Lady Popham, white with lilac tip; Cherub, bright orange; Harbinger, brilliant scarlet; Delta, a fine yellow; and Saturn, yellow tipped with cherry, were all fine. The first blooms of the Crystal Palace Scarlet that opened here were very poor; but as the season advanced they improved. Here, however, it grows too tall for bedding purposes, for which it would require to be pegged down [We cannot say anything in favour of this, except that it is a good colour and dwarf, not growing above 2½ feet high in heavy damp land. ED.]

Mr. Veitch's new scarlet Larkspur was blooming brilliantly; it is certainly a fine addition to herbaceous plants, as is also Delphinium "Bella Donna," a variety having the habit of Hendersoni, and pale lavender coloured flowers. Among hardy Phloxes, Countess of Home, white with a deep carmine centre, was very good, and Madame Fontaine, white with pale rose centre, is also one of the finest varieties grown.

The different kinds of new bedding plants have been tried out of doors here this season. Among Verbenas the best for this purpose seemed to be Madame Abt and Jaquinta, deep maroon; Duke of Cambridge and Field Marshal, purple; Noel, Lord Raglan, and Pre-eminent, scarlet; Mrs. Halford and Mrs. Foster, white; Loveliness and Madame Plantamour, rose; Géant des Batailles, General Simpson, and Crimson Perfection, crimson; Standard Bearer, deep purplish blue with white centre; and Blue Bonnet, pale blue. These are all fine kinds. Victory, purple with a large white centre, is also one of the best Verbenas grown. Among bedding Geraniums Alma is one of the finest variegated varieties; its leaves are smoother and their margins whiter than most others. This is the sort which was so much admired this year at the Royal Botanic Society's July show, where a basketful of it was exhibited. Its trusses of flowers are large and bright scarlet, and it appears to stand the weather well. Countess of Warwick and Annie are also both good. A dwarf variety named variegated Tom Thumb looked as if it might prove useful for edgings. As bedding scarlets none seemed better than Attraction and Royal Dwarf, both excellent varieties for that purpose. General Simpson is a brilliant scarlet with a white eye, and Lady Downes also appeared to be a good addition to that class. Bedding Calceolarias have improved wonderfully of late. We noticed here two large beds of Prince of Orange in full bloom, a valuable variety which keeps extremely gay till very late in the autumn. King of Sardinia, crimson, was fine, and so were Orange Perfection and Orange Boven; the last is a most beautiful kind. Frecta and Gold-finder are also both good yellows. The best blue Lobelia here for bedding purposes was one named speciosa, a spreading variety with large rich deep blue flowers. Among Petunias Dr. Andry, one of the continental striped kinds, looked as if it would be a good bedder; Springfield Rival, crimson, and Springfield Purple, also appeared to be two desirable varieties for out-door decoration.

In one of the houses Ingram's Princess Royal Geranium was in full bloom; it is a bright cheerful looking rosy pink with a lighter coloured centre. The ever flowering Impatiens Jerdoniæ was also beautifully in bloom. Pelargoniums, both plants for exhibition and young stock, were in excellent condition, and the same may also be said of Cinerarias. The latter are wintered here in low frames heated with hot water in pipes led along the front of them. Pinks, Picotees, and Carnations, of which there are immense quantities here, were also very healthy and strong. In short, both out doors and in, everything exhibited the best of order and keeping.

Miscellaneous.

Mr. Loddiges' Orchids.—A fourth portion of these was sold by Mr. Stevens, on Tuesday last. They realised fair prices, as will be seen from the following list of a few of the more important of them. Aerides Schröderi, a fine plant, fetched 14*l.* 10*s.*; A. Larpentæ, 7*l.* 5*s.*; Vanda suavis, 10*l.* 10*s.*; V. teres, 6*l.* 5*s.*; Dendrobium densiflorum, 7*l.*; D. anosmum, 4*l.* 8*s.*; Saccolabium furcatum, 5*l.* 15*s.*; S. guttatum, 5*l.* 5*s*; Lælia autumnalis, 4*l.* 17*s.* 6*d.*; L. Perrini, 4*l.* 10*s.*; Oncidium Lanceanum, 4*l.*; Lycaste Skinneri, 5*l.* 10*s.*; Cattleya Mossiæ, fine variety, 3*l.* 15*s.*; C. labiata atropurpurea, 4*l.*; C. bicolor, 3*l.* 3*s.*; Burlingtonia maculata, 3*l.* 3*s.*; Huntleya meleagris, 3*l.*; and Paphinia tigrina, 3*l.* Other lots, of which there were in all 125, fetched from 10*s.* to 2*l.* 10*s.* per lot.

Fertilising Properties of Boghead Charcoal.—Since I last addressed you on the fertilising properties of this material mixed as a manure, and its uses in rendering greenhouse plants almost free from the attacks of the green fly, I am glad to state that four dozen of my Calceolarias, six Rose trees, and the remainder of my greenhouse plants, with only one exception, have been free from their attacks. Some of those plants, however, given by me to other persons, and placed in the midst of other plants which were covered with green fly, had green fly on them in a week or 10 days after their removal. The Boghead charcoal plants, however, were not destroyed by them, as was the case with the other plants, and the green fly appeared very unsettled, roaming about on them. In the above instance, the situation of the Boghead charcoal plants was similar to a healthy person sleeping and feeding with a number of unclean people in a confined and dirty room, where, in a short period of time, he would be attacked by the same insects which fed on their personal uncleanliness. A putrescent soil and certain conditions of the atmosphere predispose certain plants to disease and the attacks of insects, the plants throwing off through their leaves, &c., an albuminous excrement, which is the excess of azotised matter taken up by their roots, and not assimilated by them, thereby attracting insects to them, who by instinct select such plants to lay their eggs on, knowing that they contain an abundant store of food for their young in their juices and on their leaves. The same plants, however, grown in Boghead charcoal soil, obtain a due proportion of carbon and silica, the former contributing to an increase of chlorophyll, flowers, and volatile oils, and the latter to firmness and strength in their cuticles. Putrescent matters in the soil are neutralised by the antiseptic properties of the charcoal, and Moss will not grow in the pots where it is mixed with soil. Putrescent manure heaps attract insects to them, where they feed and propagate, as proved by the millions of them which are to be seen in those localities where such heaps are placed, which is not the case where there are heaps of charcoal. The *acari* found in brown sugar, and which cause the grocer's itch, feed on the albuminous matter contained in it. No acari are found in loaf sugar, which is free from albuminous matter. Thousands of ants were seen in a dark heap of unrefined sugar, and fed on the albuminous matter until consumed by them, when they left the carbonaceous part of it in a clear state. My experiments lead me to conceive that, were there no putrescent matters in the world insects would nearly be extinct, as, without them, such scavengers of Nature could not exist. When the atmosphere contained a larger quantity of carbonic acid gas, and plants thereby obtained a larger proportion of carbon than they do now, vegetation on the earth at that period was far more luxuriant and healthy. If cleanliness is next to godliness—and if, of late years, education, science, &c., have promoted sanitary measures in this country, and freed the cleanly portion of the community from the tormenting attacks of insects—why should not sanitary measures, when pursued with regard to vegetation, be attended with equally beneficial results to plants, and free them also from the attacks of insects? Were sanitary measures more appreciated by the Russians, would it be necessary for them to purchase above 30 tons of flea-powder annually? Having found last year that my best Melons were those grown in manure mixed with coal tar, I have tried further experiments with it. My method is to mix the tar with manure when heaped; and, in preparing the hot beds for Cucumber and Melon plants, to pour on every 6-inch layer of manure put into the frame some coal tar, at the rate of 2 gallons for each plant; on the surface of the manure from 9 to 12 inches of soil is placed, and then mixed with one or two shovelfuls of Boghead charcoal. To those who have had their Cucumber plants diseased, I would recommend the above experiment, feeling convinced, from the fine-flavoured Cucumbers grown by me, and the large, healthy foliage of my plants, that disease, where prevalent, would be prevented. Cultivators, of late years, from an anxiety of gain, have been induced to over-stimulate certain plants by a constant use of putrescent manures, in order to increase their amount of produce, forgetting that, without a due portion of antiseptic carbonaceous matter with such manures, such plants are predisposed to disease and the meteorological changes of the atmosphere. My Dahlias, last year, were in a great measure destroyed by the wireworm; this year, however, by the use of Boghead charcoal in the pots, and in the soil where they were finally planted, they have been so healthy, and their juices rendered so unpalatable, that the wireworm has not attacked them. If, as stated, plants have negative electricity at their roots, and positive electricity at their leaves, an increase of carbon in the soil must, from increasing the amount of carbon in some plants, render them better conductors of electricity, and, consequently, conduce to their healthy

growth; whilst, on the contrary, an excess of albumen in them, from their growth in a putrescent soil, renders them bad conductors of electricity, and the albumen becomes more readily decomposed by an excess of ozone in a warm, moist atmosphere. The concentrated state of oxygen in ozone, in its action on a Boghead charcoal, is, I believe, to hasten decomposition, and furnish plenty of carbon to vegetation; hence it does good where an antiseptic carbonaceous manure is used. I have on former occasions stated diseases in the Vine and Potato prevailed more in the immediate neighbourhood of the sea-coast than inland, which I cannot but consider to be connected with the action of ozone on such plants, grown in a putrescent soil. Ozone, on the sea-coast, is nearly always in excess, and the sea-shore always being low, there is always a large amount of moisture in the atmosphere near it. All the above accumulating coinciding causes appear to me to exert important influences on vegetation. As the results of my experiments with the ozonometer here may be interesting, I beg to state them to you. In September, 1855, an ozone paper which I elevated on a mast 70 feet high, indicated for four or five days from five to six of ozone, whilst another paper, 15 feet high, during the same period indicated no ozone. This year, on several occasions the ozone papers, elevated at different heights, indicated the least amount of ozone at the greatest height, and the greatest amount of ozone at the lowest height, as follows (ozonometer 0·10):—

70 feet	... ...	6.0 ozone	... ...	9.0 ozone	... ... 6.50 ozone
45 „	... ...	7.0 „	... ...	8.0 „	... ... 8.0 „
15 „	... ...	8.0 „	... ...	10.0 „	... ... 8.50 „
6 „	... ...	9.0 „	... ...	10.0 „	... ... 9.0 „

Ozone in moderation, in a pure atmosphere, I conceive does good, but its excess where there are heaps of animal and vegetable matters, &c., is fatal to man and certain vegetation. In the former case, it is like a wine glass of brandy taken in a tumbler with pure water; and in the latter case, like a large quantity of brandy taken in a tumbler with sewerage water. *John Malam, in the Journal of Gas Lighting.*

The American Floating Ball Washing Machine.—This machine, which attracted a good deal of deserved attention at the Paris Exhibition, where very many of its counterparts were purchased by the English, is now being manufactured to a great extent in this country, and a depôt has been opened, Moore's, 133, in High Holborn, for the purpose of informing the public as to the nature of its operations. We have closely inspected this machine, and seen it at work. A number of wooden balls,—more or less, according to the trough in which the clothes are to be washed—are set in motion by a handle worked by a lever, and which agitates an apparatus on which the linen is placed. This movement causes the balls to rub against each other, but only with sufficient percussion to pound the material to be cleansed, and by their excentric action imitate to a nicety all the routine of a washerwoman's duties. In this way clothes are washed far cleaner than by the ordinary method, and with singular rapidity. The threefold operations of pounding, rubbing, and squeezing are done at the same time; and as the floating balls offer only a limited resistance to each other, the finest fabrics are free from that injury which is consequent upon the ordinary course of proceeding. The wear is, moreover, much less; and not even a button has, it said, been known to be torn off by the thousands of the machines now in use throughout Europe and America. The consumption of soap is smaller, and no necessity for boiling is necessary, excepting in the case of extreme foulness. The hands of the operator, which may be a child, are never immersed in the water, and consequently there is no fear of that blistering, chapping, and bleeding of the fingers attendant upon the poor washerwoman's pursuits. It seems to us an excellent labour-saving machine, and one the permanent character of which is alone to be estimated by the wear of the wood with which it is made. *Mechanics' Magazine.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Early Chrysanthemums will now be in a forward state, and such as show their buds prominently should be got under glass; if it is desirable to have them in bloom as soon as possible they may now safely be placed where a little artificial warmth can be afforded them. Take care, however, that they are placed near the glass, well supplied with manure water, and air given them freely, as anything in the shape of close confinement will soon ruin them. Indeed the whole stock of these should now be placed where it can be covered at night in case of frost; for although they will bear more of that than most things, it is not good policy to leave them to the mercy of the weather much after this season, unless in favoured localities. It is better, however, to place them in skeleton frames, or in a sheltered situation where they can be covered in case of need, than to huddle them too thickly together under glass, or to put them, as is sometimes done, under the shade of Vines. See that tree Violets are perfectly free from their enemy the red spider, for if the foliage is allowed to get disfigured at this season the plants will long remain unsightly afterwards. Greenhouse.—See that Epacrises and other winter blooming things are placed in a light part of the house, where they will be fully exposed to the sun, so as to get the wood well ripened, and to ensure their blooming freely. Examine Heaths and anything else subject to mildew frequently, and apply sulphur immediately the pest can be perceived. Water must be very carefully applied at this season, especially in the case of large specimens, for there is much more danger in overwatering now than when the weather is warmer and the plants more active; therefore look over the plants frequently, and never water until it is absolutely necessary. Any of the late growing Heaths which may be in want of more pot room may still be shifted, but do not expose them to cold winds, and water very carefully afterwards, for the roots cannot be expected to progress very rapidly at this season. Get everything requiring it nicely tied as soon as possible, so as to give the plants a neat appearance, and render the house as interesting as possible, in the absence of any grand display of bloom.

FLOWER GARDEN AND SHRUBBERIES.

Where evergreens have to be removed let it be done as soon as circumstances will admit, for the most favourable season for this kind of work will soon be past. The scarcer varieties of variegated Geraniums should not be risked in beds too long; they had better be taken up and potted immediately the weather becomes at all threatening. After potting it will be a good plan to place them on a gentle bottom heat in a pit or house where the atmosphere can be kept sufficiently dry to prevent the foliage being injured. So circumstanced they will soon become established, when they may be stored away for the winter in a cool dry house where they will be out of the reach of frost. Any beds which may have become shabby, and which are to be planted with bulbs or anything else for spring decoration, should be cleared at once and replanted. Keep Grass short and frequently rolled so as in some measure to prevent the growth of Moss and keep the surface firm and smooth. Also roll gravel walks frequently in damp weather so as to render them smooth and comfortable to walk on.

FORCING DEPARTMENT.

Pineries.—If the bottom-heat is obtained partly from tan and partly from pipes under the bed, as is frequently the case where the pot system of culture is practised, care must be observed not to get it too strong, of which there will be some danger, owing to the increased amount of fire-heat that will be necessary soon after this season. Provided there are means of stopping the circulation in the pipes under the bed, as there always should be, the temperature will be very easily regulated, but where the one set of pipes cannot be worked without the other the bottom-heat must be frequently examined, especially where fresh tan has lately been added, and if found to be getting too strong the pots should be slightly raised, drawing the tan from about them. Any excess of bottom-heat is very injurious to Pines at any season, and would be particularly so now when the injured roots would not be so speedily replaced by new ones, as would be the case in spring or summer when the plants are growing more vigorously, and no care that may be necessary to secure a steady bottom-heat of about 80° or 85° should be spared. Give air rather freely on bright days to plants ripening their fruit, and also to young stock in a growing state, and do not keep the latter so warm as to induce anything like weakly growth, or long thin foliage; but regulate the temperature according to the amount of light and the state of the plants. Where the temperature is maintained by means of dung linings, the plants must be kept very close to the glass and rather dry at the root, admitting air as freely as can be done without lowering the temperature too much, for there will be nothing gained by growing plants at this season as freely as it is possible to do in dung heat. Success in Pine growing is to some extent dependent upon having a supply of suitable soil, and fortunately this is not difficult to obtain in most neighbourhoods; but the best turf is greatly injured by being cut and carted in a wet state, therefore see to getting a good stock laid in before the ground gets saturated with wet. Vineries.—Attend to last week's directions as to protecting the borders from heavy rains, and whatever it may be purposed to do in this way should not be put off until the ground gets saturated with wet. Keep houses in which the fruit is ripe dry and cool, using gentle fires with a little air when the weather is damp, and also on cold nights. Be very sparing, however, in the use of fire heat after the Grapes are fairly ripe, as most varieties soon shrivel if kept too warm after they are ripe; but where the fruit is not yet ripe use brisk fires with a free circulation of air. Keep Vines in pots, where the object is to ripen the wood, rather dry at the root, with a rather warm dry atmosphere, and expose them to all the light possible; and where the wood is properly ripened get the plants pruned and remove them to a cool situation, but if out of doors see that the roots are protected from too much wet or frost.

HARDY FRUIT AND KITCHEN GARDEN.

Attend to fruit out of doors, looking over it frequently, and gathering it as it becomes fit, so as to prevent its being blown down and bruised by high winds. Keep the fruit room cool and airy; examine the fruit frequently, and pick out any that are found to be decaying. Use every possible means to get the wood of Peach and Nectarine trees well ripened, and where the walls are flued a little fire heat should be applied until the leaves begin to fall freely. Also if the trees are too thick of young wood, every shoot that will not be wanted at nailing time should be cut out so as to expose those left to all the light possible. Attend to former directions as to root pruning, and where this is required get it done at once. Root pruning, however, is not of much service where the subsoil is such that the roots can strike down into it, and where such is the case it will be better to lift over-luxuriant trees and concrete the bottom of the border, as cutting the horizontal roots, although it might check the gross habit for a season, would not induce a fruitful habit. Clear off all crops that are done with, and get the ground manured and ridged up for the winter; also see that weeds are destroyed among growing crops, taking advantage of dry days for this work, and get every corner thoroughly cleaned, for the weather may soon be less favourable for this sort of work. Keep Celery rather closely earthed up, in order to prevent the plants getting injured by frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Oct. 2, 1856, as observed at the Horticultural Gardens.

Sept. and Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 26	27	29.657	29.374	63	45	54.0	55	55½	S.W	.27
Satur. 27	28	29.133	28.9[illegible]8	55	46	5[illegible].5	54	55	S.	.61
Sunday 28	29	29.002	28.722	61	46	53.0	55	55½	S.	.13
Mon. 29	●	29.449	29.137	63	4[illegible]	54.0	55½	55½	S.W.	.02
Tues. 30	1	29.789	29.566	65	41	53.0	56	55½	S.W.	.02
Wed. 1	2	29.818	29.796	64	42	53.0	56	55½	S.W.	.00
Thurs. 2	3	29.820	29.758	67	50	58.5	55½	55	S	.00
Average		29.5[illegible]1	29.331	62.4	45.0	53.7	55.3	55.1		1.05

Sept. 27—Heavy rain; cloudy; very heavy rain at night.
— 28—Heavy rain; showers; cloudy.
— 29—Fine; very fine in forenoon; cloudy; fine; rain.
— 30—Very fine; cloudy; showers; fine at night.
Oct. 1—Fine; exceedingly fine throughout.
— 2—Fine; very fine in forenoon; cloudy and fine.
Mean temperature of the week ½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Oct. 11, 1856.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	62.5	41.3	51.9	14	0.82 in.	4	3	2	1	6	7	6	1
Mon. 6	61.0	43.6	52.3	17	0.78	1	3	3	3	4	9	5	2
Tues. 7	61.9	43.6	52.7	13	0.58	1	4	2	2	5	12	3	1
Wed. 8	60.4	41.8	51.1	14	0.63	1	4	3	3	4	7	6	2
Thurs. 9	59.8	42.0	51.4	16	0.82	—	5	1	1	5	11	6	1
Friday 10	61.[illegible]	43.6	52.4	15	0.68	2	2	3	—	7	8	4	4
Satur. 11	61.1	43.1	52.5	14	0.54	2	4	2	2	4	9	4	3

The highest temperature during the above period occurred on the 5th, 1831—therm. 80 deg.; and the lowest on the 5th, 1850, 8th, 1852, 9th, 1849, and 11th, 1854—therm. 28 deg.

Notices to Correspondents.

Grapes: *Sub.* The evil of which you complain arises from many causes, but chiefly from deep ill drained borders. If yours are in that condition the sooner they are put right the better; for you will never have good Grapes while the state in which they are in remains unaltered. If the border is not in fault then the mischief probably arises from cold and damp inside the house. If that is the case light a gentle fire occasionally to dry the atmosphere, and at the same time take care to remove all berries that have begun to decay, or that are likely to create damp. Covering the outside borders with wooden shutters, or some material that will keep out wet, will also be found to assist in preserving your Grapes in good condition.‡

Greenhouse: *A Novice.* 1. The distance of the glass is not objectionable. 2. Yes, there will be heat enough in so small a space. 3. Therefore we see no advantage in lowering the roof. 4. Slate is far better than zinc, which is soft, perishable, apt to bend and oxidise. Use 4 inch pipes. We do not see how your single pipe is to work.

Green Rose: *J. M.* This is the most complete instance of a change of petals, &c., into leaves that we have yet seen. If permanent it would be a great curiosity though no beauty. We see it figured in the *Flore des Serres* under the name of Rosier Bengale à fleurs vertes, from M. Miellez, who owns to having received it from some English nursery. Yours?

Heating: *W. K.* A common brick furnace will be found to answer your purpose perfectly.‡

Heliotrope Miss Nightingale. We have received a note upon this subject, but as we do not know who the writer is, where he lives, or what trust is to be placed in his statement, we cannot insert his communication. We also have a letter in praise of the variety from a nurseryman at Paddington; but we want the opinion of *gardeners only* upon a point of this kind.

Insects: *A T Box.* The grubs attacking your Grass are young larvæ of the cockchaffer, which have still many mouths to feed. Plough up the soil and let the rooks and ducks feast on the grubs. Any fluid application would only cause them to bury themselves deeper in the ground for a while. Had you employed children to kill the chaffers your ground would not have been in this state.—*Lincolnshire.* The insects you have sent as attacking the Cucumber are a species of spring-tailed insect (Podura). It is new to us that they injure living plants. (Is there no mistake in your statement?) They may be treated in the same way as thrips or green fly. *W.*

Limited Liability: *W. Mx.* Take care of your pockets. You will lose your money—that alone is certain. Do you think they would not work such a scheme themselves, instead of trying to take in gardeners, if it could be made to pay?

Names of Fruits: *R S Y.* Your Grape is the Black St. Peter's.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*A Labourer.* You are doubtless aware of the difficulty in naming bits of young seedling Conifers. Probably yours is Athrotaxis cupressoides.—*X W.* Gorteria, now called Gazania, rigens.—*T S.* The white Mulberry.—*S T P.* The pretty little plant sent you from Barbados under the name of the "Double Blue Bell" is Clitoria Ternatea. It is one of the gayest half climbers of the West Indies.

Oaks: *Robur.* Quercus discolor is from North America; some think it a variety of Q. tinctoria. Fennessi is a state of pedunculata; we are unacquainted with it. Variabilis is from Java. Of Panoraces, ceriifolia, and insignis we find no record.

Peaches: *J C.* Your Peaches, which you state are from a seedling tree, very much resemble the Malta; flesh melting and rich, parting freely from the stone, at which it is not rayed with red. An excellent Peach.‖

The Black Strawberry: *F G.* We fear this is lost in England. It is a pale-leaved hairy sort difficult to keep alive, and a very bad bearer; but unrivalled for flavour. It was one of the parents of Mr. Andrew Knight's Downton Strawberry.

Misc.: *An Old Sub.* Next week.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.
The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.
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The public are cautioned against spurious imitations. As security to the purchaser every bag contains 2 cwt., and is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

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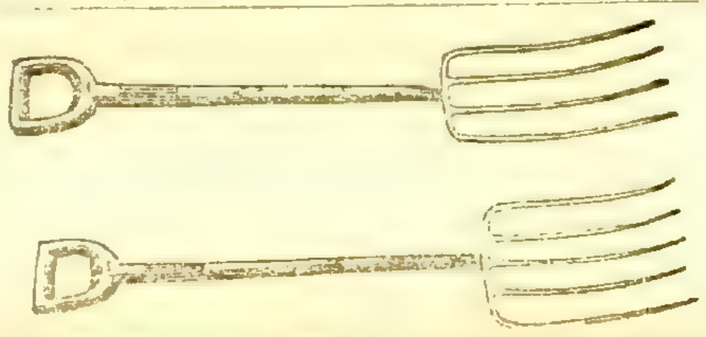

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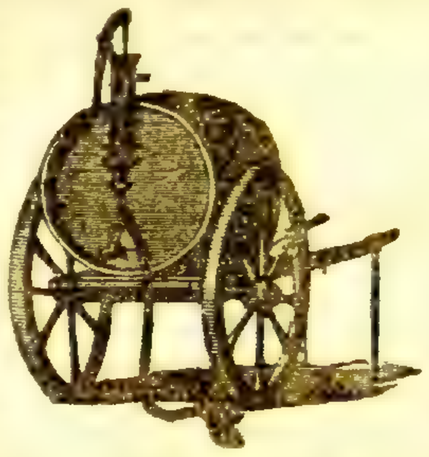

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

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Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE the 1st of November next.
JOHN MORGAN, Secretary.
Offices, Bingley Hall, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800l. will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.
All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.
Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.
Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS,
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The Agricultural Gazette.

SATURDAY, OCTOBER 4, 1856.

THE proper seed time of Wheat varies according to locality. In Sussex we have known Wheat sown all through April and up till May day, and one of the best crops we ever heard of was of April Wheat sown late in April, yielding 48 bushels per acre of first-rate quality. This was of the harvest of 1855. As a contrast to this we may refer to the practice prevalent some years ago in the higher parts of Gloucestershire, where the young Wheat had brairded before the harvest home. And Messrs. HARDY tell us that their first sown Wheat was up a fortnight since; and they "sincerely wish it were possible for them and everybody else to get all their Wheats sown moderately thin by the end of September."

There are two considerations both tending to recommend an early seed time: one is the saving of seed which is certainly effected, because a very small number of plants if well established before winter suffice to stock an acre; and the other relates to the greater ability of the soil to feed a plant when the demands upon its stores of food are spread over a longer period. A plant of Wheat sown early will not only exhibit before winter comes a bulky growth above the ground, but it will have sent its roots throughout the soil, so that when the period of growth returns, it is in the best possible condition to take advantage of growing weather above and of fertilising matters below.

We do not know whether, if we except the division into spring and winter Wheats, one sort is more par-

ticularly adapted for early sowing than another. The selection of sorts most likely ought to be guided simply by the money value of their produce. That is the best sort which, taking quantity and quality together, may be expected to yield most money per acre. And there are so many claimants of high rank in this respect that it is difficult to give them severally their due. We received two ears of Egyptian Wheat the other day from which we rubbed out 250 grains—probably an unprecedented number. Certainly these two ears would yield as much flour as five of average growth—and a difference so great should open the eyes of farmers to the great range of produce which the Wheat crop exhibits as the result of this one circumstance—difference of sort. In a letter from Woodford, near Kettering, where Mr. Tiney manages General Arbuthnot's farm, we were told that the Red Wheat introduced last year as "Tiney's Success," has proved as profitable elsewhere as it had done there. Among other places to which its reputation has extended, orders have been received from the south of France, where for quality and for yield it has proved as successful as in Northamptonshire. And we may refer here to experiments described by M. Vilmorin in a recent number of the French Journal of Practical Agriculture, when a number of English and French varieties were tried against one another with various results; the English sorts, however, generally proving most productive. The Blood-red Wheat yielded 26¾ bushels per acre; Hickley's Prolific, 22½; Spalding's Red, 22; Fenton, 18½; Victoria, 14½; while singular to relate, a mixture of all the sorts yielded the most of all, namely, 29½ bushels per acre.

Red Wheats are, we think, becoming more generally sown in this country than white Wheats; they are certainly less liable to blights and mildews, diseases which appear to affect our crops the more as cultivation increases the fertility of the land. Nevertheless new sorts of white Wheat also are being introduced, and we hear of a sort of remarkable excellence as proving exceedingly productive on the same farm to which we owe the red Wheat just named.

Certainly very great service is done by those who succeed by selection, care, and cultivation in thus improving the productiveness of our principal crop.

As a large part of the Barley harvest was in some districts materially injured by heavy rains, insomuch that in certain fields it was impossible to find a single grain which had not sprouted, and where the crop had not been mowed, those ears which had been beaten down grew even more rankly than those which had been cut, it seemed desirable to try some experiment as to the germinating qualities of such injured seeds both as regards malting and sowing. We accordingly selected from a field which was the most injured of any in our neighbourhood a fair sample. Out of 485 seeds which were the subject of experiment there was not one in which the roots had not greatly protruded, or in which the acrospire had not more or less moved. In very few however was it visible at the tip of the seed. The seed was thoroughly dried by exposure to a hot sun where possible, and in the intervals was thinly spread out in a dry room. It was in fact at the moment of our experiment in good grinding condition. The seed was then divided into two portions; 185 were committed to the earth, and the remaining 300 steeped as for malt. In the first case 100 were placed in a pan without any drainage. After 11 days only 17 had sprouted, and of these only 11 perfectly. Of the 85 which were placed in a pot with drainage 71 sprouted perfectly, 12 imperfectly, and two only refused to sprout at all. The 71 plants were healthy, and would doubtless have yielded as well as others which had never been damaged. The 300 grains were steeped for 40 hours, and then laid seven days in Couch, the time during which it is not allowed by the Excise laws to sprinkle malt. By some means or other eight of the grains were lost. Of the remaining 292, 155 threw out the acrospire without any root, 42 threw out a root with no acrospire, 31 threw out both, and 64 did not germinate at all, but first turned rose-coloured, as in the Wheat described in a late number, and these were covered with *Penicillium glaucum* and an obscure Mucor.* The 42 which in malting threw out roots only germinated strongly when placed in soil, but in the greater part of the 155 which had thrown out no fresh roots, the acrospire only increased in length, without any further development of roots. On the whole, then, as far as the experiment goes, such seed would answer as seed Barley in properly drained land; and for malting, though it could not be expected to produce a fine article, as there would be always some mouldy grains, it might answer very well for domestic purposes, or where a very pale beer was not desired. Indeed some 20 years ago we remember some excellent beer being made from Barley which was so grown as to be unsaleable. In the sample on which we experimented the germination had proceeded so far, that were it consistent with the Excise laws, or could they be relaxed on petition, the Barley needed only to be placed upon the kiln to make a very fair article. The new steeping, however, did not seem to do much injury, for the water in which the Barley was steeped roughly tested with sulphate of copper and solution of potash gave when boiled no red tint. The greatest drawback seemed to be the growth of mould upon those seeds which refused to germinate again. On principles which we shall mention presently we were quite prepared for a tolerably favourable result, though the following curious circumstance was rather against it. A maltster in our neighbourhood, being completely out of stock, was obliged to make a steeping during the hot weather. His floor, from disuse, was perfectly dry, and he neglected to wet it before the Barley was laid in Couch. The moisture was, in consequence, so rapidly extracted from the Barley that it would not germinate kindly, and it was impossible to add any water, as it would have infringed upon the Excise laws. Consequently, it was left till the end of the seven days, and the malt when sprinkled thus became one mass of mould.

It may at first seem surprising that the Barley should be capable of germination a second time, as it is contrary to the nature of most seeds. But it must be remembered that the seeds of corn are differently constructed from those of other plants. If a seed just germinating is carefully divided, it will be found that the active point from whence the acrospire and rootlets spring is attached to a little saucer-shaped or plano-convex disc which is in intimate contact with the mealy contents of the seed. As soon as the grain swells with moisture, and the starch begins to assume the condition of sugar or other chemical forms, this disc, like a placenta, imbibes the nutritious matter and stimulates the acrospire and rootlets into growth. This disc is, in fact (according to Richard, whose views the writer of the present article has adopted after an attentive examination of the germination of many endogenous plants),† the true radicle, or radicular end, as it is called. The rootlets are merely adventitious, supplemental that is to the true radicle. In consequence, though the rootlets may be destroyed and dried up, so as to be capable of being rubbed into powder, the true root is still intact and ready to convey nourishment again when the starch is again placed in circumstances to undergo those chemical changes which precede or accompany germination. New rootlets may, therefore, be thrown out, and replace the old ones perfectly, or if the base of the embryo have suffered so that no new rootlets are thrown out, the disc has still activity enough to nourish the acrospire, and longer continued experiments would in all probability have demonstrated the growth of new adventitious roots from a higher portion of the axis.

The practical view of the case is of much importance. Did not good Barley realise so great a price, the loss experienced from grown Barley, where it is possible to get it dry without heating or moulding, would not be great. The agriculturist has often wished for permission to malt his Barley without duty for purposes of feeding, and the work is done for him already, and where there was not too great anxiety to carry before the grain was properly dry, there has been no chance either of heating or of mould. We will conclude our observations with a word of caution. It is well known that an equal quantity of malt and Barley mixed together will make excellent beer in consequence of the action of the diastase of the malt upon the raw grain. Some farmers within our knowledge have stated their intention of using sprouted Barley in the same way, as a mixture with malt. It would be well for them to ascertain first whether such mixture is legal.‡ Such Barley as we examined is really malt, and its use might incur much trouble and expense. It would be well, therefore, to act under competent advice or not at all. *M. J. B.*

Our correspondents Messrs. Hardy and Son have been taken to task by Mr. Baker of Writtle for the faulty estimate, as he believes, at which they put the cost of autumn cleaning stubbles. They are not responsible for the whole of the statement which appeared on the subject in this Paper a week or two ago, and the letter from them in our last week's columns fairly represents and vindicates the statement which they originally made. Mr. Baker estimates the process as costing twice as much as what they put it at. "The expense," he says, "of my operation is as under:—

	£.	s.	d.
To broadsharing 4 inches deep—four horses at 3*s.* 6*d.*, and one man, 3½ acres per day, 5*s.* 6*d.* per acre, including irons of implement	0	5	6
To ditto crossways, with three horses, at 3*s.* 6*d.* ...	0	3	6
Harrowing	0	0	9
To burning in 4-rod heaps at 8*d.*, 40 heaps to each statute acre	1	6	8
Spreading, at 1½*d.*	0	4	2
Eight trusses of straw, at 6*d.*	0	4	0
Wood or bushes	0	4	0
Cost per acre	£2	8	7

"It will be seen that the foregoing is rather an expensive process; but it must be borne in mind that the land becomes at once cleaned and manured. The latter has been tested, and is found, upon the first crop, equal in effect to 1½ cwt. of guano per acre; the subsequent effects are visible for several years, and the land can be tilled at a considerably less sum, by reason of its working more easily."

Now this is a very much more costly as well as a much more efficient operation than is generally contemplated. What is generally wanted is merely a superficial operation. The paring need not cost one-half so much as is here put down, and neither need the burning. Of course if it be desired to roast the soil throughout its depth a cost may be incurred per acre exceeding even Mr. Baker's or any other estimate, according to the quantity of the material to be burned; but if the object be merely to destroy the surface filth and the seeds which it contains, and spread the ashes, leaving the land ready for such ploughing and other cultivation as may be deemed advisable before winter, it can be done for a sum less than 20*s.* an acre, unless the weather be exceedingly unpropitious. We had upwards of 100 acres of old turf pared and burned one season at a cost less than 30*s.* per acre—the paring (it was done by the breast-plough) was put at 12*s.* to 15*s.* per acre—the burning at 12*s.* an acre, and the remainder, 3*s.* or 4*s.*, was the price agreed on for spreading the ashes. Now, it is absurd to suppose that the paring and burning of stubble need cost much more than half as much as the paring and burning of old turf. In the first place, the paring by horse-power need not cost above 4*s.* an acre, and though it were done by the breast-plough, it need not cost more than 7*s.* an acre. That is what it costs in Gloucestershire—the operation is a common one in the Cotteswold district, and we have this week seen it going on, the master having promised 6*s.* and the men expecting 7*s.* per acre for it—and if the weather be dry the subsequent burning after the harrows have been over it does not cost 10*s.* an acre: the whole operation being within the sum named by Messrs. Hardy.

Considerable displeasure has been excited by the address of one of the judges at the Athlone meeting of the Royal Agricultural Improvement Society of Ireland. Mr. Torr, well known as an agriculturist of high standing, who officiated on that occasion, took it upon him to condemn the agricultural implement makers of the country for objecting to the competition to which their implements have been subjected at the annual meetings of our agricultural societies, where from a few hours' or even a few minutes' observation of its performance, judges venture to pronounce upon the merits of an agricultural machine.

Mr. Torr is reported to have spoken on this point in the following terms:—"He had to tell them that the implement makers of England had combined and formed an organisation to prevent competition in the implement class. In his opinion they were acting most ungratefully to the Royal Agricultural Society by pursuing such a course of conduct. Many of the large and eminent makers, in the pursuit of a very lucrative business, had risen to a position which they did not wish to lose, and feared that if they competed they might be beaten by some one of the little fellows. The originators of this combination attempted to explain away this resolution by the apparently magnanimous declaration that they did not want money prizes at all; but the truth was, that they desired to avoid competition and exhibition altogether. He held that where there was no competition there could be no sure test for decision upon merit."

Messrs. Howard, of Bedford, very properly, as it appears to us, protest against the unfairness of this statement. "So far," they say, "from there being a combination to prevent competition, the reverse is the fact; in proof of which a deputation of the leading firms waited upon the council of the Royal Agricultural Society of England, in November last, urging the society, among other things, to grant a more extended

* The *Mucor* was very sparingly branched, with minute globose heads, a columella of the same form, and minute sporidia about $\frac{1}{5000}$ of an inch long. The vesicles were first white then yellow, and ultimately black.

† In a practical point of view it is of no consequence whether the disc be considered radicle or coryledon, as its office remains exactly the same.

‡ Application has been made within our knowledge for permission to kiln-dry sprouted Barley for the use of cattle, with what result we have not yet heard, nor do we quite see the advantage gained except there is fear of heating. An experienced excise officer has informed us that there is great doubt about the legality of brewing with sprouted Barley.

trial to, and a more minute inspection of, the implements and machines for which prizes were offered. That to which the implement makers are opposed is the system of awards altogether without, or with very imperfect, trials. A few years hence it will not be credited that at agricultural meetings of the present day the relative merits of agricultural implements were decided frequently without trials; and where such did take place, three minutes sufficed for the trial of a chaff-machine, 20 sheaves for a threshing-machine, two or three bouts for a plough, and 20 yards for a scarifier; and so on through the whole class."

It is plain that the classification of implements, by which one division only of the whole series is tried each year, is a great improvement on the system which has hitherto prevailed. A full and adequate trial of their machines is what manufacturers have desired, and their efforts to obtain it have gained very considerable success in the arrangement to which they have led, which was first adopted at Chelmsford, where a portion only of the implements were submitted to examination—an examination trustworthy in proportion to the greater time and attention which were thus secured for it. So far from their customers having any reason to sympathise with Mr. Torr in his mistaken criticism on this movement of the agricultural machine makers, they have every reason to be satisfied with the result to which it has led.

Messrs. Howard add:—"The new arrangement was for the first time carried out at the late meeting at Chelmsford; and the order and regularity with which the trials were conducted contrasted most favourably with the proceedings of former meetings. We think that all who witnessed the trials at Chelmsford must have been convinced that the new arrangement was a great improvement, and worthy the adoption of other agricultural societies. It may be argued that other societies cannot afford the expense of the necessary testing apparatus, nor the time and cost of lengthened trials. If so, they had better not offer prizes; for in such matters *what is worth doing at all is worth doing well.*"

FAILURE OF THE SWEDE CROP.

The injury sustained by the Swede crop must be seriously felt, and the failure will be greater this year than it has been for many past seasons. When the plant was yet in its infancy the fly began its destructive work with great energy, causing a deficiency and in many cases a total failure of the plant. This was succeeded by the long drought of July, which completely dried up and withered the leaves, leaving scarcely any signs of vegetation. I am now speaking of the Swedish variety, though the common Turnip is but little better. The next enemy which presented itself was the Black Palmer, though I believe this insect was not very generally seen; it had, however, scarcely disappeared when the grub attacked the plants, leaving the ground almost in a state of nakedness. This grub gnaws the roots of the Swede. I have not as yet noticed it in the common Turnip, but it has sadly destroyed the Carrots in the same manner as the Swede. Seeing the many evils to which this root has been exposed this season, the failure is not to be wondered at, and our only way to evade the evil is by finding a substitute.

Many persons advocate the growth of Potatoes, as they are a better paying crop and leave the ground in a clean state for the succeeding corn crop, but they are not generally used as food for live stock; moreover it is an uncertain crop, being liable to disease. To raise a good crop of Potatoes we require a very equal temperature, which we seldom experience in this uncertain climate. Farmers are generally becoming more alive to the real value of the Mangel Wurzel, it being more extensively cultivated, and is this year looking well considering the dry weather we have had. One of my reasons for writing on the present subject is to show that the Mangel Wurzel root may be made a good substitute for the Swedish Turnip, which is year by year becoming more difficult to raise on land which has continuously grown this root, for we see a progressive depreciation take place both in the quality and quantity of this root, not to speak of the numerous enemies which every season attack it. This being I may say an established fact, we can only remedy the evil by a complete change in the rotation of our green crops. The Mangel Wurzel root is the first which presents itself to our notice, and I will now speak of the advantages it possesses over the Swede and other roots.

Firstly, our climate is particularly advantageous to its growth, as it flourishes without interruption in a showery season and moderate temperature like our own, and it also withstands a long drought better than any other root crop, as it is able to support itself by deriving moisture from the atmosphere. Then, again, it is seldom injured by the insects which infest the Swede crop, such as the fly, grub, &c., and the reason why it is not so subject to be damaged by insects is because of its rapid growth, they not having time to destroy it to any extent during the infancy of the plant; in case a loss of plant should occur the deficiency can be supplied by transplanting the root after they attain a good size. Moreover, it does not require an amelioration of the soil by chalk, lime, or marl, it being never subject to fingers and toes like the Swede, which renders this root highly valuable to those who cannot grow the Turnip through want of chalk, lime, or marl, which is always an expensive operation for the tenant farmer. There is not much difference in the expense of cultivation of the two crops, but in the yield Mangel Wurzel will prove most valuable, as with the same culture and manure as the Swede would require, you would raise one-third more Mangel Wurzel, that is to say, if your soil was good and climate favourable.

It can also be grown with as much success after a catch crop of Vetches, &c., as the Swede, but your land must be in a state of cleanliness, as time will not allow you to give more than one ploughing. It may be sown as late as the end of May; one advantage of late sowing being that they do not run to seed so much as when sown early, besides being able to cultivate them after a cattle crop.

This root will also keep in a state of perfection for many months, and is highly valuable as winter food for cattle, possessing more nourishment than the Swede. There is a mistaken idea existing amongst agriculturists that it is not fit for feeding purposes until after Christmas, and some go so far as to say not till the following spring, but it has been discovered that the cause of its not agreeing with cattle did not arise with the roots but in the mode of application. By giving with them some produce which possesses binding constituents to counteract the relaxing effect produced by the Mangel, then the real feeding value of this root will be obtained.

Carrots are said by some to be a good crop to cultivate instead of the Swede, but are very expensive to grow as a root crop for feeding purposes.

Upon the proper rotation of crops the main success of agriculture depends; will it not then be attended with success to change the rotation of our root crop? So strong is my opinion that a change is wanted that it has induced me to write this article that it may be the means of arousing the attention of agriculturists to an investigation and inquiry on the subject, which may be beneficial to the agricultural community. *John J. E. Robertson, Bursledon, Southampton.*

INFLUENCE OF EXAMPLE ON IRISH AGRICULTURE.

It is really reviving, in an ill-cultivated and semi-barbarous district, to hear the delight, the remarks, the prayers, the praises of every passer by on a tolerably well tilled vegetable garden, newly reclaimed from a cold wet plastic clay. All stop to admire it and express wonder at the sudden change that has been brought about; the admiration and gratification is in excess, each contemplates it as though it were his own. It is on the road side, in a manner fenceless, nothing that could keep out a pilferer, yet every vegetable, dearly coveted as it may be, and tempting as Carrots, Peas, Beans, Parsnips, and Onions are, is safe; the feeling prevails that after so much labour and so successful an effort it would be cruel to rob it, it would be a shame to spoil it; the regularity of its rows, for all are rowed, the order that prevails and the taste, little as it is, displayed in it are so attractive to them that no phrase can be, they think, strong enough to note their approbation of the old fellow under whose hands it has been created. I do not think anything could argue better for the coming prosperity of the country than the spirit in which this garden is regarded. The farming of the occupier of this garden also draws sufficient attention and approval to encourage much expectation; "'tis he only knows how to manage land," "'tis a pity he has not more of it," are the every-day expressions of all who pass along or stop to gaze.

Am I too sanguine in my expectations when I think that it only requires example and encouragement to carry out the highest improvements here? The taste for them certainly exists, the practice is what we want to institute with nine-tenths of our farmers. The only vegetable save the eternal Potato—which, as the staple crop and a bread fruit, ought not to be so classed, and is not so in Ireland—the only vegetable of the peasant's garden is the Cabbage, the only fruit the Blackberry, the only tillage in his field Potatoes and Oats, the exceptions are a little Turnip, Clover, and Vetches, with possibly here and there, sufficient only to say such things be, Mangel Wurzel. I am speaking of the country generally. On nine-tenths of the land the old system of Potatoes is followed by successive crops of Oats as long as the fertility of the soil and the encroachment of weeds will permit; and then these left in the full possession of the soil, without any interloping of seeds, till its fruitfulness is restored by the fertilisers that kind and generous Nature gives. In all deserts there are no doubt oases; such are to be found in Ireland, but it is in the superior lands in the hands of the more wealthy yeomanry and in the vicinity of landlords' residences; the eastern parts of Ireland being more favoured, the (by very far) larger proportion of the country, say nine-tenths, be they small or larger holdings, is under this execrable mismanagement; and yet, such is the fertility of the soil, that men holding 50 or 60 acres of land are able to live with as much comfort as they desire and to indulge, more frequently than is decorous, in the excessive use of whisky. Let me not, however, be supposed to attribute general drunkenness to this people; the Irish in Ireland, comparatively with English and Scotch in England and Scotland, do not drink. With them it is rather an occasional excess.

If then under a system in which one-half of the land is in an almost unproductive state, and a great deal of the rest producing but indifferent crops, the holders of farms can so live, how might they live, what might they not net were the land brought under a better economy? Example is more than any other the one thing needful; and farms well conducted dotted over the land would certainly do much good. A farm of a hundred acres here and there would fully answer the purpose; a larger one would not convey the lessons we would inculcate to the smaller holders of land, it would not be suitable to the extent of their holdings, and a smaller one would not pay for its management. I should be glad to undertake such a one; I have the heart for the thing, and I trust the capacity for it, but I have not the capital. Would any one make up this deficiency and join me in the undertaking? 500*l.* would suffice for such an essay; and with this capital on 100 acres I have every confidence that over 20 per cent. would be cleared. I would guarantee 10 per cent. as the minimum of his share to my sleeping partner, and this I could secure on a small income of my own. *J. M. Goodiff, Scrably, County Cavan.*

P.S. By Mr. Butt's census of 1835 the average value of produce in Great Britain per acre amounted to 4*l.* 7*s.* 7*d.*, while that in Ireland was only 2*l.* 9*s.* 3*d.* Is there not room for improvement? I believe the relative value has not increased in Ireland since that year. From the failure of the Potato, and the late distress of the people, I should think it had rather deteriorated. The extraordinary prices of the last two years are exceptions.

Home Correspondence.

Boydell's Steam Locomotive.—I think "W. B." misunderstands the nature of a wheel when he says, "the fulcrum is the bottom of the wheel where it rests on the ground;" and that "the velocity of the top of the wheel is double that of the bottom." The fulcrum of a wheel is the axle, and the velocity of the circumference of a wheel is precisely the same at the bottom as at the top, or any other part of its circumference. [This is confounding angular velocity with actual movement forwards—unless the wheel drags it is plain that when rolling over the ground it is always stationary at the point of contact.] There is no witchcraft in the matter, and if "W. B." will assist Mr. Boydell in trying the experiment, it may benefit both. Let them take a plumb-line and suspend it from the frame of a four-wheeled carriage so that it hangs plumb with the centre of the axle; then move the carriage forward 6 inches, and they will find that the top of the wheel has moved 6 inches on one side, and the bottom of the wheel 6 inches on the other side of the plumb line. Their velocities are equal, and it is utterly impossible it can be otherwise. Mr. Boydell, at p. 572, states the power of the engine equal to drawing 4080 lbs. over a pulley 132 feet per minute. This is 538,560 lbs. raised 1 foot per minute, or exactly 16-horse power. Now, it is clear that no combination of machinery can increase the power, and if Mr. Boydell will apply the dynamometer and ascertain the strain required to drag the ploughs at Hounslow he will find the loss entailed by using his engine to be enormous. But he will add to the value of the experiment if he will apply an indicator to his steam cylinder and ascertain the power required to move the wheels at the usual speed, the wheels being kept clear of the ground by supporting the whole engine. He will then see more clearly the mistake he has made in using such a machine for steam ploughing. I think "G. P. S." makes an error when he states—"The power of traction of the machine is measured by and is equal to the friction or bite on the ground of its driving wheels;" he ought to have added "less the power required to move the engine itself," because the friction of the driving wheels on the ground varies with the nature of the ground and the weight of the engine; and these may absorb the whole power of the engine, so as to leave no tractive power. I am afraid this is nearly the case with Mr. Boydell's engine, that the greater part of the power produced in the boiler is used to move the machine, and it never can be an economical means of steam ploughing. *R. S. N., Gateshead-on-Tyne.*

Labour and Poor Rates.—Being a constant reader of your Paper and a tenant farmer in England, I have been expecting an answer to Mr. Martin Doyle's assertion of a fortnight since, "that in England the price of labour is regulated by the price of bread." This assertion is utterly unfounded, and were he in my position Mr. M. Doyle would soon find out the well-known fact that labour, like everything else, is only regulated by the common rule of supply and demand. In your last week's Paper Mr. M. Doyle compares the carrying out of the Poor-law in England with that in Ireland, praising up our benevolent plan as compared with the harsh plan in Ireland. Having carefully compared the two plans I can assert that the Irish plan is far superior to the English, and that our present system is the curse of the country; we are daily getting nearer to the old system, and our population is and will be, "till we adopt the Irish plan," steeped in pauperism. Mr. M. Doyle quotes cases; he is quite wrong in thinking the guardians ought to have given out-door relief; they did what was right, these might have been cases for private charity but not for poor-rates. If Mr. M. Doyle lived in a country parish in England he would soon see how the giving out-door relief to one old man pauperises his children and grand-children. The natural laws are that the improvident should suffer; let us with poors'-rates keep such improvident persons from starving by "giving them indoor relief," but we must leave the rest to private charity. As Mr. Martin Doyle shows such

great ignorance of England in the present day, I hope that you will enlighten our minds with an article in your Paper to confute these statements, which are liable to do mischief not only in England but also in Ireland. *A Tenant Farmer.*

Early Harvesting.—The extreme importance of early harvesting was never more apparent than during this tempestuous weather, which threatens to prevent the reaping of the large residuary portion of the corn crop altogether. Seed time, growth, and harvest may be compared, in a sense, to a voyage. It is of importance in the one case as in the other to bring the business to a speedy, safe, and satisfactory conclusion. Now, a late harvest is not safe, and it is not always satisfactory. The grain is often shed in the process of cutting, from over ripeness, to an injurious extent. It is shed by the wind; it is consumed by birds and vermin; it is injured by the occurrence of foul weather. The loss is both direct and indirect. The undue continuance of the grain unharvested occasions great anxiety. It prevents the preparation of the soil for the forthcoming crop. I can recollect oftener than once to have seen the grain sprouting and the green Grass growing up amid and into the corn sheaves, the ruin of the hopes of the husbandman, and the consequent scarcity. As a general rule, a late harvest-cutting is wholly unnecessary. It has been proved by experimental trials by competent persons—trials of which the particulars have been given in various journals—that it is not necessary, in order to realise the greatest produce, to wait until the crops shall be what is termed "dead ripe." These experiments are detailed, for example, in the *Gardeners' Chronicle.* It has been shown that crops, *i. e.* corn, cut green, gave as great a yield as when they were cut dead ripe; and it has been very satisfactorily shown by inspection and weighings, and otherwise testing the yield, that that yield was greatest and most satisfactory when corn was reaped when the stalks or stems were on the turn as to colour: in other words, that when the corn was cut partially ripe, as it seemed, that it winnowed and ripened in the sheaf, and it was ready to remove off the ground perhaps by the time that people practising the ordinary dilatory process would be thinking of cutting their grain for the first time. The great importance of an early harvest is otherwise apparent in the circumstance that as the grain would be ready for the sickle and come in at different times, the work would be distributed over a longer period, and the same pressure for hands would not be felt as now when every one almost wishes to cut his grain at the same time. There is obviously a greater choice of weather also. It is not long since I saw the grain over a wide tract of country, if cut early, quite ready for the sickle; but kept waiting for the dilatory period when certainly much of it would be lost. As it is, the yearly and collective losses from dilatory harvesting are sometimes enormous, and quite beyond my ability to calculate. It appears to be a natural law that the grains which are raised in an early district will ripen earlier if sown in a late district, than would seed which was raised in the late district. For this and other reasons, then, it will be desirable to change the seed often. The advantages of early and judicious sowing, thorough draining, manuring, pulverising the soil, and prompt reaping are well known. They all concur in furtherance of the practice of early harvesting. Great however as is the importance of these and other procedures, past, present, and to come, the simple insistance *per se* on the practice of early harvesting I look upon as more important than any of them. Indolence, prejudice, and the most unwarrantable dilatoriness in this cold, wet, precarious climate are the means of yearly taking the bread out of the mouths of thousands. As a general rule the month of August should show the great majority of the grain-bearing fields denuded of their produce. And assuredly no single field of corn in any situation should await the reaper's hand by the arrival of the cold short days and windy rainy weather of the autumnal equinox. *Henry M'Cormac, M.D., Belfast, Sept.* 28.

Societies.

Wigton District, *Sept.* 24.—At the annual meeting of this Society presided over by P. H. Howard, Esq., of Corby Hall, the Chairman in proposing its prosperity spoke among other points of agricultural interest on the adulteration of food and the cost of manure. He said:—

Many of the periodicals which devoted their attention to the subject had seen with regret that the supply of Wheat and other grain supplied to many of the large towns—and to some of the smaller towns—had been seriously adulterated. The profit of the farmer had been diminished by the noxious and unhealthy compositions of much of the bread and food supplied to the inhabitants of large towns particularly. By this means the farmer was defrauded of a portion of his profits, and the health of the consumer endangered. In France, severe laws had been made against the admixture of alum and other deleterious compounds with bread. He believed that in England laws somewhat similar existed, but they were almost incapable of being enforced. He trusted, however, that during another session of the Legislature public attention, and that of Parliament, would be directed to this subject. He would now for a moment glance at a subject to which his attention had been drawn by a speech of Lord Stanley. Lord Stanley made a speech on general agricultural subjects, but he thought that he had omitted to look near home, and see that part of the surface of the county of Lancaster was overrun with Rushes, to see that vegetation in the neighbourhood of its large towns was much impeded by that circumstance, which would be obviated by the plain and salutary method of draining. He felt sure that those gentlemen of the "Manchester School" and others who sometimes attacked the farmer, would not take it amiss if he said that he thought their own county of Lancaster admitted of some agricultural reform in that respect. One of the most interesting subjects connected with the management of farming was that of artificial manures; and he had seen letters in the *Gardeners' Chronicle*—stating there were some hopes of a manure resembling guano coming into notice, and courting the attention of agriculturists. In its last leading article that Journal, though it did not venture to say that this composition, which resembled guano in colour and smell, could as yet be safely recommended to the agriculturists, nevertheless it was one which it trusted would engage his attention, for, if it were no greater boon to the agriculturists, it would be a home substitute for guano. At the same time, the question was not yet ripe for discussion. There were many kinds even of guano, and it was well known that that of Bolivia and Peru was better than that of Ichaboe; so that even between guanoes there was considerable difference in point of quality; and any substitute could not be safely recommended until its fertilising qualities were more severely and accurately tested.

[On this we must observe that Mr. Howard seems to have mistaken the design of the remarks to which he refers above. Our object certainly was anything rather than to encourage the farmer to believe that in the case described a manure was offered which might successfully compete with guano and so cheapen it.]

Farmers' Clubs.

Wirksworth.—The following paragraphs conclude Mr. Abbott's lecture on *Cheese Making.*

The Dairy Room.—It is very common for farmers to make the cheese in the kitchen, where all the cooking and washing operations are carried on. There is much error in this; it may do very well in the winter months when warmth is required, and when the farmers generally make but little cheese, but in the summer months the cheese ought to be made in a room shaded from the sun, with little fire, and no cooking or washing for the family to be allowed, and everything kept perfectly clean and sweet, as milk is more easily contaminated with the slightest impurities than any other substance in common use. In this room the cheese ought to be made, and also kept in it, or an adjoining room which is cool, say about 50°, and free from draughts or currents of air, for two or three weeks after it is made so as to dry gradually; for if it be taken immediately to a hot room the sudden change will cause the tender cheese to crack, and be a source of trouble and annoyance from the cheese maggot.

The Cheese Room—or the room where the cheese is dried and got into that state which makes it ready for the market. The room should not be very warm, for if such is the case it will cause some of the cheese to rise and injure the flavour. I think the heat of this room should be about 60°, or if it never falls in winter below 50° there will not be much harm done to the cheese. Light should be excluded to prevent the mischievous effect of the fly, and I think it is best to exclude the air also.

I do not promise you that by adopting this mode of making cheese you will always obtain the best price in the market.* Perhaps some few others who make upon the old system may get as much per cwt. as those who make according to this plan. Nor will you be able to make every cheese of the dairy of uniform flavour and quality; I consider the latter to be impossible under any system, for there are so many things that affect the quality of the milk, such as the different plants in pasturage, Turnips, the dressing given to land by artificial manures, close, hot, sultry weather, &c., all of which seriously injure the flavour and quality of the milk before it is drawn from the cows. But I do believe that if you carefully carry out this method, you will make very fat cheese, and about a fifth more in quantity than some of the old systems of making cheese.†

Some one may ask, Why is it that cheese made on your system, being so rich in butter, does not fetch a higher price in the market than others? My answer to that question would be this: That I never yet found that the consumers gave much preference to very fat cheese (at least the great bulk of them); they have been accustomed to cheese moderately rich, and from long use they seem to prefer it, or at all events to like it quite as well, as far as my experience goes. For instance: in London, the large Cheshire cheese, coloured, seems to take the lead, and fetches a high price there; now I never saw a cheese of that kind that was really rich in butter, for either from the quality of the milk, or what is more likely, from the excessive heat in coagulation, too much skewering and manipulation in the process of making, the large Cheshire cheese is comparatively poor in butyraceous matter. The Cheshire dairy farmers seldom exceed three cwt. per cow. Therefore, if by making rich cheese on the method I have stated, you cannot expect a much higher price per cwt., yet you will be amply remunerated by the extra weight which you will have for the market.

A friend of mine, (Mr. Charlesworth, near Longnor,) has adopted a different mode of cooling his milk. He has laid down in a cistern, through which a constant stream of cold spring water is directed, about a dozen yards of leaden pipe, half inch bore. The milk is made to pass through this pipe, and in doing so, is cooled down sufficiently for keeping sweet.

In concluding this subject I will state some further particulars of my plan. All my cheese is entered into a book, an account kept in a tabular form, stating each day the quantity of milk in gallons, the heat when put together, the quantity of curd in pounds, and the number of cheeses made of each size, and such remarks made upon each day's make as may be considered necessary.

Every cheese is dated, with a character for the month and figures for the day of the month, so that I can refer to any cheese at any future day (while in my possession), and tell how it was made.

For marking the cheese I use the letter U made of wire for the month, which by altering its position, will serve for every month in the year, and figures made of wire for the day of the month. Thus, for

Jan. 25th—25 (U upright) Feb. 25th—25 (U sideways) Mar. 25th—25 (U inverted)

April 25th—25 (U sideways), &c.

I could refer you to different parties who have adopted this mode of making cheese who now make a first-rate article, where before they found it impossible to make cheese "stand," although on other farms, they had had no difficulty in making good cheese.

On the place I now occupy, my predecessors procured the most experienced dairy-maids from different parts of the county, and yet could never make the cheese do well. Any one may examine my dairy and see if such is the case now. This shows the importance of the system where there is difficulty in making the cheese "stand."

It has always been my plan to purchase small cows for the dairy, believing them to be the most profitable. For instance: two small cows make together from eight to nine cwt. of cheese per annum. The large deep milking cow would probably make in the same time from 5 to 6 cwt., but would consume quite as much food as the two small ones put together, and sink more in value. This I have proved by experiment; consequently, I decidedly prefer the small cow for the dairy.

My dairy consists of from 30 to 40 cows, and average per cow per annum, about 575 gallons of milk, 740 lbs. of curd, and from 4¼ to 4½ cwt. of cheese.

* It is very difficult to ascertain who does make the best cheese Some farmers, who profess to get a great price for their cheese, are in the habit of selling for so much, and return perhaps as much as 5*s.* or 10*s.* per cwt. And again: the farmer who sells his cheese four or five times a year at 50*s.* per cwt., makes a better price in reality than the one who disposes of his only once a year at 56*s.* or 57*s.* per cwt., on account of the loss of weight, damages, and labour the latter sustains by keeping the cheese such a length of time.

† This is owing in part to putting the cheese together at a low temperature, 75° or 76°, and allowing two hours for coagulation, or "coming"—to using the curd-gatherer instead of gathering with the hands—and last, not least, to grinding the curd in the curd-mill instead of crushing with the hand.

Miscellaneous.

Testimonial to Mr. Mechi.—A proposal is on foot for a testimonial to the enterprising and hospitable owner of Tiptree Hall. Without entering into the question of whether everything that Mr. Mechi does at Tiptree, in the way of practical farming, is so correct and perfect that it ought to be followed up everywhere, and his dogmas universally adopted, it must be admitted, even by those who sneer and doubt, that he has done a great deal for the improvement of agriculture. Feeling this, a committee has been formed, comprising Mr. James Beadel, Mr. H. Dixon, and others in this county, Mr. Allen Ransome, in Suffolk, and several leading agriculturists in other districts, with Mr. Batson, of Combe Down, Bath, as chairman, to give expression to the public "appreciation of his efforts to assist in agricultural progress as well as his undeviating hospitality." A purpose thus modestly worded is calculated to unite in the testimony all the friends of agricultural improvement—all who have sat as guests at the annual festivals of Tiptree; and it is to be hoped that the subscription, which is to be confined to a guinea each, and to close at the end of the year, will place in the Hall some memorial of the "gatherings" that will do credit to the agricultural spirit of the county.—*Chelmsford Chronicle.*

Agriculture in France holds the first place in the production of national wealth; it employs 25 million hands, and produces in value, every year, upwards of 3600 millions of pounds. This immense mass of produce, in which Wheat figures to the amount of 56 million pounds is, nevertheless, not sufficient to prevent the country from going abroad to make up the necessary supply of grain. On striking a balance from 1815 to 1847, between the imports of Wheat, amounting, in round numbers, to 140 million bushels, and the exports, amounting to 70 millions, it is plain that the production of the country shows a deficit on the whole, and that it has been necessary, on the average, since 1815, to import into France, annually, 2,450,000 bushels of Wheat, representing a value of from 600,000*l.* to 800,000*l.*, if the purchases were made at ordinary prices. Unfortunately the deficit does not occur with this annual regularity, and the danger consists in the uncertain intervals at which these insufficient harvests recur. There were upwards of 20 million bushels required in 1832, 1846, 1853, and 1854. On such occasions the prices rose immoderately; thus, in 1817, the average price of importation was 10*s.* a bushel, and in 1847 it rose to 24*s.* At other times the excess of the harvest did not allow of importation. We were able to export to England, in 1848, of Wheat and flour, to the value of 1,200,000*l.*, in 1849, 1,700,000*l.*, in 1850, 2,400,000*l.*, and in 1851, 2,800,000*l.* Unfortunately, looking carefully into the matter, we find that the prices of exportation did not repay the cost of cultivation; in reality, we exported at low prices, and obtained from abroad what was wanted at high prices, causing enormous sacrifices, amounting to 12,000,000*l.* for the year 1847 alone. Official statistics show that altogether, from 1815 to 1847, a period of 32 years, we have obtained from abroad 144 days' subsistence, at a cost of 400 million pounds. In France, the cultivation of Wheat extends over about 50 million acres of our best land. Annually, nine millions of acres are under Wheat cultivation, producing on an average 13 bushels per annum, making

about 200 million bushels. This rate of produce is distributed very unequally; some special acres producing 44 bushels, others only seven or eight. The general average in the department du Nord is 23 bushels; in the department du Lot it is much below 8. According to the opinion of men best qualified by practical experience in drainage matters, it is calculated that there are 15 million acres of land under Wheat cultivation which are capable of being drained with advantage. These figures are below those of our colleague, Mons. Gareau, given in his report on the Drainage Law of 1854; they scarcely come up to the calculations of Mons. Herve-Mangon, as shown in his "Etudes sur la Législation anglaise;" whilst they agree exactly with the calculations of Mons. Barral in his "Traités de Drainage." According to the most moderate supposition, the law now under consideration will promote the application of drainage to five million acres, representing one-third only of the arable land which is capable of deriving sure benefits from it. Wheat will cover every year 12,500,000 acres of those lands, upon the supposition of a four-course shift, as generally adopted in France. All agriculturists and economists agree to estimate the increased value of the harvests that would arise from drainage, especially in wet seasons, at nine bushels the acre. Distributed over 2,500,000 acres, this increase amounts to 11 million bushels. The influence of 11 million bushels on the Wheat harvests of France, turning the scale of our markets precisely at those times which would otherwise have been times of scarcity, will be immense. We shall find in this resource a guarantee against fluctuations in prices; we shall diminish the anxieties and sufferings of the masses produced by dearth of food. Such periods of dearth, you are well aware, produce at times the most serious political embarrassments, and place our public finances in a critical condition. If this be so, are we not right in saying it is a question of national importance? *From the Report of Comte de Bryas to the Legislative Body on the State Loan of 4,000,000l. to French Agriculture.*

Notices to Correspondents.

DISEASE IN PIGS: *A Correspondent* describes his case as follows:—"On the 16th inst. my pigs (about four months old) had some wash containing refuse brine mixed with their meal; they did not eat it heartily, so that on the 17th there was very little wash put with their food. This they ate tolerably. On the morning of the 18th one of the pigs was observed to be continually rubbing his head and neck against the trough, and he very soon became weak and stupid. Bleeding—the vulgar remedy for most diseases of pigs—was tried, but the animal rapidly grew worse, and we soon decided 'to kill him to save his life.' He bled pretty well, and the meat proved quite good. There were inflamed patches on the intestines, and the stomach was full. By referring to 'Youatt on the Pig,' I think this must be a case of what he calls Gastro-enteritis, as he extracts an account of a very similar instance mentioned in the 'Veterinarian' for 1841. The rest of the pigs, although fed with this one, remained perfectly healthy, but we took the precaution of feeding them lightly for a day or two afterwards."

FOX SAND: *Humulus.* We do not know what it is.

GRASS LAND: *For Sale.* Get a lot of compost, earth, dung, &c., together, and add to it 3 cwt. of Peruvian guano to as much of the compost as you can afford per acre. Mix it well, and spread early in spring upon the land. If you apply broadcast, spread 2 quarters per acre now—or 3 or 4 cwt. of it in spring, having previously treated it with 1 cwt. of sulphuric acid in order to dissolve it.

HORSES: *Equus.* Carrots and good Oat straw *are* a fair substitute for hay. Give half a cwt. of Carrots, Oat straw *ad lib.*, and 10 lbs. of Oats a day.

MALT COOMBS: *A Cow-keeper* wants the experience of any of our readers who give malt coombs to their cows. He says "malt coombs or grains;" they are two different things. He will find a bushel and a half or two bushels of grains a day to a large cow, along with other food, productive of milk. Of malt coombs we cannot speak from experience.

NEW MANURE: *A B.* We cannot republish so long an article. It occurs in No. 30, *Agricultural Gazette.* We have no doubt you will obtain all the information by applying to the manager of the gas-works at Wakefield.

PRICE OF HORSES: *M P.* The Howden Great Horse Fair, says *The Yorkshireman*, has been such a show as we have not seen for many years. First-rate horses were bought as soon as seen, and fetched high prices. Mr. Leeson, of South Cave, sold two colts for 300*l.*; a gentleman from Marshland sold a black draught horse for 100*l.*; and Mr. Johnson, of Brigham, near Driffield, sold 11 carriage-horses to Mr. Wimbush for prices which averaged considerably above 100*l.* each. Mr. Wimbush bought several other carriage horses at prices nearly as high. Mr. Brown's celebrated Truemould was bought for 150*l.* by Mr. Collins, to go to France; and we heard that 250*l.* was given for another horse to go to Germany. Vast numbers of horses were sent off by road and rail on Monday afternoon. On Tuesday and Wednesday, the supply being larger, and the buyers partly supplied, prices were somewhat lower; but, we understand, 70*l.* to 100*l.* may be quoted for good coach horses.

REAPING MACHINES: *F R S.* The published trials perfectly confirm our assertion that they may now be considered a thoroughly well-established agricultural implement. A last report, from Dr. Carne, of Dimland Castle Farm, South Wales, states that he obtained Burgess & Key's implement in the first week in August, but the weather being damp, the machine, put together by his own country carpenter, did not for some time give satisfaction. At length, by patience and perseverance, he got all right, and cut 75 acres of Wheat, 11 of Oats, and 17 of Barley in a fortnight—viz., 12 working days, being an average of 8¾ acres per day.

THE MILKING PROPERTIES OF SHORT HORNS: *X Y Z.* A case in point is related by Mr. W. Wood. "It cannot be doubted," he says, "that they are hereditary. This is shown in the Ayrshire breed, in which the bulls are selected almost entirely according to the quantity of milk yielded by their dams, without regard to symmetry. Accordingly this breed is renowned for the abundance of its milk, while it is by no means equally remarkable for appearance or for aptitude to feed. In like manner there are families among the improved short horns in which the milking power has been handed down unimpaired from generation to generation. A striking instance of the milking powers of short horns is afforded by a cow of Mr. Wood's called Jessy (see 'Herd Book,' vol. ii., p. 501), which at the age of 12 years old gives 12 quarts at a meal for three months after calving, on very indifferent upland pastures. She is the dam of a prize heifer, thus showing that beauty of form is not incompatible with this most useful quality. Ferret (see 'Herd Book,' vol. ii., p. 450) is nearly as good a milker; indeed, the blood of Mr. Bates is noted for excellence in this respect, as is exemplified in another cow by the 4th Duke of York (10,169), viz., Captain Gunter's Oxford the 11th."

B. SAMUELSON,
BRITANNIA IRON WORKS, BANBURY,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

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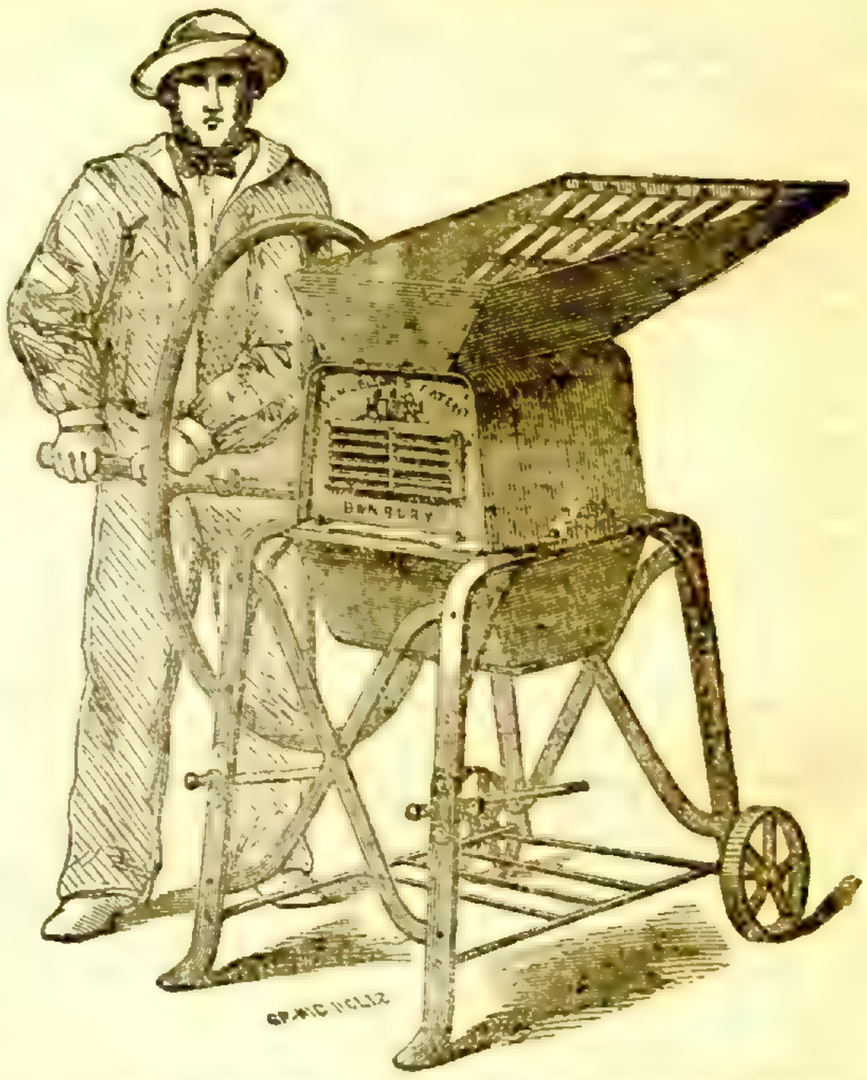
WEIGHING MACHINES, MANGLES, &c. &c. &c.

The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.



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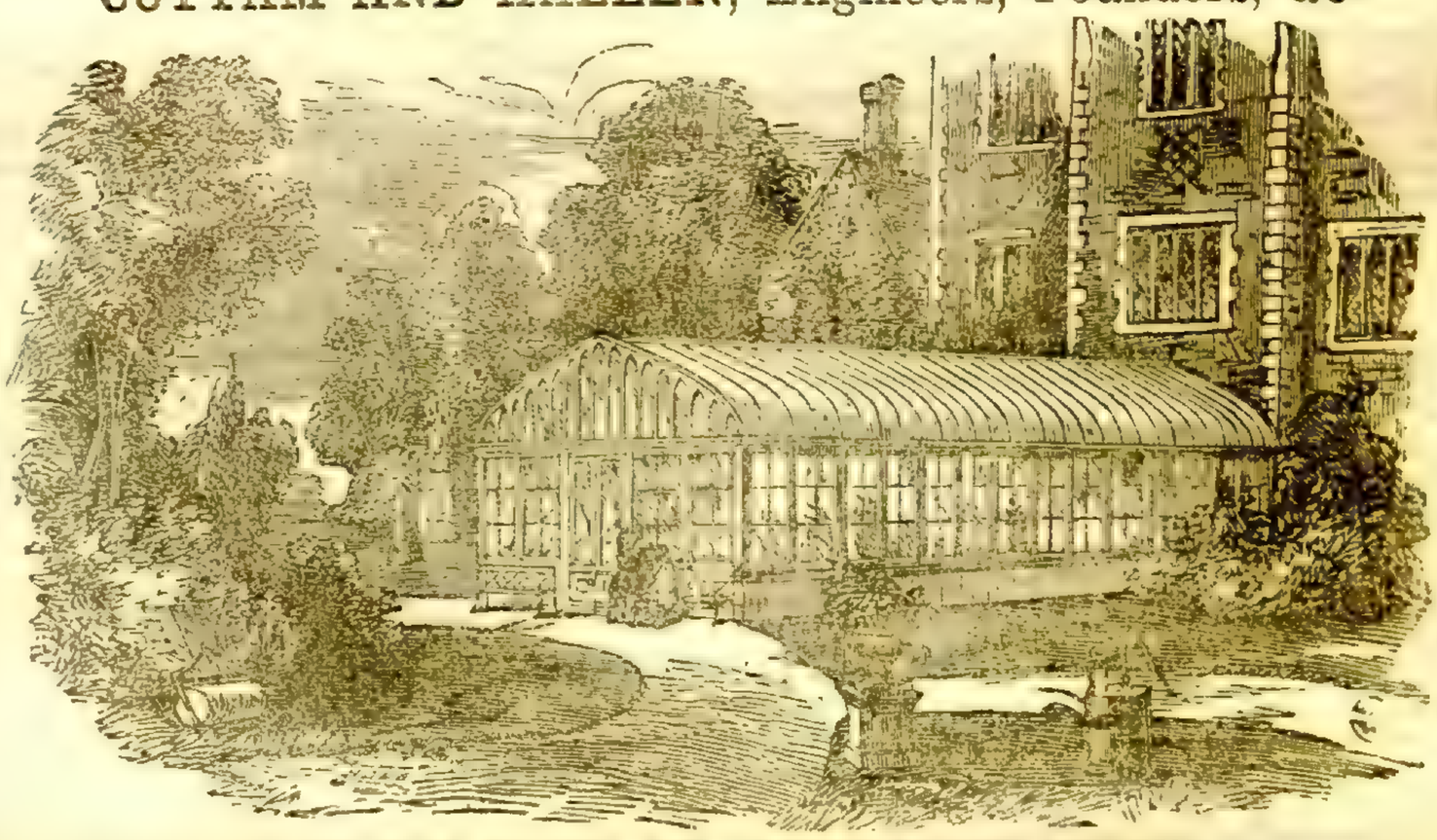

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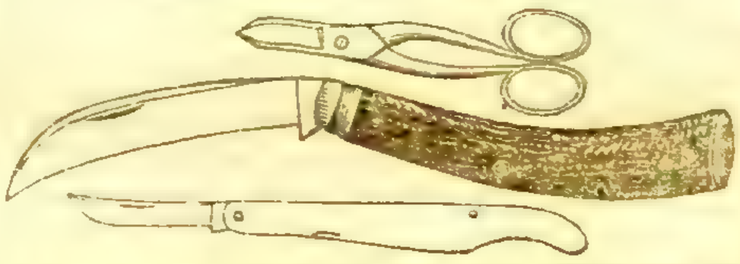

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3 " 4 " 20 " 30 in.	0 7½	0 9	0 10½
4 " 5 " 30 " 35 in.	0 8	0 9½	0 11
5 " 6 " 35 " 40 in.	0 8½	0 10	0 11½
6 " 8 " 40 " 45 in.	0 9	0 10½	1 0
8 " 10 " 45 " 55 in.	0 9	0 10½	1 0
10 " 12 " 55 " 65 in.	0 9	0 10½	1 0
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10 " 8	"	12 " 9	" 2¾d.	" 1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3½d. to 5d. " " "
26 oz. " 3½d. to 7½d. " " "

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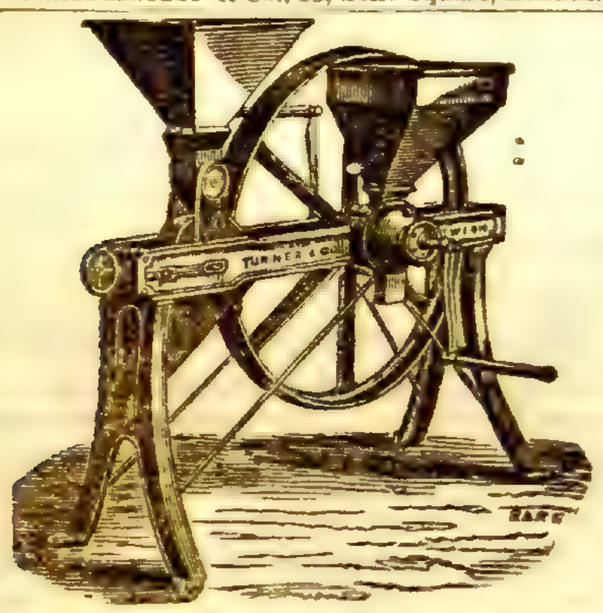

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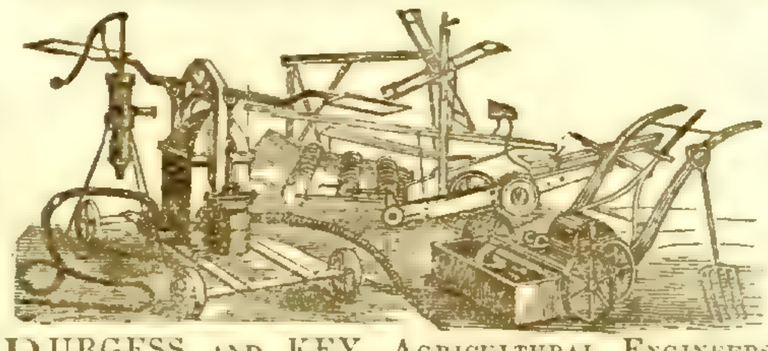

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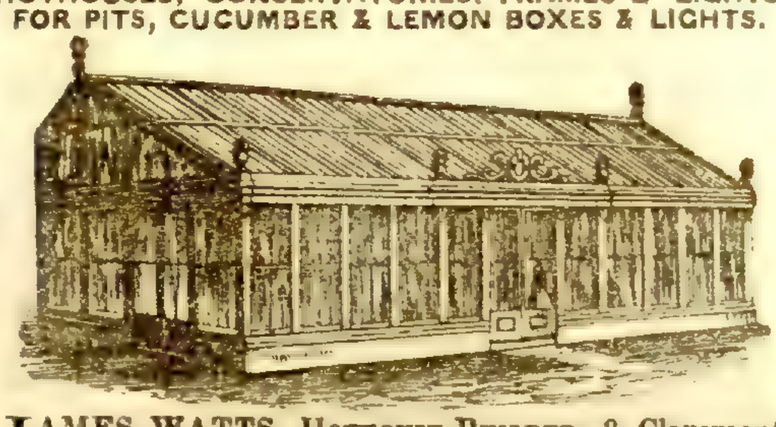

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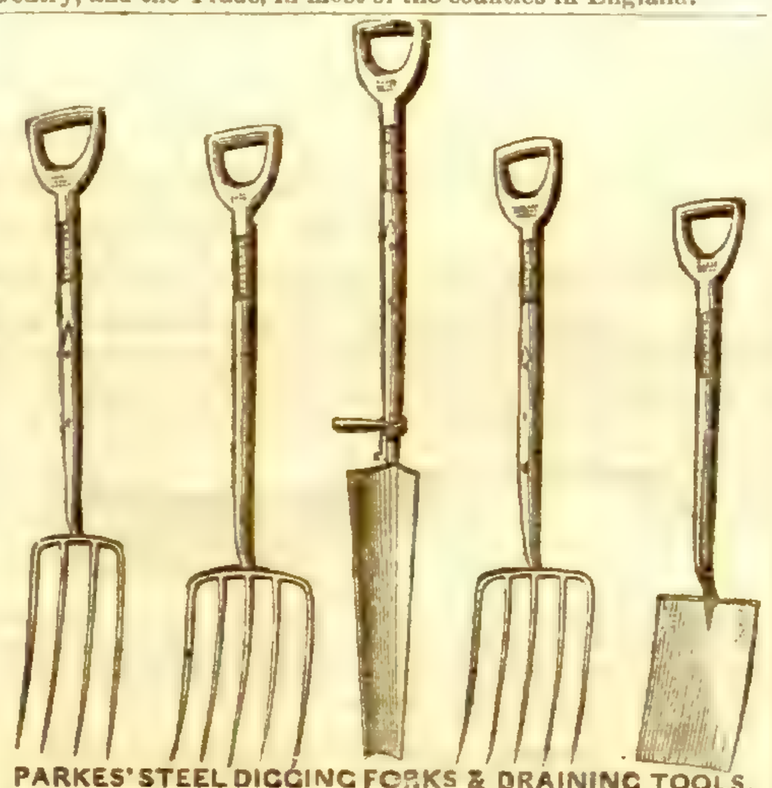

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TO GENTLEMEN, NURSERYMEN AND OTHERS.

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TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.
IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.
250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc. vol. v., p 20; and Paxton's "Flower Garden," vol. i., p. 11).
300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.
1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.
300 SKIMMIA JAPONICA.
1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.
5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.
10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, November 17, and four following days.

The Stock will be on public view 10 days before each Sale when Catalogues may be had (1s. each, returnable to purchasers, at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

Approved bills at three months' date will be taken of purchasers from 50l. to 100l., and at six months' date of purchasers above 100l.

The Sunningdale Station on the South Western Railway is within about two miles of the Nursery.

NEW GERANIUM "MRS. SCOTT."

JOHN SCOTT, Florist, Bathford, near Bath, can supply plants of the above, which is a very fine flower for marketing as well as for exhibition. It is a very attractive spotted flower in the way of Eugenia; it is a plant of remarkably fine habit, a very free bloomer, and almost as early as Alba Multiflora; it is altogether a very good flower. It received a Certificate at the Bath Flower Show in May. Plants 10*s.* 6*d.* each. The usual discount to the Trade if three are ordered. Post-office Orders payable at Bath.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CHOICE SHOW PINKS.

WILLIAM HUSSEY begs to offer the undernamed Collection—one pair of each for 15*s.* package included; viz., Alfred Morrison, Arthur Brilliant, Beatrice, Conrad, Constance, Criterion, Henry Steers, Duke of Wellington, Esther, Earl of Carlisle, Harry, Harriet, Juno, Jenny Lind, King of Purples, Koh-i-noor, Lord Charles Wellesley, Lord Hardinge, Lord John Russell, Laura, Lord Valentia, Melona, Mars, Mrs. Judd, Othello, Perfection, Princess Royal, Prima Donna, Prince Albert, Queen Victoria, Sappho, Sarah, Teddington, Titus, Winchester Rival.—Horticultural Gardens, Norwich.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Roserv, Bungay, Suffolk, Oct. 4.

WILLIAM IVERY begs to inform his Friends and Purchasers that his Pot ROSES, on their own roots, are extra fine this season. W. I. has also a very fine stock of INDIAN AZALEAS, good blooming Plants of the best variety in cultivation. Catalogues of the above and other Choice Plants to be had post free on application.

Hanover Nursery, Peckham, near London.—October 4.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1¼ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

CATTELL'S EARLY BARNES & RELIANCE CABBAGES; ALSO, DEPTFORD, PARAGON, KING, IMPERIAL, &c.

JOHN CATTELL has now ready Bedded Plants of the above well known best kinds for Early Spring Cutting, at 5*s.* 6*d.* per 1000; also Red. for Pickling, of first-rate Stock, at 1*s.* per 100, or 7*s.* 6*d.* per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway, carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham Kent.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s.* per bushel.

Address Mr. H. Raynbird, Basingstoke.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

SEED WHEAT.—Applications having been made for Seed Wheat of the sort called TINEY'S SUCCESS for shipment to France and for home use, persons desirous of having it are informed that Mr. Tiney, Woodford, Kettering, has now Seed Wheat of superior quality to dispose of, which will be sent to any station on the London and North Western Railway free of charge.—Price 5*l.* per quarter including new sacks.

SEED WHEAT FROM BLACK LAND.—Improved Browick Red Wheat, warranted genuine, perfectly clean and healthy Seed, grown 100 miles north of London on a light black soil in Deeping-Fen. It is the produce of a properly prepared seed bed, from selected Seed of last year's growth, and carefully tended throughout. References to any farmer in the district.—Address, Wm. Barnes, The Elms Farm, Spalding, Lincolnshire.

TO BE SOLD, in one Lot, about 60 species of ORCHIDS, in good condition, well established, and truly clean; among which are fine plants of Aerides affine and Odorata major, Cattleyas labiata and bicolor Phalænopsis amabilis, Saccolabium guttatum, &c. This presents an opportunity seldom to be met with to those who may be beginning the cultivation of Orchids.—For further particulars and lists, apply to Mr. James Bell, Gardener, Eartham, near Chichester.

N.B. A. P., who wrote from Liverpool, did not send his address.

TREE TRANSPLANTING BY MACHINE, LANDSCAPE GARDENING, ORNAMENTAL PLANTING, &c.

W. H. RUMBOLD will be happy to execute any of the above on reasonable terms, by contract or otherwise. The Machine will be let by the week with Man. Designs and Estimates given.—Calverly Road, Tunbridge Wells.

TO GENTLEMEN AND NURSERYMEN.

MR. JOHN HENSHALL respectfully announces that his late engagement as COLLECTOR of SEEDS and PLANTS having terminated, he now offers his services again in the same capacity.

Mr. H. begs to inform Nurserymen, &c., that for so quick and profitable a return of the outlay such an opportunity seldom occurs, as the localities are already known for directly collecting on his arrival in the East many new and important species of Epiphytal and terrestrial Orchids, amongst which is a beautiful Phalænopsis, with flowers blotched all over with purplish-brown upon a white ground, and in size similar to P. amabilis; likewise Ferns, Variegated Plants, Pitcher Plants (see specimens of pitchers 22 inches long), Agapetes, Gaylussacias, Diplycosias, Gaultherias, Vaccinium, Rhododendrons, and various others new to this country.

Of the rare plants unlimited quantities of Vanda Batemani, Phalænopsis grandiflora, Saccolobiums, Vandas in varieties, Ærides, &c.—For terms and other particulars, address Mr. John Henshall, Lower Tooting, Surrey.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, Seedsmen to the Queen, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

BULBS.—For

BASS AND BROWN'S Advertisement of BULBS and ROOTS see the third page of the *Gardeners' Chronicle* of September 20th.

Choice and sorted collections of Hardy Bulbs and Roots, 20*s.*, 40*s.*, and 60*s.* per collection.

CATALOGUES for the present season of the following may be had on application, viz.:—

Bulbs and Roots.	Fruit Trees.
Herbaceous Plants.	Strawberries.
Hollyhocks.	Geraniums.
Phlox.	Cinerarias.
Conifers.	Azalea indica.
Hardy Shrubs and Climbers.	Stove and Greenhouse Plants.
Roses.	Winter-flowering ditto.

Sudbury, Suffolk.

NEW IMPORTED DUTCH ROOTS.

WILLIAM E. RENDLE AND CO., Seed Merchants, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

A Descriptive Price Current of Dutch Roots is just published, and can be had in return for one postage stamp.

Apply to Wm. E. Rendle & Co., Seed Merchants, Plymouth. Established 1786.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., Seed Merchants, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

		£	s.	d.
No. 1 Collection, all the most approved sorts		3	10	0
No. 2 " containing smaller quantities ...		2	5	0
No. 3 " for a small garden		1	5	0
100 Hyacinths, in 100 very fine sorts. Purchaser's selection		3	10	0
100 " 50 fine sorts "		2	15	0
50 " 50 superior sorts "		1	15	0
50 " 25 " " "		1	10	0
24 " 12 " varieties "		0	15	0
12 " 12 " " "		0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

William E. Rendle & Co., Seed Merchants, Plymouth.

DUTCH AND OTHER BULBS.

JOHN CATTELL has in addition to his usual supply of DUTCH BULBS (which are of the finest sorts and quality), a large stock of the beautiful sky blue SQUILL, viz., Scilla Siberica, which is without exception the hardiest and most showy of our early spring flowers. Strong Bulbs 3*s.* 6*d.* per dozen; 25*s.* per 100, or 10*l.* per 1000. J. C. is also a large grower of the Japan and other Lilies, Tropæolum tricolorum grandiflorum or Javatte, azureum and brachyceres; splendid hybrid Amaryllis in great variety, Vallotas of sorts, Scillas, Gladiolus, Alstrœmerias, &c., and is enabled to supply them at very moderate prices. A Priced Catalogue of the whole is just published, and may be had gratis on application.

Nurseries, Westerham, Kent.

DUTCH FLOWER ROOTS.

JAMES CHARTRES AND CO. have much pleasure in announcing that their superb collections of the above, which have given such universal satisfaction for many years, are now ready, and will be forwarded carriage paid to any part of the kingdom. No 1 Collection (3*l.*) contains as follows:—12 Splendid Double and Single Hyacinths for glasses; 12 ditto, do. for pots; 24 ditto, ditto, for borders; 12 splendid Narcis, various, for pots; 12 do. named Early Tulips (single and double); 50 do. mixed late Tulips for borders; 12 do. Double Jonquils; 24 do. named English Iris; 24 do. named Spanish Iris; ½ lb. mixed Double Anemones; 1 lb. mixed Single Anemones; 100 splendid mixed Ranunculus; 100 do. named Crocus, 25 sorts; 100 do. Mixed Blue; 100 do. Mixed White; 100 do. Double Snowdrops; 12 do. Dog's-tooth Violets; 6 Summer Snowflakes.

No. 2 Collection half the above amount. A general priced Catalogue may be had on application.

74, King William Street, City, London.—October 4.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to Walter Carson & Son, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, Iron Merchant, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT WATER PIPES (Cast Iron) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

HEATING BY HOT WATER.

THOMSON'S RETORT BOILER, DESIGNED BY MR. THOMSON, Gardener, Dalkeith Park.

The Advertiser has obtained Mr. Thomson's sanction to Manufacture and supply the public with this most efficient and unique BOILER, and from his great facilities and the extensive arrangements he has made to meet the rapidly increasing demand for it, he is able to offer them at the following extremely moderate prices for cash:—

Single Retort Boiler, to heat 1000 ft. 4-inch pipe ... £4 0 0
Triple do. do. 2000 do. do. ... 8 10 0

They can be sent to any part of the Kingdom, either by Rail or Ship, and attached to pipes as already fixed, and require nothing novel either in furnace or bars.

Mr. Thomson has fixed these Boilers at Dalkeith, in some instances to supersede six of the saddle and other Boilers; and in reply to a letter enclosing two postage stamps he will forward printed directions for Setting the Boiler, with engravings of it, and his "Remarks on Boilers."

John Mickeljon, Westfield Foundry, Dalkeith, N.B.

J. S. MORRIS, Engineer, Upper Thames Street, London.—Apparatus supplied and erected for Warming and Ventilating Mansions, Public Buildings, and for Heating Conservatories on the most approved principle. Large experience in this branch of domestic science for many years insures certainty of success. A brief Treatise on the subject forwarded by post.

Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—Thomas Hill, late W. Coleman, Cutler, 4, Haymarket, London.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of Metcalfe's celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

ASTROLOGY.—Persons residing in London or elsewhere can send any Address, Christian and Surname, and Age, in a letter containing 13 postage stamps to Professor Melville, Princes Road, Lambeth, London (the only Acrostic Astrologer in the universe), and they will receive as soon as possible special poems on their names, in which their Destinies will be revealed.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. Johnstone, 1, Park Terrace, Heavitree, Exeter, Devonshire.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. Roberts (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 4, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1856.] SATURDAY, OCTOBER 11. {Price Fivepence. Stamped Edition, 6*d*.

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GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that an ELECTION OF PENSIONERS will take place on the Funds of this Institution in January next. All persons desirous of becoming Candidates at such election are requested to send in their testimonials and petition to the committee on or before Wednesday, the 12th of November next, after which time they will not be received.

By order of the Committee, Edw. R. Cutler, Sec.

14, Tavistock Row, Covent Garden, Oct. 11.

N.B. Printed forms of petition can be obtained upon application to the Secretary.

WILLIAM SHORT, Landscape and Ornamental Gardener, 21, St. John's Wood Terrace, Regent's Park, London.—Ornamental Ground Works, Planting, &c., taken by contract or otherwise. Unexceptionable references can be given.

SALES BY AUCTION OR OTHERWISE.

WILLIAM SHORT having a perfect knowledge of the Value of Hardy Nursery Stock, will purchase on commission at any of the public sales or otherwise.

21, St. John's Wood Terrace, Regent's Park, London.

GRAPE VINES IN POTS.

JOHN WEEKS and Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

HOLLYHOCK SEED.

CHATER and SON offer the above, saved from their best flowers, in packets of 200 seeds, 1*s*. 6*d*., or 18 varieties, separate packets, named, 5*s*. Also strong plants in pots of the leading sorts of Hollyhocks and Pansies now ready. Price on application.—Nurseries, Haverhill.

HOLLYHOCK SEED.

BIRCHAM and WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Oct. 11.

CHRYSANTHEMUMS, CAMELLIAS, FERNS.

CHANDLER and SONS have now ready for sending out fine bushy plants both of the large and small varieties of CHRYSANTHEMUMS, from 9*s*. to 12*s*. per dozen. Also fine healthy young CAMELLIAS well set with flower-buds, 30*s*. per dozen and upwards. A great variety of FERNS at moderate prices.—Wandsworth Road, Vauxhall.

NEW GERANIUMS.

JOHN SCOTT, Florist, Bathford, near Bath, can supply each of the following varieties of GERANIUMS to the Trade cheap, by the dozen. Price on application. Topsy, Wonderful, Pauline, Empress, Countess, Pandora, Vesper, Queen Eleanor, Conqueror, Iris, Phaeton, Seraskier, Pluto, Brenda, Floretta, Rosaline, Una, Serena, Leopard, Sparkler, Pallas, Lord Raglan, Petruchio.

NEW CHRYSANTHEMUMS OF 1856.

JOHN SALTER has a good stock of all the new Continental and English varieties of 1856, which he can furnish at 24*s*. per dozen; also some extra strong plants (covered with buds) of his Pompone "Scarlet Gem" at 3*s*. 6*d*. each. This variety is now in bloom at the nursery, and pronounced by all to be the finest crimson scarlet yet raised.

Versailles Nursery, William Street, near Hammersmith Turnpike.

W. HOLCROFT, Upholland, Wigan, Lancashire, begs to announce that he will forward his LIST OF HERBACEOUS AND ALPINE PLANTS post free on application. This collection offers great advantages to purchasers of this class of plants, and includes a great many of well known rarity, in addition to low prices. None but strong healthy plants are sent out.

W. H. begs to offer Seeds of the Yellow Californian Tree Lupine, post free, for 6 stamps.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, said to be the finest ever yet offered to the public, for which he begs to refer to his Descriptive Prospectus and Testimonials of Nurserymen who have grown them for trial. Price 15*s*. the set.—Address, Mr. E. Raper, Florist, 53, Regent Street, Leamington.

CONTINENTAL PLANTS AND OTHERS.

LOUIS VAN HOUTTE, Nurseryman, at Ghent, Belgium, begs to Advertise that his CATALOGUE, No. 61, with prices, containing GHENT and INDIAN AZALEAS, CAMELLIAS, CONIFEROUS PLANTS and RHododendrons is to be had at Mr. R. Silberrad's Office, 5, Harp Lane, Great Tower Street, on prepaid application.—N.B. A steamer leaves Ghent for London direct every 10 days.

L. V. H.'s CATALOGUE of ROSES is in preparation.

BULBS FOR PRESENT PLANTING.

Carriage Free, except Small Parcels

	£.	s.	d.
HYACINTHS, the best imported by name, per dozen	0	10	6
" Fine mixed for Beds (all double) per 100	1	10	0
ANEMONES " " (") " ...	0	5	0
" " " (single) " ...	0	4	0
TULIPS, fine mixed early, for pots or borders " ...	0	7	6
CROCUSES, mixed for open ground, (per 1000, 12*s*. 6*d*.)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free. N.B. New Early Peas, Radish, Horn Carrots, &c., now ready.

SUTTON and SONS,
Royal Berks Seed Establishment, Reading.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* William E. Rendle & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

DUTCH AND CAPE BULBS.

JAMES CARTER and CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to all parts of the world, upon application. The Bulbs are *as usual* of *first-rate quality*.
James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ETC.

WILLIAM CUTBUSH and SON beg to intimate that their SECOND IMPORTATION of the above have arrived in prime condition. DESCRIPTIVE CATALOGUES, *which contain their celebrated system of culture, can be obtained free on application.* Orders executed in strict rotation.

Highgate Nurseries, near London.

DUTCH BULBS.

R. PARKER begs to inform his friends and patrons that he has received his annual importation of HYACINTHS and other BULBS, and is pleased to say that they are particularly fine in quality this season. A priced and descriptive Catalogue is now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey, and Seven Sisters Road, Holloway, London.

HYACINTHS AND OTHER DUTCH FLOWER ROOTS.

THE Subscriber respectfully intimates the arrival of his DUTCH FLOWER ROOTS in fine condition. The Bulbs are large and sound. Early orders solicited. Descriptive priced Catalogues free on application.

Charles Alexander, Nurseryman and Seedsman, 30, West Register Street, Edinburgh.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHododendrons, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

STRAWBERRY PLANTS. — Cuthill's three sorts, sure and great bearers. See former Advertisements. Also his three Pamphlets. New Cucumbers, &c.

James Cuthill, Denmark Hill, Camberwell, London.

THE FILBERT PINE STRAWBERRY.—This is a misnomer. The Strawberry was raised at Manor Farm in 1849, and sent out as "Myatt's Seedling." Though not of a large size it is a first-rate variety. See Mr. Turner's advertisement. Strong plants, 5*s*. per 100.

Manor Farm, Deptford.—Oct. 11.

CHOICE FRUIT TREES and STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. Barratt, Landscape Gardener, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, for the Season of 1856.—All orders (not less than 20) to be accompanied with a Post-office order on Birmingham.

Twenty	£0	12	0	Eighty	£2	1	6
Forty	1	2	0	Hundred	2	8	0
Sixty	1	12	0				

Plants in pots, not less than 10, 1*s*. 3*d*. each, will be ready in October next.

Mr. Underhill's "Treatise on the Cultivation of the Strawberry," price 1*s*.

Mr. R. Underhill, Sir Harry's Road, Edgbaston, Birmingham.

STRAWBERRIES. — Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40*s*. per 100, or 6*s*. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready.—Apply to R. S. Yates, St. Ann's Square, Manchester.—Oct. 11.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

James Kitley, Lyncombe Vale Nursery, Bath.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, William J. Nicholson, Egglescliffe, near Yarm, Yorkshire.

*** Underhill's SIR HARRY 30*s*. per 100; 18*s*. per 50; 10*s*. per 25, strong plants.

VINES FOR FRUITING IN POTS.

MESSRS. J. & J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to invite attention to their fine stock of the above. Price 5*s*. and 7*s*. 6*d*. each.

Strong Vines for planting out, 3*s*. 6*d*. each. A list of the sorts may be had on application.

ROSES.

J. and J. FRASER'S Catalogue for the present season is now ready, and may be had on application.

J. & J. F. have a large and fine stock of Dwarf Roses, consisting of the best sorts of Hybrid Perpetual and other autumn flowering kinds suitable for planting in masses or for potting. Price per dozen or hundred (according to the quantity required) may be had on application.

The Nurseries, Lea Bridge Road, Essex.

ROSES, ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—October 11.

WILLIAM IVERY begs to inform his Friends and Purchasers that his Pot ROSES, on their own roots, are extra fine this season. W. I. has also a very fine stock of INDIAN AZALEAS, good blooming Plants of the best variety in cultivation. Catalogues of the above and other Choice Plants to be had post free on application.

Hanover Nursery, Peckham, near London.—October 11.

ROSES.

A. PAUL and SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

ROSES.—CATALOGUES forwarded free of *charge* and Post Paid to all Parts of the World, upon application to James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

NEW CATALOGUES FOR 1856-57.

WILLIAM WOOD and SON are now prepared to send free and post paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CATALOGUES.

H. LANE and SON, Great Berkhampstead.—Catalogues for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries or sent post free. They consist of ROSE CATALOGUE, TREE and SHRUB ditto, FRUIT ditto (containing those grown in pots), HOLLYHOCK, AZALEA, &c., ditto.

The Nurseries, Great Berkhampstead, Herts.

PANSIES! PANSIES!! PANSIES!!!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4*s*. per dozen.—Address W. H. Davis, Jun., St. Mary's Hill, Newbury.

WANTED TO PURCHASE,
Either by Contract or Otherwise,
CHOICE FRUITS AND VEGETABLES.
Apply to GEORGE TAYLOR, Jun.,
Fruit Salesman & Contractor for Choice Garden Produce
St. John's Market, Liverpool.
Payment Nett Cash on Delivery.

DENDROBIUM FALCONERI, figured in Curtis's Botanical Magazine for present month.—Plants of this most lovely new species, the finest of the genus, can be supplied at 42*s*. each by Hugh Low & Co., Clapton Nursery.—Oct. 11.

PRINCE OF WALES' RASPBERRIES.

WILLIAM CUTBUSH and SON beg to inform the public that they have now on hand a large stock of their celebrated PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation.* Prices per dozen or hundred on application.

Highgate Nurseries, near London.

TRIFOLIUM INCARNATUM.

TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from* William E. Rendle & Co., Seed Merchants, Plymouth.

HOME GROWTH.

NEW EARLY WINTER VETCHES.—*This is a very superior sort, and comes* two or three weeks *earlier than the common variety. The Subscribers can strongly recommend them.* Price 25*s*. per bushel, or 3*s*. 6*d*. per gallon. Only a few bushels remain.

William E. Rendle & Co., Seed Merchants, Plymouth.

GLENNY'S IMPROVED BALSAM SEED from flowers 3 inches across, not approached by any other 6 classes, 37 stamps; mixed packet, 13 do.; sealed and signed packets only. Other very choice Seeds.—Dungannon House, Fulham.

ROSES.—40,000 Dwarf Roses on their own roots in pots and worked on the Manetti stock. 50,000 Dwarf Roses budded on 6-inch stems. 30,000 Standard Roses. 5000 Général Jacqueminot, Hybrid Perpetual. 7000 Géant des Batailles, ditto. 12,000 Tea-scented and China Roses in pots on their own roots.

WILLIAM WOOD AND SON wish to direct especial attention to their enormous and splendid stock of Roses, which, owing to an entirely new soil and increased facilities of propagation, was never in finer order, and they feel assured the plants they have this season the pleasure of offering to their friends cannot be surpassed, many of the Standard and Dwarf Roses having made shoots 6 feet in length.

Collections of Roses will be supplied on the following terms, when the selection of sorts is left entirely to ourselves:— Per doz.

Extra tall Standards, 4 to 8 feet high, with three to six best varieties of Climbing and Perpetual Roses, in each stem, suitable for training, &c., 3*s.* 6*d.* to 5*s* each
Tall Standards, fine picked stocks from 4 to 6 feet with large heads, of the most showy kinds, for planting in conspicuous situations on lawns, &c. ... ... 42*s.*
Extra superior selected Standards, in fine varieties ... 24*s.* to 30*s.*
Fine Dwarf Standards, in fine varieties .. .. 18*s.* „ 24*s.*
Superb ditto ditto, the best sorts for exhibition ... 18*s.*
Fine Dwarfs ... ... 12*s.* „ 18*s.*
—— Climbing and Noisettes ... ... 9*s.* „ 12*s.*
Hybrid Perpetuals, budded on 6-inch stems, or on own roots in pots ... ... 12*s.* „ 18*s.*
Ile de Bourbon, in pots, or budded on 6-inch stems ... 12*s.* „ 18*s.*
China, in pots ... ... 9*s.* „ 12*s.*
Tea-scented, in pots... ... ... 15*s.* „ 30*s.*
The best varieties for forcing, established in 6-inch pots, budded on 6-inch stems ... ... 24*s.*
Climbing Roses mixed, without names, for covering banks ... ... 4*s.*
Good Dwarfs on own roots, without names ... ... 4*s.*

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in introducing this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited this season at the Royal Gardens, and Mr. Ingram has forwarded the following testimonial as to its merits:—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour—like that of an Apricot—soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "Thomas Ingram.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. Powell of the Royal Gardens writes:—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side; flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

Extract from the "Transactions of the British Pomological Society" (No. I.):—"A seedling Peach raised in the garden of Colonel Salway, from a stone brought from Italy, was exhibited by Mr. Turner, of Slough. The fruit was of medium size, and of a deep golden yellow colour; the flesh also of a rich deep yellow colour, very melting, juicy, and vinous, with somewhat of the flavour of an Apricot. Although this was gathered from the wall on November 4, it was in as great perfection and as highly flavoured as any of the September varieties, and was highly recommended by the Society as a valuable late Peach."

DWARF-TRAINED TREES ... ... 15*s.* each.
MAIDEN do. ... ... 10*s.* 6*d.* do.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Plants can be had of Messrs. Peter Lawson & Sons, Edinburgh; Messrs. Dicksons & Co., Edinburgh; Messrs. James Dickson & Sons, Edinburgh; and the principal Nurserymen.

Royal Nursery, Slough.

FRUIT TREES.

THOMAS RIVERS begs to submit to the Public the following synopsis of his FRUIT TREE CULTURE, which is this season the most complete and extensive in Europe.

APPLES, on Crab Stocks.—Standards for orchards, dwarfs, and dwarfs trained for espaliers.

APPLES, on Paradise Stocks, for gardens.—Pyramids, dwarf bushes, dwarfs trained for espaliers, and dwarf bushes in pots.

APRICOTS.—Standards, standards trained, half standards in pots, dwarfs, dwarf bushes for potting, dwarfs trained for walls, and dwarfs in a fruiting state in pots for orchard houses.

CHERRIES, on black Cherry Stocks.—Standards, standards trained, dwarfs, and dwarfs trained.

CHERRIES, on the Mahaleb Stock.—Dwarf bushes for potting and culture as bushes, dwarfs trained for walls, and dwarf bushes in pots.

CURRANTS.—Dwarf bushes, including some new and fine varieties.

FIGS, in pots, in a bearing state.

GOOSEBERRIES.—Small, high-flavoured, old sorts, and all the large new Lancashire varieties.

GRAPES for Vineries, from eyes, in pots.—Strong plants, two and three years old; ditto, in pots, dwarf bushes for orchard houses; ditto, hardy sorts from the open ground for walls.

MEDLARS.—Standards and dwarfs.

MULBERRIES.—Standards and dwarfs trained for walls.

NECTARINES and PEACHES.—Standards, standards trained, half standards in pots, dwarfs, dwarfs trained, and dwarfs in a fruiting state in pots for orchard houses.

NUTS and FILBERTS.—Dwarf bushes, and standards 4 feet high, grafted on the Hazel Nut.

PEARS, on Pear Stocks.—Standards, standards trained, dwarfs, dwarfs trained for espaliers and walls; pyramids six years old, twice or thrice removed, in a bearing state; these are adapted for gravelly and chalky soils unfavourable to pyramids on the Quince Stock.

PEARS, on Quince Stocks.—Standards trained for walls, pyramids, pyramids root-pruned, in a bearing state; dwarf bushes in a bearing state, for potting, or for culture as bushes; dwarf bushes in pots, in a bearing state, for orchard houses.

PLUMS.—Standards, standards trained, dwarfs, dwarf bushes for potting or for garden culture, dwarfs trained for espaliers and walls, dwarf bushes in pots for orchard houses, and pyramidal trees in a bearing state.

QUINCES.—Standards of the common Quince, and pyramids of the large Portugal Quince.

RASPBERRIES.—Canes of the finest varieties.

STRAWBERRIES.—Runners of the finest varieties.

WALNUTS.—Standards and dwarfs for gardens of the Dwarf Prolific Walnut.

The Descriptive Catalogue of Fruits, which is so arranged as to point out to those commencing Fruit Culture the most select varieties, is now ready for delivery. It contains 32 pages of original and useful matter, and will be sent free on receipt of six stamps; to customers gratis on application.

Nurseries, Sawbridgeworth, Herts, Oct. 11.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
„ Douglasi, 1½ to 3 ft.
„ Menziesi, 1 to 3 ft.
„ Morinda, 3 to 10 ft., very fine
„ nobra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
„ Lambertiana, 1½ to 3 ft.
„ torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
„ „ Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
„ Benthamiana, 1½ ft.
„ Cembra, 1 to 5 ft.
„ excelsa, 4 to 8 ft., very fine
„ insignis, 1 to 6 ft.
„ Lambertiana, 1 to 6 ft.
„ Llaveana, 1 to 2 ft.
„ monticolor, 1 to 2 ft.
„ muricata, 1½ ft.
„ Pallasiana, 2 to 2½ ft.
„ Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
„ Nordmanniana, 1 ft.
„ Pinsapo, 1 to 4 ft.
„ Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
„ glauca, 6 to 9 in.
„ intermedia, 1 to 1½ ft.
„ japonica, 1 to 1½ ft.
„ gigantea, 1 ft.
„ minima, 6 to 9 in.
„ Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
„ Canadensis, 1 to 2 ft.
„ Cheshuntensis, 3 to 5 ft.
„ Dovastoni, 1 to 2 ft.
„ elegantissima, 1 to 2 ft.
„ gold striped, 1 to 4 ft.
„ Irish, 1 to 5 ft.
„ stricta, 1 to 4 ft.
„ common, 1 to 5 ft.
„ „ Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
„ „ Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
„ Maple, 8 ft.
„ Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
„ „ variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
„ Beech
„ Elms, 8 to 10 ft. stems
„ Mountain Ash
„ Privet
„ Willow
„ American Willow, 8 ft. stems
„ Kilmarnock „ 6 ft. stems
„ Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
„ flava speciosa
Clematis azurea grandiflora
„ double blue
„ Florida, double and single
„ Hendersoni
„ Sieboldti
Honeysuckle Evergreen
„ Scarlet Trumpet
„ flexuosa [finest
„ Magnevillea, one of the
Ivy, Irish, strong
„ palmated
„ gold blotched
„ silver
„ Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica, Camellias, Epacris, Ericas — A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

NEW AND CHEAP PLANTS, DUTCH FLOWERING BULBS, &c.

HENRY WALTON, Edge End, Marsden, near Burnley, is now offering the following at the reduced prices annexed:—

FUCHSIAS—Admiral Boxer, Charlemagne, Conqueror, Countess of Burlington, Donna Joaquina, General Williams, Favourite, Ranunculæflora, Venus de Medici, Volcano di Aqua, Wonderful, and Prince of Wales, 1*s.* 6*d.* each, or 12*s.* per doz. post free; extra strong plants, 2*s.* 6*d.* each.

PETUNIAS—New varieties of last season, 1*s.* 6*d.* each, or 12*s.* per doz.

VERBENAS—New varieties of last season, 1*s.* each, or 9*s.* per doz.

GERANIUMS—Strong plants, Dido, Fidelia, Gem of the West, Grand Sultan, Jessica, Lydia, Omar Pacha, Pandora, Petruchio, Phaeton, Seraskier, Topsy, Una, Vesper, and Yerda; the above, 15*s.* per doz. Attraction, Carlos, Duchess of Wellington, Eugenie, Empress, Eliza, Glowworm, Governor General, Indian Chief, Lord of the Isles, Leah, Lucy, marginatum, Neatness, pictum, Purple Perfection, Rebecca, Regalia, Rosa, Rhoda, Tamberlik, Virginia and Zeno; the above 12*s.* per doz. Ambassador, Commissioner, Commander, Harriet, Incomparable, Jupiter, Leonora, &c., at 6*s.* and 9*s.* per doz. Fancy varieties, 9*s.*, 12*s.*, and 18*s.* per doz.

CINERARIAS—6*s.*, 9*s.*, and 12*s.* per doz.

HYACINTHS—(descriptive lists of which are now ready, and may be had on application) named sorts, 8*s.*, 9*s.*, and 12*s.* per doz Mixed ditto for borders may be had in separate colours, 4*s.* per doz., or 25*s.* and 30*s.* per 100.

A Descriptive List of choice Geraniums, Pansies, Carnations, Picotees, Pinks, &c., may be had for one postage stamp.

AZALEA—Indica, Extransi, Criterion, Ivery's Beauté d'Europe, Gledstanesi formosa, magnifica, striata formosissima, Duke of Devonshire, Peruyana, rosea elegans, amœna, Broughtoni, variegata, Glory of Sunninghill, Murrayana, Minerva, Vesta, Prima Donna, and alba magna; selections from the above, 12*s.*, 18*s.*, and 24*s.* per doz. (strong plants).

Sonerila margaritacea, 2*s.* 6*d.*, 5*s.*, and 7*s.* 6*d.* each. Gonocalyx pulchra, 5*s* and 7*s.* 6*d.* Cuphea eminens 1*s.* 6*d.* and 2*s.* 6*d.* Cassia floribunda, 2*s.* 6*d.* Vaccinium erythrinum, 3*s.* 6*d.* and 5*s.* Mandirola Roezli, 3*s.* 6*d.* Meyeniaerecta, 5*s*, to 10*s.* 6*d.* Passiflora Decaisneana, 3*s.* 6*d.* Cereus MacDonaldi 3*s.* 6*d.* to 5*s.* Impatiens Jerdoniæ, 2*s.* 6*d.* to 3*s.* 6*d.*

Choice Cineraria Seed, 1*s.* 6*d.* and 2*s* 6*d.* per packet.

It is respectfully requested that Post-office orders be made payable at Marsden, Lancashire; a remittance or reference required from parties unknown.

The plants named above are all strong and healthy plants, and cannot fail to give satisfaction to every purchaser.

MESSRS. E. G. HENDERSON AND SON beg to state that the unequalled DAHLIA—

CRYSTAL PALACE SCARLET,

proves itself the finest Bedding Plant in cultivation, and by far the most showy and free blooming Dahlia ever offered to the public. It may be seen in full flower at their Nursery, and the

CRYSTAL PALACE GARDENS.

The Bulb Catalogue, with revised Lists of GERANIUMS, Cinerarias, and other Florists' Flowers, may be had post free on application.

A Coloured Plate of Five new GERANIUMS, including Mrs. Story's white varieties, can be had post free for 12 stamps.

NEW STRAWBERRY "ADAIR."

For description of this delicious variety see back numbers. Price 60*s.* per 100 plants; 40*s.* for 50 ditto; 25*s.* for 25 ditto; 15*s.* for 12 ditto.

The description and prices of the following new plants may be seen in the Bulb Catalogue:—

Camellia Jenny Lind
Echites Houtteana
Dianthus albo nigricans
Begonia picta
„ cinnabarina hybrida
Azaleas and Rhododendrons (in varieties).

SEEDS.

Calceolaria Seed, 5*s.* and 2*s.* 6*d.* (2d quality) per packet; Cineraria, 2*s.* 6*d.* per packet; Primula sinensis fimbriata, 2*s.* 6*d.* per packet.

The Spring Catalogue, with 2000 Greenhouse and Stove Plants fully described, post free on application.

Wellington Nursery, St. John's Wood.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
„ stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

AZALEA INDICA "GEM."

J. IVERY AND SON beg to inform the public that good established plants of this fine variety will be ready for delivery the third week in October, at 21*s.* each; a few extra sized blooming plants at 42*s.* each. The subscribers feel it unnecessary to say anything further of its fine properties than that it has received the highest awards given to seedlings both at the Royal Botanic and National Floricultural Societies. The undermentioned Nurserymen have already kindly ordered it, from whom plants may be had:—

Barnes, Mr. Wm., Camberwell
Bass & Brown, Messrs., Sudbury
Cole, Mr. Wm. Withington, Manchester
Cutbush, Wm. & Son, Highgate
Cutbush, Mr. Wm., Barnet
Davies, Mr. Thos., Waivertree
Epps, Mr. W. J., Maidstone
Fisher, Holmes, & Co., Sheffield
Fraser, J. and J., Leytonstone
Gaines, Mr. Thos., Battersea
Garraway, Mayes & Co., Bristol
Glendinning, Mr. R., Turnham Green
Godwin, Mr. T., Sheffield
Griffin, Mr. J., Bath [Place
Henderson, A. H., Pine-apple
Henderson, E. G. H., Wellington Road
Ivery, Mr. Wm., Rye Lane Peckham
Jackson, T. & Son, Kingston
Lee, J. H., Hammersmith
Low, Hugh, & Co., Clapton
Parker, Mr. R., Hornsey Road
Rollisson, W. & Sons, Tooting
Turner, Mr. Chas., Slough
Veitch, Mr. Jas., Jun., Chelsea
Verschaffelt, Mr. A., Belgium
Wheeler, Mr. G., Warminster
Wood, Wm. & Son, Maresfield
Wood & Ingram, Messrs. Huntingdon.

A descriptive Catalogue of all the newest and best varieties of the Azaleas may be had in exchange for one postage stamp. The usual allowance to the trade.—Dorking, October 11.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

STANDISH AND NOBLE, Nurserymen, Bagshot, Surrey, have now to offer the following new and beautiful plants:—

GAULTHERIA FURENS.—A charming plant imported by the advertisers from Valdivia. Specimens have been turned out in the open border for two years past, where it stands perfectly uninjured without the slightest protection; in fact it is as hardy as the Common Holly. It forms a compact, bright, glossy, green shrub, covered in spring with white flowers like those of Andromeda floribunda, and bearing in autumn clusters of large rosy purple berries. It grows very freely in any light sandy soil. 10*s.* 6*d.* each.

AZALEA AMŒNA LATERITIA.—A hybrid from lateritia by amœna. The flowers are of the same colour as those of lateritia with the hose-in-hose corolla of amœna, and about three times the size of the latter. They are of good shape and substance, and the plant blooms as freely as amœna. 15*s.* each.

AZALEA AMŒNA GRANDIFLORA.—The description of the above will apply to this in every respect with exception of the colour; in this variety the flowers are of a rich carmine lake. We can recommend both varieties as being exceedingly handsome, and they are moreover examples of an entire new race of Azaleas of which amœna is the type. 15*s.* each.

ROSE H. P. VICTOR TROUILLARD.—A seedling from Géant des Batailles, but more double and twice the size, and much darker in colour; in fact it is as dark as the Tuscan Rose. The flowers stand the sun for a week without fading. It is undoubtedly the finest Hybrid Perpetual Rose ever offered for sale. Plants in November, 21*s.* each.

*** When three plants of either of the above are ordered one will be given over.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now sending out strong well-rooted plants of the above unequalled new Seedling Strawberry, which possesses more good qualities than any other ever yet grown. For further particulars see *Gardeners' Chronicle* of Sept. 27, 1856. Strong well-rooted plants, 3*l.* per 100, 1*l.* 15*s.* for 50, 1*l.* for 25, or one dozen for 12*s.*, the 25 or one dozen sent postage and package free. A Post-office Order is expected to accompany all commands.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

THE FILBERT PINE STRAWBERRY.—This variety has now been proved at the Royal Gardens and other places to be the best and most useful Strawberry grown. It produces very little foliage, is exceedingly prolific and rich flavoured, firm, and comes in with the British Queen, and remains in bearing until very late. It is a most valuable variety for the northern districts, as it produces very little more foliage than the Black Prince, and there is a certainty of getting a crop from it. Plants now ready, 7*s.* 6*d.* per 100.

CHARLES TURNER, Royal Nursery, Slough.

CABBAGE AND CAULIFLOWER PLANTS FOR SALE.

G. H. PIKE begs respectfully to inform the Public that he has a large Stock of the above Plants to dispose of. The sort of Cabbage is Shilling's Queen; price 5*s.* per 1000. Cauliflower Plants, 2*s.* per 100, package included. They are fine healthy Plants. All orders must be accompanied with a remittance.—52, Walcot Street, Bath.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

GAINES'S WHITE GERANIUM ALBA MAGNA is now ready for Sale; it is the best forcing Geranium out. The plant is of a good dwarf habit, with very large truss of pure white flowers upon a strong footstalk. Price 5*s.* per plant; when three plants are ordered four will be sent.

T. G. has a few strong plants of his New Azalea rosea alba, Napoleon III., and Camellia compacta alba, yet on hand. For description see *Gardeners' Chronicle* for Saturday, September 27. His Lists of Geraniums and Greenhouse Plants in general will be printed shortly.—Nursery, Surrey Lane, Battersea. Oct. 11.

CHOICE SHOW PINKS.

WILLIAM HUSSEY begs to offer the undernamed Collection—one pair of each for 15*s.* package included; viz., Alfred Morrison, Arthur Brilliant, Beatrice, Conrad, Constance, Criterion, Henry Steers, Duke of Wellington, Esther, Earl of Carlisle, Harry, Harriet, Juno, Jenny Lind, King of Purples, Koh-i-noor, Lord Charles Wellesley, Lord Hardinge, Lord John Russell, Laura, Lord Valentia, Melona, Mars, Mrs. Judd, Othello, Perfection, Princess Royal, Prima Donna, Prince Albert, Queen Victoria, Sappho, Sarah, Teddington, Titus, Winchester Rival.—Horticultural Gardens, Norwich.

NEW PURPLE LILAC,
SYRINGA VULGARIS *var.* BLANDII.

W. H. BLAND has great pleasure in offering the above valuable Flowering Shrub, which has proved the last three seasons quite superior to any other Lilac in cultivation. It was submitted in June 1853 to Dr. Lindley, when he pronounced it very superior to any other variety, and in the June No. of the present year, p. 392, he again refers to it thus—

"LILAC: *W H B.* The specimen now sent fully confirms what we said of the variety in 1853; it is a handsome purple Lilac, closer in the bunch and firmer in the flower than any Lilac of the kind that has come under our notice."

With such excellent authority any further comment would be superfluous, excepting to remark that the plants now offered are in the finest possible condition, and may be had at the following prices, viz., 5*s.* each, three for 12*s.*, or six for 21*s.* Prices for wholesale orders on application.

Mr. T. BARNES, Dane Croft Nurseries, Stowmarket, is appointed Agent for the sale of it.

Remittances requested from unknown correspondents.

W. H. BLAND, Nurseryman, Fordham, Cambridge.

THE LARGEST AND CHEAPEST STOCK OF GERANIUMS IN ENGLAND.

JOHN WESTWOOD has much pleasure in being able to announce to the public that having devoted the last 18 months to testing the correctness of every portion of his Stock, and at a vast expense made it the finest of its kind in existence, he has recommenced business under very advantageous circumstances.

To the numerous ladies and gentlemen who favoured him with their orders at the commencement of 1855, J. W. tenders his thanks; and having unwittingly, and through the gross negligence of the person to whom he then entrusted the conduct of his business, sent out many plants incorrectly named, he takes this opportunity to state to those who may have received any such from him, and to whom he has not already made reparation, that he will do so (upon receiving particulars of those plants which were not in strict accordance with their orders), either by forwarding them correct plants of the kinds desired, or others of a corresponding value. He also assures all that such errors will not occur in future, as he now personally superintends his Nursery.

A full Catalogue of SHOW, FANCY, BEDDING, and FRENCH GERANIUMS, will be ready for delivery (gratis) to all applicants on and after the 12th instant. The General Catalogue will follow shortly after. An inspection of his Stock, consisting of more than 100,000 plants, is invited by J. W.

Floral Nursery, Turnham Green.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and Shrubs of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c. all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.

JOHN WEEKS & Co., King's Road, Chelsea.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

BULBS.—FOR

BASS AND BROWN'S Advertisement of BULBS and ROOTS see the third page of the *Gardeners' Chronicle* of September 20th.

Choice and sorted collections of Hardy Bulbs and Roots, 20*s.*, 40*s.*, and 60*s.* per collection.

CATALOGUES for the present season of the following may be had on application, viz.:—

Bulbs and Roots.	Fruit Trees.
Herbaceous Plants.	Strawberries.
Hollyhocks.	Geraniums.
Phlox.	Cinerarias.
Coniferæ.	Azalea indica.
Hardy Shrubs and Climbers.	Stove and Greenhouse Plants.
Roses.	Winter-flowering ditto.

Sudbury, Suffolk.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

		£	s.	d.
No. 1	Collection, all the most approved sorts	3	10	0
No. 2	" containing smaller quantities ...	2	5	0
No. 3	" for a small garden	1	5	0
100	Hyacinths, in 100 very fine sorts. Purchaser's selection	3	10	0
100	" 50 fine sorts "	2	15	0
50	" 50 superior sorts "	1	15	0
50	" 25 " " "	1	10	0
24	" 12 " varieties "	0	15	0
12	" 12 " " "	0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW IMPORTED DUTCH ROOTS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

A Descriptive Price Current of Dutch Roots is just published, and can be had in return for one postage stamp.

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

DUTCH FLOWER ROOTS.

JAMES CHARTRES AND CO. have much pleasure in announcing that their superb collections of the above, which have given such universal satisfaction for many years, are now ready, and will be forwarded carriage paid to any part of the kingdom. No 1 Collection (3*l.*) contains as follows:—12 Splendid Double and Single Hyacinths for glasses; 12 ditto, do. for pots; 24 ditto, ditto, for borders; 12 splendid Narcis, various, for pots; 12 do. named Early Tulips (single and double); 50 do. mixed late Tulips for borders; 12 do. Double Jonquils; 24 do. named English Iris; 24 do. named Spanish Iris; ½ lb. mixed Double Anemones; 1 lb. mixed Single Anemones; 100 splendid mixed Ranunculus; 100 do. named Crocus, 25 sorts; 100 do. Mixed Blue; 100 do. Mixed White; 100 do. Double Snowdrops; 12 do. Dog's-tooth Violets; 6 Summer Snowflakes.

No. 2 Collection half the above amount. A general priced Catalogue may be had on application.

74, King William Street, City, London.—October 11.

WANTED IMMEDIATELY,

GRAPES,	PINES,
PEACHES,	MELONS,

AND OTHER CHOICE FRUITS.

Apply or forward to
GEORGE TAYLOR, JUN.,
GROWERS' SALESMAN,
St. John's Market,
Liverpool.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1¼ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, NURSERYMAN, Longton, Staffordshire, has great pleasure in again recommending the above variety of Rhubarb, sent out for the first time in 1854, feeling confident from its superior quality and reduced price to meet with a continuance of demand. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11, 1853.

"Very good, and a most beautiful crimson: compared with others it is remarkable for the small amount of acidity it contains."—ED.

Price—Year-old plants, 1*s.* 6*d.* each, or 6*l.* per 100; Two-year old, 2*s.* 6*d.* each, or 10*l.* per 100. With usual discount to the trade.

Orders addressed to ROBERT SALT, Nurseryman, Longton, Staffordshire, or to the following agents will meet with strict attention: Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Francis and Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester: James Dickson & Sons, Nurserymen, 112, Eastgate Street, Chester; Burgess & Kent, Nurserymen, Penkhull, Staffordshire.

A remittance from unknown correspondents.—Longton, Oct. 11.

MISS NIGHTINGALE,
THE FINEST HELIOTROPE IN CULTIVATION.

MR. FIELD begs to inform the Trade that he has a few fine old plants of this truly beautiful Heliotrope in 48 pots well adapted for stock, 3*s.* 6*d.* each, one given where three are ordered. For description Mr. F. refers to the unquestionable authority of the censors' decision at the Royal Botanic Society's Show in May and that of the National Society of Florists in June. Young plants will be ready in January, 12*s.* per dozen, package not included. Post-office Orders payable at Paddington.

WILLIAM FIELD, Florist, Kensal Town, London.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c. of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5*s.*	0*d.*
Do. 12 do. do.	2	6
Good mixed	1	0

ERICA SPENCERIANA.

R. GLENDINNING begs to inform the Public that he is now prepared to send out this new and distinct Heath, a coloured illustration of which is given in the *Florist* for this month. This novel Hybrid was raised from seed in the Chiswick Nursery. It is a very free blooming variety, very small plants being laden with flowers; is a vigorous grower, with the habit of E. Cavendishi; and both as regards habit and colour of flowers is altogether distinct from any other variety, with the additional recommendation of remaining three months in bloom. Was awarded a Small Silver Medal at the last July Exhibition of the Royal Botanic Society, Regent's Park. Strong established Plants, 21*s.* each.—Chiswick Nursery, Oct. 11.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT and FOREST TREES, will be ready in a few days, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station, one hour's ride from Waterloo Station; ¾ from Reading.

LARGE SWEET BAYS, & EVERGREEN OAKS IN POTS, &c.

WILLIAM CUTBUSH AND SON have on hand a large Stock of the above, which they can dispose of at very reasonable prices.

Also a fine stock of STANDARD and DWARF TRAINED FRUIT TREES, FRUIT TREES IN POTS, LARGE MULBERRIES, and all other Nursery Stock in excellent condition for safe transplanting. *Prices upon application.*

Highgate Nurseries, near London.

HEATHS AND EPACRIS.

MESSRS. J. & J. FRASER have to offer the above in fine healthy plants and full of flower buds. If a large quantity is taken the price will be very moderate. A list of the varieties with price may be had on application.

The Nurseries, Lea Bridge Road, Essex.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 11, 1856.

THE autumn has brought further information about ORCHARD HOUSES, and we perceive that our correspondents are already communicating their experience. That they should arrive at different results is what was to have been expected. Had we returns of the first two or three years' management of a Peach wall by those who had never previously seen one, there would be a still greater conflict of evidence; some would have had no Peaches, some a few, and a few many. Upon the whole this kind of structure is getting into still more favour than before. And well it may, when bad springs and bad summers and indifferent autumns have to be contended with.

It seems to us that one great mistake is made in this matter. An idea has gained possession of some minds that it is better to grow fruit in an orchard house than out of doors; whereas the real object of such a contrivance is to grow fruit well where you cannot obtain it out of doors. It is like the glass sheds and tumbledown houses of which we have spoken occasionally as producing admirable results. Nobody recommends such places for imitation when better things can be had. The point to observe is that under skilful management as much may be done in very rude structures as in buildings on which the glazier, carpenter, and ironmonger have lavished all the skill that money can purchase. We never saw finer Grapes or a heavier crop than in an old tumbledown flat-roofed glass lean-to, with half the panes broken; the skill of its owner rose above the defects of the building; but it would be absurd to suppose that because we record this fact we therefore recommend Vineries to be old, tumbledown, flat-roofed, with half the panes broken.

The main objection which we now hear taken to an orchard house is that it will not yield sufficient return for the trouble and expense attending it, unless we include the pleasure of managing it as part of the return. Let us try to work out this problem in a span-roofed house 60 feet long and 20 feet wide, with a walk all round between a side border and a rectangular bed in the middle.

Such a house will have fourteen rafters on each side, and three uprights. Against each rafter there will be one Vine, and against each upright two others. This gives $14 \times 2 + 3 \times 2 = 34$ VINES in pots. Of course these Vines will be trained upon the rod system.

At the end where there is no door the border will afford ample room for 6 FIG trees.

On the borders there is room for 12 fifteen-inch

pots under the ridge, 18 others 12 inches in diameter on each side, while 18 more will stand on each of the side borders. This makes 12 + 18 × 2 + 18 × 2, or 84 large pots for miscellaneous fruit trees.

Then there will be ample room for 750 Strawberry pots, if 48s are used as described at p. 387 of our present volume; and these may be at least once changed, making 1500 pots of Strawberries in the season.

Thus it appears that our House will hold 34 Vines, 6 Fig trees, 84 miscellaneous fruit trees, and 1500 pots of Strawberries. How much is it possible for them to produce?

Each Vine may bear 10 good bunches of Grapes, averaging 1 lb.: this gives 340 lbs. weight for the house.

Half-a-dozen Fig trees should yield as many fruits as any small family can consume—say 100 each.

Let us assume that the miscellaneous fruit trees consist of 50 Pears, 10 Plums, 10 Peaches, 8 Nectarines, and 6 Apricots. Each Pear tree ought to carry 36 fruit, each Plum tree 60, each Peach tree 12, each Nectarine 12, each Apricot 24 at least. Apples, with one or two exceptions, Gooseberries, Currants, and Raspberries, are not worth growing.

If this estimate is correct, and we believe it to be quite within the mark as soon as the trees are in full bearing, the produce during the season will be as follows:—

Vines, 34,	each producing	10 bunches		=	340
Figs, 6,	do.	do. 100	...	=	600
Strawberries, 1500,	do.	8	...	=	12,000
Pears, 50,	do.	36	...	=	1800
Plums, 10,	do.	60	...	=	600
Peaches, 10,	do.	12	...	=	120
Nectarines, 8	do.	12	...	=	96
Apricots, 6,	do.	24	...	=	144

Such we say is a very possible produce of an orchard house 20 × 60 feet in full bearing. That it is no exaggeration is sufficiently proved by experience; the produce indeed is too low in Plums, some of which bore nearly 100 each in the Garden of the Horticultural Society last year, although it was only the first year of successful trial; and so of others. We take the produce of a Peach or Nectarine tree at 12, but in the Horticultural Garden last year a Chancellor Peach bore 17, an Acton Scott 13, a seedling Peach 14, a Violette Hâtive Nectarine 17, a Fairchild Nectarine 21 fruits. We therefore certainly regard the above as a perfectly fair estimate of what may be had under good management, when the trees are all in full bearing. That 36 are not too many Pears per tree is shown by quite young plants having already a score upon each of them ripening well.

But reduce the estimate by one half, in order to make allowance for accidents and want of skill, and the return is still most ample for 1200 square feet of ground.

Of course, in order to obtain such results, a selection must be made of varieties known to be good bearers. If gentlemen wish to experimentalise they must prepare for loss or failure. It would be folly for example to grow in an orchard house Beurré Diel or Vicar of Winkworth or Chaumontelle Pears, as well try Uvedale's St. Germain; nor would the mistake be less to introduce Peach Apricots, or Shanghae or Chancellor Peaches, or Stanwick Nectarines. They are unsuited to this mode of cultivation. We cannot say that the very best possible sorts are yet known; but a good many are, and *vice versâ*, which is not less important.

What may be the best mode of managing these houses is perhaps still to be settled. The fundamental principles are air in the greatest possible degree, well selected sorts, and well potted healthy plants abundantly supplied with liquid manure. If the last point is attended to there will be no risk of failure from debility. Some recommend that the roots should be allowed to find their way out of the bottoms of the pots, and then be cut off. To this practice we see great objection. What should be attempted is rather to keep the roots within the pots, and when they occupy too much room to dispot the plants and remove with a sharp knife some of the coarsest of the roots, afterwards replacing the plants carefully.

Having said thus much concerning the capabilities of orchard houses, we ought to point out what is undoubtedly a defect in the very best of them. They are unprovided with any means of heating them. Theoretically, indeed, they require no heat; that is to say they are not forcing-houses. But it would be a very great gain if some means were provided of mitigating the effects of nocturnal radiation in the spring, when the thermometer in the interior of such places sinks lower than consists with the safety of the crop. For example all the young Figs in a building of this kind dropped off last spring for want of a little protection at night. We presume that a tarpauling, or reed mats, or one of Paxton's railway roofs, placed over the glass at night, would do all that is required, but such contrivances are expensive, and expense is exactly what an orchard house is to prevent. Nor would they afford what is wanted in the autumn where Figs or Grapes are grown. For such crops our summers are too short, and our autumn heat too low. Night coverings can only prevent loss of heat; they create none. It is therefore desirable that some kind of heating apparatus for occasional use should be provided.

For this purpose iron hot-water pipes would of course do all that could be required; but such a heating apparatus again costs more money than should be expended on an orchard house. We should think that every end would be answered both in spring and autumn by a flue constructed of large drainpipes, whose joints were carefully secured by well tempered clay lime, and chopped straw, such as is used in making clay lumps for cottages. It would only be necessary to take care that such a flue is only heated with wood, or weeds, or some vegetable rubbish which will smoulder, and produce plenty of hot smoke without bursting into much flame. Any country labourer would put up such a contrivance for a few shillings, and if smoke did find its way at first through the joints of the pipes it would be easy to stop the crevices with more clay.

Although summer Figs, set from the buds of the previous year, and such Grapes as the Sweet Water or Muscadine, will ripen without artificial autumn heat, yet we are convinced that all who have tried their skill upon orchard houses will admit that it would be infinitely better if the gardener were provided with some sort of cheap apparatus to produce warmth; or if warmth is not wanted, to dry the air in our damp October weather.

We have lately received from Trentham two new varieties of fruit, both of which deserve special mention.

The first is a black Grape, of most excellent quality, thin skinned, not a Muscat, earlier than the Black Hamburgh, and having the valuable property of hanging late without shrivelling. Its leaves are middle sized, thick and capable of bearing even such a sun as we experienced last July, when the foliage of so many other Vines suffered seriously. Its origin is unknown. In appearance it somewhat resembles the Black Prince, but the flavour is much more delicate, and the berries are longer. The two diameters are as 20 to 14 in this, but as 17 to 14 in the Black Prince, a very great difference. Mr. Rivers who has seen it conjectures that it is some foreign variety allied to the Amella or the Gros Sapert; but as this is very uncertain, the variety may be called the Trentham Black.

The Melon, which will bear the name of the Trentham Cocoa Nut, is much like that fruit in form and size, and is remarkable for combining a very thick hard rind with an abundant white delicate flesh, like that of the Trentham Hybrid Persian. This being the case it possesses great value as a keeper, or for travelling long distances. It is reported to be an abundant bearer, being hardy and robust in its growth. We understand it has been found still fit for table at Christmas.

New Plants.

184. Weigela coræensis, *Thunberg in Trans. Linn. Soc. II.* 331; *aliàs* W. amabilis, *Planchon in Fl. des Serres, VIII. t.* 855. *Bot. Mag. t.* 4893; *aliàs* Diervilla grandiflora, *Sieb. & Zucc. Fl. Japonica, I. t.* 31.

Why this plant, perfectly well figured in the Icones Kæmpferianæ, should have received the garden name of *amabilis* we are unable to explain. Nor do we see how it is to be distinguished from the *Diervilla grandiflora* of Siebold & Zuccarini. In some respects it much resembles *W. rosea*, but differs from it firstly, in its more reticulated leaves, crisp edge of the corolla, and brighter colour; and secondly, in the very important garden quality *of flowering in the autumn*, when we have nothing like it among hardy shrubs. We have now (Oct. 8) a specimen before us loaded with most brilliant deep rose-coloured flowers, trailing (for it is not much of a bush) over a peat border among Rhododendrons, and uncommonly handsome it is. In our judgment it is beyond all comparison the best autumnal shrub after the Rose.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. X.

By the Rev. J. S. Henslow, M.A., Rector of Hitcham, Suffolk.

Column 3d. *Results of adhesions botanically expressed* (refer back to Exs. 4, 5, 6).—Where adhesion takes place between the parts of two contiguous floral whorls, the free (non-adhering) portions of such parts in one of the whorls appear to be seated on, or to arise from, the parts of the other whorl. The technical term "Insertion" expresses this result. Thus in Ex. 4, *common* Primrose, the stamens are "inserted" on the corolla. In Ex. 5, *common* Cherry (or *wild-Cherry* Plum, of our catalogue) both the petals and stamens are "inserted" on the calyx. Where no adhesion prevails, the parts are "inserted" on the floral receptacle, as in Ex. 9.

Floral-disk.—That portion of the floral receptacle which lies between the sepals and the carpels, is called the "floral-disk." It is evident that the petals and stamens, which always originate from this disk, will be "inserted" on it, when they do not adhere to the sepals on one side, or to the carpels on the other.

I restrict the terms "superior" and "inferior" (as explained under Ex. 6) to the ovary and calyx (or to a perianth which does not include a distinct corolla). I reserve the application of the terms Hypogynous, Perigynous, and Epigynous (as was originally intended), for the insertions of petals and stamens only. As soon as the application of these five terms (as thus restricted) becomes thoroughly appreciated, there will be no difficulty in the learner comprehending a botanical work in which such terms are less restrictedly applied.

"Hypogynous" (insertion on the disk) implies an absence of adhesion, either with the calyx (outwardly) or with an ovary (inwardly). If the stamens adhere to the corolla, their insertion with respect to it will be "Epi-petalous;" but the insertion of these two floral whorls when thus adhering will together be hypogynous.

"Perigynous" (insertion on the calyx) implies adhesion with the calyx to such extent that the free parts of the adhering whorls (corolla and stamens) appear to originate upon it. Where the ovary is inferior, it will be essential that the petals and stamens should adhere to the calyx to a greater extent than they do to the ovary, otherwise the insertion will appear epigynous.

"Epigynous" (insertion on the ovary) implies adhesion of the petals or stamens with the ovary, to a greater extent than with the calyx.

"Gynandrous." The epigynous stamens of some flowers are so completely combined with the pistil as to adhere even beyond the ovary, and then little or no portion of the filament remains free. In these cases the anther and style are more or less "adherent," and the result is a fleshy column in the centre of the flower, with the anthers and stigma on its summit. This form of epigynous insertion is termed "Gynandrous." It is eminently conspicuous in the highly-prized order "Orchidanths" (*Orchidaceæ*), the species of which are now-a-days so successfully cultivated, whereas a few years ago they were considered almost unmanageable.

In many cases there is no difficulty in determining, at a glance, the nature and extent of the adhesions that subsist between contiguous floral whorls. Where this becomes difficult, from the crowding or minuteness of the parts, some degree of caution and more or less skilful manipulation is requisite. By gently removing the calyx with a pair of forceps, some portions of the corolla and stamens will be detached with it, provided those two floral whorls are perigynous. They will remain attached to the disk if they are hypogynous, or to the summit of the ovary if they are epigynous. A first observation should always be made, to determine whether the ovary is superior or inferior. If it be superior, the petals and stamens will very rarely indeed, as in the *White* Water-lily (*Nymphæa alba*), be found adhering to it; and consequently, in flowers with superior ovaries, we may expect to find either hypogynous or perigynous petals and stamens. If the ovary is inferior, it is impossible the corolla or stamens can be hypogynous, but they may be either perigynous or epigynous; always remembering the strict application of these terms is often not attended to in descriptive botany.

The following tabular view includes all the possible results from "adhesion" to be recorded in the third column of the floral schedule:—

P. L.	Inferior or Superior
C. S.	
C. P.	Hypogynous Perigynous Epigynous
St. * *	Epipetalous Gynandrous
P / C	Superior or Inferior

N.B. Beginners must not be alarmed at these remarks about the strict use to be made of the above terms. They will soon learn to appreciate their value, if they will only consent to examine and *observe* such flowers as readily admit of their application. Where there may be ambiguity, they should (for awhile) trust the experience of those who having acquired tact sufficient for the purpose have determined the real character of any known flower in question. This they may ascertain by inspecting the plant-list, and finding out the particular section of the class to which the plant belongs. But, for this purpose, they must have been made acquainted with the meaning attached to the words by which such sections are designated. It will therefore be advisable to intercalate a morphological lesson [or two with our instructions for filling up the floral schedule, before we proceed to the fourth column, which includes matters entirely classificatory.

(To be continued.)

ON LOW TEMPERATURES CONSIDERED AS PREJUDICIAL TO VEGETABLE LIFE.

(From Alph. De Candolle's Géographie Botanique Raisonnée.)

I should not have alluded to the action of cold upon plants were it not that grave errors are generally widely spread and believed in reference to this subject, and this in the face of numerous well established observations. These errors as often reside in attributing to temperatures below the freezing point prejudicial effects which they do not possess, as to overlooking the fact that there are temperatures considerably above the freezing point that are truly hurtful.

Thus, much has been said about rupture and disorganisation of tissues through the action of cold; no doubt the distension of the cells consequent on the conversion of water into ice, and the contraction of solid tissues owing to the severe cold, must in certain cases produce mechanical injury, but study and observation show that cold far more often acts upon vegetable tissues in a very different manner. Cells are not always gorged with fluid when the accession of cold takes place, and moreover their walls are elastic. The solid tissues can often contract without rupturing, and we know that it is very rare to see fissures produced by cold in the trunks of trees. Now we find:—

1. That certain plants are killed by cold before the mercury has descended to the freezing point.

2. That a multitude of plants will retain frozen water in their most delicate organs, and experience no injury therefrom.

The first of these facts is exemplified every time that a hothouse is inadvertently cooled down to 35° or 40°. When a hothouse plant is reduced to 32° or even to 29°, there is no freezing of its contained fluids, and yet it perishes. It is difficult to pronounce whether its death is caused by a partial suspension of certain of its functions, or by the impossibility of its performing certain chemical operations, or by a physiological action upon that mysterious property called life; but the plant dies, and that suddenly.

The second phenomenon was insisted upon in the most positive manner by Petit-Thouars in 1817, in one of his best works (On the Effects of Frost upon Plants), but it has since been forgotten. I made the same observation in Geneva during the great cold of 1838. Dr. Coindet further made experiments upon the depth to which cold penetrates the trunks of trees, and showed me masses of ice extracted from the trunks of large trees, after a frost of many weeks' duration. I have found ice in the interior of herbs and buds, which notwithstanding were not injured thereby. M. Duval has insisted upon the same fact, upon which Goeppert, Morren, and Lindley have made special observations.

So far as regards the application of this question to geographical botany, it is of more importance to determine how far sharp alterations of temperatures affect plants. On this point agriculturists and physiologists agree. The sun's rays impinging upon organs which have just suffered from cold are especially hurtful. Sudden falls of temperature are hence always apt to be dangerous, especially in localities where the sky is clear and the horary variations considerable, such as the interior of continents and lofty mountains. On the other hand, the effects of the cold are most severely felt in moist places, and by plants that are gorged with fluids, conditions that most obtain in maritime localities and in the bottoms of valleys.

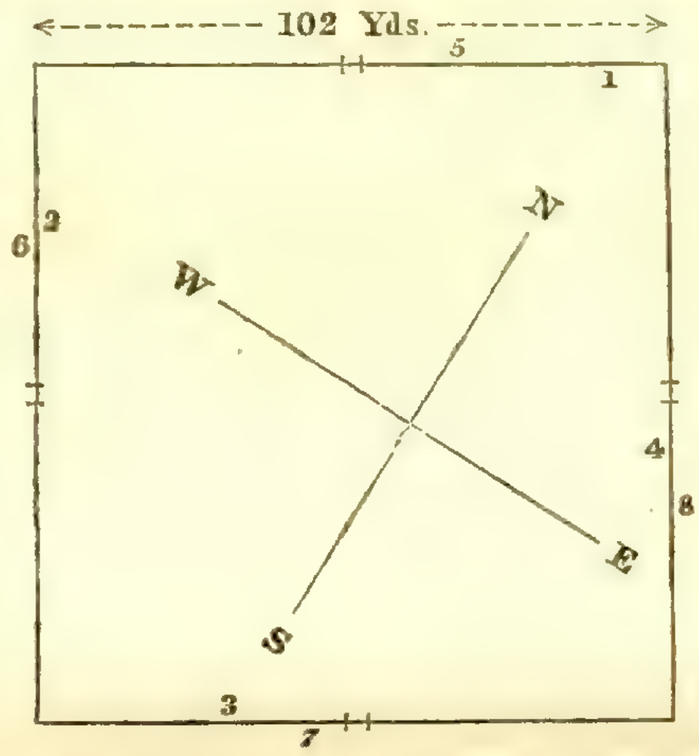
Lastly, it is to be observed that the same degree of cold does not uniformly produce the same effects at all times on the same species. The duration of the cold (not given by the minimum thermometer), the state of the plant, its age, the moisture of the soil and of the air, the nature of the soil, the presence of snow, all exert considerable influence. Authors have given us a multitude of examples of this, and without repeating these, I would say that they should form some guide to our mode of treating certain questions in botanical geography. *J. D. H.*

Home Correspondence.

Our Potato Crop.—I have lost nearly all my Potatoes, and so have my neighbours; and I hear it said on all sides that as much damage has been sustained this year as even in 1845 and 1846, in proportion to the area under cultivation. It would be extremely interesting to know how this is; and I should hope that the correspondents of the *Gardeners' Chronicle* who are to be found all over the United Kingdom will combine to furnish you with such an amount of information as will settle the point. It is only necessary for every reader to post you a memorandum stating as briefly as possible what he finds to be the proportion of loss in his own neighbourhood; and I dare say you would take the trouble to tabulate and publish the result. *Appeldurcombe.* [We should be glad to do so, and thank our correspondent for his suggestion.]

Free Grants of Land in Canada.—I copy the following from a late No. of the *Montreal Herald*:—"Crown Land Department.—Toronto, July 12th, 1856. Notice is hereby given to emigrants and others, that the undermentioned lines of road in Upper Canada are open for settlement, upon which free grants (limited to 100 acres) are to be obtained upon application to the respective agents, subject to actual and continuous residence thereon. The Addington Road running from the township of Kaladar to the river Madawaska, 35 miles in length. Agent, E. Perry, Esq., Flint's Mills, Kaladar. The Hastings Road, running from the township of Madoc, in a northerly direction 74 miles. Agent, M. P. Hayes, Esq., residing in the township of Madoc. Also, the Ottawa and Opeongo Road, 80 miles for settlement in September last. Agent, T. B. French, Esq., township of Grattan. Joseph Cauchon, Toronto, July 14, 1856." This is an official Government announcement, and I understand the lands to be granted are of first-rate quality. Can you say how I am to proceed in order to secure such a grant? *L. N. T.* [We could probably give you the address of an active and competent agent in Canada if you were to communicate your real name and address.]

Select List of Wall Trees.—Subjoined is a ground plan of my garden, the walls of which are covered with very well trained fruit trees; but they bear very little fruit. On No. 1 there are two May Duke Cherries, two Fig trees, a Bon Chrétien Pear, and young Peach, Nectarine and Apricots, all which bear abundantly. No 4 has two autumn Bergamots, two Crassane, two Swans Egg and Bon Chrétien Pears, with some young Peaches.



No. 7 has half Greengages, half Coe's Golden Drop Plums, which all bear moderately—and but moderately. The other walls are useless, except for two Jargonelle Pear trees and two Magnum Bonum Plums, which bear. I wish to get a list of Pears and Plums to suit the aspects and soil (a clayey loam resting on a limestone rock from 2 to 4 feet below the surface). Some 14 years ago I planted a garden wall, half out of a nurseryman's list, half by directions given me in the *Gardeners' Chronicle*, in answer to a query; I was there directed what trees to plant and in what aspects. The walls planted according to these directions had trees bearing great and excellent crops. Those planted before never produced much. I now intend to plant new trees gradually removing the old ones, and again apply for advice as to sorts and aspects. The situation is in the centre of Ireland, or rather 40 miles north of it, and the climate moist. *Cavanensis.* [For Aspect No. 1 take of Peaches: 1 Royal George, 2 Noblesse, 1 Grosse Mignonne. Nectarines: 1 Balgowan, 1 Violette Hâtive, 1 Downton. Cherries: 1 May Duke, 1 Elton. Apricots: 1 Moorpark, 1 Royal. Pears: 1 Glou Morceau, 1 Easter Beurré. 2 Brown Turkey Figs. Aspect No. 2.—Cherries: 5 Morello, 2 Kentish, 1 Late Duke. Plums: 2 Orleans, 1 Magnum Bonum, 1 Jefferson. Pears: 1 Jargonelle, 1 Fondante d'Automne, 1 Seckel. Aspect No. 3.—Apples: 2 Manks Codlin, 2 Keswick Codlin, 3 Tower of Glamis, 2 Devonshire Quarrenden, 2 Oslin, 2 Kerry Pippin, 2 Dumelow's Seedling, 1 Jargonelle Pear. Aspect No. 4.—1 Grosse Mignonne Peach, 1 Noblesse do., 1 Imperatrice Nectarine, 1 Balgowan do., 2 Roman Apricots, 1 Breda do. Pears: 2 Marie Louise, 1 Beurré Diel, 1 Thompson's, 2 Glou Morceau, 2 Knight's Monarch. Aspect No. 5.—Apples: 2 Wormsley Pippins, 2 King of the Pippins, 2 Blenheim, 2 Hawthornden, 2 Golden Noble, 2 Mère de Ménage, 2 Ribston Pippin, 1 Cockle Pippin. Aspect No. 6.—Pears: 2 Williams's Bon Chrétien, 1 Passe Colmar, 1 Jargonelle, 1 Gansel's Bergamot, 1 Autumn Bergamot, 2 Ne Plus Meuris, 2 Beurré Rance, 1 Duchesse d'Angoulême, 2 Beurré Bosc, 1 Beurré d'Amanlis, 1 Louise Bonne of Jersey. Aspect No. 7.—Plums: 3 Green Gage, 2 Purple Gage, 2 Jefferson, 4 Coe's Golden Drop. Cherries: 2 May Duke, and 2 Elton. Aspect No. 8.—Red Dutch Currant and Black Naples do.]]

Late Flowering Plants for Autumn Decoration.—On looking over our parterres it will be found that many of their gayest occupants have suffered from the autumnal rains which we have experienced of late, and that they are now dull and comparatively insignificant. Amongst the sufferers are our Geraniums and Calceolarias, which are indispensable for summer and early autumn decoration, but as the season advances are unable to uphold their position. Therefore I propose to bring more into notice two or three plants great favourites of mine, which are now in their glory, and have much to recommend them. The first and finest of all is the Verbena venosa, a plant very generally known, but hitherto scarcely used for decorative purposes, but its merits cannot be too highly eulogised; it is a distinct species having rosy purple flowers, neat habit, growing from 1 to 2 feet high, according to soil and situation; bears pegging down admirably. It is a plant of easy cultivation, being best raised from seed in early spring, and planted out the end of May, when it will begin to flower in August, and continue in perfection through October, but it must be seen in mass or line as we have it, then some idea can be formed of its superior qualities. The next in point of interest is the Tagetes signata (or tenuifolia), an annual of the Marigold kind, having deep orange coloured flowers, beautiful foliage, and a neat bushy habit of growth, height 1 to 2 feet; an excellent plant for massing. A great error is often committed in planting out annuals in putting them too close together; thus in the case of Tagetes, one plant in every 4 square feet of ground is quite sufficient. The third is the Double White Feverfew, an old well-known plant, which is well adapted for bedding and to grow in line as in the ribbon fashion; raise it from seed in the spring, when it will flower well late in the autumn. There are two others I shall mention which are very generally used; but in many places not to the extent they deserve. One is the Calabrian Soapwort, with its pink star-like flowers, one of the best plants for bedding we have to sustain the gaiety of the flower garden through the autumn. The other is the little Koniga maritima variegata, a useful plant for bedding and to grow in line, being very hardy, continuing to bloom late in the season. Another very fine late flowering plant is the Lobelia ignea. These, together with purple, yellow, and white Heartsease, would create a splendid display after most of the summer things have faded, and as many families do not arrive at their country residences before September or October, in such places hardy late flowering plants deserve our best attention. *J. G.*

Hartley's Patent Rough Plate Glass.—In reply to "H." I beg to observe that I have two Pine stoves well ventilated, glazed with this glass in large squares. The squares in one stove are 2 feet 6 inches by 1 foot 4 ins., in the other 2 feet 8 inches by 3½ inches thick. My plants are very healthy and not at all drawn. I never had them in better health than at present. In summer they swell their fruit well, and it is of the first size and quality; but in winter I find it inferior both in size and flavour to what I have grown under single crown glass. I shade from the middle of March to the end of August. Before I employed shading my plants were very much burnt. *W. T.*

Heliotrope "Miss Nightingale."—The Rev. W. M. Allure wrote to me to say that the Heliotrope I sent him in June was pronounced by his gardener to be merely the old Heliotropium peruvianum. This I beg to deny, and to assure him that it was the true Heliotropium Miss Nightingale, raised by me, I not having grown any other variety. He also states in your columns that it has only produced a few small trumpery blossoms; he surely must have forgotten the fine truss it had when I sent it to him. I therefore conclude that it has not had proper treatment; I may also add that September is a bad time in which to decide its merits. The principal sale of this Heliotrope has been to the trade. Among those who have had it I may mention Messrs. Turner, Bragg, Lee, Hopgood, Veitch, Rollisson, Smith, Walton, Hays, &c., from all of whom references may be had. *William Field, Florist, Kensal Town.* [Surely this would be best settled by sending us blossoms answering to the description of the vendor.]

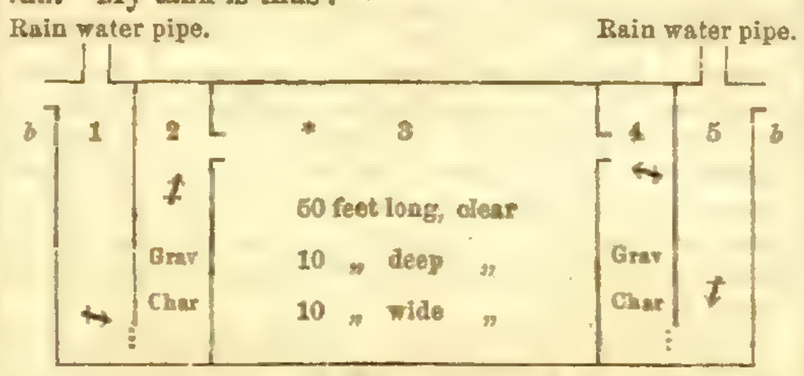
The Filbert Strawberry.—Under this heading (see p. 663) Mr. Myatt, of Deptford, makes some allusion to the variety now generally known as the "Filbert Pine." If Mr. Myatt will refer to the "Florist" for 1854, p. 275, he will find a descriptive list of new Strawberries by Mr. Powell, of the Royal Gardens, Frogmore. Mr. Powell, after giving a highly favourable account of the "Filbert Pine," concludes with the following remarks:—"The origin of this fine Strawberry is unknown. It was sent to us two years ago from Filbert House, near Maidenhead, as a new Strawberry, and it was therefore called the 'Filbert;' it is also known in the same locality under the same title." It will be seen that the Strawberry was not raised by me, neither was it sold as a new variety, but merely recommended as an excellent kind, worthy of general cultivation; and I am pleased to have Mr. Myatt's evidence in confirmation of this opinion, and congratulate him as the raiser of so useful a variety. "Myatt's Seedling," however, will not be considered a name, Mr. M. having so many seedlings, and if the variety in question is not to bear its present name, Mr. Myatt should suggest one to prevent confusion, as well as any addition to an already too long list of synonyms. *Charles Turner, Royal Nursery, Slough.* [We protest on the part of the public against any change in the name.]——I had ascertained, before I saw your last Saturday's number, that the Strawberry called the "Filbert Pine" was identical with a seedling which Mr. Myatt kindly sent several years since; but I was not aware that it had been sent out as "Myatt's Seedling" till I saw his letter. I can fully confirm all that has been said in its favour; indeed, I consider it one of the very best Strawberries that has been raised. The fruit is very handsome, of a brilliant scarlet to the extreme tip, and of exquisite flavour. It is also a most abundant bearer—runners planted out in August often producing 10 or 12 large bunches of fruit the following summer—although not so large as some varieties, the earlier berries will mostly weigh upwards of an ounce each. I should be glad to know from some of your correspondents how Mr. Underhill's "Sir Harry Strawberry" has turned out with them. Here it grew vigorously, and produced an abundant crop of large handsome dark red fruit; but the flavour was very poor—not equal to that of Keens' Seedling; it resembled some of the Belgian varieties, and was totally destitute of that fine aroma by which nearly all Mr. Myatt's

seedlings are so pre-eminently distinguished. The season was favourable, and the fruit of the British Queen and Omar Pacha, growing upon a portion of the same ground, was remarkably fine-flavoured. I wish to ascertain whether "Sir Harry" had done better in a different soil. *Henry Doubleday, Epping, Oct. 8.*

Vines.—I intend to make a new Vine border and plant young Vines in a range of houses where Grapes have never been successfully grown. In the first place I intend having the old border taken out to the depth of 3 feet from the back wall inside to the walk in front, which is in all 26 feet. Then make a good firm bottom with a slope to carry the water to the walk in front, which will be 1 foot deeper than the border, filled with stones, having a large drain tile in the bottom. I intend having at least 9 inches of drainage at the bottom of the border over which I shall put the soil to the depth of 2 feet 3 inches, composed of one-half of good loamy soil with its turf (from old pasture), one quarter of rich old dung and one quarter of burnt earth, lime rubbish, old night soil, bones, and blood. I shall plant Vines one year old struck from eyes, one plant under each rafter, and train on the single rod and spar system. The garden has a fall of 1 foot in 40 towards the north, where the houses stand facing nearly due south. There is a pond behind the wall, the surface of the water 3 feet below the ground level of the houses. There is a drain 12 feet from the walk in front which carries off all back water from the garden. The houses well heated with hot water are 12 feet wide, front lights 3 feet and a half high, and back wall 12 feet. I shall feel obliged if you will inform me if I am likely to meet with success by adopting the above plan. *H. N. T.* [No plan can promise better. But we should certainly exclude blood from the border.]

Orchard Houses.—In a letter in the *Gardeners' Chronicle* of Sept. 27, on "Orchard Houses," signed "S. B.," and which has been copied into other papers, there has been thrown a damp, not only on orchard houses, but on Hartley's glass. Amongst others on me has the damp rather fallen, as I am in communication at this moment with Mr. Rivers respecting the house itself, and with other parties for the glass, Hartley's Patent Rough Plate, for a house from 60 to 90 feet long. An unfortunate moist climate with late spring frosts does not permit us to reckon on a crop out of doors of either Peaches, Nectarines, Apricots, or Figs. I do not place much faith on "S. B.'s" report, as most probably the fault may be either in a badly constructed house or in some other local deficiency; but sincerely trust you will not let his assertions go uncontradicted after all that has from time to time appeared in your Paper in favour of such garden structures. *Westmeath.* [We have altered our opinion in no one particular. Whether or not orchard houses succeed, depends like everything else on skill. We have known them to be condemned by a gardener who, when cross examined on the subject, was forced to admit that he was always behindhand with every operation; that he potted the trees unskilfully, allowed them to be eaten up with red spider, and more often forgot his ventilation than remembered it. We would refer you to a leading article in to-day's *Chronicle.*]—— I erected an orchard house by estimate four years since. Mr. Rivers's book was the guide, and here let me say, that did I build another I should prefer brick piers in lieu of the corner posts; the first would last for ever, the last, on a clay soil, I am afraid not longer than a common gate post; the additional expense would be a trifle. I should also have the house 1 foot higher, for on the lower side you cannot prevent the trees touching the glass, thereby shading the fruit, and there has been no comparison between the crop, the flavour of the fruit on the higher side of the house being so far superior to that on the lower. Next, agreeing with your correspondent of the 27th, if you can depend on a crop of wall fruit—if soil, situation, and climate suit—do not build an orchard house. Why build a Vinery at Fontainebleau? Of course you would not require it; but on the top of these Hampshire hills, where you cannot get a crop of Peaches or Nectarines one year in seven with all the care in the world, here the orchard house is invaluable. The expense is nothing: with brick foundation, the first outlay is the last; no fire, no flues, no glazing, for such glass as Hartley's Rough Plate never can break; and this is a consideration. The house is 21 feet long, and the first year we had 40 trees; this is too many, 32 is quite enough in 13-inch pots. Not a large crop the first year, upwards of 500 the second, and about 400 this, the falling off being with those trees overcropped last year and in the Apricots, the only sort of which in future I admit being the Moor Park. Another great advantage in the orchard house for a small family is that your supply is continuous, for you select your sorts to secure it. The first Apricots were gathered on the 1st of August (for remember this is a very backward country). The last Peaches and Nectarines I gathered this morning (October 4), and of these there are respectively four dozen and three dozen in the greenhouse good for another week. As to the size of the fruit, it rests with yourself—half a dozen on a tree or four dozen. As to the flavour, you must not imagine this will be equal to the best outdoor wall fruit, but remember you cannot buy wall fruit in the country, and on the table a Peach is a Peach, and much of the fruit is as good looking as you can desire. Of the sorts of Peaches the Barrington is decidedly the best late, and the Noblesse the best early. The Chancellor is too late, and the Téton de Venus has not done so well this year; still you must have two trees of each sort that follows in succession, but I should omit the Chancellor. Of the Nectarines, the best is the yellow or orange Pitmaston; on one tree I had nine very fine, on the other twenty-five very sweet and good. The other Nectarine is the Violette Hâtive. The Ischia Fig will not do; the house is too cold; besides, on this soil, clay on chalk, we grow the finest Figs I ever beheld, and Plums of all sorts succeed admirably without the protection of the orchard house. Two Peach trees (Barrington and Royal George) cover the boards at the back of the pots, and succeed well, and outside my house Currants and a Plum tree fill every inch available. *The Gardener, Bentworth Hall, Alton.*——About the middle of September last I paid a visit to Sawbridgeworth to inspect Mr. Rivers's orchard houses, previously to building some on a large scale; I was so perfectly satisfied with his success that on my return home I immediately set to work and completed, about Christmas, a house 110 feet by 15 wide, the expense of which was so trifling, and the satisfaction it has afforded me so great, that I have just given orders for another house to be built. Mr. Rivers's trees were loaded with fruit, and as he was generous enough to allow me to pick what I liked, I can vouch for the flavour being exquisite. My trees were potted this year, so that I could not expect much of a crop, nevertheless some of the Vines he sent me last February in small pots have produced six fine bunches of very highly-flavoured Grapes; likewise the Pears sent at the same time have now some exceedingly large fruit; what the flavour will be I cannot tell, but they are certainly as handsome fruit as I have ever seen either in England or on the Continent. I have also had a good crop of Plums, all planted this year, as many as two dozen on a tree, and at this time I have a little tree of Coe's Golden Drop, the whole of which I could cover with my hat, with 16 beautiful transparent Plums thoroughly ripe, and the one I tasted of delicious flavour; the Black Diamond Plums have also been literally laden with fruit. My trees are now fast going to rest for the winter, the wood having been ripened more than any wood I have ever seen out of doors, and I consider the thorough ripening of the wood the chief cause of the success of orchard houses. We have made a slight alteration here as regards the holes in the pots; instead of having them round the centre hole at the bottom we make them round the side near the bottom, and we consider that we have more control over the roots; instead of lifting the pot we cut the roots at the side to check a too luxuriant growth. I consider also that the nearer the roots are kept to the surface to receive the benefit of the sun, air, and fresh water, the better it is for the ripening of the fruit. My trees have been syringed every night and morning, which with me is a very short operation, having merely to turn a tap, when water from a pressure of 32 feet can be thrown over the house in any quantity. I never saw trees in a more healthy state than mine, with every prospect of an abundant crop next season. I feel convinced that your correspondent "S. B." has committed some great error either in last year's cultivation or this. *Sigma.*

Filtering Apparatus.—I have read with much interest your remarks on a filter in your Paper of September 27, and as I am just making a filter or tank on a large scale here, I beg to offer in your columns a few remarks, and to put a few questions, in the hope of obtaining in return some additional remarks and information on the subject from yourself and from any of your readers who have any experience in such matters. In your plan you have a waste pipe in No. 1 compartment, but surely by so doing you would lose much of the fresh rain water, because in a flush of rain the water will rush into No. 1 much faster than it can filter through and run over from No. 2 into No. 3, even though No. 3 was almost empty when the rain began; *ergo*, the small space in No. 1 from the water line to the waste pipe 4 will soon be filled, and then all the fresh rain water will flow away down the waste pipe; whereas by having your waste pipe in the main compartment you get all the rain water into it, and it does not overflow till quite full. My tank is thus:—



* Waste pipe.

Now, I would ask, is it best to have the filter only in Nos. 2 and 4 of the tank, or in Nos. 1 and 5 also? Where is it best to place the waste pipe? In what proportions would you put the gravel and charcoal each, and how much altogether? and would you add a layer of washed coal cinders, which I am told is good as a cleanser? I trust this will cause attention to be drawn to a matter of which I think the importance is not at present at all sufficiently appreciated. *Inquirer.* [The object of having the waste pipe in No. 1 (as shown at page 646), instead of in the main compartment, is to obviate the inconvenience that was found to arise from a flush of rain displacing the filtering material in the cistern of our correspondent "J. G.," and rendering the filtered water foul. This will always be the case when the waste pipe is placed in the filtered-water cistern, and no provision made for the water to escape when there happens to be a greater supply than can easily pass through the filter. In your tank we should recommend a pipe for this purpose (*b b*) in each of the divisions 1 and 5. They may be fixed as near the top as possible, so as to allow as much room as may be thought necessary between them and the opening from the filters into the main division. We do not think the filtering materials need be placed in 1 and 5 as well as in 2 and 4. Of course the size of the filtering compartments and the amount of material must be in proportion to the quantity of water that is likely to pass through them. A layer of washed coal cinders we think will be found of great advantage, in addition to the usual materials, such as gravel and charcoal. *B.*]

Red Spider.—In your Number of the 27th ult. "Nemo" states that the presence of water in a conservatory is accompanied by a freedom from this pest. I can assure your correspondent that such is not always the case. I can speak confidently upon this subject, for last year I held the situation of indoor foreman in an extensive establishment where we had one tank (and in some instances two) in every house for the reception of rain water. Notwithstanding this, however, red spider was plentiful enough in almost every house, the conservatory not excepted. *A Lowland Lad.* [Were the tanks covered or uncovered?]

Dropmore Araucaria imbricata.—As Sir W. J. Hooker and many others wish to know the height of the finest Araucaria we have here, I beg to furnish you with the particulars in order that every one may obtain the information at the same time. The height of our largest specimen is 38 feet 2 inches; diameter of branches, 20 feet 1 inch; girth of stem near the ground, 5 feet; 3 feet from ditto, 4 feet 3 inches. This superb tree grows on a raised mound of earth, which is the very sort of situation for it; it is in most luxuriant health, is clothed with branches down close to the ground, and forms a perfect pyramid. *Philip Frost, Dropmore, Oct. 7.*

Shanking of Grapes.—Perhaps the following remarks as regards one of the causes of shanking may be interesting to Grape growers. My old gardener, who has for nearly 30 years grown me excellent Grapes, has this season failed in maturing his late house. The cause of his mishap he attributes to his having unfortunately watered the Vine border, which is outside, and to the drenching rain which set in immediately afterwards, and continued more or less for three weeks, which he says chilled the roots and caused an obstruction in the sap, so that the scorching sun which set in so suddenly after the rain sun-struck (as he termed it) many of the shoulder footstalks, and consequently more than half of the berries in each bunch turned acid instead of producing saccharine matter. The few berries that have coloured are very good. *An Old Subscriber.*

The late Mr. Otto.—It is with regret I have to report the death of Mr. Otto, which took place at Berlin on the 7th of last month. He was for many years Director of the Royal Botanic Gardens of that town. He was also chief editor of the *Allgemeine Gartenzeitung*, of which he was the originator, and was well known as a distinguished botanist not only at home but also abroad. He died in his 73d year. *S.*

Reviews.

Elements of Entomology; an Outline of the Natural History and Classification of British Insects. By W. S. Dallas, F.L.S. 12mo. Van Voorst. Part I.

It is little to the credit of our entomologists that they have not yet been able to prepare a systematical account of British Insects. Were our knowledge of wild plants confined to scattered sketches, popular introductions, desultory memoirs, or fragmentary works, society would be as unwilling to approach the science of Botany as it now is that of Entomology. No man alive can remember the time when there was not to be found in every good library a systematic description, more or less complete, of all the plants known to inhabit the United Kingdom. From the time of Withering and Smith to the present day men of science have always been found industrious enough to collect into a methodical arrangement whatever was known of our wild plants. Up to the present hour no entomologist has done the same for his branch of science. Marsham indeed attempted it; but his work, excellent for its time, came to an end with a single volume of Coleoptera, and from that time forward no one seems to have ventured on the task. The consequence is that as there is no classified descriptive account of British insects, so no one, except a few zealous collectors, thinks of getting beyond Patterson's Zoology, or Milne Edwards, or some elementary works of that nature. If it is asked, as it often is of us, "Where shall I find an entomological book containing the same account of insects as Smith's English Flora, or Babington's Manual, or Lindley's Synopsis, or Hooker's British Flora give us of plants?" the answer unavoidably is "nowhere." Let us hope that this discreditable condition of systematical entomology is not to last much longer, and that some one will have spirit, talent, and perseverance enough to do for his own subject what others have done for their branches of our national Natural History. Surely it would be better to concentrate strength upon a great public object than to waste it in detail upon mere gossip, or polyglot absurdities. Perhaps the task is beyond the strength of one; let then several combine, settle a definite plan, and work exactly to it; first appointing an editor under whom all should act, and whose unquestionable scientific status would arm him with authority to keep his various

coadjutors to the plan. One might work out Carabidæ, another Curculionidæ, a third Muscidæ, a fourth Hemiptera, or parts of it; and so on.

We wish we could think that Mr. Dallas's new book were the harbinger of such an operation; but we scarcely dare hope to find it so. In fact we have not yet discovered for what sort of readers it is destined. Of what are called introductions to Entomology we surely have enough already, which tell what an insect is, how to distinguish Coleoptera, Hemiptera, Diptera, &c., what the changes are through which these creatures pass, and such other superficial facts as a mere reader looks for. Of books for *readers* we have plenty; it is for English *students* that something is really wanted.

Perhaps we ought not to judge a work by the first number out of fifteen of which it is to consist; we therefore for the present withhold criticism of Mr. Dallas's pages with the exception of his style, which he must excuse us for saying is unworthy of the subject. Such expressions as "to make assurance sure," "unfortunately for the brevity of this part of our story," "subject to the dreadful imputation of dryness," are not the language of science, but rather belong to what Mr. Dallas himself describes as "that charming lightness with which many popular writers on science dilute their scanty materials." Otherwise, and with the exception of excessive diffuseness, there is good promise for future parts.

Garden Memoranda.

Biddulph Grange, near Congleton, the Residence of James Bateman, Esq.—Situated on the northern border of Staffordshire, in an undulated and comparatively cultivated district, with some hills of moderate height in its vicinity, and, in the nearer neighbourhood, Biddulph Church tower, the spire of Knypersly Church, and the ruins of Biddulph Hall, with a small stream flowing down an adjoining valley, there is nothing in the position or surrounding accessories of this place which would at all take it out of the range of an ordinary country gentleman's residence. Biddulph is a quiet little village, about three miles from Congleton, on the high road from this town to the Potteries. Biddulph Grange lies on a branch road, a short distance from the church, which is a handsome old structure, pleasingly situated, and well supported by Yews, Deodars, &c. Mr. Bateman's grounds are at present bounded on the west side by this branch road, which it is intended to divert, so as to put the gardens in the midst of a small park, with a suitable approach from the main or turnpike road. The entrance and offices are yet in an unfinished and transition state, and there is much also to be done in several parts of the place. Indeed, Mr. and Mrs. Bateman appear to find their chief occupation and amusement in personally directing the progress of the various works; and hence these are carried on deliberately, and as if to prolong the interest attending their execution.

The property has been in Mr. Bateman's possession about 14 years; and when he entered upon it the house was merely a farm residence, and the grounds, for the most part, a swampy field. Probably about 14 or 15 acres are now devoted to ornamental purposes. The whole of what has been done has therefore had little opportunity of acquiring its full character, and yet there is an appearance of finish and furniture about even the most recent parts, which strongly serves to show what may be effected by a wisely directed skill, and a due regard for the habits and requirements of plants.

The climate is a wet and cold one, and the locality of the gardens is naturally much exposed, especially to the west and east, from the former of which quarters, in particular, violent winds are experienced. By a happy re-arrangement of the surface of the ground, however, and its formation into an infinite variety of miniature hills and dales, nooks and recesses, a considerable amount of shelter and exposure, sunniness and shade, dryness and moisture, has been obtained in the most ingenious manner; and the plants selected and their positions adapted for them with a patient study of their wants, and a careful regard for their healthy development, which takes the visitor completely by surprise. In fact, the leading idea which seems to have pervaded the mind of Mr. Bateman in the production of such a marvellous diversity of surface throughout the place, has evidently been the preparation of a suitable and congenial home for nearly all the hardy members of the great plant family which the curiosity or taste of man has discovered and cultivated. And this idea is so prominently kept in view, and with such a remarkable delicacy of perception for the minutest necessities of plants, including soils and subsoils as well as every peculiarity of situation, that no experienced observer who may pass round the place is ever likely to lose sight of it.

This, then, is the great and true secret of most of the numberless irregularities of surface into which the grounds are broken up, and some of which might be thought trifling and little without such an argument for their propriety.

Two principal consequences have almost necessarily arisen out of the adoption of the rule of action just mentioned; and these are the creation of a great deal of picturesqueness and variety of outline, and the production of an unusual number of separate and independent scenes, each of which has a character of its own. To accomplish these two objects in a satisfactory manner demanded, however, an amount of contrivance, and an appreciation of picturesque form, which are seldom found in an amateur, but which are here combined and exemplified in a very striking degree. Ornamental walls, or walls covered with Ivy or other climbers, Yew, Holly, and Beech hedges, covered ways or corridors of wood or stone, irregular or more formal archways, tunnels or cavern-like passages, mounds of earth, rookeries, masses of roots and trunks of trees, with larger or smaller groups of shrubs, are some of the means by which these changes are brought about. Hollies and Yews enter largely into the materials by which the mounds have been clothed, and the more delicate plants shaded or sheltered; and the former of these have been obtained in such numbers from the hedge-rows of the country, and have been so skilfully removed, and take such picturesque shapes, that they alone contribute very largely to impart a natural and furnished appearance to the place.

From the scrupulous attention which has been paid to the natural habits of plants and the conformation of the surface of the ground, and the introduction of accompaniments to supply them with the necessary conditions of successful growth, another important element of picturesqueness and diversity of view has been educed, which is that of bringing different kinds of plants together in groups of the same or kindred species. A constant succession of fresh objects, in sufficient numbers, and bearing sufficient resemblance to each other to produce a marked effect, is thus presented to the visitor; while the necessary change of condition provided for them begets a still further and equally varying change of scene.

A yet more notable characteristic of the gardens at Biddulph Grange is that each of the many parts into which they are separated is complete in itself, and has an individual character, and seldom, even by ascending to the summits of the highest mounds, affords more than a general and passing glimpse, which a few years' additional growth in the shrubs will soon correct, of the house or other essentially different parts of the place, while many elevated points yield the best views of the region to which they belong and of the country generally, and the effect of the whole from the windows of the entertaining rooms of the house and from the terraces embraces either the open glades, or the water, or the tops of the shrubs and trees which clothe the grounds, and scarcely anything which does not combine harmoniously with the rest, or unite agreeably with the more distant landscape. This will be at once recognised as a very high achievement of art; for although the scene which includes the whole grounds is devoid of any great features, and does not afford numerous vistas or large glades of lawn, or a concentration of fine points from the chief windows of the house, the eye travels over an irregular wavy sea of shrubs and trees in which there is nothing incongruous, and which form no unpleasing foreground to the country and hills beyond.

It should be mentioned also, in this reference to the complete isolation and the distinctive characteristics of certain parts of the place, and to the general harmony of each of these parts with the whole, that, though the transition from one kind of scene to another is often so sudden as to occasion a start of pleased satisfaction, yet the means by which the transitions are effected generally seem appropriate, and in accordance both with the scene left and that which is to be entered upon; that there is no semblance of sham or trick about any of these contrivances; and that all the various departments are so nicely and inartificially connected with each other that any person may be taken round the place in two or three separate circuits, each exhibiting entirely new features, and appearing to be quite independent of the rest; while a nearer acquaintance with the design will show that the paths through these several tracts all communicate with the leading general walks, and that the effect of isolation of parts is not attained by the usual trick of the labyrinth, or by "walks that lead to nothing."

As an example of the correct feeling which has not merely dictated the general arrangement but defined the smallest details of these gardens, it may be well to note specifically that all the ground in front of the principal windows, and that which comes into direct association with the house, has an artistic character peculiar to itself. Terrace platforms, ornamental walls, corridors, and arches in complete agreement with the style of the house, trim hedges, elaborate parterres, stone edgings to the walks, or plants that blend well with architectural objects, have all been most carefully introduced. Every change of level is broken by steps, and by terrace walls or banks of Grass; blocks to support unpretending vases or pots of characteristic plants are placed at the top and bottom of the different flights of steps; no straight walk is without its fitting (although very varied) termination; covered ways and arches are introduced, which, while they fulfil some other object, give length and character to a vista; and the amount of finish in all these details is accurately adjusted to their distance from the house, and their importance as components in the general scene. By way of illustrating this fact, of which it would occupy too much space to adduce many examples, it may be observed that in a terrace walk which passes along the garden front of the house, and ascends by an irregular series of steps to a higher terrace at the eastern end of the grounds, there is a covered way which masks part of the offices, and excludes also a bulb garden, and though it is entered by appropriate arches of stone, its length is such that it would be damp and cold if lined with stone throughout, and it is therefore, as being part of a leading and house promenade, cased entirely with wood. At the end of the same terrace, again, where the distance from the house and the proximity to a rustic root garden would render a terrace wall inappropriate, a terrace bank of Grass is substituted. Trifling as these points are in themselves, they are significant as items of a general system, which is most faithfully and happily followed throughout.

Considering the multitude of departures from good taste which are continually met with in the gardens of this country—and, as must reluctantly be added, almost as often when under the guidance of men who profess the art of landscape gardening as from the unaided efforts of amateurs—it is really refreshing to encounter an instance of this kind, in which the highest practical objects and the most pleasing combinations of art are so carefully kept in view. It is understood that Mr. Bateman has designed and carried out the whole of the arrangements of his place without other professional assistance than the friendly aid of C. W. Cooke, Esq., A.R.A., the Ferns, Kensington, from whose sketches the various architectural and artistic erections about the grounds have been constructed. *E. Kemp.*

(*To be continued.*)

Miscellaneous.

The Mauritius.—We are happy to announce that Mr. Labouchere has confirmed the provisional appointment of M. Bouton as Curator of the Museum of Natural History at Port Louis, *vice* Professor Bojer deceased.

William Yarrell, F.L.S., &c.—Early on Monday morning, the 1st of September, died, at Great Yarmouth, William Yarrell. About three years ago some premonitory symptoms of indisposition had shown themselves. They made little impression, however, on either the natural cheerfulness of disposition or the active intellect of our departed friend and naturalist. However, on the 3d of August last, as he was returning from the church, a slight giddiness seized him, and he felt himself for a moment unable to proceed. After a short pause he reached home without assistance. The attack, however, was so far then thrown off that, although he felt himself constrained to decline invitations of pleasure, his attendance to matters of business was uninterrupted. A few days before his death he appeared at the Council of the Linnean Society with his usual cheerfulness and clearness of head. The following Saturday he accompanied a friend (himself an invalid) to Yarmouth, enjoyed, as was his wont, his voyage, and went to bed on Sunday with the anticipation of a more than ordinary share of good and refreshing sleep—his appetite good, his spirits good, his strength unimpaired. He was seized, however, soon afterwards with a difficulty of breathing, upon which he got up and unlocked the door, in order that assistance, if required, might be obtained without difficulty. On returning to bed the symptoms increased, and he assented to the suggestion that a medical man should be called in. This was done promptly, but without effect. About half-past 12 on the Monday morning he expired calmly, and without pain. A telegraphic message being transmitted to his friend and executor Mr. Van Voorst, the removal of his remains to London, and thence to Bayford in Hertfordshire, was effected. Here he was the last buried of 12 brothers and sisters, a father, and a mother. In September 1854 he transferred to the album of a relative the lines from Wordsworth,—

"First and last,
The earliest summoned and the longest spared,
Are here deposited,"

adding that this was what he wished to be his epitaph. The immediate cause of death seems to have been disease of the heart, the previous symptoms of paralysis being but indirectly connected with it. No autopsy, however, was made. Mr. Yarrell died in his 73d year, being born in 1784, in Duke Street, St. James', where his father (in partnership with his uncle) was a news-agent. His son continued the business, a removal to the corner of Little Ryder Street being one of the few events in his quiet and simple life. For many years the house was familiar to all naturalists, and to visitors of every rank from the country, not to mention foreigners, to whom the reputation of one of the soundest living zoologists was well known, and who never visited it without being struck by the kind and communicative manners of its hospitable inmate. A few months of his life were spent as a clerk in the banking-house of Messrs. Herries, Farquhar & Co. Before, however, he was 18 he had decided upon joining his cousin in a more independent mode of life—independent, but of a remarkably even tenor, more so even than that of scientific men in general, so proverbial for the uneventful character of their lives. As a young man he was fond of shooting and angling, in both of which he excelled. A Londoner by birth and residence, and a Londoner in many respects by education, he was, as long as the rod and the gun were the chief pursuits which attracted him to the open downs of Cambridgeshire or the undulating fields of Herts (Royston, the residence of Mr. Wortham, and Bishop-Stortford, of Mr. Nash),—a sportsman amongst sportsmen, but never that exceptionable or equivocal personage denominated a sporting character. Some of his friends were such; but Mr. Yarrel, though skilful enough to have done so, never made a practice of backing his own skill by heavy wagers. His tastes were, upon the whole, those that the *rus in urbe* well suited—better, perhaps, than the unmixed country. They were those of Isaac Walton—citizen and angler, rather than those of the full and perfect yeoman. His first publication was "Notices of the occurrence of some rare British Birds he observed during the years 1823, 1824, and 1825," published in the Zoological Journal for March 1825. In 1827, the "Observations on the Trachea of Birds," &c. were published in the Linnean Society's Transactions; and in the same year, in those of the Royal Society, one "On the change in the plumage of some Hen Pheasants." This gave to him, to say the least, a *locus standi* for a Fellowship. His name, however, was withdrawn, doubtless on the strength of certain misgivings as to his chance of election. His connection with trade was against him. Under the new and more liberal *régime* of the last 10 years, every facility for entrance was offered him. He looked, however, to advancing years, and declined the honour that many friends, not without the influence sufficient to ensure his election, would willingly have pressed upon him. His last work was a paper "On the influence of the Sexual Organ in modifying External Character," in the Journal of Proceedings of the Linnean Society for the present year. Between these two extremes (to say nothing about his contributions to serial literature), his two *opera magna* were—1, "The History of British Fishes," and 2, "The History of British Birds,"—works which it is enough to name. The introduction to his publisher, Mr. Van Voorst, was made by their common friend, the librarian to the Duke of Bedford, Mr. Martin, perhaps the most intimate of Mr. Yarrell's old companions, and one whose death (a few months previous to his own) he deeply felt. We have said that the habits of Mr. Yarrell, angler and ornithologist as he was, were eminently those of a Londoner. And so they were. He loved society; he loved glees, and sung them well; and at one time of his life was a frequent attendant at the theatres. It is not, then, only as a loss to zoology that he is regretted. Strong social instincts, geniality of temper, warmth of heart (exhibited in an extreme fondness for children), made him loved; even as his simple and straightforward independence

of character made him respected. His advice, too, was always valued—freely asked and freely given; for his mind was observant, active, practical, and wholly unclouded by fancies or prejudices; his knowledge varied and accurate. Indeed, he was essentially a reliable man; knowing what he knew well, and caring to undertake nothing that he was likely to fail in. For this a strong will and perseverance is needed, and that he had. It was strong enough, too, to keep a warm but somewhat irritable temper in thorough control; for Mr. Yarrell, knowing what was due to himself, knew also what was due to others. He helped many not only by his advice but by his purse, ever valuing money for its uses only, never for its own sake; moderate (as a man of business) in his aims, though attentive to what he undertook; hating waste, yet never ambitious of accumulation. His purely intellectual character is seen in his works. The part which the author himself always took most credit for was the geographical distribution of the several species of birds. He always considered that, in treating it as he had done, he smuggled in a certain amount of geography in the garb of ornithology. For the high qualities of accuracy, terseness of description, and felicity of illustration, they speak for themselves. *Edinburgh New Philosophical Journal.*

Repulsion of Water from the Leaves of the Nelumbium—This phenomenon, with the Lotus more particularly, is one of common occurrence, though it has in general been very differently explained. It is beautifully manifested by the little *Pistia*, a water plant abounding in the shallower of our tanks, and resembling in appearance the common Endive. This plant, which either roots itself on the margin or floats about on the surface of the water, has both sides of its leaves covered with a fine fur of silvery hair like papillæ, which when magnified show themselves in the form of a succession of beads diminishing in size towards the apex;—they entangle and retain the air, and so obtain a high degree of buoyancy. When pressed under water they look like little flowrets of leaf or of frosted silver. It is the same organisation that enables Rose, Clover, and young Cabbage leaves, young shoots of Grain and Grass, and the numberless other plants that exhibit dew in its beautiful pearly form, and not as a little unreflecting pool, to repel water from their surfaces, the same that produces like results usually ascribed to oil or grease on the feathers of birds, especially of water fowl, and most of all of divers—which when they plunge under the surface seem to carry with them a perfect flash of light. A piece of glass, a varnished or greased surface or polished stone, throws the water off as perfectly as the various matters enumerated; but in none of these latter cases is there any appearance of reflection. The water, for the time being, is in perfect contact with the surface which throws it off—without being wetted—where there is no intervening air plate, essential to secure reflection. I have not before observed any such explanation as has been here attempted, offered for this very beautiful class of phenomena;—it seems to me perfectly conclusive as well as new. *Dr. Buist's Notes on the Lotus.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The preparation of plants to bloom at Christmas should be taken in hand forthwith, in order that no hurrying at an after period may be necessary. Begin with the earliest rested plants first, and those which take the longest time to bring into flower. Dwarf Oranges and Daphnes, if their wood is well ripened, may soon be made to show bloom in a gentle bottom-heat. Azaleas and Gardenias take longer time, and may soon now be put to work in a house or pit where a little artificial heat can be applied and increased as the buds swell. The stock of stove plants previously prepared for winter flowering should likewise be placed in a warm light part of the stove, where they will soon commence flowering. The different varieties of Epiphyllum truncatum are very useful at this season, and if they have formed their buds they may be placed at the cool end of the stove to open their flowers. Another useful plant for the drawing room is the well known Calla æthiopica which when in bloom forms an elegant vase plant; a few at a time should therefore be potted in rich soil and placed in a warm pit, as should also a few of the earliest potted Roman Narcissus and Van Thol Tulips. Mignonette, Neapolitan Violets, and Chinese Primroses should be placed in suitable situations to forward them into bloom, and the reserve stock in cold frames should be kept secure from rains; but at the same time it should have plenty of air. Give seedling Calceolarias and Cinerarias another shift and keep down green fly. Maintain a drier atmosphere in the stove after this time, and never allow the night temperature to get above 60° during the winter months. Give air every forenoon when the weather is at all favourable. As regards Orchids the principal part will be at rest or approaching that condition, and therefore should be kept cooler and drier; if a perfect show of bloom is wanted, prevent their starting into growth at this season, which some kinds in vigorous health may attempt to do. Lælias and other sorts now in bloom should have a comparatively dry atmosphere to preserve their flowers in perfection. Aerides, Vandas, and other kinds requiring more heat should be kept at the warm end of the house. Attend to having everything clean and neat, and look closely after cockroaches and woodlice, which are often troublesome at this season.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit must now be assisted with a warm moist atmosphere; use, therefore, sufficient fire-heat to secure a night temperature of at least from 65° to 70°, and 75° by day, allowing it to rise considerably with sunshine, and admit a little fresh air during the day when the weather is mild, employing sufficient fire-heat to allow of this being done without lowering the temperature, and if there are means of admitting fresh air so as to bring it into contact with the pipes on its entrance into the house, a little may be admitted with advantage in all states of the weather, and in the case of houses which have to be kept warm in winter there should always be some contrivance for admitting fresh air under or against the heating apparatus so that it may get warmed before coming into contact with the plants, and with proper arrangement a moderate supply may be admitted constantly without requiring any extra amount of fuel to keep up the temperature. Also endeavour to secure a steady bottom-heat of about 85°, and endeavour to keep the soil about the roots in a properly moist state, giving clear, rather strong, manure-water when necessary; but if the atmosphere is kept properly moist the soil will not require much water for some time. It is very difficult, however, to get Queen Pines to swell properly after this season, and any plants of this variety showing now should, unless in cases where ripe Pines of any size or quality will be valuable early next spring, be kept cool and dry as soon as they have done flowering, until the middle or end of January, and then be afforded a brisk moist temperature; treated in this way, we have often found them to swell off exceedingly well, and where ripe Pines in winter are in demand Cayennes, Black Jamaica, and Montserrats should be grown to furnish the supply from November to April, for those not only swell better in winter than Queens and the larger sorts of blacks, but are also less liable to be hard and inferior in quality. Fruit approaching maturity must also be kept warm, but the atmosphere should be kept rather dry, admitting fresh air freely on every favourable opportunity, for anything like moderately well-flavoured fruit will not be obtained at this season without a liberal use of fire-heat. If any of the young stock in pots appear to want shifting examine these at once, and shift such as are found to be at all pot-bound, for young plants if kept short of pot room through the winter will be apt to start into fruit instead of growth in spring.

FLOWER GARDEN AND SHRUBBERIES.

Continue to take up and pot such plants as it may be desirable to save. A number of plants for flower-garden decoration bloom better when of a certain age, and such, with others which it is desirable to take care of for propagation, should be first attended to. Last season's late struck cuttings of scarlet Geraniums, and most of the other bedding kinds, should be especially reserved; for when carefully potted and grown they bloom earlier and finer the second year; besides there is often a difficulty in procuring cuttings of the latter in sufficient quantity to satisfy large demands, and this affords an additional reason for preserving them. Large Salvias may be transferred to pots, and, if required, will help to keep the conservatory gay for some time. Calceolarias, Petunias, Verbenas, and similar things which are easily propagated should be allowed to remain till they are destroyed by frost, when they may be cleared off and thrown to the rubbish heap. Attend to cuttings not yet struck, which after this time will root more freely if a little additional heat can be given them; such as are already struck should be placed in their winter quarters. Make arrangements for wintering Fuchsias, Hydrangeas, Brugmansias, &c.; pot off intermediate and Brompton Stocks for use next spring, and winter them in cool frames; proceed with the planting of all sorts of trees and shrubs whenever the weather is favourable for operations of that kind.

HARDY FRUIT AND KITCHEN GARDEN.

One of the greatest drawbacks to out-door gardening is the failure of wall fruit, too often arising from ill-constructed or too rich borders. If any borders are intended to be renewed during the present winter immediate steps should be taken (if not already done) to procure a supply of good loam, if possible the top spit of an old pasture; if of a heavy nature, a portion of the sweepings or scrapings of roads may be mixed with it for Peaches, Nectarines, Cherries, and Apricots; it will suit Pears and Plums in its natural state. Let the bottom of the intended borders be not only well drained with earthenware pipes to carry off all excess of water, but place a foot or more of gravel beneath the compost, which need not be more than 18 inches deep for Peaches and Apricots, and 2 feet deep for Plums, Pears, &c. The borders should have a good slope from the wall to the walk in front. Ground for orchards and fruit tree quarters intended to be planted this season should be trenched, and during the operation a dressing of short dung may be well mixed with the soil, more particularly for Raspberries, Gooseberries, and other small fruit. The first point however to secure should be thorough drainage; if that is inefficient, the result will necessarily be unsatisfactory.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Oct. 9, 1856, as observed at the Horticultural Gardens.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain
Friday 3	4	29.803	29.797	66	55	61.5	55½	55½	S.	.10
Satur. 4	5	29.735	29.657	66	56	61.5	58	56	S.W	.11
Sunday 5	6	29.884	29.807	63	42	52.5	56½	56½	S.W.	.05
Mon. 6	7	29.944	29.922	57	55	56.0	57	56½	E.	.16
Tues. 7	8	29.926	29.887	59	52	55.5	57	56½	N.E.	.30
Wed. 8	9	30.060	29.904	58	49	53.5	56	56½	N.E.	.05
Thurs. 9	10	30.211	30.122	60	49	54.5	56	56	N.E.	.00
Average		29.997	29.861	61.3	51.1	56.2	56.6	56.2		1.1

Oct. 3—Cloudy and fine; rain at night.
— 4—Rain; cloudy and windy; rain.
— 5—Rain; cloudy; fine; lightning in the evening.
— 6—Foggy; rain; cloudy.
— 7—Hazy and drizzly; rain at night.
— 8—Heavy rain through the forenoon; densely overcast.
— 9—Overcast throughout; cloudy at night.

Mean temperature of the week 3¾ deg above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Oct. 13, 1856.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12	59.9	41.9	50.9	16	1.00 in.	4	4	2	—	5	6	7	2
Mon. 13	59.7	42.2	50.9	15	0.33	4	4	4	—	6	5	5	
Tues. 14	59.0	41.0	50.0	15	0.50	1	4	2	1	8	3	5	6
Wed. 15	59.7	40.0	48.8	14	1.04	2	2	3	1	8	4	4	6
Thurs. 16	58.1	40.1	49.1	13	0.56	—	4	5	1	3	6	8	3
Friday 17	57.9	41.3	49.6	11	0.31	1	3	5	—	2	8	7	4
Satur. 18	58.0	41.8	49.9	14	0.85	2	3	1	1	4	5	12	2

The highest temperature during the above period occurred on the 13th, 1845—therm. 76 deg.; and the lowest on the 15th, 1850, and 18th, 1843—therm. 24 deg.

Notices to Correspondents.

Achimenes: *E F D.* Whenever flowers are packed in cotton wool they are ruined. We do not see in what the merit of your Achimenes consists.

Ants: *S S S.* We really do not know what becomes of them when dosed by guano. Many, all the pupæ, certainly die, others run away. We have no feeling for the creatures, which are simply interesting nuisances. A sentimental soul might, of course, write a poem on the hard fate of an ant drugged with guano; so she might on a donkey, or a toadstool. We only hope we may not be required to read it.

Books: *Amor florum.* Botanical books do not give descriptions and instructions for the culture of all kinds of flowers in the open garden, greenhouse, and hothouse. You probably want some such book as Paxton's Botanical Dictionary or the Cottage Gardeners' Dictionary.—*An Amateur.* Neill's Flower, Fruit, and Kitchen Garden.

Clay Lump Walls: *J W M.* Bore holes in the wall with an auger; fill the holes with well tempered clay and then drive in long oak pegs, leaving two or three inches of the pegs projecting. Or drive in long stout iron pins with a loop at the outside end. Then stretch tarred twine or copper wire horizontally from the pegs or pins, and tie your branches to the twine or wire.

Drying Flowers for the Herbarium: *W T.* You cannot preserve the colours in many cases. No solution will help you. The most effectual way is to dry them very quickly without heat. For this purpose nothing is so good as the drying press figured at page 485.

Gladiolus: *F.* The early varieties which flower in June and July are best planted in October and November; the later sorts may be put in from November to January or February, and the varieties of Floribundus and Gandavensis from January to March. Hyacinths and Narcissi intended to be flowered in pots may be planted any time between this and Christmas. Useful directions respecting the culture of the Hyacinth will be found in our Number for Sept. 22, p. 631.‡

Heating: *J G.* Don't use gas in heating your conservatory. It kills the plants. We cannot answer inquiries privately.

Insects: *J R.* Your insect is the walking leaf insect, Phyllium siccifolium; it is native of the East Indies, and feeds on leaves. *W.*

Names of Fruits: *J Williams.* 1, King of the Pippins; 2, Fearn's Pippin; 3, Yorkshire Greening; 4, Court of Wick; 5, Golden Noble; 6, Golden Russet; 7, Blenheim Pippin; 8, Cockle Pippin; 9, Margil; 11, Ribston Pippin; 12, 14, Beauty of Kent.—*F S.* Your Apple is the Dumelow's Seedling.—*Obstbaum.* 1, Brown Beurré; 2, Seckel; 3 is perhaps Beurré d'Angleterre. The Apple is not known; it is as acid as a Crab.—*J M E G.* Thanks. The Fig next week.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*S M.* Polygonum aviculare; Polygonum minus, and Filago gallica.—*J W.* Probably some Cordyline or Dracæna.—*Rusticus.* If as we suppose these are common nursery plants their names are 2, Acer eriocarpum; 4, Viburnum Lentago; 5, Daphne oleoides; 6, do. collina. As to Nos. 1 and 3 they seem to be mere varieties of the common Sycamore.—*J W L.* The Lophospermum from Botteri we think with you a good variety of the old one. The Oncidium is we believe O. tigratum.—*W G K.* The botanical name of the plant from which the Orris root is taken is Iris florentina.—*G F.* Abutilon pictum, a distinct species.

Page's Blight Composition.—Messrs. Page and Co. have addressed a letter to us "expressing their regret that we should consider Mr. Gordon's report more than equivalent to the many whose names and positions one would think a sufficient guarantee for the accuracy of their statements." If Messrs. Page and Co. will take the trouble to refer to our remark in last week's *Chronicle* they will discover that we have not done that which they "regret" to find we have done. If gardeners will communicate to us their real opinions we will most conscientiously analyse them and publish the result. Be it remarked, however, that the question to answer is *not* whether the composition in question will kill green-fly; but *whether it will destroy* mealy bug *and* scale without injuring plants. It is with these that a gardener's difficulty lies; anybody can rid himself of green-fly, thrips, and red spider. We have already received many letters on this subject.

Poisonous Honey: *Apiarian.* We have prepared a complete answer to your inquiry; but want of room compels us to defer it till next week.

Portico: *An Old Sub.* It may extend over the road; but under your circumstances it had probably be best confined to a 2 feet projection. In any case we should have the pillars square, and the summit should correspond in style with the parapet of the house, such as we understand yours to be.

Standish and Noble's Sale: *G R.* The new fruit from China called Yang Mae, of which "the fruit is described as being about the size of a Walnut, perfectly round, of a rich red, resembling in appearance an Arbutus berry and of a most delicious flavour, highly prized by the Chinese, being one of their handsomest and richest flavoured fruits," is probably Myrica sapida or some allied species. We believe that no one in Europe has any personal acquaintance with it. There is a figure of it among the Chinese drawings in the library of the Horticultural Society.

Vinery: *Shirenewton House.* Your span-roofed house standing true north and south will ripen Peaches and Grapes perfectly. Had we to put up such a house for ourselves we should probably prefer that position to one facing due south; especially if the ventilation were necessarily such as yours.

Worms: *J S.* If you dose your lawn with corrosive sublimate you will kill the Grass. Such dangerous poisons should be used with great care.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BINN'S PATENT MANURE AND TOP-DRESSING,

FOR PROMOTING THE RAPID GROWTH OF VEGETATION,

(ITS FERTILISING PROPERTIES BEING EQUAL TO THOSE OF ANY MANURE AT PRESENT KNOWN),

AND THE DESTRUCTION OF THE FLY, WIRE-WORM, AND SLUG.

THE PROPRIETORS of this valuable MANURE and TOP-DRESSING are now manufacturing it at their Works, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. This Manure is strongly recommended for Wheat, and all other crops that follow in succession, to be used either drilled or broadcast.

Agriculturists will find it invaluable as a Top-dressing for Grass.

Orders addressed HALL & Co., at the Works; the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

The Patentees have also manufactured a CONCENTRATED MANURE FOR THE FLOWER AND KITCHEN GARDENS, which is sold in boxes at 3*s.* and 1*s.* 6*d.* each. No. 1 Box is enough to Manure 12 rods of ground; No. 2, 6 rods. May be had at the Works, and of the undermentioned Agents.

Hooper & Co., Central Avenue, Covent Garden Market.
T. Brigden, Seedsman, 10, Railway Arcade, London Bridge.
P. S. Plummer, 37, Upper Thames Street; and 54, Seed Market, Corn Exchange.
Wood & Sons, Seedsmen, East Street, Old Kent Road.
Dawe, Cottrell, & Co., Seedsmen, 36, Moorgate Street, City.
Henry Potter, Seedsman, 65, Farringdon Street.
F. Boshell, Seedsman, 86, High Street, Borough.
John Noble, Seedsman, Pond Lane, Lower Clapton.
John West, Florist, Newington Green.
William Kibble, Richmond Road, Dalston.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London-Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

PATENT WOOL MANURE COMPANY (LIMITED).

Capital, 50,000*l.*, in 5000 Shares of 10*l.* each.

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Directors.

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Charles Curling, Esq., Davis Wharf, Southwark, and Clapham Common, Surrey.
Thomas W. Chaldecott, Esq., 25, Montague Place, Russell Square.
J. Nottidge, Esq., Richmond Green, Surrey, and Bocking Hall, Essex.
Joseph Odling, Esq., Barnes, Surrey.

Bankers.—The Bank of London.
Solicitors.—Messrs. Batty and Whitehouse, 26, Charles Street, St. James's Square.
Consulting Chemist.—Dr. Odling, Professor of Practical Chemistry, Guy's Hospital.

The Directors give notice that this Company is now completely registered, and they are, therefore, prepared to receive ORDERS for the MANURE, price 7*l.* 7*s.* per ton, net cash, delivered free to any railway station in London.

Applications for agency in districts not at present represented will be entertained; but only parties able to furnish the highest references need apply. C. U. TIDBURY, Secretary.

81, Gracechurch Street.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

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Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
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John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.

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Manufactory—Plaistow Marshes, Essex.

BLOOD MANURE FOR WHEAT.

The Directors of the above Company (many of whom are extensive agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but genuine quality, cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact; ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied.

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

Offices—109, Fenchurch Street, London.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

The public are cautioned against spurious imitations. As security to the purchaser every bag contains 2 cwt., and is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

LONDON MANURE COMPANY
(Established 1840)

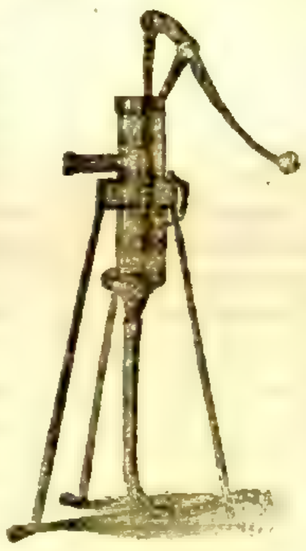
Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.

EDWARD PURSER, Secretary.

40, Bridge Street, Blackfriars, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

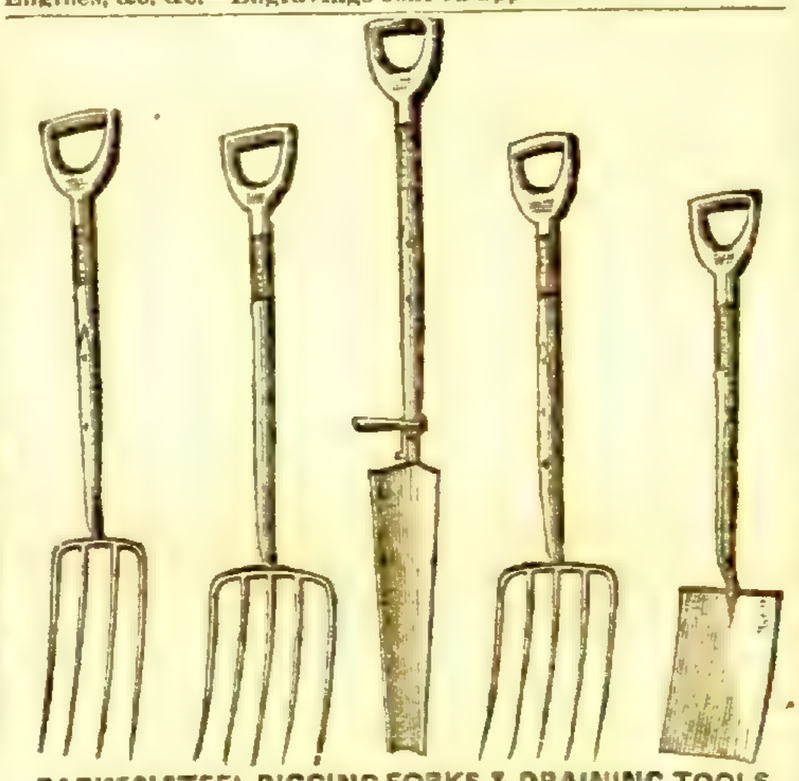
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

103, Newgate Street London.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Sec.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Meeting and Exhibition of Stock, Implements, and Poultry, will be held at Gloucester, on THURSDAY, the 27th November next. All Entries must be made on or before 1st November. None but printed Certificates can be received, which may be had on application to me at Cirencester.

Cirencester, Oct. 11. EDWARD TRINDER, Secretary.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1856.—The EIGHTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 2d, 3d, 4th, and 5th of December next; when PRIZES, CUPS, and GOLD and SILVER MEDALS to the amount of 1000*l.* will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE the 1st of November next.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l.* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS,

Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

The Agricultural Gazette.

SATURDAY, OCTOBER 11, 1856.

THE diseases of cultivated plants are almost if not quite as multifarious as those which affect animals under restraint, and if we inquire into their history we shall find that the mal-action of the organisation of both families is for the most part due to a change of those circumstances which make up the sum of the difference between wildness and cultivation, and which change becomes more marked, and its effects more complex the farther the individual is removed from its original type. Were we to follow out an investigation into the history of vegetable pathology we should soon become aware that as time has advanced so if new forms of disease have not actually arisen in modern days among some of our cultivated varieties, certainly the diseases incidental to vegetation have spread to an alarming extent, and we see this more particularly in such plants as are most cultivated, such as the Turnip and Potato.

As respects the Potato murrain the idea just enunciated seems to have struck inquirers into its causes, one of the plans recommended to palliate the evil being the again procuring a Potato crop from the seeds instead of the tubers—an expedient the comparative failure of which says little against the theory, inasmuch as the utmost that was attained in such experiments was the getting a new sort from sorts already in cultivation, and not the complete reversion to the original plant as found in its native habitat.

It was with the idea of investigating the origin of some varieties of plants in cultivation, and at the same time of bringing about new sorts, that some few years since we commenced a series of experiments; among others in the "ennobling" of wild Parsnips and Carrots, and the production of new sorts of Vetches from a far removed wild species. These have been so far successful that at

this moment we have before us a level topped Parsnip with a smooth outline and clean bark, as much as 9 inches in circumference, produced from the small wild root; and in the Vetches, our samples for this year presented both a winter and spring variety, of a good agricultural kind, derived from the cultivation of the diminutive *Vicia angustifolia* (narrow-leaved Vetch).

But as amid our experiments of this nature those on the wild Oat will doubtless be looked upon with as much interest by the farmer as the botanist, we shall now address ourselves to a description of the transmutation of the *Avena fatua*, reserving an account of changes in other agricultural plants for another occasion.

The Avena fatua is a Grass which almost universally accompanies agrarian circumstances, that is to say, it seldom if ever occurs in a truly wild aboriginal state, but is an attendant upon tillage, and in some soils is a most common and detested weed in various crops, but more especially amid grain, whether of Wheat, Barley, or Oats, sometimes too with Beans or seeding Vetches, or indeed in any crop which is of sufficient duration to allow it to ripen, and from which it is not eradicated in weeding by the hoe.

It is a tall Grass, rivalling the height of the finest cultivated Oat, from some forms of which, and especially those with a lax panicle, it is at a first glance not readily distinguishable; however, a more careful examination and comparison with the so-called *Avena sativa* enables us to make out the following differences:—

Avena fatua—Wild Oat.	*Avena sativa*—Cultivated Oat.
Florets usually three each, armed with a stiff awn, which is bent in the middle, the lower part twisted when ripe: covered, more particularly at the base, with straight harsh bristles; seed small and worthless.	Florets, usually two, either with or without awns, but straight and less rigid when present than in A. fatua; quite smooth externally, and somewhat tumid from its enlarged seed or grain for which the plant is cultivated.

The experiments about to be detailed were performed with the *Avena fatua*. In the autumn of 1851 we collected some seed of the wild Oat, putting it aside for spring planting, and in the spring of 1852 we drilled a plot of 2½ yards square with the seed that had been kept during the winter, a fact to be carefully noted, as it forms a first and most important link in our chain of evidence, thus constituting what we shall hereafter revert to as a *cultivative process*. The seed came up well, and the plants on ripening were tall and robust, and the grains presented a scarcely appreciable difference from the wild examples; but if anything there might have been a slight tendency to increase in the quantity of flour. The seeds again collected and preserved through the winter were sown in a patch of similar size in a different part of the garden in the spring of the following years 1853-54-55, with little alteration from year to year, though in some examples the following tendencies seemed from the first to be gaining strength:—

1. A gradual decrease in the quantity of hairs on the florets.

2. A more tumid grain, in which the covering "skin" was less coarse and the awn less stout and straighter.

3. A gradually increased development of kernel or flour.

The seeds of 1855, without selection, were treated through the winter the same as before, and sown in the spring of the present year, the resulting crop gathered in the latter end of August presenting the following curious variations:—

	Proportionals of each.
1st. *Avena fatua*, wild Oat of the true type with large loose panicles of flowers, thin hairy florets with the bent awn twisted at the base	5
2d. *Avena fatua, var. sativa*, with loose panicles of flowers, florets quite smooth and tumid, with or without *straight* awns, some few examples slightly hairy towards the base. This is near the Potato Oat type	6
3d. *Avena fatua, var. sativa*.—Panicles more compact, flowers inclining to one side, grains more tumid than 2, quite devoid of hairs, awn straight. These present the type of the White Tartarian Oat	12

Each of these forms is now separately saved for further experiment whilst the shed seeds of the plot are left to grow as they would do in nature, with the view of demonstrating the downward progress by the reverse methods to those adopted in the cultivative ones.

We may add here that in the article Avena in Morton's *Cyclopedia of Agriculture*, Dr. Lindley referred to the probability of the wild origin thus demonstrated; suggesting that the cultivated Oat is "a domesticated variety of some wild species, and may be not improbably referred to *Avena strigosa*, the bristle-pointed Oat, which would become the common Oat by a slight alteration of the form and division of its pales and the loss of one of its awns—changes much less considerable than are known to have taken place in other cultivated plants."

The experiments, as far as they have now gone, show us in the clearest possible manner that the *Avena fatua* is the parent of our cultivated Oat, and that not only of one but of more forms or varieties produced in the same space of time and by the same series of operations—conclusions which cannot be other than interesting to the botanist, whilst to the farmer they offer considerations no less curious in theory than important in a practical point of view.

If we can produce the cultivated from the wild weed Oat it follows that the weed may result from a degeneracy of the cultivated form, and this will serve to show how true the instincts of the old-fashioned farmer not unfrequently were; as we remember that some years since a main objection to the growth of Oats on stiff lias clays was that they left behind them wild Oats, and all who have had to deal with there as a weed, as it not unfrequently occurs on the stiffer lands of the lias, forest marble or Oxford clays, may well dread any cause of its increase. As a botanical notion this was never well received but viewed as impossible by the species maker; however, actual experiment has at length demonstrated its truth, and it may just be mentioned that a confirmation of this has in the meantime been arrived at by a different process which we can now only shortly detail.

On the examination of stray plants of Oats from shed seeds where the year before Oats had been the crop, examples are not uncommon with a few hairs at the base of the floret, whilst the awn will be mostly stiffer than those in the crop, and this on thin soils where wild Oat is not usual as a weed. Again, on stiff clays in which the weed prevails, many intermediate forms or degrees of wildness will be observable, perhaps derivable from the cultivated Oats brought to the soil in manures.

But further, if we examine Oats grown on good Oat lands we are aware of the following characteristics—a greater weight for the bushel, and a more plump grain with a finer coat and the awns scarcely more than bristles; and, as we know from observation, these qualities are immediately reversed if we sow good Oats from a favourable Oat soil in a district unfavourable to the growth of this corn.

Here then the result of our experiments and observations is to show that the wild Oat by cultivation will yield different sorts of a cultivated or crop Oat; so that new varieties, and that direct from the original source, are easily attainable, and also that the cultivated Oat may degenerate into the wild form from which it has sprung, and in some soils in a very short space of time.*

A very interesting and useful series of letters has appeared in the pages of our contemporary, *Bell's Weekly Messenger*, on the Breeding of Cattle. Mr. Willoughby Wood, who is well known by agriculturists generally as a short-horn breeder, and by our own readers as an occasional contributor on that subject to the columns of this Journal, argues and advises, from a lengthened experience, on the cheapest and most efficient method of obtaining a herd of superior cattle. Of course he recommends patient attention through a course of years as likely to bear a more permanent fruit than direct purchase of the class of animals that is desired. Such a method is not only more economical but it confers the experience and skill necessary to the full developement of whatever degree of success attends it.

The points insisted on are:—(1) the selection of the most promising cows—"ordinary short horns which are now to be found in almost every district in the kingdom"—choosing such as are of a healthy constitution, yet refined in character, large in the frame, short in the leg, and, above all, excellent milkers; (2) "the offspring of these cows by a thorough bred bull should in their turn be put to another short-horn bull of equally pure breed," choosing an animal presenting excellence in such points as are defective in the herd. "But perhaps in most cases the first cross will not so much present any one fault in particular as a want of uniformity of form, combined with a certain hardness indicative of the inferior blood on the female side. The second cross will greatly tend both to promote uniformity and to improve quality in the next generation. The bull, to accomplish this purpose, ought to possess that combination of merits which entitles him to be called a good animal. He ought also to belong to a family which is known as reproducing, in the majority of the animals belonging to it, those qualities which the breeder desires his herd to possess."

Mr. Wood disputes the commonly received idea that the second cross of pure blood is less successful than the first. He says—"There can be no question that the persevering use of short-horn bulls is the surest means of obtaining in the highest degree a combination of size, quality, and early maturity." He then contends at length for the merits of the short-horn breed as retaining, along with their aptitude for fattening, extraordinary merits as abundant milkers.

The latter portion of the second letter, from which we have made the above extracts, relates particularly to the question of cost; and Mr. Wood's advice is given in the following particulars:—(1) Purchase bulls by private contract from a well established breed in preference to resorting to sales where they are "prepared" for sale, and thus not only are their defects disguised but they are injured for work, besides which at a sale the purchaser contends against the most matured judgments and longest purses in the world; (2) Buy either bull calves or aged bulls. "Each of these courses has its advantages, and both are more economical than the usual plan of buying bulls at a year old."

Finally, the advantages of attention to the good breeding of your herd are summed up in the following paragraph:—

"A farmer whose heifers I occasionally see, and which are bred by chance, and reared on a combined no-system of starvation and carelessness, has a lot of 18, which may be worth on a average about 15*l*. The produce of the same cows, many of which are good ones, by a well-bred bull, would have been worth 20*l*. each, making a gross profit of 90*l*. on the lot. A good calf costs no more to rear than a bad one, while with regard to the keep of the heifers, it is not so much in actual deficiency of food that the fault lies, as in want of care, attention and shelter. On farms where steers are reared, there would also be 2*l*. per head additional value for them. Suppose that from 50 cows 18 heifers are reared, at an enhanced value of 5*l*. each, and 20 steers at an advance of 2*l*. per head, this would give an annual gross profit of 130*l*., in return for an outlay every three years of from 20 to 30 guineas in a well-bred bull calf. And yet a short-sighted farmer would deem his farther-seeing neighbour who gave 30 guineas for an animal not worth above 5*l*. to the butcher, bereft of reason. Surely, then, such matters merit more consideration than they receive. They are a sample only of what constitutes the difference between farming for a bare subsistence and farming to a profit. In a knowledge of the principles of breeding, the agriculturist will find a mine which will as amply repay the working, as in the chemistry of soils, or the physiology of vegetation."

The main facts regarding the Agricultural Statistics of Ireland for 1856, as given in Mr. Donelly's able report just published, will be found stated in another page in answer to the inquiries of a correspondent.

RESULTS OF AGRICULTURAL EDUCATION IN IRELAND.

First, then, as to the actual benefit to the country in the immediate vicinity of the school, I consider it to be very great. On my first acquaintance with this locality, [Farrahy, near Kildorrery,] five years ago, the roadside fences were in great disorder, a few Turnips were grown by large farmers, but positively no Carrots nor green crops other than Potatoes by any but proprietors of estates. The tenant farmers were ignorant of subsoiling, trenching, putting down Clover and Grass seeds properly, in fact, of every right process of agriculture. Cows were kept out both winter and summer, and guano was unknown. Lime was the usual remedy employed to restore the exhausted soil, and not unfrequently applied in conjunction with manure. The country people were in the habit of breaking up lea land for Potatoes; afterwards taking a crop of Wheat, or two crops of Oats, and then giving their land to any one who would put out dung for the next Potato crop, so as to enable the holder to restore the only rotation of crops with which he was acquainted.

Now all this is changed, and a great improvement is perceptible. No farm is without Turnips or other green crops; fencing is being carried on to a considerable extent; the benefit of draining, subsoiling, and cleaning the land properly is known; and the people are acting on that knowledge to a great degree. The propriety of house-feeding cattle is acknowledged, and wherever the farmers have sheds, they put in their cows during the winter months at least; and the man who puts lime and manure together into his field is now as much ridiculed as was formerly the agriculturist who dug with a fork, put Potatoes in drills, and took out weeds with a grubber.

As the soil does not call for much drainage, I cannot say that it has been practised immediately about the school, except to a partial extent; but great numbers of fences have been levelled, and large fields have been made out of three or four small ones. Waste land has been reclaimed, Carrots are grown, and the rotation of crops is understood and mostly followed out, in some way or other, by the small farmers, and in an effectual manner by the large farmers.

The improvement of farming in this neighbourhood

* In this report several curious botanical changes which took place as the experiment progressed have not been noticed, as they would unnecessarily burden the subject for the general reader.

being beyond doubt progressing, I yet could not ascribe it almost entirely to the establishment and maintenance of the Model Farm, were it not that the farmers themselves do so, and I have received testimony from very competent judges to the same effect. As I send you herewith these letters themselves for your perusal, I will proceed to give you a few notes of visits paid to some of the tenant farmers about the school, from which you may judge of their sentiments relative to the Farraby establishment. Cornelius Carroll holds 70 acres; thinks the greatest good has been done by the school; remembers that before its establishment all cattle in the country were out all winter; has learnt to clean land and prepare it; sows now a much greater breadth of Turnips and green crops than before; drills his Potatoes; house-feeds in winter; has levelled ditches and enlarged fields; all which he ascribes entirely to the example of the Model Farm.

Edmund Ryan holds 17 acres; soiled his cattle all last summer; intimates the cleaning, preparing, and subsoiling of the land as he has seen practised at Farraby Model Farm; is enthusiastic in its praise.

Michl. Geary has 34 acres; learned from the Model Farm to clean, and cultivate deeper, and subsoil; all which he was ignorant of till he saw Mr. Smith do it; has also learned to sow Grass seeds and Clover properly; finds now that he has better crops even with less manure than formerly; is going to level all his fences, and make large fields; put in his cows earlier than heretofore; ascribes all his improved culture to Smith's example.

Edward Ryan has 21 acres; learned to till his Turnips as he ought; drained a little, and levelled many ditches, and made large fields; cultivated a deal of waste land; Smith was the cause of all this; has more to do yet in the way of improvement under Smith's advice; learned the benefit of house-feeding cattle, and has built a house for that purpose; has subsoiled, and what was the worst part of his land is the best now.

Patrick Walsh farms 74 acres; has learned a great deal from the school; borrowed from Smith treatise on agriculture; learned and carried out a rotation of crops; knows that his neighbours, even though they have not carried out generally a full course of rotation, yet many of them have gone a great way towards it; did not formerly house-feed on green crops, but does so now; grew Carrots and Turnips for feeding off stock last year, in consequence of what he learned from the school books, and found it answer extremely well; lays down Grass seeds; drained for the last three years, and has now fine land where Furze only grew before; says his improvements in the way of throwing small fields into large ones may be seen by reference to the Ordnance Map. Before the school was established, knew nothing of putting down green crops properly, or of the qualities of manures; says that no one in Ballyquiroo knew how to grow a Turnip until the Model Farm was established, and that the Turnips grown formerly were not a fourth of what they are now in size.

Michael Barry holds 32 acres; has learned to till and subsoil; grows more Turnips; ploughs deeper than heretofore; has studied catechisms of agriculture from Smith's advice; house-feeds with Turnips as far as he can in winter; purposes to sow Rape; never did so before; farms now very differently from heretofore; positively has done all this from what he learned at the school farm, and would expend more capital in improved farming, but that his means are small; thinks that people from a distance have benefitted likewise, as he has frequently accompanied parties from other parishes to view the Model Farm, and as far as he can form an opinion, they took valuable hints from Smith's plans of farming; has levelled fences partially; never will take two grain crops in succession; has used guano a good deal; means to drill Potatoes for the future; thinks there is hardly a farmer in the neighbourhood but has learned something from the establishment of the school and farm.

Patrick Mahony is a Poor-law guardian, a member of Kildorrery Dispensary Committee; has a shop in Kildorrery, and farms over 150 acres, besides having lately taken on lease 1150 acres of inferior and mountain land; his son was trained at the Model Farm, and subsequently at Glasnevin; declares he would not be able to farm so largely without the knowledge obtained from the school by himself and son; states that it was in consequence of the knowledge displayed by his son regarding land and its treatment that he obtained the lease of the 1150 acres; says that before the establishment of the school there was little sign of green cropping, only a few Turnips, and no Carrots or Mangels among the farmers; has levelled fences a good deal; house-feeds in winter, and will do so in summer also for the future, as his son will superintend the farming business; has found the improved system very profitable; knows that many farmers came from a distance to see Smith, and is sure that they adopted plans similar to what they saw; knows that the neighbours take advice from Smith; says that the boys of the industrial class spread a variety of information through the neighbourhood, being able to teach their parents the method of dibbling in seeds and drilling, tending stalled cattle, &c.; has put his Potatoes in drills this year; never had Carrots until this year.

[The above is extracted from a letter to Dr. Kirkpatrick, of the Albert Institution at Glasnevin, by the Rev. W. Maziere Brady, rector of Farraby. It was called forth by the tone of the recent debate in the House of Commons on the grant for National Education in Ireland.]

Home Correspondence.

Leaf Feeding.—Under this head, at page 636, it is stated—"About 12 years ago I proposed an experiment with Barley by hoeing weekly, by the fortnight and monthly, and left unstirred, but I was disappointed." This is certainly discouraging to those who believe in the theory, and who also practise hoeing amongst green crops. I should have been glad if your correspondent had given us the items of difference between the four cases, the state of the land when operated upon, the kind of weather at the time, and the manner in which the work was executed. The reason why he was disappointed may have arisen from adhering to rules or periods; whereas, reason and not rule should dictate the time when land ought to be stirred. When rain falls on dry clods in the summer when Barley is growing, the water turns to a solid body, or say, it becomes a part of the earth in a solid form, and while undergoing this change from liquid to solid, it not only gives off its heat to the earth and plants growing thereon, but it also expands the clods. Should the shower continue till the surface of the earth be comparatively moist, the clods will be so far expanded, that they will fall to powder by gentle friction. At this favourable condition of the earth, let the hoers go to work, either by men or beasts, and every experienced man can perceive the succeeding salutary effects on the crops. But I never saw written or printed a description of this natural chemistry save in Nature's own peculiar way, *i. e.*, in a marvellous expansion of leaves. On the contrary, let the rain fall till the water has ceased turning to a solid, and the soil becomes gorged with water, then start the hoes, and the earth will be kneaded to a state that drying winds will leave it in sealed packets, and the damage done to both soil and crop is incalculable. Nor will the soil recover from its maltreatment till it has undergone the reverse action of water turning to a solid in its interstices, a work which the frosts of winter generally perform in a satisfactory manner. Perhaps the disappointment arose from bad hoeing during a parching sun. An ignorant hoer is a dangerous subject amongst green crops during hot dry weather, though it is undoubtedly the proper time for the hoe to go to work, providing the work is done as it ought to be. If the land is scraped instead of hoed, and left in little hillocks, alternating with hard and bare patches, radiation goes off so rapidly between those hillocks, that the best crop of Barley that ever grew would be spoiled during three hot, dry, and cloudless days. But if the hoeing be done by a good workman, who strikes swiftly with his hoe, he spreads the pulverised soil pretty evenly over the surface, and the crop is wonderfully improved at the end of three hot cloudless days. The fine earth that the hoe has left in this manner acts as a veil to the roots and arrests radiation, by which means moisture is condensed amongst the roots, and thereby the crops are benefited; in this case satisfaction is the result, in that disappointment. *Ben Giles.*

The Poor Law in Ireland.—As an Englishman farming over 600 acres in Ireland, I think it right to protest against the conclusions of Martin Doyle on the subject of the Irish Poor-law. With the Irish, such as they are, I believe out-door relief would be simply ruinous to the country. When any one can gravely and publicly suggest the advance to a cottier of seed Barley and Potatoes, and the hire of a horse to set them, out of the rates, it is easy to judge what degree of sound principle on this subject he has attained to. I would suggest to him to tell us how many of the same class in a Union would not need similar advances at the end of five years? This sort of false principle (and let me add false humanity too) runs through the whole view. Prejudices against the cleanliness and order of the workhouse (p. 609) are thought to entitle to out-door relief, provided they are insuperable. The case is rested not on what is best for the community, but what the poor person would like best. The error surely arises mainly from looking at the Poor-law as a cure for all the ills of poverty, instead of simply as a relief for destitution. No Poor-law can attempt the one without causing far worse ills than it cures. The other is its true function, but not so as to supersede the need of private charity in the thousand cases which public charity cannot possibly touch. Any one who knows both countries knows that the spirit of independant industry so general in England is sadly wanting here. The barest subsistence in idleness is eagerly caught at, rather than honest hard work for a better living. Further, the habit of scheming prevails (must I say among all classes?) to an extent which only a resident can imagine. Friends and friends' friends and relatives to the tenth degree are brought to bear, and worked on the enlarged principle that though you gain nothing yourself by the job, yet you will thus get a claim to similar help for your own job when you have it to do. If a weekly allowance from the rates was attainable, the evils of the old Poor-law in England would be a joke to what would happen. One may see here men who would not give or lay out a shilling of their own money, voting away public money as if they had to pay no part of it, with a recklessness that seems incomprehensible; the secret is, partly, some friend or friend's friend is to gain by it, and partly fear of what others—"the neighbours"—will say or do. It is clear to me your correspondent has never practically had to do with the administration of the Poor-law, else he would never talk as if the rates now levied on his division were of no use in relieving its poor, while the same amount under out-door relief would do it much better. His rates are simply for the support of the 12 paupers of his division on a very moderate scale, for the medical (dispensary) relief, which cannot be reduced, and for the charges of the Union establishment in proportion to the valuation of his division. This last item may perhaps be reduced somewhat (I have done it in my own Union); but it is the only one, and it is childish to think its amount would cover the cost of out-door relief. The English Poor-law is the amendment of a far more lax system, and many abuses still prevail under it. In Ireland the workhouse system started fair, and was so much clear addition to the relief available to the poor. It has worked well, and does in substance effectually relieve the destitution of the country. No doubt the cleanliness and order are disliked (what a confession!) and act as a test. They are the only check. There is not a shred of shame or independence of character such as keep people off the parish in England. They are only a check on the individual. No one by reason of them or anything else has a scruple at sending into the house his children or nearest relatives. In our workhouse are near relations (uncles) of two of the most wealthy tradesmen in the next town. A man earning 10*s.* a-week from me emigrated simply to better himself, and a week or two after he was gone, his wife and children went to the house, where some of them have now been four years. I have known cases of children of a man who was at work and did not wish to go into the house, sent in on the sly, among the family of another, who was going in. Others brought from a distant Union, where the parent was at work and therefore inadmissible there, left with a pauper confederate in our Union and sent into our house as deserted children. Most of the workhouses are admirably managed, better than in England. In my own Union, for instance, the school is good. The girls are taught knitting, spinning, and sowing. They wash the clothes and scour the floors (till they put my own house to shame). The workhouse land has a crop of vegetables on it grown by the boys that would do credit to any garden. The consequence is girls and boys are taken as servants by farmers, &c., even when too young, and those who know the girls among this class in an English workhouse will be surprised to learn we have hardly an instance of a girl turning out ill. Most people will think such habits of cleanliness and order are better not only for the community but for the poor themselves than the filth and idleness they would live in on out-door relief. The workhouse hospital is open to all the lower classes, whether paupers or not. They remain till they are thoroughly cured; their dietary such as the doctor orders. On an average one-third of our hospital cases are of this class. The families of the sick are never required to go into the house with them. The dispensaries give medical relief to all lighter cases. The unmeasured abuses of the out-door relief during and after the famine show plainly what it would be. The present system is working well, and with the faults of the Irish character, such as they are, to substitute out-door relief with its opportunities of abuse and temptation to scheming, seems to me little short of madness. It would do more real hurt to the poor by pauperising them than it could possibly do good by substituting one kind of relief for another, while to such as me I believe it would be simply ruin. *W.*

Boydell's Engine.—It is quite true that the bottom of a wheel when rolling is yet stationary at one point, but the ground under that point is not the fulcrum, the fulcrum being the ground anterior to it, hence the grinding action against a stone in front of the wheel when such is the fulcrum. In the case of Boydell's wheel rolling on its rails the stationary point is still further from the fulcrum, for here we have three fulcra—the rail on which the bottom of the wheel acts, the cycloidal arch, and the toe of the rail; but for the latter two the friction of the former would not permit of much traction force. The bottom of Boydell's wheel, therefore, resting on the fulcra, is in motion, and not stationary. This, however, is not what we meant when we said the top of the wheel moved at double the velocity of the bottom, meaning by the velocity at the bottom the translatory velocity or distance rolled over, *i. e.*, during the time the bottom of Boydell's wheel rolls the length of one of the rails, the top of the wheel would pass under a plank twice the length of such a rail, the plank resting on the wheel. *W. B.*

Farmers' Clubs.

Milborne, *Sept.* 17.—Mr. Summers, of Houghton Farm, introduced the subject of "Rotations of Corn Crops, with a view to avoiding the exhaustion of the particular properties of each description of Corn." He said: We all know the varying characteristics we have to deal with, both in soil and climate, and our systems ought to be varied, that the requirements of each plant may be present through every stage of its growth. There are systems followed by some agriculturists and condemned by others, and why? Because, probably, Nature has been kind to one and unkind to the other. Who in this room would not condemn my system of growing Oats and dredge [What is dredge?] as the only corn crops in the rotation? Yet such is my system on my most elevated land. If I grew Barley it would be all tailing, and the yield very small. If I grew Wheat, probably it would

never ripen. The Oak grown on this land appears as if it were growing in the south of Norway. In fact it is land situated at 900 feet above the level of the sea, and exposed to every wind—land on which the Turnip does not outlive the severity of an average English winter. Although the Oat is invaluable to me, it is not grown largely in Dorset—it is not often grown except under circumstances that tend to diminish the productiveness of Wheat and Barley. As I say, I have some land situated at a great elevation, but yet the climate must not bear all the blame of our scanty produce. The same remarks as were made by Professor Johnston, in his "Letters on Scotch Agriculture," when passing through Wigtownshire, will apply to us. He says, "You pass an imaginary line and the husbandry changes; the soil seems more barren, the people more indolent, and their methods more primitive. You ask the reason, and you are told that the climate is unfavourable to profitable culture. But if in the midst of this broad tract of country a patch of limestone, or trap, or old red sandstone appear, all at once the difficulties appear to vanish, and heaven and earth seem to conspire in rewarding the diligent cultivator of the soil." It is just so with us, we have both a cold soil and climate to contend with. But this is not all, our summer temperature is much lowered by the wood and trees being so thickly scattered over the surrounding land. The temperature of the soil is also much lowered by its inability to retain moisture, and the consequent evaporation and the flying off of heat, which tends to chill both the soil and the air. By what I have said you will readily perceive that I would recommend an alteration in the succession of corn crops, with every important alteration in soil or climate. What rotation could be better adapted to the county of Norfolk than the four-course? but yet it does not extend far north—it is not adopted in Scotland. The Scotch system of husbandry is more like the Welsh and Irish; this results from their climatic conditions being more nearly allied. On what are termed good Barley soils we know it to be the universal rule to grow Barley after Turnips, followed by two years Grass and Wheat. This is correctly called the five-field system; and where it can be carried out on this description of soil without detriment to the stock, I would recommend its adoption. Any farmer can slightly alter any rotation to supply his present wants—it may sometimes prove beneficial to the soil and stock. The chemist would teach us that if all the substances, organic and inorganic, were supplied to the soil, its fertility would be maintained; but practical farmers are aware that the mechanical state of the soil is of as much importance as the chemical state. They know that if they were to reverse their crops of Barley and Wheat, growing Barley after their Grasses and Wheat after Turnips, the land would be too firm in texture for the former and on some land too light and friable for the latter. Deep ploughing is practised for root crops, therefore that firmness of the subsoil requisite for Wheat would be destroyed. As we plough shallow for Barley, that the essence of the droppings of the sheep may not escape downwards, we get a firm subsoil for the Clovers and afterwards for Wheat—both plants thriving and standing the winter better on land thus prepared. The Barley crop should be as far removed from the Wheat crop as possible, especially on this description of soil, for after Barley we always find the land in that light friable state that wholly unfits it for the production of a good crop of Wheat for the two following years. This arises partly from the fine tilth produced when preparing the land for Barley, but more especially by that peculiar characteristic of the roots of Barley—they impart to the soil that looseness so detrimental to some of our cultivated plants. Here wo find much good resulting from the introduction of the Clover plant. This plant seems to possess the power of giving solidity to the soil, leaving out of consideration the rollings and treading of sheep to which it is subjected. From whatever cause it arises we find the land, when the old lea is ploughed, of that texture which we all know to be so much liked by the Wheat plant. There are few farms composed wholly of good Barley soils, and even when they are thus constituted the predominance of natural Grass land may prevent the adoption of, or at least in some measure do away with, the old lea as a crop in the rotation. I follow this same five-field system as nearly as convenient on a portion of my farm, as I cannot grow a good crop of Wheat on this portion without previously growing two green crops; but I grow Rape, or Rape and Turnips, in place of old lea, as the latter do not furnish my sheep with sufficient food at the right season of the year. I know what would be the result were I to neglect the preparation of autumn food for my sheep. By thus altering this old five-field system I increase the production of straw; but whether there is any increase in the yield of grain is perhaps a question yet to be solved. I believe that the yield is sometimes greater, and that, situated as I am, it pays me to dispense with old lea. There is not so much to fear from looseness of the soil where it is of a more adhesive character; therefore Wheat may follow Barley more closely, and as it retains the manure better the four-course system may be practised on it with advantage. In this rotation we get first Turnips, second Barley, third Grass, fourth Wheat—Vetches or Rye are often introduced between the Wheat and Turnip crops. I once followed this system on my stiff soils, but Barley is so liable to become laid after Turnips on this description of soil that I broke through it and now follow a five-field system, which I shall now proceed to notice. This five-field system is followed on some of my best land—on land better adapted for Wheat than Barley. The system is, first year Turnips, second April Wheat, third Grass, fourth winter Wheat, fifth Barley. I manure highly for Turnips, and, besides the fold, I give a heavy dressing of farmyard manure to my winter Wheat. To this land I give much attention during the winter preceding the Barley crop, doing my best to make it approach the character of a good Barley soil. I find this rotation much more profitable than the four-course, being enabled to grow nearly as many sacks of April Wheat as I could of Barley after Turnips. When Beans, Peas, or Vetches are introduced into any rotation they do not usually interfere with the succession of white straw crops, but merely as what are termed "catch" crops. They are all three rather uncertain crops, and the two latter render the soil rubbly—in fact the pernicious effect of seeding Vetches may be seen through a rotation.

Banbury.—At the late annual dinner of this Society Mr. G. Harcourt, M.P., spoke on the price of agricultural produce. He regretted to find that an observation had been made, that the prosperity of agriculture was promoted much more in time of war than in time of peace. He was persuaded that a slight knowledge of the political history of this country would be sufficient to convince them that although war might contribute to increase prices for a time, its inevitable result was to check the permanent prosperity of the country. He was now nearly the oldest member of the House of Commons, and his experience extended back to the latter years of the old French war. What was the effect of that struggle upon the agricultural interest of this country? In the years 1810, 1811, and 1812, the prices of all kinds of agricultural produce had risen enormously; the cost of Wheat in the two last years being 120*s.* a quarter. At that time however the Bank was not obliged to pay its way with gold; an unlimited paper circulation was allowed, and prices of all descriptions of produce rose enormously. Of course, while prices were rising great advantage accrued to the seller; but it was evident that such a state of things could not last a day after the pressure upon the money market was relieved, and the consequence was, that when the peace came, this exceptional state of things ceased, and a universal panic ensued. As he told them, at that time Wheat was selling at 120*s.* a quarter, and landlords thought their rents low at 80*s.* an acre; but after the peace, the continental ports were opened, foreign corn was brought to this country in large quantities, and the artificial rate of prices being destroyed, such distress ensued, that Parliament was called upon to interfere. Parliament accordingly took the matter in hand, and committees of the House of Commons sat in 1813, 1814, and 1815, to investigate the matter. The result of their subsequent deliberations was, that in order to assist, as they thought, the agriculturists of the kingdom, Parliament passed what, in his opinion, was a most iniquitous enactment, by which the importation of all foreign corn was prohibited until the price reached 80*s.* a quarter. But did that cure the evil? No; for in the very next year, prices continuing to fall, there was ten times more distress among the agricultural population of the country than before, and although they had had distress in the country since, of sufficient importance to call for the examination of Parliamentary committees into its causes, there had never existed such distress among agriculturists as existed in the year 1815. It was all very well to say that war raises the prices, and that other causes might tend to keep them up after the war had ceased; but what had happened during the very last war? Had we not been paying tax upon tax?—the income tax had been doubled, 10 per cent. had been added to the malt duty, and all those progressive reductions contemplated in time of peace by former Chancellors of the Exchequer had been put a stop to. What, he asked, would have been the state of the labour market had the late war continued? The ranks of the militia would necessarily have absorbed almost all the young able-bodied men of the country, and although he did not pretend to say that they would not have been of great utility, yet, in his opinion, they certainly would not have been so usefully employed as if they had been engaged in agricultural occupations, and their absence would naturally have tended to increase the price of agricultural produce. Then, again, had the war gone on, the price of iron must naturally have risen to a great extent, and consequently there would have been an increased expenditure for agricultural implements, or, what would have been worse, no expenditure at all, the effect of which would have been to deprive the farmers of all those improved facilities for the cultivation of land which happily they now possessed.

Farm Memoranda.

Black Hedley in 1814.—Mr. George Hopper was an excellent sample of the north of England yeoman. Possessed of a good property and in easy circumstances, full of all the energy, enterprise, and bodily activity, which characterised the Borderers of old, and having to boot a spice of more honesty and civilisation, he secured the good will and friendship of all with whom he had to do. He was likewise noted for some original or eccentric habits, always, however, tending to benevolent or harmless results. Mr. Hopper's experience and skill in husbandry, especially in the department of live-stock, was universally admitted, and he took pleasure in communicating information to his friends, and to give them on all occasions a hearty welcome at Black Hedley. I had the pleasure of making his acquaintance at Park-end, the hospitable mansion of John Kidley, Esq., in 1813-14. Mr. H. welcomed me most kindly, and we spent a most agreeable evening. I found that Mr. Hopper farmed largely. He was once rather famous for his blackfaced sheep. For several years he had abandoned this breed, finding more profit in the Cheviot, or rather in what is called the Tynewater. The wool of the Tynewater sheep is decidedly finer in quality. Mr. H. considers Mr. Kidley of Parkland, and his father, to be the most extensive storemasters on Tyne and Reed waters; their clip this year must realize at least 2000*l.* Mr. H. is an extensive jobber, and is for ever on the road. Mr. Bates of Halton, and he, frequently speculate in purchasing Turnips for consumption on the ground, by sheep; choosing dry soils, such as the neighbourhood of Corby Castle, &c. In 1812-13, they purchased 3-year-old Wedders, at 1*l.* 15*s.* per head, and sold them to butchers at 4*l.* 6*s.*, leaving a very handsome profit. I find Mr. H. altogether sceptical as to a real unfailing milking breed. He has frequently had common Teeswater cows, who gave 30 or 40 quarts of milk per day; but he never knew any of their progeny come nearly up to that mark. He is not sanguine in the success of our friend Bates's cross breed. In his opinion, if you leave thorough-bred shorthorns, you will find no breed pay acre for acre so well (*ceteris paribus*) as pure Kyloes. The Earl of Strathmore is making up a very fine herd of Skye cattle at Streatham Castle; Mr. H. saw his lordship's steward, Mr. Dobson, sell lately in Darlington market a lot of 3-year-old Kyloes steers to a butcher, at 30 guineas each. These were reared upon an upland farm of rough pasture, and finished off at Streatham. Mr. H. quite concurs with Mr. Bates in considering the qualities of a good breed to be chiefly developed when put up to be fed off the shambles. Mr. Robson, butcher in Newcastle, who kills upon an average of twelve months one beast a day, besides sheep, calves, &c., also coincides. Robson purchases largely from Mr. Bates, and declares the crossbred beef to be particularly delicate and rich, and that he finds his account in giving extra prices, as a certain class of customers are willing to pay him for it above the ordinary market rates.

Mr. Bates, of Kirkleavington, of noted celebrity as a shorthorn breeder, farmed Halton Castle, near Hexham, at the period when I formed his acquaintance, in 1813-14. It was a very great privilege to me, and I can with truth say, that his knowledge of husbandry, was only equalled by his kindly spirit, and frank communication of valuable information. My residence was within a reasonable distance of Halton, and a kind of hearty welcome tempted me, I fear, to trespass over much upon his hospitality. Like most men, Mr. Bates had his weak points, but he enjoyed, as he well deserved, a high character for skill, integrity, and zeal in his vocation. About the time when my acquaintance with Mr. Bates commenced, the manufacturers of York and Lancashire were in full blow, and the demand for beef of superior quality was universal. Having this in view, and entertaining a belief that it was possible to introduce a permanent breed of cattle, which would be superior to shorthorns, in delicacy of fibre, without sacrificing early maturity, dairy qualities, or any of the valuable properties of that most estimable breed, Mr. B. began to cross the Kyloe cow with the shorthorn bull. It is well known that the rule laid down by Culley, Cline, and other distinguished men of science and practical knowledge, is to use a small male, or at least one of a breed inferior in bulk to a female. Without disputing the accuracy of this theory, Mr. B. simply declared that he was determined to have Kyloe blood on one side; and that he had failed in finding a Kyloe bull, possessing these points which he considered to be desirable. He certainly effected a great deal, and was, for a time, quite satisfied with the results. The grade cows proved excellent dairy stock, more especially in the article of butter. I saw one which was giving 15 lbs. of butter per week, but as this was ascertained from churning a portion of her milk in a bottle, I confess that it appeared to me to be a somewhat questionable test. The great and perceptible improvement in the grades was in the additional depth and weight of the fore quarter.* The Kyloes and grades are, for the most part, kept upon a moorland farm, some distance from Halton, which Mr. B. had improved by draining, paring, and burning, and laying down to pasture. Eventually, the cattle experiment failed and was abandoned. The first cross was in general the best. No reliance could be placed upon the progeny of grade bulls, and the cows, as the process advanced step by step, reverted to pure shorthorns. The farmers and breeders of the district always decried them, even when they carried off many prizes, and fetched higher prices for animals of like age, but of pure shorthorn blood. At every agricultural meeting, Mr. Bates puts forward a challenge offering to stake 100 gs. against a like sum, grades and shorthorns, which no breeder was found to accept (as they said) from the difficulty or impossibility of coming to a satisfactory and a fair decision. That Kyloe and Galloway blood was employed by the Messrs. Collings is beyond all doubt, though how applied, or in what form or measure, I believe to be absolutely unknown. I am further inclined to consider it as a mistake made by these clever men. The alloy may be traced even at this day in some of our highest bred stock, but which it will be wise to regard rather as a beacon than as a guide-post.

Halton was the property of Sir Charles Loraine, and was entirely farmed by Mr. Bates; I believe upon a lease of 21 years. It contained a considerable portion

* Mr. B. kept altogether a very large breeding stock. He expects ninety calves this season, 1813-14, pure and grade.

of rich, and a yearly old pasture. This portion of the farm lay much upon a declivity, and was laid under water (catchwork) for a portion of the winter. It was thus made early, and afforded an early bite for stock. Mr. B. used it much in finishing off his stall-fed cattle, and always to good profit, enabling him to hit the critical period when Turnips were used up, and Grass beef in ordinary pastures was not ready. He always said that this system paid him remarkably well.

In after life Mr. B. purchased a beautiful estate in Yorkshire, where he pursued his course as a breeder of Durham, chiefly from his favourite Duchess tribe, which are probably unrivalled for all the valuable qualities of good shorthorns, early maturity, &c., possessing, moreover, high claims as dairy stock, an important consideration often too much overlooked in high bred herds. Mr. B. was by no means rigid in his notions of breeding in and in. His rule was to regulate that by circumstances. So long as no degeneracy appeared in the produce, he felt no scruples on the score of affinity. At the time when I was in the habit of visiting his stock, he had two shorthorn bulls in use—Ketton by Favourite, and Baron by Ketton, both of them very superior animals. Mr. B. valued Ketton at 1000 guineas, and declared that he was well worth that money to him as a breeder. I frequently saw the original Duchess, for whom, as a yearling heifer, Mr. B. paid 185 guineas at the great Collings sale. To my unpractised eye I confess she seemed to have been pretty well paid for, but I did not know then, as I do now, that blood is all in all. *The Hon. A. Ferguson, in the Canadian Agriculturist.*

Calendar of Operations.

SEPTEMBER AND OCTOBER.

BERWICKSHIRE MERSE FARM, *Sept. 29th.*—Harvest commenced with the month, being just a week later than usual, and for a week all went well under a propitious sky. The second week was characterised by warmth and humidity, with occasional thunder showers, which, besides retarding the cutting, prevented the cut grain from making any progress towards keeping condition. The third week opened with a splendid dry west wind, which soon overturned the stooks and dried them thoroughly, and on the 17th all hands were at work carrying Barley and Oats. The earliest Wheat, being but just cut, could not be secured, otherwise it should have had the preference. The greener and by far the more extensive fields got a shake to the extent of a couple of bushels at least per acre. Four days of such weather, but with no moonlight, put about two-fifths of the crop in the stackyard, and it was anticipated that other three days would secure all that was cut. But on the very Saturday night it changed, and such a week of north-east wind and rain has not tried our spirits for many a year. The corn is soaking and what is uncut is twisted and beat down, and this delightful state of affairs gives no sign of change. We are now, however, past the repining stage and have got used to it, like eels to the skinning. Pastures are destroyed, but Turnips have much benefitted, consequently store cattle, especially those forward in condition, are dear. Our neighbours in Lammermuir have scarcely begun harvest at all. *J. T.* [We learn from another correspondent that Sept. 30 was the 9th day of almost continuous rain; one quarter of the crop is carried and the rest much sprouted; harvest prospects are most discouraging.] *October* 6.—After a fortnight's rain we find our crops in a sad plight. It is only three years since we had a heavy fall of rain during, though at a later period of, the harvest. But owing to the high temperature (about 60°) of last week, especially Friday, there has been such a germination as few have witnessed before. The proportion of grain in the field during these rains may be stated at about one-half of the Barley and Oats, and nine-tenths of the entire Wheat crop. Of the latter, one-half being uncut, was but slightly sprouted, and that only where it was much laid. The earlier half was just ready for carrying, and promised a pretty sample—a reflection that aggravates the hardship of the case. At the same time it seems that few can be blamed for having lost time, for all was secured as soon as it would keep. This morning we are opening out every sheaf, and there is scarce one that is not more or less sprouted. On minute examination we should be inclined to estimate the per centage of germinated grain at not less than 25 per cent. of the earlier Wheat. We have often heard of corn being as "wet as muck;" but until now we never saw the dread reality. The barometer has risen steadily to a pretty fair position, and the nights incline to frost, so we may hope for a cessation of rainy weather. And, with a hard breeze, we might select and carry some of the better conditioned sheaves, but as yet there is no prospect of that. There are three or four large farms in this district where not one sheaf has been secured in stack, and in Lammermuir scarcely an acre is cut. The rain has completely ruined our Grass, and cattle have lost condition fast, the state of the land rendering it unadvisable to draw Turnips for them. Now, however, the land has got much firmer, and we proceed with alacrity to give them their dues. The sowing of Fallow Wheat and Winter Tares cannot yet be thought of. *J. T.*

Notices to Correspondents.

ADDRESS: *Martin Doyle* will oblige us by his address, which we have mislaid.

AGRICULTURAL STATISTICS OF IRELAND, 1856: *F R S.* The following are the principal figures:—

CROPS.	1855.	1856.	Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Wheat	445,775	529,363	83,588	...
Oats	2,118,850	2,036,181	...	82,677
Barley, Bere, Rye, &c.	267,931	218,503	...	49,428
Potatoes ...	982,801	1,104,590	1,222,289	...
Turnips... ...	366,953	354,362	...	12,591
Other grain crops	95,136	99,873	4,737	...
Flax	97,075	106,826	...	9,751
CATTLE.				
Horses	556,287	573,266	16,979	...
Cattle	3,564,400	3,584,723	20,323	...
Sheep	3,602,342	3,688,143	85,801	...
Pigs	1,177,605	915,933	...	261,672

COW AND CALF: *A Subscriber.* You may safely rear a calf from her. It is perfectly true that animals bring forth after their kind; but you need not expect to reproduce the unfortunate peculiarity to which you allude.

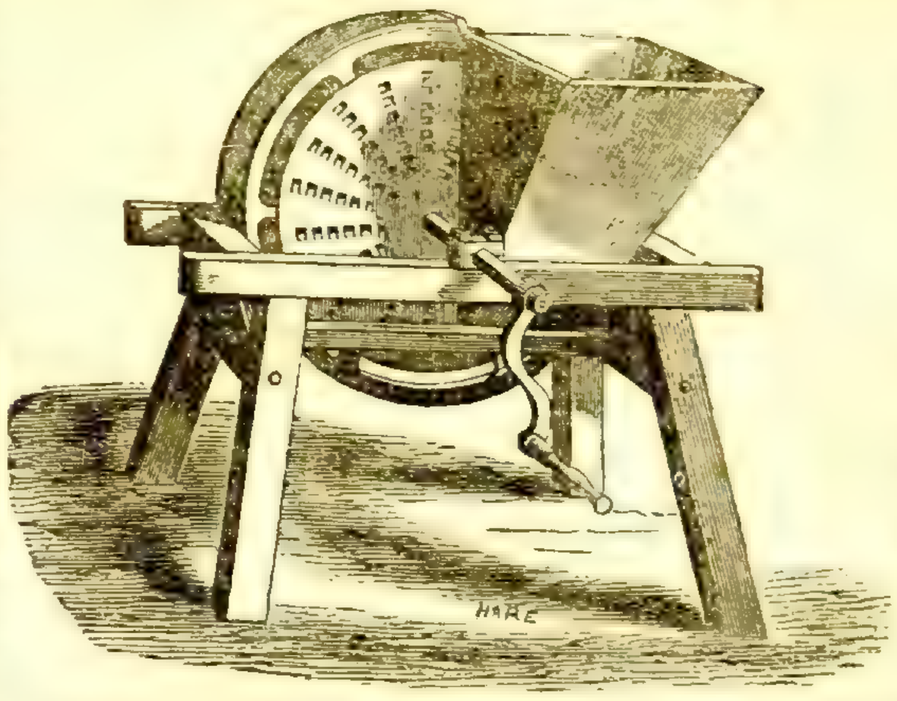
HOOSE: *F S W.* It is not proper to "administer the medicine through the nose" [!]. Give lime-water.

LAND: *No Surveyor.* It is let and sold according to the extent of its ground plan.

LIMING: *M G Y.* We would lime in the autumn, ploughing it in lightly. We would prefer liming before Turnips, to liming on the land after they have been fed. Subsoil in autumn when ploughing your first stubble.

POOR CLOVER: *M G Y.* Harrow the land hard, and then sow Trifolium incarnatum 20 lbs. an acre. You ought to have done so some weeks ago.

ECONOMY IN FEEDING STOCK.



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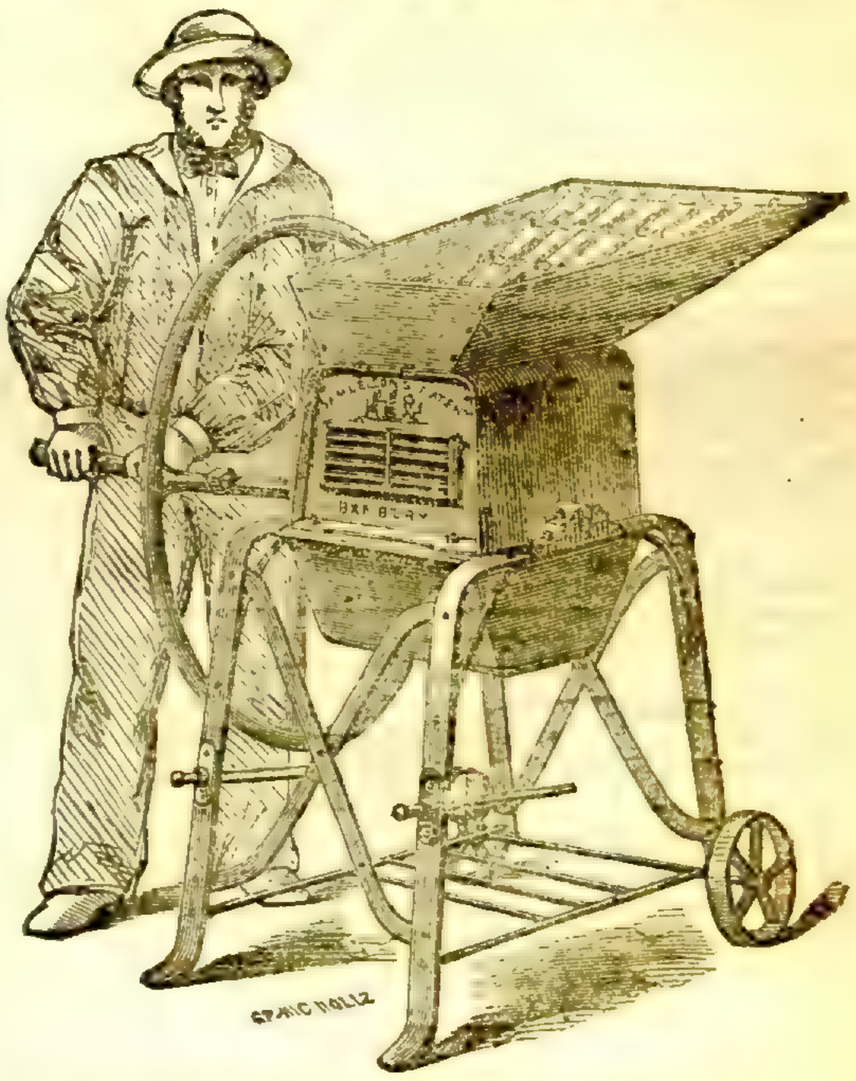

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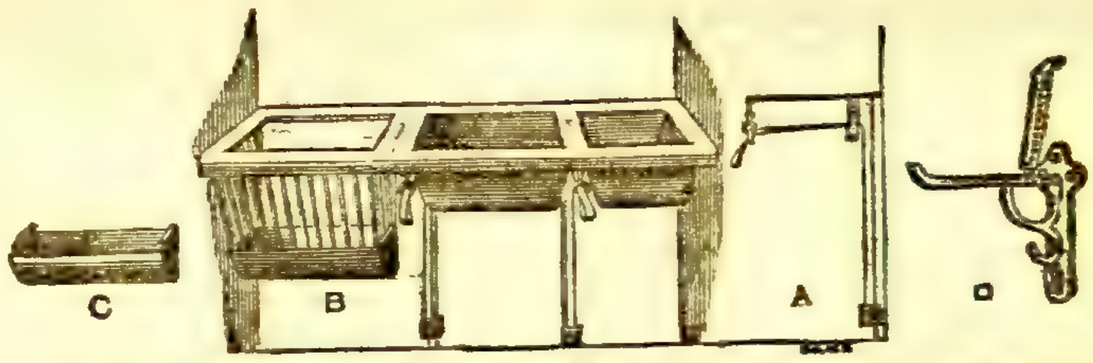

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B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

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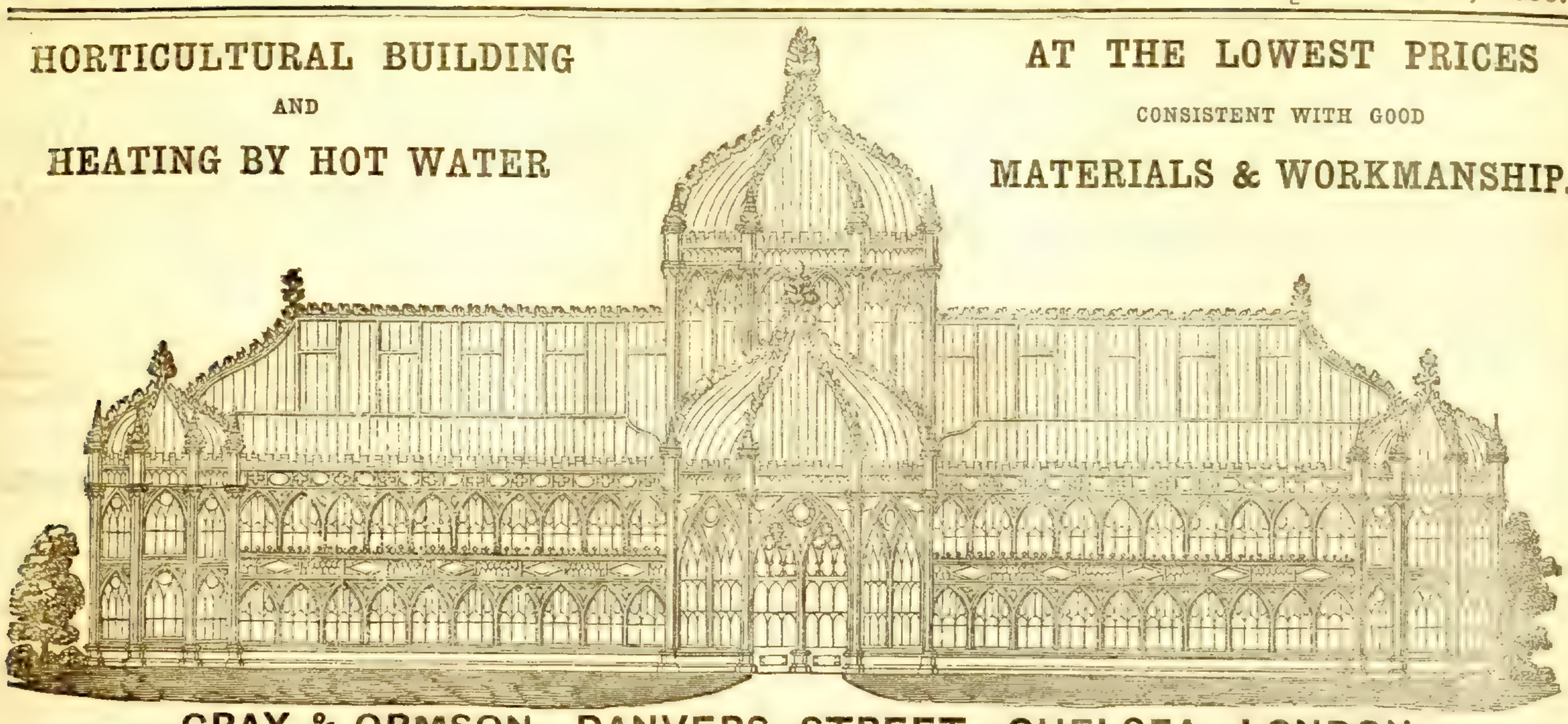

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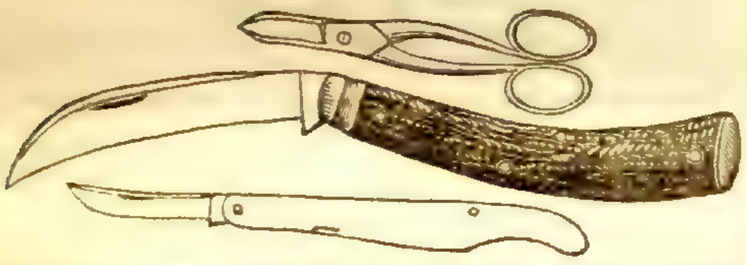
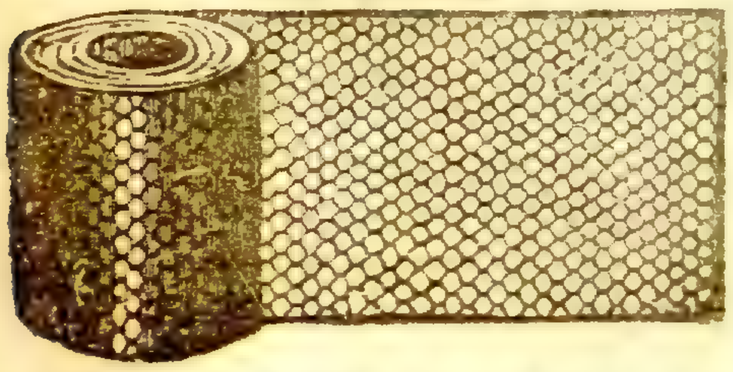


SAYNOR and COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.
Established 1738.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD and BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong, do.	... ...	6 ,,	4¾ ,,
2 inch ,, intermediate, do.	... ...	7 ,,	5½ ,,
2-inch ,, extra strong, do.	... ...	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	... ...	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	... ...	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do.	... ...	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	... ...	10 ,,	8 ,,

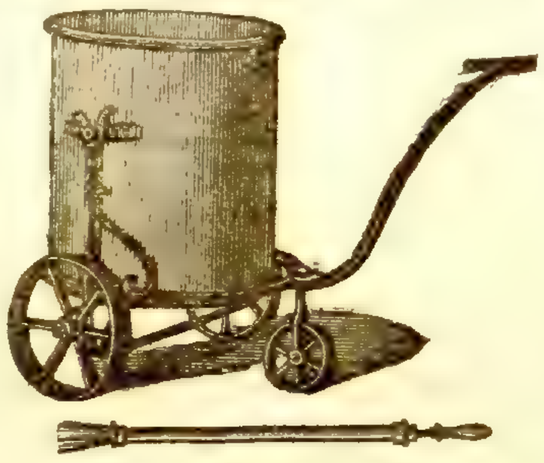
All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

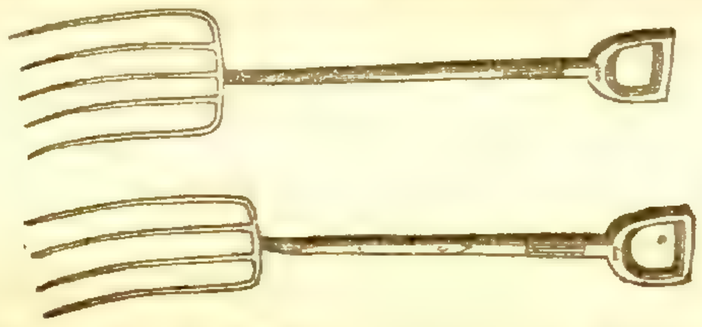
Illustrated Catalogues and Patterns forwarded by post.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*



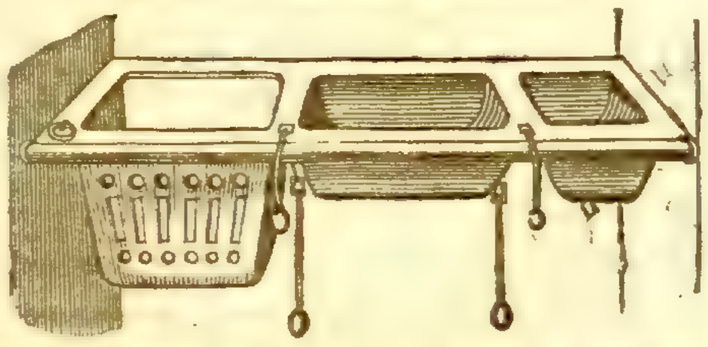
Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
Fountains suitable for Conservatories, Lawns, &c.



AMERICAN STEEL DIGGING FORKS.
GREAT REDUCTION IN PRICES.
Wholesale Agents: William Dray & Co., Agricultural Engineers, Swan Lane, Upper Thames Street.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

James Barton, Iron Founder, &c., 370, Oxford Street, London.

COUGHS, COLDS, and ASTHMA are instantly relieved by Dr. Locock's PULMONIC WAFERS, to be bought of all Druggists at 1*s.* 1½*d.* and 2*s.* 9*d.* per box. They have a pleasant taste.

THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. Mesure & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly. An inspection is solicited. Silver Levers, four holes jewelled, from 6*l.* 16*s.*; Gold Levers, four holes jewelled, from 16 guineas.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, and CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of Metcalfe's celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DR. DE JONGH'S
LIGHT BROWN COD LIVER OIL,
has now, in consequence of its marked superiority over every other variety, secured the confidence and almost universal preference of the most eminent Medical Practitioners in the treatment of CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Its leading distinctive characteristics are:
COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES.
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS, AND CONSEQUENT ECONOMY.

FROM "THE LANCET."

"Dr. De Jongh gives the preference to the Light-Brown Oil over the Pale Oil, which contains scarcely any volatile fatty acid, a smaller quantity of iodine, phosphoric acid, and the elements of bile, and upon which ingredients the efficacy of Cod Liver Oil, no doubt, partly depends. Some of the deficiencies of the Pale Oil are attributable to the method of its preparation, and especially to its filtration through charcoal. In the preference of the Light-Brown over the Pale Oil we fully concur. We have carefully tested a specimen of Dr. De Jongh's Light-Brown Cod Liver Oil. We find it to be genuine, and rich in iodine and the elements of bile."

Sold only in Imperial Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.*; Quarts, 9*s.*; capsuled and labelled with Dr. De Jongh's Stamp and Signature, without which none are genuine, by ANSAR, HARFORD & CO., sole British Consignees, 77, Strand, London; and by many respectable Chemists and Druggists.

DEBILITY and NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. Roberts (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dulness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by Prout and Harsant, 229, Strand, London; and all Vendors of Medicine. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

HOLLOWAY'S PILLS AN INFALLIBLE REMEDY FOR ASTHMA.—These Pills effected a perfect cure in the case of Maria Vick, of Kington, Herefordshire, who had been suffering for more than 10 years with Asthma; continual coughing and loss of sleep were gradually undermining the system, and she became a perfect skeleton. She was advised to give Holloway's Pills a trial, and persevered for 8 weeks, well rubbing the Ointment into the chest night and morning, when these astonishing remedies effected a perfect cure after all other medicines had failed.—Sold by all Medicine vendors throughout the world; at Professor Holloway's Establishments, 244, Strand, London, and 80, Maiden Lane, New York: by A. Stampa, Constantinople; A. Guidicy, Smyrna; & E. Muir, Malta.

NOW READY TO SEND OUT, direct from Yarmouth, during the season, GENUINE YARMOUTH BLOATERS, 100 for 6s.; forwarded securely packed to any address upon receipt of Post-office Order, by JAMES AYERS, Fish Curer, Great Yarmouth. The Trade supplied.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPIN's celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen.—Manufactory, Queen's Cutlery Works, Sheffield.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD's Eurekas are the acme of perfection." *Court Journal.* In half dozen boxes, ready for use, or made to order. Best quality, 42s.; second quality, 33s.

CAUTION.—FORD's Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free. RICHARD FORD, 38, Poultry, London.

BEDSTEADS, BATHS, AND LAMPS.

WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock is at once the largest, newest, and most varied ever submitted to the Public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from...	12s. 6d. to 12l. 0s. each.
Shower Baths, from	7s. 6d. to 5l. 15s. each.
Lamps (Moderateur) from ...	6s. 0d. to 6l. 6s. each.

(All other kinds at the same rate.)

Pure Colza Oil ... ... 4s. 8d. per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON's, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 11s. per dozen; Desserts to match, 10s.; if to balance, 1s. per dozen extra; Carvers, 4s. per pair; larger sizes, from 19s. to 26s. per dozen; extra fine Ivory, 32s.; if with silver ferrules, 37s. to 50s.; white bone Table Knives, 7s. 6d. per dozen; Desserts, 5s. 6d.; Carvers, 2s. 3d. per pair; black-horn Table Knives, 7s. 4d. per dozen; Desserts, 6s.; Carvers, 2s. 6d.; black wood-handled Table Knives and Forks, 6s. per dozen; Table Steels, from 1s. each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

PAPIER MACHE AND IRON TEA TRAYS.—An assortment of TEA-TRAYS and WAITERS wholly unprecedented, whether as to extent, variety, or novelty.

New Oval Papier Mache Trays, per set of 3, from	20s. to 10 gs.
Ditto iron ditto	from 13s. to 4 gs.
Convex shape ditto	from 7s. 6d.

Round and Gothic Waiters, Cake and Bread Baskets, equally low.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38s.	48s.	60s.
Dessert ditto and ditto „	30s.	35s.	42s.
Tea ditto ... ... „	18s.	24s.	30s.

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen ...	12s.	28s.	30s.
Dessert ditto and ditto	10s.	21s.	25s.
Tea ditto	5s.	11s.	12s.

Illustrated Catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; 4, 5, and 6, Perry's Place. Established 1820.

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, curly, and glossy. In the growth of the Beard, Whiskers, Eyebrows, and Mustachios, it is unfailing in its stimulative operation. For Children it is especially recommended as forming the basis of a beautiful head of hair. Price 3s. 6d. and 7s.; family bottles (equal to four small), 10s. 6d.; and double that size, 21s.

NEW LABEL.—To prevent the substitution of spurious imitations for the genuine article by unprincipled shopkeepers, a New Label from Steel, by Messrs. Perkins, Bacon, & Co., is now used, upon which are engraved in white letters the words, "Rowlands' Macassar Oil, for the Growth, Restoration, and for Beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS." The whole, with the exception of the profile of Her Majesty the Queen, being covered with a lacework pattern, in transparent colourless ink.—Sold at 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing thirteen penny post stamps, to Miss Coupelle, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, &c., of the writer, with many other things hitherto unsuspected.

"TIFFANY," a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3d. per yard or 5s. per piece. A liberal allowance to the Trade when not less than 10 pieces are taken. No orders will be attended to from unknown correspondents unless accompanied by a remittance.

Manufactured for and sold, wholesale and retail, by JOHN SHAW, Nurseryman and Seedsman, 40, Princess Street, Manchester.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9s. 6d to 6l.; China from 19s. to 7l. 7s. each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

TO GENTLEMEN FARMERS.

AGRICULTURAL PUPIL.—A Farmer in a Midland County, occupying 700 acres of strong and light Arable and Pasture Land, has a vacancy for a Pupil. References given and required.—Address P. W., care of Mr. J. Tomkinson, Stationer, Coventry.

COMMISSION.—AGENTS REQUIRED, to Sell First-class MANURES on Commission. As they will be supported by manufactures of the best quality, it is requested that only persons of influence in their respective districts will apply.—CHEMICUS, 10, Billiter Street.

CAUTION.

CATTLE.—Purchasers of Guernsey Cattle are informed that there is a duly authorised person to Brand on the Horns of those exported from the Island an abbreviation of the word GUERNSEY, the successive number in each year, and the two last figures of the current year. By exacting this Brand from the Agents, they will be sure of the really pure breed. Any attempted imitation of the Brand will be strictly sued at law. Any further information desired can be obtained from the Secretaries. N. LE BEIR, W. P. COHU, } Honorary Secretaries Royal Agricultural Society of Guernsey.

Guernsey, October 11.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

TO BE LET, the FARM of TURTLETON, on the estate of Wedderburn, in the Parish of Dunse and County Berwick, situated within a mile of the Crumstane Station of the North British Railway, as possessed by Captain Robert Hay, Royal Navy, lately deceased. The Farm contains about 132 acres of arable and four acres of permanent pasture, exclusive of Houses, Fences, Plantations, Roads, Water, &c. The Land is in a high state of cultivation, and bears all kinds of crops. The Dwelling-house, Farm, Offices, Servants' Cottages, Steam-engine, and Threshing-machine are new and in good order. Entry to the Land at Martinmas 1856, and to the Houses, &c., at Whitsunday 1857, under conditions which, as well as the premises, will be shown to any intending offerer, by David Swanston, Hedger, Wedderburn. The Dwelling-house, with Garden, two-stalled Stable and Coach-house, &c., being capable of being occupied separately from the Farm and Farm Offices, the proprietor would have no objection to let them to different parties.—Further particulars may be learned from Mr. GARDINER, Factor on the Estate, residing at Milne-Graden, near Coldstream; and offers must be lodged with him on or before the 15th November, 1856.

Milne-Graden, Oct. 11.

TO NURSERYMEN AND GARDENERS.

TO BE LET, with Immediate Possession, LOCKSBROOK NURSERY, in the parish of Weston, in the Upper Bristol Road, about one mile from the Bath Market, containing Four Acres of Land, well stocked with Flowers, Fruit, and Vegetables; together with Greenhouses, Pits, and Sheds, of every convenience for the trade. The Stock to be taken at a valuation.—For particulars apply to Mr. JAMES SHACKELL, Market Gardener, Tiverton, Bath.

TO BE DISPOSED OF, a first-rate NURSERY and SEED BUSINESS, with an excellent connection, having been carried on by the present occupier and family for the last 50 years. The Nursery contains about four acres, with Greenhouse, Propagating House, Pits, &c. The Stock consists of a fine collection of Conifers and the New Shrubs lately introduced to this country, Evergreens, &c.; collections of Hardy, Herbaceous, and Alpine Plants; a general collection of Bedding Plants, Greenhouse Plants, &c.—For particulars apply to Mr. T. J. FOORD, Pinner's Hall, Old Broad Street, London.

HAMPSTEAD.—TO FLORISTS AND OTHERS.

MR. WILLIAM PAXON is instructed to dispose, by Private Contract (in consequence of the death of the proprietor), together or in Lots to suit the convenience of purchasers, of the remaining stock of Greenhouse Plants and Greenhouse. Also two others (with the exception of the back walls), two Garden Boxes and Lights, &c.—Particulars and cards to view of Mr. WILLIAM PAXON, Auctioneer, &c., Registration Offices, Hampstead.

Sales by Auction.

BULBS, ROSES, &c.

MR. HASLAM will Sell by Auction the above, at the Mart, on WEDNESDAY, October 15, and FRIDAY, October 17 next, and every succeeding WEDNESDAY and FRIDAY till December 5.—Epping, Oct. 11.

FOREST AND FRUIT TREES, &c.

MR. URQUHART will Sell by Public Auction, at Cowpark, Blackness Road, Dundee, on TUESDAY, October 28, at 11 o'clock forenoon, in consequence of the Ground being required for other purposes, a Portion of his Stock in the above Field—consisting of upwards of 400,000 Transplanted Larch, Scotch Fir, and Spruce; 1230 fine Standard Apples, two years from bud; 330 Dwarf; 250 Dwarf Maiden Peaches and Nectarines; 250 Dwarf Plums; and a number of Standard Pears, Dwarf-trained Apples, Pears, Plums, Apricots, Peaches, and Nectarines. Also, some choice Ornamental Trees and Evergreens.—Catalogues of the Lots, with the names of the Fruit Trees, may be had on application.

FULHAM.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Seggers, who is leaving the business, to sell by Auction, without reserve, on the Premises, Stanhope Nursery, North End, Fulham, on MONDAY, October 13, at 11 o'Clock, the whole of the NURSERY STOCK, consisting of fine Aucubas, green and variegated Box, Berberis, Euonymus, Arbor Vitæ, Yews, Phillyreas, Rhododendrons, &c. Also the GREENHOUSE PLANTS, comprising Scarlet and other Geraniums, Camellias, Coronellas, Fuchsias, Verbenas, Cinerarias, Calceolarias, &c.; together with a capital light Spring Van, several glazed Lights, Frames, quantity of Leaf Mould, Manure, and sundry effects.—May be viewed prior to the Sale; Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MITCHAM.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction, on the premises, Mordon Road, Mitcham, Surrey, on TUESDAY, October 14, at 11 o'Clock, by order of Mr. Dawson, about 5000 Evergreens, including Laurels, Laurestinus, Box, China Arbor Vitæ, Privet, Honeysuckles, &c; also 3000 Gooseberries and Currants, quantity of Asparagus and Seakale Plants, China Roses, Pyracanthas, Filberts, Hollyhocks, Herbaceous and other Roots, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will sell by Auction, at the Mart, Bartholomew Lane, on MONDAY, October 20, at 12 o'Clock, (by order of Mr. Lockhart, of Fulham), a costly and extensive collection of BULBS and FLOWER ROOTS, being about 35,000 in number, and consisting of all the approved Hardy and Ornamental varieties of Hyacinths, early and late Tulips, Crocus, Narcissus, and Anemones; also 4000 Sir Charles Napier Ranunculus, the finest variety yet raised, the whole of which are warranted true to name and description.—On view the morning of Sale; Catalogues may be had of Mr. Lockhart, Parson's Green Lane, Fulham: at the Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CROYDON.

SECOND PORTION OF THE STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the proprietor to submit to public competition by Auction, on the premises, Sion Nursery, Croydon, on TUESDAY, October 21, and following day, at 11 o'Clock each day, the valuable NURSERY STOCK, extending over 7 acres of ground, consisting of a large assortment of Ornamental Trees, Evergreens, and Deciduous Shrubs; with a useful Pony and sundry effects.—May be viewed one week prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE END NURSERY.

TO GENTLEMEN, NURSERYMEN AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Mile End Nursery, Bow Road, Middlesex, on THURSDAY, October 23d, at 11 for 12 o'Clock precisely, in consequence of the number of lots, the NURSERY STOCK, consisting of Evergreens, Deciduous Shrubs, and Ornamental Trees; also above 10,000 choice Greenhouse Plants established in pots, the surplus stock of a celebrated grower, including 3000 Devoniensis, Fabvier, Fairy and other leading varieties of Roses; 5000 Brilliant, Flower of the Day, Dandy, and Ivy-leaved Geraniums; 3000 Deutzia gracilis, Jasminum nudiflorum, Veronica Hendersonia, Heliotropes. Primula fimbriata, Cyclamen persicum, Hydrangeas, Verbena triphilla, &c.—May be viewed the morning of Sale. Catalogues on the premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone, Essex.

RIVERHEAD, KENT.

IMPORTANT SALE OF NURSERY STOCK, SEVERAL NEWLY-ERECTED GREENHOUSES, PITS, FRAMES, HOT-WATER PIPE, BOILERS, QUANTITY OF BRICKS, SLATES, PAVING AND ROOFING, IRON HAND-LIGHTS, BELL GLASSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by the Trustees of Mr. William Finnis Smith to submit to an unreserved Sale by Auction on the premises, Riverhead Nursery, Riverhead, near Sevenoaks, Kent, on MONDAY, October 27, and following days, at 11 o'Clock each day, in consequence of the number of Lots, the whole of the valuable Nursery Stock extending over 14 acres, consisting of a large collection of Fruit and Forest Trees; Evergreens and Deciduous Shrubs in great variety, a rich assortment of American Plants and Ornamental Trees; about 100,000 Ash, 50,000 Spanish Chestnuts, 20,000 Alder, 200,000 Larch Fir, 50,000 Willow, 10,000 Birch, &c. Also the Greenhouse Plants, comprising fine double Camellias, Azalea Indica, Epacris, Ericas, Fancy, and other Pelargoniums, &c.; together with a useful Horse, an excellent Stack of Meadow Hay, two Carts, a capital Iron Roller, Syringe, three sets of Harness, Garden Pots, and numerous other effects.—May be viewed one week prior to the Sale; Catalogues may be had 6d. each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO NOBLEMEN, GENTLEMEN, AND NURSERYMEN.
IMPORTANT SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS begs to announce that he has received instructions from Messrs. Standish & Noble, who are dissolving partnership, to Sell by Auction at the Nurseries, Bagshot, Surrey, on the days mentioned below, a portion of their Stock, which includes about—

700 specimens of the most choice and rare CONIFERS and other Ornamental Plants.
250 BERBERIS JAPONICA, Beali and intermedia, all of which proved themselves perfectly hardy (*vide* description—Jour. Hort. Soc., vol. v., p. 20; and Paxton's "Flower Garden," vol. i., p. 11).
300 PÆONIES, Fortune's new varieties; imported plants, and now fine specimens.
1000 CEPHALOTAXUS FORTUNI, from 6 in. to 3 ft. This ornamental plant has also proved itself superlatively hardy.
300 SKIMMIA JAPONICA.
1000 SIKKIM RHODODENDRONS, including Dalhousiæ, Falconeri, fulgens, Egworthi, Thompsoni, &c. &c.
5000 (about) American Plants, including some of the choicest HYBRID RHODODENDRONS and AZALEAS.
10,000 STANDARD ROSES and 5000 DWARFS, including the established favourites Jules Margotin, General Jacqueminot, Gloire de Dijon, Madame Edouard Ory, and all the newest and best introductions, together with a great variety of other hardy ornamental Plants.

The Plants in Pots and the American Plants will be sold on MONDAY, October 13, and four following days, and the Roses and other Plants on MONDAY, Nov. 17, and four following days.

The Stock will be on public view 10 days before each Sale, when Catalogues may be had (1s. each, returnable to purchasers, at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

Approved bills at three months' date will be taken of purchasers from 50l. to 100l., and at six months' date of purchasers above 100l.

The Sunningdale Station on the South Western Railway is within about two miles of the Nursery.

TO THE SEED TRADE.

J. H. COTTRELL, late Manager of the business of Dawe, Cottrell, & Benham, begs to inform the Trade that Mr. William Dawe, of 36, Moorgate Street, *never* was in any way connected with the late firm of D., C., & B. J. H. Cottrell also begs further to inform the Trade that he is not in any way connected with his late partners, Mr. John Dawe or Mr. Thomas Benham. All letters, &c., for J. H. C., for the present should be addressed to him to Mr. Green's, 89, Queen Street, Cheapside.

J. H. C. is now ready to execute orders (having arranged to sell on commission for his Uncle) for BULBS and SEEDS in any quantity, with his usual punctuality and dispatch. Prices on application.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON and SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

CAMELLIAS.

J. HENCHMAN, Jun., is now sending out healthy plants full of flower-buds of the following fine blooming varieties—Double White, Fimbriata, Imbricata, Leeana superba and Candidissima; small plants, 21*s.* per dozen; second size, 24*s.*; fine well furnished plants, 30*s.*; and a few very choice plants at 36*s.* per dozen. These plants are all home-grown and established in the pots, and therefore not liable to cast their buds, as is the case with the foreign imported plants.

Choice Indian Azaleas, worked and on their own roots, bushy plants well set for bloom, at 15*s.*, 18*s.*, 24*s.*, and 30*s.* per dozen. Ghent Azaleas, fine named sorts, full of flower buds, 18*s.* per doz.

Edmonton, near London.

LARGE EVERGREEN SHRUBS.—Several Hundred Evergreen Shrubs of large size and fine growth to be disposed of. They were planted by us three years ago in a gentleman's Shrubberies near London, which now require thinning. This is an excellent opportunity for any one wishing to give immediate effect to new ground work, as they transplant with good balls of earth.—Apply to Messrs. J. & C. Lee, Nurserymen and Seedsmen, Hammersmith, near London.

FOREST TREES. — The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.

David Reid & Son, Nurserymen and Seedsmen, Edinburgh.

THORNS, LAURELS, AND IRISH YEWS.

CHARLES DALY and SON, Coleraine, will sell good rooted LAURELS, 1 to 2 feet, at 15*s.* per 1000; PORTUGAL do., 1 to 1½ foot, 4*s.* per 100. IRISH YEWS, 1½ foot, 10*s.* per 100. FOREST and WALL TREES sold cheap.

Delivered free in Liverpool or Glasgow for cash only, paid to Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London.

Price Lists free by post.

TO BE SOLD CHEAP, a quantity of fine Standard Trained PEACH and NECTARINE TREES, of the best sorts, or exchanged for other Fruit Trees.—Messrs. Cuthbert, Southgate Nursery, near London.

TO BE SOLD CHEAP, for cash, 5000 ORNAMENTAL and other FOREST TREES, from 10 to 15 feet; also an excellent variety of GOOSEBERRIES and CURRANTS, the ground being wanted.—Apply to Charles Clarke, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

TO BE SOLD, in one Lot, about 60 species of ORCHIDS, in good condition, well established, and truly clean; among which are fine plants of Aerides affine and Odorata major, Cattleyas labiata and bicolor Phalænopsis amabilis, Saccolabium guttatum, &c. This presents an opportunity seldom to be met with to those who may be beginning the cultivation of Orchids.—For further particulars and lists, apply to Mr. James Bell, Gardener, Eartham, near Chichester.

N.B. A. F., who wrote from Liverpool, did not send his address.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s.* per bushel.

Address Mr. H. Raynbird, Basingstoke.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

SEED WHEAT FROM BLACK LAND.—Improved Browick Red Wheat, warranted genuine, perfectly clean and healthy Seed, grown 100 miles north of London on a light black soil in Deeping-Fen. It is the produce of a properly prepared seed bed, from selected Seed of last year's growth, and carefully tended throughout. References to any farmer in the district.—Address, Wm. Barnes, The Elms Farm, Spalding, Lincolnshire.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56lbs.), 12*s.* 4*d.*; fine Households, recommended for bread-making, 11*s* 8*d.*; Seconds, 11*s.*; Wheat Meal, for Brown Bread, 11*s.*; best coarse and fine Scotch Oatmeal, Rice Flour, &c.—Address Horsnaill & Catchpool, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for making Bread supplied gratis. Terms cash.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

TREE TRANSPLANTING BY MACHINE, LANDSCAPE GARDENING, ORNAMENTAL PLANTING, &c.

W. H. RUMBOLD will be happy to execute any of the above on reasonable terms, by contract or otherwise. The Machine will be let by the week with Man. Designs and Estimates given.—Calverly Road, Tunbridge Wells.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

AQUARIA.

JAMES PHILLIPS and CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

AQUARIA, WITH EBONY STANDS,

12 inches diameter	Each 5*s.*	17 inches diameter	Each 12*s.*
13 " "	6	18 " " ...	13
14 " "	8	19 " "	14
15 " "	9	20 " "	15
16 " "	10		

COMMON SHAPE DITTO.

12 inches diameter, each	4*s.* 6*d.*	17 inches diameter, each	8*s.* 0*d.*
13 " " ...	5 0	18 " " ...	10 0
14 " " ...	5 6	19 " " ...	11 6
15 " " ...	6 6	20 " " ...	12 6
16 " " ...	7 0	Syphons, 2*s.* 6*d.* each.	

TANK DITTO, GLAZED WITH PLATE GLASS.

Height.	Length.	Width.	£ *s.* *d.*	Height.	Length.	Width.	£ *s.* *d.*
18 in.	36 in.	16 in.	4 15 0	15 in.	24 in.	13 in.	2 10 0
16 in.	28 in.	16 in.	3 12 0	14 in.	20 in.	11 in.	2 0 0
15 in.	26 in.	12 in.	2 10 0	12 in.	18 in.	10 in.	1 8 0

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	3*s.* 0*d.*	12 inch diameter, each...	8*s.* 0*d.*
7 " " " ...	3 6	13 " " " ...	10 0
8 " " " ...	4 0	14 " " " ...	12 6
9 " " " ...	5 0	15 " " " ...	17 0
10 " " " ...	6 0	16 " " " ...	22 0
11 " " " ...	7 0		

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per dozen; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every Article in the Trade.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

PRACTICAL INSTRUCTIONS on the MANAGEMENT and STOCKING of the AQUARIA, with every information. By Shirley Hibberd. Price 1*s.*

GLASS FOR HORTICULTURAL PURPOSES.

Good 15 oz. sheet, in boxes of 100 feet each:—

8 by 6, and under 9 by 7	... ...	11*s.* per box.
9 by 7, " 12 by 9	... ...	13*s.* "
12 by 9, " 14 by 10	... ...	14*s.* "
14 by 10, and not above 2 feet	... ...	15*s.* 6*d.* "
2 feet, " 3 feet	... ...	16*s.* 6*d.* "

T. & W. Farmiloe, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7¼ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. Farmiloe & Son, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY and CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

CRYSTAL PALACE. — AGRICULTURAL IMPLEMENTS. — The largest and best collection of Agricultural Machines and Implements ever exhibited is now on view.—Prices and every information may be obtained of Mr. Garrood, at the Office of the Department.

POULTRY, &c., SHOWS.—IMPROVED PORTABLE WIRE PENS for Poultry and Pigeons, furnished on hire by Thos. P. Hawkins, General Wireworker, 27, Dale End, Birmingham.

WIRE GAME and POULTRY NETTING and WIRE GOODS of every description.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—Thomas Hill, late W. Coleman, Cutler, 4, Haymarket, London.

WIRE FENCING, Three Farthings per Foot, less than 2-inch Mesh, painted, from 1 foot wide to 6 feet wide; the 6 feet high 1*s.* per yard run; made by powerful machinery, and little more than half the price of the cheapest article of the kind in the market. It is worked in oil, and warranted not to rust. Also on Sale, Rabbit-proof Iron Hurdles, 6 feet by 3 feet, 5*s.* to 6*s.* 6*d.* each.—R. Richardson, Patent Wire Maker, 21, Tonbridge Place, New Road, near Euston Square, London. The Wire-work is Rabbit-proof. Wire Sheep Fencing, 4*d.* per square yard.

GARDEN FRAMES, GREENHOUSES, PITS, &c. —TRANSPARENT SHEETING, a substitute for Garden Mats, admitting light to plants, and keeping out frost, 1*s.* per yard, runs nearly 2 yards wide; thick canvas ditto, 1*s.* per square yard; large waterproof capes, to protect a man from wet while stooping down, 3*s.*; cart and waggon covers, 2*s.* per square yard; made-up horses' loin cloths, driving aprons, &c.

R. Richardson, 21, Tonbridge Place, New Road, London.

N.B. 3000 London Police Waterproof Capes, fresh dressed, 18*s.* and 24*s.* per dozen, for gardeners and farm labourers.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

Greaves & Kershaw, Warwick.—Oct. 11.

WATERPROOF PATHS. BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators; Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. Tayler, Battersea.

HOT-WATER PIPES (Cast Iron) at WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot-Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

J. S. MORRIS, Engineer, Upper Thames Street, London.—Apparatus supplied and erected for Warming and Ventilating Mansions, Public Buildings, and for Heating Conservatories on the most approved principle. Large experience in this branch of domestic science for many years insures certainty of success. A brief Treatise on the subject forwarded by post.

Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.

HEATING BY HOT WATER.

THOMSON'S RETORT BOILER, DESIGNED by MR. THOMSON, Gardener, Dalkeith Park.

The Advertiser has obtained Mr. Thomson's sanction to Manufacture and supply the public with this most efficient and unique BOILER, and from his great facilities and the extensive arrangements he has made to meet the rapidly increasing demand for it, he is able to offer them at the following extremely moderate prices for cash:—

Single Retort Boiler, to heat 1000 ft. 4-inch pipe ... £4 0 0
Triple do. do. 3000 do. do. ... 8 10 0

They can be sent to any part of the Kingdom, either by Rail or Ship, and attached to pipes as already fixed, and require nothing novel either in furnace or bars.

Mr. Thomson has fixed these Boilers at Dalkeith, in some instances to supersede six of the saddle and other Boilers; and in reply to a letter enclosing two postage stamps he will forward printed directions for Setting the Boiler, with engravings of it, and his "Remarks on Boilers."

John Micklejon, Westfield Foundry, Dalkeith, N.B.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—Deane, Dray, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

COALS FOR HEATING GREENHOUSES.—Small Coal, sifted from the best Coals only, 10*s.* per ton. Coke, 11*s.* per chaldron cash loaded into carts, 3*s.* per ton extra delivered, within five miles of Cockerell & Co's Wharves, Eaton Wharf, Belgrave Place, Pimlico, or Purfleet Wharf, Earl Street, Blackfriars.—Central Office, 13, Cornhill.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. Treloar, 42, Ludgate Hill, London.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late Stephenson & Peill), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to Walter Carson & Son, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 11, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1856.] SATURDAY, OCTOBER 18. { Price Fivepence. Stamped Edition, 6d.

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WILLIAM SHORT, Landscape and Ornamental Gardener, 21, St. John's Wood Terrace, Regent's Park, London.—Ornamental Ground Works, Planting, &c., taken by contract or otherwise. Unexceptionable references can be given.

FLORICULTURE.—In consequence of Mr. John Edwards having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

DENDROBIUM FALCONERI, figured in Curtis's Botanical Magazine for present month.—Plants of this most lovely new species, the finest of the genus, can be supplied at 42s. each by Hugh Low & Co., Clapton Nursery.—Oct. 18.

LARGE EVERGREEN SHRUBS.—Several Hundred Evergreen Shrubs of large size and fine growth to be disposed of. They were planted by us three years ago in a gentleman's Shrubberies near London, which now require thinning. This is an excellent opportunity for any one wishing to give immediate effect to new ground work, as they transplant with good balls of earth.—Apply to Messrs. J. & C. Lee, Nurserymen and Seedsmen, Hammersmith, near London.

STRAWBERRY PLANTS. — Cuthill's three sorts, sure and great bearers. See former Advertisements. Also his three Pamphlets. New Cucumbers, &c.
James Cuthill, Denmark Hill, Camberwell, London.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21s. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3s. 6d. per dozen, free by post.
N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.
James Kitley, Lyncombe Vale Nursery, Bath.

PRICES OF
UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, for the Season of 1856.—All orders (not less than 20) to be accompanied with a Post-office order on Birmingham.

Twenty	£0 12 0	Eighty	£2 1 6
Forty	1 2 0	Hundred	2 8 0
Sixty	1 12 0		

Plants in pots, not less than 10, 1s. 3d. each, will be ready in October next.
Mr. Underhill's "Treatise on the Cultivation of the Strawberry," price 1s.
Mr. R. Underhill, Sir Harry's Road, Edgbaston, Birmingham.

STRAWBERRIES. — Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40s. per 100, or 6s. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready. —Apply to R. S. Yates, St. Ann's Square, Manchester.—Oct. 18.

CHOICE FRUIT TREES and STRAWBERRIES. —For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. Barratt, Landscape Gardener, Wakefield.
"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.
A fine stock of Pyramid and Orchard-house Trees.

PRINCE OF WALES' RASPBERRIES.
WILLIAM CUTBUSH and SON beg to inform the public that they have now on hand a large stock of their CELEBRATED PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation*. Prices per dozen or hundred on application.
Highgate Nurseries, near London.

NEW CHRYSANTHEMUMS OF 1856.
JOHN SALTER has a good stock of all the new Continental and English varieties of 1856, which he can furnish at 24s. per dozen; also some extra strong plants (covered with buds) of the Pompone "Scarlet Gem" at 3s. 6d. each. This variety is now in bloom at the nursery, and pronounced by all to be the finest crimson scarlet yet raised.
Versailles Nursery, William Street, near Hammersmith Turnpike.

CABBAGE AND CAULIFLOWER PLANTS FOR SALE.
G. H. PIKE begs respectfully to inform the Public that he has a large Stock of the above Plants to dispose of. The sort of Cabbage is Shilling's Queen; price 5s. per 1000. Cauliflower Plants, 2s. per 100, package included. They are fine healthy Plants. All orders must be accompanied with a remittance.—52, Walcot Street, Bath.

WANTED TO PURCHASE,
Either by Contract or Otherwise,
CHOICE FRUITS AND VEGETABLES.
Apply to GEORGE TAYLOR, Jun.,
Fruit Salesman & Contractor for Choice Garden Produce
St. John's Market, Liverpool.
Payment Nett Cash on Delivery.

WILLIAM IVERY begs to inform his Friends and Purchasers that his Pot ROSES, on their own roots, are extra fine this season. W. I. has also a very fine stock of INDIAN AZALEAS, good blooming Plants of the best variety in cultivation. Catalogues of the above and other Choice Plants to be had post free on application.
Hanover Nursery, Peckham, near London.—October 18.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* William E. Rendle & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

DUTCH AND CAPE BULBS.
JAMES CARTER and CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to all parts of the world, upon application. The Bulbs are *as usual* of *first-rate quality*.
James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ROSES, ETC.
JAMES GRAHAM, Nurseryman, Seedsman, and Florist, North Gate, Chichester, has the honour to inform the public that his CATALOGUES of the above may be had on application. Also a quantity of PINE SUCKERS from a healthy stock to be had at reasonable prices.

DUTCH BULBS, ETC.
WILLIAM CUTBUSH and SON beg to intimate that their SECOND IMPORTATION of the above have arrived in prime condition. DESCRIPTIVE CATALOGUES, *which contain their celebrated system of culture, can be obtained free on application.* Orders executed in strict rotation.
Highgate Nurseries, near London.

AMERICAN PLANTS.
WATERER and GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

MOSS OR SPHAGNUM for Packing, wanted by Hugh Lowe & Co.—Clapton Nursery, London.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c. of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet	5s.	0d.
Do. 12 do. do.	2	6
Good mixed	1	0

NEW CATALOGUES FOR 1856-57.
WILLIAM WOOD and SON are now prepared to send free and post paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.
Royal Nursery, Slough.

DESCRIPTIVE CATALOGUE OF PELARGONIUMS.
J. DOBSON and SON'S DESCRIPTIVE CATALOGUE of Beck's unrivalled new GERANIUMS, and selection of older varieties, including all the best out, may be had on application.—Woodlands Nursery, Isleworth.

ROSES.
J. and J. FRASER'S Catalogue for the present season is now ready, and may be had on application.
J. & J. F. have a large and fine stock of Dwarf Roses, consisting of the best sorts of Hybrid Perpetual and other autumn flowering kinds suitable for planting in masses or for potting. Price per dozen or hundred (according to the quantity required) may be had on application.
The Nurseries, Lea Bridge Road, Essex.

ROSES.—CATALOGUES forwarded free of *charge* and Post Paid to all Parts of the World, upon application to James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

ROSE CATALOGUE, with DIRECTIONS FOR CULTURE.
JOHN CRANSTON begs to announce that his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1856 and Spring of 1857 is now ready, and that he will be happy to forward it free by post on application. Full and accurate descriptions are given of all the finest varieties in cultivation, likewise directions for Pruning, Planting, and general management.—Nurseries, King's Acre, near Hereford.

ROSES.
A. PAUL and SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.
The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.
Nurseries, Cheshunt, Herts.

ROSES, ROSES.
GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—October 18.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station one hour's ride from Waterloo Station; ¾ from Reading.

GRAPE VINES IN POTS.
JOHN WEEKS and Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

VINES FOR FRUITING IN POTS.
MESSRS. J. & J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to invite attention to their fine stock of the above. Price 5s. and 7s. 6d. each.
Strong Vines for planting out, 3s. 6d. each. A list of the sorts may be had on application.

HOLLYHOCK SEED.
BIRCHAM and WARD beg to offer their Hollyhock Seed in packets at 1s. 6d., 2s. 6d., and 5s. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.
Hedenham Rosery, Bungay, Suffolk, Oct. 18.

HOLLYHOCK SEED.
CHATER and SON offer the above, saved from their best flowers, in packets of 200 seeds, 1s. 6d., or 18 varieties, separate packets, named, 5s. Also strong plants in pots of the leading sorts of Hollyhocks and Pansies now ready. Price on application.—Nurseries, Haverhill.

PANSIES! PANSIES! PANSIES!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4s. per doz.
Address W. H. Davis, Jun., St. Mary's Hill, Newbury.

TRIFOLIUM INCARNATUM.
TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from* William E. Rendle & Co., Seed Merchants, Plymouth.

HOME GROWTH.
NEW EARLY WINTER VETCHES.—*This is a very superior sort, and comes* two or three weeks *earlier than the common variety. The Subscribers can strongly recommend them.* Price 25s. per bushel, or 3s. 6d. per gallon. Only a few bushels remain.
William E. Rendle & Co., Seed Merchants, Plymouth.

NEW EARLY WINTER TARE, recommended by practical Agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15s. per bushel.
Address Mr. H. Raynbird, Basingstoke.

TO CUCUMBER AND MELON GROWERS.
GARDENERS having CUCUMBER or MELON SEED to dispose of, which can be warranted true and good, are requested to write, stating sorts, quantity, and price, to H. M. S., 12, Shaftesbury Terrace, Pimlico.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6s. per dozen.—John Holland, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

LAURELS! LAURELS! LAURELS!—The best Stock near London is at Foster's Nursery, Edgware; also other magnificent Evergreens, &c.—Apply to John Morgan, Rose Cottage, Edgware.

TO BE SOLD CHEAP, for cash, 5000 ORNAMENTAL and other FOREST TREES, from 10 to 15 feet; also an excellent variety of GOOSEBERRIES and CURRANTS, the ground being wanted.—Apply to Charles Clarke, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

LARGE SWEET BAYS, & EVERGREEN OAKS in pots, &c.
WILLIAM CUTBUSH and SON have on hand a large Stock of the above, which they can dispose of at very reasonable prices.
Also a fine stock of STANDARD and DWARF-TRAINED FRUIT TREES, FRUIT TREES in pots, LARGE MULBERRIES, and all other Nursery Stock in excellent condition for safe transplanting. *Prices upon application.*
Highgate Nurseries, near London.

FOREST TREES. — The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.
David Reid & Son, Nurserymen and Seedsmen, Edinburgh.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

FOREST TREES, SHRUBS, &C.
EAGLE and HENDERSON, Nurserymen, Seedsmen, and Florists to the Queen, beg to intimate that their CATALOGUES of FOREST, FRUIT, ORNAMENTAL TREES and SHRUBS, VINES, FLORISTS' FLOWERS, &c., are now ready, and may be had free on application.—Leith Walk Nurseries, Edinburgh.

TREES FOR AVENUES, ETC.
E. P. FRANCIS has several hundreds of fine tall straight English OAK, English and Huntingdon ELM, and Spanish CHESNUT, from 9 and 10 to 12 feet, rising with capital roots off deep loamy soil. Prices upon application.
E. P. F.'s new DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded, gratis, upon application.
Rose Nurseries, Hertford.

THORNS, LAURELS, AND IRISH YEWS.
CHARLES DALY and SON, Coleraine, will sell good rooted LAURELS, 1 to 2 feet, at 15s. per 1000; PORTUGAL do., 1 to 1½ foot, 4s. per 100. IRISH YEWS, 1½ foot, 10s. per 100. FOREST and WALL TREES sold cheap.
Delivered free in Liverpool or Glasgow for cash only, paid to Messrs. Hurst & M'Millan, 6, Leadenhall Street, London.
Price Lists free by post.

BECK'S UNRIVALLED NEW PELARGONIUM EMPEROR.

J. DOBSON and SON beg to announce that they are prepared to execute all orders they may be favoured with for the above splendid variety, acknowledged to be the finest yet offered to the public. The following is an extract of note from Mr. Beck:—"I wish you to state in your Catalogue that I consider this in all respects the best flower I ever raised."

Huddersfield Chronicle, July 5.—"This variety (Emperor) will be a great acquisition to the lovers of Pelargoniums, and no collection should be without it. We compliment the raiser for having produced so fine a variety."

Mr. Glenny, in *Lloyd's Newspaper* of July 13, writes, after giving its colour, &c.—"It is just the flower that growers will be anxious to add to their collections." Also, when writing on new Geraniums coming out, he says—"Emperor stands first and foremost. It is the best flower that the best raiser ever produced."

Strong plants 42*s.* each. A Catalogue with full description may be had on application.—Woodlands Nursery, Isleworth.

NEW AND CHOICE FUCHSIAS, CINERARIAS, PANSIES, HOLLYHOCKS, &c.

WM. RUMLEY and SONS are now sending out the following in fine strong plants, hamper included, or free by post, at the very reduced prices affixed:—

FUCHSIAS—The following splendid new varieties of 1856, 10*s.* 6*d.* per dozen; six for 6*s.*, or 1*s.* 6*d.* each:—Admiral Boxer, Conqueror, Countess of Burlington, Charlemagne, Favourite, Gem of Whitehill, Prince of Wales, Star, Venus de Medici, Volcano di Aqua, Wonderful, Whidonia, &c.

CINERARIAS—The following three new varieties of 1856 for 4*s.* 6*d.*, or 1*s.* 6*d.* each:—Duchess of Lancaster, Rose of England, and Serena. Cinerarias:—The following choice varieties 6*s.* to 9*s* per dozen, according to size, viz., Loveliness, Lady Mary Labouchere, Lady Paxton, Mrs. Forster, Mrs. Rickens, Matilda, Miss Bannerman, Optima (Bousie's), Optima (Hopwood's), Sir C. Napier, Advancer, Constellation, Duke of Wellington, Empress Eugenie, Esteile, Etoile de Waise, Garland, John Bull, Lord Stamford, Lablache, Lady Camoys, Lord Palmerston, Mrs. Beecher Stowe, National, Nimrod, Novelty, Octavia, Polyanthiflora, Prince Arthur, Rosy Morn, &c.

PANSIES—The following choice varieties 5*s.* per dozen, or the set for 7*s.*:—Amelia, Duke of Sutherland, Marchioness of Bath, Conqueror, St. Andrews, Countess of Strathmore, Ellen, Ajax, Excelsior, Duke of Perth, Yellow Climax, Sulphurea splendens, Supreme, Miss Talbot, Aunt Chloe, Queen of England, Commander-in-Chief, Mr. Beck, Blue Perfection, &c.

HOLLYHOCKS—Extra fine varieties, 9*s.* to 12*s.* per dozen.

VERBENAS—All the best new varieties of 1856, at 6*s.* per dozen, or 9*d.* each.

GERANIUMS—Extra fine, 6*s.* to 18*s.* per dozen.

CHRYSANTHEMUMS—The best large flowered and Lilliputian, 3*s.* to 6*s.* per dozen.

PRIMULA SINENSIS, ALBA and RUBRA, finely fringed, 3*s.* to 6*s.* per dozen.

Any of the above will be forwarded immediately on the receipt of a Post-office order, payable at Richmond, Yorkshire.

Descriptive Catalogues of the above may be had on application.

Gilling, near Richmond, Yorkshire.

HARDY ORNAMENTAL TREES, LARGE EVERGREENS, AND SPECIMEN CONIFERÆ.

WILLIAM YOUNG begs to call attention to his immense stock of the above, which he can offer at very reasonable prices, and the great care he has taken to render them all good rooted and safe for removal enables him to recommend them with confidence to all engaged in planting.

Those who are planting new grounds, where an established appearance is required, will find these plants particularly adapted to the purpose, and such as are seldom to be met with in the trade.

The Specimens of Coniferæ are all grown as single plants, consequently are all handsome and well furnished, especially suited to the Park or Lawn.

The following abridged list will give some idea of the Stock from which purchasers may select:—

Abies alba (White Spruce) ... ... 6 to 10 feet high
" canadensis (Hemlock Spruce) ... ... 6 to 10 "
" Douglassi ... ... 6 to 15 "
Several hundreds of this most noble tree, all as handsome as it is possible to grow them.
Abies Menziesi ... ... — ... 8 to 10 feet high
" nigra ... ... 4 to 6 "
" orientalis ... ... 3 to 4 "
Picea Pinsapo ... ... 5 to 7 "
and as much in diameter—perfect plants.
Pinus austriaca ... ... 6 to 10 "
A valuable tree for exposed situations; grows very rapidly.
Pinus Cembra ... ... 5 to 8 feet high
" excelsa ... ... 8 to 10 "
" insignis ... ... 3 to 5 "
" Montezumæ ... ... 3 to 5 "
" monticola ... ... 6 to 8 "
Cedrus Deodara, several thousands of fine plants from ... ... 3 to 15 "
" Libani ... ... 6 to 10 "
Araucaria imbricata ... ... 3 to 7 "
Cryptomeria japonica ... ... 4 to 6 "
Juniperus chinensis (Chinese Juniper) ... 6 to 7 "
This is one of the most handsome and hardy of all Junipers.
Juniperus cracovia ... ... 4 to 5 feet high
" virginiana (Red Cedar) ... ... 6 to 8 "
" hibernica (upright) ... ... 5 to 6 "
Taxodium sempervirens... ... ... 4 to 10 "
A very rapid growing tree, much valued in California for the durability of its timber.
Thuja orientalis (Chinese Arbor Vitæ) ... 6 to 8 feet high
" pendula ... ... 3 to 4 "
" Wareana ... ... (very fine) 5 to 8 "
Libocedrus chiliensis ... ... 3 to 4 "
Wellingtonia gigantea, stout seedling plants.

Several thousands of SPRUCE and SILVER FIRS from 6 to 12 feet high, indispensable where a screen is required.

Of Yews and Green Hollies here is the largest stock in England consisting of fine plants from 6 to 10 feet high.

Fanned Yews, for hedges, furnished quite to the ground, 6 to 10 feet.

Tree Box, 6 to 8 feet.

Handsome Evergreen Oaks, 6 to 8 feet.

Quercus Exoniensis (New Leucombe Oak), 8 to 12 feet. A fine evergreen Oak.

DECIDUOUS TREES.

Ash (Weeping) worked on straight stems... 8 to 10 feet.
Beech (common)... 8 to 10 "
" (purple) ... 6 to 10 "
" fern-leaved) 6 to 8 "
" (variegated) 6 0 "
Hornbeam ... 8 to 10 "
Horse Chestnut ... 8 to 12 "
Limes ... ... 8 to 12 feet.
Planes ... ... 8 to 10 "
Oak (English) ... 8 to 10 "
Sycamore... ... 8 to 10 "
Single and Double Scarlet Thorns
Tulip Trees
Weeping Willows

A fine collection of HARDY RHODODENDRONS, AZALEAS, HEATHS, and other AMERICAN PLANTS.

W. Y. again begs to state that no plants but such as are quite safe for transplanting will be sent away from the Nursery under any circumstances.

The great facility now afforded by railways enables goods to be easily and expeditiously transmitted to any part of England at moderate cost.

Purchasers will be liberally treated in respect of carriage. The Nurseries are about an hour's ride from London on the South-Western Railway, and two miles from Godalming station.

Milford, near Godalming.

TEA ROSES.

12,000 Tea-Scented and China Roses on their own Roots in Pots.

WM. WOOD and SON having now completed the erection of three large houses devoted exclusively to the cultivation of Tea Roses in pots, beg leave to offer well grown strong healthy Plants of the following:—

TEA ROSES.		In 48 pots.	In 24 pots.
Abricoté, fawn colour	Each	1*s.* 6*d.*	*s. d.*
Adam, rose, salmon centre	"	1 6	2 6
Auguste Vacher, rose, coppery centre ...	"	2 0	
Barillet Deschamps, white shaded yellow	"	3 6	
Belle Allemande, shaded blush	"	1 6	2 6
Boûgère, light rose fine	"	1 6	2 6
Burét, crimson	"	1 6	2 6
Canari, bright yellow	"	2 0	3 6
Clara Sylvain, pure white	"	1 6	2 6
Charles Reybaud, white shaded	"	1 6	
Devoniensis, creamy white	"	1 6	2 6
Eugène Desgaches, pale rose	"	1 6	
Gloire de Dijon, fawn shaded	"	2 0	3 0
Goubault, bright rose	"	1 6	2 6
Jeanie Deans, salmon rose	"	1 6	2 6
Laurette, salmon blush	"	2 0	3 0
La Sylphide, salmon buff	"	1 6	2 6
Le Caméléon, French white	"	2 0	3 0
Le Pactôle, lemon, yellow centre ...	"	1 6	2 6
Madame Bravy, cream colour	"	1 6	2 6
Madame Maurin, white shaded salmon...	"	2 0	3 0
Maréchal Bugeaud, bright rose	"	1 6	2 6
Mélanie Oger, yellowish white	"	2 0	3 0
Mélanie Willermoz, white, salmon centre	"	2 0	3 0
Pauline Plantier, lemon colour	"	2 0	3 0
Safrano, fawn colour	"	1 6	2 6
Souvenir de 30 Mai, rosy salmon ...	"	1 6	2 6
Souvenir d'un Ami, deep rose	"	2 0	3 0
Vicomtesse de Cazes, orange yellow ...	"	2 0	
Noissette Cloth of Gold, yellow	"	2 6	3 6
Noissette Solfaterre, pale yellow	"	2 0	3 0

N.B. Tea Roses, our own selection ... ... 15*s.* to 30*s.* per doz.
China do. do. very fine... 9*s.* to 12*s.* "
Fairy do. do. do. ... 9*s.* to 12*s.* "

Extra plants presented for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex, Oct. 18.

PLANTING.

A. PAUL and SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
" Douglasi, 1½ to 3 ft.
" Menziesi, 1 to 3 ft.
" Morinda, 3 to 10 ft., very fine
" rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
" Lambertiana, 1½ to 3 ft.
" torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
" " Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
" Benthamiana, 1½ ft.
" Cembra, 1 to 5 ft.
" excelsa, 4 to 8 ft., very fine
" insignis, 1 to 6 ft.
" Lambertiana, 1 to 6 ft.
" Llaveana, 1 to 2 ft.
" monticolor, 1 to 2 ft.
" muricata, 1½ ft.
" Pallasiana, 2 to 2½ ft.
" Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
" Nordmanniana, 1 ft.
" Pinsapo, 1 to 4 ft.
" Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
" glauca, 6 to 9 in.
" intermedia, 1 to 1½ ft.
" japonica, 1 to 1½ ft.
" gigantea, 1 ft.
" minima, 6 to 9 in.
" Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
" Canadensis, 1 to 2 ft.
" Cheshuntensis, 3 to 5 ft.
" Dovastoni, 1 to 2 ft.
" elegantissima, 1 to 2 ft.
" gold striped, 1 to 4 ft.
" Irish, 1 to 5 ft.
" stricta, 1 to 4 ft.
" common, 1 to 5 ft.
" " Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
" " Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
" Maple, 8 ft.
" Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
" " variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
" Beech
" Elms, 8 to 10 ft. stems
" Mountain Ash
" Privet
" Willow
" American Willow, 8 ft. stems
" Kilmarnock " 6 ft. stems
" Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
" flava speciosa
Clematis azurea grandiflora
" double blue
" Florida, double and single
" Hendersoni
" Sieboldti
Honeysuckle Evergreen
" Scarlet Trumpet
" flexuosa
" Magnevillea, one of the finest
Ivy, Irish, strong
" palmated
" gold blotched
" silver
" Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica, Camellias, Epacris, Ericas — A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL and SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

NEW PURPLE LILAC, SYRINGA VULGARIS *var.* BLANDII.

W. H. BLAND has great pleasure in offering the above valuable Flowering Shrub, which has proved the last three seasons quite superior to any other Lilac in cultivation. It was submitted in June 1853 to Dr. Lindley, when he pronounced it very superior to any other variety, and in the June No. of the present year, p. 392 he again refers to it thus—

"Lilac: *W H B.* The specimen now sent fully confirms what we said of the variety in 1853; it is a handsome purple Lilac, closer in the bunch and firmer in the flower than any Lilac of the kind that has come under our notice."

With such excellent authority any further comment would be superfluous, excepting to remark that the plants now offered are in the finest possible condition, and may be had at the following prices, viz., 5*s.* each, three for 12*s.*, or six for 21*s.* Prices for wholesale orders on application.

Mr. T. Barnes, Dane Croft Nurseries, Stowmarket, is appointed Agent for the sale of it.

Remittances requested from unknown correspondents.

W. H. Bland, Nurseryman, Fordham, Cambridge.

STANDISH and NOBLE, Nurserymen, Bagshot, Surrey, have now to offer the following new and beautiful plants:—

GAULTHERIA FURENS.—A charming plant imported by the advertisers from Valdivia. Specimens have been turned out in the open border for two years past, where it stands perfectly uninjured without the slightest protection; in fact it is as hardy as the Common Holly. It forms a compact, bright, glossy, green shrub, covered in spring with white flowers like those of Andromeda floribunda, and bearing in autumn clusters of large rosy purple berries. It grows very freely in any light sandy soil. 10*s.* 6*d.* each.

AZALEA AMŒNA LATERITIA.—A hybrid from lateritia by amœna. The flowers are of the same colour as those of lateritia with the hose-in-hose corolla of amœna, and about three times the size of the latter. They are of good shape and substance, and the plant blooms as freely as amœna. 15*s.* each.

AZALEA AMŒNA GRANDIFLORA.—The description of the above will apply to this in every respect with exception of the colour; in this variety the flowers are of a rich carmine lake. We can recommend both varieties as being exceedingly handsome, and they are moreover examples of an entire new race of Azaleas of which amœna is the type. 15*s.* each.

ROSE H. P. VICTOR TROUILLARD.—A seedling from Géant des Batailles, but more double and twice the size, and much darker in colour; in fact it is as dark as the Tuscan Rose. The flowers stand the sun for a week without fading. It is undoubtedly the finest Hybrid Perpetual Rose ever offered for sale. Plants in November, 21*s.* each.

*** When three plants of either of the above are ordered one will be given over.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER and GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglassi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them grafted
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyreas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance have just arrived, and may be obtained at A. CORBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CAMELLIAS.

J. HENCHMAN, JUN., is now sending out healthy plants full of flower-buds of the following fine blooming varieties—Double White, Fimbriata, Imbricata, Leeana superba and Candidissima; small plants, 21s. per dozen; second size, 24s.; fine well furnished plants, 30s.; and a few very choice plants at 36s. per dozen. These plants are all home-grown and established in the pots, and therefore not liable to cast their buds, as is the case with the foreign imported plants.

Choice Indian Azaleas, worked and on their own roots, bushy plants well set for bloom, at 15s., 18s., 24s., and 30s. per dozen. Ghent Azaleas, fine named sorts, full of flower buds, 18s. per doz.
Edmonton, near London.

ERICA SPENCERIANA.

R. GLENDINNING begs to inform the Public that he is now prepared to send out this new and distinct Heath, a coloured illustration of which is given in the *Florist* for this month. This novel Hybrid was raised from seed in the Chiswick Nursery. It is a very free blooming variety, very small plants being laden with flowers; is a vigorous grower, with the habit of E. Cavendishi; and both as regards habit and colour of flowers is altogether distinct from any other variety, with the additional recommendation of remaining three months in bloom. Was awarded a Small Silver Medal at the last July Exhibition of the Royal Botanic Society, Regent's Park. Strong established Plants, 21s. each.—Chiswick Nursery, Oct. 18.

CHOICE CINERARIAS.

WILLIAM HUSSEY begs to offer the undernamed collection for 14s., package included:—Mrs. Beecher Stowe, Polyanthiflora, Rosy Morn, Lady Paxton, Prima Donna, David Copperfield, Delicata, Scottish Chieftain, Optima, Lablache, Octavia, King of the Blues, Kate Kearney, Queen of Beauties, Prince Arthur, Mrs. Sidney Herbert, Lady Hume Campbell, Georgiana, Marianne, Catherine Seaton, Pauline, Agnes Wakefield.—Horticultural Gardens, Norwich.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now sending out strong well-rooted plants of the above unequalled new Seedling Strawberry, which possesses more good qualities than any other ever yet grown. For further particulars see *Gardeners' Chronicle* of Sept. 27, 1856. Strong well-rooted plants, 3l. per 100, 1l. 15s. for 50, 1l. for 25, or one dozen for 12s., the 25 or one dozen sent postage and package free. A Post-office Order is expected to accompany all commands.—EDWARD TILEY. Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

MESSRS. E. G. HENDERSON & SONS' SPRING CATALOGUE (Post free on application) contains full description of the following New Plants:—
Echites Houtteana, finer than crassinoda
Begonia picta, a beautiful foliaged plant
" cinnabarina hybrida, cinnamon red, shrubby habit, and now coming into flower. It is an excellent winter blooming plant.
Dianthus albo nigricans, large double variety, black, edged and interlaced with white; hardy
Camellia Jenny Lind, beautiful form
Azalea the Bride, pure white, very free flowering
" Louis Napoleon, double rich crimson velvet.

RHODODENDRONS.

Countess of Rosslyn	Mrs. Dargan
Duchess of Cleveland	Earl of Rosslyn
Duke of Hamilton	Lord Bolingbroke

Six magnificent rich spotted varieties, having compact conical trusses, and very large and conspicuous flowers.

New and delicious Strawberry "Adair," for particulars and description of which see Autumn Bulb Catalogue or back numbers of this Paper.

A New Plate of Five Choice Show Geraniums is now published, and will be forwarded on receipt of 12 postage stamps.

The Autumn Bulb Catalogue will be forwarded on application, containing descriptions of Cinerarias and Geraniums now being sent out for the first time.
Wellington Nursery, St. John's Wood.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.
Priced Lists will be sent on application.

HORTICULTURE.
NEW AND RARE PLANTS.

JOHN WEEKS AND CO., King's Road, Chelsea. This Horticultural Establishment is an unlimited source of attraction.

The Collections of STOVE and GREENHOUSE PLANTS, in all the various stages of growth and in endless variety, include every novelty that is worth cultivating.

A large stock of GRAPE VINES, struck from eyes, very strong for Planting and Forcing in Pots.

FRUIT TREES and Shrubs of every kind.

THE SEED BUSINESS is conducted upon an extensive scale, every article warranted true to its kind, and of genuine good quality.

GARDEN TOOLS, and Horticultural Implements of every description, all the best make, no inferior article kept.

CAST-IRON VASES and FOUNTAINS, a great variety of the most beautiful designs.

WIREWORK for all Ornamental Garden purposes.

The Nobility and Gentry are most respectfully invited to visit this establishment, where Horticultural science in all its branches is in full operation, combining all modern improvements, so that a Lady or Gentleman can select whatever they may require connected with Horticulture.

JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers.

HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c. &c. all made of the best materials, sent to any part of the country.

See our Illustrated Catalogues of all the various branches of Horticulture; also Plans, Models, and Estimates, &c. &c.
JOHN WEEKS & Co., King's Road, Chelsea.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.
27, Great George Street, Westminster.

WANTED IMMEDIATELY,

GRAPES,	PINES,
PEACHES,	MELONS,

AND OTHER CHOICE FRUITS.
Apply or forward to
GEORGE TAYLOR, JUN.,
GROWERS' SALESMAN,
St. John's Market,
Liverpool.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

		£	s.	d.
No. 1	Collection, all the most approved sorts	3	10	0
No. 2	" containing smaller quantities ...	2	5	0
No. 3	" for a small garden	1	5	0
100	Hyacinths, in 100 very fine sorts. Purchaser's selection	3	10	0
100	" 50 fine sorts "	2	15	0
50	" 50 superior sorts "	1	15	0
50	" 25 " " "	1	10	0
24	" 12 " varieties "	0	15	0
12	" 12 " " "	0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

BULBS.—FOR BASS AND BROWN'S Advertisement of BULBS and ROOTS see the third page of the *Gardeners' Chronicle* of September 20th.

Choice and sorted collections of Hardy Bulbs and Roots, 20s., 40s., and 60s. per collection.

CATALOGUES for the present season of the following may be had on application, viz.:—

Bulbs and Roots.	Fruit Trees.
Herbaceous Plants.	Strawberries.
Hollyhocks.	Geraniums.
Phlox.	Cinerarias.
Coniferæ.	Azalea Indica.
Hardy Shrubs and Climbers.	Stove and Greenhouse Plants.
Roses.	Winter-flowering ditto.

Sudbury, Suffolk.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3s. 6d to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

NEW AZALEAS AND CONIFERS.

WM. WOOD AND SON have fine plants to offer of the following desirable

AZALEA INDICA.

	Each.	Dozen.
Criterion, fine striped var.	3s. 6d. to 5s. 0d.	36s. 0d.
Admiration, ditto, ditto	3s. 6d. to 5 0	36 0
Leeana, superb white ditto	3s. 6d. to 5 0	
Eulalie Van Geert	5 0	

NEW CONIFERS.

	Each.
Biota Meldensis, a very distinct and interesting new plant, reported to be a hybrid between the Red Cedar and Chinese Arbor Vitæ	5s. to 10s. 6d.
Cryptomeria araucaroides	7 6
Cupressus MacNabiana	5s. to 10 6
Juniperus japonica	5s. to 10 6
" pyriformis	7s. 6d. to 10 6
" Wallichiana	5s. to 7 6

Plants presented for distant carriage.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

40,000 Dwarf Roses on their own roots in pots and worked on the Manetti stock. 50,000 Dwarf Roses budded on 6-inch stems. 30,000 Standard Roses. 5000 Général Jacqueminot, Hybrid Perpetual. 7000 Géant des Batailles, ditto. 12,000 Tea-scented and China Roses in pots on their own roots.

WILLIAM WOOD AND SON wish to direct especial attention to their enormous and splendid stock of Roses, which, owing to an entirely new soil and increased facilities of propagation, was never in finer order, and they feel assured the plants they have this season the pleasure of offering to their friends cannot be surpassed, many of the Standard and Dwarf Roses having made shoots 6 feet in length.

Collections of Roses will be supplied on the following terms, when the selection of sorts is left entirely to ourselves:— Per doz.

Extra tall Standards, 4 to 8 feet high, with three to six best varieties of Climbing and Perpetual Roses, in each stem, suitable for training, &c., 3s. 6d. to 5s. each	
Tall Standards, fine picked stocks from 4 to 6 feet with large heads, of the most showy kinds, for planting in conspicuous situations on lawns, &c.	42s.
Extra superior selected Standards, in fine varieties ...	24s. to 30s.
Fine Dwarf Standards, in fine varieties	18s. " 24s.
Superb ditto ditto, the best sorts for exhibition ...	18s.
Fine Dwarfs	12s. " 18s.
—— Climbing and Noisettes	9s. " 12s.
Hybrid Perpetuals, budded on 6-inch stems, or on own roots in pots	12s. " 18s.
Ile de Bourbon, in pots, or budded on 6-inch stems ...	12s. " 18s.
China, in pots	9s. " 12s.
Tea-scented, in pots...	15s. " 30s.
The best varieties for forcing, established in 6-inch pots, budded on 6-inch stems	24s.
Climbing Roses mixed, without names, for covering banks	4s.
Good Dwarfs on own roots, without names	4s.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW IMPORTED DUTCH ROOTS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

A Descriptive Price Current of Dutch Roots is just published, and can be had in return for one postage stamp.

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.
Established 1786.

BULBS FOR PRESENT PLANTING
CARRIAGE FREE, EXCEPT SMALL PARCELS

	£.	s.	d
HYACINTHS, the best imported by name, per dozen	0	10	6
" Fine mixed for Beds (all double) per 100	1	10	0
ANEMONES " " (") " ...	0	5	0
" " " (single) " ...	0	4	0
TULIPS, fine mixed early, for pots or borders " ...	0	7	6
CROCUSES, mixed for open ground, per 1000, 12s. 6d.)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free. N.B. New Early Peas, Radish, Horn Carrots, &c., now ready.
SUTTON AND SONS,
Royal Berks Seed Establishment, Reading.

TO THE SEED TRADE.

J. H. COTTRELL (late Dawe, Cottrell, & Benham), begs to call his friends' attention to the *Chronicle* of last week, back page, and requests the favour of all orders being addressed to him at S. Cottrell's, 2, High Street, Birmingham. All orders will be executed at London prices. No connection with Dawes, Moorgate Street, or any other house in the trade.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, said to be the finest ever yet offered to the public, for which he begs to refer to his Descriptive Prospectus and Testimonials of Nurserymen who have grown them for trial. Price 15s. the set.—Address, Mr E. RAPER, Florist, 53, Regent Street, Leamington.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON is now prepared to send out fine laid Runners of all the new and most of the older varieties of Strawberries, comprising about 40 of the very best English, French, and Belgian sorts. Prices and particulars on application to the Grower, WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

*** Underhill's SIR HARRY 30s. per 100; 18s. per 50; 10s. per 25, strong plants.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5s. each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

NOTICE! NEW FLOWERS.

JOHN SKIPPER, Villa Nursery, Camden Town, begs to inform the public that his Three splendid SEEDLING FANCY PELARGONIUMS are now ready to be sent out, at the following prices:—
Emily Whitcher ... 21s. 0d. | Gertrude Richardson ... 15s. 6d.
Tattycoram, 12s. 6d. Or the set for 2l. 2s.

A coloured plate from Mr. Andrew's beautiful drawing of the above flowers may be had for 12 postage stamps, returnable to purchasers.

The fine light show Geranium, Glenny's Lady Paxton (new last season), at 5s. per plant. A large assortment of the best named varieties at 6s. and 9s. per dozen.

NEW EXOTIC FERN.
GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (MOORE).

ROBERT PARKER begs to offer the above beautiful and distinct Fern, of which a fine specimen was exhibited at the last Crystal Palace Show, and was awarded a first prize for new plants. In appearance it is perfectly distinct from any species in cultivation, the upper and under sides of the fronds being densely coated with white farinose powder, which gives it a most singular and distinct appearance. Good plants, 21s. each.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.
The American Nursery, Bagshot, Surrey.

PANSIES.

J. DOBSON AND SON beg to state that they have a fine healthy stock of the above, including all the best varieties out, at 6s., 9s., 12s., 18s., and 24s per dozen. Catalogues may be had on application.—Woodlands Nursery, Isleworth.

The Gardeners' Chronicle.
SATURDAY, OCTOBER 18, 1856.

AN Apiarian asks us whether HONEY gathered FROM RHODODENDRONS is poisonous. There is a surgeon, he says, living near him who will not keep bees on that account; and as our correspondent keeps bees, and there are a great many Rhododendrons cultivated around him, it is of great importance to him to know the truth, for if the question is settled that Rhododendrons poison honey he must give up the pleasure of keeping bees.

Considering how commonly and largely this plant is now cultivated among us, we can readily believe that the question is one which many others besides an Apiarian would be glad to see answered.

TOURNEFORT's Voyage into the Levant, a most interesting book now almost forgotten, gives impor-

tant information upon this point. "When the Army of the ten thousand came near to Trebisond, a very strange Accident befel it, which caus'd a great Consternation among the Troops, according to Xenophon, who was one of the principal Leaders of it. As there were a great many Bee-hives, says that Author, the Soldiers did not spare the Honey: they were taken with a voiding upwards and downwards, attended with Deliriums; so that the least affected seem'd like Men drunk, and the others like mad Men, or People on the point of death. The Earth was strew'd with Bodies as after a Battel; no body however died of it, and the Distemper ceas'd the next day about the same hour that it began; so that the Soldiers rose the third and fourth days, but in the condition People are in after taking a strong Potion."

This accident was ascribed to the poisonous quality of some plant, abundant in the country, upon which the bees largely pastured. "There is found," according to Pliny, "upon the same Coast of the Pontus another sort of Honey, which is call'd *Mænomenon*, because it makes those mad that eat of it. 'Tis thought the Bees collect it from the Flower of the *Rhododendros*, which is frequent among the Forests. The people of those parts, though they pay the Romans a part of their Tribute in Wax, are very cautious how they offer them their Honey."

This Rhododendros has been thought to be the modern Rhododendron, which is extremely common "on the coasts of the Black Sea by the side of streams from the river Ava (or Sangarius) to Trebisond. This species is reckoned unwholesome. The Cattel never eat it but when they can find no better nourishment." And Tournefort adopts that opinion. "There is all the likelihood in the world," he says, "that this Honey was suck'd from the Flowers of some of our Species of *Chamærhododendros*. All the Country about Trebisond is full of them, and Father Lambert a Theatin Missionary agrees that the Honey which the Bees extract from a certain Shrub in Colchis or Mengrelia, is dangerous and causes Vomitings. He calls this Shrub *Oleandro Giallo*, that is to say, yellow Rose-Laurel, which without dispute is our *Chamærhododendros Pontica maxima, Mespili folio, flore luteo.*"

From this it would seem that according to Tournefort more species than one yields poisonous honey, and especially his yellow Chamærhododendros, which is the plant now called *Azalea pontica*. He further relates how desiring to make a present to a certain Pasha whom he accompanied on the Black Sea he made up "great Nosegays of it to put in his Tent: but I was told by his Chiaia that this Flower caus'd Vapours and Dizziness. I thought he rally'd very pleasantly, for the Bassa complain'd of those Distempers. The Chiaia gave me to understand that he was in earnest, and assur'd me he had lately been inform'd by the Natives that this Flower was prejudicial to the Brain. Those good People, from a very antient Tradition, grounded perhaps upon several Observations, maintain also that the Honey which the Bees make after sucking that Flower, stupifies those who eat of it, and causes Loathings."

Hence it is to be inferred that the honey obtained from both Rhododendron ponticum and Azalea pontica is deleterious. But the great Russian botanist and traveller, Pallas, was of opinion that the latter alone is mischievous. He says that the effects of the Euxine honey are like those of Lolium temulentum and occur in a country where no Rhododendron grows. The natives are well aware of the noxious qualities of the plant, and it is related that goats which browse on the leaves, before the pastures are green, suffer in consequence, and moreover that cattle and sheep perish.

Such too seems to be the opinion of Europeans personally acquainted with the country in which these two plants grow, and the honey that is produced there. "Our poisonous honey is, as is well known, rendered deleterious by the bees feeding on the flowers of Azalea pontica, which is found all along the coast between Trebizond and Batoom. The sale of this honey is prohibited, but it is nevertheless often fraudulently sold, mixed and boiled with wholesome honey." Thus writes our intelligent correspondent Mr. Henry Calvert, than whom no one is more intimately acquainted with the plants on the south side of the Black Sea, or with the people and their habits, a knowledge gained by many years' residence at Erzeroum in the consular office of Mr. Brant. A sample of this honey from Mr. Calvert is to be seen in the Museum in the Royal Botanic Garden, Kew.

Such, we believe, are all the facts at present known respecting this matter. While they show that honey gathered from Azalea pontica is beyond all question dangerous, they leave that of Rhododendron ponticum almost free from the imputation that has been laid at its door.

We observe the following paragraph in the last Number of the Florist:—"Although the Horticultural Society's house in Regent Street did not meet with a purchaser the other day, when put up to auction, we hear hopes are entertained that an opportunity of disposing of it by private treaty will offer itself before long. In the meantime, we understand that the Council are actively engaged in organising a system for the future management of the gardens, which in time will make that establishment equal to the requirements of the Society. We are glad to learn, too, that no rash or sudden changes will take place, but that the various suggestions and plans for the complete remodelling of the management and maintenance of the gardens will undergo very careful deliberation by the Council, and when the plan for future guidance is fully determined on the different improvements contemplated will be gradually introduced, as the financial position of the Society will enable the Council to carry them out. If all this be true, we feel sure that the Council are acting wisely, and we hope a large accession of new members will be the result, and that another year will see Chiswick regain its former position, if it does not entirely surpass it, which, from all we hear, it is very likely to do."

The friends of horticulture will no doubt rejoice to hear on such good authority that the prospects of the Society are so encouraging. The last meeting added 17 new Fellows to the Society, and we understand that several more will be proposed for election at the next meeting on the 25th of November. What the arrangements will be for that occasion is not at present determined; but we believe that the subjects of exhibition will be chiefly, if not wholly, confined to fruit. We can state indeed, even now, that three prizes for collections of home-grown fruit, excluding that of the Channel Islands, will be awarded on the occasion, Professor Lindley having placed 5*l.* at the disposal of the Council for the best collection, and Mr. Wentworth Dilke the same sum for the second and third best.

It is also as well to mention that under the new regulations Visitors are admitted free to the Meetings only under the following conditions, viz.:—1. By the personal introduction of a Fellow. 2. By the production of a Fellow's transferable ivory ticket. Or 3. By the written Order of a Fellow. It is also to be observed that no Fellow can issue more than one such Order daily; that the number of persons admitted by it can in no case exceed two; that no Order can be received unless filled up and dated by a Fellow; and that no Order can be received on any day except on that the date of which it bears.

The effect of this will be to prevent the rooms in London being inconveniently crowded, and to render the meeting more select.

As far as we are informed, the general intention of the Council as to the Garden is to discontinue mere decorative cultivation, for which experimental and illustrative gardening are to be substituted, to crop whatever part can be so treated for the purpose of rendering the establishment in some degree self-supporting, and to take measures for pointing out to visitors, by means of a monthly guide book and otherwise, whatever may be at any time most worthy of inspection. In this way it is hoped that the operations carried on in the Garden will be rendered instructive to all classes of visitors. In connection with this plan a number of old, useless, unproductive or duplicate fruit-trees are already in course of removal from the orchard and elsewhere.

We observe in a late Number of the *Revue Horticole* a statement by Mons. Duchartre that Orchidaceous epiphytes are incapable of feeding upon moisture suspended in the air as invisible vapour. He says that experiment has satisfied him that this common idea is completely erroneous, and that they feed wholly upon the mere water which, in a fluid state, comes in contact with their leaves and roots. A damp atmosphere, according to this observer, furnishes absolutely nothing in the shape of food, and can have no effect upon them except diminishing perspiration, which might be excessive if the air in which they live were to become too dry.

M. Duchartre asserts that copious watering and syringing, especially upon the roots, are what such Orchids want. In their natural situations they receive it abundantly in the form of rain; and in our houses they must also have it if they are to thrive. We are unacquainted with the detailed experiments which have led to these conclusions: in the justice of which we are not at present prepared to acquiesce. The statement is, however, important, and cultivators should look to it. Maybe it throws some light upon the mysterious disease that has appeared in our Orchid houses of late. While, however, we pause to hear more of M. Duchartre, we admit at once that the skin of Orchids is much in need of very careful examination. What, for example, are the innumerable papillæ, one to each cell, which characterise the upper surface of the leaves of such plants as Phalænopsis?

New Plants.

185. Dendrobium Macarthiæ. *Thwaites in Bot. Mag., t.* 4886.

A glorious novelty belonging to the Stachyobian Dendrobes, with long reedy speckled stems and magnificent pink flowers which are more than 2½ inches long before they expand. They are rivals of such a thing as *Sobralia macrantha*. Sir William Hooker states upon the authority of Mr. Thwaites, who discovered and named it in compliment to Mrs. McCarthy, the wife of the Secretary to the Colony of Ceylon and a true friend of science, that it occurs sparingly, pendent from the trunks of large trees in the forests of that island about Ratuapoora and towards Galle. Its native name is said to be *Wis-sak-mal*, "the meaning of which is Rainy month flower or May flower." In a note from our invaluable friend Mr. Thwaites we observe that he found it, with above eighty other important and most interesting additions to the Ceylonese flora, while on a trip into the jungles in the south of the island. Its general appearance he describes as being that of a Lælia; and the excellent figure in the Botanical Magazine does remind us of Lælia anceps. It is a treasure to Orchid growers.

186. Dendrobium Falconeri. *Hooker Bot. Mag., t.* 4944.

Another most beautiful novelty from Bootan, with the habit of D. Pierardi, but with flowers as large as those of D. moschatum, and far more richly coloured. A pale cream colour forms a ground, on which at the points of all the divisions and at the base of the lip is a stain of intense purple, which in the lip is bordered with golden yellow. The sepals are a delicate pink. On a shrivelled knotted drooping stem 3—4 feet long, upwards of 60 such flowers appeared and continued 12 or 14 days in perfection. Its history is said to be that it was imported in April last from the mountains of Bootan at an elevation of 4000 feet, under the name it retains; that it was purchased at an auction in London; and that it flowered with George Reid, Esq., of Burnham in Somerset. We presume it to be the No. 1135 of Griffith's Bootan plants (*Itinerary Notes, page* 194), observed "on rocks towards Chuka and to Murichoom, 3500 to 4000 feet."

The species belongs to the Eudendrobia, and not to the Dendrocorynes as stated in the Botanical Magazine, in consequence of a misconception of the habit of growth of the plant. This and D. Macarthiæ are the two finest plants by far of the two last seasons.

FLOWER GARDENING.

Among the more recent innovations in flower gardening, the introduction or rather more general dissemination of what is called the ribbon system of embellishment is not the least interesting; or in an artistic point of view the least effective. Singular however as it may appear, notwithstanding that, the first ribbon was planted more than 20 years ago at West Hill, Wandsworth, then the suburban residence of the Duke of Sutherland, the system has not progressed or met with any worthy patron in the vicinity of the metropolis. A recent visit to several of the most celebrated suburban gardens has quite convinced me of that; indeed with the exception of two examples, one in the garden of the Royal Botanic Society and the other at Syon, I have not seen one single exemplification of the system which even approached mediocrity. Hence the system is not popular; men of intelligence and from whom you would expect better things rail against it, just for the simple reason that they do not understand and consequently cannot appreciate the highly artistic character of the system. That it is artistic there cannot be a question, for as associated with architectural objects it is an extension of those lines to which the mouldings and various enrichments owe their entire interest. The idea therefore was a happy one which transferred these multiplied lines of colour to garden scenery, and for that idea I believe we are indebted to the Duchess of Sutherland. The ribbon at West Hill was a serpentine one, and though it might not be, in truth was not, so well executed as the ribbons at Trentham, Enville, Dudmaston, and other places in that part of the country are at the present time, yet it was the first step in the right direction and as such is deserving of honourable mention.

Of the form of a ribbon a notion prevails that a straight line only is admissible. I incline to an opposite opinion, and though I have no objection to a straight line in a proper position, yet if I must have my choice give me by all means a softly curving line, "the line of beauty," rendered still more beautiful by the gentle play of light and shade upon the variously contrasted colours. A ribbon to be effective must be of considerable length, and narrow rather than broad, indeed 6 to 8 feet broad is wide enough, and beyond that width they present too large a surface of colour, and pain rather than please the eye. I have seen ribbons very effective when only 3 feet wide, but they were

planted with plants of proportionate size—a fact which I intend to exemplify before I conclude this paper.

In the counties of Stafford and Salop this system of gardening is perhaps more extensively practised than in any other part of England. I had an opportunity of visiting several of the principal gardens in those counties in the autumn of last year, and I will now record my impressions. At Trentham as might naturally be expected the ribbon system is extensively carried out, and as Mr. Fleming cannot do anything indifferently, it is almost needless to say the ribbons are very effective. The principal ribbon, which stretches the whole length of the kitchen garden, may be said to be the connecting link between the utilitarian and the decorative departments, and emerging as I did from the garden the "surprise" of that "blaze of bloom" was not only very dazzling, but also highly gratifying. To some extent however the ribbon was patchy; the Calceolarias had gone off with the prevailing complaint, and the Salvia patens in the back row had also played false. The following Mr. Fleming gave me as his arrangement for the present season, which I have recently been informed is very effective: Back row—Branching Larkspur, blue; Matricaria grandiflora, white; Petunia Shrubland Rose, rose; Calceolaria Kayi, orange; Myosotis, blue, and Saponaria calabrica, pink, double row intermixed; Geranium Golden Chain, green and gold; Lobelia ramosoides, double row blue. Where the Golden Chain Geranium is not sufficiently plentiful "Musk" may be substituted with good effect. Mr. Fleming had various modifications of ribbons, and as a hardy one accessible to every one Eschscholtzia californica, orange; Convolvulus minor, blue; and Musk, yellow; the last abutting upon Grass looked exceedingly well. Before quitting Trentham I must not omit to mention a rivulet of Forget-me-Not. It apparently meanders in a circuitous route between some specimen evergreen trees, as Portugal Laurels, &c., and certainly at a distance the casual observer might mistake it for water. The following is a nice arrangement for a ribbon: Back row—Salvia patens and Branching Larkspur intermixed, blue; Matricaria grandiflora, white; Geranium Tom Thumb, scarlet; Calceolaria Trentham Brown, bronzy brown; Calceolaria Kayi, orange; Geranium Manglesi (variegated), and Verbena Tweediana (scarlet), intermixed, white and scarlet; Musk, yellow; Lobelia ramosoides, blue.

At Keel Hall, Mr. Hill had formed a very nice ribbon on each side of a narrow Grass walk thus—next the walk Musk, then Geranium Tom Thumb, afterwards an excellent variety of double Feverfew (white), and backed by Dahlia Zelinda, maroon. These borders were not more than 4 feet wide, and being crammed full of plants certainly looked exceedingly well.

Passing on to Enville the most enchanting ribbon I ever saw was thus formed. The line was a curved one. Back row—Delphinium Hendersoni, blue; Pentstemon gentianoides coccineum, red scarlet; Calceolaria Kayi, orange; Geranium Cerise Unique, cerise; Lobelia speciosa, blue; Geranium Golden Chain, orange variegated. The beautiful play of colour in this arrangement was very remarkable. The variegation of the Golden Chain, the flowers being taken off, the cerise of the flowers, coral stems, and peculiar marking of the foliage of the Cerise Unique, divided as the two kinds were by a dense line of bright blue and backed by the Orange Calceolaria, was a combination of colour the effect of which must be seen to be appreciated. For a narrow ribbon no arrangement could be more effective, but it is not every person that can plant out Golden Chain by the thousand, and those who cannot will find a good substitute in small plants of the Flower of the Day if the flowers are regularly taken off and the plants are not permitted to get too tall. The Cerise Unique in this arrangement will also look best if placed in the full sun, then the stems and leaves get their full colour, which is a matter of much importance. It has been suggested that Geranium Commander-in-Chief would look better than Cerise Unique in the preceding arrangement, but I doubt it; there is a softness in the colour of Cerise Unique which I very much admire, just for the reason that I consider Flower of the Day is more useful than any of the more recently introduced and brighter-coloured variegated Geraniums. I should mention that the preceding ribbon was verged with Grass. Here is another arrangement with a Grass verge: Back row—Humea elegans, brown; Salvia patens, blue; Calceolaria Kayi, orange; ditto, Indian Chief, crimson brown; Geranium Tom Thumb, scarlet; Forget-me-Not, blue; Geranium Golden Chain, orange and green. The pleasure grounds at Enville being new and supported with the greatest liberality by the noble proprietor, Mr. Aiton has an opportunity of carrying out his ideas in first-rate style, and well he performs his duty, for nothing can be more perfect than the management of the flower beds under his direction.

Splendid, however, as was the appearance of the flower garden at Enville, I think perhaps the groups at Dudmaston, near Bridgenorth, the residence of G. Whitmore, Esq., were still more beautiful. Nothing could exceed them, and I never at any time nor in any place saw beds so perfectly sheeted with bloom. The garden is small, very small as compared with those previously mentioned, but the whole of the shrubbery borders were ribboned, and standing as you could at one point and take in almost the whole of the garden, nearly a mile of ribbon was presented to view, and certainly the *coup d'œil* was most enchanting. The Variegated Alyssum was very extensively used next the Grass, but in adjoining walks blue Lobelia was introduced. The following is a very nice ribbon:—Back row—Dahlia Zelinda, maroon; Calceolaria Kayi, orange; Verbena Tweediana, scarlet; Variegated, Alyssum, white. Another very nice pattern was:—Back row—Pentstemon gentianoides coccineum, Scarlet and White Phlox mixed, scarlet and white; Calceolaria Kayi, orange; Geranium Tom Thumb, scarlet; Lobelia ramosoides, blue; Alyssum, Variegated, white. The number of bedding plants turned out at that place is very large, and how with so small a quantity of glass Mr. Mitchell contrives to provide them is a problem which would trouble some of the best gardeners of the present day to solve. He does it however, and does it well.

In gardens of strictly architectural design, plain and variegated Hollies, plain and variegated shrubs of all kinds, hardy Heaths, and many hardy American shrubs, offer great facilities for the ribbon system, and I doubt not before many years pass we shall see such ribbons planted extensively. The planter, however, of a ribbon must not stick in his plants at equal distances and think the ribbon will come without further trouble. No, no! The line of demarcation of each colour must be strictly preserved, for if the various lines of colour are allowed to intermix, the effect, and, in fact, intention, will be marred at once. It is upon keeping the various lines of colour perfectly independent of each other, touching but not intermixing, that the whole success of the system hinges, and those who cannot devote sufficient attention to that particular had better not attempt the plan. I shall recur to this subject again before long. *A. P. W.*

VEGETABLE PATHOLOGY.—No. CXLI.

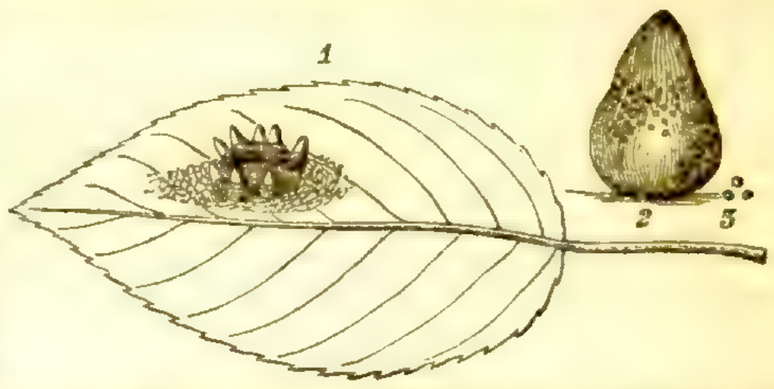
578. Parasitæ (*Peridermium, Ceratites, Ræstelia, Graphiola, Cronartium**). These are all subgenera of *Æcidium*. Of the two last *Graphiola* affects Palms and *Cronartium* species belonging to the genera *Cynanchum, Pæonia, Thesium, Quercus*. Both are of such slight consequence in a practical point of view to most cultivators, that they may be regarded as mere botanical curiosities. I have seen, however, *Graphiola* very troublesome in Palm-houses, impairing the beauty and exhausting the strength of the plants, but it is not common in this country, and *Cronartium* is very rare, if it is found at all. *Peridermium, Ceratites*, and *Ræstelia* are of far more consequence, and deserve special notice.

579. *Peridermium* differs from *Æcidium* in the great development of the peridium and the irregular mode in which it is ruptured. According to the situation on which it grows and the degree of nourishment which it affords the peridium is more or less developed, sometimes acquiring a length of more than half an inch with a proportionately increased thickness. The species are confined to Conifers, which are sometimes distorted by them in a very curious way. One magnificent species was found by Dr. Thomson on *Abies Smithiana* in Thibet of which the following is a faithful representation.

One of the most curious species, however, is that which forms the clusters of branches which are known in Germany by the name of "witches' besoms." This very extraordinary production has lately occurred in great abundance near Hastings, from whence we have very recently figured specimens, transmitted to us by the kindness of Sir C. Lamb. The branches look exactly like some phenogamous parasite. The fascicle springs from a swollen knot, the leaves are no longer distichous, but dispersed in spirals, and their form and texture is entirely altered. They are, moreover, deciduous, while the normal leaves are evergreen, and a new bud is developed from the tips of the naked branches every year, producing a tuft of leaves which are at first yellow, but at a later period acquiring a green tint, till the mass is at last exhausted. *Peridermium Pini* is the pest of the Scotch Fir in young plantations, and is sometimes so abundant in the branches as well as the leaves that death speedily ensues. No remedy for this evil has at present been suggested.

580. *Ceratites* is confined principally to *Pomaceæ*, though one or two species oscillating between this and the following sub-genus occur on plants of other families in Ceylon. On Hawthorn, Quince, and some other *Pomaceæ* it is often very conspicuous, attacking the fruit sometimes as well as the leaves. It is distinguished by the narrow strap-shaped lobes at the orifice of the peridium.

581. Perhaps the worst of all these pests is *Ræstelia*, which is so common on the leaves of Pear trees, occurring sometimes in such quantities as to injure greatly the fruitfulness of the trees. This has many characters



in common with *Ceratites*, but the laciniæ instead of being free are all connected together, so as to form a little cage through the interstices of which the spores escape. In both these is a second form of fruit distinguished by the oozing out of the spores or spermatia, whichever they may be, in the form of little tendrils. When a Pear tree is once attacked by this pest it seldom escapes in future years. On the contrary the evil generally increases, spreading to every neighbouring tree, and so propagating the desolation. The sooner it is arrested the better. When once it is observed every affected leaf should be carefully gathered and burnt as soon as it is gathered. It does not appear that any wash is of benefit, nor is it quite clear should experiments be made at what precise time it should be applied. The wiser plan is to pick the leaves as soon as the orange-coloured thickened spots appear before the spores are developed. *M. J. B.*

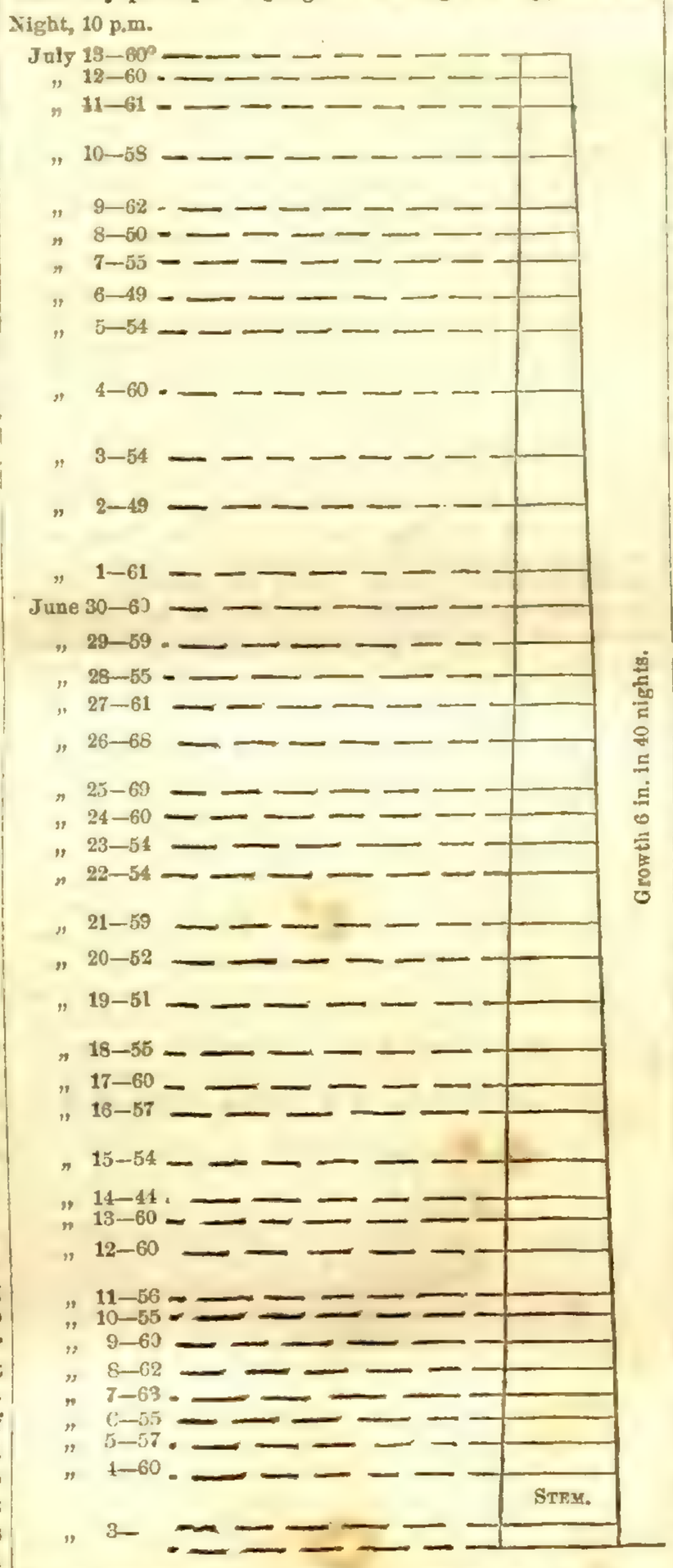
* From περι around, and δερμα the skin; κερας, a horn; Ræstel, the name of an apothecary at Landsberg; γραφις a style for writing, and hence transferred to a painting-brush; Cronartium is a name of doubtful origin.

Home Correspondence.

Orchard Houses.—I am glad to see, both from your own remarks and from the letters of your correspondents, that "S. B." is likely to be in the minority on the subject of orchard houses. My own experience is decidedly in their favour. About four years ago I built one 65 feet long, and 20 broad, with a glass partition in the centre. One end I heated with hot water and in this I grow flowers of various kinds, a Fig tree covering the partition and Vines trained up the rafters on one side only, which leaves me plenty of light, and prevents my flowers being drawn up; these consist in succession of Cinerarias, forced flowers, such as Rhododendrons, Azaleas, Kalmias, Lilacs, Roses, Pinks, &c. These have now been forced three years in succession, being allowed to complete their growth, and form their buds in a cool house. Next come Geraniums. These are put in their places on the earthen beds, just as they are coming into bloom. They then root through into the beds, and this year remained in full beauty between three and four months. They continue when treated in this manner to throw up fresh trusses of bloom during the whole period, when they are cut down and removed, and I then fill my house with Fuchsias, Achimenes, and Gloxinias; and now that these are over, I have just taken up and potted my Chrysanthemums, struck in May, grown in an open border, and measuring from 3 to 4 feet in height and 2 feet across. You will see from this statement that the warm end of my house is one blaze of beauty almost all the year round. Now for the cold end. Last year my trees of every kind were one mass of bloom, and the fruit set as thick as Gooseberries. I thinned an incredible number, and ripened 90 dozen of very fine Peaches, Nectarines, and Apricots. It would have been better for my trees had I not taken so large a crop. This year I had plenty of bloom, but it did not set well. I have, however, had about 20 dozen, and knowing how scarce wall fruit has been I am quite satisfied. My trees are now in perfect health and full of bearing wood for next year. The result, then, of my experience I should say is this: as regards Peaches, success perfect; Grapes, do. do.; Nectarines, not so satisfactory, the fruit sets but does not swell freely, it is apt to shrivel and drop off before ripe; Apricots, not satisfactory, trees difficult to keep in health, bloom drops off; Pears and Plums succeed as a matter of course. Having thus given you the benefit of my experience, will you allow me to criticise your leading article in one or two points. 1st, If you have Grapes up the rafters of the orchard house you will so shade

the other fruit that though you may grow it in abundance it will have little flavour. 2d, the Strawberries you say may be changed *at least* twice; I have found that out of door Strawberries are ripe before my first crop in the orchard house is cleared. 3d, I fear you will raise expectation too high when you speak of 100 Figs on each of such trees as can be grown in a pot. 4th, I very much doubt whether you could grow 18 fine Peaches in a 13-inch pot as I have done, if you confine the roots to the pot; your crop too would be far more exposed to danger from accidental neglect, for in such weather as we have had in July you would require a man to be constantly watering if you had many trees. I quite agree with you as to the desirableness of having some means of keeping out spring frosts, or assisting Figs to ripen in autumn. Mr. Thomson's boiler, which I see advertised in your columns this week to heat 1000 feet of 4-inch pipe for 4*l.* is, I hope, only the first step towards obtaining a cheap hot-water apparatus. *An Amateur, Bentley, near Farnham.*——Agreeing as I do with the views of your correspondent, the gardener at Alton, I beg to say that, like him, I found the front border inconveniently near the glass. This has been remedied by lowering that border about 10 inches, and cutting down the wooden partition adjoining the path to the same level. The upper line of board in the front wall was, according to Mr. Rivers's plan, on hinges, but when the border was lowered, I took out the third line of boards, and put them on hinges likewise, and think this power of extra ventilation desirable in hot weather. In order to allow this second line of ventilators to open, a little earth must be scraped away from the front of the house outside. I cover all the apertures with fishing nets nailed inside the house, so as to keep out birds and deter dogs, cats, and rabbits during the summer nights. In constructing the orchard house I made an alteration which I think an improvement on the original plan, namely, stopping the path about 4 feet from the further end. Thus 8 square feet of border are gained. An extra tree may stand at the back, and a piece of board laid on the earth in front serves as a comfortable seat. This convenience amply compensates for a little extra difficulty in getting at the trees in the extreme angles of the house. In my former communi ation I stated that my success has been only partial. Possibly I may have erred in diminishing the quantity of water given at the roots, as also the syringing, after the fruit fairly turned colour and commenced ripening. Such diminution of moisture is a general rule in gardening, but possibly unsuited to orchard-house culture. At all events, I intend next year to try the effect of more abundant watering; but the chief alteration on which I rely is a shifting of the larger trees into 13-inch pots, and allowing them 3 feet of space in the house—one tree had been so treated last year, and the result has been encouraging. With respect to the general question. That Peaches can be grown successfully in pots, under glass, without artificial heat, is a proposition which everybody admits. That where there are no walls, or where the climate is unfavourable, an orchard house is a most desirable luxury may be considered as undeniable. That in originating and bringing into general notice these useful and cheap structures, Mr. Rivers has been a public benefactor no one is more ready to affirm than myself. But at the same time, not having realised in my own experience that amount of success which the perusal of Mr. Rivers's pamphlet led me to anticipate, I ventured to record the result of that experience in order to moderate the expectations of others, and thus prevent their disappointment. Some of your correspondents demur to my statements, but is there any one of them who can say that the fruitful picture drawn in the pamphlet has been realized by themselves, or in other words, that they have been able in a house 24 by 12 to grow 48 fruit trees, and to gather in one season 96 dozen of fruit, equal in quality and size to good wall fruit? The plain fact is, Mr. Rivers points out what a tree under the most favourable circumstances may possibly perform, and it is rather assumed by his readers than asserted by him that a large number of trees, many of which are placed at the back, sides, and other unfavourable situations in an orchard house, will, on an average, be equally productive. *S. B.*

Wellingtonia gigantea.—I have had three seedling plants of this fine Conifer under my care during the last two seasons. The first was 4 inches in height, and was planted out in a wood in November 1854, where it was surrounded with underwood, which afforded it considerable protection during winter and spring, but in July 1855 it became diseased, owing to the confined state of the air, and died off piecemeal until it became a mere stump; it was then lifted and repotted, and has now made a healthy leading shoot. The second plant was in all respects similar to the first, and was at the same time planted out on the lawn; here it was sheltered in some measure from the prevailing winds, but it enjoyed a free circulation of air. So situated, it has withstood the severity of two winters, with the precaution of a slight protection, and has made a leading shoot of 10 inches this season. It is now 2 feet in height, and in perfect health. The third plant was also a seedling of the same year as those just noticed, but it was reserved for pot culture; it has been kept under glass during winter, and has never been exposed to more than a degree or two of frost in May 1855. It was put out of doors and placed in a sheltered situation. Here it became diseased, exactly like the plant described in your Number of the 20th ult. It was at once removed to an open situation, where it was fully exposed to the sun, and here it soon began to recover, and with an occasional shift, made 16 inches of a leading shoot in one season, with side branches in proportion. It was again late in autumn put under glass, where it was kept through the winter, giving it but a very limited supply of water. In May this year it was again turned out of doors, giving it a large shift. Since that time it has made wonderful progress, and is all as regards health that could possibly be desired. This plant is now 3 feet 3 inches in height, 4¼ inches in circumference at the base of the stem; and at the commencement of this year's growth 1¾ inch in circumference, forming a pyramidal shaft from base to top. I have also observed that this plant has hardly made any perceptible progress during the day, but that



it has performed its growth between 6 P.M. and 6 A.M. I have kept a journal of its rate of progress, of which the accompanying scale is a representation. It will be observed that it is increased and retarded in proportion to the warmth of the night. *John Reed, Orton Hall, Peterborough.*

Nerii Fig.—In your last week's Paper a doubt is expressed whether the Nerii be not the same as the small green Ischia. Without being able to solve the doubt satisfactorily, I would nevertheless observe that as the latter is an old and well-known variety, it is very improbable that the late Mr. Knight should have considered the Nerii a new sort, and written a paper describing the manner in which he overcame the difficulties which impeded its successful cultivation. He also observes that the second crop is worthless both here and in Italy, which is not the case with the green Ischia. Again, Mr. Loudon, writing as one who had himself tasted the Nerii, remarks that it differs from all other Figs in containing a slight acidity. Further, Mr. Markham, in the *Chronicle* of April 3, 1844, says that even in the latitude of Hewell (in Worcestershire, I presume) the Nerii is the very best Fig for the open wall, while it is admitted that the green Ischia will not succeed, even in the neighbourhood of London, in an orchard house, unless the walls be of brick. I think the question is one which will bear, and well deserves, more probing. The Horticultural Society's Figs unfortunately have no wall, and consequently do not fruit well; but if they have a plant of Nerii they might try it in their orchard house by the side of a green Ischia. *S. B.*

Washing Machine.—Will any correspondent have the kindness to report his experience of the American Washing-machine (with balls), as adapted to the use of a family, its economy, &c.; and also of the French Bread-kneading machine, and whether the latter also is of such moderate cost and easy application as to be suited for family uses—to make bread twice a week for 20 people. *W. B., Esher.*

Hartley's Rough Plate Glass.—"W. B.," Somerleyton, states that he would not recommend this glass for frames, because he cannot see through it—Query. He would not change it for sheet glass, unless it was of the best quality—does not that imply a doubt? Will not that which obstructs the vision do the same with regard to the rays of the sun? How many years' experience has "W. B." had of rough plate glass? You say that it was impossible for plants to be in better health than those at Somerleyton were when you saw them; does that opinion embrace fruit trees with regard to present crop and prospect for another year? *C. R.* [Our remark applied to all that we saw.]

Shanking of Grapes.—I would attribute the cause of your correspondent's Grapes shanking to the Vines being exhausted rather than to too much wet and sun stroke. I was at one time in a large establishment in which the Vines happened to fail in the same way as your correspondent's; the roots were lifted and placed in well decomposed manure; the next crop was most excellent, and there was not a bunch with a bad berry in it. I may mention that I always thought that what is called shanking occurred when the Vines were showing their bunches, and when they made their appearance twisted round the Vine or anything they could come in contact with, afterwards becoming useless. This I should attribute to a cold wet border; if I am wrong, I hope some one will put me right. *Jas. Stewart, Gardener, Witchingham, Norfolk.*

Vine Borders.—Noticing in your last week's Number that you are averse to using blood in Vine borders, will you do me the favour to inform me what you consider the best suited for that purpose? The border at present consists of pasture loam and dung, with a small quantity of bones, but having been recommended to use flesh as an addition, your advice will much assist me. Would it not be useful to the public, and be the means of saving trouble, if gardeners advertising through the medium of your Paper, were to state the amount of salary they require? There are objections, I doubt not, but I question whether the interest of all parties would not be enhanced thereby. [We think so.] *A. M.* [Blood, flesh, and all such substances make Vines rank, difficult to ripen, and predisposed to mildew or any other disease.]

Potato Rot.—I had a lot of sound Potatoes put into a cellar which contained a quantity of superphosphate of guano. I find now that they are nearly all diseased. Is it owing to the presence of the manure? *An Old Reader.* [There is no doubt that the presence of ammonia in the air hastens the decay of the Potato.]

The late Mr. Otto.—Christoph Friedrich Otto, late Director of the Royal Botanic Garden of Berlin, died September 7, 1856. He was born December 14, 1783, and came to Berlin in 1801. After having stayed there for some years as journeyman gardener, he was appointed Sub-Curator of the Royal Botanic Gardens through the influence of Willdenow, who appreciated his talents and worth. In January, 1811, he married the daughter of an officer in the War Department, by whom he had five children, of whom a daughter and a son are still living, the latter being the present Inspector of the Botanic Gardens in Hamburg. Deceased was appointed to be Inspector of the Berlin Gardens on the 14th April, 1814, afterwards received the fourth class of the order of the Red Eagle, and was entrusted with the guardianship of the newly established school for young gardeners, receiving at the same time the title of Garden Director. His activity in raising the Berlin Garden to the high position it attained gave public evidence of his zeal and skill. He also published five or six works on botany, forest culture, on the Cactus tribe, but has been most especially known by editing the *Allgemeine Gartenzeitung* from the year 1833, in common with Dr. Albert Dietrich. A genus among Umbelliferous plants was named "Ottoa" in honour of him. Owing to some unexplained circumstance he retired from the royal service in 1843, receiving a pension of 120*l.*, which is considerable according to the generality of German pay. *Th. von Spreckelsen.*

Notices of Books.

Hand-Book of Zoology. By J. Van Der Hoeven. Translated from the 2d Dutch edition by the Rev. W. Clark, M.D. Vol 1. 8vo. Longmans; pp. 853.

The ink of our last week's remarks on British Entomology was hardly dry when this important volume was put into our hands, in which we have from the pen of a foreigner, admirably aided by a very competent translator, a most useful epitome of Entomological science, brought down to the present day; mixed up, however, with other branches of Natural History, and, like Mr. Westwood's invaluable classification, embracing tha insects of the whole world.

Professor Van der Hoeven in this first volume treats, physiologically and systematically, of all known Infusoria, Polypes, Acalephs, Echinoderms, Entozoals, Rotatorials, Annulates, Insects, Arachnids, Crustaceans, Tunicates, Conchifers, and Molluscs—a prodigious enterprise, which none but a master would dare to venture upon, and which exhausts the field of invertebrate animals. His manner of proceeding is to introduce each of these great classes by a general account of the individuals that compose it, of their place in the scale of organisation, their anatomy, their habits, propagation and so on; after which the genera are given in a true systematical manner, with critical remarks and ample references to the literature of the subject. We do not find in these pages long rambling dreamy discourses out of which angels themselves would fail to extract a definite meaning. On the contrary, the distinctions of the orders, sections, and genera are admirably given with that genuine Linnean brevity and precision which seems to have almost quitted common books on Natural History.

The author is thoroughly alive to the all-important fact that systematical works are not dissertations, and that in the former we expect to find the *differences* alone between things clearly stated, *descriptions* being confined to special treatises or monographies.

The part relating to insects alone occupies 300 pages, of which 40 consist of introductory matter, while that of Arachnids or spiders fills 40 more. Extracts from systematical matter being unsuited to our columns we limit ourselves to a striking passage or two from the part that introduces the Arachnids, from which the reader will be able to see the skilful manner in which the whole subject is handled.

"We have already said that the scorpions are viviparous. With the egg-laying spiders, the egg, under the changes of development, slowly loses its previous form, and almost assumes that of a spider, indicating all the external parts of the inclosed animal. At length the shell bursts on the thorax, and the spider, first with the head, and afterwards with the thorax, comes to view; then follows the abdomen, to which however the egg-membrane, like a scale, continues attached for a time; then come the feelers and feet. The young spider, through whose integument the granules of the yolk may be clearly distinguished, is not yet in a state to weave a web and catch its prey; for the spinning organs are still concealed beneath the common integument. After the lapse of a week, or, in some species, a longer time, during which the spider takes no food, it casts its skin for the first time, and is, as it were, born for the second time. The young spiders now quit, on some mild day in May or June, the web in which the mother had hidden her eggs; they allow themselves to fall on the ground by a thread, and begin at once to weave their nets, or in some other way, according to the instinct of their kind, to watch for small insects corresponding to their age and powers."——

"The power of reproduction in arachnids is commonly, as in the preceding class, considered to be small. In many, however, lost feet can grow again. Thus Geoffroy once saw a Phalangium, in which one foot was less than the remaining seven, and which probably might have grown at a later period. At all events it is established that, in spiders, lost feet are regenerated. In animals whose growth is limited, *i. e.* which do not grow after they are capable of propagating, I think the reproductive power, in this full-grown state, is small. In such a case are insects after their last metamorphosis (see above, p. 276), but by no means spiders and crustaceans."——

"The organs of sense in arachnids are limited, as far as they are known, to those of sight and feeling. A distinct organ of hearing has not yet been discovered. The seat of taste, probably also of smell, is to be sought for perhaps in the commencement of the intestinal canal. For feeling the palpi, in many at least, officiate; in others, where, as in Scorpio and Chelifer, they are covered with a hard skin and are shaped like shears, they serve for seizing prey. The long feet also of spiders and of Phalangia, and especially the thread-like feet of the first pair in Phrynus, are peculiarly adapted for organs of feeling. The eyes are constantly simple. Behind the convex cornea is placed a very round lens, which is received by a vitreous humour concave on the anterior surface. Behind this humour lies the retina, surrounded by a coloured pigment of the choroïdea, which at the fore part, between the lens and the vitreous humour, forms a ring like an iris. For the presence or absence and the number of simple eyes, we refer to the systematic arrangement of the class. Often, as in Scorpio, Phrynus and Telyphonus, two simple eyes are placed close together in the middle, and on each side two groups of smaller simple eyes towards the margin of the cephalothorax. If this disposition be compared with that of insects, then the middle eyes may be likened to their simple eyes, and the two lateral groups to their two compound eyes."

This is the language of science, and of such the whole volume consists.

Garden Memoranda.

Biddulph Grange, near Congleton, the Residence of James Bateman, Esq., *continued from p. 679.*—The house at Biddulph Grange is an irregular semi-Italian structure, on the western margin of the grounds, and is built into a bank which slopes rapidly from the east to the west. Its greatest frontage is towards the south, on which side the whole of the gardens lie; and it presents a long and picturesque façade, the offices being at the eastern end, and partly screened by ornamental walls. The general slope of the gardens is both to the south and the west; the fall being considerable in both directions, especially the latter.

The entrance to the house is on the northern side. It is at present incomplete, and the stables are nearly opposite to it; but these are to be removed, and the space in front of the entrance will probably be formed into a court, and surrounded by an ornamental wall. On stepping into the porch, we notice a passage to the right, which leads directly into the gardens, and is intended for the use of such visitors to the gardens as would not pass through the house. Turning to the left, however, the eye rests on some fine antique Roman heads and other remains inserted in the walls, and the visitor then immediately finds himself in a long corridor running north and south, with the house door at the south end of it. The western side of this corridor consists of a wall, with recesses lighted from behind, and having a rare Fern in each of them. The eastern side is composed of a series of bold pillars at intervals of 6 or 7 feet, the remaining spaces being openings which reveal a very remarkable Fern garden. The basis of this Fern garden is a little rocky dell, entirely artificial, but presenting a most natural appearance; the rocks being piled up as high as 10 or 12 feet in some parts, and most beautifully clothed with Mosses and Ferns, their outline and effect being varied by an admixture of Hollies, Mahonias, and other evergreen shrubs; while a little clear stream meanders through the hollow, refreshing the plants with its moisture, and gladdening the ear by its music, until it loses itself beneath the corridor.

Coming so suddenly and unexpectedly on this delightful little scene, which, with its green luxuriance of vegetation and its delicious shade and repose, offers the most pleasing welcome after the fatigues or discomforts of a journey—especially in warm or dusty weather—the mind is well prepared for receiving subsequent agreeable impressions; and not even the perfume and gaiety of the richest exotic flowers, however tastefully clustered about the entrance, vestibule, or corridor, appear calculated to convey so cheerful a greeting as this little choice bit of wild nature, with its cool freshness and greenness.

Nothing could be more healthy, or appear more at home, than the beautiful plants which line this singular little glen. Large masses of the stately Osmunda regalis, and the almost equally noble female Asplenium overhang the rill, and are surrounded by the no less elegant forms of the lowlier species and varieties. Many other interesting plants that delight in moisture and shade are likewise introduced, and the pale green of most of the foliage is finely backed and contrasted by the dark hue of the rocks, and the still deeper tints of the Holly and Yew.

Nearly the whole of the British Ferns, and a few of the hardy exotic species, are brought together, and find their fitting position in this charming little nook. Of the former, the following 17 species are found within a circuit of three miles from Biddulph Grange:—

Polypodium vulgare	Pteris aquilina
Blechnum boreale	Polypodium Dryopteris
Aspidium Filix-mas	,, Phegopteris
,, Thelypteris	Ophioglossum vulgatum
Asplenium Trichomanes	Scolopendrium officinarum
,, Adiantum nigrum	Osmunda regalis
Aspidium dilatatum	Aspidium Oreopteris
,, aculeatum	Botrychium Lunaria.
,, fragile	

Within 15 miles of the place there are also Polypodium calcareum, Aspidium cristatum, and Allosorus crispus. The common Helleborus fœtidus, with its handsome dark evergreen foliage, is found to flourish here in excessively shaded positions, where nothing else appears to live; and is therefore a valuable plant.

A distinct and different view of the Fern garden is likewise obtained from the window of the dining-room, which is judiciously placed on the north side of the house, and to the coolness and comfort of which the Ferns and the water must essentially contribute during the summer season. From this point the rocks and shrubs are so disposed as to exclude altogether the entrance corridor, the stables, and other out-buildings, and all the yards, &c., at the rear of the house; a trifling depression in the upper outline admitting a view of the summit of a neighbouring rocky hill, the rocks at this point being left bare to correspond better with those of the distant hill, and both uniting together in the most natural manner. Another slight opening between some Holly bushes on the top of the rocks just allows a peep of the better part of the ruins of Biddulph Hall, in which there is a curious tower with a somewhat conical or domical cap to it. To the observant visitor, it will scarcely be needful to point out that though the dining-room window and the entrance corridor are so near each other, as to render it difficult to arrange the rocks and plants so as to be seen in different aspects and yet to equal advantage from each of them, this has been most completely accomplished; the two views being quite dissimilar, and yet each equally favourable of its kind. The scene from the corridor has the little stream in front of it, with the outlet beneath the corridor itself—a circumstance which would be wholly inadmissible in respect to the view from the dining-room window, inasmuch as it would convey the disagreeable impression of the stream passing under or into the house. Entering the house, and walking through a vestibule which is appropriated as a small museum, another corridor, along the sides of which are hung, in frames of Cherry wood, the original drawings made for Mr. Bateman's splendid work on Orchids, is crossed before reaching the drawing room, the window of which last, looking south, has been made the centre point for an entirely fresh garden scene, including a small architectural terrace, inclosed with a characteristic stone balustrade, and having a recess at the western end to increase the picturesqueness of its outline, and give a new stand-point for looking at another part of the grounds. This terrace also communicates with a small conservatory between the drawing-room and the library, the latter being a handsome apartment recently added to the western end of the house. The terrace opens towards the east into a long walk to be described presently.

Five or six feet below the level of the terrace—itself about 2 feet beneath the floor of the drawing room—is a small rectangular enclosure, with hedges of common Yew around it, and a flight of steps connecting it with the terrace. This inclosure protects and frames a parterre, with a broad Grass margin, in which are set four principal beds filled with hybrid China Roses, the remainder of the inner space being occupied by a neat Mosaic pattern of broad Box edging with red sand between, and a band of white sand round the whole. The design of the plot is simple and conventional, with no attempt at elaborate monograms or intricate lines; and the box edgings being unusually broad, and the spaces filled with sand so very small that it is obviously impossible for them to be occupied with flowers, there is an utter absence of pettiness or impropriety, so common to works of this description. The Box is allowed to grow up into a depressed cone about a foot in diameter, thus forming a neat finish, in the centre. And near the four corners of the Grass plot are four golden Yews, cut into sharper cones, about 2 feet in height. A gravel walk environs the Grass plot, and is itself encompassed by the Yew hedge already mentioned, the walk being conveyed through an opening in the latter by another flight of steps down into a smaller circular enclosure, which is intended to contain a gurgling fountain, and the fence around which is a low wall backed by a dwarf Yew hedge.

The Yew hedge at the sides of the parterre is trimmed so as to show piers or pilasters at regular intervals, projecting from the hedge, and rising above it 5 or 6 inches; and at the base there is a further projection, resembling a seat or plinth, about 1 foot wide, and 2 feet from the ground. The object of this lower projection, besides giving a little more character to the hedge, is partly to conceal the defects which frequently occur towards the bottom of hedges, and partly to assist in getting up the hedge quickly; for it must be noted that the lower part of the hedge consists of a separate set of trees, planted on the level of the walk, while the upper portion is planted on a bank, raised to about the height of the top of the lower hedge. A large conical-shaped mass of Yew, at the two upper corners of the parterre, against the terrace wall, completes the outline of the picture, and a standard Robinia inermis, contrasting beautifully, in its pale green feathery foliage, with the sombre tint of the Yews, stands on either side of the steps below the terrace wall.

Over the parterre the eye ranges from the drawing-room window to the site of the proposed fountain, and beyond it to a small sheet of water many feet lower down, and to the most open and ordinary piece of lawn about the place. Not that this scene is at all a commonplace one; for the water has an irregular outline, and the masses of shrubs are well arranged, and there is a picturesque island, and scarcely anything is seen of the gravel walks. But this portion of the grounds is more in the usual style than any of the other parts; and, as regarded from the drawing-room window, it gives the necessary air of repose, and cultivation, and richness to the place.

The conservatory communicates with the corridor of the house and the terrace, but not with either of the rooms. It has a narrow border round it, supported by a raised kerb stone, and the centre bed also edged with a kerb stone; and the middle is raised still higher by means of a similar kind of support. It is used chiefly for tender Ferns and Camellias, not being quite light enough for the customary kinds of flowering plants. The upper sashes are made to slide, for ventilation, by means of four large weights attached to each other by chains, and taking the form of ornamental baskets for plants, according to a plan originated by Mr. Fleming, of Trentham.

From the library, which has a southern aspect, too, and the erection of which was not contemplated when the terrace was formed, the ground descends at once to a platform on the level of the parterre, and there are steps from the terrace to this point, and to a walk which starts from the house, opposite the centre of the library window, and passes all round the grounds. The view from the library window is along this walk, which has irregular masses of shrubs, Ivy, &c., on either side; the union with the art-like character of the house and the terrace being preserved by two small square beds, on either side of the walk, just under the library window, an Irish Yew being planted in the centre of each, and the rest of the ground in them carpeted with Cotoneaster microphylla. The library view is thus kept distinct from that of the drawing-room, notwithstanding that they are only separated by the conservatory, a length of about 7 or 8 yards; the Yew hedges round the parterre making the line of division.

Before leaving the house, of which it is not here proposed to give any further account, a peculiarity of the dining-room may be just noticed, as it seems to involve a convenience and a merit. At the end in which the recess for the side-board is placed, the recess is prolonged behind a screen wall, so as to constitute a passage, communicating by a door with the kitchen corridor, by which the servants enter and leave the room, and through which dinner is served. As the house extends, moreover, in a long frontage, towards the east, with the ground fast rising in that direction, Mr. and Mrs. Bateman will be able to pass out of their rooms on the upper floor into a glazed gallery, which is to be erected and filled with plants, and which will lead on to an upper terrace, connected at length with the high terrace at the eastern end of the gardens. They will thus have facilities for getting readily into the grounds from their private apartments, without the necessity for traversing one of the entertaining rooms, or any of the lower part of the house. *E. K.*

(*To be continued.*)

Erratum.—In the previous article on this subject, page 679, second column, line 7 from the top, for "rookeries" read "rockeries."

Miscellaneous.

Use of Plants in the Economy of Nature.—That the office of plants in the economy of the world is not so much to purify the air for animals as to supply them with nourishment, may be argued—1st. From the nature of the operation in which oxygen gas is liberated by vegetables. Plants take carbonic acid, water, &c, from the air, and decompose them, giving back to the atmosphere a part of the oxygen, while they transform the rest of the materials into vegetable fabric, or into vegetable products (mostly the prepared materials of vegetable fabric). The raw materials used contain more oxygen than the vegetable matter produced from them does. The surplus oxygen has to be eliminated, and is therefore given off in a free state, which appears to be the essential thing here;—the formation of vegetable fabric, or of organic matter, by which alone the plant can grow, form its parts, and continue to exist; or the evolution of the oxygen gas necessarily separated in the process, and which has to be got rid of. 2d. From considering the kind and the degree of the dependence of the animal creation upon these two results of vegetation, namely, the vegetable matter produced and the oxygen gas liberated. Now upon the first, as is well known, the dependence of the animal creation is entire and absolute; upon the second, only remote and contingent. For vegetable matter so produced furnishes the whole food and fabric of animals. Without it animal life could not have existed at all; and were its production now to be suspended, all the herbivorous, and then the carnivorous races, would perish almost at once. On the other hand, the amount of the dependence of animal life upon the disengagement of oxygen gas by plants may be estimated by supposing existing vegetation to cease evolving free oxygen, or (which would come to the same thing) by supposing some new operation in the organic world to absorb this element as fast as it is given to the air by plants. How soon would the diminution of the oxygen of the air be felt, even by the higher classes of animals? Making the needful calculations, M. Dumas has answered this question by assuming that the unbalanced action of the whole animal kingdom for a century would not consume more than 1-8000th part by weight of the oxygen of the atmosphere, "a quantity altogether inappreciable to the most delicate means of investigation we possess at the present day, and which certainly would have no influence on the life of animals;"—that, as respects the higher races of animals, "it would require no less than 10,000 years before all the men on the face of the globe could produce an effect which should be sensible to *Volta's eudiometer*, even supposing vegetable life to be extinct during the whole of this time;"—so vast is the original stock of this important element of the atmosphere. Surely, then, we ought not to call this remotely needful action upon the air the essential office of vegetables in the economy of the world, nor view as a subordinate or concomitant end that operation of organising matters which provides the whole animal creation with sustenance, and the failure of which for a single year would depopulate the earth. Nor should we call that the essential office of vegetation, which certainly was not essential (as the other was) to the existence of an abundant animal life before and during the epoch of the coal formation, and which (however propitious) has not been proved to be necessary even to the existence of man. Of course there is no question here of this as a function of vegetation, and of the reciprocal action of the two kinds of organised beings upon the air, as maintaing the balance of its elements; but even here it is not always considered that, as Sir Boyle Roche once said, "the reciprocity is all on one side;" that though the animal kingdom could not exist at all without the vegetable, yet the vegetable kingdom might very well exist and flourish without the animal. In other words, the vegetable creation is a provision for the animal,—immediately and continually essential, in one respect; remotely and contingently needful, possibly essential to its well being, but not to its being,—in the other.—*Edin. New Philos. Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Air should still be freely admitted whenever the weather is favourable, but it should be regulated so as to avoid draughts, which under any circumstances are injurious. Dry weather should likewise be taken advantage of to clean the surface soil of pot plants, and to wash the outsides of the pots to promote free evaporation from the soil during damp weather; great attention should likewise be bestowed in keeping the shelves, stages, and paths free from dirt, decayed leaves, &c. These little attentions give houses an agreeable look at a season when flowering plants are getting scarce. Conservatory and stove-creepers trained under the roof will require an additional cutting in to allow more light to pass to the plants underneath; such as have done blooming may be well thinned out at once, and the remaining shoots tied somewhat closer together. Hardenbergias, Kennedyas, and other early spring flowering creepers should however not be disturbed at this season or it will materially affect their beauty in spring. Before placing Gloxinias, Achimenes, and similar things to rest let each plant be labelled in order that no confusion may arise when they are wanted in spring; all the above keep much better in the pots in which they grow than anywhere else, and should be wintered in a room or shed where there is no danger to be apprehended from frost.

FORCING DEPARTMENT.

Pineries.—Where the bottom-heat is obtained from fermenting materials it is generally found to decline very rapidly on the occurrence of dull cloudy weather, and any necessary addition of tan or whatever else is used should be made directly it is wanted, so as to secure a steady temperature of about 85° for the roots. In adding fresh fermenting matter at this season it will be worth being at some trouble to have it in a rather dry state, for when used very wet it is apt to chill the roots at first, and when fermentation commences the heat often becomes so strong that the plants must be raised. Vineries.—Ripe Grapes will require to be frequently looked over, cutting out any decaying berries; and if the bunches have not been well thinned, the inside berries must be carefully examined in the event of damp weather, otherwise the bunches will be very liable to get disfigured. Avoid, if possible, having pot plants requiring watering in houses where the fruit is expected to hang for any time, and where any plants must be kept under the Vines they should be watered in the morning, using a little fire heat with air to get the atmosphere dry before night. Gentle fires will be necessary here when the weather is damp, but use no more than may be necessary to keep the atmosphere in motion, for too much warmth is nearly as injurious as damp.

FLOWER GARDEN AND SHRUBBERIES.

In most localities the heavy rains we have lately experienced must have greatly damaged the appearance of the more tender kinds of plants, and such as are to be saved should be removed at once. Proceed therefore with potting such plants with as much dispatch as possible, and if practicable a little artificial heat should be applied to help them to root before winter. In general a show of spring flowering plants is quite as acceptable as the more gaudy occupants of the parterre in summer, and steps should now be taken to fill up the beds as they are cleared, for the purpose of contributing to the enjoyment of spring. A miscellaneous mixture of dwarf early blooming shrubs, perennial plants and bulbs, is most commonly planted; but in regularly laid out beds, as in geometric flower gardens, the disposition of colour should be carefully considered, as there is an abundance of spring flowering plants and bulbs to form a rich and varied display if properly arranged and carried out. Lawns will now require daily sweeping to present anything like neatness; roll constantly wherever the turf is hollow to keep a firm sward. Well clean gravel walks for the winter and afterwards let them be well rolled in order that the water may pass freely off the surface. All operations of planting, relaying turf, and border-making should be actively proceeded with.

HARDY FRUIT AND KITCHEN GARDEN.

As a supply of salading is generally in request during winter a stock of nearly full grown Lettuce and Endive should at once be transferred to pits or frames. Where the protection of glass can be given in frosty or wet weather, the above should be kept in reserve for use in very severe weather. Endive is blanched for salads and kitchen use by various means, but a way we prefer after being tied up when perfectly dry is to cover as much as requires blanching at one time with leaves procured as dry as possible, throwing a little long litter over to prevent them from being blown about with wind. Sow a crop of Radish in a frame for winter; Celery, Cardoons, and Leeks should be earthed up in dry weather; Broccoli, Borecole, &c., may still be hoed between, as should also winter Spinach, thinning it out 16 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Oct. 16, 1856, as observed at the Horticultural Gardens.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Friday 10	11	30.199	30.106	62	43	52.5	56	56	N.E.	.30
Satur. 11	12	30.039	29.972	60	52	56.0	56	56	N.E.	.12
Sunday 12	13	30.160	30.045	64	42	53.0	56	56	S.	.12
Mon. 13	○	30.193	30.108	67	44	55.5	56	56	S.	.10
Tues. 14	15	29.945	29.684	60	48	54.0	56	56	S.E.	.20
Wed. 15	16	29.654	29.389	64	47	54.0	57	56	S.	.21
Thurs. 16	17	30.262	29.935	59	43	51.0	55½	55½	N.W.	.06
Average		30.064	29.899	61.8	45.6	53.7	56.1	55.9		.91

Oct. 10—Hazy; fine; cloudy; rain at night.
— 11—Constant heavy rain; uniform haze; slight rain.
— 12—Foggy; hazy; fine.
— 13—Dense fog; very fine; cloudy at night.
— 14—Foggy; overcast; fine; rain.
— 15—Showery and rather boisterous; rain; cloudy.
— 16—Overcast; showery; fine at night.
Mean temperature of the week 3 deg above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Oct. 25, 1856.

Oct.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19	59.2	39.8	49.5	13	0.61 in.	1	2	3	3	3	6	8	4
Mon. 20	59.2	40.6	49.9	14	0.34	1	3	—	3	5	7	8	3
Tues. 21	58.5	40.4	49.4	13	0.64	2	3	2	3	5	6	8	1
Wed. 22	58.7	44.3	51.5	18	0.66	1	—	4	1	6	11	5	2
Thurs. 23	57.9	40.8	49.3	17	0.56	3	1	—	3	4	10	8	1
Friday 24	56.0	39.9	47.9	15	0.88	2	2	1	—	8	10	5	2
Satur. 25	55.2	38.5	46.8	15	0.72	4	3	4	3	4	5	4	3

The highest temperature during the above period occurred on the 21st, 1830—therm. 73 deg.; and the lowest on the 21st, 1842—therm. 20 deg.

Notices to Correspondents.

Books: *J K R.* Hoare on the Vine may possibly answer your purpose.—*A F.* Whiting's Flower Gardening for Ladies may perhaps furnish the kind of information you seek for.‡—*P S.* Brown's Forester.

Border: *J P S.* Your plan is right. If the border is 6 or 8 feet wide and 2 feet deep it will be enough. Concrete may be made with either sand or gravel mixed with fresh burnt lime. Do not employ coal ashes. If you use gravel wash it clean; if you use sand sift out all the fine part. It must not be sea sand.

Cones of Pinus Monticola: *A P.* It is difficult to say with certainty what they might be worth. Your best way perhaps would be to sell them by auction ‡

Eugenia Ugni: *J H H.* This new evergreen shrub, of which we subjoin a sketch, is apparently about as hardy as a Myrtle. It has been grown successfully, we understand, against a south wall in the Royal Gardens at Frogmore, and it is reported to stand moderately severe winters unhurt against a north east wall in Messrs. Veitch's nursery at Exeter. With you however, we presume, it must be treated as a hardy greenhouse

plant. It will grow freely in good rich loam, and if kept under glass it will blossom in spring and ripen its fruit early in autumn. Small plants in pots bear well, and the fruit when quite ripe is delicious. It is about the size of a Black Currant.‡

Giant Asparagus: *M G Y.* It is a general belief in this country that there is only one sort of Asparagus, and that what is called Giant is only so because of high cultivation. We never ourselves saw a second sort, unless the green or purple heads to be found in any Asparagus bed are to be considered so.

Guano: *G H.* Blue Billy is the lime that has been employed for purifying gas. It is largely used by fraudulent guano dealers. We cannot recommend one person rather than another. Doubtless you will obtain the information you seek by inquiring at the counting house of Messrs. Gibbs & Co. in Bishopsgate Street.

Hot-water Pipes: *D. Pressly.* Nothing is better than a paint formed of lampblack, oil, and a sufficient quantity of dryers.

Names of Fruits: *J M E G.* The Fig is the White Genoa.—*Anon.* 4, Althorp Crassane; 5, Glou Morceau; 10, Blanc Perné; 12, appears to be Beurré Diel; 13, Winter Nelis; 17, probably Josephine de Malines; 3 and 14 decayed. The others are at present unknown.—*C R.* Hollandbury.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Cavanensis.* The name you have bought it by is quite correct.—*G S B.* Polygonum implexum.—*Lindleyensis.* Griselinia littoralis. A hardy evergreen shrub.

Red Spider: *Cork.* Since you have failed to clear your Russian Violets from this pest by dusting with sulphur and plenty of moisture, we would recommend you to try what effect Page & Co.'s Blight Composition has on it. It is stated by the vendors to kill red spider, and your case offers a good opportunity of testing its value on that point.‡

Roses: *G W S.* Removing the blooms from your Rose trees would not be likely to injure them, provided you did not cut too much of the wood off along with them. Their stunted condition, we should think, must be attributed to some other cause.‡

Skeleton Leaves: *W C.* Steep them for weeks in rain water in a warm place freely exposed to air; when nearly ready add a small quantity of muriatic acid to it. A great deal of care is however required in picking out with needles the parts of the leaves that are not rotted away.‡

Underground Flues: *A B.* You will find the collective experience of several correspondents on the point at p. 70 of our present year's volume.‡

Verbenas: *J B.* It is not an unusual thing for Verbenas to be sweet scented; the light kinds are mostly more or less fragrant. †

Misc.: *E P N.* Mr. Van Houtte will send you his catalogue gratis if you apply to him at Ghent. Ficus elastica can we suppose be easily struck from a leaf having a ripe bud attached to it. The Berberry you must propagate by layers, for you will hardly succeed with cuttings; the other can only be multiplied when it produces an offset, or by seed. How Ferns may be raised from seed you will see in the *Gardeners' Chronicle* for Sept. 20. Echinocacti are "dry stove" plants, too little in demand to form a separate class in a nurseryman's catalogue.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

BINN'S PATENT MANURE AND TOP-DRESSING,

FOR PROMOTING THE RAPID GROWTH OF VEGETATION,

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AND THE DESTRUCTION OF THE FLY, WIRE-WORM, AND SLUG.

THE PROPRIETORS of this valuable MANURE and TOP-DRESSING are now manufacturing it at their Works, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. This Manure is strongly recommended for Wheat, and all other crops that follow in succession, to be used either drilled or broadcast.

Agriculturists will find it invaluable as a Top-dressing for Grass.

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T. Brigden, Seedsman, 10, Railway Arcade, London Bridge.
P. S. Plummer, 37, Upper Thames Street; and 54, Seed Market, Corn Exchange.
Wood & Sons, Seedsmen, East Street, Old Kent Road.
Dawe, Cottrell, & Co., Seedsmen, 36, Moorgate Street, City.
Henry Potter, Seedsman, 65, Farringdon Street.
F. Boshell, Seedsman, 86, High Street, Borough.
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ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

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Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

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HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.
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3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

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WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

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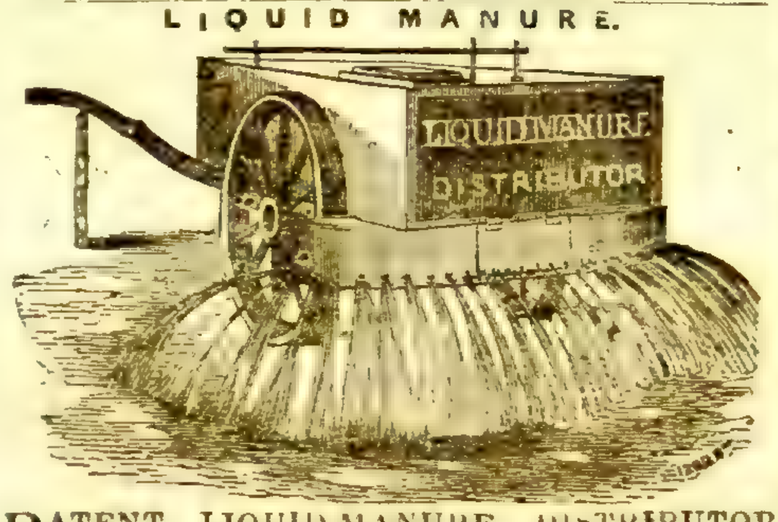
1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

LIQUID MANURE.



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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

CAUTION.

CATTLE.—Purchasers of Guernsey Cattle are informed that there is a duly authorised person to Brand on the Horns of those exported from the Island an abbreviation of the word GUERNSEY, the successive number in each year, and the two last figures of the current year. By exacting this Brand from the Agents, they will be sure of the really pure breed. Any attempted imitation of the Brand will be strictly sued at law. Any further information desired can be obtained from the Secretaries. N. LE BEIR, W. P. COBU, } Honorary Secretaries Royal Agricultural Society of Guernsey.

Guernsey, October 18.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Meeting and Exhibition of Stock, Implements, and Poultry, will be held at Gloucester, on THURSDAY, the 27th November next. All Entries must be made on or before 1st November. None but printed Certificates can be received, which may be had on application to me at Cirencester.

Cirencester, Oct. 18. EDWARD TRINDER, Secretary.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1856.—The EIGHTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 2d, 3d, 4th, and 5th of December next; when PRIZES, CUPS, and GOLD and SILVER MEDALS to the amount of 1000*l.* will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE the 1st of November next.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l.* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS, Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply Talavera, Chidham, Browick Red, Nursery, and other approved kinds of Wheat, selected and prepared for seed at market prices.

Fine new Tares, Rye, Winter Oats and Barley for sowing for spring food. Samples sent on application.

SEED WHEAT FROM BLACK LAND.—Improved Browick Red Wheat, warranted genuine, perfectly clean and healthy Seed, grown 100 miles north of London on a light black soil in Deeping-Fen. It is the produce of a properly prepared seed bed, from selected Seed of last year's growth, and carefully tended throughout. References to any farmer in the district.—Address, WM. BARNES, The Elms Farm, Spalding, Lincolnshire

SEED WHEAT.

MR. MORTON has a few quarters of healthily grown and perfectly ripened Seed to dispose of. It is of four sorts:—(1), The Whitfield Red Straw, and (2), the Fenton—both white Wheats of good quality and great productiveness, the latter a good deal shorter strawed than the former; (3), the Browick; and (4), the so-called "Tiney's Success"—both productive varieties of Red Wheat, the former yielding rather the bulkier, though at the same time the somewhat coarser produce of the two. They have all been grown on a light sandy soil; and in every case it has been a standing crop of bright unmildewed straw. Price 50*s.* per 4 bushels, including the sack.

Post-office orders to be made payable at Kingston-on-Thames to JOHN C. MORTON, West Moulsey, Surrey.

The Agricultural Gazette.

SATURDAY, OCTOBER 18, 1856.

WE beg to direct the attention of our readers to "A Practical system of Farm Book-keeping—being that recommended in STEPHENS' Book of the Farm," just published by BLACKWOOD & SONS. The pamphlet explaining the methods recommended is accompanied by the "Books" which it requires. They are (1) Cash Book, (2) Ledger, (3) Farm Account-book, (4) Corn Account-book, (5) Live Stock Account-book, (6) Labour Account-book, (7) Field-workers' Account-book.

They might, we think, have been simplified by the Cash Book being merely an account opened in the Ledger, by the "Labour" and the "Field-workers'" accounts being recorded in one book, and by the Corn and Live Stock accounts being kept in subsidiary memorandum books, not in full-sized volumes as if they were of equal place and importance with the others. The only really necessary books are the Farm Account-book—a memorandum book of all transactions—the Ledger, in which all those transactions are arranged—and the Labour Book, from which weekly transfers must be made to the general Farm Account and Ledger. Mr. STEPHENS justly says of any plan which is to command general use and approbation, that its principles must be "to record only those transactions in the settlement of which a farmer has to receive and to pay away cash, and to avoid the recording of matters which involve no cash transactions. To cumber his books with recording the quantities of those products of his farm which are never turned into cash, is to impose

upon the farmer an unnecessary drudgery in book-keeping. All that the farmer can desire is to have a correct statement of his capital at the beginning and end of every year, and of the receipts and payments of cash connected with the crop and live stock of that year."

We think that a work on Farm Accounts might be usefully made to teach a good lesson in agriculture incidentally, at the same time that it teaches a good method of recording its results. Mr. Stephens reaps a profit from the farm of 500 acres which he takes in hand of 416*l.*, employing a capital of 3000*l.*—spending only 330*l.* in labour—Wheat selling at 36*s.* 1*d.* a quarter! Barley at 19*s.* 4*d.*, and Oats, 15*s.* 9*d.* English farmers will be puzzled to know how the work is accomplished.

Mr. Mechi's connection with city affairs is, we are told, to be signalised on the forthcoming Lord Mayor's day in a very characteristic manner. We understand that in place of any symbolic representation of agriculture, such as has on previous occasions attended on the men whom the citizens have delighted to honour, we are to have the literal vanguard of agricultural progress as part of the procession, Mr. Mechi most properly marshalling the array: and Boydell's Locomotive is to clatter through the streets, drawing after it reaping-machines and threshing-machines for the astonishment and edification of admiring Londoners!

It is well to repeat occasionally warnings which we have often given. Gentlemen resident in the back streets and slums of our large towns giving orders for Wheat, "a quarter to be sent as a sample," for prize sheep and pigs, &c., ought not to need the sort of introduction which we give them here: they ought to be sufficiently well known without it. And yet we hear continually of their success in victimising. Only the other day a couple of young pigs from a prize sow at Chelmsford travelled 300 miles to an order from one of them. The animals must have been barely worth their carriage if sold again as pork, and their original owner no doubt thought that he needed no other security than this. The fact that it is worth while paying for the carriage of such animals such a distance proves that the system of roguery here is as complete as it is in other departments, furnished with its receivers of stolen goods as well as with its thieves.

The proper plan, on receipt of any doubtful order, is to apply through a member for information from the Trade Protection Society which every town contains. Mr. Cottam, the Secretary of the Manchester Trade Protection Society, at once, on application being made, ascertained the fate of the prize pigs; he could have done so before the theft as well as afterwards if application had been made in time.

The Midland Counties Exhibition of Fat Stock, Vegetables, and Poultry takes place in Birmingham as usual early in December next.

We refer to it here for the purpose of calling attention to a new feature in the scheme, which is announced in the following paragraph:—

"*Sweepstakes for Breeders, being also Exhibitors of Stock.*—It is proposed to open a sweepstakes in all the classes for Herefords, Short-horns, and Devons, for the purpose of establishing a competition between the breeders of Cattle who are also the feeders and exhibitors. The subscription will be 5*l.* each; and breeders who may desire to join in any of the sweepstakes must give notice of their intention to the Secretary, and forward the amount of their subscriptions not later than the 1st of November, when the entries will close. The stock competing for the several sweepstakes will also compete for the ordinary prizes offered by the Society, and will form part of the usual classes in the Show; and the judges will decide the sweepstakes in each case after making the other awards in the class. If only one entry shall be made in a class, the subscription paid towards a sweepstakes will be returned to the exhibitor; but no nomination can be withdrawn after the entry has been received."

This may result in a very considerable addition to the attractions of the meeting, and we would urge upon intending exhibitors that they should not delay to apply to the Secretary for the requisite certificates, as the entries close on the 1st of November—the Show being held in the first instead of the second week in December. This change in the date places the Birmingham Meeting one week earlier than that of the Smithfield Club, and we may reasonably anticipate the show of stock will be much larger in consequence.

IRISH PAROCHIAL STATISTICS.

(*Concluded from p. 635.*)

Let us now see how the labourer who, from necessity, takes refuge in our union house fares, comparatively with the Englishman of the same grade. But I must premise that the supper meal for able-bodied inmates, including boys and girls above 15 years of age, is still, I believe, the exception rather than the rule in diet, in three of the four provinces. Last year I took what I then had reason to conclude to have been the average dietary in the workhouses of the Poor-law unions (those of Ulster excepted). It was as follows:—

Articles.	Days of the week.	Meals. Breakfast. Men.	Breakfast. Women.	Breakfast. Children from 9 to 16	Breakfast. Children under 9.	Dinner. Men.	Dinner. Women.	Dinner. Children from 9 to 16	Dinner. Children under 16.	Supper. Men.	Supper. Women.	Supper. Children from 9 to 16	Supper. Children under 16
Meal in ounces	Sunday	8	7	...	...	...	...	...	...	...	...	...	...
	Monday	8	7	...	...	...	...	...	...	...	...	...	...
	Tuesday	8	7	...	...	...	...	...	...	...	...	...	...
	Wednesday	8	7	...	...	...	...	...	...	...	...	...	...
	Thursday	8	7	...	...	...	...	...	...	...	...	...	...
	Friday	8	7	...	...	...	...	...	...	...	...	...	...
	Saturday	8	7	...	...	...	...	...	...	...	...	...	...
Buttermilk in pints	Sunday	½	½	1	...	...	...	...	...	...	...	...	...
	Monday	½	½	1	...	...	...	...	...	...	...	...	...
	Tuesday	½	½	1	...	...	...	...	...	...	...	...	...
	Wednesday	½	½	½	...	...	...	...	...	...	...	...	...
	Thursday	½	½	½	...	...	...	...	...	...	...	...	...
	Friday	½	½	½	...	...	...	...	...	...	...	...	...
	Saturday	½	½	½	...	...	...	...	...	...	...	...	...
Bread in ounces	Sunday	...	...	8	6	14	12	8	6	...	...	4	3½
	Monday	...	...	8	6	14	12	8	6	...	...	4	3½
	Tuesday	...	...	8	6	14	12	8	6	...	...	4	3½
	Wednesday	...	...	8	6	14	12	8	6	...	...	4	3½
	Thursday	...	...	8	6	14	12	8	6	...	...	4	3½
	Friday	...	...	8	6	14	12	8	6	...	...	4	3½
	Saturday	...	...	8	6	14	12	8	6	...	...	4	3
Soup in quarts	Sunday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Monday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Tuesday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Wednesday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Thursday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Friday	...	...	...	...	1	3/4	3/4	½	...	...	...	...
	Saturday	...	...	...	...	1	3/4	3/4	½	...	...	...	...

It will be seen by a glance at the supper column that boys and girls in the adolescent state *were* not, I fear I may add *are* not, allowed an evening meal; when they pass the age of 15, and are not infirm, the light and digestible supper previously given to them is withdrawn.

I think that the general fact of extremely low feeding to persons in health, and employed daily in the farm work so profitably executed in many of the Irish workhouse establishments, justified me in recently expressing these opinions: "In England boys and girls are not classed as adults in the workhouses until they are full 16 years of age; in Ireland the boundary line is placed at 15. Have physiologists discovered that Irish are more precocious than English children? * * I place my objection to the refusal of any supper on the ground, that in the adolescent state, working people especially require as full and generous diet as circumstances will permit. The general principle on which pauper dietaries are framed in England is a just one; viz., to reduce, but in a trifling degree, the quality or amount of diet, so that the hard working labourer supporting his family by his unaidedindustry at home, should not have reason to complain that the non-working man in the union house has equally good, if not better food, than he himself obtains by his self-supporting industry. But it is not true that English labourers who have families are generally better fed at home than in the union houses; I believe that the contrary is the fact; and, even if not so, the stringent application of the same general principle to the Irish poor, under their different circumstances, is not consistent with humanity. When the dietary tables were arranged for the Irish union houses, labourers' families (fully employed too) were literally subsisting on even a lower scale of diet than that which was then framed for the paupers in those asylums; but taking into consideration antecedent periods, when the Potato was the common and often an abundant food, three meals a day constituted the general diet of the labourer—occasional seasons excepted. At present, and for some time past, the number of families limited to two meals a day is small indeed. Therefore, taking a retrospective view of the period antecedent to the failure of the Potato, and a prospective one of much improvement in the physical condition of the Irish labourer, would it not be desirable to raise the scale of diet for those who may be necessitated to occupy union houses.? (I am not pleading for such indulgence to idle or disorderly persons, or sturdy beggars, whom I would treat differently altogether.) To any person who could obtain the means of living out of these unpopular abodes the charitable boon of a supper, consisting of a piece of coarse bread with a drink of inferior milk, or a plate of Indian-meal stirabout, would not be in itself a temptation for remaining in what is deemed cheerless imprisonment. The poor detest the union house, and only go there from utter destitution or temporary necessity."*

Subsequent experience has proved to me that I was correct in assuming that the boon of a slight supper, in addition to the previous allowance of two slender meals, would not act as an inducement to any labourer for exchanging his straw pallet under a poverty stricken cabin for the comforts afforded in the union house. I fervently hope that the simple supper described in the table will not be longer withheld in any union house; to give less than this is positive inhumanity. As meat does not enter into the poor Irish labourer's *ménage* at all, I do not venture to suggest that it should constitute an article of diet in his poorhouse food excepting in the infirmary department.†

The dietary table in our union house comprehends supper, and is as follows:—

Able-bodied Working Males.

Breakfast.—3½ oz. Oatmeal and 3½ oz. Indian meal, made into stirabout; ½ pint buttermilk.

Dinner.—4 oz. Oatmeal, and 4 oz. Indian meal; 1 pint buttermilk.

Supper.—One-third of a pound of brown bread; 1 pint of soup.

Able-bodied Working Females.

Breakfast.—3 oz. Oatmeal and 3 oz. Indian meal, and ½ pint of buttermilk.

Dinner.—3½ oz. Oatmeal, 3½ oz. Indian meal, and 1 pint buttermilk.

Supper.—¼ lb. rown bread and 1 pint of tea, at the rate of 1 oz. of tea and 4 oz. of sugar, 1 pint of sweet milk to 3½ quarts of water.

Boys and Girls above 9 and under 15 years of Age.

Breakfast.—2½ oz. Oatmeal and 2½ oz. Indian meal, &c.; ½ pint sweet milk.

Dinner.—3 oz. Oatmeal and 3 oz. Indian meal, &c.; 1 naggin buttermilk; 1 ditto sweet milk.

Supper.—¼ lb. of brown bread; 1½ naggin of sweet milk.

It is needless to particularise the rations for the aged and infirm, and for children. Stirabout or porridge of Oatmeal and Indian meal is the perpetual food for two of the three meals. No cookery can combine these materials with buttermilk so as to offer any variety to the Potato. Surely I may question the judgment which prescribes porridge of the same sort for continual diet, when other sorts might be introduced. This dietary being established for a union which represents one of the best portions of the kingdom, as regards the agricultural population, may be properly compared with a dietary fixed for a corresponding class in Cumberland, where labourers are confessedly among the best paid and fed in Great Britain. I give the dietary table of Longtown Workhouse, in the north border of Cumberland:—

		Breakfast. Oatmeal porridge	Breakfast. Milk.	Dinner. Cooked meat.	Dinner. Cooked bacon.	Dinner. Cooked Rice.	Dinner. Cooked Peas.	Dinner. Broth.	Dinner. Soup.	Dinner. Bread.	Dinner. Suet pudding	Supper. Oatmeal porridge	Supper. Milk.
		oz.	gills.	oz.	oz.	oz.	oz.	pints.	pints.	oz.	oz.	oz.	gills.
Sunday	Men	5	1¾	...	...	...	...	...	...	...	...	5	1¾
	Women	3¼	1	...	...	...	...	...	...	...	...	3¼	1
Monday	Men	5	1¾	5	3	16	12	1	1¼	4	14	5	1¾
	Women	3¼	1	4	...	16	10	1	1	3	12	3¼	1
Tuesday	Men	5	1¾	...	3	...	12	...	1¼	4	14	5	1¾
	Women	3¼	1	...	3	...	10	...	1	3	12	3¼	1
Wednesday	Men	5	1¾	...	...	...	...	...	1¼	4	14	5	1¾
	Women	3¼	1	...	...	...	...	...	1	3	12	3¼	1
Thursday	Men	5	1¾	5	4	16	12	1	1¼	4	14	5	1¾
	Women	3¼	1	4	...	16	10	1	1	3	12	3¼	1
Friday	Men	5	1¾	...	...	...	...	...	1¼	6	14	5	1¾
	Women	3¼	1	...	...	...	...	...	1	5	12	3¼	1
Saturday	Men	5	1¾	3	3	...	...	...	1¼	4	14	5	1¾
	Women	3¼	1	2	...	...	...	...	1	3	12	3¼	1

The Cumberland pauper in contrast with ours is fed sumptuously. What excellent varieties! How many good things accompany the standing of Oatmeal porridge!

There out-door relief is preferred both by guardians and paupers—a common case in England, being cheaper to the ratepayers and more grateful to the recipients of relief. The average earnings of rural labourers' families in Cumberland are about 18*s.* a week all the year round; those of families around me cannot exceed half that amount, though all articles of food are nearly at the same price in both countries. When it is said then that the Irish labourer was never so well off as now, I reply that his condition is bad at the best; it is by no means commensurate with the advancing prosperity of the country and of the farmer especially. It is triumphantly

* "The Agricultural Labourer viewed in his Moral, Intellectual, and Physical Conditions," by Martin Doyle. Groombridge & Sons, London, 1855.

† I may refer to page 32 of my pamphlet for the case of labourers on a poor-house farm being sent without supper to bed, though fully earning it. The agricultural master could not order for them a bit of bread as an inducement to industry and good conduct unless they were under 15 years of age!

reported that his wages in the past harvest have been exceedingly high, but what has been the duration of this golden period? From two to three weeks. I am only remarking on the state of the labourer in a given district, and that a limited one; and I know that 1*s.* 6*d.* a day, with diet, has been the highest rate paid, with breakfast and dinner, to reapers and binders, and this only to extra hands called on for the brief harvest. I myself have paid, indeed, 3*s.* a day to each of two men for mowing corn during a single week; but I doubt if they were so engaged for a second week any where; this is a sort of skilled labour well remunerated, and only a few practise it. Labourers regularly employed by farmers have not received or sought any extra payments; therefore, unless some other members of their families worked (receiving from 1*s.* to 1*s.* 6*d.* a day for two or three weeks) they gained no extra advantage, nor will they be paid more than the usual low rate, though Barley—our staple grain—is yielding to the farmer an almost unprecedented high price, when its remarkable yield is also estimated. What is to become of the labourer if Indian meal should bear price correspondingly high with that of Barley-meal? Potatoes, so promising when I wrote the first page of the present communication, have been seriously affected by the well known malady. In many instances one-third of the crop is rotten; here is a source of disappointment and poverty to the labourers, who four or five weeks ago had every reason to anticipate for some months a very abundant and consequently a cheap supply of their favourite food. Their prospects for the winter are gloomy indeed, while the farmer rejoices in his abundance and profits largely by the labour he has employed.

DIARY OF A DAIRY FARM.

OCTOBER.

Cheese making twice a day is generally given up in this month, and two meal or half coward cheese is usually made as long as there is a sufficient quantity of milk to make it once every day; the milk set up at night should be skimmed and put into that taken from the cows in the morning; of course a larger portion must be warmed to make it a proper heat and this must be ascertained by the dairy maid's experience, as she will be aware that it will require a greater degree of heat than in the summer; the process of making naturally tending to cool it at this season very differently from when made in the warm weather. The curd must be scalded in the manner recommended last month. The price of butter, increasing as it does at this season, makes it quite as profitable to take a part out of the cheese and appropriate it to butter as to allow all to remain in it, particularly as the milk is richer than in the spring; therefore it is recommended to convert the cream from the night's milk into butter. Another reason why making butter is more profitable than allowing all the cream to be put into the cheese at this season is that the cheese withal will be of inferior quality made thus late. When the milk is so diminished as not to be sufficient for making every day, family or skim cheese made every alternate day is the best mode to be adopted in making the most of the milk, all being once skimmed except that milked the same morning, which should be put into the cheese as it comes from the cows. This will make a very useful cheese for family purposes if made in thick vats as recommended last month, which is a very great improvement upon that made in thin vats as before described; if the whey from this is allowed to stand, a very small portion of cream will rise upon it, and though but little, it is well worth taking off and putting into the cheese, and is worth nothing for any other purpose. The cheese now on hand must have great attention by being frequently turned and wiped with a woollen cloth, and dry boards be appropriated for turning it upon; the difference in the appearance and quality of late made cheese is very much affected by management, which is often not sufficiently attended to.

A cow should not remain in the dairy, as a general rule, after she has had five or at most six calves, always making exceptions, according to the judgment of the farmer, of cases where it may be advantageous to keep them longer in the dairy on account of superiority of blood, to get as many young stock of their sort, or from some animals showing an unusual disposition to yield a great quantity of milk, and these last, while paying their own way fully in cheese and butter, should be also kept longer, to be the mothers of as many young milking cows as prudence may suggest can be reared from them, which we may expect to show the like constitution as their mother, and so in their turn prove most useful additions to the dairy stock. It has been proved by experience and experiment that the milk of cows six, seven, or eight years old, though it may not decrease in quantity diminishes in richness, added to which old cows consume a much greater quantity of food than those younger, and as this is so without their producing anything like an adequate return, it is much better management to rear a sufficient number of young stock to come into the dairy each year to supply the place of those which from age or the accident of other animals not proving in calf it is desirable or necessary should leave the dairy. These should not have been milked during the last two months as previously recommended, in order that they might gain as much flesh as possible upon Grass, this being much the most economical food on which to commence fattening old or any dairy stock, such being very hearty feeders. They should now however be taken from the fields, as the Grass can be more profitably given to other poor stock. While these cows should be pushed on by better food, early Turnips may be given with advantage with hay or cut chaff, and any addition of meal which may be found convenient, or this latter could be omitted until the last month, when this or a little oil-cake will improve the animals for the butcher. The weaning calves should now be only in the Grass fields by day and in yards with shelter at night, when they should be supplied with cut Turnips and chaff, or the Carrot-tops and Swede-tops may take the place of the Turnips; this being supplied to them fresh, as the roots are by this time beginning to be secured for the winter, and for the next month the tops may be given with advantage to the cattle for which it is best adapted. Should this food be given to dairy cows, a flavour is discovered in the butter, to prevent which about a dessertspoonful of saltpetre to every gallon of cream should be put in it, and placed in a tin vessel and heated in warm water for about 20 minutes, the cream being frequently stirred during this time and allowed to cool very gradually.

The supply of whey for the store pigs must now be considerably diminished, and their condition having been improved by running on the stubbles, they should now be sold, or those intended for fattening should get put upon better food, care being taken before any of the stock are disposed of to select the best to be kept for breed should any be required to take the place of the old sows, should it be desirable that any of these should not breed again. The whey not needed for the old pigs kept for stock should be saved forward for them, to provide for the time when food is more scarce.

The young pigs of the second farrows, which should be now two months old, may get a good supply of skimmed milk, as in most dairies by this time cheese is only made once a day, therefore the evening's milk is frequently skimmed for butter. This milk, with a little mixture of meal from any inferior corn, will soon make these pigs very nice pork, and with about six or eight weeks' feeding they should be quite fat; it is very desirable that porkers at this season should get their food warm, a little scalding water poured on the meal, and this cooled down with the skimmed milk will make the food a proper warmth. A warm dry bed is also essential to their well doing. Acorns may be gathered in and laid by as food for the older pigs, from one or two quarts a day is a sufficient mixture with other food for each pig. The acorns are better for being kept a little while until they begin to sprout, in which state they make much more wholesome food than if given when gathered in fresh, and as children may be generally found glad to pick up acorns for 1*s.* per bushel, a good deal of useful food may thus be added to the farm produce at a very cheap rate.

Home Correspondence.

Agricultural Statistics.—There has been a good deal written and said lately upon agricultural statistics, some thinking their collection beneficial, others—and of farmers these form the larger number—injurious. Now I believe that the reason why the idea is not liked among farmers is, firstly, because it is considered inquisitorial, and secondly, because of the trouble it would give them; some again think their landlords would know too much, but this last objection I think a very poor one. Supposing, however, that these statistics could be collected without subjecting the farmers to any of these monstrous ills, would not the prejudice against them be removed? I cannot think, myself, that could there be even an accurate table published of the quantities of corn, &c., at any time of the year, it would encourage speculation or produce stagnation, as the case might be, so as to be detrimental to the growers or to the consumers. I know this is an objection against their collection held by a number of very well informed and influential farmers; assuming, however, this opinion to be incorrect, let me go on to propose a method by which their collection might be effected without any one knowing the secrets of our business (for I am a farmer), this forming, as mentioned above, one grand reason for things remaining as they are. I propose, then, that in every parish a person should be appointed—perhaps a farmer would be best, but I conceive it would matter little what the individual might be, perhaps the postmaster would be as good as any—who should have it as his office to send every occupier of land in his parish a printed form containing columns for the number of acres of each kind of corn and the number of each kind of stock kept, requesting that it may be filled up on a certain day of the month and returned to him. These forms should have the address of the appointed person printed upon them, and of course pass through the post free of expense, and have no signature attached to them. There would, no doubt, for a year or so be some who would not return them, and of course this would render the collection very imperfect, but for this I can think of no remedy though I should imagine it would not last long. The forms when returned (the person who sends them out should know how many he has distributed) should be sent to some head office—one for each county would be best—and there compiled, and from these that of the whole country might be ascertained. It would be useless for any one to attempt to estimate the quantity per acre before harvest; as soon, however, as some was threshed it would be known how the yield was, and a pretty near guess might be made of the whole number of quarters grown in the kingdom. I believe, were this plan adopted, there might be also a column for the number of quarters of each kind of corn and stock sold last year, and also one for an estimate of any old remaining at the time of filling in the return. No one could thus possibly find out any particular person's affairs, and after a few harvests, from knowing the number of acres of Wheat, &c., and also how much had been grown the preceding year, a pretty accurate opinion might be formed of the quantity the standing crops were likely to produce. I presume the 15th July would be a good time for the returns to be filled up, and it should then be stated how the crops on each farm were progressing. *Leisurely.* [There would not be the smallest guarantee of accuracy under this plan, for it would be impossible to refer a single paper to the person who prepared it].

The Irish Poor Law.—I have only this day seen your *Gazette* of the 4th, in which "A Tenant Farmer" has rather bluntly asserted that I have shown great ignorance of England in the present day, and that my statements are liable to do mischief not only in England but also in Ireland. I beg leave to inform him that I left a rural district in England only last year, after a residence there during the seven preceding years, and that circumstances led me to have a perfect knowledge of the details of the Poor-law system there, and in other parts of England. If the "Tenant Farmer" will do me the favour of reading my recent publication entitled "The Agricultural Labourer viewed in his Moral, Intellectual, and Physical Conditions,"* he will perceive that my acquaintance with the Poor-law system and with the condition of the poor is not merely superficial or theoretical, but deep and practical. I would refer him to the statistic tables 4 and 21, descriptive of cases fully investigated by me. He may see also "remedial considerations" which may not displease him. Unless convinced, by reasoning and facts, that my assertion that "in England the price of (rural) labour is regulated by the price of bread," is erroneous, I still maintain its accuracy. I am familiarly acquainted with farmers who meet together (previously to the harvest period in particular) to regulate equitably among themselves the rates of labour according to the cost of food, at least so far that the labourer shall have remunerating and sufficient wages, even though the supply of labour should be rather in excess of the demand. *Martin Doyle.*

Foreign Correspondence.

THE REAPING MACHINE IN AUSTRIA.—We have been requested by our correspondent Baron Ward, an Englishman settled in Austria, who has for some years past turned his attention to agricultural pursuits, to send you (which we do herewith) a translated copy of articles which were published in the "General Agricultural and Arboricultural Gazette" (*Allgemeine Land und Forstwirthschaftliche Zeitung*) at Vienna, on the 6th September last, relating chiefly to experiments made with various reaping and mowing machines, particularly of some constructed on the principle of Hussey, but altered and improved by Baron Ward himself.

The results therein stated we conceive cannot but be interesting to your agricultural readers. *J. & R. M'Cracken, No. 7, Old Jewry, London.*

EXTRACT ABRIDGED.

Results derived from the Mowing and Reaping Machine in Austria France, and England.

At Baron Ward's, at Urschendorf, on August 23d, before a committee, a machine measuring 7 feet in width, with a cutting surface or bottom knife of 6 feet, reaped a field of 1¾ acre exactly in 56 minutes, whereas a machine measuring only 5 feet would require one hour and eight minutes to reap a similar field of 1¾ acre. These results are not any longer to be called experimental; the machines may be kept going constantly, and on the above occasion they were set to work a day before the date quoted, during which time it rained incessantly. Mr. Morier, Attaché to the British Embassy; Dr. Fuchs, Professor and Secretary to the Imperial and Royal Agricultural Society of Vienna, and other gentlemen were present on the occasion, and the superintending committee declared that despite the bad weather, and although the Barley was very short in the straw, the experiment was most satisfactory. During the 22d August, when the rain was pouring down, four machines were set to work in the presence of his Excellency Count Von Appony and of Count Waldstein, both extensive landed proprietors. Again, on the 29th August, we went to Urschendorf, to examine and personally superintend the operations of the machines. On arriving there we were immediately joined by Baron Ward, and proceeded together to the field appointed to be cut, measured a certain portion of it, and noted down the time precisely. That portion of the field was one full German acre, and 5510 square feet more, making nearly three English acres. The Oats on the declivity, or lower part of the field, where the ground was nearly level, stood thick and about 3 feet high, but the Oats on the incline were much thinner, and only from 1½ to 2 feet high. The machine of 7 feet width had reaped the whole surface of the field in 47½ minutes. The work was so satisfactorily done that neither scythe nor sickle could have produced better results. From thence the machine was taken to another field, and there began to reap a triangular surface of 4 German acres together with three other machines. On this field the Clover among the Oats stood very thick. This experiment was intended to show whether several machines working in succession would answer in a sharp-pointed field. The time here also was taken down, and we found that the work might be done without any difficulty.

Let us now speak of the machines individually. The construction is originally that of Hussey. The knives act as an oscillating saw: these separate knives are fastened with screws to an iron bar or spindle as long as the machine is wide: and these knives when bought a dozen at a time cost very little. The sharp edge of every knife terminates in a point with a blunt angle; and the two sides of this angle again have small incisions equal to those of a comb, the teeth of which are about a line in length, and the half of that in width. The improvements which Baron Ward has made in Hussey's machine are principally as follow:—1st, The guide or sledge carrying the knife-bar or spindle is more than half as long again as that of Hussey's, and is made of cast iron. 2d, All the bearings are provided with brass boxes. 3d, The motion of the knife-bar or spindle is equal to the distance of the iron cogs through which the cutting surface or bottom knife runs, so that the point of every knife oscillates from centre to centre within these cogs. 4th, The two side boards which enclose

* Groombridge & Sons.

the machine have not only been extended, but have a bent shape given to them. 5th, By means of hooks and eyes connecting irons or cranks, a platform has been attached to the back part of the machine, and this platform being made of strong inch boards may according to option either slide along the ground or be fixed upon rollers, leaving sufficient space for one man to stand upon, intended to push the cut corn to the side of the machine.

Every agriculturist knows how difficult it is to keep the driving pole of a reaping machine constantly steady, that part of the machine which runs among the standing corn not following up the track is always inclined to lag behind. When working with two horses, the shoulder of the saddled horse will suffer very much from the pressure of the spindle or bar. When working with four horses, however, as Baron Ward generally does, there is first, an advantage of choosing broader or wider machines; and secondly, the direction of the bar or spindle can be better controlled by the horses ahead; they can proceed constantly in one sharp angle to the line of the corn, just in the same manner as the towing horses of a barge proceed in an angle along the towing path. For similar reasons we are brought to the conclusion that when working with two horses one must be put behind the other. One man rides on each of the two horses; another stands on the machine, close to the wheelworks, with his face turned towards the standing corn which the machine is reaping, and with a wooden rake is constantly moving away the reaped corn from the cutters towards his left side. On the said platform connected with the machine another man stands with his back towards the corn, receiving the cut corn from the former man, and when his rake is quite full, he discharges the load downwards from the platform. Now, as the platform is a little wider than the machine, the corn thus discharged falls so far from that still standing that it can in no wise obstruct the horses when they next come round, so that besides the two men on horseback, and the two on the machine, no one is required on the field. In the machine according to Ward's principle of 7 feet wide, the platform here alluded to is 9 feet long; the side next to the corn to be reaped is 3 feet broad, and the other side from whence the reaped corn is thrown off is 4 feet 3 inches broad.

While thus busied at Urschendorf in verifying these great facts, our attention was called to the extraordinary results of a new machine in Galicia, formerly an integral part of old Poland, now one of the Austrian dominions. Mr. Von Dulski writes:—"I am only discharging an agreeable duty in giving some particulars concerning a mowing and reaping machine only recently invented by Mr. Henry Arend, a gentleman of Semberg. The above machine has reaped 15 Austrian acres sown with Wheat with only two horses and one man leading the horses, in such a clear and regular manner as no human hand, however practised in reaping, could ever have effected. The said machine is made so as to throw off the reaped Wheat backwards at proper and equal distances half a sheaf at a time, never missing or passing one single stalk; it lays the straw cut very regularly without injuring either the corn or the ears thereof. If the labourers follow up the machine closely by tying up the Wheat into sheaves the work may continue undisturbed. The machine in question has been constantly working on my fields, and the standing stubble (from 5 to 6 inches high) will prove the regularity of the work and its perfection. Not to enter into any further eulogiums of the said machine, I shall only say that I have ordered four of them from the inventor to convince the world of their utility and of the high opinion I form of them.

"Ilawcze, post Mikulince, 18 Aug., 1856,
(Signed) "Edward Von Dulski, Baronet."

Let us now compare these with the French and English machines. The reader will perhaps still recollect that in our number 34 of this Paper last year we gave a very full account of the results of similar machines exhibited to authorities from all parts of the world at the Exposition in Paris, and that the application of the principle of M'Cormick (America) is reported to have reaped one "yoke' (Austrian acre) in 48 minutes, while all other French, English, and American principles require from one to upwards of three hours to do the same work.

The reaping machines exhibited at Paris in 1856 were tried on August 2d before a commission appointed for the purpose by the French Minister. 1st. Machine on the principle of Hussey, but constructed and improved by Mr. W. Dray, England; it worked very well, levelled very accurately, and finished its plot within 1 hour and 55 minutes. 2d. Machine according to M'Cormick, but manufactured by H. Bella, Director of the Agricultural Institute of Grignon, France; the operations were not quite so successful, and less regular. 3d. Machine also on the principle of M'Cormick, but constructed by Laurent, a manufacturer at Paris, working nearly the same as that built by Mr. Bella.

The annual English show for the present year took place at Chelmsford, in the middle of July last. According to the English and French reports which have reached us, eulogiums were largely lavished on the experiments of threshing machines, but with regard to the results of mowing and reaping machines not a single word was said about them.

We will, therefore, draw a line here, and only comment upon those reports which came prior to that period from Great Britain, and we think we can boldly say—"Such results as we have witnessed at Urschendorf no other machine has ever yet been able to accomplish." In addition we may be allowed to offer some remarks on the information which we have obtained within the Austrian territories regarding the very satisfactory results of machine-reaping during this present year in the harvest now closing. We have been told that Mr. Von Keyle daily reaps 10 acres with four horses on his own estates in Gneixendorf, near Krems, in Nether Austria. According to the reports of Mr. Kreutzer, civil engineer, the M'Cormick machine has reaped 15 Hungarian acres every day on the estates of Count Radasdy, at Adony, in Hungary; and 11¼ Austrian acres of Wheat have been reaped in 11 hours on the estates of Count Szechney, the machine being on the M'Cormick principle, with an Archimedian screw to throw off the corn on one side.

Now, Baron Ward has reaped all his ploughed land, 1300 acres, merely by reaping machines. Baron Ward has in his possession five reaping machines of different sizes, on the principle of Hussey; but they have been altered and improved by him and on his own premises. Every sort of agriculture has its own peculiar tendency—its own features. The chief tendency of Baron Ward's establishment is to concentrate all the available powers, strength and proportions, each according to its particular position, and then to turn them all to a good end productive of general advantages.

A herd of about 300 English pigs; a cross breed of English Durhams with Tyrol cattle; some hundreds of fowls of different breeds; a Westrup's grinding-mill of three floors or divisions; a bone-crushing machine; a saw for the largest blocks as well as the smallest piece of wood; a forge or smithy; a turner's lathe and establishment for a wheelwright; a plan for fertilising the soil by saving the manure and turning all refuse and filth to good use; a turbine; a fixed steam-engine, &c.—all these, constituting the Urschendorf agricultural establishment, are grouped together within a very small compass. Sowing, reaping, threshing, and even mowing, all there are done by the same machines. The English pigs, when fattened, are sold at 25 Austrian florins a head, that is to say when sold by the dozen; but when exceeding that number they sell at 20 florins apiece. The cattle intended to be fattened show what might be done with those animals; every sort of food for them is first ground or cut up, then mixed with chaff and choppings, and finally laid on a steam apparatus made for that purpose.

The bones after having been pounded are not dressed with any sulphuric acid, but simply mixed with some sawdust, then moistened with water or fluid from the kitchen and put away to ferment.

These particulars evidently show that a visit to the estates of Baron Ward must be of great importance to every one inclined to take part in the progress of agricultural improvement.

Reviews.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. October 1856. Blackwood & Sons.

The current number contains papers on the sciences applicable to agriculture, and on several branches of the practice of agriculture. It is perhaps less various in its contents than on previous occasions it has been. We extract a passage from a prize essay by Mr. J. Lockhart Morton on agricultural drainage:—

"The system of drainage somewhat extensively carried out on the former estate consisted for several years prior to 1847 of shallow drains in every furrow, as recommended by the late Mr. Smith of Deanston, who occasionally visited and inspected the operations. At that period my connection with the improving operations was formed, and not being then so complete a convert to deep draining as I now am, I was only desirous that the 27 to 30-inch drains should be made at least 6 inches deeper. As the proprietor was strongly in favour of shallow frequent draining, the depth could not for some years be increased to more than 30 to 33 inches. Experience, very soon acquired, however, demonstrated the fact, that while shallow drains did effect at the first a great improvement on wet land, they failed, after several years, to dry it so thoroughly as it required to be in order to grow successfully every description of field crop. Impressed with this conviction, I obtained permission in 1848 to enter on a series of experiments in draining very dense clays at different depths and distances apart. The first field drained for this purpose consisted of 16 acres of good brick-making clay. It was in pasture, covered all over with Rushes, and produced scarcely any other food for stock than blue Carex Grasses. The enclosure was laid out in three sections, the first (No. 1) to be drained 18 feet apart and 30 inches deep; the second (No. 2) 27 feet, and 3 feet 3 inches deep; and the third (No. 3) 36 feet asunder, and 4 feet in depth. The materials used were 2-inch circular pipes at the lower end of the drains, and 1¾-inch ones at the upper ends, all laid without collars. There were several cross main-drains, besides a principal one at the lower end. Part of the latter was laid with large open tiles and soles, but 4-inch circular pipes were chiefly employed. The work was performed in the summer season, and a double paring of good clean clay was laid over the pipes. In filling the drains, the plough was employed to some extent, but care was taken to prevent the formation of voids. None of the surface soil was filled in, but the top spading was laid over the filling, with the red side up. The expense, irrespective of the cost of laying out the works, stood thus by the imperial acre:—

No. 1. Deep Drains.

Cutting and filling 80 rods of 5½ yards, including main drain, at 9*d.*	£3	0	0
Two-inch and other pipes, 1150 at 20*s.* per 1000	1	3	0
Extra for main drain tiles	0	5	0
Cartage and laying down of tiles, 2*s.* per 1000	0	2	4
Superintendence and other contingencies...	0	2	8
Cost per acre of 4 feet drains, 36 feet apart	£4	13	0

No. 2. Drains of Medium Depth.

Cutting and filling 105 rods, including main drains, at 6*d.*	£2	12	6
Two-inch and other pipes, 1540, at 20*s.*	1	10	9
Extra for main drains	0	5	0
Cartage and laying down of tiles at 2*s.* per 1000 ...	0	3	2
Superintendence and contingencies	0	2	10
Cost per acre of 3 feet 3 inch drains, 27 feet apart...	£4	14	3

No. 3. Shallow Drains.

Cutting and filling 115 rods, including main drains, at 4*d.*	£2	11	8
Two-inch and other pipes, 2290, at 20*s.*	2	5	9
Extra for main drains	0	5	0
Cartage and laying down of tiles, 2*s.* per 1000	0	4	7
Superintendence and contingencies	0	3	1
Cost by the acre of 30 inch drains, 18 feet apart ...	£5	10	1

"At the time these drains were executed wages were low, and the work was got cheaper done than it could be got completed for now. Looking at the dimensions of the different sections, it will be observed that in No. 1 the drains were too far apart for very clayey land, and even the width of the drains in No. 2 was too great for the depth. The results of this experiment may now be stated. On the land being put under Oats, the crop proved most productive over the 18 feet drains, next best on No. 2, and especially in the old furrows, very inferior on No. 1. It happened to be a damp year, and a good test was afforded in consequence. The next crop was Turnips after a very deep cross-ploughing. Over the deeply-drained section the roots varied considerably, some being good and some bad. Neither was the crop on No. 2 so good as could have been wished, though better than on No. 1. The crop over the shallow drains was the best, and the land was firmer in wet weather than on the other divisions. An Oat crop and then hay followed, and under both the deep drains showed that, for a distance of about 12 feet on either side, the land was thoroughly dried, but farther off than this scarcely drained at all. The whole field is now in pasture, and the conclusion I have come to in reference to it is this, that none of the systems are satisfactory. The shallow drains did great good at first, and the deep-wrought very badly; but now, so far as the deep ones are able to draw, they are doing excellently well, but the others are not. Had I drained 24 feet apart and 4 feet deep, I have every reason to think that the drainage would have been most satisfactory. As it is, this is not the case. But one sometimes learns more from failure than from success in such operations.

"Another field of about 18 acres, which I subsequently drained by desire of the proprietor 30 feet apart and 3 feet 3 inches deep, was found to be only partially dried. From very careful inspection I have repeatedly observed that the ground is only well drained 11 feet on each side of the drain. The subsoil is very dense clay, with pieces of 'till' breaking in at intervals, but is not one of the worst bleeding kinds of strong land. A few notes on different fields will be sufficient to indicate the system of drainage which has been found most successful on this property.

"A field of 25 acres, a deep earthy soil, and strong yellow clay subsoil. Drains, 24 feet apart in one section, and 4 feet deep. Results most satisfactory. Another section, drained at 27 feet intervals, same depth as the other: results satisfactory, but not a great deal to be boasted of. Another enclosure, having much the same soil as the last drained, 22½ feet apart, and 3 feet 9 inches deep. Very satisfactory drainage secured. Part of a very stubborn clay field drained 32 feet apart, and 4 feet deep. Not satisfactory as to results, not more than from 10 to 11 feet being thoroughly drained on either side of the drains. Many other instances might be enumerated; but, to save space, I may simply give a general statement of the conclusions arrived at by observation of the different modes of drainage which have been undertaken over the whole estate.

"1st, Drains 30 inches deep, and from 15 to 18 feet apart, have given favourable returns, but after six or eight years they are not so effective as before, and Rushes begin to come up. 2d, When the drains were only about 3 feet 3 inches deep, and 26 to 28 feet apart, they did a great amount of good, but at that depth rarely dried the clays for more than 11 feet on each side of the drain. 3d, In all cases, even in the strongest clays, 4 feet drains, if not more than from 24 to 28 feet asunder, have thoroughly stood the test of years, and given complete satisfaction.

"Stone drains and tiles covered with stones have failed completely on this property after eight or ten years, and it would now be considered a waste of money to use them.

"In conducting some experiments to ascertain whether deep or shallow drains would run first after rain, I obtained very curious results, as the following figures will show I placed a series of drains in a part of one of the worst drawing clay fields I could select. One drain was made 4 feet deep, and the next to it in succession only 2½ feet. Their lengths were the same—namely, 90 yards, and to prevent surface-water getting down above the tiles, the filled-in clay was most carefully rammed with a paving-beater. It was in dry weather the work was performed, and the mouths being all made to discharge separately into an open ditch, rain was anxiously waited for. In October it came on all at once, and it was then found that the 4-feet drains ran a considerable time before the other ones. After they had both been running a little, the discharge was measured, with the following results:—

The 4-feet drain discharged 2½ pints in 2½ minutes.
The 2½-feet drain " 2½ " 8 "

"On the following day, when the rain had abated a little, the average discharge was found to be as under:

Deep drain discharged 2½ pints in 3 minutes.
Shallow drain discharged 2½ pints in 11 minutes.

"The experiment was made in 1848, and, notwithstanding the filling of the drains, being almost puddled, they are still working well. For several years subsequent to the time that has been mentioned, the deep drains continued, after a fall of rain, to discharge a good deal more water than the shallow ones. Of late I have not had an opportunity of examining them, but have no doubt the result continues to be the same."

Calendar of Operations.

OCTOBER.

Cheshire Farm, *Oct.* 14.—The great vicissitudes of weather lately have in some measure disappointed the expectations of the farmers as regards the crops of this county. In the early part of the summer the corn crops upon well cultivated land had an unusually promising appearance, and farmers generally were very sanguine as to the result; the storms, however, in July, especially the one on the 8th, and again in the early part of August, beat down the luxuriant crops, and as we anticipated some time before harvest, the yield of Wheat is very deficient, the estimate being about one bushel to the thrave; we therefore think an average crop may be considered very doubtful; we also fear, from the same cause, that these remarks will apply to Barley and Oats. Beans are not much sown, but from information received from those who do grow them, and from our own observations, we are led to believe the crops will prove good. The bulk of the corn was secured in very fine condition by the middle of September, but we regret to say that in consequence of the weather becoming very wet about that time, with little or no wind, many acres of Wheat and Oats on the higher ground are much sprouted and still out on the land, unless carted yesterday, in very bad condition. Grass has been plentiful, and the make of cheese up to the present time is a fair average. Grass on the clay land has diminished greatly during the late wet weather, and a considerable quantity of after Grass has been destroyed in the meadows by the floods. Turnips and Mangel Wurzel are tolerably good, and we have heard of some heavy crops of the latter, as much as 40 tons per acre; but the great complaint is that they have run much to seed, and this is attributed by many to the season, being sown too early—or too much forced; neither one or other is the cause, but the want of good genuine seed. If Mangel Wurzel or Turnips are sown too early, or are too highly manured and over forced, more especially if not hoed in time, the plants will naturally produce a large quantity of leaves, and form a thick neck, but if they are of a genuine kind they will not run to seed. Early and second early Potatoes are nearly a failure in consequence of the disease, which is more prevalent than for the last two or three years. Winter Potatoes, although much less affected, have not escaped, and we fear there will yet be considerable loss in the heaps. Store pigs are still fetching high prices, and there is a good demand for store cattle. Wheat sowing, where the land is dry enough, has partially commenced, but the greater portion is still too wet. *W. P.*

Lothians and Berwickshire—As they appeared to a trav

by the Queen's train on Thursday last (*Times* of Friday):—"In passing through the Lothians the appearance of the fields contrasted very strongly with that presented by the country through which the Royal train passed yesterday. Here, over a run of 50 miles, scarcely a sheaf of corn was to be seen outstanding, while the crowded corn-yards afforded pleasing evidence that the farmers had gathered in a most abundant harvest. In West Lothian and to the north of Edinburgh little more than half the crop has been secured, and it was very distressing to see whole fields covered with stooks, the blackened appearance of which showed but too clearly the damage they had sustained. The fields around Berwick, and for 10 miles on either side of it, are not very clear, but the Oats exposed are of good colour. Further southward the aspect of the country again improves, corn-yards bulking very large, and suggesting some deficiency in the system of cutting and gathering in the crops in those districts where they are still exposed, and where soil, climate, and farming are equal to the husbandry of the Lothians."

WEST SUSSEX, *Oct.* 14.—Since we finished harvest there has not been much to notice particularly. The weather though sometimes rainy has on the whole been favourable for getting the land prepared for the next Wheat crop. The leas have ploughed up more easily than usual, and the frequent changes from wet to dry have made them very friable, so that sowing, which is now just begun, is done with less than the usual amount of labour; and at present there is a prospect of its being done in good time. For this part of the county it is considered early to begin now. The late Turnips, which were a failure the last two years, promise this year to do well, and though the earlier sown have failed so much, yet with abundance of Grass and good hay there has been the usual demand for stock. This is our buying-in season, and we have had to pay the same high prices as last year. At Appleshaw and Weyhill fairs—which may be considered as one, the latter being a continuation of the former—sheep began to sell rather lower than last year, but advanced in price daily, while last year they were easier to buy at last, but as the best are all disposed of at first the last sold are very much the dearest. Hampshire Down full-mouthed ewes fetched from 38*s.* to 42*s.* a head for the best quality to lamb about January; Somerset ewes about from 48*s.* to 56*s.* to lamb this month and next; they are preferred to lamb in November, as the lambs if earlier are too forward for the market, and if later the Downs come into competition with them and reduce their value very much; we should think that a little more care in selecting the proper time to put the ram with them would be worth the seller's trouble. Downs are wanted as forward as possible, and on some farms and with certain treatment they are got much forwarder than on others. Respecting the yield of our crops I fear it is not to be what we expected; we hear complaint on every side respecting it. But it may arise partly from our having formed too high an estimate of it. There has been a good deal threshed by the steamers, but much of it ought to have been left for some time longer, as it is unfit to grind by itself, and so commands less money than it would otherwise do. Barley is dear, and though there is a good deal inferior mostly sprouted, still grinding sorts are also high. Fat pigs, weighing from 18 to 28 stones of 8 lbs., are freely selling at 5*s.* per stone. Our market has lately been well supplied with mutton, and the price is not so high; it is about 4*s.* 6*d.*; it has been upwards of 5*s.* The young Clovers do well, but there is fear of the slugs among the Trifolium and Rye. They are very destructive in the gardens at present, and we should think a flock of ducks would be of good service in the fields to destroy these depredators. *G. S.*

Notices to Correspondents.

CHEAP FOOD: *A B.* We should prefer oilcake to either Oats or Beans at present prices.

FENCE: *An Old Subscriber.* We are not learned in the law. If you have destroyed a fence which formerly existed, we imagine any injury from consequent trespass must be borne by yourself.

FUNGUS IN PASTURES: *W J* would be glad of information on discouraging their growth. Perhaps some of our readers may be able to relate their experience. On both old and new pastures they abound to a pestilent degree; even the edible Mushroom abounds so as to be a nuisance. The general principle on which all such plans proceed is that of encouraging the valuable pasture Grasses by liberal manuring and *heavy stocking.*

GRASS DRIED ARTIFICIALLY: *T F K.* It is a specimen of good hay—fragrant and nutritive.

MANURE: *An Experimentalist* gives us the following analysis and asks for the value per ton:—

Water	9.21
Organic matter	8.32
Soluble phosphates	20.47
Insoluble phosphates	7.83
Sulphate of lime (gypsum)	12.04
Sulphate of magnesia (crystals)	11.99
Sulphate of potash	7.72
Sulphate of soda	.59
Common salt	6.13
Sulphuric acid	13.53
Sand	2.10
	100.

Ammonia, equal to 10.68 per cent. of crystallised sulphate of ammonia. It is a very valuable manure, more adapted probably to green crops than to grain, and worth at least 10*l.* a ton.

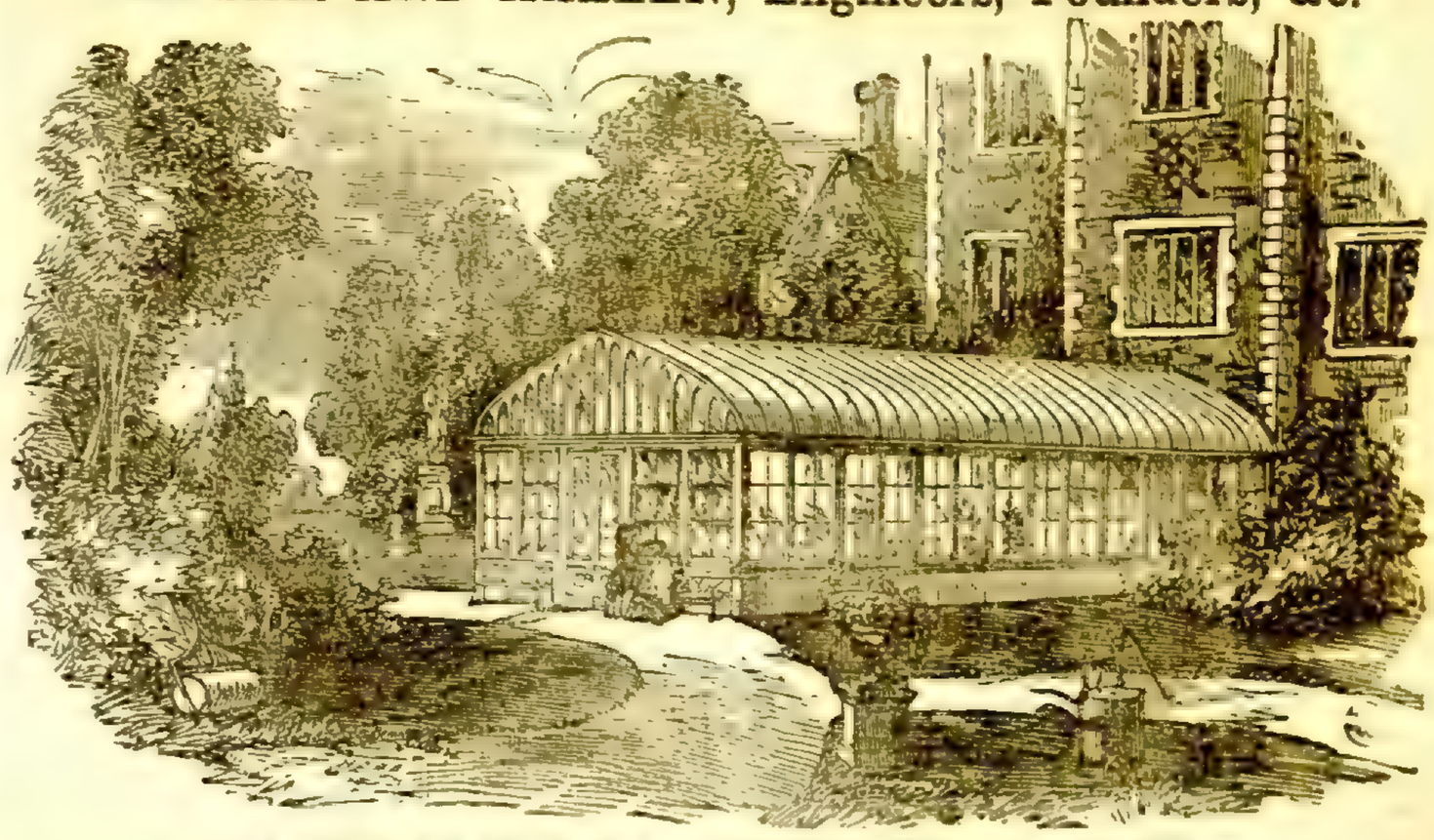
MARL: *W X Y.* The word refers to many different things, as you will see in Sprengel's papers on inorganic manures in the early volumes of the *Agricultural Gazette.* Its efficiency depends often on phosphates present in them in small quantities rather than on the lime or other more abundant earth that they contain. A heavy dressing of marl is often sufficient for many years, and a re-dressing under such circumstances would be useless. The gradual descent of any dressing, as of ashes, marl, &c., is owing to the worm casts being taken from below them continually. Mr. Darwin's explanation of this was given some years ago in the Transactions, we think, of the Geological Society.

POTATOES: *Inquirer.* "Bushey" *received* the advice in question; he did not give it but asked for it. If you steam the Potatoes you may trample them into a tub or corner and they will keep for many weeks; so at least they have proved in our experience. Perhaps this notice may obtain for you that of others.

SALE OF HEREFORDS AT BEDSTONE HALL, SALOP; *M.* The following are the particulars of the sale in question:—Nine bulls and bull calves realised 892*l.* 10*s.*, or about 90*l.* each. Perfection, by Gratitude—Purity, was purchased by Mr. P. Burlton of Lyde, for 295*l.*; Grateful, by Governor—Red Rose, was bought by Mr. Hewer for 250*l.*; Grecian, by Gratitude—Young Empress, passed to J. Ackers, Esq., for 105*l.* The cows and heifers, 43 in number, brought 990*l.* 10*s.* Venus, by Venison, brought 60*l.*; Empress, by Venison, 50*l.*, and Curly, by Conrad, 50*l.*; the three being bought by W. S. Powell. Esq., of Hinton, near Hereford; Giantess (and calf,) by Conrad, was purchased by Mr. Hewer for a similar sum; Victoria (and calf,) by Venison, passed to Mr. Baldwin for 40*l.* Eight barren heifers realised 143*l.*, or from 16*l.* to 36*l.* each; 10 steers brought 318*l.* 10*s.*—Total, 2344*l.* 10*s.* Some of the prices rival those of first-class short-horns.

VALVES FOR HYDRANTS: *C L.*, having a manure tank on the top of a hill, proposes to lay down a 2-inch pipe of cast-iron to distribute it on the Grass land below and on the side of the hill, and he wants to know the best kind of valve for the branches, and how far apart it is convenient to have them. What is the best material for the hose, and the best means of attaching it to the branches? Gutta percha is very liable to damage—is any other material less so?

COTTAM AND HALLEN, Engineers, Founders, &c.



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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

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B. SAMUELSON,

BRITANNIA IRON WORKS, BANBURY,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. **BETWEEN SIXTY AND SEVENTY THOUSAND** of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

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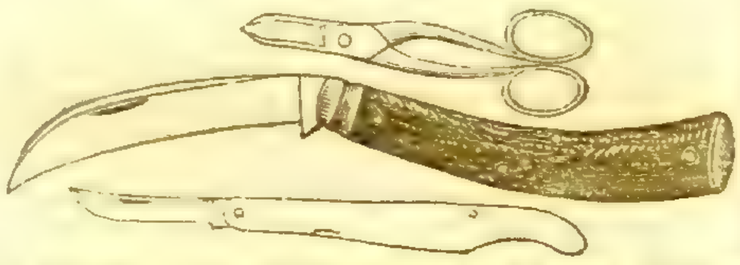

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools, Established 1738.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free, on application and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps. 103, Newgate Street London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12s.	8 by 6, and 8½ by 6½ ... 13s. 6d.
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11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	14 0
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...	
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...	
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...	16 0
18 „ 12,	19 „ 12 ...	...	... ...	
16 „ 13,	17 „ 13,	18 „ 13 ...	... ...	18 0
19 „ 13,	20 „ 13,	21 „ 13 ...	... ...	
16 „ 14,	17 „ 14,	18 „ 14 ...	... ...	18 0
19 „ 24,	20 „ 14,	21 „ 14 ...	... ...	

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2d. to 3½d., 21 oz. from 3d. to 5d., 26 oz. from 6d. to 7½d., per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

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GLASS FOR HORTICULTURAL PURPOSES.

Good 15 oz. sheet, in boxes of 100 feet each:—

8 by 6, and under 9 by 7	... ...	11s. per box.
9 by 7, „ 12 by 9	... ...	13s. „
12 by 9, „ 14 by 10	... ...	14s. „
14 by 10, and not above 2 feet	... ...	15s. 6d. „
2 feet, „ 3 feet	... ...	16s. 6d. „

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BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

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HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

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See *Gardeners' Chronicle* first Saturday in each month.

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KENT'S PATENT WATERPROOF GLAZED HORTICULTURAL BUILDINGS.

Illustrated Prices on receipt of four stamps.—Horticultural Building Works, Chichester.

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HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

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J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

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J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

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Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.

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JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

COALS FOR HEATING GREENHOUSES.—Small Coal, sifted from the best Coals only, 10s. per ton. Coke, 11s. per chaldron cash loaded into carts, 3s. per ton extra delivered, within five miles of COCKERELL & Co's Wharves, Eaton Wharf, Belgrave Place, Pimlico, or Purfleet Wharf, Earl Street, Blackfriars.—Central Office, 13, Cornhill.

CRESTS FOR GATE PIERS modelled to order.

Also a large Stock of VASES for the same purpose and for Terraces, executed in Artificial Stone, by

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JOHN WARNER AND SONS,
Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended for durability and low price, viz., 2*l.* 19s., to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

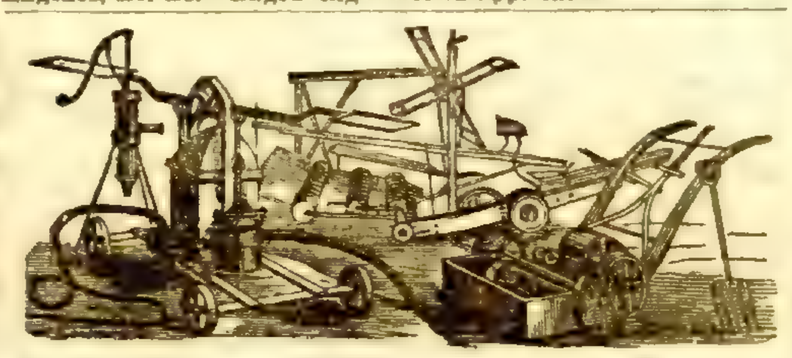
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 10 0
2½ „	long 3 „ 3 „	gutta percha,	1 14 0
3 „	ditto 3 „ 6 „	or cast iron	2 8 0
3½ „	ditto 3 „ 6 „	flanged pipe,	2 12 0
4 „	ditto 3 „ 6 „	as required.	3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery. — Warehouse 95, Newgate Street, London; Factory, Brentwood.

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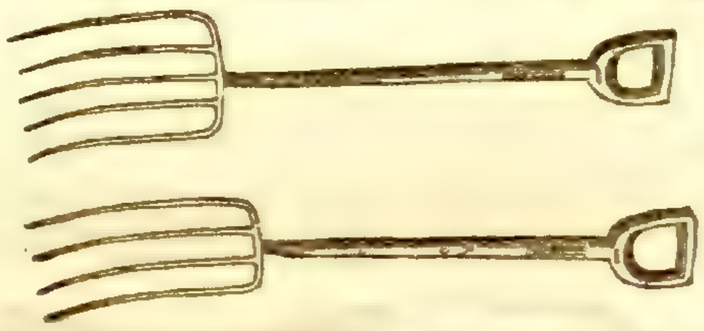

AMERICAN STEEL DIGGING FORKS.
GREAT REDUCTION IN PRICES.

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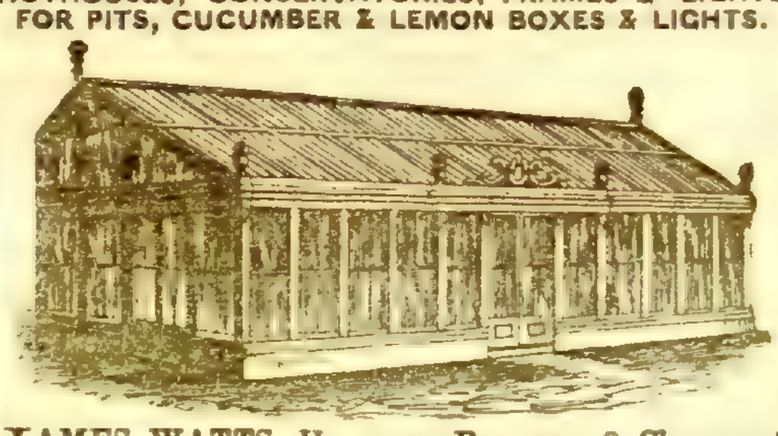
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

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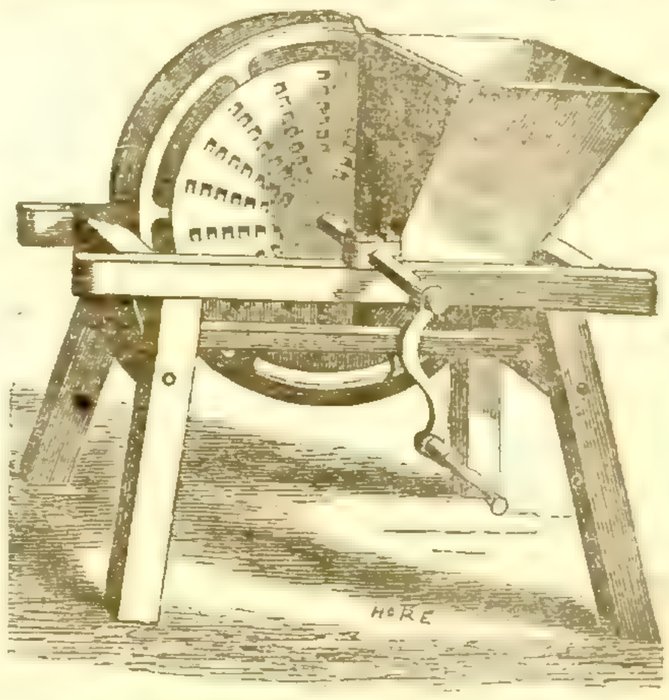
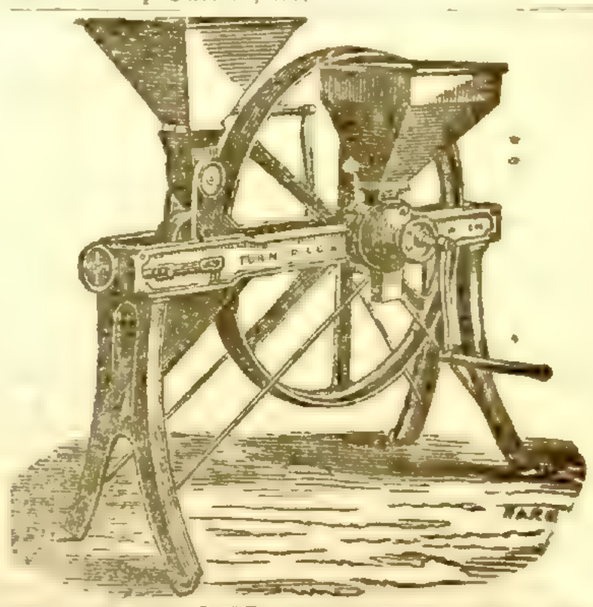


No. 1. Single Grater	£3 10	0
No. 2. Double ditto	5 0	0
No. 3. Ditto ditto, larger size	6 0	0

Extra for Driving Pulley, adapted to Steam Power, 10s.

BUSHE AND BARTER'S Patent Root Graters are improved very much this season by A. & T. Fry, (late Fowler & Fry) Temple Gate Implement Factory, Bristol. They are now the cheapest, most simple, and at the same time most effective machines for the purpose of reducing roots of all descriptions into very small gratings or shreds. Testimonials and directions for use may be obtained free from A. & T. Fry, and the machines may either be obtained direct, or from any respectable implement dealer or ironmonger in the country at the above prices.

Also, Corne's Patent Chaff Machines, of all sizes, Improved Oat and Bean Mills, Malt Mills, and Gardner's double and single action Turnip Cutters, &c.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER Ipswich.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

GREAVES & KERSHAW, Warwick.—Oct. 18.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

REIGATE SILVER SAND, 16*s.* per ton, less quantities 1*s.* 6*d.* per bushel, delivered to any London Wharf or Railway. PEAT and LOAM, for Ferns, Heaths, Americans, &c. Samples if required. Terms Cash. Sacks, 2*s.* each, or on hire.

JOHN KENNARD, Swan Place, Old Kent Road, London.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56lbs.), 12*s.* 4*d.*; fine Households, recommended for bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat Meal, for Brown Bread, 11*s.*; best coarse and fine Scotch Oatmeal, Rice Flour, &c.

Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington.—Directions for making Bread supplied gratis. Terms cash.

TREE TRANSPLANTING BY MACHINE, LANDSCAPE GARDENING, ORNAMENTAL PLANTING, &c.

W. H. RUMBOLD will be happy to execute any of the above on reasonable terms, by contract or otherwise. The Machine will be let by the week with Man. Designs and Estimates given.—Calverly Road, Tunbridge Wells.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

"TIFFANY," a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when not less than 10 pieces are taken. No orders will be attended to from unknown correspondents unless accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured of the following Nurserymen and Seedsmen:—

London: Messrs. Charlwood & Cummins; E. G. Henderson & Son; Hurst & M'Mullen; Minier, Nash, & Co.; Peter Lawson & Sons; Osborn & Son; Rollinson & Son; Mr. James Veitch.—Messrs. W. Wood & Son, Maresfield, Sussex; A. Paul & Son, Cheshunt, Herts; Mr. Charles Turner, Slough: Mr. W. J. Epps, Maidstone; Messrs. Bainbridge & Hewison, York; Mr. Caldwell, Knutsford.

Manufactured for and sold, wholesale and retail, by JOHN SHAW, Nurseryman and Seedsman, 40, Princess Street, Manchester.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application

DO YOU TAKE PARR'S LIFE PILLS?

Upon the answer to that question depends much that can render life safe and agreeable.

It being now an admitted and incontestable fact, that they help to make men vigorous and hearty, and promote longevity.

Considering the virtues and almost universal application of this remedy, it is really doing a service to any friend to ask if he takes them, because the few who do not, really do themselves an injustice. *** Ask for PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country, and by the following appointed Agents:—

E. EDWARDS, 67, St. Paul's Churchyard.
BARCLAY & SONS, 95, Farringdon Street.
SUTTON & CO., 10, Bow Churchyard.
HANNAY & CO., 63, and SANGER, 150, Oxford Street, London.

In boxes, price 1*s.* 1½*d.*, 2*s.* 9*d.*; and in family packets, 11*s.* each. Protected and guaranteed in every country by the English Government stamp, which is affixed to each box of the genuine medicine.

FOR BED SORES, &c.—WATER CUSHIONS, AND Water MATTRESSES for Invalids. Inventor and Manufacturer, HOOPER, London. For the prevention of Bed sores, and for affording relief where Sloughing has actually taken place. Also for Wounds, Abscesses, Fractures, Diseased Joints, Paralysis, Spinal Affections, Fevers, Extreme Age, Consumptive and Bedridden Patients generally. WATERPROOF SHEETING for protecting Bedding, and URINALS for Day or Night use. Orders by Post or Telegraph immediately attended to.

HOOPER, Pall Mall East; and Grosvenor Street, London.

HOLLOWAY'S OINTMENT AND PILLS.—EXTRAORDINARY CURE OF A DISEASE OF THE SKIN OF 19 YEARS' STANDING.—Edgar Martin, of Luton, Bedfordshire, suffered for 19 years with a frightful disease of the skin, his body being covered with painful eruptions of a scorbutic nature. He had a variety of professional advice, but the disease increased; he could bear it no longer, and was then recommended to use HOLLOWAY'S Ointment and Pills, which he did, and in nine weeks was completely restored to health, leaving his body without a blemish.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; & E. MUIR, Malta.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, NURSERYMAN, Longton, Staffordshire, has great pleasure in again recommending the above variety of Rhubarb, sent out for the first time in 1854, feeling confident from its superior quality and reduced price to meet with a continuance of demand. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11, 1853.

"Very good, and a most beautiful crimson; compared with others it is remarkable for the small amount of acidity it contains."—ED.

Price—Year-old plants, 1*s.* 6*d.* each, or 6*l.* per 100; Two-year old, 2*s.* 6*d.* each, or 10*l.* per 100. With usual discount to the trade.

Orders addressed to ROBERT SALT, Nurseryman, Longton, Staffordshire, or to the following agents will meet with strict attention:—Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Francis and Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester; James Dickson & Sons, Nurserymen, 112, Eastgate Street, Chester; Burgess & Kent, Nurserymen, Penkhull, Staffordshire.

A remittance from unknown correspondents.—Longton, Oct. 18.

RED LODGE NURSERY.

TWO AND A HALF MILES FROM SOUTHAMPTON.

WILLIAM ROGERS, SEN., has to offer the following in fine condition and well rooted:—Scarlet Rhododendrons and Ponticum in large quantities, Spanish Chesnut, Oak, Larch, Spruce, and Scotch Fir, Abies Douglasi from 1 to 6 feet, Portugal Laurels (very fine). The trained and untrained Fruit Trees are as usual good, and warranted true to their names, including that fine Pear the Beurré Clairgeau, first introduced by Advertiser 8 years since from the Continent. Handsome specimens of the new Conifers, Evergreens of all sizes, and upwards of of 20,000 Roses (dwarfs and standards), including the new varieties. All letters must be addressed in full. WILLIAM ROGERS, Sen., Red Lodge Nursery, near Southampton.

Catalogues on application.

DUTCH FLOWER ROOTS.

JAMES CHARTRES AND CO. have much pleasure in announcing that their superb collections of the above, which have given such universal satisfaction for many years, are now ready, and will be forwarded carriage paid to any part of the kingdom. No 1 Collection (3*l.*) contains as follows:—12 Splendid Double and Single Hyacinths for glasses; 12 ditto, do. for pots; 24 ditto, ditto, for borders; 12 splendid Narcis, various, for pots; 12 do. named Early Tulips (single and double); 50 do. mixed late Tulips for borders; 12 do. Double Jonquils; 24 do. named English Iris; 24 do. named Spanish Iris; ½ lb. mixed Double Anemones; 1 lb. mixed Single Anemones; 100 splendid mixed Ranunculus; 100 do. named Crocus, 25 sorts; 100 do. Mixed Blue; 100 do. Mixed White; 100 do. Double Snowdrops; 12 do. Dog's-tooth Violets; 6 Summer Snowflakes.

No. 2 Collection half the above amount. A general priced Catalogue may be had on application.

74, King William Street, City, London.—October 18.

AZALEA INDICA "GEM."

J. IVERY AND SON beg to inform the public that good established plants of this fine variety are now ready for delivery at 21*s.* each; a few extra sized blooming plants at 42*s.* each. The subscribers feel it unnecessary to say anything further of its fine properties than that it has received the highest awards given to seedlings both at the Royal Botanic and National Floricultural Societies. The undermentioned Nurserymen have already kindly ordered it, from whom plants may be had:—

Barnes, Mr. Wm., Camberwell
Bass & Brown, Messrs., Sudbury
Cole, Mr. Wm. Withington, Manchester
Cutbush, Wm. & Son, Highgate
Cutbush, Mr. Wm., Barnet
Davies, Mr. Thos., Waivertree
Epps, Mr. W. J., Maidstone
Fisher, Holmes, & Co., Sheffield
Fraser, J. and J., Leytonstone
Gaines, Mr. Thos., Battersea
Garraway, Mayes & Co., Bristol
Glendinning, Mr. R., Turnham Green
Godwin, Mr. T., Sheffield
Griffin, Mr. J., Bath
Henderson, A. H., Pine-apple Place
Henderson, E. G. H., Wellington Road
Ivery, Mr. Wm., Rye Lane, Peckham
Jackson, T. & Son, Kingston
Lee, J. H., Hammersmith
Low, Hugh, & Co., Clapton
Parker, Mr. R., Hornsey Road
Rollisson, W. & Sons, Tooting
Turner, Mr. Chas., Slough
Veitch, Mr. Jas., Jun., Chelsea
Verschaffelt, Mr. A., Belgium
Wheeler, Mr. G., Warminster
Wood, Wm. & Son, Maresfield
Wood & Ingram, Messrs. Huntingdon.

A descriptive Catalogue of all the newest and best varieties of the Azaleas may be had in exchange for one postage stamp. The usual allowance to the trade.—Dorking, October 18.

J. SMITH, SEN., begs to inform his friends and the public that the PARTNERSHIP heretofore subsisting between himself and his Sons under the Firm of "JOSEPH SMITH & SONS" has been DISSOLVED by mutual consent; and that he will receive and pay all debts due to and from the Copartnership, and carry on the business of a Nurseryman at Tansley, upon the premises occupied by the late Firm.

Tansley Nurseries, October 18.

TO GARDENERS, NURSERYMEN, &c.—The Advertiser resides at Lower Norwood, and has a Garden of nearly an acre in extent, two-thirds of which is Lawn and Flower Beds, and the remainder Kitchen Garden; there is also a small Greenhouse. He is desirous of contracting with responsible and fully qualified persons to keep the entire in order, and well supplied with Crops and Plants of the best descriptions, Gravel for Walks, &c. Fuel for the Greenhouse supplied by Advertiser; it is heated by hot water.—Address, stating terms, to Mr. RAYNER, 259, Borough.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

POULTRY WANTED.

COCHIN CHINA PULLETS of this Year, pure bred; Brahma Pootra ditto, ditto; Aylesbury Ducks; pure Black Turkeys, large size. The above are wanted for a change of strain. Must be good, but moderate in price. Parties having such to dispose of may hear of a purchaser by writing to state particulars and price to ALPHA, *Gardeners' Chronicle* Office.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

TO NURSERYMEN AND GARDENERS.

TO BE LET, with Immediate Possession, LOCKSBROOK NURSERY, in the parish of Weston, in the Upper Bristol Road, about one mile from the Bath Market, containing Four Acres of Land, well stocked with Flowers, Fruit, and Vegetables; together with Greenhouses, Pits, and Sheds, of every convenience for the trade. The Stock to be taken at a valuation.—For particulars apply to Mr. JAMES SHACKELL, Market Gardener, Tiverton, Bath.

AGRICULTURAL DRAINAGE.

TO BE LET, by Tender, on the 25th inst., the DRAINING OF BEDWELL LODGE FARM, Essenden, Herts, about 200 acres, situate 4 miles from Hatfield. The soil is Gravel and Clay, the Drains are to be 4 feet deep, and lain with rolled Pipes of 1½-inch and 2 inch bore. The Mains with 3-inch, 4-inch, and 6 inch, at distances of 12, 13, and 14 yards.—The specification may be seen at the Office of Messrs. DAVIS & VIGERS, Land Agents, 3, Frederick's Place, Old Jewry, London.

Sales by Auction.

BULBS, ROSES, &c.

MR. HASLAM will Sell by Auction the above, at the Mart, on WEDNESDAY, October 15, and FRIDAY, October 17 next, and every succeeding WEDNESDAY and FRIDAY till December 5.—Epping, Oct. 18.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on MONDAY, October 20, at 12 o'Clock, (by order of Mr. Lockhart, of Fulham), a costly and extensive collection of BULBS and FLOWER ROOTS, being about 35,000 in number, and consisting of all the approved Hardy and Ornamental varieties of Hyacinths, early and late Tulips, Crocus, Narcissus, and Anemones; also 4000 Sir Charles Napier Ranunculus, the finest variety yet raised, the whole of which are warranted true to name and description.—On view the morning of Sale: Catalogues may be had of Mr. Lockhart, Parson's Green Lane, Fulham; at the Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CROYDON.

SECOND PORTION OF THE STOCK.

MESSRS. PROTHEROE AND MORRIS are instructed by the Proprietor to submit to public competition by Auction, on the premises, Sion Nursery, Croydon, on TUESDAY, October 21, and following day, at 11 o'Clock each day, the valuable NURSERY STOCK, extending over 7 acres of ground, consisting of a large assortment of Ornamental Trees, Evergreens, and Deciduous Shrubs; with a useful Pony and sundry effects.—May be viewed one week prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE END NURSERY.

TO GENTLEMEN, NURSERYMEN AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Mile End Nursery, Bow Road, Middlesex, on THURSDAY, October 23d, at 11 for 12 o'Clock precisely, in consequence of the number of lots, the NURSERY STOCK, consisting of Evergreens, Deciduous Shrubs, and Ornamental Trees; also above 10,000 choice Greenhouse Plants established in pots, the surplus stock of a celebrated grower, including 3000 Devoniensis, Fabvier, Fairy and other leading varieties of Roses; 500 Brilliant, Flower of the Day, Dandy, and Ivy-leaved Geraniums; 3000 Deutzia gracilis, Jasminum nudiflorum, Veronica Hendersonia, Heliotropes, Primula fimbriata, Cyclamen persicum, Hydrangeas, Verbena triphilla, &c.—May be viewed the morning of Sale. Catalogues on the premises; of the principal Seedsmen; and of the Auctioneers, American Nursery, Leytonstone, Essex.

EXTRAORDINARY SALE OF A VALUABLE COLLECTION OF 70 MARINE AND FRESH WATER AQUARIA, BEING THE LARGEST COLLECTION IN LONDON.

MESSRS. PROTHEROE AND MORRIS have been favoured with instructions from the Proprietor to offer to public competition the above very valuable collection. Every Tank is stocked with the rarest specimens of Marine and Fresh Water Zoology. The Marine include very scarce specimens of Dianthus, Parasitica, Bellis, Gemmacea, Actinia, Serpula, Madrepores, &c. The Fresh Water are also stocked with elegant Rock Work, Aquatic Plants, and the choicest selection of Fish, &c.; many of these Tanks being of White Marble and fitted with Ferneries. The whole collection will be on view on THURSDAY, October 23, and the morning of the day of Sale, FRIDAY, October 24.—Catalogues may be had of all the principal Seedsmen in London; at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

N.B. The Proprietor undertakes, at his own risk, to deliver each Lot as it appears on the day of Sale, on terms which will be announced in the Catalogues.

RIVERHEAD, KENT.

IMPORTANT SALE OF NURSERY STOCK, SEVERAL NEWLY-ERECTED GREENHOUSES, PITS, FRAMES, HOT-WATER PIPE, BOILERS, QUANTITY OF BRICKS, SLATES, PAVING AND ROOFING, IRON HAND-LIGHTS, BELL GLASSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by the Trustees of Mr. William Finnis Smith to submit to an unreserved Sale by Auction on the premises, Riverhead Nursery, Riverhead, near Sevenoaks, Kent, on MONDAY, October 27, and following days, at 11 o'Clock each day, in consequence of the number of Lots, the whole of the valuable Nursery Stock extending over 14 acres, consisting of a large collection of Fruit and Forest Trees; Evergreens and Deciduous Shrubs in great variety, a rich assortment of American Plants and Ornamental Trees; about 100,000 Ash, 50,000 Spanish Chesnuts, 20,000 Alder, 200,000 Larch Fir, 50,000 Willow, 10,000 Birch, &c. Also the Greenhouse Plants, comprising fine double Camellias, Azalea Indica, Epacris, Ericas, Fancy, and other Pelargoniums, &c.; together with a useful Horse, an excellent Stack of Meadow Hay, two Carts, a capital Iron Roller, Syringe, three sets of Harness, Garden Pots, and numerous other effects.—May be viewed one week prior to the Sale; Catalogues may be had 6*d.* each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

SUNBURY NURSERY.

IMPORTANT AND UNRESERVED SALE OF NURSERY STOCK.

MR. J. WILLMER will submit to Public Auction, on the Premises, Sunbury Nursery, on TUESDAY, October 28, and following day, at 12 o'clock precisely each day, the STOCK of the above Nursery, which comprises Fruit and Forest Trees, Evergreens, and Shrubs, among which are Common Laurels, 3 ft.; Portugal do., 4 ft.; Aucuba, 3 to 4 ft.; Siberian Arbor-vitæ, 4 ft.; Arbutus, fine, 6 to 7 ft.; Phillyrea, 3 ft.; Striped Hollies, 4 to 6 ft.; Yews, 3 to 10 ft.; Cedrus Deodara, 6 to 7 ft.; Junipers, 5 to 6 ft.; Green Hollies, 4 to 6 ft.; Bays, Striped Box, Evergreen Privets; Beech, 7 to 9 ft.; Oaks, 10 to 12 ft.; Elm, 10 to 12 ft.; Horse Chesnuts, 10 to 12 ft.; Limes, 7 to 8 ft.; Larch, Spruce, and Scotch Firs, of various sizes; Standard, Dwarf, and Trained Apples; Trained Plums, Trained Cherries, Gooseberries, Currants, Standard Mulberries, Standard Plums, Dwarf do., &c.—Catalogues on the Premises, or by forwarding a postage stamp to Mr. J. WILLMER, Auctioneer, Surveyor, and Valuer, Sunbury, Middlesex.

THE

ALEXANDRE HARMONIUM

AT

SIX GUINEAS.

ALEXANDRE AND SON have made this Harmonium at the lowest price possible, to bring the Instrument within the means of all Classes.

It is in an Oak Case, with four Octaves; is alike calculated for PRIVATE HOUSES and for CHAPELS;

AND IS

INDISPENSABLE TO THE SCHOOL ROOM.

(The Six Guinea Harmonium will be taken in exchange for any of the more expensive description, without loss or diminution.)

ALEXANDRE & SON OBTAINED THE SOLE MEDAL OF HONOUR AT THE GREAT EXHIBITION AT PARIS (1855).

Their Harmoniums have been pronounced the best by

ROSSINI, AUBER, ADAM, THALBERG, LISZT, &c.

AND BY THE PROFESSORS OF THE

CONSERVATOIRE DE PARIS.

THE MORE EXPENSIVE HARMONIUMS RANGE FROM

10 to 55 GUINEAS.

THESE ARE BROUGHT TO THE GREATEST PERFECTION, ARE EQUALLY ADAPTED TO THE

CHURCH OR DRAWING-ROOM,

AS AN

ACCOMPANIMENT TO THE VOICE OR PIANOFORTE.

Messrs. CHAPPELL have just received a number of ALEXANDRE'S celebrated

HARMONIUM PIANOFORTES,

Which combine the excellencies of both Instruments. The two can be used in combination by the same performer, or each Instrument is perfect in itself. Price from Forty to One Hundred and Twenty Guineas.

AN IMMENSE STOCK OF

PIANOFORTES

BY THE BEST MAKERS,

From **TWENTY GUINEAS** upwards, which can be thoroughly recommended and warranted.

Messrs. CHAPPELL & CO. have just opened a number of

NEW ROOMS FOR INSTRUMENTS,

Enabling the Purchaser to select a Pianoforte or Harmonium from the

LARGEST STOCK IN LONDON,

AND TO TRY THE MERITS OF THE VARIOUS MAKERS SIDE BY SIDE.

Full Descriptive Lists of Harmoniums and of Pianofortes will be sent on application to

CHAPPELL & CO.,

50, NEW BOND STREET, & 13, GEORGE STREET, HANOVER SQUARE.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 18, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1856.] SATURDAY, OCTOBER 25. {Price Fivepence. Stamped Edition, 6d.

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BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, November 6, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10s.; annual subscription, 10s. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

WILLIAM SHORT, LANDSCAPE and ORNAMENTAL GARDENER, &c., begs to announce that he is now prepared to execute Ornamental Ground Works and Planting upon the best and most economical systems, and he is also pleased to say that the numerous Lists of Hardy Nursery Stock which have been submitted to him for sale will, he thinks, suit the demands of every purchaser, and to any extent. The lists comprise every variety, size, and price.—For particulars apply to 21, St. John's Wood Terrace, Regent's Park, London.

FLORICULTURE.—In consequence of Mr. JOHN EDWARDS having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

TO THE SEED TRADE.

J. H. COTTRELL (late Dawe, Cottrell, & Benham), begs to call his friends' attention to the *Chronicle* of 11th inst., back page, and requests the favour of all orders being addressed to him at S. Cottrell's, 2, High Street, Birmingham. All orders will be executed at London prices. No connection with Dawes, Moorgate Street, or any other house in the trade.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21s. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3s. 6d. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to WM. BARRATT, LANDSCAPE GARDENER, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

THE LIVERPOOL MARKET'S PRICES FOR CHOICE FRUITS AND VEGETABLES

Will be sent post free at all times during the season by applying to GEORGE TAYLOR, JUN.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
Terms—"CASH."

TREES FOR AVENUES, ETC.

E. P. FRANCIS has several hundreds of fine tall straight English OAK, English and Huntingdon ELM, and Spanish CHESNUT, from 9 and 10 to 12 feet, rising with capital roots off deep loamy soil. Prices upon application.

E. P. F.'s new DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded, gratis, upon application.

Rose Nurseries, Hertford.

GENTLEMEN requiring large ORNAMENTAL PLANTS will find a variety of HOLLIES, also good old CHERRY TREES and General Nursery Stock, at WILLIAM BEABLE'S, Bill Street Nursery, Trindsbury, near Strood, Kent.

FOREST TREES, SHRUBS, &C.

EAGLE AND HENDERSON, NURSERYMEN, SEEDSMEN, and FLORISTS to the Queen, beg to intimate that their CATALOGUES of FOREST, FRUIT, ORNAMENTAL TREES and SHRUBS, VINES, FLORISTS' FLOWERS, &c., are now ready, and may be had free on application.—Leith Walk Nurseries, Edinburgh.

FOREST TREES.—The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.

DAVID REID & SON, Nurserymen and Seedsmen, Edinburgh.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

TO BE SOLD CHEAP, for cash, 5000 ORNAMENTAL and other FOREST TREES, from 10 to 15 feet; also an excellent variety of GOOSEBERRIES and CURRANTS, the ground being wanted.—Apply to CHARLES CLARKE, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

HYACINTHS and other DUTCH BULBS.—*A Descriptive Price Current has just been published by* WILLIAM E. RENDLE & Co., *Seed Merchants, Plymouth, and can be obtained in return for one postage stamp.*

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual* of *first-rate quality*.

JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ROSES, ETC.

JAMES GRAHAM, NURSERYMAN, SEEDSMAN, and FLORIST, North Gate, Chichester, has the honour to inform the public that his CATALOGUES of the above may be had on application. Also a quantity of PINE SUCKERS from a healthy stock to be had at reasonable prices.

DUTCH BULBS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their SECOND IMPORTATION of the above have arrived in PRIME condition. DESCRIPTIVE CATALOGUES, *which contain their celebrated system of culture, can be obtained free on application.* Orders executed in strict rotation.

Highgate Nurseries, near London.

DUTCH BULBS of superior quality, the following for 20s., package included:—

12 Choice Hyacinths, named	12 named early Tulips
12 Double Tournesol Tulips	12 best double Anemones
25 Choice Ranunculus	12 named English Iris
12 Polyanthus Narcissus	12 Jonquils
100 Dutch Crocuses, in separate colours	50 Snowdrops
	12 Gladiolus

Descriptive and priced Catalogues forwarded on application.

W. DENYER, Seedsman and Florist, 82, Gracechurch Street, London.

NEW CATALOGUES FOR 1856-57.

WILLIAM WOOD AND SON are now prepared to send free and post paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1½ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

ROSES.

A. PAUL AND SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

ROSE CATALOGUE, WITH DIRECTIONS FOR CULTURE.

JOHN CRANSTON begs to announce that his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1856 and Spring of 1857 is now ready, and that he will be happy to forward it free by post on application. Full and accurate descriptions are given of all the finest varieties in cultivation, likewise directions for Pruning, Planting, and general management.—Nurseries, King's Acre, near Hereford.

ROSES, ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—October 25.

ROSES.

J. AND J. FRASER'S Catalogue for the present season is now ready, and may be had on application.

J. & J. F. have a large and fine stock of Dwarf Roses, consisting of the best sorts of Hybrid Perpetual and other autumn flowering kinds suitable for planting in masses or for potting. Price per dozen or hundred (according to the quantity required) may be had on application.

The Nurseries, Lea Bridge Road, Essex.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, said to be the finest ever yet offered to the public, for which he begs to refer to his Descriptive Prospectus and Testimonials of Nurserymen who have grown them for trial. Price 15s. the set.—Address, Mr. E. RAPER, Florist, 53, Regent Street, Leamington.

GLENNY'S IMPROVED BALSAM SEED from flowers 3 inches across, not approached by any other, 6 classes, 37 stamps; mixed packet, 13 do.; sealed and signed packets only. Other very choice Seeds.—Dungannon House, Fulham.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

VINES FOR FRUITING IN POTS.

MESSRS. J. & J. FRASER, NURSERYMEN, Lea Bridge Road, Essex, beg to invite attention to their fine stock of the above. Price 5s. and 7s. 6d. each.

Strong Vines for planting out, 3s. 6d. each. A list of the sorts may be had on application.

PRINCE OF WALES' RASPBERRIES.

WILLIAM CUTBUSH AND SON beg to inform the public that they have now on hand a large stock of their CELEBRATED PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation.* Prices per dozen or 100 on application.—Highgate Nurseries, near London.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6s. per dozen.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. WAITE, Seed Merchant, 181, High Holborn, London.

LAURELS! LAURELS! LAURELS!—The best Stock near London is at Foster's Nursery, Edgware; also other magnificent Evergreens, &c.—Apply to JOHN MORGAN Rose Cottage, Edgware.

PANSIES! PANSIES! PANSIES!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4s. per doz.

Address W. H. DAVIS, Jun., St. Mary's Hill, Newbury.

CHOICE NAMED PANSIES.

HART AND NICKLIN, FLORISTS, Guildford, Surrey, beg to offer healthy plants of the above, selected from a first-class collection, at 4s. per dozen, or three dozen for half a guinea, basket included. Prepayment required.

EUGENIA UGNI.

T. GAINES having a large Stock of the above to dispose of can sell them from 2s. 6d. to 5s. per plant, the latter with fruit upon them. His List of Geraniums, Fuchsias, Azaleas, and Greenhouse Plants in general will be printed shortly.—Nursery, Surrey Lane, Battersea, Oct. 25.

GAINES' WHITE GERANIUM ALBUM MAGNUM is now ready for sale. It is the best forcing Geranium out. The plant is of a good habit, with large truss of pure white flowers upon a strong footstalk. Price 5s. per plant; when three plants are ordered four will be sent.

T. G. has a few strong plants of his new Azalea rosea alba, Napoleon the Third, and Camellia compacta alba, yet on hand. For description see *Gardeners' Chronicle*, Saturday, Sept. 27.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

WANTED IMMEDIATELY, CHOICE FRUITS OF EVERY DESCRIPTION.

Forward to GEORGE TAYLOR, JUN.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
A Priced Circular post free on application.
Terms—"CASH."

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply CHIDHAM, BROWICK RED, TALAVERA, GOLDEN DROP, RED LAMMAS, NURSERY, and other approved kinds of WHEAT at market prices. A reference or remittance required from unknown correspondents.

NEW EARLY WINTER TARE, recommended by practical agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15s. per bushel.

Fine Winter Tares ... ... 6s. 6d. per bushel.
Early Racer Tare ... ... 7 6 "

Address—Mr. H. RAYNBIRD, Basingstoke.

TRIFOLIUM INCARNATUM.

TRIFOLIUM INCARNATUM, *Italian Rye-grass, Winter Vetches, English Rye, and other Agricultural Seeds for autumn sowing can be obtained in any quantity from* WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20s.
25 Azaleas, new hardy Belgian varieties on their own roots, with flowerbuds, one of a sort by name, 20s.
25 American Azaleas, do., do., do., 10s.
Hardy Heaths, Ledums, and Kalmias, per doz., 6s.
12 " Rhododendrons, including scarlet, white, and rose, 12s.
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15s.
Greenhouse Azaleas, best new vars., per doz., 12s. to 18s.
Camellias, fine sorts, well set with buds, per doz., 30s.
50 choice hard-wooded Greenhouse Plants, one of a sort, by name, 40s.
12 Orchidea Plants, one of a sort, fine species, 40s.
24 choice Ericas, one of a sort, small pots, by name, 16s.
24 Cinerarias, best vars., not named, 8s.
12 fine Chrysanthemums, new, large and small flowered, 4s.
Best Climbing Roses of sorts, per doz., 6s.
Fine Standard and Half Standard Roses, 12s. to 15s. per doz.
Fine Cedar Lebanon, 2 to 4 feet, suitable for exposed place, 12s. to 20s.

Hyacinths and other Dutch Flower Roots in any quantity.

New Conservatories and Gardens furnished in any part of the kingdom on very reasonable terms.

Albion Nursery, Stoke Newington, London.—Oct. 25.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, Nurseryman, Longton, Staffordshire, has great pleasure in again recommending the above variety of Rhubarb, sent out for the first time in 1854, feeling confident from its superior quality and reduced price to meet with a continuance of demand. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11, 1853.

"Very good, and a most beautiful crimson; compared with others it is remarkable for the small amount of acidity it contains."—Ed.

Price—Year-old plants, 1*s.* 6*d.* each, or 6*l.* per 100; Two-year old, 2*s.* 6*d.* each, or 10*l.* per 100. With usual discount to the trade.

Orders addressed to Robert Salt, Nurseryman, Longton, Staffordshire, or to the following agents will meet with strict attention:—Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Francis and Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester; James Dickson & Sons, Nurserymen, 112, Eastgate Street, Chester; Burgess & Kent, Nurserymen, Penkhull, Staffordshire.

A remittance from unknown correspondents.—Longton, Oct. 25.

STANDISH and NOBLE, Nurserymen, Bagshot, Surrey, have now to offer the following new and beautiful plants:—

GAULTHERIA FURENS.—A charming plant imported by the advertisers from Valdivia. Specimens have been turned out in the open border for two years past, where it stands perfectly uninjured without the slightest protection; in fact it is as hardy as the Common Holly. It forms a compact, bright, glossy, green shrub, covered in spring with white flowers like those of Andromeda floribunda, and bearing in autumn clusters of large rosy purple berries. It grows very freely in any light sandy soil. 10*s.* 6*d.* each.

AZALEA AMŒNA LATERITIA.—A hybrid from lateritia by amœna. The flowers are of the same colour as those of lateritia with the hose-in-hose corolla of amœna, and about three times the size of the latter. They are of good shape and substance, and the plant blooms as freely as amœna. 15*s* each.

AZALEA AMŒNA GRANDIFLORA.—The description of the above will apply to this in every respect with exception of the colour; in this variety the flowers are of a rich carmine lake. We can recommend both varieties as being exceedingly handsome, and they are moreover examples of an entire new race of Azaleas of which amœna is the type. 15*s.* each.

ROSE H. P. VICTOR TROUILLARD.—A seedling from Géant des Batailles, but more double and twice the size, and much darker in colour; in fact it is as dark as the Tuscan Rose. The flowers stand the sun for a week without fading. It is undoubtedly the finest Hybrid Perpetual Rose ever offered for sale. Plants in November, 21*s.* each.

*** When three plants of either of the above are ordered one will be given over.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER and GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglassi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them grafted
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNab ana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

PLANTING.

A. PAUL and SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
" Douglasi, 1½ to 3 ft.
" Menziesi, 1 to 3 ft.
" Morinda, 3 to 10 ft., very fine
" rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
" Lambertiana, 1½ to 3 ft.
" torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
" " Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
" Benthamiana, 1½ ft.
" Cembra, 1 to 5 ft.
" excelsa, 4 to 8 ft., very fine
" insignis, 1 to 6 ft.
" Lambertiana, 1 to 6 ft.
" Llaveana, 1 to 2 ft.
" monticolor, 1 to 2 ft.
" muricata, 1½ ft.
" Pallasiana, 2 to 2½ ft.
" Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
" Nordmanniana, 1 ft.
" Pinsapo, 1 to 4 ft.
" Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
" glauca, 6 to 9 in.
" intermedia, 1 to 1½ ft.
" japonica, 1 to 1½ ft.
" gigantea, 1 ft.
" minima, 6 to 9 in.
" Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
" Canadensis, 1 to 2 ft.
" Cheshuntensis, 3 to 5 ft.
" Dovastoni, 1 to 2 ft.
" elegantissima, 1 to 2 ft.
" gold striped, 1 to 4 ft.
" Irish, 1 to 5 ft.
" stricta, 1 to 4 ft.
" common, 1 to 5 ft.
" " Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
" " Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
" Maple, 8 ft.
" Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
" " variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
" Beech
" Elms, 8 to 10 ft. stems
" Mountain Ash
" Privet
" Willow
" American Willow, 8 ft. stems
" Kilmarnock " 6 ft. stems
" Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
" flava speciosa
Clematis azurea grandiflora
" double blue
" Florida, double and single
" Hendersoni
" Sieboldti
Honeysuckle Evergreen
" Scarlet Trumpet
" flexuosa [finest
" Magnevillea, one of the
Ivy, Irish, strong
" palmated
" gold blotched
" silver
" Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica
Camellias
Epacris
Ericas
} A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL and SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

CAMELLIAS.

J. HENCHMAN, Jun., is now sending out healthy plants full of flower-buds of the following fine blooming varieties—Double White, Fimbriata, Imbricata, Leeana superba and Candidissima: small plants, 21*s.* per dozen; second size, 24*s.*; fine well furnished plants, 30*s.*; and a few very choice plants at 36*s.* per dozen. These plants are all home-grown and established in the pots, and therefore not liable to cast their buds, as is the case with the foreign imported plants.

Choice Indian Azaleas, worked and on their own roots, bushy plants well set for bloom, at 15*s.*, 18*s.*, 24*s.*, and 30*s.* per dozen. Ghent Azaleas, fine named sorts, full of flower buds, 18*s.* per doz.

Edmonton, near London.

RED LODGE NURSERY.

Two and a Half Miles from Southampton.

WILLIAM ROGERS, Sen., has to offer the following in fine condition and well rooted:—Scarlet Rhododendrons and Ponticum in large quantities, Spanish Chesnut, Oak, Larch, Spruce, and Scotch Fir, Abies Douglasi from 1 to 6 feet, Portugal Laurels (very fine). The trained and untrained Fruit Trees are as usual good, and warranted true to their names, including that fine Pear the Beurré Clairgeau, first introduced by Advertiser 8 years since from the Continent. Handsome specimens of the new Conifers, Evergreens of all sizes, and upwards of of 20,000 Roses (dwarfs and standards), including the new varieties. All letters must be addressed in full. William Rogers, Sen., Red Lodge Nursery, near Southampton.

Catalogues on application.

MESSRS. E. G. HENDERSON & SONS' SPRING CATALOGUE (Post free on application) contains full description of the following New Plants:—

Echites Houtteana, finer than crassinoda
Begonia picta, a beautiful foliaged plant
" cinnabarina hybrida, cinnamon red, shrubby habit, and now coming into flower. It is an excellent winter blooming plant.
Dianthus albo nigricans, large double variety, black, edged and interlaced with white; hardy
Camellia Jenny Lind, beautiful form
Azalea the Bride, pure white, very free flowering
" Louis Napoleon, double rich crimson velvet.

RHODODENDRONS.

Countess of Rosslyn	Mrs. Dargan
Duchess of Cleveland	Earl of Rosslyn
Duke of Hamilton	Lord Bolingbroke

Six magnificent rich spotted varieties, having compact conical trusses, and very large and conspicuous flowers.

New and delicious Strawberry "Adair," for particulars and description of which see Autumn Bulb Catalogue or back numbers of this Paper.

A New Plate of Five Choice Show Geraniums is now published, and will be forwarded on receipt of 12 postage stamps.

The Autumn Bulb Catalogue will be forwarded on application, containing descriptions of Cinerarias and Geraniums now being sent out for the first time.

Wellington Nursery, St. John's Wood.

ROSES.

40,000 Dwarf Roses on their own roots in pots and worked on the Manetti stock. 50,000 Dwarf Roses budded on 6-inch stems. 30,000 Standard Roses. 5000 Général Jacqueminot, Hybrid Perpetual. 7000 Géant des Batailles, ditto. 12,000 Tea-scented and China Roses in pots on their own roots.

WILLIAM WOOD and SON wish to direct especial attention to their enormous and splendid stock of Roses, which, owing to an entirely new soil and increased facilities of propagation, was never in finer order, and they feel assured the plants they have this season the pleasure of offering to their friends cannot be surpassed, many of the Standard and Dwarf Roses having made shoots 6 feet in length.

Collections of Roses will be supplied on the following terms, when the selection of sorts is left entirely to ourselves:— Per doz.

Extra tall Standards, 4 to 8 feet high, with three to six best varieties of Climbing and Perpetual Roses, in each stem, suitable for training, &c., 3*s.* 6*d.* to 5*s.* each	
Tall Standards, fine picked stocks from 4 to 6 feet with large heads, of the most showy kinds, for planting in conspicuous situations on lawns, &c.	42*s.*
Extra superior selected Standards, in fine varieties ...	24*s.* to 30*s.*
Fine Dwarf Standards, in fine varieties	18*s.* „ 24*s.*
Superb ditto ditto, the best sorts for exhibition ...	18*s.*
Fine Dwarfs	12*s.* „ 18*s.*
—— Climbing and Noisettes	9*s.* „ 12*s.*
Hybrid Perpetuals, budded on 6-inch stems, or on own roots in pots	12*s.* „ 18*s.*
Ile de Bourbon, in pots, or budded on 6-inch stems ...	12*s.* „ 18*s.*
China, in pots	9*s.* „ 12*s.*
Tea-scented, in pots...	15*s.* „ 30*s.*
The best varieties for forcing, established in 6-inch pots, budded on 6-inch stems	24*s.*
Climbing Roses mixed, without names, for covering banks	4*s.*
Good Dwarfs on own roots, without names	4*s.*

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in introducing this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited this season at the Royal Gardens, and Mr. Ingram has forwarded the following testimonial as to its merits:—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour—like that of an Apricot—soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "Thomas Ingram.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. Powell of the Royal Gardens writes:—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side; flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

Extract from the "Transactions of the British Pomological Society" (No. I.):—"A seedling Peach raised in the garden of Colonel Salway, from a stone brought from Italy, was exhibited by Mr. Turner, of Slough. The fruit was of medium size, and of a deep golden yellow colour; the flesh also of a rich deep yellow colour, very melting, juicy, and vinous, with somewhat of the flavour of an Apricot. Although this was gathered from the wall on November 4, it was in as great perfection and as highly flavoured as any of the September varieties, and was highly recommended by the Society as a valuable late Peach."

DWARF-TRAINED TREES ...	... 15*s.* each.
MAIDEN do. ...	... 10*s.* 6*d.* do.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Plants can be had of Messrs. Peter Lawson & Sons, Edinburgh; Messrs. Dicksons & Co., Edinburgh; Messrs. James Dickson & Sons, Edinburgh; and the principal Nurserymen.

Royal Nursery, Slough.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

THE FILBERT PINE STRAWBERRY.—This variety has now been proved at the Royal Gardens and other places to be the best and most useful Strawberry grown. It produces very little foliage, is exceedingly prolific and rich flavoured, firm, and comes in with the British Queen, and remains in bearing until very late. It is a most valuable variety for the northern districts, as it produces very little more foliage than the Black Prince, and there is a certainty of getting a crop from it. Plants now ready, 7*s.* 6*d.* per 100.

CHARLES TURNER, Royal Nursery, Slough.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.

EDWARD TILEY begs to announce to Strawberry growers and the public generally that he is now sending out strong well-rooted plants of the above unequalled new Seedling Strawberry, which possesses more good qualities than any other ever yet grown. For further particulars see *Gardeners' Chronicle* of Sept. 27, 1856. Strong well-rooted plants, 3*l.* per 100, 1*l.* 15*s.* for 50, 1*l.* for 25, or one dozen for 12*s.*, the 25 or one dozen sent postage and package free. A Post-office Order is expected to accompany all commands.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1¼ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

DILLISTONE AND CO. beg to inform their friends and the public that their stock on many acres was never finer than this season, and consists of

Standard and Dwarf Roses of all the finest kinds,
Standard Ornamental Trees for Lawns,
Evergreen, Deciduous, and Coniferous Trees and Shrubs,
Hardy Climbing Shrubs in variety,
Fruit Trees and finest trained ditto,
" " in pots for Orchard Houses,
Many thousands fine Gooseberries and Currants,
Camellias, Azaleas, and Greenhouse plants in general,
Herbaceous plants, &c.
Forest trees, and transplanted ditto, Quick, &c.
Quantity of fine Box Edging.

Catalogues upon application. Carriage paid to London.

Nurseries, Sturmer, Halsted, Essex.

ERICA SPENCERIANA.

R. GLENDINNING begs to inform the Public that he is now prepared to send out this new and distinct Heath, a coloured illustration of which is given in the *Florist* for this month. This novel Hybrid was raised from seed in the Chiswick Nursery. It is a very free blooming variety, very small plants being laden with flowers; is a vigorous grower, with the habit of E. Cavendishi: and both as regards habit and colour of flowers is altogether distinct from any other variety, with the additional recommendation of remaining three months in bloom. It has been distinguished by prizes which have been awarded to it by the Horticultural Society, the Royal Botanic Society, and by the Crystal Palace Company at their grand display of plants in June last. Strong established Plants, 21*s.* each.

Chiswick Nursery, Oct. 25.

SEED WHEAT FROM BLACK LAND.—Improved Browick Red Wheat, warranted genuine, perfectly clean and healthy Seed, grown 100 miles north of London on a light black soil in Deeping-Fen. It is the produce of a properly prepared seed bed, from selected Seed of last year's growth, and carefully tended throughout. References to any farmer in the district.—Address, WM. BARNES, The Elms Farm, Spalding, Lincolnshire.

NEW AZALEAS AND CONIFERS.

WM. WOOD AND SON have fine plants to offer of the following desirable

AZALEA INDICA.

	Each.	Dozen.
Criterion, fine striped var.	3*s.* 6*d.* to 5*s.* 0*d.*	36*s.* 0*d.*
Admiration, ditto, ditto	3*s.* 6*d.* to 5 0	36 0
Leeana, superb white ditto	3*s.* 6*d.* to 5 0	
Eulalie Van Geert	5 0	

NEW CONIFERS.

	Each.
Biota Meldensis, a very distinct and interesting new plant, reported to be a hybrid between the Red Cedar and Chinese Arbor Vitæ	5*s.* to 10*s.* 6*d.*
Cryptomeria araucaroides	7 6
Cupressus MacNabiana	5*s.* to 10 6
Juniperus japonica	5*s.* to 10 6
" pyriformis	7*s.* 6*d.* to 10 6
" Wallichiana	5*s.* to 7 6

Plants presented for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

J. SMITH, SEN., begs to inform his friends and the public that the PARTNERSHIP heretofore subsisting between himself and his Sons under the Firm of "JOSEPH SMITH & SONS" has been DISSOLVED by mutual consent; and that he will receive and pay all debts due to and from the Copartnership, and carry on the business of a Nurseryman at Tansley, upon the premises occupied by the late Firm.

Tansley Nurseries, October 25.

NOTICE.—In consequence of the Decease of Mr. ARCHIBALD STUART, the Copartnery carried on by him and the Subscriber WILLIAM MEIN, under the Firm of STUART & MEIN, Nurserymen and Seedsmen in Kelso, was DISSOLVED upon the 21st August last, the date of his Decease.

The Business is now carried on by the SUBSCRIBER and JOHN ROBERTON, JUNIOR, Edenmouth, under the Firm of STUART & MEIN as formerly.

All Debts due to and by the old Company will be received and paid by the said WILLIAM MEIN.

WILLIAM MEIN.

JOHN STUART, { For himself and the other Representatives of the said Deceased ARCHIBALD STUART.

PAT. WILSON, Witness.
C. A. HUTCHINSON, Witness.
Kelso, October 11, 1856.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

BULBS FOR PRESENT PLANTING,

CARRIAGE FREE, EXCEPT SMALL PARCELS

	£.	s.	d.
HYACINTHS, the best imported by name, per dozen	0	10	6
" Fine mixed for Beds (all double) per 100	1	10	0
ANEMONES " " (") " ...	0	5	0
" " " (single) " ...	0	4	0
TULIPS, fine mixed early, for pots or borders " ...	0	7	6
CROCUSES, mixed for open ground, (per 1000, 12*s.* 6*d.*)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free.
N.B. New Early Peas, Radish, Horn Carrots, &c., now ready.

SUTTON AND SONS,
Royal Berks Seed Establishment, Reading.

COLLECTION OF DUTCH BULBS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, have much pleasure in offering the following Collections of Dutch Roots, for large and small-sized gardens:—

	£	s.	d.
No. 1 Collection, all the most approved sorts	3	10	0
No. 2 " containing smaller quantities ...	2	5	0
No. 3 " for a small garden	1	5	0
100 Hyacinths, in 100 very fine sorts. Purchaser's selection	3	10	0
100 " 50 fine sorts "	2	15	0
50 " 50 superior sorts "	1	15	0
50 " 25 " " "	1	10	0
24 " 12 " varieties "	0	15	0
12 " 12 " " "	0	10	0

Detailed lists of the above are given in the "Descriptive Price Current," just published, which can be had in return for one postage stamp.

WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

NEW IMPORTED DUTCH ROOTS.

WILLIAM E. RENDLE AND CO., SEED MERCHANTS, *Plymouth, have much pleasure in announcing that their Dutch Bulbs are just arrived, in the finest possible condition.*

The collection includes a general assortment of HYACINTHS, TULIPS, NARCISSUS, ANEMONES, RANUNCULUS, CROCUS, LILIUMS, IRIS, GLADIOLUS, &c. &c.

A Descriptive Price Current of Dutch Roots is just published, and can be had in return for one postage stamp.

Apply to WM. E. RENDLE & CO., Seed Merchants, Plymouth.
Established 1786.

GROOM'S BULBS.

H. MATTHEWS, NURSERYMAN and FLORIST, Clapham Rise, Surrey (Son-in-Law and Successor to the late H. Groom), informs the public generally he has a fine assortment of Liliums, Amaryllis, Gladiolus, Vallota purpurea, &c., which are ready to sent out. Also Cyclamen in varieties, young Palms, and the valuable collection of Auriculas belonging to the late H. Groom. Narcissus poeticus at 9*d.*, 1*s.* 6*d.*, and 2*s.* 6*d.* per 100, according to size of bulb. Dutch Roots in excellent condition.

H. M., having entered more fully into the general line of Nursery business than his predecessor, can supply all kinds of Plants, Bulbs, and Seeds, on very moderate terms. The trade liberally dealt with.

TO THE TRADE.

	Per thousand—*s.*	*d.*
Cypress, upright, 1-year in pans, fine	25	0
" Tourneforti " "	40	0
Arborvitæ (China) " "	20	0
Pinus Halepensis " "	20	0
" Pinea " "	40	0
Magnolia tripetala " " ... (Per hundred)	15	0

MARTIN & SON, Nurseries, Cottingham, Hull Branch Establishment, Junction Street.

P.S. Our General Nursery List may be had for three stamps.

THE PLANTING SEASON.

BASS AND BROWN have much pleasure in calling attention to their very fine and well grown Stock of ROSES, &c., which they offer in collections as under. Catalogues on application.

	£.	s.	d.
ROSES, 100 standards, in 100 very superior varieties	7	0	0
" 100 " 50 "	6	0	0
" 100 " 100 extra "	8	8	0
" 100 " 50 "	7	10	0
" " selections per doz., 18*s.* to	1	4	0
" 100 dwarfs in 100 very superior varieties ...	3	0	0
" 100 " 50 " ...	2	5	0
" 100 " 100 extra " ...	5	0	0
" 100 " 50 " ...	4	0	0
" " selections per doz., 6*s.* to	0	18	0
" Climbing ... . " ...	0	9	0
HARDY CLIMBING PLANTS, 20 fine sorts, in pots	1	0	0
HERBACEOUS PLANTS, 100 distinct and showy varieties, 30*s.* ... ... per doz., 4*s.* to	0	6	0
Ditto, ditto, 100 superior varieties, 50*s.*; per doz., 7*s.* 6*d.* to	0	10	6
Ditto, ditto, 25 fine vars., best adapted for Rock Work, 12*s.*; or 12 for	0	7	6

Very superb and beautiful collections of PHLOXES, PENTSTEMONS, POTENTILLAS, ANTIRRHINUMS, PÆONIES, DWARF ROCK CISTUS, HOLLYHOCKS, CONIFERÆ, &c., &c.

CHOICE FRUIT TREES.

Peaches, Nectarines, and Apricots, two and three year trained, very fine, handsome, and well grown, each 3*s.* 6*d.* to 5*s.*; Plums, Pears, &c., two and three year trained, do. each, 2*s.* 6*d.* to 3*s.* 6*d.* To gentlemen requiring first-rate wall fruit these are strongly recommended, also Standard, Pyramidal, and other Fruit Trees of the choicest sorts.

Splendid GLADIOLI, ENGLISH, GERMAN, and other IRIS; LILIUM LANCIFOLIUM and other LILIES; and an extensive collection of CHOICE DUTCH, CAPE, and other ROOTS.

GOODS CARRIAGE FREE for orders not under 20*s.* to all the London stations, also to all stations on the London, Norwich, and Colchester line.

Seed and Horticultural Establishment, Sudbury, Suffolk.

CATALOGUES.

H. LANE AND SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—

ROSE CATALOGUE.
TREE AND SHRUB Ditto, containing those grown in pots.
HOLLYHOCKS, AZALEA, &c., ditto.

The Nurseries, Great Berkhampstead, Herts.

NEW EXOTIC FERN.

GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (MOORE).

ROBERT PARKER begs to offer the above beautiful and distinct Fern, of which a fine specimen was exhibited at the last Crystal Palace Show, and was awarded a first prize for new plants. In appearance it is perfectly distinct from any species in cultivation, the upper and under sides of the fronds being densely coated with white farinose powder, which gives it a most singular and distinct appearance. Good plants, 21*s.* each.

LARGE EVERGREEN SHRUBS.—Several Hundred Evergreen Shrubs of large size and fine growth to be disposed of. They were planted by us three years ago in a gentleman's Shrubberies near London, which now require thinning. This is an excellent opportunity for any one wishing to give immediate effect to new ground work, as they transplant with good balls of earth.—Apply to Messrs. J. & C. LEE, Nurserymen and Seedsmen, Hammersmith, near London.

NOTICE! NEW FLOWERS.

JOHN SKIPPER, Villa Nursery, Camden Town, begs to inform the public that his Three splendid SEEDLING FANCY PELARGONIUMS are now ready to be sent out, at the following prices:—

Emily Whitcher ... 21*s.* 0*d.* | Gertrude Richardson ... 15*s.* 0*d.*
Tattycoram, 12*s.* 6*d.* Or the set for 2*l.* 2*s.*

A coloured plate from Mr. Andrew's beautiful drawing of the above flowers may be had for 12 postage stamps, returnable to purchasers.

The fine light show Geranium, Glenny's Lady Paxton (new last season), at 5*s.* per plant. A large assortment of the best named varieties at 6*s.* and 9*s.* per dozen.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Roserv, Bungay, Suffolk, Oct. 25.

SAFFRON WALDEN NURSERY.

SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower, may be had on receipt of one postage stamp.

Seed saved from 20 best varieties; mixed, per packet	5*s.* 0*d.*
" 12 " "	2*s.* 6*d.*
Good mixed ... ... "	1*s.* 0*d.*
Border varieties, good mixed, ground roots, per 100 ...	20*s.* 0*d.*
" " " " ...	30*s.* 0*d.*
New Crimson Purple Rocket, 5*s.* per doz., or " ...	30*s.* 0*d.*

SAFFRON WALDEN NURSERY.

SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c. of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5*s.* 0*d.*
Do. 12 do. do.	2 6
Good mixed	1 0

THE CHAMPION SWEDE.

MESSRS. SUTTON AND SONS have the honour and gratification of announcing that their CHAMPION SWEDE, which last year gained the two Silver Cups presented to the Royal East Berks and the Royal South Bucks Agricultural Societies by H. R. H. Prince Albert, has gained the same distinguished prizes at the same Shows this year also; besides numerous prizes in other parts of the kingdom. Messrs. SUTTON & SONS have saved some Seed this year, of the same sort which they are now sending out at 1*s.* per pound, or 48*s.* per bushel for cash payment.

Address JOHN SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 25, 1856.

IT will have been remarked that we have lately asked for information concerning the real value of a substance that has been sold largely to gardeners under the name of PAGE & CO.'S BLIGHT COMPOSITION. According to the advertisements this preparation is capable of destroying "blight" upon the Hop, Roses, wall-fruit trees, Cucumbers, Melons, Vines, stove and greenhouse plants. The word blight is also explained to include green-fly and thrips, red spider, mealy bug, and scale. It cannot be denied that a material capable of eradicating the two last insects would be of very great value, provided it did not also destroy plants; but in the case of green-fly, thrips, and red spider, there are so many ways of keeping them down that a wash against such enemies is of much less importance. We have, however, found from our correspondence that excellent gardeners differ in opinion as to the efficacy of the preparation in question, some pronouncing it valueless, others speaking of it in high terms of praise. Such being the case, it has become desirable to ascertain if possible the real merits of the case, and this we have endeavoured to effect. Whether success has attended the attempt our readers will be able to judge for themselves.

In the advertisement are 167 testimonials to the excellence of the preparation for one purpose or another; these include two out of four notices of it that appeared in our columns during the year 1855; and 23 letters about it have since reached us. Both testimonials and our private correspondence proceed from some of the best and best known practical gardeners in this country, so that materials better fitted to assist the judgment can

scarcely be provided. Let us see to what they amount.

There are in all 192 testimonials now before us, of which the greater part are vague and general, but some are specific. In order to ascertain to what such a crowd of letters really testifies, we must have recourse to the ordinary process of analysis. This we have employed most carefully, and with the following result:—Eight say the Composition kills insects of all kinds; one that it kills every insect it touches: four that it kills insects; one that it killed every insect; another that it destroys all pests; one that it is useful for all kinds of insects; two think it will answer the purpose; three find it answer the purpose on Cucumbers, Melons, and Peach trees; 13 find it of great service, or that it gives great satisfaction, or are otherwise satisfied; 7 report that it answers admirably, very well, or well, or in every way; from 20 more come other forms of expression, such as the very best thing, the most efficacious, very effective, very useful, and the like; one finds it effectual in an orchard house; another says it did good; one is much pleased; a second thinks it surpasses anything; another found it a complete cure; another approves; one thinks it a valuable remedy; one will not be without it; and one says "it does execution quickly." It thus appears that out of the 192 cases to be investigated, 70 consist of general expressions of satisfaction. All the others may be regarded as bearing testimony to its utility in destroying aphides and thrips, to which alone the word blight seems to apply.

There never has, indeed, been any question as to this point; the real difficulty is to ascertain whether the Composition tells upon red spider, or those far more formidable enemies, scale and mealy bug. Eight persons having as above mentioned declared that it kills insects of all kinds, it would seem that no doubt ought to remain upon the subject. We also find the following numbers reporting specifically in favour of its operation, viz. 25 as to red spider, 15 as to scale, and 15 as to mealy bug. But on the other hand we have one pronouncing against it as a remedy for red spider, four as to scale, and five as to mealy bug. Of the latter some express themselves in terms of condemnation which we need not repeat.

Here then lies the difficulty in determining what the preparation in question is worth. That the evidence before us is all given *bonâ fide* we quite believe, although it must be owned that some of it would be more satisfactory if it were less complimentary on the one hand, or less abusive on the other. When a man says that it kills every kind of insect, that it is a complete cure for every disorder, honey dew and the ravages of ants included, or another declares that it is of no use whatever, a gross imposition and so on, we cannot but feel that such evidence should be struck out from each side of the inquiry.

What causes the great difficulty of arriving at a just conclusion is the important fact that persons of equal skill soberly express different opinions. Under these circumstances there seems to be no other course open to gardeners than to make trials for themselves. If it should be finally found to possess all the good qualities ascribed to it, there can be no doubt that it will be a great gain; on the other hand its ascertained utility in destroying aphides and thrips will repay the cost even if it should be found that it fails as a remedy against red spider, scale, and mealy bug.

Let us hope however that in carrying out a serious examination of its action those who try it will not fall into the very common error of mistaking the cause of such consequences as may ensue. There is a story current of a very skilful gardener who maintained that no plants would be healthy in the absence of insects, mealy bug and scale included. Paradoxical as this may have seemed it involved a great truth. The constant care, the perpetual washing and cleaning that are required to keep down such pests, of themselves conduce most powerfully to the health of plants; and it is certain that the same amount of care will never be given where there is no need of repelling such active enemies. We do not at all say that the advantage spoken of in the testimonials before us, where scale and mealy bug are concerned, is due to scrubbing and washing rather than to Messrs. Page's preparation; but it may be so, and at all events it is desirable to draw attention to such a possible cause of error.

In consequence of the late rains Fungi have been extremely abundant this autumn and vast quantities have been collected without much discrimination for the manufacture of Katsup, principally for the supply of the London markets. It is very probable that the quantity of salt and spice which is used in the manufacture may modify the poisonous qualities of unwholesome species as is the case with the Fungi preserved for winter use by the Russians, though vinegar is generally added to the brine in which they are preserved. At any rate the quantity of the condiment used at one time is in general so small that no evil effects arise, whatever be the mixture. It is, however, some comfort to know that a very poisonous looking species which is very often used is quite harmless. Bushels of *Coprinus atramentarius* have been manufactured into sauce this year, a species which abounds in gardens and waste places, and is recognised amongst other points by its dissolving after a few hours spontaneously into an inky fluid. Dr. Badham put this down in his book as affording an excellent Katsup, as also the closely allied *C. comatus*, and it certainly has been used for that purpose in this neighbourhood for nearly 50 years. Our main object in this notice is to afford all the information in our power to such of our readers as may fall in with such a manufacture. We do not, however, vouch for its innocence on our own experience. *M. J. B.*

VEGETABLE PATHOLOGY.—No. CXLII.

582. Parasitæ—(*Tuburcinia**).—This genus consists of two or three species, which prey upon the tubers or underground stems of plants, as *Orobanche*, *Monotropa*, *Linaria* and *Solanum*. They differ greatly among themselves, and do not probably all belong to the same category, but as is the case with other hypogæous plants apparently similar, they may have very different affinities. In *Linaria spuria*, according to Talasne, the affected plant does not seem to suffer in its general health from the parasite. It blossoms and perfects its seeds. How far this may be the case in other species does not appear; it is however certain that as far as Potato tubers are concerned, which is the important matter for cultivation, *Tuburcinia scabies* does considerable mischief. It is on account of this latter species that the genus requires notice in this place.

583. The parasite was first noticed by Walroth, then in Martius' Treatise on the Potato Disease,† and afterwards very briefly characterised and referred to the genus *Tuburcinia* in Mr. Berkeley's account of the Potato Murrain, which appeared in the first number of the Journal of the Horticultural Society of London, and a short notice of the disease is given in the third volume of the same journal, p. 37, in company with the malady commonly known by the name of Scab.‡ It is not confined to any particular sort of Potato, but is said to be more common upon white and yellow Potatoes than upon blue and red. It is by some attributed to injury in digging, as it sometimes makes its first appearance in Potatoes stored up for winter use; but it is far from unfrequent in the natural soil, where it sometimes destroys the crop altogether. The first appearance of the disease is indicated by little spots of a darker and less pure colour and less shining than the rest of the cuticle; they are orbicular in form and scattered over the surface, but they soon become confluent, and probably from a slight degree of moisture the dirt adheres to these spots more than to the rest of the tuber. When the tuber is divided no difference is seen between sound and diseased individuals except an increased disposition to change colour on exposure to the atmosphere. According to the condition of the weather or temperature, and when the tubers are stored, the hygrometric condition of the air, the spots more or less speedily change their aspect. The cuticle begins to get loose, the subjacent parenchym changes colour and adheres closely to the skin, and at last little flat pustules appear upon the surface, while their cuticle acquires a deeper tint, and the interstices become rugged and speckled. The tubers at first were not impaired in point of flavour, but now they have a faint disagreeable taste, which is communicated to everything with which they are mixed. If in this condition the tubers send out shoots they are weaker than usual and often go back.

584. The cuticle has hitherto remained entire. It now fails in the centre and exposes the underlying tissue, which appears dusty and assumes different colours. If, however, the peel be stripped off, the base of the pustule comes off with it, the whole of the tissue having assumed the same structure as is the case in the affection more commonly known under the name of scab. As the malady proceeds, the thick diseased skin at last shells off and the underlying cells make their appearance sullied with the greenish brown spores of the fungus. The tissue in the neighbouring portion is more or less discoloured and decomposed, and where the disease is very virulent, the pustules run so deep and prevent the full expansion of the tuber so completely that they are perfectly worthless. In some instances the pustules are so frequent that, as in the confluent smallpox, they occupy the whole surface.

585. A few scattered tubers are often affected by this disease. In some years it is scarcely possible to get a specimen, while in others the disease is so prevalent as to do great mischief. This was especially the case in 1847 in Cornwall and the Scilly Islands. As far as my own observations go it occurs principally in damp ungenial seasons in badly cultivated land, especially where Potatoes have been planted many years in succession, and where imperfectly rotted manure or mere rubbish has been applied.

586. As regards the parasite itself it was first named by Walroth *Erysibe subterranea*, his genus being equivalent with *Uredo* and not with the genus generally known under the name of *Erysiphe*. Martius gave it the name of *Protomyces*, and in the Journal of the Horticultural Society it is referred to *Tuburcinia*. The spores are composed of numerous cells, built up round a central cavity, with one or more apertures on one side leading to a large central cavity, and indicate a relation to *Sporidesmium* rather than *Uredo*. Their form is in fact that of a bomb-shell with one or more plane circular apertures. They are attached to delicate threads, as is the case with some of the large compound *Sporidesmia*. The only remedy against the evil is good cultivation, and especially the use of well decayed stable manure, which seems to agree better with Potatoes where manure is used at all, than the mere refuse of the dunghill. *M. J. B.*

* From *tuburcinor*, to feast or gormandise.

† Die Kartoffel Epidemie, p. 23, tab. 2, fig. 9-13.

‡ I have availed myself largely in the text of Martius' account, which is very full and circumstantial.

THE SEWAGE QUESTION AND MARKET GARDENING.

May I bring under the notice of your metropolitan readers a project for the drainage of the capital involving a new system of, or at least an addition to, our market gardening. My plan of drainage is contained in the subjoined extract from a letter addressed to the Metropolitan Board of Works, and that of gardening would be something as follows:—To grow Italian Rye-grass and garden vegetables alternately on a large scale. The land under Italian Rye-grass, for example, would be let to farmers, cowkeepers, &c., either to be used as green food or hay, and when broken up from Grass to be well manured with the sewage, trenched by means of steam ploughs, and then let for the season to market gardeners for growing any kinds of crops they might think best, the land to receive any quantity of liquid manure during the season as might be agreed upon. Of course a tenant might hold on lease 100, 500, or 1000 acres at a fixed rent, receiving the sewage of so many inhabitants, and cropping as he thought proper. During the winter months when there is plenty of rain to wash the grosser portion of the sewage into the soil it would be applied in its natural state, and also to ploughed lands during summer; but for vegetables and Grass during summer I propose separating the solid from the liquid by a mechanical process, and applying the latter in a clean state, or as pure as rain water, only containing in solution all the valuable manurial salts. In a word I arrange a certain system of liquid manuring to suit a certain system of cropping, making the two go together so as to yield the largest rent for the landlord, and profit for the tenant.

I have only included waste lands for manuring, but a large area of porous soils on both banks of the Thames might be used, and also in the interior of the country. I have lately, for instance, gone over some 3000 acres to be let, at from 25*s.* to 60*s.* per acre. Now, the sewage revenue arising from such would be the increase of cost and value of the manure applied. According to Mr. Cuthill's pamphlet on "Market Gardening round London," the cost might be increased some 5*l.* per acre, and the manure applied might be worth about 12*l.*, making 17*l.* per acre. Now, supposing 7*l.* to go for extra expense in marketing and increase of cost and profit, it would leave a balance of 10*l.* per acre—a money-making revenue on a large investment; or the account may be stated thus: 25 inhabitants to each acre would give 12 tons of fæces and urine in their natural state per acre to 100,000 acres, which, at 10*l.* per acre, would produce a revenue of 1,000,000*l.* annually.

Further into details we need not go. No doubt some of your readers may feel disposed to quote the Fulham experiment in opposition to my project; but it is not applicable; for (1) before the sewage gets to Stanley Bridge it is so wasted as not to be worth the pumping; (2) the sewage thus wasted is not properly applied; and (3) the system of cropping is not adapted for the sewage. Under such circumstances what else could be expected than failure!

It will thus be seen that a large revenue may be obtained from the sewage of the metropolis if economically applied to the proper quality of soil, sufficient not only to save the pockets of the ratepayers, but also to return them a large annual income after the redeeming term. How different will be the result of any brick sewerage system of sending the sewage some 40 miles from the capital, for all the sulphuretted, carburetted, and phosphuretted hydrogen gases generated in them will be returned, polluting the atmosphere of the metropolis worse than at present; as they from their levity will ascend to the highest level, ultimately placing every house upon a hot-bed of pestilence.

The following is the extract above alluded to:—

"1st. Divide the metropolis into manurial districts, in size according to the areas of the respective fields to which the sewage is to be applied, due attention being paid to make the higher levels of the manurial district serve the higher levels of land. Let there be one or more engines in each district, with pumps, for sending the whole of its sewage in metal pipes to the country as fast as it flows to the engines, and let the sewage of each district flow to the engines in glazed earthenware pipes.

2nd. The mainspring of the whole is a proper paying field for application, and probably no capital in the world is so favourably situated as the metropolis of England in this respect, for in the immediate neighbourhood there is a sufficient area of barren heath, sandy downs, waste common, and chalky soil, for using the whole sewage economically. These are the very kinds of soil, too, to which a continuous flow of sewage can be most successfully applied, for on the London clays it cannot be so used during the depth of winter—that period of the year when

there is probably most sewage—as it would then flow back to the sewers on the surface; but the sandy and chalky soils in question will always be in a state to drain up the greatest flow of sewage. The once barren sandy beach between Leith and Portobello, now yielding a clear profit of upwards of 10*l.* yearly per acre, may be taken as a successful example in proof of this.

Let, therefore, an Act of Parliament be got without delay to secure the above lands to the inhabitants of the metropolis, as landowners, with power to carry out my proposition. Let each manurial district have its own allotment; and if properly farmed under steam culture, I venture to say that the proceeds of Italian Rye-grass, &c., &c., will yield redeeming interest on the capital invested, as a glance at the facts of the case will show; thus:—

A population of 2,500,000 will yield annually upwards of 1,000,000 tons of fæces and urine in their natural state. Add to this the dropping of cattle, soap-suds, &c., and the result will amount to nearly the equivalent of half a million tons more; but say only 1,000,000 tons, sufficiently diluted with water for application. Now such a dose, successfully applied, ought, at least, to produce an increase of produce of the annual value of 500,000*l.* If a ton of fæces and urine, I repeat, do not yield an increase of produce of the value of ten shillings yearly, it is bad farming. Such a population would yield, of solid matter, 74,000 tons, superior to Peruvian guano; so that, at the price of guano, it is worth more than 740,000*l.* No farmer would think of turning less out of guano than double the above hypothesis, so that 1,000,000*l.* of increase of value of produce would be nearer the result than half that sum, after a few years' application of the manure."

W. Burness, Prospect Terrace, Brixton, Surrey.

Home Correspondence.

A New Nectarine.—I send two fruit of a late Nectarine from a potted tree in my orchard house. I received it some 20 years since from Culford Hall, near Bury St. Edmunds. Mr. Knight, then gardener there, told me that the tree then growing against the south wall had been received from Mr. Lee, the father of the present Messrs. Lee, of the Hammersmith Nursery. The fruit, as you will see, are large, although from a tree in a pot. It is a free stone and piquant in flavour, but not very sweet, owing I presume to the cloudy weather we have had lately. As it is most desirable to prolong the season of so esteemed a fruit as the Nectarine, this sort for orchard houses in the south of England is likely to prove worthy of attention; it has uniform glands and small flowers, and is most likely allied to the Peterborough Nectarine of the Horticultural Society's catalogue. *Thos. Rivers, Sawbridgeworth.* [This is a very promising variety, to us unknown. It is much like the White Nectarine in appearance. Although too acid in the state in which we received it, there is a fine aroma about it which more heat would not have failed to develope. And it is not a clingstone.]

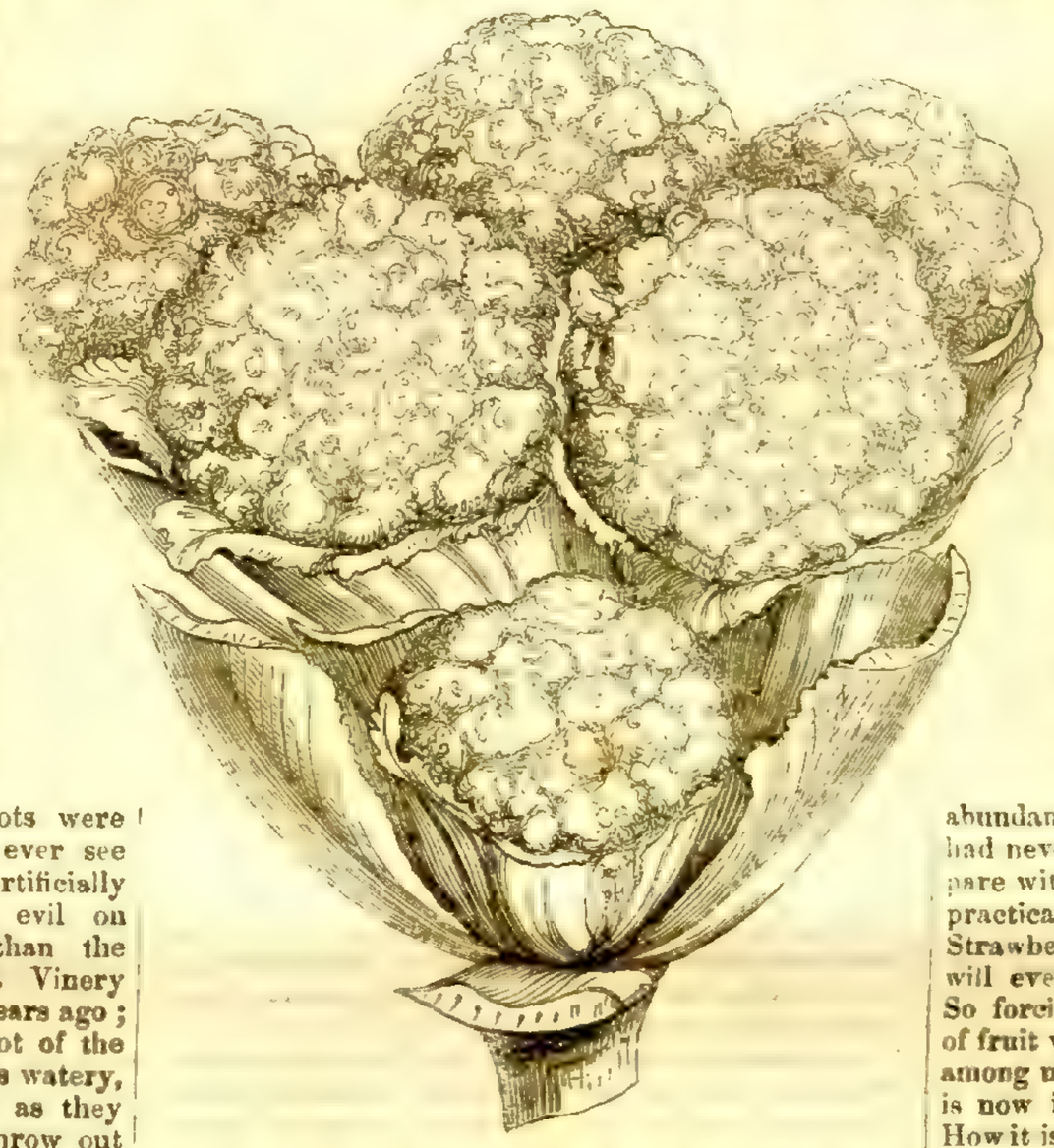
Shanking of Grapes.—While this subject is before the gardening world, it would be well for those who know what "shanking" is to state their experience respecting it. I believe that many are totally unacquainted with it from the fact that they have never had to deal with worn out or deep planted Vines. Did any one ever see Grapes shank in pots unless they were deluged with cold water? Did any one ever see them shank on dry, gravelly, or chalky subsoils, where the roots were allowed to seek their own food? Did any one ever see "shanking" occur where the border was artificially warmed? Did any one ever observe this evil on open walls where the roots are warmer than the atmosphere? I have under my care a Vinery in which the Vines were planted about 25 years ago; there is not the least sign of a root within a foot of the surface; they grow strongly, but the wood is watery, and one-third of the berries "shank" just as they change colour. Early in the season they throw out "spongioles," which under a dry atmosphere dry up, and then they seek their food from its right place. I have rarely seen an instance of Vines rooting up the stem which has not been accompanied by "shanking." I can produce proof respecting the difference of temperature in the soil and atmosphere having an effect on Grapes at the period of ripening. A Vine planted against an open wall with its roots below a cistern of water which daily overflows and completely saturates the roots, is now loaded with Hamburgh Grapes as black as a coal, and not a shanked berry among them. Such is my experience in reference to "shanking." Perhaps Mr. Whiting can throw some further light on the subject; Grapes used to shank at the Deepdene until he replanted them. *John Gadd, Bignor Park, Petworth.*

Late-flowering Plants.—Your correspondent "J. G." has broached a subject which is interesting to many, and which I have found from experience particularly worthy the attention of gardeners where families only reside at their country seats during the shooting season. I beg to add the names of a few other plants to which "J. G." has not alluded, and I hope other gardeners will do the same. Amongst scarlets, Salvia fulgens and Lobelia propinqua are good, and grow on good soil from 2 to 4 feet in height; and of the more humble subjects in that colour the little Cuphea platycentra is not the most despicable, for although not very showy it will stand a great deal of rough weather and is very useful for cutting from; of reds the old-fashioned Fuchsia globosa, Riccartoni, &c., are useful, although not strictly speaking subjects for the parterre. Then amongst blues, Ageratum grandiflorum, with its variegated variety, stands prominent. It grows from 2 to 4 feet high. Then in the orange class we have the annual Tagetes signata and the useful Tagetes lucida, which requires the same treatment, but it does not grow so high as the former, and requires to be planted rather thickly; then of yellows which have stood whilst their neighbours have been shorn of their beauty by wind and wet, we have Calceolaria amplexicaulis and a dwarf variety of Marigold, I think called pumila, but which is difficult to get true to colour of the seedsmen; therefore it should be carefully saved when once a plant of the true colour is obtained. Let me name, *en passant*, and recommend to all gardeners who do not already know it, a gem of a different kind and a real boon to those who enjoy a good salad, namely, Short's Early Dwarf Beet, raised by Mr. Short, gardener to Sir W. B. Proctor, Bart., Langley Park. I have a bed of it, and each plant is a model of its neighbour; indeed, they are unique in every point which constitutes a good Beet. *H. Howlett, Haverland Hall.*

Large Gourd.—A specimen has been grown in the garden of G. W. Tiremans, Esq., of Lofthouse Hall, near Redcar, by his gardener Mr. Milner, which measures 5 feet 8 inches in circumference, and weighs 8 stone. *M.*

Poisonous Honey.—Please ask "Apiarian" how it happens that the bees which feed through the winter on the Rhododendron-poisoned honey are not all destroyed. To be sure, "what is one man's meat may be another man's poison." He need not "give up the pleasure of keeping bees," nor the delight of looking on Rhododendrons either, rest assured. *Will Honeycomb.*

Monstrous Broccoli.—I beg to send you a head of Broccoli which may possibly be worth attention. I have been an extensive grower of that vegetable for more than 20 years, and I have never seen anything like it before. To what cause is its anomalous condition to be attributed? *J. Clark.* [Your Broccoli is very curious, from the fact of six perfect heads being grown on one and the same plant. The cause of this rather unusual formation is probably owing to some injury



which the growing point of the main stem may have received at a late period of the season; the effect of such an accident would be the production of several heads resembling the specimen you have been so good as to forward to us, and of which the accompanying sketch, although very much reduced, will convey a better idea than any lengthened description. *B.*]

A Cheap Garden Wall.—On estimating the cost of a brick wall to inclose a garden I found it so expensive as to be generally beyond the reach of a man of ordinary means. After considering the subject it appeared to me that by adopting the following plan a very cheap and efficient wall might be raised. Let the foundation be curved, each curve being 16 feet long and 4 feet deep; lay the lowest bricks 9 inches wide, on which build 4½-inch brickwork, set in the best blue lias lime, 8 or 10 feet high, the top row of bricks being set in cement. The benefits of this plan are:—Being only 4½-inch work, at 8 feet high, the expense, with bricks at 40*s.* a 1000 delivered, including lime and labour, would be about 2*s.* 6*d.* per foot run. The curved base would give great firmness to the wall. The trees would be more sheltered, and from the varying aspects a succession of ripe fruit would be obtained. A brick-walled garden of a quarter of an acre could thus be made for about 70*l.* *N. W., Truro.*

Vine Borders.—Your correspondent "A. M." inquires as to the benefit of using flesh in Vine borders. Last April I built a lean-to house for Muscats; and made my border after the advice of the best Grape grower in England. It is simply this:—To each cart-load of fresh pasture loam add one bushel of quick lime, slaked just before it is mixed; to two loads of this mixture put one load of rotten manure. The Vines were planted the last week in April in this compost. The roots are partly in and partly out of house: they exhibit a mass of fibres thick as a door-mat. The wood is very strong and short jointed, is ripening beautifully, and will carry a considerable crop next summer. In April, 1855, I planted some Vines in a border made of old pasture, manure, and lime rubbish. This constituted a much looser mass than that which I have described above. The roots went immediately straight down like Carrots. I cut down the canes last winter to two eyes, and the result has been long-jointed spongy wood, some of it inferior in strength to the young Vines of this year. *G. L., Cambridge.* [But what of the effects of flesh?]——We have here four Vineries, the Vines in which from successive bad treatment are very weak and exhausted, the varieties also not at all desirable, chiefly Black and White Sweetwater, and the like; it is intended to remove them, filling up with Hamburghs and Muscats. I have this season remade our border in the following manner, removing the old soil to the depth of 2 feet 6 inches, and placing in the bottom about 10 inches of bricks and stones broken fine on the surface, with drains to carry off water, and resting thereon nearly 2 feet of prepared compost, in which the Vines are planted, but from the construction of the houses their roots are all outside. Now, I had thought that from such a preparation their roots would be in a healthy medium, and that by a proper application of fermenting material in the forcing season, and a slight mulching when necessary, I should insure success. But my employer has heard of, and advises the surface to be entirely covered over with stone or tile, or, in fact, concreted. Would you be kind enough to say if this plan or any other would be better than what I propose. *J. C., Hartham Park.* [This method is recommended by Mr. Spencer, of Bowood. See Theory and Practice of Horticulture, p. 144.]

The Peach Apricot.—I observe that you place this variety among fruits not fit for orchard houses. I presume this is merely a clerical error, for it is directly contrary to my experience. The Peach Apricot is grown very largely in the south and west of France on standards, and is I think the largest and best of the Moor Park race; it is very short-jointed, and bears most abundantly in pots in the orchard house. I have had small trees in pots so full of fruit as to nearly destroy themselves, every twig being covered with fruit to the exclusion of leaves, thus weakening the tree. I must observe that I have only permitted this to take place out of curiosity to see how many fruit such pigmy trees could give. *Thos. Rivers.* [We are glad to hear so good an account of this variety. Reports of a different nature have reached us. We should have hardly expected so large an Apricot to be productive enough to suit an orchard house.]

Sir Harry Strawberry.—In your Paper of the 11th inst., p. 677, a question is asked by Mr. Doubleday, Epping, relative to this Strawberry. I beg to inform him that I purchased plants of it from Mr. Underhill in November 1854; the following summer they bore abundantly, and in point of size, flavour, and colour I had never seen or tasted any Strawberry at all to compare with it. I have also since heard it expressed by practical gardeners that it is a question whether any other Strawberry yet to be raised, or recently introduced, will ever come up to it as a first-class table berry. So forcibly struck was I when I gathered my first crop of fruit with its flavour, that I distributed the berries among my friends, and the result was that the Sir Harry is now in almost every garden in and about this town. How it is that Mr. Doubleday was disappointed with its flavour, I cannot imagine, unless it has been that he is not growing the real sort, or that it has been that the fruit was exposed to much wet and gathered in that state. I may further add that the judges acting for our exhibitions in 1855, on seeing the dish of Sir Harry, eyed them with dumb astonishment, and when their silence was broken the first question asked was, "Are they as good as they look?" and on each tasting they pronounced it superior to any other Strawberry at that time grown, awarded it the first prize, together with highly recommending it. They also inquired the address of the owner and raiser, for the purpose of ordering plants. Should it be that Mr. D. has purchased his plants from some other than the raiser, I would advise him to procure some direct from Mr. Underhill, of Edgbaston, Birmingham, when I will vouch that Mr. D. after once fruiting them will agree with me in all that I have written. In short, I may say with truth that too much cannot be said in its favour, and I doubt much if it will ever have an equal. *Thos. D. Townley, Hon. Sec. North Lancashire Floral and Horticultural Society.*

Rough Plate Glass.—In reply to "C. R.'s" inquiry, I beg to inform him that I have had three summers' experience of this glass, and have not observed a single instance of scorching under it. I can only say that I am perfectly satisfied with it; I do not recommend every one to use it, nor have I denied its producing more shade than sheet or crown glass, knowing that some of it does so, for from its inferior quality I condemned a great deal that was supplied for our structures, and should have done so with more of it had it not been fixed before I observed it. I also know that some of it is quite clear. Now, if I understand the matter rightly, the object of fluting is to diffuse the sun's rays. Allowing such to be the case and the object attained, may it not have the same effect on the vision, and thus prevent the desired concentration on the object looked at to

observe it distinctly? I have not referred to the earliest accounts in your pages of this glass, but if my memory serves me rightly, Mr. Hartley somewhere said that the materials of which it was made were different from those of which sheet glass is composed, and that it was calculated to produce a slight shade; what then if we find it do so; is it anything more than we might expect? but make both kinds from the same material and the same furnace, if you will. May not the fluting (allowing it to have the desired effect) by the diffusion of the rays apparently diminish the light, but not really do so? "C. R." must not think that I considered my advice generally applicable; it was only intended for "H." Our first structures put up here, which consisted of Vineries, Peach-houses, plant-houses, and pits, were all glazed with sheet, supplied by different parties. In every case we are subject to scorching, or perhaps more properly burning; hence the reason for the caution to "H." No doubt the manufacturers of this glass, as of every other article, will endeavour to meet the prices of their customers; if, then, they get an inferior article for their low prices, let them not condemn the whole. We might with equal reason do the same thing with regard to the cloth of which our coats are made. I may also observe that this glass was supplied by different houses; hence, perhaps, the reason of our receiving some of inferior quality. *W. Breadley, Somerleyton.*

Cestrum nocturnum and Gardenia Rothmanni.—On visiting the gardens of his Grace the Duke of Leeds, at Hornby Castle, Yorkshire, I was much struck with a very fine specimen of Cestrum nocturnum, so rarely seen in cultivation. It was one mass of blossom, and has been in flower for the last four months. Its powerful fragrance scented the whole house, which is very large. I cannot find it in any nursery catalogue, which I regret, as it is one of the most fragrant plants in cultivation. In the same house is a magnificent specimen of Gardenia Rothmanni covered with flowers and buds, also bearing fruit, which is highly ornamental. The plant is 8 feet high and in robust health. This plant is seldom seen in collections. I may observe that very extensive improvements are now going on which will place these gardens among the first in the kingdom. A large, I believe the largest hot-water apparatus in Europe, on the one-boiler or Weeks's system, has been erected, which heats 10,000 feet of piping, and gives great satisfaction. An extra boiler is added in case of accident, but as yet one is found more than equal to the heat required. *J. P. B.*

Ammonia.—"A New Subscriber," referring to my communication on this subject in the *Chronicle* of the 20th Sept., attempts apparently to account for the different results obtained in my experiment, by pointing to the property of charcoal to absorb and retain ammonia. There might have been some validity in his implied solution had the comparison lain between two plants both treated with ammonia, one growing in sand alone, and the other in sand and charcoal. It might have been contended in that case with some reason that the plant grown in sand derived no benefit from the ammonia, as it was dissipated and lost to the plant; while the other did so from the ammonia being absorbed by the charcoal and retained for the use of the plant. But this reasoning cannot apply to the actual circumstances of the experiment; and even if it could, it would leave untouched the real merits of the question at issue. Granted in the largest extent that charcoal absorbs and retains ammonia, the only question at all to the point still remains unanswered. In what way or by what means did the ammonia enable one of the plants to fabricate so much additional vegetable substance? Was it by furnishing directly from itself material to assist in the production of this substance, and was the material or element which it supplied towards fabricating vegetable fibre or hydro-carbonaceous matter hydrogen or nitrogen? *J. H. H.*

Petunia imperialis.—This may possibly be a desirable plant for pot culture, to decorate our greenhouses with in spring, but I have not heard of its succeeding in beds. I purchased two plants of it in spring, and intended to propagate it abundantly for another season. I planted them out and they grew luxuriantly—in time green calices made their appearance—then hopes were entertained of beholding erelong their beautiful double white flowers, scented like a Carnation; but my expectations were frustrated, for on examing the calices, which were fully formed, some were found quite empty, while others had only rudiments of flowers in them. Now the season has passed, and I have not been rewarded with a single bloom from either plant. Perhaps some one who may have grown this Petunia more extensively will report their experience of it. *J. G.*

Cocoa Nut Melon.—Your notice of this variety at page 676 fully coincides with my experience of it. Seeds of it were given to me by Mr. Fleming. We had it here as late as Jan. 6th this year. The fruit was cut on Nov. 16th, 1855. The flavour is excellent, and no Melon I have ever seen or heard of besides this will keep good even after November. *William Thomas, Gardener to the Right Hon. Lord Hatherton, Teddesley Park, Staffordshire.*

Trellis.—Would some of your readers favour me with a reply to the following query? I am anxious to put a trellis to my dwelling house; is it better to put a galvanised iron wire one or a wooden one? *Kempston.*

Died at Calderston, Lancashire, on the 14th inst., aged 65 years, Mr. Alexander Morton, who for 30 years faithfully served as gardener Joseph Walker, Esq., F.H.S. The declining state of his health prevented the deceased from giving to the world, as he intended, a treatise on the growing and removal of the Fir tribe, as practised by him at Calderston. *A. Sleigh.*

Notices of Books.

Advanced Text Book of Geology. By D. Page, F.G.S. 12mo, Blackwood, pp. 326.

In our volume for 1854, p. 791, we spoke favourably of Mr. Page's little Introductory Text Book on Geology. The author's new work is of a higher, though perhaps not more important kind, for nothing can be more important than to learn accurately, however slightly, the rudiments of a science. The great merit of these two books consists in their good arrangement, exact descriptions, clear explanations, and sagacious separation of the positive which all must understand from the merely speculative, which can so often be very well dispensed with. A course of this kind may not indeed lead to brilliant views or scientific coruscations, but it sheds over everything that clear calm quiet light which illuminates without dazzling or distorting. Upon this point indeed Mr. Page is himself explicit: "The author has endeavoured to write as he would have spoken to a junior companion in the field—hopefully and encouragingly, yet not disguising the real difficulties that lie in the way—treating the subject as one to which the humblest observer may contribute his mite, rather than attempting to propound authoritatively on problems, the satisfactory solution of which involves a much wider range of observation, and deeper and more exact research, than Geology as yet can boast of. The author requests his brother geologists who may glance over these pages to remember that they are not intended to contain an exposition of his own peculiar views, but rather to exhibit an elementary outline of the science as now established by the leading workers in Britain, France, Germany, and America. The main object has been to render the student such assistance as will enable him to proceed in the field as a practical observer, and to read with appreciation the higher treatises, special monographs, papers, and new discoveries of others." Such should always be the aim of elementary works whether called manuals, hand-books, text-books, or introductions.

The order in which the subject is treated is as follows:—Objects and Scope of the Inquiry—General Relations, Structure, and Conditions of the Earth—Agencies resulting therefrom, or chiefly concerned in the Modification of its Crust—Composition and Characteristics of the Principal Rocks and Rock-Masses—Classification into Systems, Groups, and Series—General Characteristics of Fossils—The Silurian, Devonian, Carboniferous, Permian, Triassic, Oolitic, Cretaceous, Tertiary and Post-Tertiary Systems—General Review of the Stratified Systems—Theoretical Deductions—Economic Aspects of the Science, and Methods of Practical Procedure. The whole concluding with a capital Glossary of Technical Geological Terms and General Index.

From this enumeration the reader will see how completely the geological field is worked up. The manner of working it is excellent; there is neither too much nor too little of anything which a student requires, mere details being wisely referred to in the special treatises of the most eminent writers on the subject. What the views of the author are with respect to the connection between Agriculture and Geology, will be gathered from the following statement.

"The assistance which geology is calculated to confer on the science of agriculture, though somewhat overrated at one time, is certainly among the most obvious of its practical features. All fertile soils consist of two classes of ingredients—organic and inorganic; the former derived from the decomposition of vegetable and animal matter, the latter from the disintegration of the subsoil or of the subjacent rock-masses. Without a certain proportion of organic matter no soil can be fertile, hence the continuous application of animal and vegetable manures; but it is equally true that without a due admixture of inorganic or mineral compounds all attempts at its permanent improvement will be fruitless. All the mineral elements essential to fertility may not exist in the soil of a particular locality; but the moment that chemical analysis has indicated the deficiency, the farmer can readily obtain the required ingredient from some other district, or it may be from the subsoil of his own fields, and so effect the permanent improvement in question. To do this, however, he requires to know not only the chemical composition of rocks and soils, but the precise spots they occupy; in other words, he must be familiar with the language and delineations of a geological map of his own district, and know the lithological peculiarities of the respective formations. We have already stated that for agricultural purposes two sets of maps are necessary—one exhibiting the nature and area of the superficial accumulations, and another devoted, as usual, to the rock-formations that lie below. Aided by such helps, and sufficiently acquainted with the science to be able to take advantage of their assistance, the geological farmer has a power at his command which he may turn to the best account, either in the permanent improvement of the soil he occupies, or in the choice of a farm for carrying on the operations of some special department of husbandry. Besides the permanent admixture of inorganic substances, there are other conditions necessary to increased fertility; such as facilities for drainage, capability of retaining moisture, the innocuous nature of the subsoil, and the power of absorbing and retaining the solar heat. Soil overlying trap and limestone requires less artificial drainage than that covering the coal-measures, the new-red marls or wealden, because the former rocks are traversed by numerous joints and fissures which act as so many natural drain-pipes, while the latter are chiefly tenacious and impervious clays. Again, land of itself dry and friable may be rendered wet by springs which arise along some line of dislocation. The farmer acquainted with the deductions of geology would cheaply lead off these springs at their source, while he who was ignorant would laboriously furrow-drain his whole field, and find, after all, that his was the less effectual method of the two. Such are mere indications of the assistance which geology is calculated to confer on agriculture—an assistance very apt to be overrated, however, unless the farmer at the same time avail himself of the assistance of the chemist, meteorologist, and vegetable physiologist. As with the farmer, so with the land-valuator; and though a shrewd practical man who has travelled a good deal and kept his eyes open to points of amenity, facilities for market, and so forth, may often approximate very closely to the real value of an estate, depend upon it another possessed of the same shrewdness and experience, and skilled in the geological bearings of the district to boot, will be much the safer guide. In fact, without a knowledge of the mineral structure of an estate, it is altogether impossible to ascertain its value; and so it has happened, even within the last 20 years, that estates have been sold at so many years' purchase of the land-rent merely, and in total ignorance of a mineral wealth that might have been fairly suspected from the most cursory glance of a geological map of the district. It may be true that the functions of the land-valuator are altogether distinct from those of the mineral surveyor, and that the report of the one should be accompanied by the report of the other; but even in the valuing of land for mere agricultural purposes, the man who is ignorant of the mineral facilities of a district—its limes, clays, marls, shell-sands, phosphates, and so forth—can give but a very uncertain and unsatisfactory opinion."

As an example of the manner of dealing with facts we select Mr. Page's explanation of the origin of Flints.

Formation of Flints.—The formation of flint within a mass so different in composition as chalk is also in some respects an unsettled problem in Geology. It occurs in nodular masses of very irregular (often fantastic) forms and variable magnitude—some of these not exceeding an inch, others more than a yard in circumference. Although thickly distributed in horizontal layers, and occasionally in vertical lines of large nodules or "potstones," the nodules are seldom in contact with each other, each being completely enveloped by the chalk. It is rare, indeed, to find a continuous layer of flint, as we find a layer or band of ironstone, though the nodular or concretionary states of these two materials are precisely similar. Externally, the flints are composed of a white cherty crust; internally, they are of grey or black silex, frequently full of flaws or cracks, and often contain cavities lined with chalcedony and crystallised quartz. When taken from the chalk pit, they are brittle and full of moisture, but soon dry and assume their well-known hard and refractory qualities. Flints almost without exception enclose remains of sponges, sea-urchins, detached spines, corals, and other marine organisms the structures of which are often preserved in the most delicate and beautiful manner. In some specimens the organism has undergone subsequent decomposition, and the space it occupied has been either left hollow or partially filled with some sparry incrustation. From these facts it would seem that flints are aggregations of silex round some organic nucleus, just like the ironstone septaria of the coal-shales, the grains of the oolite, the ironstone nodules of the gault—all of which are aggregations round some organic centre, be it a fragment of plant, a shell, a tooth, coprolite, or other organism. This is now the generally received opinion; and when it is remembered that the organisms must have been deposited when the chalk was in a flocculent and pulpy state, there can be little difficulty in conceiving how the silex, held in solution by the waters of deposit, would, by chemical affinity, attach itself to the decaying organism. The solubility of silica is a well-known fact in nature; it occurs in most thermal springs—in soils, whence it is elaborated by many growing plants for their structure—in waters, whence sponges and infusoria elaborate their silicious shells and spicules—and all decomposing rocks, like the felspathic granites, greenstones, and tufas, are continually supplying it to the streams, rivers, and ocean. The cause of its abundance in certain cretaceous areas we may never know, but it is altogether a mistake to suppose that flint is a product peculiar to the chalk. The spongiferous cherts of the Portland and coralline oolites, and the tubipore cherts and flints of the mountain limestone, are identical in origin, as they are all but identical in composition. Indeed, repeated lines of black flint nodules may be traced in the carboniferous limestones of Bathgate as distinctly and continuously, and as purely silicious as ever were traced in the chalk-pits of Kent and Surrey.

Let us add that if there are no *ad captandum* plates in this work, there are excellent woodcuts, where the subject rendered them indispensable.

The Norwich Union Reversionary Interest Company. (Letts and Co.) This is a pamphlet by Mr. Le Cappelain, who *as an auditor of the Company* complains that the directors garble papers, withhold information, and

refuse to allow the auditors to examine the value of the property represented to constitute assets. It is quite out of our way to notice matters of this kind; but in these swindling days it becomes a duty on the part of the whole body of the press to call attention to such statements as those of Mr. Le Cappelain.

Garden Memoranda.

Biddulph Grange, the residence of James Bateman, Esq.—(*Continued from p. 695*).—From that part of the terrace which is immediately in front of the drawing room and conservatory, and which is surrounded by a balustraded wall, the principal terrace walk conducts us eastward, between a wall on the north which helps to exclude some of the offices, and which is picturesquely clothed with Ivy, and a Yew hedge, at the same distance from the walk on the south side. The walk is edged with a kerbstone, and the border on each side is occupied with Yuccas, Acanthus, Saxifraga crassifolia, and similarly striking plants placed at regular intervals.

Passing along this walk for 10 or 12 yards, we enter, by an appropriate archway of stone, a long wooden corridor, the sides and roof of which are formed of undressed Bamboo, in regular patterns. The effect of this covered way, artistically, is to enclose and prolong the vista view along the entire terrace; while it serves practically to cover an uninteresting part of the house, and also to shut out a small bulb garden. The entrance to this latter is through an invisible door on the south side of the corridor, and it occupies a small strip of ground running parallel with the corridor itself, and otherwise surrounded by a Yew hedge. The bulb garden is thus altogether apart from the rest of the grounds, and can be readily visited at those periods of the year when the plants are in flower, or shut up during the long remaining period when this tribe of plants is without interest.

Every cultivator of bulbs must have felt the difficulty of allowing them to remain in the ground to develop and ripen their growth, after the flowers have passed away, on account of their extremely untidy appearance; and the questionable expedients of removing them into a reserve garden, or cutting off their stems and foliage, are commonly resorted to. By Mr. Bateman's arrangement, however, all such difficulties are entirely overcome, and the end of the garden furthest from the entrance is even separated off from the rest by a trellised arch covered with Tropæolums and other climbers, the bulbs which flower earliest being placed beyond this arch, so that there is no necessity for entering that part when the plants in it have ceased flowering.

Eastward of the long passage in the main terrace, the walk runs for a corresponding distance to that at the western end, between walls covered with climbers and borders filled with classic looking plants, to another archway, which at once answers the purpose of lengthening the vista, and forms the entrance to an enlarged square space, treated as a parterre, and used for Dahlias, Hollyhocks, &c. The point at which the arch occurs, and a similar point at the eastern side of the area just mentioned, very happily afford the means of introducing a few steps to effect the necessary change of level; the ground, as before stated, rising considerably towards the east.

From the centre of the Dahlia garden another series of little parterres, each on a lower level, descends southwards to join the lowest terrace walk formerly alluded to; the enclosures in every case being effected by Yew hedges, and the cross walk being terminated to the north by a small recessed room under the highest terrace. The parterre which adjoins the Dahlia garden is devoted chiefly to Roses, and is backed to the east and west by a row of standards, with climbers trained to poles at the corners, the Yew hedges forming an admirable background, again, for exhibiting the flowers of these. At the lower end of this series of parterres, too, another ingenious device is adopted for preventing the eye from ranging beyond the parterres themselves into a scene which would not harmonise with them. A large Holly is placed at either side of the last flight of steps, and trimmed to a bare stem to the height of 8 or 10 feet, when they are allowed to expand into a united and massive head, which is kept trimmed into the shape of a bold flat canopy, and which, while effectually blocking out the view, appears quite in character with the Yew hedges, and gives the needful finish to the series of descending steps.

Returning to the leading terrace, after quitting the Dahlia garden, it extends, without any further break, for a considerable distance, through what has hitherto been a small kitchen garden, and between rows of espalier fruit trees, till it reaches the extreme eastern terrace. It is Mr. Bateman's intention to convert the espalier fence into a trellis for ornamental climbers, and the kitchen garden into a trim orchard. Indeed the latter object has partly been carried out, Cherries and other standard fruit trees being planted in rows, on raised mounds about 18 inches high, with neatly mown lawn between. The trees are all of equal heights, and of the most perfect form, in which they are to be duly preserved by pruning; and the edges of the mounds on which they are planted have a fringe of young Oak trees, the branches of which are so interlaced that they prevent the earth from crumbling down, and the foliage makes a very pretty edging in the summer. Everything about this little orchard being thus made neat and orderly, it does not seem out of place in this part of the pleasure-grounds; and certainly, by its comparative plainness and the distinctiveness of its character, it helps to enhance the more artistic effects of the contiguous departments.

The eastern terrace is between 4 and 5 feet above the level of the orchard, and runs north and south. It is ascended by a flight of steps in a steep Grass bank, and is backed by a lofty Beech hedge. A sort of alcove of Yews occurs in the hedge opposite the principal terrace, forming a recess for a broad white urn-shaped vase, which gives the proper finish to the most important walk about the place.

To the northwards, the eastern terrace is connected by another set of steps with the higher terrace, this latter running parallel with the main terrace, and being attached to the upper rooms of the house as before intimated by a glass covered way. The covered way will have an open path in front of it, and extends from the house to the east end of the Dahlia garden, where it is finished by a room, which makes a picturesque break in the general grouping. At this point there are also steps by which the upper terrace can be gained without passing through the house.

In constructing the walls which, from the diversity of level, are introduced so freely into this section of the grounds, Mr. Bateman has in some instances employed an elaborate stone coping, which, as will be well known to those familiar with building operations, makes a large and serious item in the expenditure. But, as the walls were to be masked with Ivy and other climbers, the stone coping has gradually disappeared in a very short time, so that in many parts it is not now seen. For the walls recently erected a coping of Ivy alone is to be substituted for the stone coping, and in three or four years the same effects will be produced, and the Ivy leaves will abundantly suffice to throw off the water; the cost of the stone coping being completely saved.

A row of tall Irish Junipers has been planted along the top of the eastern terrace, a standard Portugal Laurel flanking the steps from the other terrace on either side. An opening through the middle of the great Beech hedge lands us suddenly in a new area of limited size, called the Egyptian Court, which lies to the east of the terrace; and another opening near the south end of the hedge carries us by a winding narrow walk into the root garden. The terrace is stopped by a seat at the southern extremity, and there is a cluster of small Yew trees opposite the central opening in the Beech hedge, thus blocking up the view from the Egyptian Court. These little things are noticed because it is in small things of this kind that real taste is shown, and the full influence of any artificial scene obtained.

Before dismissing the terraces, it may be well to revert for a moment to the lowest of them all, which is level throughout, and which is in the same line as the higher terrace, being joined to it by the two sets of parterres, and having the site for the fountain at the western end, and a rough ornamental arched stone recess, leading to a lower part of the root garden, at the other extremity. A large Holly hedge divides this lower terrace from the general pleasure grounds; but Mr. Bateman finds the base of this hedge on the north side (which is towards the walk) so much disposed to become ragged and bare, that he purposes putting in its place a Yew hedge, which does not appear so liable to this defect. The walk is on the southern side of this lower hedge. The rest of the ground, a space 10 or 12 feet wide, is arranged in two levels, the upper or northernmost space being about 3 feet higher than the other. They are divided by a wall clothed with Ivy, &c., and the upper space is used for Strawberries, the lower plot or border containing a collection of hardy herbaceous plants. All the beautiful Delphiniums, Phloxes, Pentstemons, and many other tribes, which the modern system of flower gardening has almost banished from our gardens, or to which a congenial position is rarely allotted, are here appropriately provided for; and being in a part of the grounds where they cannot be seen except specially visited, and which does not necessarily form the route to any other part, the beauty of the place is not marred by their decaying stems, or by the absence of either leaves or flowers in the winter. The different sorts are, however, so carefully mixed together, that there is probably a very short period of the year in which some amount of gaiety is not kept up throughout the entire length of the border.

The small enclosure which forms the Egyptian Court is an oblong or nearly square area, with the outer angles on the eastern side cut off. It is hedged in with Yew, except to the west, where there is the Beech hedge already described. A walk passes through the centre, from the west to the east, and enters by a handsome Egyptian arch of stone a long gloomy stone corridor in the Egyptian character. The corridor is terminated by a lofty apartment, with a large recess opposite the entrance, and another on the left or northern side. A door and porch give exit, again, on the southern side, to the Pinetum. The building is not yet finished, but it is designed to fit it up principally with Pine and Fir wood, as adjoining the Pinetum, and to introduce a good deal of coloured light into it, using it for a refreshment room in occasional rural fêtes to be given to school and other children. For this purpose, there is an aperture in one of the recesses, communicating with a path behind and with a small room where water could be boiled or other preparations carried on, so that everything in the way of provisions could be handed through this concealed opening.

Grass occupies the bulk of the space in the Egyptian Court, but a little more character is given to it, and the sombre effect of the Yew hedge is increased, by pyramids of Yew in the centres of the two Grass plots. Two large common Yews, cut into a pyramidal form, stand on the middle of slightly raised mounds, and are surrounded at a little distance by an edging of Golden Yews, kept dwarf, and which is again encompassed by a lower edging of common Yew. The appearance of the whole court is unique, and being thoroughly excluded from the rest of the grounds, and entered upon suddenly in both directions, it contributes to that change of scene which must always be delightful. *E. K.*

(*To be continued.*)

Miscellaneous.

The Society of Arts, John Street, Adelphi, has offered premiums for the following among other subjects during the following season. All communications must be written on foolscap paper, on one side only, with an inch and a quarter margin. They must be accompanied by such drawings, models, or specimens as may be necessary to illustrate the subject. The drawings should be on a sufficiently large scale to be seen from a distance when suspended on the walls of a meeting-room. In regard to Colonial Produce of all kinds, it is absolutely necessary that a certificate from the Governor, or other qualified person, should accompany the samples sent to the Society, certifying that they really are the produce of the particular district referred to. The samples should be sufficient in quantity to enable experiments to be made, and an opinion to be formed of their quality; and it is desirable that the cost price in the district from which they are forwarded should be given. In every instance the maximum extent of the plantation from which the produce has been taken should be stated, with the average yield obtained, and whether similar articles have hitherto been exported from the Colony, or not, and in what quantities. All communications and articles intended for competition must be delivered to the Secretary, at the Society's house, free of expense, on or before the 31st of March. This restriction, as to the date of receipt, does not apply to articles of Colonial produce.

22. For the discovery or manufacture of a new Smokeless Fuel which shall not occupy more space, or be of greater weight than the fuel now in use; and shall be equal in the amount of heating power, without liability to injure metals in contact with it.

23. For an account of new sources of supply of Silk Cocoons and of the best modes of packing and importing them, with a view of their being reeled in England.

32. For a means of fixing the Carmine Colour of the fruit of the Cactus Opuntia.

47. For the production of Charcoal from Wood, capable of being used as an economical and efficient substitute for animal charcoal in the manufacturing processes where the latter is at present used.

51. For a cheap substitute for Pitch, Tar, &c., equally impervious to air and moisture, but non-inflammable.

52. For the best collection of Tanning Substances, distinguishing those at present used from those generally unknown to Commerce.

57. For an account of the best methods of growing and preparing Flax, with a comparison of natural and artificial modes of steeping.

58. For an account of the methods at present employed for the extraction of Oil from Seeds, and the useful application of the cake, or marc, as food, manure, &c.

62. For the importation from Australia, New South Wales, Van Diemen's Land, or Cape Colony, of not less than 50 lbs. of Dried or Preserved Fruits, of good marketable quality.

63. For an account of the various grain and Pulse crops grown in India, classifying them under their several local and botanical names, and specifying their culture, yield, uses, and prices.

83. For the importation into this country from India, Australia, Canada, New Zealand, the Cape Colony, the West Indies, and other British Colonies, of new descriptions of Wood, fitted for manufacture, turning, &c., and not hitherto imported.

84. For the discovery and importation of a Wood suited to the purposes of the wood engraver, and of such dimensions as to supersede the necessity of uniting several blocks.

87. For the discovery of an economic and effective substitute for the Teazels used in raising the face or nap of cloth.

104. For an Essay on the application of Steam Power to the cultivation of the soil.

105. For an Essay on the principles which should regulate the construction of Reaping Machines, with a review of those which have been practically tested.

106. For an account of the machinery employed in reaping, drawing, threshing, hulling or shelling, grinding, crushing, cutting, and pulping Farm Produce.

107. For the best method of Drying Corn, both before and after being threshed.

108. For an account of the best machinery employed in drying, cleaning, grinding and dressing Wheat into flour.

109. For an account of the best machinery for preparing, grinding and dressing Barley and Oats into their respective manufactured constituents, pearl Barley, Groats, &c.

121. For an account of improvements in the manufacture of Sugar from Beet-root, in Great Britain and Ireland, and of the results obtained.

175. For the best series of Tinted Writing and Packing Papers coloured in the pulp, made from materials not suited for the manufacture of white paper.

201. For the best form of Kiln for the manufacture of draining tiles, hollow bricks, roof tiles, paving tiles, or common bricks; which Kiln shall be the cheapest and simplest to construct, with the least quantity of materials for transport, shall consume the smallest quantity, and effect the most perfect combustion of fuel, with or without means of drying in the Kiln itself or in a shed attached to it: to be verified by trial works and the cheapest production of perfect goods.

203. For the best means of preventing salt efflorescences on walls.

207. For an Essay on the Arterial Drainage of Land, considered with reference to the geological strata of the districts to be drained, with suggestions for such improvements in the main and subordinate outfalls of the country as are rendered desirable by the more rapid accumulation of surface water, caused by the increase of under-draining.

208. For the best method of economically deodorising sewage and other waters, and of precipitating or otherwise extracting the matters held by them in solution or suspension.

209. For the best method of separating (and preserving) Ammonia and its compounds, from sewage waters and refuse matters, for agricultural purposes.

210. For the best method of converting precipitated or extracted Sewage Matter into a dry or available state, for agricultural purposes.

211. For the best method of enriching the solid matters obtained from Sewage Waters, either by mixing the same with other salts, or manures in which the solid sewage matter is deficient, so as to adapt it to various agricultural crops; or, by

facilitating its decomposition, to render any latent fertilizing ingredients it may contain more readily fit for the food of plants.

212. For an essay on the management and maintenance of public roads, with special reference to their altered position since the introduction of railways.

The Oblique Direction of the Ligneous Fibre, and the Twist of the Trunks of Trees occasioned thereby. By Professor Braun.—The twist of the wood of many trees is a phenomenon well known to wood-cutters, shingle-makers, carpenters, and others, but almost entirely neglected by botanists. The distinguished geologist, the late Leopold Von Buch, appears to have first directed the attention of scientific men to it; and Decandolle, in his *Organographie* (1827), was the first botanist who spoke of it. Professor Braun, in the Proceedings of the Berlin Academy of Sciences, gives the result of a great many observations made on this subject by himself and others in Germany, France, Spain, and America. Most trees show this obliquity of the woody fibre more or less. In certain species the twist is almost uniformly in the same direction; in others both directions occur with about equal frequency, while in not a few no twist is distinctly observable. Sometimes the same directions prevail in the majority of the species of a genus, or even of a whole family; in other cases opposite directions occur in the same genus or family; and it is curious to remark that, in some instances, nearly allied species of Europe and America twist in opposite directions. In a few instances the fibre of a young tree is twisted in one direction, that of the old tree in the opposite direction. In speaking of the direction, it is necessary to come to an understanding, first of all, as to what we mean by right or left, a distinction attended with more difficulty than would appear possible. Professor Braun follows Decandolle and others in viewing the twist or coil objectively, imagining himself in the centre of the coil. The twist of the fibre may be discerned in splitting the wood or in its cracks when the bark is stripped off, or in the course of the fissures made by lightning. Very often the bark itself, at the angles or superficial lines of the trunk, indicates the direction of the wood within very distinctly.* No manifest twist has been observed in the species of *Fagus*, *Juglans*, and *Carya*, either in Europe or America, nor in *Ulmus*, *Ailanthus*, *Fraxinus*, *Acer dasycarpum*, *Gleditchia* or *Robinia*, though the latter exhibits a very slight twist to the left. The woody fibre twists to the right in *Pinus Strobus*, *Ostrya virginica*, the Chesnut of Europe, the European and American *Salices*, *Populus pyramidalis*, *Cornus florida*, *Liriodendron* (in Indiana and Illinois, though in cultivated specimens the twist was found to be the other way; but more observations are required,) the Peach, Plum, and Cherry trees, and in *Cercis Siliquastrum*, the only leguminous tree known to twist to the right. The twist to the left hand is the more common; it occurs in most *Coniferæ*, especially in *Juniperus virginiana*, *Taxodium distichum*, *Pinus sylvestris* (of which young trees twist, however, in the opposite direction), *Picea excelsa*, &c., *Betula* and *Alnus*, *Ostrya vulgaris* and *Castanea americana* (both in opposite direction to the nearly allied species of the old world), *Quercus Robur*, *Populus angulata*, *Catalpa*, *Æsculus Hippocastanum*, the Pear tree, and more than any other the Pomegranate; also most leguminous trees. Most American Oaks, the Sassafras, *Acer nigrum*, the Apple tree, &c., twist about as often to the right as to the left. The cause of the apparent twisting is not easily ascertained. It is not occasioned by any actual twisting of the whole stem, but belongs to the growth of the successive annual layers. Professor Braun connects it with the growth of the wood-cells, of which the ends, at their formation, are horizontal or nearly horizontal, become wedge-shaped as they elongate; and if these wedges assume the same direction in the whole circumference of the stem, as they are apt to do, the wood-cells would assume a certain obliquity; so that this twist of the wood is connected with the intimate nature or disposition of the cells themselves. But this is not sufficient to explain the higher grades of the obliquity, which sometimes reaches an angle of 45 degrees.—*Edin. New Philos. Journal.*

* We have remarked this twist very evidently in some old Fir trees in Braemar, the bark of which had been stripped off so as to leave the wood exposed to the weather.—[*Ed. Phil. Jour.*]

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—All plants belonging to this structure should now be under glass. Cleanliness and free ventilation (whenever the weather will admit of it) should receive constant attention. If severe weather should occur, do not hesitate to use a little fire heat at times, especially if the houses contain a good many plants in bloom; for in that way a free ventilation may be indulged in to expel damp and stagnant air. By means of Roses, Chrysanthemums and other late flowering plants this structure may yet be kept gay for many weeks to come. Supply them occasionally with weak manure water in a clear state. Cold pits will now be in request. Sawdust forms a good plunging material if new and dry; coal ashes are also very good. Whatever material is employed keep the plants within a foot or so of the glass, and endeavour to keep the soil in a somewhat dry state. A portion of the stock of Roses, Lilacs, Honeysuckles, &c., in pots, may now be placed in a pit to have a slight advance of temperature. The present is a good time to procure from the nurseries or from the reserve garden a supply of Rhododendrons, Azaleas, and Kalmias for forcing; select plants well set with bloom, and of the desired size. Some of the hybrid scarlet Rhododendrons, as Nobleanum and others, require but little forcing, and are the best to start first. Pot them in as small pots as their roots can be got into without injury, and place them out of the reach of frost till wanted. A few of the stove climbers may yet be in bloom. Remove dead flowers from them occasionally, and stop all straggling shoots. Let the atmosphere in the stove be moderately dry, in order that a lower night temperature may be permitted.

FORCING DEPARTMENT.

Pineries.—Where the bottom heat is obtained from fermenting materials it is generally found to decline very rapidly on the occurrence of dull cloudy weather, and any necessary addition of tan or whatever else is used should be made directly it is wanted, so as to secure a steady temperature of about 85° for the roots. In adding fresh fermenting matter at this season it will be worth being at some trouble to have it in a rather dry state, for when used very wet it is apt to chill the roots at first, and when fermentation commences the heat often becomes so strong that the plants must be raised. Vineries.—Ripe Grapes will require to be frequently looked over, cutting out any decaying berries; and if the bunches have not been well thinned, the inside berries must be carefully examined in the event of damp weather, otherwise the bunches will be very liable to get disfigured. Avoid, if possible, having pot plants requiring watering in houses where the fruit is expected to hang for any time, and where any plants must be kept under the Vines they should be watered in the morning, using a little fire heat with air to get the atmosphere dry before night. Gentle fires will be necessary here when the weather is damp, but use no more than may be necessary to keep the atmosphere in motion, for too much warmth is nearly as injurious as damp.

FLOWER GARDEN AND SHRUBBERIES.

Proceed with potting such plants as it is desirable to keep with as much dispatch as possible, and if practicable a little artificial heat should be applied to help them to root before winter. Steps should also now be taken to fill up the beds as they are cleared, for the purpose of contributing to the enjoyment of spring. A miscellaneous mixture of dwarf early blooming shrubs, perennial plants and bulbs, is most commonly planted; but as was stated last week in regularly laid out beds, as in geometric flower gardens, the disposition of colour should be carefully considered, as there is an abundance of spring flowering plants and bulbs to form a rich and varied display if properly arranged and carried out. Lawns will now require daily sweeping to present anything like neatness; roll constantly wherever the turf is hollow to keep a firm sward. Well clean gravel walks for the winter and afterwards let them be well rolled in order that the water may pass freely off the surface. All operations of planting, relaying turf, and border-making should be actively proceeded with.

HARDY FRUIT AND KITCHEN GARDEN.

Where the wood is well ripened and root pruning is intended either with wall trees or those in open quarters, a commencement should be made with the earliest ripened trees first. As regards vegetables, the principal crops of Celery and Cardoons should have their final earthing up before sharp frosts set in. The spring crop of Celery will however stand the winter better with only a moderate earthing up and the remainder towards spring. A wide sheltered border should be selected for hand-glass Cauliflowers. The soil if not already light and rich should be made so previously to planting. Put three plants under each glass in a slight hollow, which will be useful in spring when they require water, and may afterwards be filled up as the plants advance. Keep the glasses on for a few days after planting; afterwards expose the plants daily to harden them for the winter. The smaller plants should be wintered in a frame, and some of them should be potted in 5-inch pots for turning out in spring. Beds of Rhubarb, Asparagus, and Seakale should be cleared of their dead stems, &c., as soon as the leaves are ripe; where the above are in request in December steps should be taken to force them. Pits heated with hot water are most suitable for the two former, planting the crowns thickly in light rich soil over a moderate bottom heat. Asparagus should be kept as near the glass as possible in order to improve its colour and flavour. Where pits are wanted for other things a few roots of Rhubarb may be placed in the warm end of the Mushroom house or in a cellar, but most people think the flavour improved by being forced under glass. Later crops of Rhubarb may be forced in the open ground where it grows, using pots or boxes for covering the crowns, and leaves or leaves and dung for the heating material. Seakale may be either forced on the ground as advised for Rhubarb or taken up and the roots put thickly in a frame on a gentle bottom heat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Oct. 23, 1856, as observed at the Horticultural Gardens.

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 17	18	30.318	30.308	59	48	52.5	54	55	S.W	.00
Satur. 18	19	30.310	30.270	64	32	47.0	55	55	S.W.	.60
Sunday 19	20	30.286	30.237	60	42	51.0	53	55	E.	.00
Mon. 20	21	30.181	30.143	63	39	51.0	54	55	E.	.10
Tues. 21	22	30.190	30.130	64	36	50.0	55	55	S.W.	.00
Wed. 22	23	30.308	30.282	68	42	55.0	55	54.5	E.	.00
Thurs 23	24	30.417	30.374	62	50	56.0	56	54.5	S.W.	.01
Average .		30.300	30.243	62.7	41.0	51.8	54.6	54.8		.01

Oct. 17—Fine; overcast; hazy at night.
— 18—Fine; very fine throughout.
— 19—Dense fog; very fine.
— 20—Foggy; very fine throughout.
— 21—Foggy; exceedingly fine
— 22—Very dense fog, very fine.
— 23—Foggy; very fine; overcast; slight rain.

Mean temperature of the week 2 deg above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 30 years, for the ensuing week, ending Nov. 1, 1856.

Oct. and Nov	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26	54.8	37.4	46.1	12	0.52 in.	5	3	2	1	6	7	4	2
Mon. 27	54.7	36.6	47.1	22	0.92	3	4	2	—	5	5	7	4
Tues. 28	54.1	37.2	45.6	16	1.06	1	5	2	—	6	8	3	5
Wed. 29	53.7	35.4	44.5	14	0.63	3	4	3	1	6	10	1	2
Thurs. 30	54.9	39.2	47.0	14	0.98	3	6	1	3	3	12	1	1
Friday 31	53.7	38.7	46.2	17	0.88	3	1	4	1	4	6	8	3
Satur. 1	54.8	38.6	46.7	16	0.38	1	2	5	3	3	10	2	4

The highest temperature during the above period occurred on the 26th, 1852, 29th and 30th, 1833, and 31st, 1854—therm. 67 deg.; and the lowest on the 26th, 1854, and 28th and 30th, 1836—therm. 23 deg.

Notices to Correspondents.

Asparagus: *G L.* The sort "from China naturalised into Russia and fit for use three months after sowing" was advertised by swindlers for the benefit of English gulls.

Filters: *W C.* The position of the tank and filter will of course vary under different circumstances. It may be either above or below the surface of the ground—or in some arched recess, with only a portion of it exposed—whichever may be considered the most convenient. If situated above ground it should occupy some place where it is not likely to be affected by the sun in summer, and where it can be properly protected from frost in winter. Arching it over would be a very good plan to effect these objects. If sunk in the ground, the bottom of the tank must be somewhat higher than the level of the drain for carrying off the waste water. Unless this is the case, it would be almost impossible for the filter to keep in good working order for any length of time, as there would be no means of cleansing the tank effectually from the filth that is always being intercepted by the filtering apparatus. A pump will be required when the tank is under the ground level, and openings must be left to get at the waste-cock, and to renew the filtering materials when necessary. A porous stone filter will only act for a very short time, and we think it quite unsuited for the purpose where any large supply of filtered water is required. *E.*

Fuchsias: *G.* Cold and damp appear to be the cause of the evil with which your Fuchsias are affected.‡

Heating: *Inquirer.* According to Hood's very carefully calculated tables, if the external air is 32° it will require 89 feet of 4-inch iron pipe to heat 1000 cubic feet of pipe per minute to 55°. This is we believe the best answer your question is susceptible of. The Gratioli Pear ripens in October.

Horticultural Society: *Rufus.* The difference between the privileges belonging to the two classes of subscribers is this: those who pay four guineas a year have plants as well as seeds; the others have seeds but not plants. Moreover the first class has an ivory transferable ticket representing the Fellow himself; but the smaller subscription does not acquire that ticket. As to Mr. W., his name is spelt in many ways, but the proper mode we understand on the best authority to be Warscewicz.

Kitchen Garden Refuse: *W T.* Provide a hole well lined with puddled clay; into this put daily all your soft vegetable refuse, waste kitchen stuff, and house slops. Whenever you burn weeds, or sticks, or clay, add the ashes to the heap. Carry to it all the leaves you don't want for leaf mould. After laying five or six summer months, take it out, turn it well over, and begin a new heap. In six months more it will be good manure. You may hasten its decay and improve its quality by adding gas-water from the gas-works if they are near.

Names of Fruits: *Sub F.* 1, Marie Louise; 2, Winter Nelis; 3, Marie Louise; 4, Black Achan; 5, Passe Colmar; 6, Aston Town; 7, Doyenné Blanc; 8, 9, Glou Morceau; 10, Crassane; 11, Brown Beurré; 12, Ne Plus Meuris.—*Mary.* Royal Muscadine Grape. Figs: 1, Brown Turkey; 2, Brunswick; 3, Green Ischia. Instead of the Reinette du Canada, your Apple is the Royal Russet.—*J R.* 1, Suffolk Thorn; 2, Passe Colmar; 3, Knight's Monarch; 4, Flemish Beauty.—*W G R.* 2, Beurré Diel; 3, Franklin's Golden Pippin; 4, Ribston Pippin; 5, Scarlet Pearmain.—*R.* 1, Althorp Crassane; 2, Aston Town.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Mary.* 1, Probably Gesnera tuberosa; 2, Crassula lactea; 3, Mammillaria pusilla; 4, some Echinocactus, perhaps E. Eyriesii.—*J S.* The parasite from Montreal is indeed a new species and extremely curious. It belongs to the genus *Triphragmium*, and is remarkable for the stiff bipartite processes with which the spores are covered. *M. J. B.—Cavanensis.* You will now see how extremely difficult, if not impossible, it is to name accurately Conifers, especially Cypresses, with only the young leaves. What you now send is certainly C. funebris, as its second form of leaves proves. If the other is different we must beg you to let us see it again, also with the second form of leaves. In the meanwhile we preserve the bit now before us.—*Ferrarius.* Psoralea pinnata, from the Cape of Good Hope.—*K L.* Cuphea viscosa.

Rabbits: *D E C.* Smear a ring round the main stem with anything offensive, such as gas tar.

Scale: *A Young Gardener.* Nothing is so difficult to remove as scale from soft-wooded plants; for the rubbing attendant upon the operation is apt to bruise them. If you can manage it you might cut the plant hard back, burn what is cut off, and wash the main stem with a sponge and water heated to 160°. It will however be also necessary to repot it in perfectly fresh mould, examining the stem below the ground in order to kill any scale that may be there. In addition to this you must watch the plant with the eyes of a lynx, and continue to destroy as before the fresh colonies that may establish themselves. You will also see what is said on this subject in a leading article to-day; and you may like to ask your master to try the composition.

Succulents: *H T.* A complete collection of these is we fear not in the trade. You must endeavour to pick them up by degrees from private sources ‡

Swans: *Citizen* would be much obliged to any of our correspondents who could tell him from actual experience the minimum breadth and depth of a cut which a swan could navigate with comfort. His problem is this: he is about to have two ponds on the same level about 600 yards apart. These will be connected by a cut, which need not as a water-course be either very deep or very broad; but he would increase it in both dimensions sufficiently to allow a pair of swans to migrate from one pond to the other, but from motives of economy both in money and land, he would not go further than to do this well.

Transplanting Machine: *Crambe.* We should be glad of a description of the machine if it is novel; but we could not undertake to publish figures of it until we should have seen the drawings.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

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The Directors of the above Company (many of whom are extensive agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but genuine quality, cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact; ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied.

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

Offices—109, Fenchurch Street, London.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

The public are cautioned against spurious imitations. As security to the purchaser every bag contains 2 cwt., and is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

TO FARMERS, CORN-FACTORS, &c.—Agents wanted for the sale of a first class MANURE.—Apply to C. H. TIDBURY, Secretary of the Patent Wool Manure Company (Limited), 81, Gracechurch Street, London.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

GREAVES & KERSHAW, Warwick.—Oct. 25.

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BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto . ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

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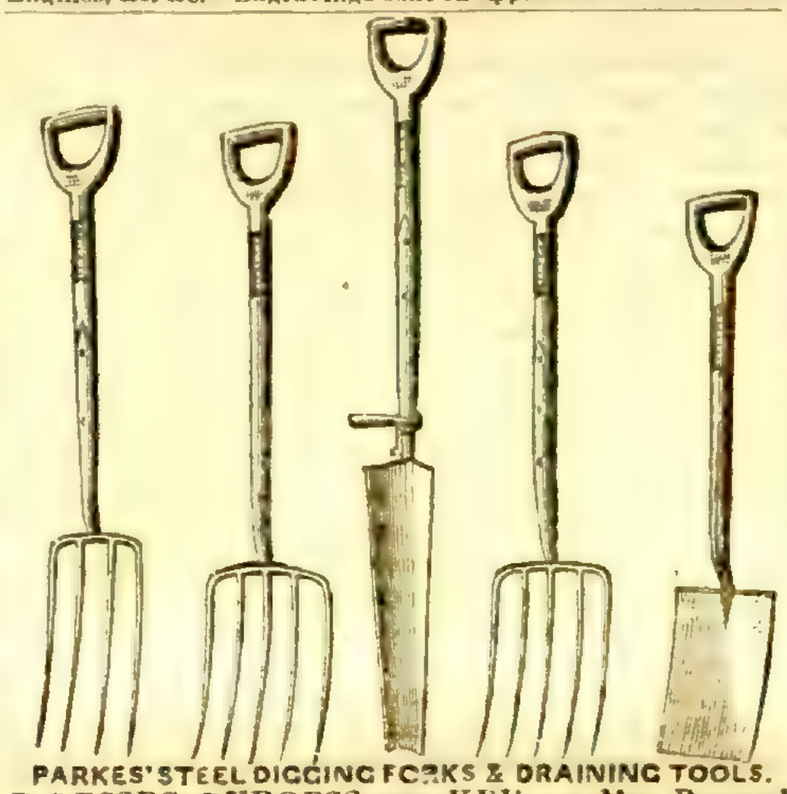

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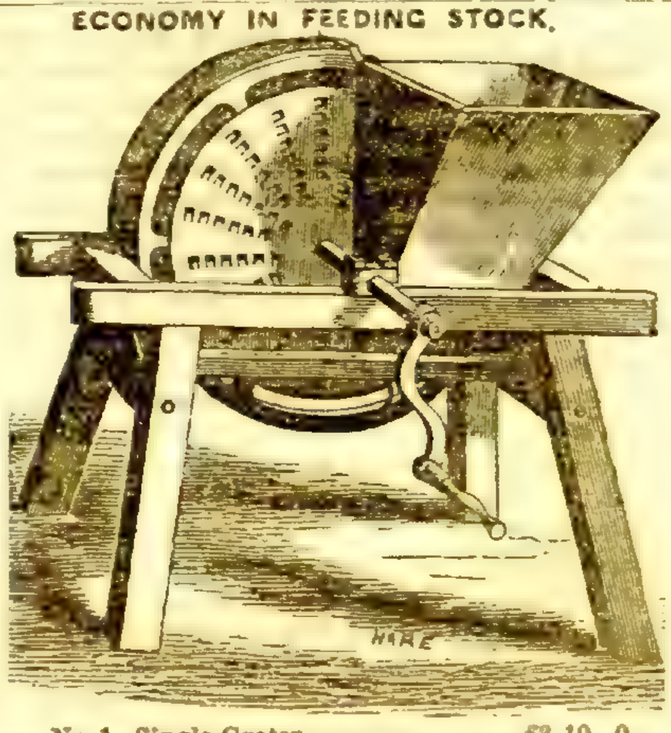

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Extra for Driving Pulley, adapted to Steam Power, 10*s.*

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CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—The Annual Meeting and Exhibition of Stock, Implements, and Poultry, will be held at Gloucester, on THURSDAY, the 27th November next. All Entries must be made on or before 1st November. None but printed Certificates can be received, which may be had on application to me at Cirencester.

Cirencester, Oct. 25. EDWARD TRINDER, Secretary.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l.* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS, Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

FINE NEW WINTER TARES ...	6*s.*	6*d.*	per bush.
„ „ GIANT RYE	7	0	„
„ „ WINTER OATS ...	5	0	„
WHITE WINTER BARLEY	7	0	„
BLACK do. do.	7	0	„
TRIFOLIUM INCARNATUM	40	0	per cwt.

New 4-bushel Sacks 1*s.* 6*d.* each.
The above are Net Cash prices.
Supplied by CLARKE & Co., Seedsmen, 86, High Street, Borough, London.

The Agricultural Gazette.
SATURDAY, OCTOBER 25, 1856.

IT may be as well to draw the attention of maltsters to a very important clause which was introduced into the Excise law in the last session of Parliament. It is notorious that enormous frauds upon the revenue have been committed by the expedients of mixing mere Barley with malt, and selling the mixture as if it had all paid duty. Malt roasters especially have been concerned in this variety of cheating. In order to avoid detection the Barley to be fraudulently mixed with malt has been killed, so that it might not germinate when the supervisor removed samples for trial. In this way, all Barley incapable of growing being taken to be malt, as much as 90 per cent. of killed Barley on which no duty has been paid, has in some cases gone into consumption as if it were really malt.

To put an end to this practice it is now enacted (19 and 20 Vict. c. 34) "that all corn or grain found in the custody or possession of any roaster of malt or dealer in roasted malt, which corn or grain shall not have germinated to such a degree *that the plumule thereof shall have been elongated to the extent of one half the length of the grain* shall be deemed to be unmalted corn or grain within the meaning of the said last mentioned act."

We find that Government is resolved to carry out the law as now altered, orders having been issued to all supervisors and officers to take every opportunity of examining the stock of malt roasters and dealers, and to seize or secure every sample in

which germination has not taken place to the extent above described. Let us hope that this order of the board will be executed with the utmost rigour—for it is too bad that consumers should be plundered by rapacious dealers of vast sums, the payment of which can only be submitted to so long as the proceeds find their way into the Exchequer for urgent public service.

We are asked how to discourage the growth of Funguses in Pastures.

Let us first inquire what are the causes which tend to the growth of these funguses? and then deduce the best method of discouraging their growth and increase.

1. The circumstances which most favour the growth of funguses are poverty of soil and dampness of the atmosphere. The first of these sometimes manifests itself on dry sands, at others on wet clay lands. In the former case it is usually because the sands rest on a pan or stratum of clay. The damp atmosphere usually proceeds either from proximity to rivers or water-courses, and thus lowlands are more liable to funguses than the neighbouring uplands, as seen on the wide spread commons or "Hams" on the River Severn, where Mushrooms are abundant. Or it characterises high lands and cloudy hill tops, which are sure to be the habitat of hosts of species of funguses.

The food of these lower tribes of plants they find in the decaying material of a higher species of vegetation. The decaying roots of dead or diseased Grasses is the commoner nidus and yield most of the food of the fungus. In all poor pastures the duration of the life of a species of Grass is very precarious as evidenced by the quantity of decayed tufts which are seen in such situations at most seasons of the year. In this case the roots are left behind, and these roots contain phosphates and alkalies which long since were pointed out by Professor Way to be the principal constituents of the funguses, and more especially of one species, the *Agaricus primulus*, which is so common a cause of the fairy rings in some upland districts. As regards poor meadows it is quite astonishing the changes that take place in the position of the Grasses according to circumstances; thus a poor upland consisting for the most part of *Bromus erectus*, Upright Brome Grass, *Brachypodium pinnatum*, False Brome Grass, and *Cynosurus cristatus*, Crested Dogstail, will suddenly change by merely folding sheep on a portion from day to day; and these very Grasses will die out before the advance of *Lolium perenne*, Perennial Rye-grass, *Dactylis glomerata*, Cocksfoot, and *Poa pratensis*, Meadow Grass. Now, in the first state, fairy rings and funguses of various species at different seasons will be the result, but in the second scarcely a vestige of these can be traced. We have an illustration before us in a meadow where we have watched their progress for some years, and this in a season when funguses have been peculiarly rife. The truth is, these better Grasses, suitable to an improved soil, are all of them more perennial in their nature and habits, and are kept so because cattle continually crop them down, whereas poor Grasses are refused by cattle, they seed without interruption; and then having performed the important function of reproduction they die out, and the decaying roots on the approach of damp and fogs become the nidus of funguses.

Thus, if we revert to fairy rings, we shall find that these always consist of a double circle—one green and the other brown; the green circle is where the fungus has acted as a manure, and there the Grass is fresh and vigorous and can no more grow the fungus; the brown ring is caused by the *mycelium* or fungus spawn attacking the roots of the feeble, poor, and dying Grasses—hence their colour. These roots however, in the economy of the fungus, will be converted into manure, and the green ring will in another season follow the brown.

Lawns are specially liable to be visited by funguses, so that these are as much a pest to the gardener as the farmer. The reason is obvious enough; lawns are continually being mown and material removed—a process very different from depasturing, and the consequence on some very old lawns on poor soil is that Grass can scarcely be maintained without the constant sowing of fresh seeds, and these grow more after the style of annual Grasses than in the long-lived perennial method good species observe in tolerable pastures.

(2.) We have, then, left little to be discussed under the second of our subject. Dampness of soil contributes to the growth of bad Grasses, such as *Aira cæspitosa*, Tussac Grass; *Avena pratensis*, Meadow Oat Grass; and *Briza media*, Quaking Grass—none of which cattle choose to eat; and these, like Grasses of uplands, also seed and early die out; it follows that no draining immediately discourages the growth of such. So this cause of fungal growth is removed by an operation which will further encourage the growth of good species, while it discourages that of bad.

If again from any circumstance—poverty of soil, too frequent haymaking, &c., this dying out of the Grasses and consequent encouragement of funguses be observed, it is obvious that liberal treatment will soon effect a cure. On the rich pasture lands of Cheshire funguses were most abundant, but how rapidly we have seen them dispelled before a compost of bones, ashes, and refuse, especially refuse from old buildings. Again, on the forest marble clays of Gloucestershire, where the *Agaricus primulus* was plentiful, we have seen a slight dressing of guano increase the crop of Grass but ruin the funguses for some years, so as to encourage haymaking where it was scarcely before thought of. But this latter fact only proved the more strongly the truth of the theory we are advocating, as two years' hay-making has brought the pasture to its former poverty and the funguses to their previous luxuriance.

Here, then, we may conclude that the folding of sheep on a small portion at a time on land growing funguses—the feeding them while there with hay, corn, and roots greatly enhancing the benefits of the process—will discourage the growth of these plants, and so will top dressings of all such kinds as encourage the growth of good Grasses.

As regards lawns, an occasional sprinkling of guano mixed with fine coal ashes will be found suddenly to cause increased luxuriance to the Grass, and to get up a good turf more certainly than resowing Grass seed, and in good turf it is rare to see funguses in any quantity, though in all situations a bit of a decaying plant of any kind or an accidental deposit of dung may bring about some species. These however are only exceptional, and not like the larger crops which in some places are constantly being developed.

HOME FARM MANAGEMENT.—No. XI.

The remarks made in my last letter on the working of the green crop break are applicable to every species of roots, but it is the Turnip I have now to refer to. It is not my intention to describe this or any other plant botanically. My object in writing these letters is altogether a practical one, and therefore theory shall only be introduced when it has an immediate bearing on practice. The Turnip, suffice it to say, is a cellular plant—that is, it is composed of an immense number of small cells or sacks, which are, more or less, filled with juice. It is the aim of the farmer by a liberal system of manuring to increase this cellular matter in the largest possible degree. He has already succeeded in growing large crops; but it would still be an exceedingly difficult matter to fix any limit beyond which the development of the Turnip bulb could not be carried. With a supply of manures, which both in respect to the aggregate amount of their fertilising power and the *proportion the various elements bear to each other* may be assumed as sufficient for a crop of from 40 to 50 tons per acre, there can be no reason for supposing that so large a quantity of bulbs might not be grown on every soil of ordinary quality. It is true that the climate would require to be favourable in order to obtain such a crop, even under the best management; but though we take the south of England into account, a produce not more than one-fourth short of the weight which has been stated might undoubtedly be obtained in the aggregate. It is a mere compound question of skilful working of the soil—skilful application of manures—and skilful summer management of the crop. Give us these requirements, and all that has been assumed as possible may easily be accomplished. Even for the comparatively dry climate of England there are remedies in the trituration of the soil and the preparing of suitable Turnip manures, which to a very large extent will be found successful. Now, here is a fine field of agricultural resources to be developed: for were the overseer of a home farm to cultivate upwards of 40 tons of Swedes per acre he would make the whole farmers in the surrounding country stare with astonishment. And yet this produce may really be obtained. Nay! let me say further that it has already been obtained in this country. It is not necessary that I should detail the whole system of managing this root crop, for every good farmer knows it. But I have expressed an opinion that its average produce might be very largely increased and must therefore indicate how this can really be done.

Beginning with the soil it may be premised that deep and effective pulveration must be sedulously attended to. Anything less than 10 inches of well wrought soil is objectionable, and if a depth of 12 to 15 inches can in some cases be obtained it will be all the better for the crop. Of course if the land is naturally wet it must be thoroughly drained before anything like an extra yield need be expected. And in reference to the quality of the soil the inherent fertility of the more friable clays renders them greatly superior to most of the lighter silicious sorts of land commonly termed "Turnip soils." The preparatory work is no doubt greater with the former than with the latter, but the inorganic elements liberated in the one are of far greater value than those set free in the other. Well, assuming that an argillaceous loam has been well pulverised to the depth of fully 12 inches, let us see how the heaviest crop possible in the circumstances might be produced. One of the main conditions is to form the land into ridges or drills varying from 27 to 30 inches in width. These drills should not be high, but that there must be ridges of some sort if a heavy crop is to be obtained I unhesitatingly assert. Farmers in the south of England affirm that their dry climate requires them to sow on the flat. My plan would be to sow on low ridges, and by loosening the soil between the rows and lowering it a little around the roots so as to let them swell properly to bring the whole surface nearly to a level. Keep the soil constantly stirred and there is no fear of the drought affecting the crop. The manures to be used may be put into the drills, which on being reversed by the plough will leave them with a sufficient covering; for if only portable fertilisers are to be employed it matters little how they are applied, if only well mixed with the soil. There are several manurial compounds which I know to be capable under favourable circumstance of giving very large crops, but here I shall only give a recipe of one of these suitable for Swedes:—

Farm-yard manure	12	tons	per acre.
Peruvian guano	2½	cwts.	"
Superphosphate of lime ...	2½	"	"
Sulphate of potash	1½	"	"
Muriate of potash	½	"	"
Sulphate of magnesia... ...	1	"	"
Chloride of sodium	2	"	"
Wood and clay ashes	20	bushels	"
Sawdust* ... ... Charred with sulphuric acid	12 / 30 lbs.	"	"

Now, here is a liberal application which on ordinary soils will be certain to give a very large crop, but because the purchased manures will cost fully 4*l.* an acre it may be objected to on the score of costliness; but first expense is not the point to look at. The proper course is to ascertain that such an application will prove remunerative in the end, and considering the heavy crop which it is sure to give, there need be no hesitation in saying that if the soil has been properly wrought it will leave a far larger profit than a light manurial dressing is capable of doing. It is perhaps necessary to state that all the portable manures should be sown separately, unless they are mixed up with a sufficient quantity of dry ashes and sawdust to prevent their decomposing each other. The guano at least must be sown by itself. Care should be taken in applying the manures to keep them near enough the surface to permit the first roots thrown out by the plants to reach them at once. Under a liberal system of manuring like this, there must necessarily be more room allowed to the plants than is considered sufficient in ordinary Turnip culture. If the drills are 28 inches wide, the distance apart of the plants may be from 15 to 18 inches. Even with 16 inches between the plants in drills of the width referred to, it would only require the 14,000 bulbs with which an acre would be stocked to be each a fraction more than 6¼ lbs to give a crop weighing about 40 tons. Now a Swede six or seven lbs. in weight is but a small Turnip, and with good management the average size may certainly be increased beyond this figure.

The great difficulty in raising some of the softer kinds of Turnips with forcing manures is to prevent the cells of the bulb being filled with air instead of juice. They become spongy and therefore much less nutritious than they ought to be. Something may be done as a remedy for this evil by selecting a variety of Turnip which is not much predisposed to it, but unquestionably the main cure is to be found in the effective working of the soil, and in leaving the plants sufficiently thin upon the ground. Those bulbs which are most given to sponginess have usually comparatively few absorbing roots, and when forced into a rapid growth by large quantities of gross manures they attain a great size without being properly elaborated. But if the soil is stirred to a good depth the roots are encouraged to descend, and of course become stronger. And gathering from the earth in which they ramify the inorganic ingredients necessary to correct the tendency to imperfect development communicated by rank manures, they yield—if sufficient space is allowed them—a large and as nearly as possible a normal produce. While the growth of the absorbing rootlets ought to be encouraged as much as possible, the intelligent farm manager will observe that very great injury may be done if the horse hoeing of the crop is delayed so long as to render it certain that they will be severed by the operation. By all means work the space well between the Turnip rows, but take care to do so before the plants have sent out their roots to any considerable distance.

If the irrigating appliances of modern times have been adopted, great advantages will be derived from an occasional dressing of the Turnip crop with diluted tank liquid. In some cases Turnips even which have been highly manured have a tendency to flag, and a refreshing shower of weak liquid manure, mixed with a very

* The principal use of sawdust charred with sulphuric acid—besides the organic matter it supplies—is as a fixer of ammonia. Mixed with the guano and other substances it, as well as the common salt, prevents the dissipation of ammoniacal matters. If allowed to lie in a rot-heap however for five or six weeks and occasionally damped with liquid manure or gas-work ammoniacal water, it really makes an excellent manure. It is very difficult to get good sulphate of potash, and it should only be bought by analysis. As it is in crystals, it may be necessary to grind it into powder. This is easily done by the common millstones, or by a corn bruiser. At any public work where there is a crushing pan-mill, the cost of powdering is a mere trifle per ton, and in any case it is but a small sum.

little guano or reduced Rape-cake, will renew their growth, and have a very important influence on the gross yield. This application should be made in the evening, and will be best done by the nozzle of the hose pipe being run along each line of plants. When an injurious drought prevails, a dressing of nearly pure water may save the crop. This is just one of the many ways in which the irrigating process may be turned to practical account at a very small expense.

I hope enough has been said to show that even the best farm manager or the most skilled tenant farmer in the country may yet learn a great deal in respect to the production of a large and sound Turnip produce. Beyond a certain point it is impossible to add to the bulk of a cereal crop without destroying its quality, but with Turnips the case is altogether different. The more liberally they are treated *on right principles* the larger and healthier will their bulbs be. What is finger and toe disease, as I previously remarked, but the result of a derangement in the proportions which ought to be maintained between the various elements of nutrition? Hence it is always more severe on land which is either of a thin poor quality or is soft and contains too much organic matter, than on deep well wrought alluvial or loamy soils. To prevent this disease we must not only work the soil thoroughly, but where the latter is naturally poor in some of the inorganic ingredients which are required by the Turnip, we must supply them in the form of manures. By this means and a careful selection of bulbs from which to raise the necessary seed, there can be no doubt that finger and toe might be speedily overcome. All the remedies which have been tried have only been successful in the proportion in which they have either liberated mineral substances in the soil or supplied these directly to it. Lime for instance has been found valuable as an antidote simply because it did the former of these services and perhaps to some extent the latter also. Deep culture however, conjoined with an occasional liming, will be found a far safer cure for the disease than the latter alone can be.

The management of Mangel Wurzel being similar in many respects to that of the Turnip it is unnecessary to notice it at length. It may only be said that if the bailiff of a home farm can succeed in inducing the tenant farmers who are watching his movements to grow with advantage to themselves much heavier crops of Turnips than they ever did before, the advantage they will derive from an improvement being effected in the cultivation of Mangel will be still greater and more important in its results on other agricultural practices. A deep stirring of the soil, and a liberal use of home made and purchased manures modified to suit the composition of this root will not fail in giving a much larger yield by the acre than is generally considered an average crop. From the hardiness of the Mangel—its success in a dry climate as well as a moist one—its nutritive composition as food for fattening and dairy stock—and above all for its fine keeping qualities, this green crop ought to be more extensively grown than it has been hitherto. If the example of eminently successful culture is to be set anywhere, surely it should be on the various home farms scattered throughout the country, and particularly on those where, as in England, it is more easily raised than a crop of Swedes of equal weight. Such farms may be of more service to agriculture in general by setting a pre-eminent example in the raising of monster crops of feeding roots than in almost any other way. It needs skill to do that, but there is abundance of skill in the country if it is only sought after. *J. Lockhart Morton, Mid-Lothian.*

Home Correspondence.

Leaf Feeding.—"Ben Giles" asks for information relative to an experiment with Barley, which I incidentally alluded to as a failure in saying I was disappointed, and which has led him to suppose I was disappointed in the results I expected from the process of frequent hoeings, while my intention was to intimate I was disappointed in making the experiment I had proposed, and this arose from unavoidable circumstances. From getting possession of the ground late in the spring I was not able to sow the Barley till rather late in May, I forget the exact day; a drought had set in which lasted for about six weeks after I had sown it, in most of the drills I had sown salt, and in these drills no vegetation took place till the rain came, the seed remained in the ground as free from any appearance of germination as it was on the day it was sown. The growth was then so late that I abandoned the experiment, as it could not in any way have proved satisfactory. I perfectly agree with my friend Mr. Ben Giles that judgment should be used in hoeings, but he has a strange theory about the solidification of water in the summer season. The great object of hoeings with regard to leaf feeding is, I conceive, by breaking the crust which forms by drought and opening the pores which siller up by the washing of rain to allow the free flow of leaf food from the soil, while they have the effect, in mechanically exposing the soil to aerial actions, and by intermixture of its parts to form this food; everything that promotes the evolvement of this food must also tend to the escape of moisture, for it is by the evaporation of moisture that the weightier or inorganic portions of this food are carried up, as salt is carried from the ocean, yet we shall find, I believe, that the finer the disintegration of the soil the better does it retain a beneficial amount of moisture. I do not know that it is desirable at any time, certainly not in dry weather, during the growing of a crop to go deeper than this superficial hoeing. I should think it must be injurious to disturb the clay about the roots in real honest summer weather, and I believe the admission of the oxygen of the air to act on the carboniferous matters in the soil is sufficiently facilitated by such superficial stirrings, especially where deeper working has been in the winter, for the under-soil when once loosened is slow to consolidate; in this case I comprehend by under-soil the fertile soil immediately under that moved by the hoe, although it stands equally good with what is usually termed the subsoil. He must be a tyro indeed who would hoe clay ground in the state of mire when supersaturated with moisture; nor do we in any system of improved husbandry calculate on work being imperfectly done, although I know it is very difficult to get work out of the ordinary jog trot way done as it should be in the present uninstructed condition of our labourers; it is hard to persuade them that beneficial consequences will follow operations whose occult workings they cannot comprehend, and which they are therefore disposed to despise and slur over. Hot dry weather is no doubt the proper time for the hoe to go to work for the destruction of weeds, so far for the old school, but it is also the time when hoeing is most called for under the intent of leaf feeding, and however performed I cannot conceive it is possible to be injurious although it may be less effectual; in such weather it is called for to enable the earth to absorb the dews which then are very heavy, and here is curiously exemplified one of the advantages that hoed land has over unhoed; but it is not in receiving the benefits of this inflow of organic elements that rest the advantages of the hoed land over the unhoed in regard to leaf feeding, for whatever may be the amount of water in the atmosphere derived directly from the earth, it very probably falls far short of that which is derived from the perspiration of plants. The dews then which fall in the night must contain much of the excremental matters of plants, which falling on unhoed ground enter it not but reascend in the same state with the returning heat of day; the leaves of plants growing on this unhoed ground take in then what they or other plants have already thrown off, containing much matter which they cannot assimilate, and which we cannot but conceive must be injurious to them; they are indeed compelled to swallow, instead of wholesome food, their own excrements. Now in hoed ground the case is quite changed; these excremental matters are swallowed up by the earth and digested in her bowels, and with the returning heat of day she sends forth a stream of well concocted vegetable food, leaf food, to nourish the plants growing on her surface, repaying with increase the care which man has bestowed on her. It is to be recollected that according to my theory of leaf feeding not only organic but inorganic matters are probably taken in this way from the earth by the leaves, while water is principally taken up by the roots. If this theory be true, the necessity of keeping up the supply of food regularly by hoeing is obvious. All our principles of culture, all our rules of tillage, tend to these ends. We seek to fill the surface with organic and inorganic matters in such active operation upon one another, so near the surface, and in so exhalable a state as to form compositions that may nourish the plants we cultivate by their leaves; in deepening the soil we seek to increase the capacity of our vegetable storehouse, and to give freedom for the expansion of their roots of those plants and above all to perpetuate in regular and continuous supply water to their roots, the seeking of which is the father of their growth. We are ignorant of this; we fancy it is more solid food they seek, truly dissolved in water, but I believe every examination and inquiry we can make would tend to establish this a truth—that they hunger not but have an imperishable thirst. Under favourable circumstances, that is when they can, the roots of plants descend to depths where they find water, but depths in which we can scarcely expect them to find in a state fit for their nourishment the organic and inorganic matters which we suppose the object of their being is to lay hold of; either downwards or laterally they seek the presence of water; they pass from the presence of our manures deep or wide into the ground to which that manure does not reach, and perhaps it is only the moisture which that manure generates that is effectual to their early growth. I entered on this subject so largely in these columns 12 years ago that it is now a stale story. *J. M. Goodiff.*

Public Testimonial to Mr. Mechi.—Many of your readers will be pleased to learn that it is proposed to raise by subscription a public testimonial to be given to Mr. Mechi, in recognition of the services he has rendered to agriculture. There are few who have inspected his farm and enjoyed his hospitality that will not feel he is entitled to some such acknowledgment from them, and many who have known him only from his general advocacy of agricultural improvement will feel that one who has laboured so long and so zealously to awaken a public spirit in the cause should receive some such distinction. We believe the idea has originated in his own neighbourhood, notwithstanding a prophet is seldom honoured in his own country, and for a long time his new-fangled farming was made the subject of jest. The land round Tiptree has latterly evidently benefited by his example. For some years after Mr. Mechi's farm had attracted attention it contrasted greatly with those adjoining; the land in the district was generally foul and the crops were poor, and the soil had every appearance of poverty, but of late a great improvement has become evident, and much of the difference between Mr. Mechi's luxuriant crops and the poverty of the adjoining has been lost. This is a very significant proof of the good that such an example effects, and one that his visitors may observe, and may be taken as some evidence of the spread of improvement from a centre. *H. D.*

Schools and Reformatories.—The interest taken in schools and reformatory establishments is a movement in the right direction, and calculated to benefit the rising generation to an incalculable extent, provided those who promote and those who undertake the work give sufficient attention to the subject in all its ramifications. To rescue the ignorant and helpless from a state bordering on mere animal existence (even worse than brutes, because the intellect is diverted from its true course by neglect and bad example) is an occupation of the highest order. Impressions are easily made on, and as easily effaced from, the minds of children of tender age; it is therefore more necessary to guard against the good instruction they receive being neutralised by those with whom they are compelled to associate, without the possibility of a temporary separation. One of the greatest obstacles to the improvement of the working classes is the miserable condition of their dwellings. The common decencies are daily and nightly outraged in their wretched habitations, where the unfortunate inmates are obliged, without regard to age or sex, to live in the same room, frequently having only one to serve every purpose of a family, and that not always to themselves. Under these circumstances is it possible to raise the feelings and redeem the characters of the dissolute of both sexes, without remodelling the dens in which they congregate? It is a reflection on this country, abounding in wealth and intelligence, to permit our fellow creatures to continue in their present debased state, herding together like "the beasts that perish," having no power to release themselves from such fearful contamination. The imperfections of human nature are fully demonstrated in the natural inclination youth has to imitate that which is bad, even under favourable auspices. What must it be when boys and girls are forced to live with profligate companions, and have not even an apartment to retire to to avoid hearing the filthy language of drunken savages? In such company school teaching is soon thrown to the winds, and lessons of morality laughed at, and religion turned into ridicule if ever thought of. To give reformatory institutions and schools a fair chance of effecting a salutary change in the condition of the labouring classes and others, self respect founded upon responsibility to a Supreme Being must be inculcated as a basis upon which everything else should rise. How can this be accomplished without a better description of lodging is provided? There is little use in telling men, women, and children they should eschew evil and do good, when they are placed in a position where temptation to commit sin is hourly before their eyes, and from which they have no escape. If those who came forward to reclaim juvenile offenders would by inquiry and personal inspection acquaint themselves with the horrors arising from the crowded and indiscriminate use of sleeping rooms, the truth would appear how impossible it is to expect improvement, however advanced education may be, till young people at home can follow the advice they receive at school. In the higher ranks, where no excuse exists for transgressing the laws of God and man, how often do men and women fall and lower themselves to the animal! Is it therefore surprising that those who have no such facilities for shunning the haunts of the vicious should fall into the snares and pitfalls that strew their paths? In the full enjoyment of comforts and luxuries men and women pass judgment on the faults of the lower orders of the community (lower merely in rank, in the eyes of the Almighty all are equal), and yet the very foundation of half the mischief so prevalent in the country is to be attributed to the confined dirty cottages and lodgings set apart for the poor. The remedy for this disgusting evil being in the hands of the upper classes, including every one above want, they should show their superiority by deeds and not only by words. If a hungry man is desired to eat and you give him nothing to satisfy his appetite, you mock his sufferings. If you teach a child religion and morality in the morning, and send him or her amongst unprincipled companions in the evening, the outside of the cup is clean but the inside unclean—the result hypocrisy. *Falcon.*

Burning Clay for the permanent improvement of agricultural and garden land. This is a subject which more than 10 years ago excited much interest. A very clever and skilful cultivator on one of the first-rate properties in Derbyshire wrote upon the subject, and gave a full account of his own practice and its results. From the letter now at hand a few lines will be quoted; but in the meantime I offer the following suggestive remarks. A really intractable and binding clay is one of the great obstacles with which a farmer has to contend. To say nothing of texture, it admits of no direct mechanical improvement notwithstanding the able and most judicious practice recommended by the author of "Talpa, or the Chronicles of a Clay Farm." I admit that by deep (20 inch) culture inverting and perfectly blending the upper and lower strata of strong land, much improvement can be effected by atmospheric influence, provided also that adequate drainage to a greater depth be made. It is equally true that the thorough subsoil operations conducted by the Marquis of Tweeddale has been attended with the greatest success. Still the land I allude to does not enter into the category, for sand will be useless, for the stiffest natural clays always abound with the siliceous element. Lime and chalk, though corrective to some extent, are chemical agents; and even sharp coal-ashes can by no means be always depended on. In the vicinity of

Norwood vast masses of the heaviest clays have been raised within the few last years and burned to a complete brick earth. This material is in itself utterly incapable of supporting vegetation, and therefore when the gardens and pleasure grounds of the Crystal Palace were laid out the foundations and substrata of all the walks were made with burnt clay, upon which the coating of fine gravel was superposed. Hence, not a weed has been observed to the present time. The Norwood clays are noted for their great depth and tenacity; and therefore all the roads of approach have been, and continue to be made, by a similar process. We have thus learned some valuable lessons during the formation of the Palace and its vicinity; and now are taught that by burning till the iron of a clay has been transformed from a pale, drab-coloured protoxide into a full red peroxide, the clay has entirely lost its deleterious qualities, and acquired others which render it not only innoxious, but one of the best meliorators of heavy land that has ever been discovered by gardeners. Great judgment is, however, required in making use of a material so utterly inert; and this caution leads to the introduction of a few extracts from the Derbyshire correspondent's letter before-mentioned. In the first the process is thus described:—"I throw out a trench 8 feet wide and about 3 feet deep; in this I throw so much small wood or faggots as will fill the trench to the ground level, and place upon that stronger wood, as the roots of old trees, &c., regulated according to the quantity of clay to be burnt. Advantage is then taken of fine weather to light the fire, and when this is done the whole is covered up with that stronger part of the clay which came last out of the trench. As the fire advances more is thrown upon the heap, making an embankment with the top soil, and all that part which contains any vegetable matter. As the fire still increases the clay contiguous is dug up and thrown on the top. The heat subsiding, the soil is spread out, and from the carbonaceous principles it receives in the process is rendered fully equal to soot. Burning clay destroys every species of weed and insect; and "where the process was performed years ago, I have scarcely observed either slug or snail." It would be easy to extend the quotations; but I judge it sufficient to say, that by incorporating stiff land with a material so produced, the improvement is rendered permanent by the complete melioration of the staple, by rendering it open, and therefore permeable for the roots, and thus inducing and maintaining a highly fertilising condition in land that had previously been little better than sterile. *J. T*

Societies.

Witham.—At the annual meeting of this Society last week, Fowler's steam plough completed in the course of the day the five acres on which it was at work. And this was no holiday experiment, got up as a show for the occasion; it was part of the regular work of the farm, for Mr. Crump, as we have before stated, has become the owner of the implement, and has been the first to harness down steam in this form as a general labourer on the farm, having ploughed 64 acres with it in 11 days. Passing on to Oliver's the visitor found a substantial luncheon provided by Mr. W. Hutley, and he saw, too, much about the homestead that would give him some idea of the enterprise and skill which that gentleman brings to the business of agriculture. One yard is used as a pork manufactory, as it may well be called, from the system pursued and the number of its porcine occupants, there being 200 pigs here preparing for the food market of the people. In one of the fattening stalls near a splendid Hereford ox held his levee, for few came who did not pay him a visit, and he was worthy of it from his beauty and breed. Its weight was computed at 160 stone. Proceeding to the plough field we found good competition going on, and 41 men and 6 boys at work, the prize of 5*l.* offered by Mr. Bentall throwing the field open to the skill of the whole county. A show of agricultural roots from the farm of Mr. H. Dixon gathered a circle round it, and provoked a discussion on the qualities of roots. It consisted of very fine Mangel of different varieties, Swede and white Norfolk December Turnips, and summer Cabbages for cattle feeding, weighing 32 lbs. each.

Mr. Mechi announced that his irrigation continues to benefit his crops, which are good—two heavy land fields of Wheat just threshed having yielded six quarters per acre. In his opinion, the want of drainage on the heavy lands has this year proved very injurious, the heavy spring rains not having filtrated through the undrained soils. He was convinced that both Boydell's and Fowler's steam-ploughs will soon be extensively used. Mr. Boydell and his engine will be in Russia in a few weeks.

Lord Rayleigh said: As to my own little field of Wheat on which, as I stated last year, I made experiments on the Lois-Weedon system, I have continued it; and I can give you a statement which I drew out this morning. I do not know in the general course of husbandry before this what the produce was, as it was mixed up with that of other fields, but on this plan I have had it kept separate, and the result is as follows:—

	£	s.	d.
1852. The two acres were in 4-course shift, all Wheat.			
1853. The half, *i. e.*, one acre Wheat, and the intervals trenched, the produce was 2½ qrs.			
1854. The other half trenched, Kissingland, produced 5 qrs. 5 bushels. Sold October 6, 1854, at 56*s.*, or	15	4	0
1855. One-half, Red Sire Wheat, blighted, produced 5 qrs. 1 bushel. Sold September 21, 1855, for 76*s.*	19	6	5
Carry forward	£34	10	5
Brought forward	£34	10	5
1856. One-half, Mr. Hutley's Red Wheat, produced 5 qrs. 3 bushels. Sold September 26, 1856, for 66*s.*; off corn, 7*s.* 6*d.* per bushel	16	13	3
	£51	3	8
Divided by three that gives	17	1	4
If you call it two acres it makes per acre ...	8	10	8

Now, if you can go on from year to year getting 8*l.* 10*s.* 8*d.* without manure or expense, except for trenching the fallow part and weeding (it takes only one horse to drill it, and a donkey to roll it), for which the straw and off-corn pays, I think you do well. My man says (I do not say it would do so in a large way) I have no land that pays better.

Mr. W. Hutley.—How long has the land been in Grass?

President.—Mr. Hutley always asks me that question; I do not know why. Certainly, in my recollection it has not been in Grass. I grow 2½ quarters of Wheat per acre every year without manure. The trenches are 16 inches deep, costing 1*s.* 11*d.* per score of rods running measure.

Mr. Dixon, on the Potato crop, said: Within the last three or four days letters have appeared in the *Times*—one from a clergyman, who said he had a system of cultivation that prevented the disease, and that system was to plant large tubers. Another clergyman said his system was directly the contrary, and he planted small sets. Now, it so happened that, without being aware of those letters, I have in my own mind pretty well settled that, and I am quite satisfied the plan I have pursued is the correct one. I have this year tested the experiment of planting large Potatoes whole, against the usual method of planting the smaller roots or cut sets. The field was, in the summer of 1854, an old pasture, upon a strong adhesive loam; the turf was ploughed up to the depth of 4 or 5 inches, and then burnt to the amount of 150 yards per acre; the ashes were spread, and the ground was planted with Swede Turnips for a seed crop. In the spring of this year a crop of Potatoes was forked in, without any manure. The large Potatoes selected weighed, on an average, half a pound each, and were planted exactly a yard apart each way; the remainder of the piece with cut and small sets in the usual way. The result of the crop is as follows:—The yard apart plants produced, by measure, rather less than 2½ bushels per rod, and by weight a few pounds short of 8 tons per acre. The small sets, either whole or cut, produced rather under 2 bushels per rod, by measure, and by weight 7 tons per acre. The sample of the former is decidedly the best; in both some tubers were affected by the disease to the extent of 1 bushel in 20. The crop of Potatoes this year is inferior to that of last year, by upwards of 20 per cent. My crop last year, upon 7 acres, was 2916 bushels, which, at 40 bushels to the ton, will average upwards of 10 tons per acre, and scarcely any were diseased. The sorts planted were entirely new to this district, with the exception of an acre of York Regents, being Flukes, which I obtained from Liverpool, and Scotch Dons, which I procured from Ireland. The Scotch Dons were the most prolific, producing 100 bushels per acre more than the others. I attribute this large crop to my method of cultivation. In the autumn and winter of last year I double forked the field to the depth of 17 or 18 inches, placing the lower spit uppermost; nothing more was done to the soil till the Potatoes were planted, and the only manure applied was 1½ cwt. of guano, 1½ cwt. of salt per acre, sprinkled over the sets before they were covered up. The Potatoes came to me in fine condition, being sizeable, neither large nor small, and were planted whole, at the rate of about 26 bushels per acre. The best manure that I know of for Potatoes, and which I commonly use, is guano and salt. This year I thought the land was good enough without either, and I was probably mistaken. Some years ago I took up from a single Potato planted whole upwards of a bushel weighing 65 lbs. I had two acres of Wheat on land that has been double dug, and on which I had increased crops for the last two years; it was strong and laid, but I cannot state the produce, as I could not get the machine to thresh it; I cultivate a good deal of my land with double digging, and the soil is much improved by it. I think that is the way of using our best land by deeper cultivation than we have yet tried; there is some particular manure in the soil which is never brought out till we bring it up in this way.

Mr. Crump.—With regard to the steam-plough, that did not come on me by surprise at Chelmsford, for I had thought anxiously about steam ploughing for the last two years, and I had endeavoured with various manufacturers to set to and make one. My idea was, that a plough of that kind might be made to plough the land, but I could not find the means of resistance at each end of the field. Directly I laid my eyes on that at Chelmsford, I saw it was the very thing, and I lost no time in giving an order for one, which I expected to have two months ago. I received it last Monday fortnight, and we got it up on the Tuesday. I was told my engine, one of Ransome's, would work it well, but I found that engine, which is one of six-horse power, was of no kind of use, it would hardly put the plough in motion; I then received a message from Messrs. Eddington, stating they had one of eight-horse power on the railway for me. I have had it 14 days, and deducting the time for stoppages from breaking, I think we may fairly estimate the working time at 10 hours a day for 10 days. Up to last night we ploughed 58 acres, and the work was done in a manner superior to what it was to-day, for to-day they began to plough fleeter, but when I went I got the plough set a little deeper, and you saw what it has done. It was put down this morning in a field of about five and-a-half acres, and they ploughed about five acres, but I think it is as good as six, for six might have been done in the same time. They burnt seven cwt. of coal, and the cost, as near as possible, was 16*d.* an acre. Had the field been larger and longer, it would have reduced the price, and perhaps it would have been 14*d.* an acre. The reason is that every stoppage carries on the consumption of coal. I can form no exact estimate of the expense of repairs, but I estimate them at 1*s.* 6*d.* That would bring the cost to 2*s.* 10*d.* Whether my estimate of wear and tear is right I must leave, but I should think it would not exceed it. On this 58 acres there is little wear and tear; on 1000 acres, the sum I have stated would give 75*l.* to repair it, and I think that is a sufficient estimate; I do not as yet see the slightest wear. Now I propose with the men to go with it, and the number is five, the price should be 2*s.* an acre; I think it will not do less than 10 acres a day, which will be a sovereign, so that the men would have 4*s.* each. That with the coal and the wear and tear brings it to 4*s.* 10*d.* an acre.—The President: There is the expense of taking it to and fro.—Mr. Crump: I think the 2*s.* 10*d.* would include all. I am not certain that I shall fix it at 2*s.* 10*d.*, but that is my present estimate. Every day I see the plough I like it better, and I think the thing will in time become as easy to manage as a wheelbarrow, and worthy the attention of all who have land suitable. I can hardly estimate the cost of horse power. My idea is that it costs you 5*s.* an acre for horse labour to plough with, and for labourers. If so there is an advantage in this respect in the steam plough. But there is another advantage, for if a man keeps teams of 10 horses he must employ them 240 days in the year; he can't make one pair of horses plough more than an acre a day, and he must plough nearly all the year; but by steam you may have all your land ploughed in the summer. It would be a saving as against horseflesh, but a greater saving in the better and deeper cultivation of the land at a suitable time. I have ploughed 7 inches easily with four shares. Mr. Fowler talks of making an engine with a windlass underneath it, so that it shall be all one. I do not think he would succeed in that, for I think it would be too cumbersome, and he will find it more trouble to move it than to move two. My men can take the plough down and put it up in another field in four hours, and that is not a great time. I think a 12-horse engine, with wheels fitted with Boydell's endless railway, so that it could be moved to any field, would be very advantageous. I believe that endless railway to be a most valuable invention indeed. Then as to reaping machines—I purchased one of those tried at Chelmsford. The society, you are aware, refused to allow one of these machines to be removed till it had undergone a further trial. The maker, therefore, said he would exert himself to get one for me, as he was anxious to have it introduced into this neighbourhood, and I should have it on the 6th of August. I did not get it till the 11th, and thus lost some of the best time of harvest. At last we got it. I did not like the look of it, it was too cumbersome, and it did not work two hours before some parts of it became strained, and we could not go on further. I went to the trial of these machines at Mr. Fisher Hobbs', where I saw the maker, who said he was sorry for what had occurred, and the machine he had there should come and cut all my Wheat for nothing, as the only amends he could make me. But I purchased that little machine of Dray's; I had it home on the 17th, and set it to work, and I was so much pleased with it that I telegraphed for a second, and had another that night. These cut us nearly 20 acres of Wheat in a day as well as could be. I propose next year to use them in this way. I need not begin harvest so soon by a week, and I shall thus have the most valuable week in the year to finish up Turnip hoeing, which is generally behind at that time; the corn will be in a very advanced state of ripeness, and we shall set our reapers to cut it, then bind it, and pitch it up off the land without traving it at all. These two reapers, with the carriages, cost 62*l.*; we find that they need but little repair, and a pair of horses will work one of them from morning till night, while three are required for some of the others. The next point I have to refer to is the water drill. I bought one of Chandler's patent water drills, and put in all my Mangel and Swedes with it, and I never had such a plant before in my life. The cost was 25*l.*, and I am paid four times over in the first year of using it. The water is attended with some trouble, but little expense. Three hundred gallons an acre is an ample quantity for Mangels and Swedes. Thus moisture goes in with the seed; every seed vegetates almost at the same time; the very moment they come up there is food for them from superphosphate of lime, which I use, and I leave you to judge whether my plants grow when they are up. On 50 acres of Mangel I have scarcely a rod misplant.

Mr. Dixon.—Mr. Crump lent me his water drill, the weather being extremely dry, and I put in Swedes with it. You have no difficulty in drilling six acres in a day. I put in with it one and a half hundredweight of phosphate of lime to the acre, and had a perfect plant. I believe the implement is a most important one in this dry part of the kingdom in the cultivation of these crops.

Miscellaneous.

An Act against the Growth of Thistles received the Royal assent on the 19th of March. It is one the necessity of which must be obvious to every one acquainted with the colony, and, with a view to its effectual operation, it is of a very stringent character. It may seem, at first sight, that its provisions are too severe, but from its nature the act requires to be armed with very rigorous powers of enforcement, and with heavy penalties for non-compliance with its provisions. After reciting in its preamble that great loss and injury are occasioned to the lands of the colony by the spread of the plant called the Thistle, and that no measures can be effectual for its eradication unless provision be made for its destruction on private as well as public property, the act proceeds to provide the required remedy. By clause 1, any owner, lessee, or occupier of land in Victoria upon which, or on the half of any road adjacent thereto, Thistles are growing, is bound, after 14 days' notice signed by a justice of the peace, to destroy all Thistles on such land, or failing to do so, he incurs a penalty of not less than 5*l.* or more than 20*l.* Service of the notice at the occupier's usual or last known place of abode is held good, and all cases under the act are determined in a summary way by two or more justices of the peace. The justices, however, have power to suspend the conviction on proof that the occupier has used and is using reasonable exertions to destroy the plant. If any owner, lessee, or occupier neglect or refuse to destroy Thistles on his land for a space of seven days after the receipt of notice, any person armed with a written authority from a justice of the peace may enter on the land, with sufficient assistants, to destroy and eradicate the nuisance, and may cause the expenses to be assessed by two justices of the peace, and recover them in a summary way. *Melbourne Argus.*

Self Education.—How is an acquaintance with science to be obtained by men who have but a small amount of leisure, a scant supply of books, no apparatus worthy of the name, and the opportunities of attending lectures few and rare? We have no teachers, no lectures, no apparatus, you will say. Now in answer to this I wish to place before you a great truth, which somehow seems to have been overlooked in our educational discussions. It is this, that learning must come from within, not from without—that listening to a lecture is not learning—that looking at a man making experiments does not teach you to manipulate in science. Only think of a man learning to make shoes, or to sing or to play on a musical instrument, by attending lectures on shoemaking or music. He who wishes to mount must gird up the loins of his mind. Lectures and teachers are all very well to keep idle boys to their work and to stimulate the indolent. All mental improvement resolves itself ultimately into self-improvement. Be assured that the differences between the facilities which the rich and poor respectively have for acquiring knowledge are not so great as is commonly imagined, especially in this country, where a man can procure for a few shillings the very best manuals and text-books in almost any branch of literature or science. He need not even go to that expense: he may join an institution, such as this, and have the use of all the books he may require for a few pence. You may buy a Euclid for a shilling, an arithmetic for the same, a treatise on chemistry for a couple of shillings. These are your best teachers. Your books will not tire in giving you information; they will repeat it for you again and again. If you have misunderstood anything they have said, or are slow to comprehend them, they will wait patiently for you until you are ready to proceed with them. They will put up with your ill humour, they will bear with your mistakes, and it will cost you but little to keep them. But, you will say, though books are cheap, and may be easily procured, we have no apparatus, and apparatus are scarce and dear, beyond the means of the poor man to obtain. Now, here is another error. There is a great deal too much talk about apparatus for teaching science, and the necessity there is that the State should manufacture it, and supply it at a cheap rate to schools and institutions like this. A man who is eager to learn—who is determined to know his subject—may, if he be at all handy, or with the assistance of the village carpenter or blacksmith, extemporise his apparatus. Polished mahogany, and expensive brass work and complicated adjustments, are not at all essential. It is told of the celebrated philosopher, Dr. Wollaston, the inventor of the method of rendering platinum malleable, that when a continental chemist of some celebrity called on him and expressed a wish to be shown over the laboratories in which science had been enriched by so many important discoveries, the doctor took him into a little study, and pointing to an old tea-tray on the table, with a few watch glasses, test papers, a small balance, and a blowpipe on it, said, "There is all the laboratory that I have." *Rev. Dr. Booth at the Lewes Mechanics' Institute.*

Notices to Correspondents.

AGRICULTURAL CHEMISTRY: *Farmer.* Johnstone's "Agricultural Chemistry" is the best book on agricultural chemistry, and Low's "Practical Agriculture"—on good farming. But both subjects are fully discussed in Blackie's "Cyclopedia of Agriculture."

BRINE: *S. C.* Brine is very injurious, and was probably the cause of death. We do not imagine the saltpetre could have been in sufficient quantity to have produced the mischief alone, though it might have assisted.

NITRATE OF SODA: *G. Smy.* Both it and salt may be dissolved in liquid manure, and carefully applied as a top-dressing to Wheat and pasture in spring.

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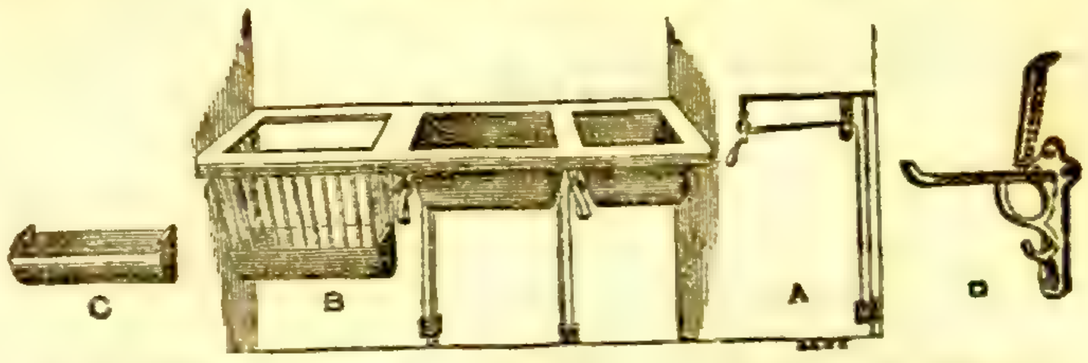

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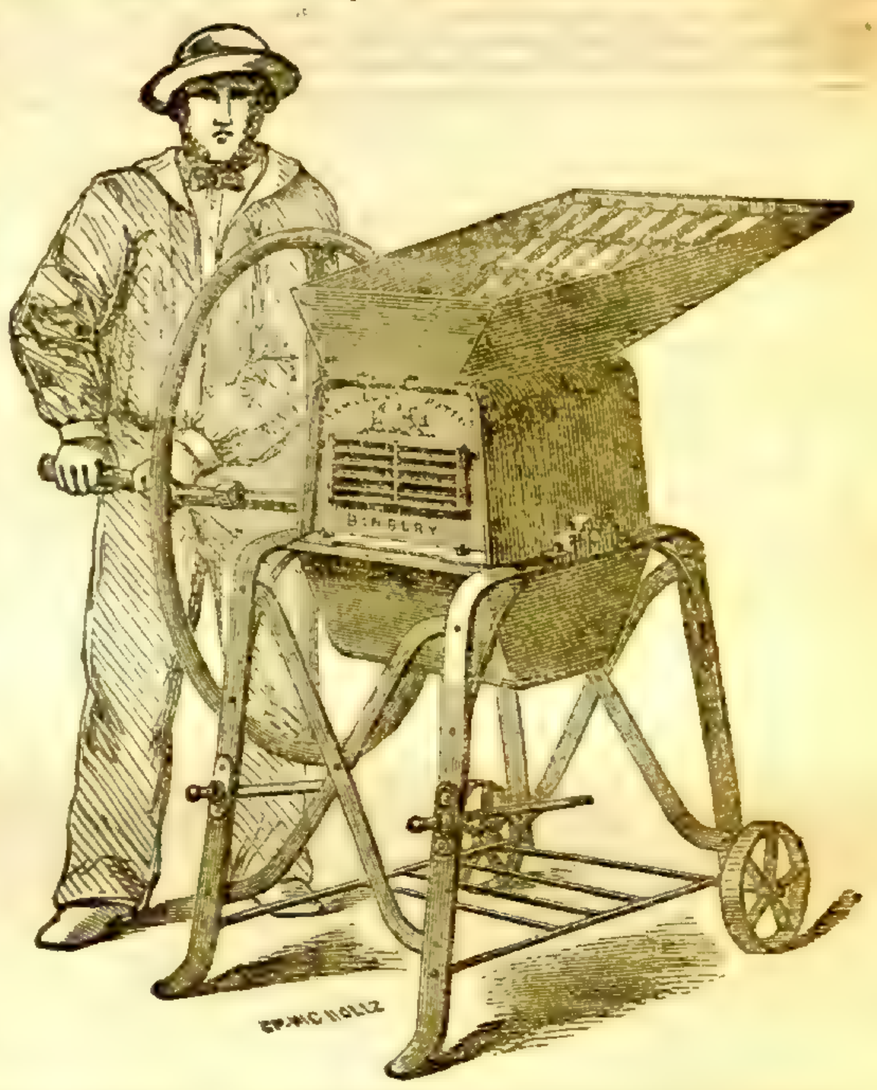

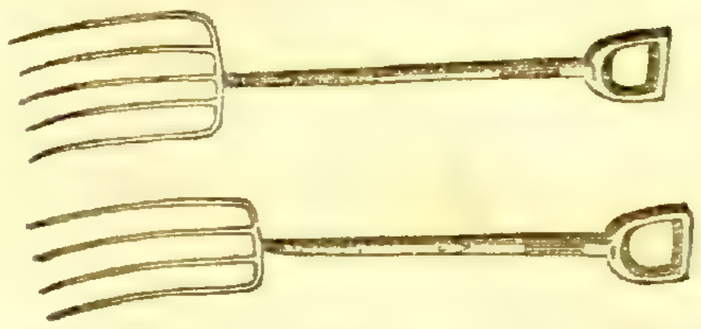

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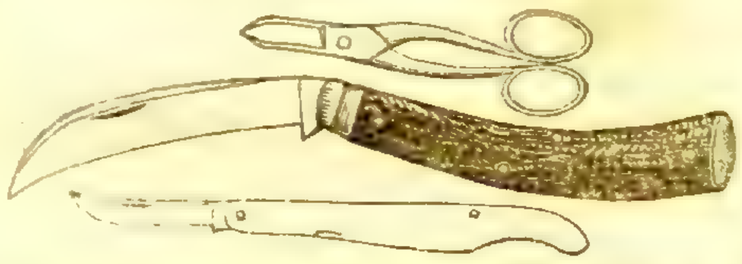
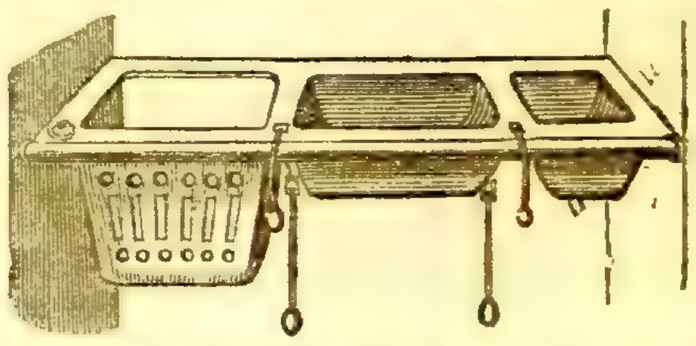


SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools, Established 1736.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

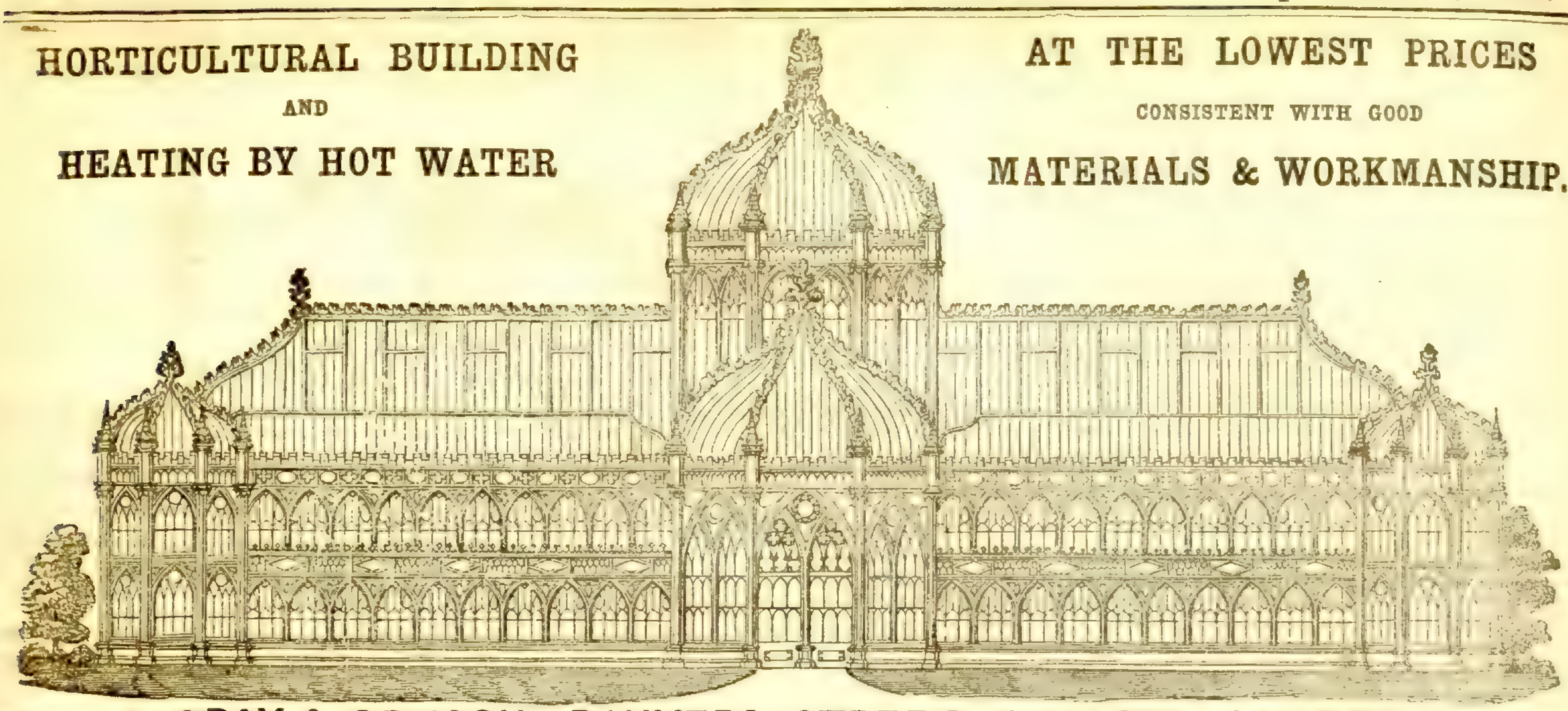
"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

TREE TRANSPLANTING BY MACHINE, LANDSCAPE GARDENING, ORNAMENTAL PLANTING, &c.

W. H. RUMBOLD will be happy to execute any of the above on reasonable terms, by contract or otherwise. The Machine will be let by the week with Man. Designs and Estimates given.—Calverly Road, Tunbridge Wells.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—Thomas Hill, late W. Coleman, Cutler, 4, Haymarket, London.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from Crescens, Robinson, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

PATRONIZED BY HER MAJESTY.

WILLIAM SHAKESPEAR,

(SUCCESSOR TO CLARK AND JONES),

Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,

55, LIONEL STREET, BIRMINGHAM.

WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c., for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the superior mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship.

Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.

ESTABLISHED IN THE YEAR 1818.

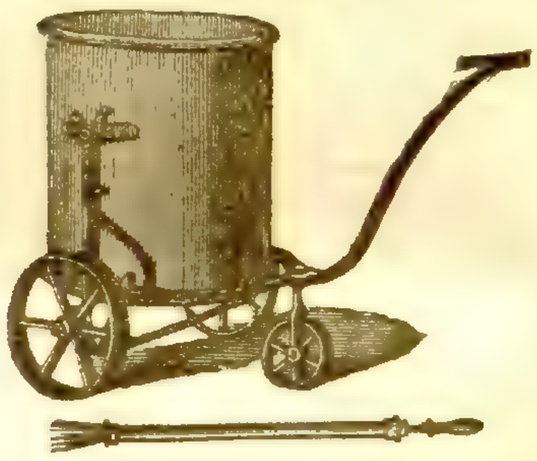
CRESTS FOR GATE PIERS modelled to order.

Also a large Stock of VASES for the same purpose and for Terraces, executed in Artificial Stone, by

J. SEELEY,
(Late Austin & Seeley),
Nos. 1 to 4, Keppel Row, New Road.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 8*l.* 3*s.*

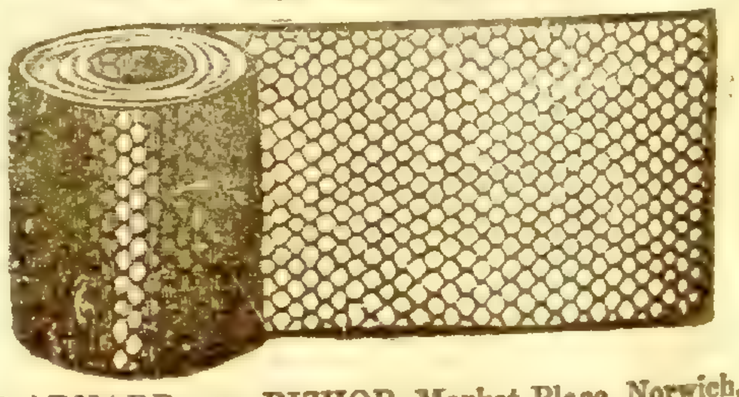


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices one-fourth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

HARTLEY'S PATENT ROUGH PLATE GLASS, (1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs; and 1-4th, or 4 lbs. to the foot), for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

In Squares Cut to Sizes Ordered.	1/8 s. d.	3/16 s. d.	1/4 s. d.
14 by 10, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½
1½ ft. sup., 3 or if above 20 & not above 30 in.	0 7	0 8½	0 10
3 " 4 " 20 " 30 in.	0 7½	0 9	0 10½
4 " 5 " 30 " 35 in.	0 8	0 9½	0 11
5 " 6 " 35 " 40 in	0 8½	0 10	0 11½
6 " 8 " 40 " 45 in.	0 9	0 10½	1 0
8 " 10 " 45 " 55 in.	0 9	0 10½	1 0
10 " 12 " 55 " 65 in.	0 9	0 10½	1 0
12 " 15 " 65 " 75 in	0 10	0 11	1 0
15 " 20 " 75 " 90 in.	0 11	1 0	1 2
20 " 25 " 90 " 100 in.	1 1	1 2	1 3

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10s. 6d. | 8 by 6, and 8½ by 6½ ... 13s. 6d.
7 by 5, and 7½ by 5½ ... 12 0 | 9 by 7, and 10 by 8 ... 15 0

Estimates forwarded on application.

London Agents: JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

GLASS FOR HORTICULTURAL PURPOSES. Good 15 oz. sheet, in boxes of 100 feet each:—

8 by 6, and under 9 by 7	11s. per box.
9 by 7, " 12 by 9	13s. "
12 by 9, " 14 by 10	14s. "
14 by 10, and not above 2 feet	15s. 6d. "
2 feet, " 3 feet	16s. 6d. "

T. & W. FARMILOE, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4s. 9d. each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5s. 3d. each.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9l. 10s.; bright, 14l. 5s. and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4l. 14s. to 13l. 13s.; ditto with ormolu ornaments and two sets of bars, 5l. 5s. to 22l. Bronzed fenders, with standards, 7s. to 5l. 12s.; steel fenders, 2l. 15s. to 11l.; ditto with rich ormolu ornaments, 2l. 15s. to 18l. Fire-irons, from 1s. 9d. the set to 4l. 4s.

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12s.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17s.; and Cots from 20s. each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2l. 7s. 6d. to 15l. 15s.

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 14 0
Paillasse, wool mattress, bolster, and pillow ...	1 11 0
A pair of cotton sheets, three blankets, and a coloured counterpane	1 5 0
	£4 14 6
A double Bedstead, same	£6 3 0

If without Half-tester and Furniture—

Single bed, complete	£3 13 9
Double bed, complete	£4 15 0

LAMPES à MODERATEUR, from 6s. to 6l. 6s.—WILLIAM S. BURTON has collected from the different makers here and in France a variety that defies competition. As many imported from France are inferior in the works. WILLIAM S. BURTON selects at Paris from the best makers only, and he can guarantee each lamp he sells as perfect in all its parts.

His stock comprises also an extensive assortment of SOLAR, CAMPHINE, PALMER'S, and all other Lamps.

Pure Colza Oil, 4s. 8d. a gallon.
Patent Camphine, 4s. a gallon.
Palmer's Candles, 9d. per lb.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street; 1, 1a, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

NOW READY TO SEND OUT, direct from Yarmouth, during the season, GENUINE YARMOUTH BLOATERS, 100 for 6s.; forwarded securely packed to any address upon receipt of Post-office order, by JAMES AYERS, Fish Curer, Great Yarmouth. The Trade supplied.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S. & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD'S Eurekas are the acme of perfection." *Court Journal.* In half dozen boxes, ready for use, or made to order. Best quality, 42s.; second quality, 33s.

CAUTION.—FORD'S Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free. RICHARD FORD, 38, Poultry, London.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9s. 6d. to 6l.; China from 19s. to 7l. 7s. each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

WANTED, a nicely FURNISHED or UNFURNISHED RESIDENCE, on the line between Chester and Manchester, or between Liverpool and Manchester, required immediately.—Apply, sending particulars, to R. G., Box M 18, Post Office, Liverpool.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

LOCKSBROOK NURSERY, WESTON, BATH.

TO BE SOLD, by Private Contract, the entire Stock and Lease of the above Nursery, containing Four Acres of rich Garden Land, with Dwelling-house and Shop, pleasantly situated within one mile of the Bath Market. The Stock consists of Greenhouses, Pits, and Sheds, Flowers, Plants, and Fruit Trees, and every convenience for the trade. The above Nursery is held for a Lease of 21 years, 15 years of which are unexpired. Rent 36l. per annum, tithe free. This is a very advantageous opportunity to parties requiring an established business.—For particulars apply to Mr. JAMES SHACKELL, Market Gardener, Tiverton, Bath.

Sales by Auction.

BULBS, ROSES, &c.

MR. HASLAM will Sell by Auction the above, at the Mart, on WEDNESDAY, October 15, and FRIDAY, October 17 next, and every succeeding WEDNESDAY and FRIDAY till December 5.—Epping, Oct. 25.

SALE OF CHOICE TULIPS.

TO BE SOLD by Auction, on THURSDAY, October 30, at 1 o'Clock precisely, the property of Mr. Mitchell, Luddenden, Yorkshire, who in consequence of ill health is declining the Fancy; the collection comprises the Gems in cultivation, and will be sold at the Auction Mart, near the Bank of England, on the above day, without the least reserve.—Catalogues may be had on application four days prior and on the morning of sale.

SUNBURY NURSERY.

IMPORTANT AND UNRESERVED SALE OF NURSERY STOCK.

MR. J. WILLMER will submit to Public Auction, on the Premises, Sunbury Nursery, on TUESDAY, October 28, and following day, at 12 o'clock precisely each day, the STOCK of the above Nursery, which comprises Fruit and Forest Trees, Evergreens, and Shrubs, among which are Common Laurels, 3 ft.; Portugal do., 4 ft.; Aucuba, 3 to 4 ft.; Siberian Arbor-vitæ, 4 ft.; Arbutus, fine, 6 to 7 ft.; Phillyrea, 3 ft.; Striped Hollies, 4 to 6 ft.; Yews, 3 to 10 ft.; Cedrus Deodara, 6 to 7 ft.; Junipers, 5 to 6 ft.; Green Hollies, 4 to 6 ft.; Bays, Striped Box, Evergreen Privets; Beech, 7 to 9 ft.; Oaks, 10 to 12 ft.; Elm, 10 to 12 ft.; Horse Chesnuts, 10 to 12 ft.; Limes, 7 to 8 ft.; Larch, Spruce, and Scotch Firs, of various sizes; Standard, Dwarf, and Trained Apples; Trained Plums, Trained Cherries, Gooseberries, Currants, Standard Mulberries, Standard Plums, Dwarf do., &c.—Catalogues on the Premises, or by forwarding a postage stamp to Mr. J. WILLMER, Auctioneer, Surveyor, and Valuer, Sunbury, Middlesex.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, November 4, at 12 o'Clock precisely, Poultry of first-rate strains, including Coloured and White Dorkings, Spanish, White and Buff Cochins, White Polands, Golden and Silver Hamburghs, White and Silver-laced Bantams, Parmigans, &c., from the yards of Messrs. Breavington (Hounslow), Loder (Crawley), Johnson (Farnham), Yonge (Eton), Rev. F. Thursby (Northampton), and other breeders of first-class birds. Also some Golden Pheasants, Pouter and other Pigeons from Mr. Bult's renowned stud.—Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CAMELLIAS, AZALEAS, &c., FROM GHENT, AND A COLLECTION OF ORCHIDS.

MR. J. C. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden on TUESDAY, Oct. 28, at One o'Clock precisely, 400 Camellias with Flower Buds, including many first-rate sorts: 25 Plants of a splendid new Azalea, and a collection of Orchids, containing Lælia Majalis, albida, autumnalis, and anceps, Cattleya citrina, &c., in capital condition; and 200 Lilium lancifolium rubrum.—May be viewed on the morning of Sale and Catalogues had at Mr. J. C. STEVENS's Offices, 38, King Street, Covent Garden.

ORCHIDS AND OTHER PLANTS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY, October 29, at 1 o'Clock precisely, the collection of ORCHIDS of a gentleman, comprising good healthy plants of Saccolabium guttatum, retusum, ampullaceum, Blumei major, Aerides quinquevulnerum, affine superba, roseum, virens, crispum, Cypripedium caudatum, Vanda tricolor, insignis, Oncidium sarco, &c.; also several small importations of Orchids and other plants from Borneo, Madeira, &c.—May be viewed on the morning of Sale, and Catalogues had.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, October 31, at 1 o'Clock precisely, a collection of established ORCHIDS, including many of the desirable species, such a Phalænopsis grandiflora, Aerides affine, virens, crispum, roseum, superbum; Vanda cœrulea, tricolor; Saccolabium retusum, Epidendrum vitellinum major, &c.—May be viewed on the morning of sale, and Catalogues had.

TO NOBLEMEN AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING, NURSERYMEN, AND OTHERS.

SECOND SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS is instructed by Messrs. Standish & Noble, who are dissolving Partnership, to Sell by Auction, at the Nurseries, Bagshot, Surrey, on MONDAY, November 17 and four following days, at 11 o'Clock precisely, a most valuable selection of specimens of CONIFERS and other Ornamental Plants, all of which have been well prepared for transplanting. It includes—

	ft.		ft.		ft.		ft.
Abies Nordmanniana	1½	to	4	Libocedrus chiliensis...	1	to	3
" Pinsapo	5	"	7	Pinus Benthamiana ...	2	"	5
" Douglasi	6	"	15	" insignis	2	"	14
" Deodara	6	"	10	" muricata	2	"	8
" nobilis	2	"	5	Taxodium sempervirens	5	"	15
Araucaria imbricata ...	2	"	6	Mount Atlas Cedar ...	6	"	15
Cephalotaxus Fortuni	1	"	3	Hollies (of sorts) ...	5	"	7
Cryptomeria japonica	6	"	12	Irish Yews	5	"	6

Skimmia japonica, Standard, and other choice flowering hardy hybrid Rhododendrons, Standard Sikkim Rhododendrons, named Moutan Pæonies, &c.

12,000 Standard and dwarf Roses,
comprising the most choice new and select sorts in the Trade.
1000 Pyramid Pear, and other Fruit trees.

May be viewed one week before the Sale, when Catalogues 1s. each, returnable to purchasers, may be had at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden. Approved bills at 3 months' date will be taken of purchasers from 50l. to 100l., and at 6 months' date of purchasers above 100l.

The Bagshot Nursery is about two miles from the Sunningdale station on the South-Western Railway, where a van will meet the 8 o'clock A.M. train from Waterloo to convey persons to the Sale. The stations of Farnborough, Woking, and Blackwater (S. E. R.), are also within an easy distance.

RIVERHEAD, KENT.

IMPORTANT SALE OF NURSERY STOCK, SEVERAL NEWLY-ERECTED GREENHOUSES, PITS, FRAMES, HOT-WATER PIPE, BOILERS, QUANTITY OF BRICKS, SLATES, PAVING AND ROOFING, IRON HAND-LIGHTS, BELL GLASSES, &c.

MESSRS. PROTHEROE AND MORRIS are directed by the Trustees of Mr. William Finnis Smith to submit to an unreserved Sale by Auction on the premises, Riverhead Nursery, Riverhead, near Sevenoaks, Kent, on MONDAY, October 27, and following days, at 11 o'Clock each day, in consequence of the number of Lots, the whole of the valuable Nursery Stock extending over 14 acres, consisting of a large collection of Fruit and Forest Trees; Evergreens and Deciduous Shrubs in great variety, a rich assortment of American Plants and Ornamental Trees; about 100,000 Ash, 50,000 Spanish Chesnuts, 20,000 Alder, 200,000 Larch Fir, 50,000 Willow, 10,000 Birch, &c. Also the Greenhouse Plants, comprising fine double Camellias, Azalea Indica, Epacris, Ericas, Fancy, and other Pelargoniums, &c.; together with a useful Horse, an excellent Stack of Meadow Hay, two Carts, a capital Iron Roller, Syringe, three sets of Harness, Garden Pots, and numerous other effects.—May be viewed one week prior to the Sale; Catalogues may be had 6d. each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

STRATFORD.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the late Proprietor to Sell by Auction, on the Premises, Stratford Green, Essex, on TUESDAY, November 4, at 12 o'Clock, Four newly-erected Greenhouses; Three Brick Pits; One and Two-light Boxes; 300 feet Hot-water Pipe; a large quantity of 1-inch and ½-inch Slate Slabs and York Paving; Wrought and Cast-iron Tanks, Boiler, and Furnace; erection of Poultry House, complete; Wire Fencing; capital Iron Roller; Garden Engine; Dean's Oat Crusher, nearly new; sundry Machinery, with Gun-metal fittings; Bricks; Rockwork; Strawberry Tiles; two splendid specimen Araucaria imbricata, 15 to 2 feet; Seakale and Garden Pots; Tools and numerous other effects.—May be viewed the day previous and morning of Sale; Catalogues may be had at the Swan, Stratford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

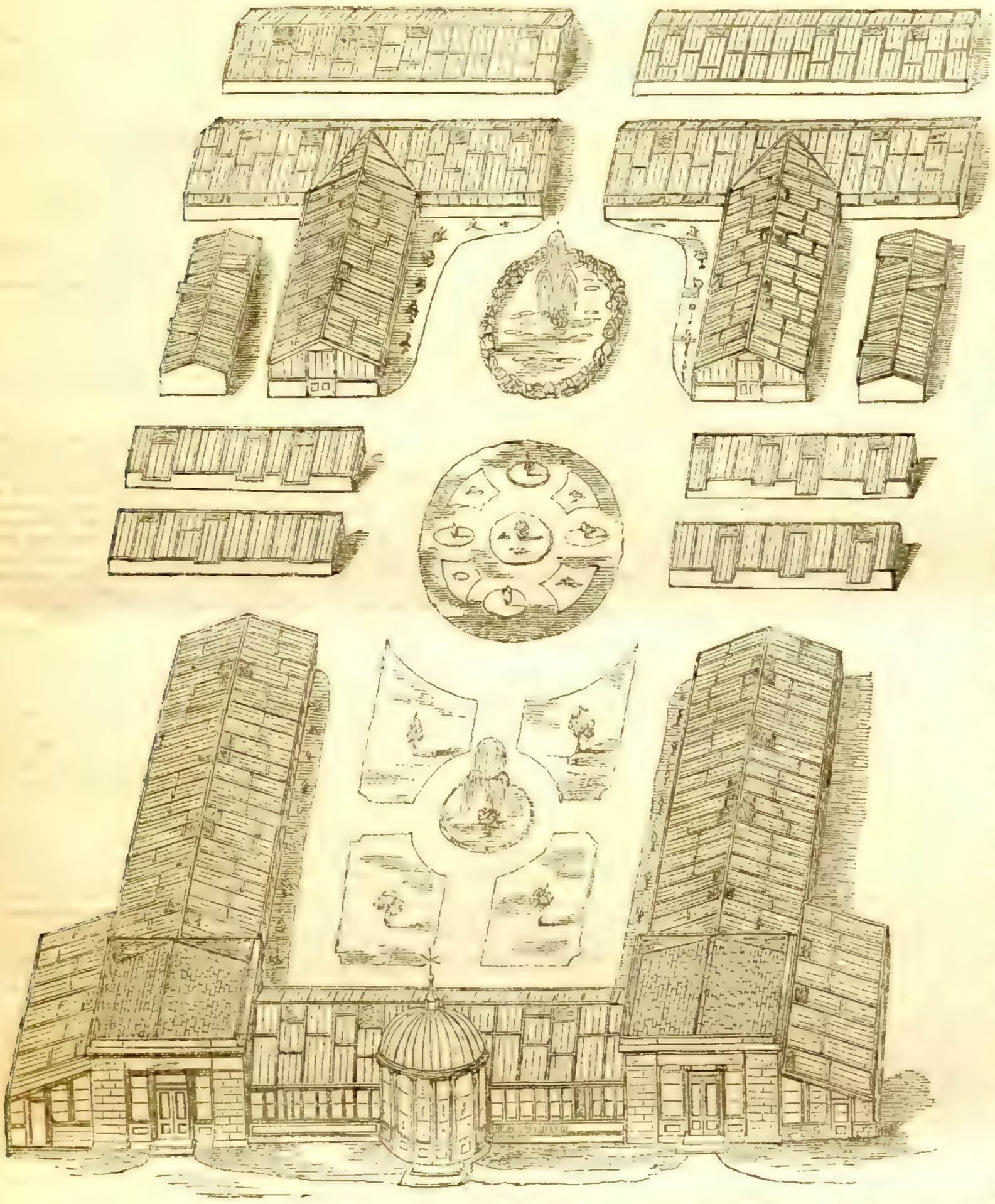
CONSIGNMENT FROM GHENT FOR ABSOLUTE SALE.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction at the Mart, Bartholomew Lane, on FRIDAY, November 7, at 12 o'Clock, 500 fine DOUBLE CAMELLIAS and 400 INDIAN AZALEAS, consisting of all the approved kinds, well set with bloom buds; 6 fine large Orange Trees with fruit; 1000 Gladiolus Gandavensis, and 200 Standard Perpetual Roses, consisting of all the leading varieties.—On view the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

JOHN WEEKS AND CO.'S
HORTICULTURAL ESTABLISHMENT, KING'S ROAD, CHELSEA.

THE WHOLE HEATED BY ONE BOILER.



The accompanying sketch is a bird's-eye view of our Horticultural Establishment, the whole of which is heated by One Boiler, on the system known as

"WEEKS' ONE-BOILER SYSTEM."

The sketch below shows the kind of Boiler, from which there is a main flow and return pipe up each side of the establishment, with a valve for every house and division, by which any one can be heated alone, and any or all of the others remaining quite cold, or the whole or any part regulated to any temperature.

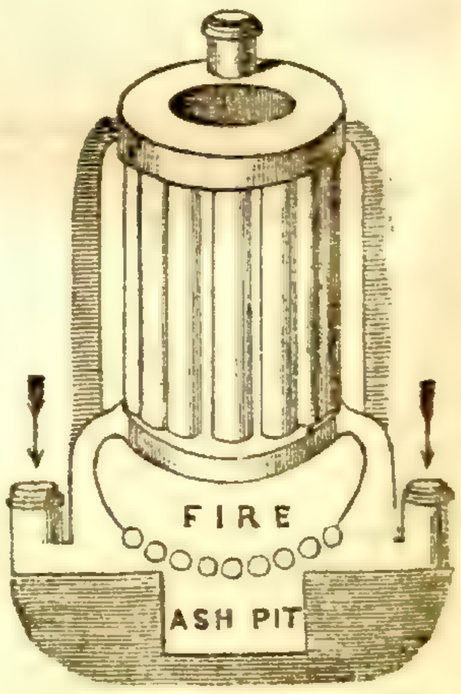
The main flow and return pipes are laid in drains with ornamental gratings over them, so that the whole of the heat from them can be made use of at pleasure.

The water circulates through 5000 feet of pipe throughout the various houses and pits. If the houses and pits were placed in a line, they would extend about 1000 feet, exposing to the atmosphere upwards of 16,000 superficial feet of glass.

We have no hesitation in asserting that there is no apparatus in the Kingdom of such an extent heated by one single boiler and at such a trifling expense, except those fixed by us at many establishments of the Nobility, Gentry, and Nurserymen who have adopted our One-Boiler System; and in some instances the Dwelling House has been connected to the same Boiler, which is in the garden, say from 200 to 300 feet from the house, all of which have been attended with perfect success.

The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

J. W. & Co. manufacture these Boilers of all sizes. The largest size measure 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.



Buildings of every description, Dwelling Houses, Churches Warehouses, Horticultural Buildings, &c., separately or combined and to any extent, can be effectually heated by ONE BOILER.

Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., Built upon the most scientific principles, combining all the improvements of the day. Horticultural Works of every description, and to any extent, erected in any part of the Kingdom, manufactured of the best materials of every description.

See our Illustrated Catalogues; also Plans, Models, and Estimates of Horticultural Buildings and Heating by Hot-Water; also of Cast-iron Vases and Fountains; also Catalogues of Vines, Fruit Trees, Stove and Greenhouse Plants, Seeds, &c.

JOHN WEEKS & CO., Horticultural Builders and Hot-Water Apparatus Manufacturers,
KING'S ROAD, CHELSEA.

SECONDHAND HOT-WATER BOILERS.

TO BE SOLD very cheap, a large stock and a great variety of all shapes and sizes, consisting of the Saddle, the Conical the Ribbed, the Bell, the Flue Shapes, and others. John Weeks & Co. having taken out a great number of boilers from various places where they have fixed them on their ONE-BOILER SYSTEM, they have now for sale a large stock of Secondhand Boilers very cheap.

John Weeks & Co., Horticultural Works, King's Road, Chelsea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

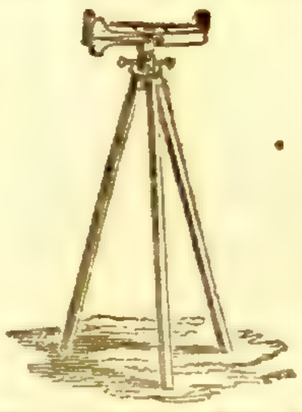
HOT-WATER PIPES (Cast Iron) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. Lynch White's, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot-Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

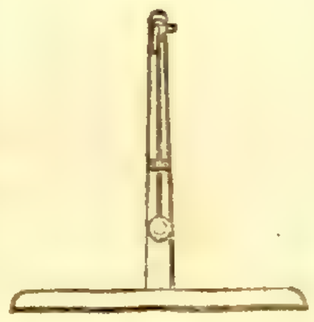
J. S. MORRIS, Engineer, Upper Thames Street, London.—Apparatus supplied and erected for Warming and Ventilating Mansions, Public Buildings, and for Heating Conservatories on the most approved principle. Large experience in this branch of domestic science for many years insures certainty of success. A brief Treatise on the subject forwarded by post.

Gas Apparatus erected with laboratory, so constructed as to be managed by an intelligent labourer, producing the purest Illuminating Gas.



WEIR'S SPIRIT DRAINING LEVEL.
Price 30*s.*; Case 1*s.*

Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL.
for use in the Drain.
Price 15*s.* Terms cash.

Illustrated Catalogues sent post free.

Edward Weir, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

"TIFFANY," a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when not less than 10 pieces are taken. No orders will be attended to from unknown correspondents unless accompanied by a remittance.

John Shaw & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured of the following Nurserymen and Seedsmen:—

London: Messrs. Charlwood & Cummins; E. G. Henderson & Son; Hurst & M'Mullen; Minier, Nash, & Co.; Peter Lawson & Sons; Osborn & Son; Rollinson & Son; Mr. James Veitch.—Messrs. W. Wood & Son, Maresfield, Sussex; A. Paul & Son, Cheshunt, Herts; Mr. Charles Turner, Slough; Mr. W. J. Epps, Maidstone; Messrs. Bainbridge & Hewison, York; Mr. Caldwell, Knutsford.

Manufactured for and sold, wholesale and retail, by John Shaw, Nurseryman and Seedsman, 40, Princess Street, Manchester.

HOT-WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators; Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. Tayler, Battersea.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. Richards, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56lbs.), 12*s.* 4*d.*; fine Households, recommended for bread-making, 11*s.* 8*d.*; Seconds, 11*s.*; Wheat Meal, for Brown Bread, 11*s.*; best coarse and fine Scotch Oatmeal, Rice Flour, &c.

Address Horsnail & Catchpool, Bullford Mill, Witham, Essex; or Caledonian Road, Islington.—Directions for making Bread supplied gratis. Terms cash.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be Addressed to the Editor.—Saturday, October 25, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 44.—1856.] SATURDAY, NOVEMBER 1. {Price Fivepence. Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, November 6, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

William Davidson, Assistant Secretary.

SCOTTISH ARBORICULTURAL SOCIETY.—The Third Annual General Meeting for the Election of Members, the Appointment of Office Bearers, the Reading of Papers, Awarding of Prizes, and other Business, will be held on WEDNESDAY, November 12, at 1 o'clock p.m., at the Society's Rooms, 6, York Place, Edinburgh.

James Alexander, Secretary.

6, York Place, Edinburgh, November 1.

LANDSCAPE AND ORNAMENTAL GARDENING, PLANTING, &c.

MR. W. SHORT begs to refer his Patrons and Friends to his advertisement in the *Gardeners' Chronicle* of Oct. 25.—21, St. John's Wood Terrace, Regent's Park, London.

FLORICULTURE.—In consequence of Mr. John Edwards having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

PRINCE OF WALES' RASPBERRIES.

WILLIAM CUTBUSH AND SON beg to inform the public that they have now on hand a large stock of their celebrated PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation*. Prices per dozen or 100 on application.—Highgate Nurseries, near London.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer a fine collection of FRUIT TREES IN POTS, in a bearing state, consisting of Apricots, Nectarines, Peaches, Cherries, Plums, Pears, Apples, Gooseberries, Currants, Grapes from eyes, Figs, and Strawberries.

The Nurseries, Great Berkhampstead, Herts.

FIVE HUNDRED THOUSAND THORN QUICKS.—The Subscriber begs to announce to Nurserymen and Railway Contractors that he can supply the above from one to three years old, together with 400,000 to 500,000 FOREST SEEDLINGS one and two years old. Terms cash.—P. Edwards, Old Merrion, Dublin.

TO BE SOLD CHEAP, for cash, 4000 ORNAMENTAL and other FOREST TREES, from 10 to 15 feet; also an excellent variety of GOOSEBERRIES and CURRANTS, the ground being wanted.—Apply to Charles Clarke, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

TREES FOR AVENUES, ETC.

E. P. FRANCIS has several hundreds of fine tall straight English OAK, English and Huntingdon ELM, and Spanish CHESNUT, from 9 and 10 to 12 feet, rising with capital roots off deep loamy soil. Prices upon application.

E. P. F.'s new DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded, gratis, upon application.

Rose Nurseries, Hertford.

FOREST TREES, SHRUBS, &C.

EAGLE AND HENDERSON, Nurserymen, Seedsmen, and Florists to the Queen, beg to intimate that their CATALOGUES of FOREST, FRUIT, ORNAMENTAL TREES and SHRUBS, VINES, FLORISTS' FLOWERS, &c., are now ready, and may be had free on application.—Leith Walk Nurseries, Edinburgh.

FOREST TREES.—The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.

David Reid & Son, Nurserymen and Seedsmen, Edinburgh.

LARCH.—FOR SALE, prices moderate, very superior LARCH, 2½ to 3 feet; GOOSEBERRIES, a good assortment of fine plants in quantity; strong PRIVET; DWARF BOX EDGING; Standard and Trained FRUIT TREES; CHRYSANTHEMUMS, strong plants coming in bloom; DUTCH FLOWER ROOTS, an unrivalled assortment (see Catalogue).—Thornhill & Dickson, Nurserymen, Seedsmen, &c., Lawrence Hill Nursery, and 27, Bath Street, Bristol.

BULBS FOR PRESENT PLANTING,
Carriage Free, except Small Parcels.

	£.	s.	d.
HYACINTHS, the best imported by name, per dozen	0	10	6
" Fine mixed for Beds (all double) per 100	1	10	0
ANEMONES " " (") " ...	0	5	0
" " " (single) " ...	0	4	0
TULIPS, fine mixed early, for pots or borders " ...	0	7	6
CROCUSES, mixed for open ground, (per 1000, 12*s*. 6*d*.)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free. N.B. New Early Peas, Radish, Horn Carrots, &c., now ready.

SUTTON AND SONS,
Royal Berks Seed Establishment, Reading.

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to all parts of the world, upon application. The Bulbs are *as usual* of *first-rate quality*.

James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH BULBS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their SECOND IMPORTATION of the above have arrived in prime condition. DESCRIPTIVE CATALOGUES, *which contain their celebrated system of culture, can be obtained free on application*. Orders executed in strict rotation.

Highgate Nurseries, near London.

DUTCH BULBS, ROSES, ETC.

JAMES GRAHAM, Nurseryman, Seedsman, and Florist, North Gate, Chichester, has the honour to inform the public that his CATALOGUES of the above may be had on application. Also a quantity of PINE SUCKERS from a healthy stock to be had at reasonable prices.

NEW CATALOGUES FOR 1856-57.

WILLIAM WOOD AND SON are now prepared to send free and post paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CATALOGUES.

H. LANE AND SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—

FRUIT CATALOGUE, containing those grown in pots.
TREE AND SHRUB CATALOGUE.
AZALEA, HOLLYHOCKS, &c., CATALOGUE.

The Nurseries, Great Berkhampstead, Herts.

J. DOBSON AND SON will forward the following CATALOGUES on application:—

A Catalogue of Fuchsias, Verbenas, Pansies, &c.
A Descriptive Catalogue of Beck's New Geraniums, and the best of other raisers.
A Descriptive List of Dutch Bulbs and other Roots.

Woodlands Nursery, Isleworth.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

SIR HARRY STRAWBERRY.
The Best in Cultivation.

W. WHITEHOUSE has to offer strong transplanted Plants, all warranted true, viz.: 25 Plants, 8*s*. 4*d*.; 50 Plants, 13*s*.; 100 Plants, 25*s*. Package and box included. All orders to be accompanied with a Post-office Order on Birmingham.—Mount Pleasant Nursery, Harborne, Birmingham.

STRAWBERRIES.—Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40*s*. per 100, or 6*s*. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready. —Apply to R. S. Yates, St. Ann's Square, Manchester.—Nov. 1.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

James Kitley, Lyncombe Vale Nursery, Bath.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. BARRATT, Landscape Gardener, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

GRAPE VINES IN POTS FOR SALE.

JOSEPH EATON, Shacklewell Road, Stoke Newington, has a very fine stock of GRAPE VINES struck from eyes for Planting or Forcing in Pots, from 4 to 8 feet long.

Shacklewell Road, Stoke Newington.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

VINES FOR FRUITING IN POTS.

MESSRS. J. & J. FRASER, Nurserymen, Lea Bridge Road, Essex, beg to invite attention to their fine stock of the above. Price 5*s*. and 7*s*. 6*d*. each.

Strong Vines for planting out, 3*s*. 6*d*. each. A list of the sorts may be had on application.

CHRYSANTHEMUMS.—A quantity of fine Plants, just bursting into bloom, and well covered with healthy foliage to the base, of all the leading varieties both of Pompone and large flowered may be had at from 6*s*. to 9*s*. per dozen on application to Wood & Ingram, Huntingdon.

THE SPLENDID DAHLIAS NAPOLEON AND EUGENIA, dry roots, from 5*s*. to 15*s*.; PRINCESS, 15*s*.; CLIMAX and others reasonable.

G. Glenny, Horticultural Agent, Dungannon House, Fulham.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. Waite, Seed Merchant, 181, High Holborn, London.

PRIMULA SINENSIS FIMBRIATA.—Good plants of the above for immediate potting, and which will flower next spring, may be had at 2*s*. 6*d*. per score, post free from Wood & Ingram, Huntingdon.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6*s*. per dozen.—John Holland, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

CHOICE NAMED PANSIES.

HART AND NICKLIN, Florists, Guildford, Surrey, beg to offer healthy plants of the above, selected from a first-class collection, at 4*s*. per dozen, or three dozen for half a guinea, basket included. Prepayment required.

PANSIES.—Extra fine show varieties, in good plants, 6*s*., 9*s*., 12*s*., 18*s*., and 24*s*. per dozen.

J. Dobson & Son, Woodlands Nursery, Isleworth.

PANSIES! PANSIES! PANSIES!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4*s*. per doz.

Address W. H. Davis, Jun., St. Mary's Hill, Newbury.

LAURELS! LAURELS! LAURELS!—The best Stock near London is at Foster's Nursery, Edgware; also other magnificent Evergreens, &c.—Apply to John Morgan, Rose Cottage, Edgware.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

Wood & Ingram, Huntingdon.

LARGE EVERGREEN SHRUBS.—Several Hundred Evergreen Shrubs of large size and fine growth to be disposed of. They were planted by us three years ago in a gentleman's Shrubberies near London, which now require thinning. This is an excellent opportunity for any one wishing to give immediate effect to new ground work, as they transplant with good balls of earth.—Apply to Messrs. J. & C. Lee, Nurserymen and Seedsmen, Hammersmith, near London.

WANTED IMMEDIATELY,
CHOICE FRUITS OF EVERY DESCRIPTION.
Forward to GEORGE TAYLOR, Jun.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
A Priced Circular post free on application.
Terms—"Cash."

ROSES, ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—Nov. 1.

ROSES.

J. AND J. FRASER'S Catalogue for the present season is now ready, and may be had on application.

J. & J. F. have a large and fine stock of Dwarf Roses, consisting of the best sorts of Hybrid Perpetual and other autumn flowering kinds suitable for planting in masses or for potting. Price per dozen or hundred (according to the quantity required) may be had on application.

The Nurseries, Lea Bridge Road, Essex.

ROSES.

A. PAUL AND SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

ROSE CATALOGUE, WITH DIRECTIONS FOR CULTURE.

JOHN CRANSTON begs to announce that his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1856 and Spring of 1857 is now ready, and that he will be happy to forward it free by post on application. Full and accurate descriptions are given of all the finest varieties in cultivation, likewise directions for Pruning, Planting, and general management.—Nurseries, King's Acre, near Hereford.

DILLISTONE AND CO. beg to inform their friends and the public that their stock on many acres was never finer than this season, and consists of

Standard and Dwarf Roses of all the finest kinds,
Standard Ornamental Trees for Lawns,
Evergreen, Deciduous, and Coniferous Trees and Shrubs,
Hardy Climbing Shrubs in variety,
Fruit Trees and finest trained ditto,
" " in pots for Orchard Houses.
Many thousands fine Gooseberries and Currants,
Camellias, Azaleas, and Greenhouse plants in general,
Herbaceous plants, &c.
Forest trees, and transplanted ditto, Quick, &c.
Quantity of fine Box Edging.
Catalogues upon application. Carriage paid to London.
Nurseries, Sturmer, Halsted, Essex.

ROSES.

40,000 Dwarf Roses on their own roots in pots and worked on the Manetti stock. 50,000 Dwarf Roses budded on 6-inch stems. 30,000 Standard Roses. 5000 Général Jacqueminot, Hybrid Perpetual. 7000 Géant des Batailles, ditto. 12,000 Tea-scented and China Roses in pots on their own roots.

WILLIAM WOOD AND SON wish to direct especial attention to their enormous and splendid stock of Roses, which, owing to an entirely new soil and increased facilities of propagation, was never in finer order, and they feel assured the plants they have this season the pleasure of offering to their friends cannot be surpassed, many of the Standard and Dwarf Roses having made shoots 6 feet in length.

Collections of Roses will be supplied on the following terms, when the selection of sorts is left entirely to ourselves:— Per doz.

Extra tall Standards, 4 to 8 feet high, with three to six best varieties of Climbing and Perpetual Roses, in each stem, suitable for training, &c., 3s. 6d. to 5s. each
Tall Standards, fine picked stocks from 4 to 6 feet with large heads, of the most showy kinds, for planting in conspicuous situations on lawns, &c. ... ... 42s.
Extra superior selected Standards, in fine varieties ... 24s. to 30s.
Fine Dwarf Standards, in fine varieties .. .. 18s. " 24s.
Superb ditto ditto, the best sorts for exhibition ... 18s.
Fine Dwarfs ... ... 12s. " 18s.
—— Climbing and Noisettes ... ... 9s. " 12s.
Hybrid Perpetuals, budded on 6-inch stems, or on own roots in pots ... ... 12s. " 18s.
Ile de Bourbon, in pots, or budded on 6-inch stems ... 12s. " 18s.
China, in pots ... ... 9s. " 12s.
Tea-scented, in pots... ... ... 15s. " 30s.
The best varieties for forcing, established in 6-inch pots, budded on 6-inch stems ... ... 24s.
Climbing Roses mixed, without names, for covering banks ... . 4s.
Good Dwarfs on own roots, without names ... ... 4s.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HARDY ORNAMENTAL TREES, LARGE EVERGREENS, AND SPECIMEN CONIFERÆ.

WILLIAM YOUNG begs to call attention to his immense stock of the above, which he can offer at very reasonable prices, and the great care he has taken to render them all good rooted and safe for removal enables him to recommend them with confidence to all engaged in planting.

Those who are planting new grounds, where an established appearance is required, will find these plants particularly adapted to the purpose, and such as are seldom to be met with in the trade.

The Specimens of Coniferæ are all grown as single plants, consequently are all handsome and well furnished, especially suited to the Park or Lawn.

The following abridged list will give some idea of the Stock from which purchasers may select:—

Abies alba (White Spruce) ... ... 6 to 10 feet high
" canadensis (Hemlock Spruce) ... ... 6 to 10 "
" Douglassi ... ... 6 to 15 "
Several hundreds of this most noble tree, all as handsome as it is possible to grow them.
Abies Menziesi ... ... — ... 8 to 10 feet high
" nigra ... ... 4 to 6 "
" orientalis ... ... 3 to 4 "
Picea Pinsapo ... ... 5 to 7 "
and as much in diameter—perfect plants.
Pinus austriaca ... ... 6 to 10 "
A valuable tree for exposed situations; grows very rapidly.
Pinus Cembra ... ... 5 to 8 feet high
" excelsa ... ... 8 to 10 "
" insignis ... ... 3 to 5 "
" Montezumæ ... ... 3 to 5 "
" monticola .. .. 6 to 8 "
Cedrus Deodara, several thousands of fine plants from ... ... 3 to 15 "
" Libani ... ... 6 to 10 "
Araucaria imbricata ... ... 3 to 7 "
Cryptomeria japonica ... ... 4 to 6 "
Juniperus chinensis (Chinese Juniper) ... 6 to 7 "
This is one of the most handsome and hardy of all Junipers.
Juniperus oxycedrus ... ... 4 to 5 feet high
" virginiana (Red Cedar) ... ... 6 to 8 "
" hibernica (upright) ... ... 5 to 6 "
Taxodium sempervirens... ... ... 4 to 10 "
A very rapid growing tree, much valued in California for the durability of its timber.
Thuja orientalis (Chinese Arbor Vitæ) ... 6 to 8 feet high
" pendula ... ... 3 to 4 "
" Wareana ... ... (very fine) 5 to 8 "
Libocedrus chiliensis ... ... 3 to 4 "
Wellingtonia gigantea, stout seedling plants.

Several thousands of SPRUCE and SILVER FIRS from 6 to 12 feet high, indispensable where a screen is required.

Of Yews and Green Hollies here is the largest stock in England consisting of fine plants from 6 to 10 feet high.

Fanned Yews, for hedges, furnished quite to the ground, 6 to 10 feet.

Tree Box, 6 to 8 feet.

Hand-some Evergreen Oaks, 6 to 8 feet.

Quercus Exoniensis (New Lencombe Oak), 8 to 12 feet. A fine evergreen Oak.

DECIDUOUS TREES.

Ash (Weeping) worked on straight stems .. 8 to 10 feet.
Beech (common) . 8 to 10 "
" (purple) ... 6 to 10 "
" fern-leaved) 6 to 8 "
" (variegated) 6 0 "
Hornbeam ... 8 to 10 "
Horse Chestnut ... 8 to 12 "
Limes ... ... 8 to 12 feet.
Planes ... ... 8 to 10 "
Oak (English) ... 8 to 10 "
Sycamore... ... 8 to 10 "
Single and Double Scarlet Thorns
Tulip Trees
Weeping Willows

A fine collection of HARDY RHODODENDRONS, AZALEAS, HEATHS, and other AMERICAN PLANTS.

W. Y. again begs to state that no plants but such as are quite safe for transplanting will be sent away from the Nursery under any circumstances.

The great facility now afforded by railways enables goods to be easily and expeditiously transmitted to any part of England at moderate cost.

Purchasers will be liberally treated in respect of carriage. The Nurseries are about an hour's ride from London on the South-Western Railway, and two miles from Godalming station.

Milford, near Godalming.

MESSRS. E. G. HENDERSON & SONS' SPRING CATALOGUE (Post free on application) contains full description of the following New Plants:—

Echites Houtteana, finer than crassinoda
Begonia picta, a beautiful foliaged plant
" cinnabarina hybrida, cinnamon red, shrubby habit, and now coming into flower. It is an excellent winter blooming plant.
Dianthus albo nigricans, large double variety, black, edged and interlaced with white; hardy
Camellia Jenny Lind, beautiful form
Azalea the Bride, pure white, very free flowering
" Louis Napoleon, double rich crimson velvet.

RHODODENDRONS.

Countess of Rosslyn	Mrs. Dargan
Duchess of Cleveland	Earl of Rosslyn
Duke of Hamilton	Lord Bolingbroke

Six magnificent rich spotted varieties, having compact conical trusses, and very large and conspicuous flowers.

New and delicious Strawberry "Adair," for particulars and description of which see Autumn Bulb Catalogue or back numbers of this Paper.

A New Plate of Five Choice Show Geraniums is now published, and will be forwarded on receipt of 12 postage stamps.

The Autumn Bulb Catalogue will be forwarded on application, containing descriptions of Cinerarias and Geraniums now being sent out for the first time.

Wellington Nursery, St. John's Wood.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

RED LODGE NURSERY.

TWO AND A HALF MILES FROM SOUTHAMPTON.

WILLIAM ROGERS, SEN., has to offer the following in fine condition and well rooted:—Scarlet Rhododendrons and Ponticum in large quantities, Spanish Chesnut, Oak, Larch, Spruce, and Scotch Fir, Abies Douglasi from 1 to 6 feet, Portugal Laurels (very fine). The trained and untrained Fruit Trees are as usual good, and warranted true to their names, including that fine Pear the Beurré Clairgeau, first introduced by Advertiser 8 years since from the Continent. Handsome specimens of the new Conifers, Evergreens of all sizes, and upwards of of 20,000 Roses (dwarfs and standards), including the new varieties. All letters must be addressed in full. WILLIAM ROGERS, Sen., Red Lodge Nursery, near Southampton. Catalogues on application.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
" Douglasi, 1½ to 3 ft.
" Menziesi, 1 to 3 ft.
" Morinda, 3 to 10 ft., very fine
" rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
" Lambertiana, 1½ to 3 ft.
" torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
" " Standards, 8 ft.
Laurestinus. 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
" Benthamiana, 1½ ft.
" Cembra, 1 to 5 ft.
" excelsa, 4 to 8 ft., very fine
" insignis, 1 to 6 ft.
" Lambertiana, 1 to 6 ft.
" Llaveana. 1 to 2 ft.
" monticolor, 1 to 2 ft.
" muricata, 1½ ft.
" Pallasiana, 2 to 2½ ft.
" Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
" Nordmanniana, 1 ft.
" Pinsapo, 1 to 4 ft.
" Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
" glauca, 6 to 9 in.
" intermedia, 1 to 1½ ft.
" japonica, 1 to 1½ ft.
" gigantea, 1 ft.
" minima, 6 to 9 in.
" Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
" Canadensis, 1 to 2 ft.
" Cheshuntensis, 3 to 5 ft.
" Dovastoni, 1 to 2 ft.
" elegantissima, 1 to 2 ft.
" gold striped, 1 to 4 ft.
" Irish, 1 to 5 ft.
" stricta, 1 to 4 ft.
" common, 1 to 5 ft.
" " Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
" " Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
" Maple, 8 ft.
" Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
" " variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
" Beech
" Elms, 8 to 10 ft. stems
" Mountain Ash
" Privet
" Willow
" American Willow, 8 ft. stems
" Kilmarnock " 6 ft. stems
" Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
" flava speciosa
Clematis azurea grandiflora
" double blue
" Florida, double and single
" Hendersoni
" Sieboldti
Honeysuckle Evergreen
" Scarlet Trumpet
" flexuosa
" Magnevillea, one of the finest
Ivy, Irish, strong
" palmated
" gold blotched
" silver
" Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica
Camellias
Epacris
Ericas
} A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1s. 6d., 2s. 6d., and 5s. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Nov. 1.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5s. each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

A LARGE QUANTITY OF RHUBARB ROOTS, best sorts, such as Prince of Wales, Victoria, Giant, Albert, &c.; also Seakale and Asparagus, strong plants, many thousands, to be sold very reasonable for cash; likewise a surplus stock of Pheasant-eyed Narcissus, and Double Yellow Daffodils, very cheap. — Apply to CHARLES CLARKE, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

GLENNY'S IMPROVED BALSAM SEED from flowers 3 inches across, not approached by any other. 6 classes, 37 stamps; mixed packet, 13 do., sealed and signed packets only. Other very choice Seeds.—Dungannon House, Fulham.

THE LIVERPOOL MARKET'S PRICES FOR CHOICE FRUITS AND VEGETABLES

Will be sent post free at all times during the season by applying to GEORGE TAYLOR, JUN.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
Terms—"CASH."

WALTON NURSERY, LIVERPOOL.

To NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than one peck), carriage free. Whites, for pastry, at per bushel (56lbs.), 12s. 4d.; fine Households, recommended for bread-making, 11s 8d.; Seconds, 11s.; Wheat Meal, for Brown Bread, 11s.; best coarse and fine Scotch Oatmeal, Rice Flour, &c.

Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington.—Directions for making Bread supplied gratis. Terms cash.

REIGATE SILVER SAND, 16s. per ton, less quantities 1s. 6d. per bushel, delivered to any London Wharf or Railway. PEAT and LOAM, for Ferns, Heaths, Americans, &c. Samples if required. Terms Cash. Sacks, 2s. each, or on hire.

JOHN KENNARD, Swan Place, Old Kent Road, London.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½d. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'s PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make: Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

GREAVES & KERSHAW, Warwick —Nov 1.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS Milbank Street, Westminster.

NEW EXOTIC FERN.

GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (MOORE).

ROBERT PARKER begs to offer the above beautiful and distinct Fern, of which a fine specimen was exhibited at the last Crystal Palace Show, and was awarded a first prize for new plants. In appearance it is perfectly distinct from any species in cultivation, the upper and under sides of the fronds being densely coated with white farinose powder, which gives it a most singular and distinct appearance. Good plants, 21s. each.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

NEW ROSE, BACCHUS.—This Rose is a seedling from the "Géant des Batailles." The flowers are similar, but larger, stouter, and brighter in colour, remaining a long time in perfection on the plant without the faded appearance so objectionable in the parent. It is a most abundant bloomer, both in summer and autumn; and has received first class certificates from the National Floricultural Society, the Royal Botanic Society, and at the Crystal Palace Exhibition. Price 10s. 6d. each.

A. PAUL & SON respectfully announce that they will send out the above Rose on and after the 1st November next. The usual discount to the Trade when three or more are ordered.

Nurseries, Cheshunt, Herts.

NEW SEEDLING ROSES.

BELUZE, Vaise, Rhone, France. — MOSS, DUCHESSE DE VERNEUIL; vigorous, very thorny; leaves, dark and shining green; flowers large and full, in a corymbus of four or five together; delicate rose tint; a showy plant. Price 15f. or 12s.

NOISETTE PERPETUAL MADAME SCHULZ; vigorous and spreading branches; leaves dark green; flower medium size, very full; colour, canary yellow, sometimes tinted rose in the centre; strong perfume. Produced from Ophirie, but totally different. Price 20f. or 16s.—Letters to be prepaid.

NEW ROSES.

DUCHER, Rue du Vivier, Lyons, France, offers the following:—

BELLE ANGLAISE, hybrid perpetual, growth vigorous; branches, straight and rather thorny; leaves, large and dark green; flowers, medium size, full, very good shape, sweet perfume; colour, rose-tinted, always flowers well.

ETANDARD DE SEBASTOPOL, hybrid perpetual, growth vigorous; branches, straight and rather thorny; flowers, medium size, almost full; colour, dark crimson, velvety. A seedling from Géant des Batailles, but quite distinct in growth and colour.

MADAME HERAUD, hybrid perpetual, growth vigorous; branches straight and strong; flowers very large and flat; colour bright carmine. Always flowers well, and has a most agreeable perfume.

Good plants of the above 15 francs, or 12s. each. Parties ordering three will receive a fourth plant gratis. Ready November 1st.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglassi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

CHOICE FRUIT TREES.—Fine Standard and Dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 3s. each, or 30s. per dozen:—

	s.	d.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each	2	0
Fine Gooseberries, Currants, and Raspberries, per dozen	3	0
Filberts, new, thin-shelled and red-skinned, per dozen ...	4	0
Strong Vines, in pots and out, best sorts, per dozen ...	18	0
Peaches, Nectarines, Apricots, and Cherries, grown expressly for pot culture, per dozen	18	0

See Advertisement for Greenhouse and American Plants, Oct. 25.

J. & H. BROWN, Albion Nursery, Stoke Newington, London.

DUTCH BULBS of superior quality, the following for 20s., package included:—

12 Choice Hyacinths, named	12 named early Tulips
12 Double Tournesol Tulips	12 best double Anemones
25 Choice Ranunculus	12 named English Iris
12 Polyanthus Narcissus	12 Jonquils
100 Dutch Crocuses, in separate colours	50 Snowdrops
	12 Gladiolus

Descriptive and priced Catalogues forwarded on application.

W. DENYER, Seedsman and Florist, 82, Gracechurch Street, London.

PRICES OF UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS,

for the Season of 1856.—All orders (not less than 20) to be accompanied with a Post-office order on Birmingham.

Twenty	£0	12	0	Eighty	£2	1	6
Forty	1	2	0	Hundred	2	8	0
Sixty	1	12	0				

Plants in pots, not less than 10, 1s. 3d. each, will be ready in October next.

Mr. UNDERHILL'S "Treatise on the Cultivation of the Strawberry," price 1s.

Mr. R. UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

SAFFRON WALDEN NURSERY.

SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5s.	0d.
Do. 12 do. do.	2	6
Do. good mixed	1	0
Border varieties, good mixed, ground roots, per 100 ...	20	0
Do. do. in colours do. do. ...	30	0

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

NEW AZALEAS AND CONIFERS.

WM. WOOD AND SON have fine plants to offer of the following desirable

AZALEA INDICA.

	Each.	Dozen.
Criterion, fine striped var.	3s. 6d. to 5s. 0d.	36s. 0d.
Admiration, ditto, ditto	3s. 6d to 5 0	36 0
Leeana, superb white ditto	3s. 6d. to 5 0	
Eulalie Van Geert	5 0	

NEW CONIFERS.

	Each.
Biota Meldensis, a very distinct and interesting new plant, reported to be a hybrid between the Red Cedar and Chinese Arbor Vitæ	5s. to 10s. 6d.
Cryptomeria araucaroides	7 6
Cupressus MacNabiana	5s. to 10 6
Juniperus japonica	5s. to 10 6
" pyriformis	7s. 6d. to 10 6
" Wallichiana	5s. to 7 6

Plants presented for distant carriage.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO THE TRADE.

	Per thousand—	s.	d.
Cypress, upright, 1-year in pans, fine		25	0
" Tourneforti " "		40	0
Arborvitæ (China) " "		20	0
Pinus Halepensis " "		20	0
" Pinea " "		40	0
Magnolia tripetala " " ...	(Per hundred)	15	0

MARTIN & SON, Nurseries, Cottingham, Hull Branch Establishment, Junction Street.

P.S. Our General Nursery List may be had for three stamps.

ERICA SPENCERIANA.

R. GLENDINNING begs to inform the Public that he is now prepared to send out this new and distinct Heath, a coloured illustration of which is given in the *Florist* for last month. This novel Hybrid was raised from seed in the Chiswick Nursery. It is a very free blooming variety, very small plants being laden with flowers; is a vigorous grower, with the habit of E. Cavendishi; and both as regards habit and colour of flowers is altogether distinct from any other variety, with the additional recommendation of remaining three months in bloom. It has been distinguished by prizes which have been awarded to it by the Horticultural Society, the Royal Botanic Society, and by the Crystal Palace Company at their grand display of plants in June last. Strong established Plants, 21s. each.

Chiswick Nursery, Nov. 1.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Conifers, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Rail where all Trains stop and conveyances can be obtained.

J. HOBSON, NURSERYMAN, Easingwold, can offer LARCH and SPRUCE FIRS, 1, 2, or 4 feet. SCOTCH FIRS, 1½ ditto. With a general stock of FOREST TREES.

BECK'S NEW PELARGONIUM "EMPEROR."—Mr. Glenny says:—"It is the best variety that the best raiser ever produced." This variety, with other very choice and new sorts, are now sending out. Catalogues with full description may be had on application to JOHN DOBSON & SON, Woodlands Nursery, Isleworth.

SPECIMEN CEDRUS DEODARA.

WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet	15s.	0d.	each.
Do. do. 5 to 6 feet	7	6	"
Do. in large pots, 4 to 5 feet	7	6	"
Do. do. 3 to 4 feet	5	0	"

A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.

Stapleton Road Nurseries, Bristol.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply CHIDHAM, BROWICK RED, TALAVERA, GOLDEN DROP, RED LAMMAS, NURSERY, and other approved kinds of WHEAT at market prices. A reference or remittance required from unknown correspondents.

WHEAT FOR SEED.

WILLIAM MAULE AND SONS have to offer, of their own growing and well-harvested, RAYNBIRD'S HYBRID, for which a Prize Medal was awarded at the Great Exhibition, 1851, and Gold Medal, Highland Society, Scotland. For reference, numerous testimonials from the leading agriculturists can be furnished. Price, 10s. per bushel.

Nurseries, Bristol.

SEED WHEAT FROM BLACK LAND.—Improved Browick Red Wheat, warranted genuine, perfectly clean and healthy Seed, grown 100 miles north of London on a light black soil in Deeping-Fen. It is the produce of a properly prepared seed bed, from selected Seed of last year's growth, and carefully tended throughout. References to any farmer in the district.—Address, WM BARNES, The Elms Farm, Spalding, Lincolnshire.

NEW EARLY WINTER TARE, recommended by practical agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15s per bushel.

Fine Winter Tares	6s 6d.	per bushel.
Early Racer Tare	7 6	"

Address—Mr. H. RAYNBIRD, Basingstoke.

THE CHAMPION SWEDE.

MESSRS. SUTTON AND SONS have the honour and gratification of announcing that their CHAMPION SWEDE, which last year gained the two Silver Cups presented to the Royal East Berks and the Royal South Bucks Agricultural Societies by H. R. H. Prince Albert, has gained the same distinguished prizes at the same Shows this year also; besides numerous prizes in other parts of the kingdom. Messrs. SUTTON & SONS have saved some Seed this year, of the same sort which they are now sending out at 1s. per pound, or 48s. per bushel for cash payment.

Address JOHN SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 1, 1856.

THE termination of summer has brought the usual account of LARGE GOURDS grown here and there to the astonishment of persons unacquainted with such productions. One gardener tells us (p. 709) how he had one weighing 112 lbs., Mr. Hamp, of Ware, is proud of a specimen weighing 136 lbs., and a third assures us that in the garden of Captain HALL, of Cotfield House, near Exminster, a monster of a "Citrouille" has been produced measuring seven feet in circumference, and weighing a hundred and fifty pounds. To us who saw that famous Pumpkin of Lord RODNEY's in 1834, which weighed two hundred and twelve pounds and was eight feet round, and who have made the acquaintance of others not much smaller, this is not surprising; but we never hear of such specimens without regretting that a plant so enormously productive, and which demands so little care, should not be more extensively cultivated. Not that we would recommend the skill of a gardener to be directed to monster Gourds, but because the mere fact of a plant being able to carry one such specimen shows how great a number of smaller ones it is capable of bearing.

If indeed these Gourds were mere curiosities, or if they had but little utility, they might be very well left in the neglect they now experience. But they are excellent articles of food, and are capable of assisting more than is supposed in eking out the produce of a little kitchen garden. This our neighbours across the Channel know well enough; the traveller sees them in the markets of the north of France cut into large slices sold at a very small price to the lower and middle classes; and if he has the curiosity to taste them in the form of soup, or

plain boiled, he learns one more lesson in the œconomy which is synonymous with comfort.

To monster Gourds, if grown for use, there are many objections. The ground which will hold a plant capable of carrying one of 150 lbs. would produce 20 or more of 15 lbs. each, and those small fruits constitute the real value of the crop. For the fault of Gourds is that they do not keep well after having been cut open, becoming mouldy and spoiling unless placed in a very dry and thoroughly ventilated place. Therefore they ought to be used in the course of a few days after having been begun; an object not so easy to accomplish with a mass weighing a couple of hundred weights, but perfectly attainable with small specimens.

Those who wish to turn their attention to Gourd growing for the kitchen should take care to select proper kinds. Some are bitter and unfit for use; others are watery and insipid; others bear badly. The French prefer the Spanish Potiron, the great yellow Potiron, and the Brazilian Sugar Gourd (*Courge sucrière du Brésil*). We also observe that an "Ohio Gourd," said to have come from England in 1845, is getting into esteem on account of its sweet farinaceous flesh, which is quickly cooked, and because the fruit is small, not weighing more than 6 lbs. to 8 lbs. each. In our own experience however nothing equals for excellence and productiveness the great Egg Gourd (*Cucurbita ovifera*), the flesh of which is firm, sweet, not watery, and admirably adapted to cooking. What may be done with this in even so bad a summer as that of 1856, will be seen from the following statement.

On a piece of heavy clay soil, in a low situation rather shaded by trees, measuring about 6 yards square, two plants of the Egg Gourd were set in May. For some time they made little progress; at last the earth warmed enough and they rapidly covered the ground. Both having cast their fruit continually, water was given freely, still without the desired result. At last one of them was thoroughly sluiced with a mixture of two or three pounds of weak Californian guano, a couple of spadesful of cow-dung, and water left for a day in a tub exposed to the sun, the whole being washed in with rain water. This answered, and the fruit set. Eventually the first plant remained barren, while the second bore seven fruit of the following weights, viz., 78 lbs., 47 lbs., 35 lbs., two 23 lbs., 14 lbs., 11 lbs.—in all 231 lbs.

A larger weight of wholesome winter food could, we think, be hardly obtained from the same space of ground; and much less would have sufficed had the Gourds been in a warm corner and their vines had room to scramble about. Let us add that the tender extremities of the shoots form the best spinach in the world; and a couple of plants will produce several dishes in the course of the season.

SEVERAL persons have been lately much surprised at the fall of immense quantities of small branches from Oaks and other trees, the point of separation being as neatly defined as that of a leaf-stalk from its attachment. An account of this phenomenon was given in the *Gardeners' Chronicle* last year under the article CLADOPTOSIS in Vegetable Pathology, and all we have seen since confirms the correctness of the view there taken. We have lately had an instance in a large branch of an Ash tree, which was nearly falling upon us after the fashion of HORACE's "triste lignum." Just as we got under the shade, without a moment's warning, a large branch, though there was not a breath of wind, fell at our feet. On examination it was clear that separation between the dead and living bark had taken place exactly in the same way as in the smaller twigs, and the cause of its fall was saturation with moisture after a very wet night, which made the decayed wood unable to support the weight after the separation of the bark. In other cases where the wood is tougher or less decayed, as for example very frequently in the Elm, the living portion of the bark grows while the upper part decays and forms a cushion round the branch which after a few years decays and falls away, leaving the cushion ready to close up the orifice. *M. J. B.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. XI.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

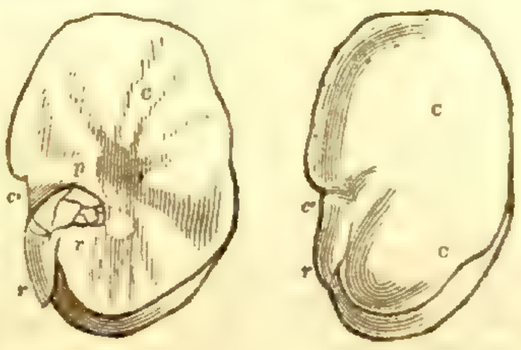
ORGANS.—The several parts of which plants consist are termed their "organs;" most of which undergo considerable alteration, in size and shape, from the earliest period of their visible existence till they have acquired their full dimensions. There are very minute "elementary organs" which it requires the aid of a microscope to distinguish. These will be specially noticed in describing the anatomy of the "external organs," with most of which we are partially familiar under the names of root, stem, leaf, the several parts of the floral whorls, &c.

Whilst the school slates are in continued requisition for the solution of the little botanical problems of the Floral-schedule, an experiment or two will show the conditions under which "external organs" exist in the early stages of a plant; and also the manner in which these and others, subsequently formed, are gradually developed (*enlarged by growth*) as the plant increases. But, a few preliminary observations on seeds will be necessary, before the experiments alluded to can be rendered effective.

Example 25.—Seeds of the "Garden Bean," or its variety the "Horse Bean" (*Vicia faba*), are well adapted, from their size, for our purpose. If the seeds are dry, they should be prepared for *observation* by being soaked in cold water for about 24 hours. If hot water is used they will be ready in a few minutes. On the surface there is a black stripe (H) commonly called the "Eye," but technically the "Hile" (*Hilum*). This is a scar left by rupture of the tissue which connected the seed with the inner surface of the Bean-pod, which is a "seed-vessel" or "Pericarp" (*Pericarpium*) within which it was developed. A hile necessarily exists on the surface of all seeds, but is often small and inconspicuous. If a moistened seed be wiped and then gently squeezed, the imbibed water will be seen to issue from a very minute hole close to one end of the hile, and termed the "Micropyle" (*micropyla*) (*m*). A micropyle perforates the seed-skin of all seeds; but in many plants it is too obscure (and more or less obliterated), to allow of its position being determined in the same way in which it can be detected in a Bean-seed. In some seeds it is close to the hile, in others at a distance from it. The mode by which its position may be determined need not now detain us.

BEAN-SEED.

Embryo. Botanical Examiners testify to a singular difficulty which many of the botanically examined seem to experience in obtaining (or at least in explaining) the scientific idea attached to the word "Embryo." Some of the efforts which have been made to popularise our science are calculated to mislead a beginner, and if he trust to them he will feel puzzled to attach precise meanings to the terms "Seed," "Embryo," "Albumen," and "Cotyledon." Let the beginner himself remove the seed-skin of a well soaked Bean-seed. The *whole* of the white fleshy body exposed by this operation is the "Embryo" Bean. This Embryo is a young plant, a living organised being, with subordinate parts (its external organs) prepared to fulfil certain vital functions (*peculiar processes*), so soon as they shall have been duly stimulated into activity by the combined influences of moisture, heat, and light. In a ripe seed, the enclosed Embryo may be likened to a chicken just ready to burst the eggshell. As such a chicken has its two legs, two wings, and other organs more or less developed, so has the present Embryo plant its two cotyledons (*peculiarly modified leaves*) (*c*), its radicle (*little root*) (*r*), its caulicle (*little stem*) (*c'*), and its plumule (*little terminal leaf-bud*) (*p*). All these organs are in this case conspicuous.



ONE COTYLEDON REMOVED. EMBRYO.

Cotyledon (pronounce *Cottyleedon*). The two Cotyledons (c in fig.) constitute the main bulk of this Embryo. On removing one of them it will be found to consist of a firm fleshy substance, slightly convex outside and flat on the inside. All Embryos with two cotyledons are said to be "Di-cotyledonous."

Caulicle. The cotyledons are attached by very short stalks to opposite sides of a small stem termed the "caulicle" (*caulicula* or *tigellum*) (*c'*). The cotyledons are closely pressed together and inclined towards one side of the caulicle.

Radicle. In one direction the caulicle ends in a part which tapers off conically, and is called the "Radicle" (*Radicula*) (*r*). This becomes the root of the developed plant. The boundary between the caulicle and radicle is seldom well defined. The imaginary plane which may be supposed to separate them is termed the "neck," and from this the radicle elongates in one direction (*downwards*) and the caulicle in the opposite (*upwards*).

Plumule. Above that part of the caulicle to which the cotyledons are attached, it is curved and lies concealed between them. The extremity is somewhat enlarged, and is termed the "Plumule" (*Plumula*) (*p*). This is a nascent "leaf bud," and the leaves of which it is composed are partially distinguishable, being faintly traced out, and closely packed.

Albumen. Certain materials, often farinaceous (as in corn), and either mealy, horny, fleshy, oily, or of other consistency, are botanically termed "Albumen." They must not be confounded with the organic substance chemically so called. This botanical albumen exists in greater or less quantity in the seeds of many plants. It surrounds, wholly or partially, the embryo. It sometimes forms the greater portion of the entire bulk of a seed, and the embryo is then proportionably small, sometimes very minute. Seeds which possess albumen are termed "albuminous," in contradistinction to those which being without it are "ex-albuminous." Those albuminous seeds which contain di-cotyledonous embryos are mostly small. The seeds of the Castor-oil plant (*Ricinus communis*), and of the Nux vomica (*Strychnos Nux vomica*) are good examples among the larger kinds. Their albumen is copious, oily in the former, horny in the latter. Their embryos have large, but extremely thin, delicate, and leaf-like cotyledons. They can be obtained at chemists; but it should be remembered that Nux vomica seeds are deadly poison.

N.B. Albumen always exists in the early stages of a seed, but is often (as in the Bean) entirely absorbed by the embryo before the seed has ripened. In these cases the large cotyledons contain the nutriment essential to the germination (*early growth*) of the embryo plant. In albuminous seeds, it is the residual portion of the nutriment prepared for the embryo which constitutes their so-called albumen, and this is then imbibed after germination has commenced.

Poly-cotyledonous Embryos. It is not unfrequent to meet with embryos which usually possess two cotyledons, bearing three or even more. But there are certain plants whose embryos always have several cotyledons (*poly-cotyledonous*), as in the albuminous seeds of some of the Pine tribe or Conifers (*Coniferæ*). The seeds of the Stone Pine (*Pinus pinea*) are well adapted for showing this. As this tree ripens its cones in England, the seeds can be procured through a nurseryman. Those of the Scotch Pine (*Pinus sylvestris*) will answer if the others cannot easily be obtained.

(*To be continued.*)

MEM. I find the capital letters on the portion of the floral schedule explained in No. X. have puzzled a botanical friend for 10 minutes. He suggests it would be better to print the words referred to in full. But, I am explaining as closely as I can the "actual plan" adopted in the village school. These initial letters are employed to prevent loss of time whenever the children have to prepare a fresh schedule on their slates. A little exercise of tact and memory is advisable in such cases. If necessary, the children turn to the two diagrams hung on the walls, as explained in Nos. II. and III. They there see the letters to be employed, and the position they occupy on the diagrams serves to recal the words they are intended to designate. I have no desire to see these letters adopted as general symbols; their employment is merely a matter of expediency.

ERRATUM.—In No. VI., at page 565, 29 lines from bottom, for (*Helianthemum*) read (*Helianthus*), after Sunflower.

THE TRUFFLE, THE TRUFFLE OAK, AND TRUFFLE FLY.

IN a notice laid before the Academy of Sciences on the 10th of January, 1847, M. B. Robert gave some interesting details respecting the intimate connection which exists between certain trees, and especially some species of Oaks, and the Truffles which are found beneath their shade. He very clearly showed that Truffles originate in contact with the extremities of the imperceptibly fine fibrous roots of these roots. M. Robert then raised the following important question, but without answering it: "May it not be admitted that Truffles are a sort of subterranean Gall-nuts, originating in a similar manner to those found upon the young branches of the Oak, and which are caused by the puncture of an insect?"

In a letter written to M. Barral in the beginning of the present year, Comte de Gasparin states that he ascertained the correctness of an assertion made by M. Rousseau, of Carpentras, that in order to make Truffles appear in a locality where they do not already exist, it is merely necessary to plant certain species of Oaks, called Truffle Oaks.

It has long been known that a particular species of fly, or Tipula, continually haunts the Truffle grounds, depositing its eggs in the ground where the Truffle will be produced; and, lastly, that the latter when fully ripe decays, occupied as it is by the larvæ of the fly, and is soon devoured by the grubs, which, in their turn, give rise to a new generation of flies, and so on.

M. Ravel, of Montagnac, Basses-Alpes, where the production of Truffles is continually becoming greater, and whose family has for more than a century been engaged in the sale of that article, and who has himself contributed greatly to the advancement of that important branch of industry, believes, after 30 years' observation, that he has discovered the true nature of the Truffle, and the means by which the latter is propagated. He only became acquainted with the note of M. Robert in Comte de Gasparin's letter after his arrival in Paris in July last; and if his views meet those of these gentlemen, it is purely by accident. This coincidence has inspired him with fresh confidence in the results of his researches, especially as each of those who have preceded him has only brought out a portion of the truth, whilst he has produced it entire; and he can adduce numerous proofs in support of his opinions. The conclusions at which he has arrived in the following memoir are these:—

1. That the Truffle, even if it can or ought to be considered a fungus, is not a purely vegetable production; it originates in consequence of a fly puncturing the delicate fibres of the roots of some species of trees, and especially those of the Quercus sessiliflora. In this respect its origin is animal, and it ought to be considered as an underground variety of the Gall-nut.

2. That there are certain species of Oaks which may justly be called Truffle Oaks.

3. That there exists a sort of fly, or Tipula, which should be called a Truffle fly, in the same way as there is a fly called the gall insect.

4. That it is not in the Truffle itself, but in the root from which the Truffle is produced that this fly deposits its eggs, so that the eggs exist before the Truffle, are

transformed into larvæ, which will devour it if not taken up, and which will produce a new generation of flies.

5. That each species of Truffle has its own kind of Oak, and its own Truffle-fly.

6. That Truffles of any given species may be produced at will, in suitable soils, that is, in free calcareous soils, by the planting of Truffle Oaks, and by the importation of the Truffle-fly proper to the species of Truffle that is required.

M. Ravel does not pretend to deny that the Truffle is a fungus, having a distinct organization, but he affirms that it is never produced entirely by its own agency, that is to say by the diffusion of spores, that it is produced essentially in the same way as galls, by an accident happening to the roots of certain trees, or by the puncturing of these roots by a certain insect; so that unless the roots are punctured by the fly, the existence of the Truffle would be as impossible as the existence of the gall-nut without the agency of the gall insect. The Truffle, then, according to his view, is the work of an insect. The following, according to M. Ravel, is how the Truffle originates. The flies, which are seen skipping continually, even in winter, over the Truffle grounds, reach the fibrous roots and puncture their extremities to deposit their eggs. The puncture causes the issue of a milky juice, which is the first element of the Truffle, its embryo; the slender fibre of the root perishes almost immediately, and the drop remains isolated; from white it sooon turns to grey, then brown, and finally black; it grows at the same time at the expense of the substances rich in nitrogen and carbon which it meets with in the earth, and which are most abundant near the roots of the tree. If at the moment of formation several milky drops or embryo Truffles come in contact, they unite and form a sort of compound one, exhibiting an odd figure. We leave to M. Ravel the responsibility of his theory, merely contenting ourselves with giving publicity to his views, concerning which he has not the shadow of a doubt; but he adds: "If the formation do take place in a different manner from that which I have described, if instead of originating like galls from the puncture of an insect, the Truffle springs like Mushrooms from spores, the agency of the Truffle-fly would not be the less necessary; its office would be to bring the spores in contact with the roots on which they could germinate, in the same manner as insects carry the pollen of flowers on their legs and other parts of their bodies." In any case, M. Ravel considers it an undeniable fact that the Truffle-fly is an essential agent in the production of the Truffle, and he goes so far as to say that he would prove by experiment that a soil rendered inaccessible to the fly will never produce Truffles. This is the reason why Truffles are only abundant where the ground has been rendered sufficiently soft by rains occurring at the proper period; that they are very rare in dry seasons when the soil is to a great extent impermeable, and thus they cease to appear or to form themselves when dung is spread upon the surface, or is dug in, for it has the effect of driving away the fly.

It results from the above, upon which we do not venture to pass an opinion, but which is, at all events, very ingenious, that the Truffle even when first formed contains the eggs of a certain species of fly, that the development of these progresses with that of the Truffle, and that the latter is in reality a sort of compound of vegetable and animal substance, a statement which is supported by the fact of the Truffle being extremely rich in nitrogen. The eggs hatch as soon as the Truffle has arrived at maturity and is fit for the nourishment of the worms which are produced within it; these worms afterwards become pupæ, which in their turn are transformed into flies. M. Ravel undertakes to supply the larvæ or the chrysalides of the Truffle-fly, and also the acorns of the Truffle Oaks. *Abridged from the Cosmos.* [We give this, not because of its novelty, or its truth, but as a specimen of the kind of value that belongs to the statements of incapable observers. Next week we shall have something to say by way of comment.]

VEGETABLE PATHOLOGY.—No. CXLIII.

587. PARASITÆ (*Ustilago**, *Smut Dust-Brand*). This genus contains some of the most formidable and destructive parasites which affect a variety of plants of very different characters, but more especially those Grasses which are cultivated for the nutriment of man and of those domestic animals which form so important a part of his food. They differ considerably in colour and character, varying from purple or lilac to violet and olive brown. Those species which affect Cereals are all of a dingy tint and of very simple structure. The bodies, however, which are commonly known by the name of spores are merely the first effort of vegetation. They germinate when placed under proper conditions of moisture, and produce by means of constriction oblong deciduous cells, which seem to be spores of the second order. In *Ustilago receptaculorum* at least the secondary spores have a similar form, though not precisely the same origin, and these very rarely produce spores of the third order.

588. The Ustilagos are at once distinguished from *Uredo* and similar genera by their minute *dusty* spores which are void of any peduncle, or which are detached at a very early period of growth. *Thecaphora*, *Polycystis*, and *Tilletia*, which have somewhat similar habits, are all essentially distinguished by the structure of the spores. They are found in different parts of the plant; sometimes on the leaves and stems, as *U. longissima*, *hypodites*, and *typhoides*, but more frequently in the organs of fructification, which they deform at the same time that they appropriate all their nutriment. The leaves of Grasses affected by *U. longissima* have long narrow parallel bands filled with dusty spores, but *U. hypodites* destroys the whole stem with the inflorescence before it bursts through the sheath. We have seen Grass crops suffer materially from it, for where it once commences its attacks it is usually very abundant. *U. typhoides* in a similar way affects the stems of Reeds, making them totally unfit for thatching, for which they are the best and most durable material.

589. The smut again of the Indian Corn is by no means confined to the fruit. It frequently attacks the stem, and forms large swollen wen-like bodies many inches in diameter filled with spores, and the decomposed vessels of the plant. Maize is but little cultivated in Great Britain, but in some cases where the cultivation has been attempted the crop has not been free from this dreadful plague.

590. All our Cereals are more or less subject to be attacked, Wheat forming no exception, though smutty Wheat is comparatively rare. Barley and Oats are subject to it, but seldom in such quantity as to attract notice. It was, however, peculiarly abundant during the present season, and in some cases destroyed at least one-third of the Barley crop. The crops were, however, so abundant that when a brisk wind had dispersed the spores the loss was scarcely felt. A notion of the abundance of the spores may be obtained from the fact that the ground where the smut was produced was of an uniform black all over. There was moreover a shower of black rain in the neighbourhood which was attributed to the smut; but as no competent person examined what fell, it is not quite certain with what the water was mixed.†

591. Though smut is highly destructive where it abounds, it is not so injurious to the harvested grain as bunt, because the spores are in great measure dispersed before the grain is ripe, which is not the case with bunt, the spores of which are frequently not set free till it is broken up by the flail or threshing machine, added to which it is entirely void of the disgusting fish-like odour which is so offensive in the bunt.

592. The question of most interest to the farmer is how he may get rid of the plague, for though he may speak of it as a good sign when there is but little of it, on the same principle which so often leads men to propitiate some unknown evil principle by good words, so long as the matter does not come home too closely to their experience, no one would pretend that it was good to have a third or more of the produce destroyed by it. The remedies are, undoubtedly, the same as those of which we shall have to speak under the article Bunt, but they are not so efficacious, because the seed is not so apt to be impregnated by the spores as bunted Wheat. The greater part is dispersed at an early period, and falls to the ground, where it is ready to attack the sprouting seed. We have, however, failed in obtaining smutty grain from seed purposely impregnated, which is scarcely ever the case with bunt. It is said sometimes to affect the stem as well as the inflorescence, but we have never seen any example.

593. We are not aware that any experiments have been made of the effect of smut spores taken as food. The *Ustilago* which affects the common Reed is said to produce severe headache where the Reeds are much infested. *M. J. B.*

* From ὑστερο, to burn.

† There is no reason why there should not be showers of black rain from the mixture of smut as well as showers of yellow rain from that of the pollen of Pines, Oaks, or Sallows, a not very unfrequent occurrence.

Home Correspondence.

Strawberry Tiles superseded. — Few inventions, I imagine, have been struck off at first in so perfect a manner as not to admit of improvement. I might instance steam engines and many other things, the first constructions of which were rude and imperfect and but half answered the purposes for which they were intended. I need not, however, give in detail their gradual progress towards perfection; suggestions may admit of as much improvement as actual inventions. Some six or seven years ago much was said about what were called "Strawberry tiles." The ostensible object was to preserve the ripening fruit from dirt and damp by raising it from the ground. Experience, however, ultimately proved that these contrivances had little practical value, and I have not seen in the *Chronicle* (and I take it regularly) an advertisement of them for I don't know how many years. These Strawberry tiles, however, were not without their use; they were a suggestion capable of improvement, and that improvement I think I have hit upon. The only fault I ever heard attributed to these tiles was, that they excluded too much light, moisture, and air from the plants, thereby soon rendering them unhealthy; and that even the fruit (though kept clean) was dry and somewhat stunted. "What if, by way of experiment," said I, "I knock the bottoms out of a couple of dozen twopenny pots and turn them upside down on a rich border, sinking the broad end 2 inches in the clay, then fill them with strong rich loamy compost, such as the Strawberry delights to revel in, and plant a couple of healthy runners in each pot; the roots will have free access to the border through the pot, the plants will have all the benefit of light, moisture, and air that nature can bestow, and the fruit at the same time will be raised five or six inches above the dirt and clay; scarcely any shower, however heavy, will knock it upon them." No sooner was this thought of than the plan was put in practice. I got the pots, and with a hammer knocked the bottoms nicely out all round; I then dug a sloping border very deep, manured it richly, and placed the pots in rows 2 feet one way and about 16 inches the other, sinking them, as I said, 2 inches in the ground. I filled them rather tightly pressed with proper soil to within about an inch of the top, and put a strong young runner of British Queen into each pot. The prompt and healthy growth of the plants was soon manifest, and the following year—last summer—they bore a plentiful crop of beautiful large fruit of excellent flavour. I am confident the berries were vastly improved by being kept so perfectly clean and free from dirt or contact with anything damp, and the plants were most luxuriant and healthy, and are so still. Of course the twopenny pots were only as a make-shift for the experiment, and contrivances for the purpose should be made at the pottery, as the process which I had to go through (with the loss of about three pots to the two dozen) would not answer, neither do the broken edges stand the frost very well; they should be made with a rim on both ends. The plants require to be kept well watered in summer, as from being raised up above the border they get dry much sooner. *Robert Curtis, Kilkenny.*

Pampas Grass (*Gynerium argenteum*).—A fine specimen of this is now in full bloom at Shortgrove, Essex, the seat of W. C. Smith, Esq. From the description given of this Grass in your Number for Nov. 1854, p. 708, Mr. Smith was induced to purchase a small plant of it of me. It has been treated as follows:—In December of the same year it was put into a 8-inch pot, in rich loam and sandy peat, and placed in a greenhouse. The following February the roots had filled the pot; it was then repotted into one a size larger. In March it received another shift, which was repeated in April when it was put into a 14-inch pot. All this time it was kept in a greenhouse, and up to about the middle of May, when a large hole was made for it in the open ground, and filled up with two or three wheelbarrowsful of a good mixture of rotten manure, rich loam, and peat earth. The plant was then turned out of its pot and planted. It grew very finely, and in November produced one panicle of flowers on a stem 9 feet in height. It was not at all injured by the winter last year, and now it has in full beauty 18 panicles of flowers, most of them on stalks more than 9 feet in height. What at this season of the year could look more noble or attractive? It has been planted on a sloping Grass lawn, near a piece of water. A plant so grand, hardy, and easy of culture is surely worthy of a place in every gentleman's grounds. *William Chater, Saffron Walden, Essex.*

Orchard Houses.—Much has been said both for and against orchard houses. Like everything else that threatens to interfere with old established usages, the subject must needs have its detractors. I was told by some experienced gardeners, when talking to them of growing Peach trees in pots, that it was the height of folly to attempt it. "Plant them in your borders," said they, "and you may have fruit, but never think of such toy-like practice as that of sticking them into flower-pots." My employer, however, being desirous of having an orchard house, we had one put up in October last year on the plan recommended by Mr. Rivers. It was 25 feet in length by 12 feet in width. This we stocked with a dozen Peach and Nectarine trees in bearing condition, along with a miscellaneous collection of maiden trees for future bearing, all in pots. The result has been highly satisfactory, all things considered; for it must be remembered that in our northern climate of Fifeshire, we had not above a dozen sunny days throughout the past season, and everybody knows that abundance of sunlight is essential to the production of good Peaches. The fruit, in point of flavour, was equal to that grown on walls, though scarcely so large; I must however confess that a desire to have richly laden trees tended to produce this result. I doubt not that we shall yet be able to improve in the management of these structures, and notwithstanding the adverse circumstances connected with a season such as the past, there is no reason why we should be discouraged; if others are we at least are not, for we have determined to extend our orchard-house in the expectation of again obtaining a suitable return. *J. D., Fife.*

Scorching under Glass.—At the end of last year I built a Vinery, glazed with about 2000 square feet of glass. Contrary to the advice of my friends I used 21 oz. sheet, the squares being 26 inches by 14 inches. My reasons for not using obscured glass were these: I conceived that in our climate we required every ray of light that could be obtained, in order to keep plants in a perfect state of health. The means I intended to adopt to prevent scorching were, in the first place, thorough ventilation; and if this had not answered I should have stretched over the house an old mackerel net used for keeping birds off fruit. This I imagined would cut the foci of the glass, if any, and at the same time allow the sun's rays to penetrate; but this latter plan I had no occasion to adopt, as although my Vines grew 9 and 10 feet in length, and were trained quite close to the glass, I had not a scorched leaf; and this I attribute to the plants being in robust health from thorough ventilation, and a well constructed Vine border, no flesh or any raw material having been used, but a good rich loam, plenty of sand, and well rotted

horse dung, the bed being about 2 feet deep, below which there is 6 inches of rubble and draining tiles every 6 feet. My observations lead me to suppose that scorching proceeds not from the effects of using transparent glass but from imperfect cultivation. Let others give their experience in this matter. *Sigma.*

Wintering Fuchsias.—It may interest some of your readers to know that most of the new and tender varieties of Fuchsia can be wintered out of doors by slightly pruning them in, lifting, and burying them about 10 or 12 inches deep at the edge of a Laurel bush or similar sheltered place. I have preserved some for several winters in this way; they were dug out about the beginning of May and planted where they were to grow, and they flowered admirably during the season. Most of what were buried survived the severe winters of 1853 and 1854, both winters of intense frosts here. *J. Webster, Gordon Castle.*

A Fact for the Advocates of 1-inch Drain-pipes.—I have in my garden a drain about 30 inches deep, under a gravel walk; formed with the old-fashioned draining bricks laid one over the other, and forming together a 3-inch circular bore or pipe, as accompanying figure. I have just had occasion to open it at 23 yards only from its upper end, and I find fully 1 inch of its depth filled up, as shown in the accompanying representation, evidently by mere infiltration of and sediment from foul water. Its exact date I cannot state, probably about 1780, certainly since 1776. *W.*

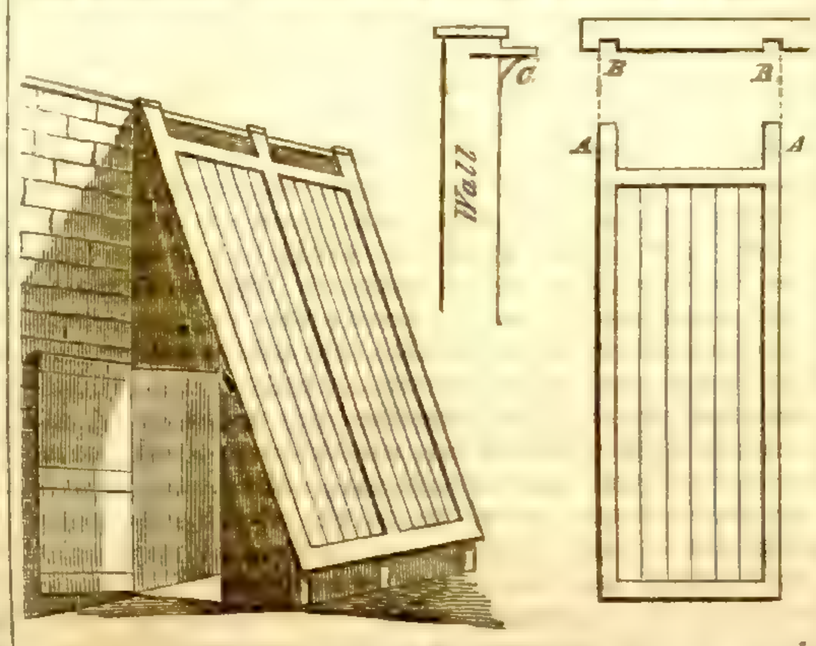
Quercus sessiliflora.—Having felt some interest in your investigations into the two species of British Oak and quality of the timber, I was disappointed that no more notice of your inquiry for localities of the growth of "sessiliflora" was taken than one correspondent informing you that many specimens were to be found at some not easily accessible spot in Wales. Having been among a few Oaks this autumn, I have therefore looked out for myself, and can inform you that the oldest trees in Marlborough Forest are of this kind, and so is the chief part of the Oaks round Southgate, near the Colney Hatch station; and an afternoon's ramble through the shady lanes there this fine autumn weather would enable any one to fill their pockets with the acorns, now fully ripe. *An Old Subscriber.*

Old Peach and Nectarine Trees.—Can any of your readers inform me what is the age of the Peach and Nectarine trees in the garden of Hurstmonceaux Abbey, near Battle? Also if it is considered advantageous for trees of these kinds to be of great age. *A Constant Reader.*

Swans.—In reply to the inquiry of "Citizen" (see p. 712) permit me to state that I have some which are in the habit of swimming in the water-courses of a meadow which are about 1 ft. 6 in. or 2 ft. wide, and 8 or 9 in. deep. *C. P., Nailsworth, near Stroud, Gloucestershire.*

Potatoes in Tan.—It is nine years since I first directed attention to the planting of Potatoes in old tan, a practice I have ever since followed with the best results. My Potatoes grown under this method have been witnessed by hundreds both at public exhibitions and in a growing state at home. At the former they have always stood pre-eminent. Although I must admit I am one of the most fortunate in escaping the disease, I do not presume to say that it is entirely through growing them in old tan. This is, however, a very great point in their favour, and it is entirely through using this that my Potatoes have always called forth such high comments when exhibited, being perfectly clear and free from scab. It is by selecting the earliest varieties, planting early in spring the middle sized tubers in old tan—taken up and stored away with sprinklings of lime as soon as sufficiently ripe, that I always manage to escape the disease, that is, I have scarcely had any bad ones worthy of notice, and unless these points are strictly adhered to we shall never successfully escape it. In the third page of a short treatise on the Potato, recently written by me for Mr. Atkinson, Seedsman, Worcester, and attached to his seed list, it was particularly recommended that by planting early, using early varieties and large sets, the best means would be employed of escaping the disease, which I believe now everybody is fully convinced of; but surely it is a folly to plant early varieties, &c., if they are allowed to remain in the ground and grow a second time or rot, which is often the case. A great portion of the Potatoes round this neighbourhood were perfectly ripe by the end of July or the beginning of August, and the haulm dried quite up; the crop at that time was perfectly sound, in fact scarcely a bad Potato was to be found. Now, if these had then been taken up and stored away the crop would have been perfectly free from disease. The great point since the appearance of the disease is to have the Potato crop sufficiently forward to escape the risk of vicissitudes of weather and the damaging effects of wet and cold at the stage of ripening of the tubers, and this cannot be attained by anything short of the method above recommended. The Potato crop has suffered more in parts of this district this season than has ever been known since the appearance of the disease. I have been called to witness many acres of Potatoes that have not paid for the labour of digging up, yet all these Potatoes alluded to were quite free from disease up to the first or second week in August. I trust that the folly of planting late Potatoes and carelessly leaving the early ones in the ground to grow a second time has been fully established this season by the appearance again of the disease, which generally takes place after heavy rains about August, and by so many persons complaining of their Potatoes growing a second time; but if we are to escape the evil it must be through perseverance, and the following method:—Plant early varieties so soon after the second week in February as the ground will permit, previously dressing the land with lime; place them from 2 to 3 feet apart from row to row, and use all the old tan you can procure; and lastly dig up the tubers as soon as the skin is set hard and the haulm died down; store them away perfectly dry, dusting them over with sprinklings of lime. Having the last two seasons grown a large collection of Potatoes selected with great care both in and out of tan for experiment, I am able to state that some varieties are very liable to the disease on all kinds of soil, while others have never shown the least symptoms of the malady. This should be borne in mind by all Potato planters. I shall be happy to give my experience to any reader of your journal, having carefully noted the produce, size, quality, &c., in my note-book. *Edward Bennett, Gr. to Sir P. P. Wakeman, Bart., Perdiswell Hall, Worcester.*

Glass Screen for Walls.—The following is a representation and descriptive account of a glass screen which covers part of a Peach wall in the gardens here; it is a contrivance of my own and differs from anything of the kind I have heard of, and having been in use for two seasons I have found it exceedingly useful both as a protection from frost in spring and for encouraging a fine healthy growth. I was induced to adopt it through having found great uncertainty in getting Peaches to set their fruit well under coverings of netting and bunting. I find, however, the greatest drawback to consist in not getting the wood perfectly ripened in autumn, late growth being encouraged by excess of moisture at the roots, and frost generally sets in before the tree has stopped growing. The buds are consequently only in a half-ripened condition, which makes them less able to withstand any sudden change of temperature so common in a British climate. My portable glass screen will in a great measure assist in overcoming this defect by transferring it from the wall to the border to ward off heavy rains, and it will also assist in increasing its warmth. The trouble of removal is a simple matter, being performed by two men in a short space of time, no rafters in either case being used. The sashes are made upon the most economical principle, with as little carpenters' work as possible. The glass is made to slide into grooves in astragals its own thickness, three lengths of which fill the sash; a piece of casement lead put between keeps the cut edge from chipping; a wood pin through the bottom plate keeps the whole tight, no putty is therefore required. The ends of the sashes are left a foot longer (A A) to allow a space of 6 inches clear for ventilation; an inch board 8 inches wide is fixed under the coping of the wall and notched out (B B) for the ends of the sash to rest against, and which is kept fast by half-inch iron keepers screwed on. This board is fixed by a strap of iron passing over the wall and a bracket under. The sash rests on a plate its own thickness, with an inch fillet on each side at 1 foot clear space from the ground, and at 4 feet from the wall. This and the coping board remain fixed when the sashes are removed. I have little doubt that with care in storing the sashes away in winter they will, on account of their durability, prove in a few years the cheapest covering we can get. *John Webster, Gordon Castle.*



Glass Screen for Walls.

Swallows.—A remarkable circumstance—not to call it a phenomenon—was observed by me and others on the 27th of September last. On that day, when no less than 40 cubic inches of rain passed into my rain gauge through an 8-inch square funnel (or 64 square inches), giving a net superficial return over the land in this immediate locality, swallows not only "hawk'd" very low, almost touching the ground in their rapid flight and evolutions, but numbers settled together in the Grass of the Fairfield and in the middle of the road in the High Street. In general we rarely see the true or chimney swallow (Hirundo rustica of White), the martin abounding in and near Croydon, but in this instance I observed the swallow exclusively. The excessive quantity of rain that fell between the morning of September 15th and the night of the 29th must, I presume, have brought down the insects which usually abound in the air, thus constraining the birds to take their food on the very surface of the ground. *J. Towers.*

The Filbert Strawberry.—The following fact may perhaps help to strengthen Mr. Myatt's statement with respect to this variety. Seven years ago, more or less, there was a gentleman living at Philberd's House, not "Filberts," who cultivated all the best hardy fruits to be had. He sent my employer during the Strawberry season several dishes—I think 12 sorts—of that fruit, and amongst them was Myatt's Seedling. This would probably be about the time it was introduced to the Royal Gardens. *Argentum, Maidenhead.*

Wellingtonia gigantea.—I have had two small seedlings of this under my care for two seasons; they were respectively 3½ and 4½ inches high when I received them (in Midsummer, 1854). After a few days' rest the finest plant was shifted into a seed pan 15 inches wide and 4 inches deep, in a mixture of turfy loam, peat, leaf-soil and sand, and placed in a cold frame, where it remained till the following spring. It was planted out in May in a sheltered situation; a pit was dug for it 13 feet in diameter and 2½ feet deep; in the bottom of this was found a stone drain, which was retained; the pit was filled up with good loam, leaf-soil, and bog earth. After planting, a raised hand-glass was placed over the plant two months, when it was removed, but replaced on higher props in December, its rapid growth rendering this necessary. It now measures 2 feet 8 inches high; girth at base, 4½ inches; diameter through the branches, 3 feet; growth of leader this year 1 foot 4 inches. The other was a less robust plant when received, and unfortunately its leading shoot got broken; but one of the tiny lateral shoots was tied up, which soon formed a nice leader. This plant now measures 2 feet 4 inches high; girth at base, 2½ inches; diameter through the branches, 1 foot 9 inches; growth this year, 1 foot 2 inches. Mildew (or something else?) has slightly affected their twiggy shoots; but wherever it appears it is at once removed by cutting off the diseased parts. *Wm. Baxter, Riccarton, near Edinburgh.*

Araucaria imbricata.—Seeing a report of the fine Araucaria imbricata at Dropmore has induced me to give you the dimensions of another which I annually see in my tour through these counties, the property of R. G. Newton, Esq., Millington House, Bridestowe, Oakhampton, Devon. Its height is 20 feet, diameter of branches at base 16 ft., with 15 tiers of branches, and very symmetrical; circumference of stem at base, 36 inches; 7 feet from the base, 24 inches in circumference. The situation is well drained, very humid, well sheltered from the north wind, but exposed on the south side to the wind from the Dartmoor Hills. I may add for the benefit of travellers, and those interested in such matters, that it can be seen from the high road leading from Oakhampton to Cornwall. *Alex. Pontey, Plymouth Nursery, Plymouth.*

Notices of Books.

Mr. Van Voorst has added to his works on English Zoology *A Manual of the Sea Anemones commonly found on the English Coast*, by the Rev. George Tugwell, of Oriel College, Oxford. Although the book is written in the popular style for the benefit of ladies and gentlemen not naturalists, it contains matter which the latter may profit by; for the author's head is clear, and he is evidently a master of that art of analysis without which natural history is little better than a land of mist or—dare we say it?—of moonshine. Most especially we refer to pp. 98 and 99, where the student will find an example of the way in which the scientific distinctions between genera and species may be made intelligible "to the meanest capacity." Since we regard Mr. Tugwell as being skilful in teaching those who are hardly teachable, we must give a few examples of his familiar method; and first from his "Glossary of Hard Words":—

"*Hydraform*, hydra-like (*hydra*, an animal which lives in the water; *hudor*, water, Greek; *forma*, a shape, Latin).

"The Hydra of old story was a monster who lived in some marshes, and destroyed people. As soon as one head was cut off, two more appeared, unless the actual cautery was applied. He was probably a malaria, and the moral of the allegory is that half-sanitary measures are worse than none, since they excite and do not remove the causes of the evil. The hydra *viridis* is a fresh-water zoophyte, bearing many polyps on a green stem. He lives in marshes, and reproduces himself even faster than his prototype.

"*Parasitic*, the specific name of an anemone. A parasite was a person who stationed himself (*para*) beside (*siton*) the food (Greek) of another; hence, originally, a messmate, &c., then it degenerated (together with the practice) into the idea of flattering, 'toadying,' and the like; afterwards it became applied in Natural History to those animals who took up their abode on or about some other animals or some plants, and did not select a freehold of their own."

The mode of analysis is after the following fashion. Having shown what a Radiate is, and how a Polyp is one of the Radiates, and that among Polyps are Helianthoids, he proceeds thus:—

"Having settled that the animal in question is a *Helianthoid*, we ask two questions:—

"Is he partly covered with a hard shell or coating of lime, firmly fixed to the rock?

"If so, he is a coral; and we pass on.

"But is his body fleshy and covered with a skin harder than the rest of him?

"If so, then he is *not* a coral, and we ask a few more questions about him:—

"1. Are these single polyps found to be united, not on a common stem, but by a thin band of flesh at

their base, something like the runners of Strawberry plants?

"If so he is a *Zo-anthus* ('live flower'), for a plate of which I may refer you to Mr. Gosse's new work on Marine Zoology.

"2. Are these polyps entirely single, not joined in any way?

"If so—

"Are his tentacles (long feelers or arms surrounding his mouth) in tufts, like patches of Mignonette round a flower-bed, or in circles without any break in them?

"If the former be the case, the specimen is a *Lucernaria*, and *lucerna* means 'a lamp,' and therefore the name is (as usual) descriptive of these tentacles hanging round the creature, like lights in a chandelier.

"If his tentacles are in regular circles, he belongs to the 'family' of the *Actinoids*, or 'sun-beams'—a name which forcibly recals the animal when you took him out of the cool depths of his rock-pool, and every tentacle shot out its many-coloured lights among the pink corallines and the dark tresses of the sea-weeds."

And so he goes on.

If the reader does not learn a good deal more by this book than what a Sea-Anemone is we shall be amazingly surprised. Most especially is it suited to clearing the cobwebs out of a neglected cranium. It is illustrated by half a dozen coloured plates.

The Gardener's Everyday Book. By Geo. Glenny. Crown 8vo. Cox, King Street, Covent Garden.

This is a monthly record of what should be done in a garden. It contains 288 pages of closely printed matter, arranged in double columns. Under each month are given plain common sense instructions for the management of the pleasure ground and shrubbery, the flower and vegetable garden, the orchard and fruit garden, the nursery, pits and frames, the forcing ground, the stove and hothouse, conservatory, greenhouse, heathery, Camellia and Geranium-house, and window gardening. On all these subjects much useful information will be found, and, owing to the different matters belonging to them being placed in alphabetical order, any operation or culture of any particular plant to which it might be desirable at any time to refer is readily got at. In this respect the plan of the book is good; it is neatly got up, and, although somewhat incomplete and scarcely perhaps up to the present time in the kind of information it furnishes, it will nevertheless doubtless be found extremely useful to amateurs, to whom such a monthly remembrancer must prove a real boon. We regret however to add that little attention appears to have been paid to the proper spelling of botanical names, many inaccuracies of that kind occurring throughout its pages.

Mr. Smith has just printed a *Catalogue of the Ferns in the Royal Gardens at Kew*, for the purpose of exchange with other gardens. Although Lycopods are excluded, which we much regret, the list includes between 500 and 600 species, and may be regarded as the most accurate catalogue that has yet appeared. Considering the confusion that exists among Ferns, and the discordant views of the dilettanti and real botanists who have studied these plants, it is most desirable that some standard of nomenclature should be established and recognised. We recognise the authority of Mr. Smith's list; it is a great practical convenience, and we shall rigorously adhere to it on all future occasions.

We have received parts 3 and 4 of Mr. Weddell's valuable *Chloris andina*. They are entirely occupied by Compositæ, and form a most important contribution to our knowledge of the Flora of the South American Highlands.

A new number (the 3d) of Dr. Hooker's beautiful *Flora of Tasmania* has also been issued. The plates consist wholly of Composites; the letterpress extends into Ericaceæ.

Garden Memoranda.

BIDDULPH GRANGE, THE RESIDENCE OF JAMES BATEMAN, ESQ.—(*Continued from p.* 711.) The transition from the Egyptian corridor and the apartments attached to it to the Pinetum is immediate, and probably as telling as anything about the place. From the dimness and confinement we emerge at once into a southern exposure, with a fine open winding walk in the front, and the very remarkable groups of Pines, &c., on either side; Knyperslу Church, two or three miles distant, making the central point in the view. The building just left is fitted up exteriorly, towards the south, with a porch and gable in the old Cheshire style, having quarterings of stained timber showing amidst the usual plaster.

The Pinetum, in so far as it has yet been completed, is perhaps one of the most successful and satisfactory things of the kind in the country. It is arranged on each side of a long walk, which, in very bold and easy curves, makes the circuit of the pleasure grounds, and which, commencing as already described, leaves the Pinetum by a rude stone tunnel, passes into the Rhododendron ground, skirts the open lawn and the lake seen from the drawing room, and finally returns to the terrace opposite the library window. Being the longest and most continuous walk in the grounds, it is also the most open and airy, and changes its line in a particularly easy and natural way; and it is peculiarly fitted for those who walk for health and exercise.

Along the margins of this walk, there are broad bands of Grass, of very varying widths, running irregularly into numberless larger or smaller bays and indentations, which compose the base of the mounds that rise on both sides. The Grass is wholly free from any kind of breaks or furniture, except where it joins the mounds; and as the curve of the walk is extremely bold and gentle, there is nothing to draw away the attention from the mounds themselves, or the plants upon them.

Changing in height, by the softest undulations, from 6 to 10 or 12 feet, and their faces diversified with an infinite number of little swells and depressions, these mounds are clothed, for the most part, with the common Ling, or Heather, the brownish tint and wild character of which constitute the most admirable background for the various greens peculiar to the foliage of the Coniferous family; the paler shades being thrown out additionally, in some cases, by a further background of Yews and Hollies.

Mr. Bateman's idea—doubtless the only true one—of a Pinetum is a most irregular series of groups of the same or kindred species of Conifers; and he has placed them on mounds, for the double purpose of rendering these groups more picturesque, and of bringing the beautiful forms of many of the sorts between the spectator and the sky, without any intervening background. The great variety in the shape and height of the mounds likewise affords the best facilities for securing the precise amount of exposure, shelter, shade, moisture, or dryness, which any particular species may demand. And the carpet of Heather, by its colour, and by its naturalness, seems to transfer the plants at once, in appearance, to their native hills, while, unlike bare earth or Grass, it requires no labour or attention whatever to preserve it in good order.

Comparatively recent as is the formation of this Pinetum, and though the plants are none of them much more than 10 or 12 feet high, the difference between the system of grouping here pursued, and the common method of spotting about the plants at comparatively regular intervals on a flat surface, is most conspicuous and satisfying. Nothing of the kind could be more beautiful than the groups of Deodars and Araucarias—at least a dozen plants in each group—which burst into view as the Pinetum walk is entered. Occupying a slope to the west, and assuming the greatest diversity of character, with some of them standing out clear against the sky, and others—especially the Deodars—being backed up by the mounds themselves or by Yew trees planted behind them, they present themselves, even to those most conversant with their forms, in many novel aspects and combinations. So striking, indeed, is the difference of habit which the Araucarias assume, that some fanciful name, indicative of their character, has been applied to each individual plant.

The mounds on which the Conifers are planted are almost purely artificial, being formed from the material obtained by throwing the walk into a small valley. The whole of the soil taken from the surface of their site has been used to provide for the plants, each of which has a large heap of it to grow in. By means of drainage, too, and by having naturally a bed of sand as a substratum in some places, a dry and sandy subsoil is supplied to such as prefer it, like the Deodars, and a stiffer and moister bed is retained for the Araucarias. The Wellingtonia, too, is placed on a wet and comparatively undrained bank, this being the condition in which it is said naturally to delight.

It may probably be desirable, before giving a more detailed account of the Pinetum, to explain a little further what is meant by the term "groups," or the system of grouping described here. In no instance are any of the plants placed so near to each other as that their branches are likely to touch for 20 or 30 years. Several specimens of the same or allied species are, however, brought together in irregular clusters, the individual plants being placed at very varied distances from each other, and a few single examples jutting out here and there round the outsides of the clusters to complete the appearance of naturalness and irregularity. Between such groups or their outlying specimens considerable interspaces occur, which are either partially filled with dwarfer and very different plants, for the sake of contrast or variety, or are left quite blank.

On each side of the entrance to the Pinetum there is an exquisite specimen of the Juniperus recurva, var. densa, looking exactly like a beautiful green fountain. Mr. Bateman has found that the ordinary form of this species is so loose and ragged in its habit as scarcely to be worth growing; but that the variety above named is always compact in its growth, and always appears healthy and perfect. A number of plants of the same kind, together with the original species, and several other sorts of Juniper and Cypress, are clustered at the back of the two principal specimens, and in their immediate neighbourhood. Here are also Cephalotaxus Harringtoniæ and drupacea, a beautiful glaucous variety of Juniperus chinensis, the elegant Thujopsis borealis, which has proved perfectly hardy, Torreya Myristica, which stood out unprotected through the last winter, and many more common species. As related to the above, though they are not placed in their vicinity, Juniperus sphærica may be mentioned as a very handsome Chinese plant, thoroughly hardy; J. Wittmanniana, which has a pretty drooping habit; J. drupacea, a Crimean species, with a very marked glaucous appearance; and numerous varieties of the Savin (J. Sabina), which grow here in great luxuriance, and of which the Tamarisk-leaved variety is the densest and the most elegant.

Libocedrus chilensis is not found sufficiently hardy to be recommended for this climate. The Cryptomeria japonica, however, grows perfectly well, and retains its colour throughout the season if planted on a bank with a northern aspect. But it is now giving place entirely in Mr. Bateman's estimation to the variety called Lobbii, which has a much closer and compacter habit, and keeps its lovely green tint in whatever situation it may be placed. The Taxodium sempervirens, too, has always flourished here, and there are many fine young plants of it.

After the Araucarias and the Deodars, a patch of Golden Yews and Hollies is introduced on the swell of one of the most prominent mounds, to produce a little change of colour, and to mark the transition to another tribe. A group of Pinus austriaca and its congeners then follows, and promises to yield some very decided effects. Specimens of this noble Pine are growing on the very tops of the mounds, in the most exposed positions, and its extreme hardiness, with the massive and sturdy character it assumes, render it quite invaluable in any northern district. Mr. Bateman has likewise experienced it to be an excellent plant for moving, never having lost a single specimen, although some of them were transplanted at 9 or 10 feet in height.

Pinus excelsa and its alliances stand at the point of the mounds where the walk begins to turn to the west, and are therefore in a particularly open and windy situation. This appears, however, only to have the effect of rendering them dwarfer and denser, and thus improving their habit. P. monticola occurs in this group, and has produced cones, though only about six feet high. P. Cembra and its varieties also seem to be as hardy as P. excelsa. The Weymouth Pine, which is in this affinity, is only pleasing when in a very young state. Pinus Ayacahuite and P. Lambertiana, of the same alliance, are planted in a shaded place, and are growing exceedingly well.

Just before reaching this turn in the walk, the clothing of the mounds is somewhat changed by the use of masses of Erica carnea, E. ciliaris, E. multiflora, and other hardy Heaths, and then a total change is produced by the substitution of the common Vaccinium of the neighbouring hills, among which tufts of large-leaved Ferns are occasionally to be seen. A large mass of Double Furze is likewise thrown out at one of the points to secure something striking in the way of colour; this practice of seeking bold effects from broad conspicuous clusters of foliage or flowers being one that more or less enters into all the arrangements of the place.

Oaks and Thorns of divers kinds occupy the mounds for some distance after the walk has taken a decided westerly course. Among the Oaks is a good collection of evergreen varieties, several rare Himalayan species, a beautiful weeping variety of Quercus cerris, and a very effective variety of Q. pedunculata, with a manifestly fastigiate habit. The scarlet-leaved Oaks are, moreover, thrown together in the background, and will produce some splendid autumnal colouring. The Thorns are nicely relieved as regards winter effects by having a few Hollies, with which they always mingle well, interspersed among and scattered behind them.

The Picea and Abies tribes succeed to the Oaks and Thorns as the walk advances, and they carry us to the tunnel which divides the Pinetum from the Rhododendron ground. Most of these are more recently planted, and they evidently do not thrive so well as the Pines. Still, they are placed in a much lower and more sheltered spot, and the Abies Douglasii, Morinda, canadensis, and the elegant little orientalis, are growing quite vigorously, as are the Picea Pinsapo, grandis, and Nordmanniana. The P. Pinsapo, which is often confounded with P. cephalonica, is very much superior to the latter in habit. P. cephalonica, in fact, grows so shabbily, and gets so much injured by frost, and so greatly resembles P. Pinsapo, that it should not be admitted into small collections. The Mount Atlas Cedar turns out to be a hardy and handsome tree in this locality.

Shortly before arriving at the tunnel, which has a rude natural-looking entrance arch, formed of two large irregular side stones and a key-stone, and is flanked with rough walls, over which Ivy and evergreen shrubs will hang down, a break in the mound to the north conducts us, by a grass glade, to an area of irregular shape which is laid down with Grass for a bowling green, and is enclosed with mounds of different heights, offering various positions and aspects for the more tender and larger leaved species of Pine, including some of the Mexican sorts. P. Benthamiana, macrocarpa, and Lindleyana rank among the hardiest and noblest of the species in this division. P. insignis is of doubtful hardiness.

In some parts of the Pinetum, where the walk has been sunk a good deal below the natural level, the banks at the sides are so steep, that neither Grass nor any ordinary kind of vegetation would grow upon them. To avoid the necessity of making the slope easier, and to furnish some little additional variety and picturesqueness, a number of the small rugged stumps of Oaks that have been kept dwarfed in hedge rows have been stuck into the banks in irregular patches, here and there, and a quantity of the common Vacciniums and Ferns mixed with them. They all appear to be growing, and produce a few stunted shoots each summer, which can easily be kept within due limits; and they present a degree of wildness and appropriateness which no rocks or dead roots or stumps could at all equal.

It has been mentioned that the Cryptomeria thrives

beautifully here when placed on a bank with a northern aspect, and the same result is noticeable with several other plants of similarly luxuriant habits. It appears plain, therefore, that although the tendency of such plants is to produce strong succulent shoots, which do not ripen in the most favourable circumstances before the beginning of winter, and which a deficiency of light must render yet more pulpy and immature, still, the being withdrawn from the action of the sun after the occurrence of severe frosts is not merely sufficient to counteract the existing juiciness and immaturity, but actually preserves the plant from the injury it would receive in what would have seemed a more suitable, and even a necessary exposure to light. This is an important principle in the process of acclimatizing delicate exotics, and one which it is believed has not been at all adequately considered by cultivators. *E. K.*

(To be continued.)

Miscellaneous.

Hollyhocks.—We extract the following from Mr. Chater's extensive catalogue of varieties for sale in his nursery at Saffron Walden :—" They require good old garden soil, well trenched over to the depth of 2 feet, with plenty of thoroughly decomposed manure ; such as old Cucumber beds, or night soil mixed with the earth. If the subsoil is wet they will thrive remarkably well in the summer, but in the winter wet is very injurious to them when old plants are allowed to remain ; to prevent which I remove to the depth of 1 or 2 inches the mould round the neck of the plant, and fill up with white sand, about 6 inches round the stem, level with the surface ; it is simply to preserve them from wet, insects, and slugs, from which, in the winter, they are apt to suffer very much, if not killed. I strongly advise young plants to be planted every year, as you would Dahlias, if you wish to secure fine flowers. They may be propagated by single eyes in July and August; also by cuttings in the spring, placed on a slight bottom heat. Young plants raised from summer cuttings are best preserved by repotting them in October into large pots, the larger the better, in light rich sandy earth, and placed in a cold frame ; thus they will grow during the winter. In March or April turn them out into the open ground, and they will bloom as fine and as early as if planted in the autumn. Plant them not less than 4 feet from row to row, and 3 feet apart in the row. If grouped in beds, not nearer than 3 feet each way. They will grow well in the shade of distant trees, but by no means must the roots interfere. In May, when the spikes are grown a foot high, thin them out according to the strength of the plant ; if well established and very strong, leave four spikes ; if weak, two or three ; when they are required for exhibition, only one must be left. The following observations on exhibiting perhaps may not be out of place here, and as I believe the best way of showing the Hollyhock is in spikes, I venture to give my opinion of what I consider as the standard of a perfect spike. In judging, the first point I should notice is the individual flowers on the spike, the perfection of which consists in the petals being of thick substance, the edges smooth and even. The florets occupying the centre must be compact, closely arranged, rising in the middle to a half globular form, with a stiff guard petal extending about half an inch, or in proportion to the size of the centre ball, so that the different parts of the flower have a uniform appearance. Second—the arrangement of the flowers on the spike should be regular, not crowded together into a confused mass, nor loosely hanging with open spaces between each flower, but so disposed that the shape of each may be distinctly seen, and fully blown, the uppermost covering the top : and nothing can add more to its beauty than a few small green leaves between the flowers, which give it an elegant and graceful appearance. The third point is colour—the brightest, strongest, and most distinct stand first, but it is desirable to obtain all imaginable shades. Stake them before they get too high, and secure them well in by tying, and they will grow erect. The most robust grower does not require a stake higher than 4 feet from the ground. If the weather is dry at this season of the year, they must be watered with a solution of guano, or any other liquid manure, poured carefully round the roots, avoiding pouring it on or too near the stems. To grow the flowers fine, cut off the lateral shoots, thin the flower buds, if crowded together, and take out the top of the spike, according to the height desired, paying attention to the usual height and habit of the plant. Observe, by topping it you may increase the size of the flower, but at the same time shorten its duration of flowering, and perhaps disfigure its appearance."

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—As the display of flowers in the open air is nearly over for a season endeavour to make the conservatory as attractive as possible, more particularly as it will prove an additional source of enjoyment to those who cannot take outdoor exercise. Fires by night may be requisite, but regular admissions of air should be kept up both to keep the house moderately dry and the atmosphere in a pure healthy state. Chrysanthemums should be introduced as they come into bloom. Early flowering Camellias (a few of the earliest started), Orange trees, Daphnes, and the varieties of Epiphyllum truncatum may also soon be had in flower and will form an agreeable addition to such stove plants as yet remain in beauty. Great care should be taken to provide sufficient ventilation at this season both to stove and greenhouse plants during damp weather, and artificial heat even in greenhouses may perhaps soon be necessary to dry up damp and to permit a free ventilation by day. It should in fact be a point to get the wood of hard-wooded plants ripened as soon after this as can be done even by the help of fires, as it will save a great amount of after trouble and loss during the ensuing winter; use sulphur freely whereever indications of mildew appear, which will not be very troublesome if the directions above are acted upon ; keep every part of the houses clean and frequently wash the glass to admit every ray of light which at this season is invaluable. Advantage should also be taken of wet weather to thoroughly wash infected plants. Pelargoniums if pot-bound should be potted at once or they will lose their lower leaves. Keep the fancy kinds, however, rather under than over potted, and allow them the warm end of the house.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit, and those in bloom should be assisted by a rather warm temperature, but excess of moisture in the atmosphere must be avoided at this dull season, particularly where the plants are in flower, or the fruit approaching maturity. Use strong clean manure-water in a tepid state for plants swelling fruit, but do not get the soil too wet. The temperature for the growing stock should now be regulated very much by circumstances ; keeping them growing gently where it can be done without drawing and weakening the foliage. Keep the soil about the roots in as equable a state as to moisture as possible, for letting the soil get too dry at this season often results in the plants showing fruit prematurely in spring, and the same is true with regard to the bottom-heat, which must also be carefully attended to, keeping it moderate and as regular as can possibly be done. VINERIES.—Where forcing is commenced about this time a rather higher and moister temperature will be necessary to induce the buds to start than would be the case at a more natural season. There is no better means of securing abundance of moisture and a gentle warmth than by placing a moderate quantity of stable manure on the inside border, and turning this, &c., as may be required ; but where the forcing houses are visited by the family, and are expected to be neat and orderly, this method is out of the question, and the syringe and whatever other means of a less objectionable character may be at command must be used instead. The night temperature, to begin with, should range about 50° by fire-heat, raising it to 60° by day, or to 70° with the assistance of the sun. Also endeavour to secure a little warmth for the roots in the outside border, and if fermenting materials are used, watch these narrowly, and endeavour by timely additions and frequent turnings to secure a regular gentle warmth of 60° or 65° at a foot below the surface of the soil. If fermenting materials are employed, there will be a great saving of labour, &c., by thatching them with a good coat of something to throw off wet, and preserve them from the weather. If plants in pots and boxes are used for forcing at this season, they should be placed in a mild bottom-heat, so as to excite a healthy root action, which will cause them to break more freely and in less time than can be done without bottom-heat.

FLOWER GARDEN AND SHRUBBERIES.

The condition of the autumn struck cuttings should be ascertained, and wherever indications of damping appear remove the pots to drier quarters; give air liberally to young plants in pits and frames. Scarlet and bedding out Geraniums should be kept in houses where fires can occasionally be lighted, by which they will grow gently through the winter. As the Vineries are cleared of Grapes fill them (unless they are otherwise occupied) with the more choice things ; reserving the pits and frames for the Calceolarias, Lobelias, and similar plants, which do not suffer so much from cold and damp. Wherever alterations are in progress lose no time in completing the transplanting of evergreens, the present mild damp weather being favourable for their removal. As soon as the greater part of the leaves are off the trees let the pleasure ground be thoroughly cleaned and swept ; the leaves (if of sufficient quantity) should be stacked up for forcing purposes, covering borders, and the like. Such parts of the lawn as are contiguous to the mansion should be swept daily to remove leaves and worm-casts, and the gravel walks should be frequently rolled to preserve a smooth surface. The present is a good time for re-arranging the herbaceous ground, which is rendered necessary every two or three years by many of the free growing plants getting too large. Let the borders have a dressing of well rotted cowdung before replanting, especially for Phloxes and other strong-rooted genera.

HARDY FRUIT AND KITCHEN GARDEN.

Carrots and Parsnips having finished their growth should be taken up and stowed away for use. Throw some fine earth among them in the pit to keep them plump and fresh. A part of the Parsnip crop may remain in the ground longer if other work intervenes. Go over the winter Spinach with the hoe on a dry day, and follow with a dressing of soot ; this useful winter vegetable requires strong stimulating manures to have it in perfection in winter. As Cauliflowers are easily damaged by frost, go over them frequently and tie the leaves over the advancing heads. A portion of the less forward may be removed to spare pits or frames to succeed, or laid in deeply in a sheltered place with their heads inclining towards the north, to be protected with straw or mats in frost. Clear the ground of crops as they go out of use, and trench or dig over roughly immediately. Cauliflowers under glasses and in frames may now have air freely. Attend to the preparation of Rhubarb, Seakale, and Asparagus for forcing. Later crops of Rhubarb may be forced in the open ground where it grows, using pots or boxes for covering the crowns, and leaves or leaves and dung for the heating material. Seakale may be either forced on the ground as advised for Rhubarb or taken up and the roots put thickly in a frame on a gentle bottom heat. Pot a supply of Mint, Tarragon, Burnet, and Sorrel for winter use.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Oct. 30, 1856, as observed at the Horticultural Gardens

Oct.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 24	25	30.484	30.411	58	39	48.5	55	54½	N.E.	.03
Satur. 25	26	30.471	30.444	56	25	41.0	54	54	E.	.07
Sunday 26	27	30.424	30.365	52	25	38.5	49	54	E.	.10
Mon. 27	28	30.345	30.321	55	25	40.0	51	53	E.	.10
Tues. 28	[illegible]	30.319	30.268	51	26	38.5	49	52	E.	.01
Wed. 29	1	30.230	30.184	45	37	41.0	48	51	N.E.	.01
Thurs. 30	2	30.156	30.130	58	35	46.5	51	51	S.	.02
Average		30.348	30.303	53.6	30.4	42.0	51.0	52.8		.04

Oct. 24—Overcast ; fine ; cloudy at night.
— 25—Foggy ; hazy clouds ; fine at night.
— 26—Hoar frost ; hazy ; fine ;
— 27—Slight frosty haze; fine at night.
— 28—Very dense fog.
— 29—Dense fog throughout ; most excessively dense between 7 and 8 P.M.
— 30—Hazy clouds; fine ; overcast ; fine ; rain.
Mean temperature of the week 4½ deg below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Nov. 8, 1856.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 2	54.4	38.9	46.6	13	0.61 in.	2	1	7	1	5	7	6	[illegible]
Mon. 3	53.1	37.4	45.3	15	0.82	3	4	5	2	3	6	5	[illegible]
Tues. 4	53.8	36.6	43.7	16	0.44	2	4	5	2	5	5	5	[illegible]
Wed. 5	52.8	38.6	45.7	14	0.23	1	2	2	2	6	10	5	2
Thurs. 6	53.4	39.0	46.2	14	0.76	1	1	2	4	4	11	3	4
Friday 7	52.5	38.4	45.4	17	1.02	1	2	2	3	4	11	4	3
Satur 8	51.2	36.5	43.3	15	0.58	1	3	1	2	2	11	6	4

The highest temperature during the above period occurred on the 5th, 1852, and 6th, 1834—therm. 63 deg.; and the lowest on the 3d, 1845—therm. 20 deg.

Notices to Correspondents.

TO CORRESPONDENTS : We regret to say that a letter or two of inquiry have been accidentally destroyed. We must therefore trespass upon our correspondents whose inquiries have not been this week answered for a renewal of their inquiries.

ASH TREES : *L N.* Certainly you can graft them at *any* height. The only danger consists in the scions being blown off after they have begun to grow, and before they have securely joined the stock.

BOOKS : *A Subscriber.* Errington on the Peach ; Roberts on the Vine, with the exception of his advice as to making a border with carrion.—*L G.* Repton's works ; Sir Uvedale Price on the Picturesque ; these are classical. There are many others of inferior note, but all more or less worth reading, such as Kemp's *How to Lay Out a Small Garden*, Downing's *Landscape Gardening*, Smith on the same subject, and Loudon's Suburban and Villa Gardening.

BROCCOLIS : *M D.* We believe that the cause of these plants going blind is wholly unknown. Your inquiry about fungi is not understood.

DISEASES : *J H.* Your Tomatos are affected with the same fungus which causes the Potato disease. The affection is so common in some districts that their cultivation is very precarious. Your Celery leaves are attacked by an insect, not a fungus. You will find several notices of it in the *Gardeners' Chronicle.*—? The fungi from your lawn are *Clavaria inæqualis, Clavaria rufa, Geoglossum glabrum.* I did not find the fourth which you mention. *M. J. B*

GLASS : *T L.* Glass is sometimes obscured for the purpose of diminishing the amount of light suitable to some plants, or where glass burns the practice is useful.

HEATING : *E S.* It is better to have one flue running all round.

KETCHUP. "What can be the meaning or orthography of this common word? You spell it thus ; *M J B* Catsup ; my wife Catchup. Can no one settle the orthography by pointing out its derivation?" Thus writes *Philologus.* We are unable to give him the information he seeks.

LAURUSTINUS : *T S P.* We do not think that they will sustain any injury by being removed now, although they are showing their flowers. At all events all possible danger would be averted by pulling off their flowers. In Cumberland we should think the Laurustinus would bear removal in almost any month, except when in full growth.

LAWNS.—Will some correspondent who has used quick lime and powdered charcoal on a closely mown lawn, to kill Moss and encourage vegetation, favour *R A H* with the proper proportions?

NAMES OF FRUITS : *B Gardner.* Your Apple appears to be a small specimen of the Cornish Aromatic.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves ; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*A C.* 1, Cestrum aurantiacum ; 2, Olea fragrans.—*Red Rice.* Rhus Cotinus, the Venetian Sumach.—*A Dublin Subscr.* 1, not in flower ; 2 seems to be a morsel of Gendarussa vulgaris.—*J S.* The name by which you received it from Sir Philip Egerton is quite right ; it is Acropera armeniaca. Prof. Reichenbach, jun., considers the genus Acropera to be the same as Gongora.—*W Marshall.* Oncidium crispum.—*E Barter.* Sechium edule.—*A Sub.* We *cannot* undertake to name plants not in flower.—*Fletcher.* Nicandra physaloides.

PELARGONIUMS : *A B* would be glad to know where the *old* Daveyanum Pelargonium can be procured. Does any one know whether it still exists?

SHRUBS : *K K.* There is no work specially relating to their management, except as concerns "American" plants, good advice about which is to be found in Standish and Noble's *Practical Hints*, published by Bradbury and Evans.

THE CATALPA : *A B C.* You may propagate it by pieces of the root struck in a little heat in March.

VINE BORDER : *W B E.* By no means use rotten wood.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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The great value of Blood Manure as a fertiliser may now be considered as a fully established fact; ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied.

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It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

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THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

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For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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MR. BAILEY DENTON undertakes the Drainage of Estates by Contract or Commission.—For terms apply to him, 42, Parliament Street, Westminster.

THE CONSERVATIVE LAND SOCIETY.—THE FIFTH YEAR.—ELIGIBLE INVESTMENT FOR CAPITAL AND SAVINGS.—By paying 8*s.* per month, and 1*s.* quarterly, any person (children as well as ladies) may become the holder of a 50*l.* Share without partnership liability of any kind. The Entrance Fee per share is 2*s.* 6*d.*, and a Pass-book (for any number of shares) costs 1*s.*; the first enrolment, therefore, would be 12*s.* 6*d.*, and 8*s.* monthly afterwards. Sums of 5*l.* and upwards bear interest at the rate of 5 per cent. per annum, paid half yearly, one month after Lady-day and Michaelmas. All the members, whether they pay their Subscriptions monthly, in advance, or take Completed Shares, price 52*l.* 4*s.* 6*d.* each, participate in the annual division of the Profits. The taking of land is quite optional. Prospectuses to be had of

CHARLES LEWIS GRUNEISEN, Secretary.

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HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1856.—The EIGHTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 2d, 3d, 4th, and 5th of December next; when PRIZES, CUPS, and GOLD and SILVER MEDALS to the amount of 1000*l.* will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE the 1st of November next.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS,
Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

The Agricultural Gazette.

SATURDAY, NOVEMBER 1, 1856.

WE direct attention to Mr. BRANDRETH GIBBS' announcement of the next Cattle Show of the Smithfield Club. It takes place in the week after that of the Birmingham Fat Cattle Show, commencing on Tuesday, Dec. 9. This arrangement enables a full representation at each of the several breeds for which competing lists are opened—and a better meeting may in consequence be expected. Those intending to exhibit must bear in mind that Saturday, the 8th November, is the last day on which entries can be received—and immediate application therefore should be made to Mr. BRANDRETH GIBBS, the honorary secretary, at his office, Corner of Halfmoon Street, Piccadilly, for the necessary forms of certificate and entry.

THE purity of seed is a matter of such vital importance to the farmer that we gladly devote this column to a discussion of the following question from a correspondent:—

"Will Swede Turnip inoculate with Drumhead Cabbage, both growing for seed side by side?"

On examining the natural history of these two plants we find that both are the result of a long series of cultivative processes, for although both are but different forms of the same genus, Brassica, yet the Swede is a hybrid of two recognised species, having for its parents—

Brassica Rapa, common Turnip,
" *Napus*, wild Navew, Rape or Cole-seed;

and the Drumhead and all the Cabbages must be acknowledged as primarily derived from the *Brassica oleracea*, sea Cabbage. There is also reason to believe that several of the recognised hearting Cabbages, Greens, and Broccoli, have been more or less hybridised by other species of the genus Brassica, and at the same time there is reason to doubt whether the species of Brassica enumerated by botanists are not themselves derivatives from one or two types.

As respects the Swede we would offer the following as the result of experiments, the issue of which will afford interesting matter touching the question in hand. Some three years since we planted side by side plots as under:—

Plot 1.	Plot 2.
Common White Round Turnip transplanted.	Common Rape seed.

These both flowered at the same time, and when fecundation had taken place, every plant of the Rape was carefully removed. The seed of plot 1 was carefully collected and sown the next summer, and the result of it was a good plant of the lighter coloured leaved Turnips; but with an intermixture of about 5 per cent. of the darker hued leaves of the Rape, which by weeding and thinning so as to isolate them with as much care as possible went on growing in a most favourable manner, resulting in the following types of form, with of course many intermediate forms and conditions.

1st. Most of the Rape-like plants ran soon to seed, but during their growth their herbage inclined to the form and aspect of the Turnip.

2d. About 5 per cent. of the Rape-like plants did not run, and in these the tap root presented a bulging and fleshy growth; in short, they were just what malformed "finger and toe" Swedes in cultivation would be. These were transplanted for seed, and this year the seed has been collected with a view to carry on the research.

Here then our conclusions are that we have as the result of these experiments obtained one step or more in the development of the Swede, which is but a hybrid and in this case produced by the simple means of growing different species side by side; and if we grow Swedes from seeds of run, of root branched (finger and toe), or of any malformed examples, or if we use our own grown seed too often, or cultivate on the same ground too frequently, we shall by degeneracy reach the same point with at least many of the plants in the particular crop at which our experiment now rests in its upward improving or developing progress.

Again, if we carefully investigate any field of Swedes, and the same is true of the common Turnip, we shall see that whatever be the type of the bulk of the crop, yet there will always be an admixture of other forms: sometimes some of these may even be in advance of the crop, in which case it may be good judgment to save them for seed; but in general the tendency will be to many objectionable sports, such as a conical leaf stem above the bulb, large wild leaves, and perhaps two or three bunches of these and several kinds of malformed roots: and these departures from their type will frequently be found in a greater degree with the careless farmer, who usually gets his seed in the cheapest market, for which it is generally grown in the cheapest manner, that is without thought or care for quality, so that the quantity be but sufficient.

The results here glanced at are quickly brought about by seeding Turnips as they stand without transplantation, for if the best crops be more or less mixed or impure, certainly seeding without selection can but augment this defect. Seed growers, however, usually transplant in the present day, but then they but seldom make a careful selection of subjects, and when these are, as is too frequently the case, planted on slips of land side by side with different sorts not only of Turnips but plants of the same family, hybridising if not certain is at least probable.

As regards the Drumhead Cabbage, if we look over a few acres of these we may frequently see among others the following types of form in the same field and from the same seed.

a. The sessile-leaved, unwrinkled, incurved close flat topped hard grown true Drumhead. Green.

b. The same, but taking on colour like a pickling Cabbage.

c. A hard-headed Cabbage with a tendency to a conical shape.

d. All these types with a short petiole—leaves a little wrinkled and but slight inclination to heart.

e. Longer petioles, leaves much wrinkled, with a tendency to the growth of a lignate form.

In these the three first *a*, *b*, *c*, are true Cabbages though of different types; *d* is just showing symptoms of a degenerate Cabbage form; while *e* has in

it the elements of what the gardener terms a green. These observations and experiments therefore tend to the following conclusions :—

1st. That under the most careful management the keeping derivative plants (and all "sorts" are so) pure to any one type is a matter of considerable difficulty.

2d. That "sorts" are principally the results of hybridisation brought about either naturally* or artificially.

3d. Hybridisation may be effected between different genera, but is more readily accomplished between species of the same genus.

4th. The nearer sorts or species are together, the more likely are hybrids to be the result.

In connection with this interesting subject we may state that as sorts increase of any given plant, whether of Cabbage, Turnip, or Swede, the difficulty to obtain pure seeds becomes greater, and while the seedsman is often justly blameable for this, as he would be, we think, in seeding two Brassicas, side by side, yet we must bear in mind that some sorts retain their individuality more permanently than others, and thus while they may retain their specific qualities in one district this may not be the case in another totally different.

WE understand from the Secretary to the Guernsey Agricultural Society that the resolution of that Society to affix a brand to all cattle exported from that island is subjecting them to a good deal of what appears to us unjustifiable annoyance. Dealers in Guernsey cattle have no right of complaint on account of such a resolution. On the contrary, it seems to us, by insuring the purity of blood, to be conceived in the interest of all through whose hands such stock may pass. But whatever may be its immediate influence, as for instance on the value of Guernsey cattle exported previous to the date of its adoption, certainly it is quite within the power of the islanders to act on such a rule, and to advertise it as widely as they please. There may be very good Guernsey cattle bred out of Guernsey—the question as to whether they are natives will be answered by the brand—not the question whether they are worth the price the salesman puts upon them. That must be determined by the judgment of the purchaser, now as hitherto. The birth-place of the cattle may be an element in their value, and if so it is right that it should be properly attested.

MR. CHADWICK

ON THE

FUTURE OF AGRICULTURE, AND OF AGRICULTURAL LABOURERS UNDER IMPROVED CULTURE.

THE following is part of a paper by Mr. Chadwick, on the future of manufacturers and of manufacturing labourers, and the future of agriculture and of agricultural labourers ; read at the agricultural section of the recent Congress of Bienfaisance at Brussels, and reported in the *Morning Chronicle*:—

In respect to the future of the labouring classes in agriculture in England, it appears to me to be under influences similar to those which I have already shown promise favourably for the labouring classes in manufactures.

It need not be enforced how strong is the interest which a nation has in the improvement of its agriculture; but I am a great advocate for agricultural improvement, for this especial reason, amongst others, that I have found, as a general rule, improvements in agriculture can only be effected through an intelligent and improved class of labourers. From particular inquiries which I have made in various parts of England I am assured that in agriculture as in manufactures, wh resoever labour-saving machines have been introduced or labour-saving improvements in processes have been effected, more labour, of a higher quality, and better paid, has been required. At present, one great practical barrier to improvement in agriculture is the intractability, from ignorance and general low condition, of the labourers. It is a question, and a question overlooked in the consideration of the economy of sound popular education, whether there are not more successful inventions of machines and processes, especially in agriculture, unused than are used—essentially successful inventions and processes having been abandoned on account of the obstacles arising solely from the want of intelligent labourers to apply them. Thus the reaping machine was found to be an invention made a quarter of a century before, but abandoned. A friend of mine, an able mechanist (the late Mr. Smith, of Deanston), had invented one which succeeded in the field, but was destroyed in the barn by the ignorant carelessness of his labourers. At present, it is common for an agriculturist after the inspection of a machine at the manufacturer's, to say, "Well, if I buy that machine, you must find and send me a labourer to work it and take care of it, for I know of no one in my own parish who is fit to be entrusted with it." "But what wages do you give?" the machine-maker asks. If it is a Dorsetshire or a Buckinghamshire agriculturist, "8*s.* or 9*s.* per week," will be the answer. "But those wages will not do," says the machine-maker. "You can only get a labourer fit to be entrusted with that valuable machine at 16*s.* a week." And if the machine is taken, in one form or other the condition of the increased wages is generally submitted to; and so, under an impulse for economical improvement, improved labour is introduced.

A quarter of a century ago there were agricultural riots, in which labour-saving machines were broken, and the popular violence was justified, and the use of machinery was discountenanced even by members of Parliament. We are told that it is the political economy of the Chinese to prevent the use of horses in order to sustain the stock of labour for men; all they succeed in doing by this policy is, to make men do the work of horses, and in that respect to confine them to the condition of horses in perpetuity. In some of the agricultural districts in England better views have now begun to prevail, and labourers have refused to do threshing work by the flail, because, as they have justly and laudably said, that was work for a machine, which they would not degrade themselves by performing. It is now a common effort of intelligent agriculturists to give their labourers an interest in the use and success of machines, and that interest, they find, must be improved wages or condition to the labourer. The most improved agricultural labour is conducted by well superintended labour, at piecework, and that description of work can only be well obtained permanently, by full payments, to sustain the interest in it; and this interest is, to a great extent, independently of the question of supply and demand.

This is a topic which I believe to be of vast importance to the future of the labouring classes, of which I have only the means of indicating some of its economical bearings.

In treatises on agriculture by persons of authority one or other course of agriculture is recommended to be adopted, as the labour is said to be dear or cheap. Now, from considerable observation in England, and from such information as I have been able to obtain, low-priced labour rarely is cheap labour, either in agriculture or in manufactures.

An eminent manufacturer and successful manager of labourers stated to me, in the way of illustration, that it was with his workmen as it was with a valuable horse-power machine. "I cannot," said he, "afford to work my machine with a horse that costs less than 30*l.*, or eats less than 18 lbs. of Oats a day." As it was with the horse, so it must be, under ordinary circumstances, with men—the eating the corn, the sufficiency of food and comforts, the existence of objects of desire, to create an interest in the work as a means of obtaining them, are becoming more and more positive conditions; for whatsoever be the number of other horses in the market, the work will fall off without the horse have his 18lbs. of Oats. I have ascertained in England that in highly cultivated districts where agricultural labour costs 14*s.* and 16*s.* per week, the work was for quantity as cheap as in districts where agriculture is lower, and where wages were only 8*s.* or 9*s.* a week. Nay, we have in my county—Lancashire—a class of workmen strangely called navigators, or "navvies," it is supposed from having been originally employed in digging canals and works for serving inland navigation. These Lancashire men work in gangs of five, and will admit no men into their gangs who cannot, as their *minimum* task, load 20 cube yards, or 20 single horse loads, of earth in a day. I have known of instances of men of this class, as a feat, doing even double that quantity, A mile of road made by labourers of this superior class, earning 3*s.*, 3*s.* 6*d.*, or 5*s.* 6*d.* per diem, has been executed in much shorter time, and has been finished as cheaply as a mile of precisely the same sort of road done in Ireland by pauper labourers whose wages were only 1*s.* per diem. Common agricultural labourers when they have been allowed to join these gangs of navvies, and have been "alimented" and seasoned to their tremendous discipline, on their return have astonished the farmers by doing an ordinary day's agricultural work before noon, and by putting their spades on their shoulders, and going away for the rest of the day. A noble friend brought down to his estate in Dorsetshire a foreman accustomed to superior labour at piecework. Judging of what would be his answer, I said to this foreman, "Will you not get this work done cheaply; here the labourers are got for only eight shillings a week?" "But *they* would be dear at *six*," was the reply. "How is it here with your other classes of artisans," I inquired, "your journeymen bricklayers, for example; what sort of workpeople are they?" "Such as from their wages you, sir, would expect," was the answer. "And what wages are those?"—"About 12*s.* per week." "And how many bricks do they lay in a day?"—Not more than between 300 and 400." "And how many do your town bricklayers lay, to whom you pay double wages?"—"More than 1000 a day!" was the answer.

The same agricultural labourers on the estate, when put to piecework for draining, and made to earn nearly one-half more wages, were, by higher food, soon put into a superior physical condition. Besides the labour which demands great vigour, there is the labour in agriculture which demands great skill; and skill is more productive than ordinary agriculturists are aware of. I was staying recently with a friend, an eminent and successful English agriculturist, Mr. Huxtable, who, whilst I was with him, saw a boy conducting a new spring waggon over the ridges and furrows of a field in such a manner as to endanger the waggon, when my friend ordered a man to take charge of it, and reproached his bailiff with his wasteful improvidence in entrusting so valuable a piece of machinery as that waggon and the horse to a boy. My friend observed, moreover, that an intelligent driver, who would load properly and conduct a horse carefully, was, for the saving of the horse as well as the machine, worth his double wages; that even in the common operation of digging one labourer who was skilful was more profitable to him at 12*s.* than another was at 8*s.*; and so with other agricultural processes. The same eminent agriculturist has, with the aid of steam and improved machinery, and processes, and labour, brought the land of the average annual rentals of that county—namely, 5*s.*, 9*s.*, and 15*s.* per acre land—to an improved average value of 30*s.* per acre per annum; and this advance has been made with a return of 10 per cent. on the capital invested. Now there is no other reason than mere ignorance and routine why the whole of that county should not be cultivated in the like manner as this one portion of it. But if it were so Dorsetshire, instead of being cultivated by only 16,000 labourers at only 8*s.* or 9*s.* per week wages, would require for its improved culture between 30,000 and 40,000 labourers, at 10*s.*, 12*s.*, 14*s.*, and some of them 16*s.* per week; and this county is to a greater or lesser extent an example of what may be expected of agricultural improvement throughout the whole kingdom; and that improvement, whilst it must raise wages to the agricultural labourers, and remunerate the capitalist, would cheapen food to the general population.

The most eminent of the "navvies" in England come from the hill districts of sandstone-grit and granite in Lancashire and other northern counties, where there are favourable sanitary conditions of pure soft water and forced ventilation, and some natural drainage by winds and storms. Their alimentation too has been generally good. Some of the leading navvies have represented to me that they consider 11 lbs. of meat per head per week a necessary of life for good work, but I should not accept this as to the species of diet as an absolute dogma, for they themselves have admitted to me that eaters of Oatmeal and Potatoes (with milk), though in great quantities, have done good work with them; what, however, appears to be certain is, that a superior alimentation at the least is required, though it is by no means the sole requisite, and mental as well as bodily stimuli are needed for the attainment of superior work. M. Nidault, a French engineer, in his treatise on irrigations, gives account of a similar class of labourers to those by some deemed peculiarly our own. He describes as a most interesting class those who devote themselves especially to the execution of canals and other irrigation works in Italy. "It is (says he) that of the small contractors, or simple task workers, who bring with them a gang of workmen, at the head of which they work, and by whose means they can advantageously contract for considerable works, especially in digging or levelling. The digging of an irrigation canal, if rather a large one—one, for instance, of seven to eight metres wide, and which may also serve for navigation—is one of those works which, to be well done should be done with promptitude, or at best without any delays, which requires that a number of workmen should be concentrated at one point. The resources of the locality being generally insufficient, they are obliged to seek labourers in the neighbouring districts, and prefer applying to the poor and populous countries, such as Savoy and German-Lombardy. It is true that there they can find cheap labour, but at the same time the labourers are without vigour; and though they may be contented with small wages, they will also give very little work. I have always found the other system much better, which consists in employing those who gain high wages, but who also work well. There is not an engineer who would not agree with me on this point. There are some who would say that, in certain satisfactory results, obtained by different causes, this element has been the principal one of success.'

In England I have written pamphlets, and got a parliamentary committee of inquiry, and done whatsoever was in my power to prevent the valuable class of labourers which we have there already formed, though rudely, from being deteriorated and destroyed by the reckless and discreditable administration of railway works. I observed and endeavoured to call attention to the fact, that the sons born in towns from these hill district labourers were shorter and less strong than their parents, and that the parents who came to reside in the towns, in consequence of the defective sanitary administration there, lost on the average about 10 years of working ability, as well as of life; and that of the fine children born of this class in the towns more than 40 per cent. are destroyed by preventible disease before their fifth year; but hitherto the efforts of powerful friends, with myself, in this cause have been only of partial effect.

I may observe, *en passant*, that I have been informed of one other similar class of labourers to our navvies, the *terrassiers*, who come from near the Polders, of whose condition I have not obtained particular information, but English navvies have been much employed on railway works in France, and have earned at piece-work from 7*f.* to 8*f.*, and in some instances as much as 10*f.* per diem, and they have also in various parts of Germany earned double the best labourers' wages there. And this superiority, I may say, of a highly alimented and skilled labourer has been maintained in every clime. A friend of mine, a civil administrator in India, the Right Hon. Holt Mackenzie, informed me some time ago that he had made a note of the comparative cost of Indian, Chinese, and English labour when he was in India, and that the general result was, "that for some works an English workman of average efficiency was equal to several Chinese, and one Chinese equal to several Indians (Bengalese), and this independently of the advantage or disadvantage of the tools employed. And the conclusion I drew," said he, and the conclusion which I too wish now to enforce, "was, that for estimating the cost of labour, or of the work done, there could not be a worse standard than the wages of the labourers."

Much in this instance might be ascribed to climate, but the spectacle has been presented in Calcutta of Lancashire artizans, imported at high wages, doing work there under the shade of umbrellas held over them by Hindoos, engaged at low wages to attend and perform this service. Labourers of our Army Works Corps speak with respect of the capabilities of the Turkish labourers, and of particular feats of strength performed by them; but Mr. Rawlinson, our sanitary engineer, declares to me that the Croat labour, chiefly engaged by us in the first instance, was dear at sixpence per diem; and that in relation to the works performed in the East, by whatsoever race, it would have been far cheaper to have taken out highly paid and trained English labourers and materials, all the way from England, for the execution of the works. In the course of discussions on the subject with the members of the Congress met here, I have received much confirmatory testimony upon my view of the facts. One member of the Congress, a merchant, informs me that he has had ships built abroad, and also ships repaired in every principal port of the world; but he avows that, notwithstanding the very high wages of our shipwrights, he has found their labour as cheap as any he has elsewhere met with. In respect to agricultural labour, another of our colleagues, a landowner in Poland, who has been some years in England, and who has studied its agriculture, states to me that he found one German labourer equal to two Polish labourers; but that three Polish labourers—and those not serfs—were required to do work equivalent to one average English agricultural labourer. In this extreme difference, however, the difference of tools was included, with the difference of skill and energy. Another Polish gentleman here, who studied at the English Agricultural College at Cirencester, states to me that he compared the expense of the ploughing done there by ploughmen at 14*s.* per week wages with an equal quantity of ploughing done on his father's estate in the accustomed way there, and he found that the work done at Cirencester had the advantage in cheapness. On a particular comparison made in Normandy, the labour of three Norman agricultural labourers was found to be equivalent only to that of two English, or more particularly two Kentish labourers; and from other information which I have received from engineers, confirmed by members of the present Congress, about three Danes, or Norwegians, or Swedes, would be required to do the same quantity of work as two average English labourers. Superior workmanship, as well as quickness of execution, with the aid of superior tools, will frequently tend to augment the value of the English labour beyond the difference of the gross produce. Admirable work is done by Anglo-Saxon men in Canada, and in the United States of America; but I repeat that I do not ascribe the difference of result mainly to race, because, as I have observed, the labour of Englishmen, depressed by mal-administration and pauperism, is often as inferior as any other; and because depressed Irish labourers, when put into suitable training and condition, are found, according to the acknowledgment of English labourers, to keep step with the best. Indeed, in the Crimea, under the directions of our army administration, the ordinary labour and tasks of earthwork required from soldiers—raised chiefly from those same districts from whence the best navvies have been obtained, and acknowledged by impartial observers to have in *physique* no superiors amongst all the troops in the field—were only to remove 10 cubic yards a day in a loose soil; that is to say, that at least two soldiers were required to do the work done with an interest and "a will" by one navvy—the navvy very often the brother or relation of the soldiers, or coming from the same villages.

I am glad to find that the general observations of the most eminent continental agriculturists—of Count Gasparin, in France; of Van Thaer and Burger, in Germany—are in accord with my own in England. I regard the economical element which those facts display to be of the greatest social and political moment; for on this economical element will depend not only the extinction of every form of serfage, but of slavery itself. I have been consulted on drainage as sanitary work by proprietors in the West Indies, and have had some insight into the slave labour there; and I am convinced it is dear labour, as contrasted with white free labour. Slavery will sooner fall with our brethren in America, when they find it, as they eventually will do, as compared with improved free labour culture, bad as an investment, than by any amount of condemnation of it as being bad as a social institution. It appears to me that Count Gasparin justly cites, as an instance of the power of free as against slave labour, the fact that the manufacture of sugar from the Beetroot keeps its ground; that is to say, that the slave (or the slave-bred labourer), with a plant containing 18-100 of sugar, grown in a superior climate, has great difficulty in contending against the free labourer, who cultivates a plant which contains only 8-100 of sugar, in a climate most unfavourable to its development.

In England I have known agriculturists from the most advanced districts of the north, tempted by the cheaper land, the apparently cheaper labour, and better climate of the south, go there to take farms which were in the market; but when they have examined the quality of the labour there, they have declined the enterprise. I am happy to find that Count Gasparin has made analogous observations. "One day," says he, "our worthy and excellent colleague, M. Huzard, being consulted on the expediency of the purchase of some land in a certain canton of France, answered, 'Beware! you will not get from land there the promised return. I know the men of that country; they want activity; the pupils who came from it to our veterinary school did not strike hard upon the anvil!' What fine and just appreciation!" exclaims the Count. "There, where the labourer's arm is enervated, whether by physical debility, arising from a bad regime, or by long habits of idleness—there, where they do not strike hard upon the anvil, the value of the

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* Bees are constant agents in bringing about hybrids; these insects usually keep to the same species of plant for a long time together, but we have observed them working at a host of Cruciferous plants at the same time, Cabbages in various forms, Turnips, and even Charlock, which latter, by the way, we suspect to be itself a derivative.

land is affected by their depression! Of old our forefathers said, 'Tant vaut l'homme, tant vaut la terre' (as is the worth of the labourer, so is the worth of the land)."

THE TURNIP FLY.

[MR. CHARLES POPPY, of Ipswich, has presented a report on this subject to the Society of Arts, which has been recently published in their Journal. The following is an abridgment of it.]

From the great loss of plant of Turnips last year, and general destruction of Turnips this year—so similar to what occurred from 1825 to 1833, and I believe onwards, and which has taken place periodically for several following years—I am led to publish the following observations on the subject, although I am quite aware of the difficulty of the subject from past experience, having had a correspondence with the Secretary of the Society of Arts, upwards of 30 years since, which continued for a year and half, as is reported in the "Transactions" of the Society, vol. 45, pages 11 and 54, in 1827.

The Doncaster Report on the Turnip Fly, published in 1834, consisted of 89 pages. I can, however, but briefly enter upon the subject; thus my observations will chiefly relate to the remedies proposed within the power of farmers individually to apply, and suggest a probable means of so reducing the flies as to render them harmless, by a systematic application.

From the loss of the first plant of Turnips, all farmwork is thrown in arrear; re-ploughing and sowing, and hay-harvest at the same time to attend to; no Turnips fit to hoe when the hay is stored. If the second sowing take, the Turnips are not fit to hoe till corn harvest begins.

Mr. Blake, agent to Sir J. H. Palmer, Bart., Rockingham, says:—"Never lost a plant; attribute this to drilling thick. Plants draw each other up." C. Barnet, Esq., Stratton Park, Northamptonshire, says:—"Sows thick in the drills; though the flies make a severe attack, they will turn out a good crop." Mr. Slater, Stratton, near Cirencester, Gloucester, says:—"Bid defiance to the fly by sowing 8 or 10 lbs. of seed per acre."—*Extracts from Doncaster Agricultural Association Report.*

Mr. Taylor, late of Ditchingham, near Bungay, Norfolk, and Mr. John Hayward, of Stoke Hall, near Eye, Suffolk, both "broad-casted very thick, and cut the Turnips into rows with the horse-hoe, and always succeeded in obtaining a plant." Mr. Taylor and Mr. Hayward both occupied good Turnip land farms, or I doubt whether a plant could have always been obtained in defiance of fly, if broadcasted, unless excessively thick.

Many of the correspondents of the Doncaster Association state, that by sprinkling lime over the Turnip plants several times, they commonly obtained a plant of Turnips; others state that soot is preferable to lime, as it manures as well as annoys the fly.

One watered a field five times at a cost of 15*s.* per acre, and saved a plant; water obtained at both ends of the field.

I could greatly increase this list of specifics, having selected the most popular only; but I believe, from upwards of 30 years' practice, that a more certain mode of obtaining a plant exists, which is less expensive, and applicable under any circumstances, drilling or broad-casting, on the ridge or on the stetch, highly manured or not, as far as the fly is concerned.

The mode and means of obtaining a plant of Swedes might be stated in few words, but to induce farmers to try it, the reason why it may rationally be supposed that it will prevent the fly from destroying or injuring the Turnip plant, and that it is but a trifling expense, and little trouble, must be explained, and facts stated.

Having hired a heavy land farm, bounded on two sides by extensive woods, in which I was informed by the late Rev. Wm. Kirby (the eminent entomologist), that "all the Turnip flies in the neighbourhood hybernated during the winter." After ascertaining that such was the fact, I decided to give up attempting to grow Swedes, as I had rarely obtained a good plant, and frequently had to sow a second time, and I did not always succeed then.

It was by accident that I ascertained that the fly preferred the common Turnip. Mr Kirby had informed me of the nature and habits of the fly, "that they could fly as well as the golden beetles, or any of that tribe of insects, and that it was useless for me to persevere to grow Swedes, as none of my neighbours grew them, and common Turnips were not required to be sown till long after Swedes, and thus all the flies existing in the neighbourhood were drawn on my Swedes."

Thinking that if such was the fact it might enable me to grow Swedes, instead of preventing my being able to obtain a plant, being aware that Mr. Paul of Starston was in the habit of sowing decoys for the flies, and catching them off with a net, I took my drill to a clean fallow field lying along the side of a wood, and drilled one width of the drill across the middle of it, being 20 rods probably from the wood. As soon as the Turnips were up, flies attacked them, but being very thick the Turnips kept growing. Having given the flies time to collect, I had a waggon load of haulm taken to the field; this I had spread over the Turnips and along the sides as far as flies leap; and having plenty of help, set fire to it from end to end and burnt up the Turnips, and, as I supposed, all the flies which had existed in the woods and neighbourhood; but on sowing the field with Turnips, others came and destroyed the plant.

Thus at the proper season for sowing common Turnips (having plenty of Swede seed, and having an iron barrel to my drill, with cups of all sizes on blocks which could be slipped on; and having adopted the general opinion that the fly preferred the Swede to the common Turnip), I filled every alternate hopper of the drill with common Turnip and Swede, and thus drilled probably more than half a peck of Swede seed per acre, at 15 inches from row to row. But to my surprise the fly settled on the white Turnips, and scarcely touched the Swedes. Finding this, I had the Swedes chopped into patches, and, when an inch or two high, had a pinch plucked out of every bunch of Swedes, and when a little more grown I had another portion plucked out from each patch, and then left till fit for singling. By this means I got a regular plant and fair crop, considering that it was late for Swedes.

Having ascertained that the fly prefers the common Turnip to the Swede, I drilled white Turnips in alternate rows in future (very thick, to feed the flies) and Swede seed for a crop, and never failed to obtain a plant after.

After having adopted drilling common Turnip seed in alternate rows with Swede seed intended for a crop, some years, a small farm fell under my care where the bailiff said Swedes could not be grown, as the fly would destroy the plant. I however decided to try to grow Swedes, and having steeped common Turnip seed in water to cause it to vegetate before the Swedes were up, and having primed the drill with Swede and common Turnip seed, I sent it off to the farm, and followed myself. After having seen a few bouts drilled, I left. As soon as I was gone the bailiff stopped the tunnels that distributed the common Turnip seed, "to ascertain what difference it could make"—a good plant, and excellent crop was grown. This circumstance showed that it was not necessary to drill decoys at such narrow intervals, and in future the furrows only were sown with white Turnips, and I never missed getting a plant of Swedes.*

I left off drilling decoys on my own farm also, and only sowed furrows excessively thick four or five stetches distance (more or less according to soil or weather), and still never failed of obtaining plant.

In 1825 I entered into a correspondence with the Secretary of the Society of Arts on the subject, which continued for a year and a half, when the Society awarded me a Gold Ceres Medal. They had it tried in the neighbourhood of Blandford, Dorsetshire, as stated in the Report of the Transactions of the Society for 1827, page 12 of preface. It is stated that the result of this "was the only good crop of Turnips obtained during the last year (1826) in that part of the country." 1826 happened to be the most general destructive fly year recorded, or my system would have had no effect, and would have been thought to be as useless as numbers of other modes which had been thought to have been a means of saving crops from the attacks of the fly.

Mr. Spence, chairman of the Entomological Society (being on a visit to Mr. Kirby), called on me to inquire about the mode I had adopted, and seemed not to doubt but it was adapted to protect the Swedes. Sir John Sinclair had a copy of the account of it, published by the Society of Arts, inserted in an Edinburgh paper, and had copies of it struck off to distribute in Scotland, and sent me a large packet to distribute, and it led to a long correspondence between us. If any one should be induced to try the decoy systems I have described, they should continue to use the same means to obtain a plant they now pursue, until they are convinced of its being a protection from the attack of the fly.

Many farmers doubt the probability of a few rows of Turnips or Mustard, being drilled thick, protecting a crop. There are few farmers who have not seen where a drill coulter has been stopped and the seed accumulated till the obstruction broke away and scattered the seed very thick for a rod or two, that when the plants over a large field have been swept off by the fly, the thickly drilled has withstood the attack of all the flies long after the crop was destroyed. It is the same if seed is spilled in some measure, but nothing like the drilled. Another circumstance relating to the fly question may not have occurred to the reader of this treatise. By an experiment, Turnip seed sown and covered with garden mould 4 inches, on the fourth day had shot forth a radicle 2 inches long and a germ 1 inch.

Thus the root reached from the surface 6 inches, while the germ was then 3 inches under the surface, and at the same ratio, in four days more, the root would have reached 8 inches from the surface, while the germ would yet be 2 inches under the surface. If the root cannot penetrate the land to that depth, the fibres spread, but under the above circumstances the bottom of the root is not parched up, if parching weather occur, it is delving into a moister soil, the lower and lower it descends, and when the germ appears above ground, it is far more able to withstand an attack of the fly and put forth leaves.

Another portion of the seed was sown and covered 1 inch deep with mould; this had shot forth a radicle 1½ inch deep in four days, and a germ half an inch; thus in the same ratio, within four days more, the germ would have reached the surface when the radicle had reached but 4 inches in depth, and not reached below the influence of parching winds, and the plants would not be able to withstand the attack of fly, and if no fly exist, would grow slow and weak, and be very slow in coming to the hoe.

We must take extremes to show effects. 4 inches seem too deep to deposit Turnip seed, and 1 inch is evidently too fleet, except on favourable soils or moist weather, and it is only by using a drill that Turnip seed can be deposited at a proper depth according to soil and weather. A few years after I had used wide intervals for decoys, I drilled a small space with Turnips early to try the effect of different manures. The flies soon infested them, but having sown two acres of Mustard in an adjoining field, the flies left the Turnips and settled on the Mustard, and there remained till it was harvested, ascending as the bottom leaves withered; thus I ascertained that the flies preferred Mustard to common Turnips, and I feasted them afterwards by sowing Mustard for decoys. Mustard grows more rapidly than Turnips, and can bear an attack of the fly better, not being affected by drought and piercing winds. The seed is commonly cheaper, and I have found it equally adapted to decoy the flies. I sowed it for decoys for the first sown common Turnips, unless it was in a wet season, when there was no fear of fly. In two instances my decoys of Mustard saved my Turnips from being destroyed by black caterpillar (larva of the saw-fly), and when my neighbours' Turnips were so infested that they employed women and children to gather them off, I had none on my Turnips.

I continued to sow decoys during upwards of 30 years, and never failed in obtaining a plant, although after finding this a certain mode of obtaining a plant in spite of the fly, I reduced the quantity of seed I had drilled from a quarter of a peck to a pint. This mode cost less, and I grew my decoy seed from untransplanted roots—seeds of selected and transplanted roots produced smaller tops and roots, and thus the plants were less able to stand an attack of the fly.†

The Rev. Mr. Berry, Pershore, stated that, "having cleared a piece of rough land, and planted it with Hops and intermediate rows of Cabbages, the Cabbages became covered, and ultimately destroyed by Turnip flies; and having consumed the Cabbages, they attacked the Hops and destroyed them."

From these circumstances it appears that if a small space was sown (or better, if drilled) with Mustard some time, and the longer the better, before Turnips were sown, few flies would infest the Turnips. Such a space might be sown where White Turnips were intended to be sown, and when the land was wanted the Mustard might be mowed and ploughed in, and it would be worth as much as the seed cost, as manure.

As millions of Turnip flies may be drawn to a decoy, it is evident they might be so thinned as to do no serious injury to the Turnip crop, at a trifling expense, if this mode was extensively adopted. It is useless for a farmer or two to do so, as other swarms of flies would come.‡

One breadth of a drill, drilled a few rods in length, will draw all the flies existing near by; it should be drilled so thick that the plants draw each other up, and a heavy roll passed over two or three times must surely destroy all the flies. This cannot be doubted; if the space is ploughed and a heavy roll passed over it, it must destroy them. A small garden patch of Turnip seed will supply enough for decoys, and, as it does not require transplanting, costs little. The same is true of Mustard seed, and it is not subject to blight or to be injured by birds.

I am led to publish this treatise from the Turnip fly abounding in this neighbourhood, so that many have had two sowings swept off, and one only that I have heard of not having one sowing destroyed, with a prospect of failing to obtain a plant from a second or third seeding.

Turnip flies abound periodically, and when they do, they abound for several following years continually. They so destroyed the crops from 1824 to 1833, that the Doncaster Agricultural Association distributed circulars over England and Scotland, requesting information on the nature and habits of the Turnip fly; and received 102 returns, but with little practical information; it was too expensive and did not meet every circumstance.

To sow Turnips very early to be in time to sow a second time in case the fly destroy the plant, frequently causes a loss by cost of seed and labour. If the first sown escape the fly, it is very liable to mildew, and to be of inferior quality; and if the fly attack the first sown, waiting to ascertain whether a sufficient plant will survive may prevent sowing a second time till it is too late to get a good crop. The reason a second sowing generally survives an attack of the fly (if the land is re-ploughed), is because it has laid a length of time without being stirred, and has gained moisture; such will be the case if left untilled for a time, and unsown till the proper time for sowing, according to soil and weather.

A seed merchant (a correspondent of the Doncaster Agricultural Association) stated that "those who sowed early were his best customers." The question to be considered is whether it is less expense to sow decoys during two or three years when no injury would have occurred from the attack of the fly, or to lose a plant, and have to plough and re-sow the land once in two or three years. It is not whether the plant is destroyed only, but whether it is jagged, stunted, and retarded in its growth, and a long time in coming to the hoe.

* As this farm was within a mile of Ipswich, a turnpike-road on one side of the field, and a riding way through, where the farmers frequently rode, I took care to drill the decoy rows thick enough to supply the flies.

† Having 2 acres of Turnip seed—when it was cut, an immense number of Turnip flies settled on some rows of Cabbages growing alongside of it—I had not observed the flies on the seed. There were 4 acres of young Swede Turnips growing in the same field, yet the flies remained on the Cabbages in a dull state, not leaping when disturbed, but tumbling on the ground.

‡ Mr. Charles Neal, Mansfield, Notts, says, "In 1826 had a field of 9 acres sown the first week in June with Rape. In a few days after, the plants were covered with flies. The field admitting of irrigation, water flowed over it for three hours, and the destruction of thousands of flies witnessed; but the very next day the plants were completely covered with fly, and it ended in the total destruction of the crop."—*Doncaster Report.* "In 1786, 100,000*l.* were lost by the destruction of the Turnip crop in Devonshire by the fly."—A. YOUNG'S *Annual.*

Home Correspondence.

Reaping Machines.—It will be recollected I designated the present reaping machines as unphilosophical and uneconomical. It is necessary I explain myself more fully, or it will be doubted whether I understand or have that sympathy with true mechanical progress which I profess. I selected the reaping machine simply because it happened to be the last of a series of mechanical offences. Viewed in a practical light, it is a downright imitation of an uneconomical human process, since it still fells the entire tree merely to get the nuts on the branches; but that which we have now especially to deal with is the philosophy of its mechanism. Some time back I propounded the following doctrine, viz.: mechanism being permanent in its nature must be placed in such position that it shall be continuously employed, or else its use will be unprofitable to some class. Now perfection can seldom be attained in anything human, still it will follow that in mechanical contrivance the nearer we approach the principle involved in the above doctrine, the greater the benefit and profit to the whole community; and the further we diverge, the greater the evil and loss. It happens that our public speakers and societies in referring to agricultural mechanism invariably appeal to an experience deduced from the manufacture of cotton or iron, &c.: quoting the results by an Arkwright, a Crompton, and a host of others, straightway applying these examples to the agricultural art; but every soul of them overlooks the fact that the operations of agriculture are intermittent, whereas those of manufacture are incessant; and hence from the want of parallelism arises a false and fatal deduction. To see in its full force the error into which they are advised to plunge, I need only point out to my farmer friends, so absolutely essential is it considered to the profitable working of a permanent and expensive mechanism, that it should be kept continually a going, that in Manchester it is grown into a proverb to say "When the mill stops, the man's ruined;" and again we often read in the public prints "our mills are only working half-time, and great distress in consequence prevails." Now look at agriculture: sowing comes but once a year, and you make a 30*l.* permanent and distinct mechanism for it; reaping comes but once a year, and you make the same for that, ditto hay making, ditto clod crushing, and a lot of operations entailed by that laborious and imperfect granulating process called "ploughing" (processes not needed in the garden, nor in the field, if ploughing did not prevail). Well, in consequence of the intermittent nature of agriculture, I say it is unphilosophical to strive to make an expensive fixed mechanism, and I hope in time to prove it is uneconomical to make any expensive permanent mechanism, merely to execute a cheap temporary operation; and I have no hesitation in saying that when the men of Manchester, Blackburn, Leeds, and Glasgow shall come to appreciate the wide and marked difference existing between their own continuous mechanical operating, and the perforce temporary operating of agriculture, we shall not hear them talking about that similarity of result which might be produced by pursuing a course like their own. Mr. Joseph Whitworth at a recent meeting of mechanical engineers, admirably exemplified the doctrine I offer to the farmers of England: first calling their attention to the fact "that the very soul of manufacture is repetition," he proceeded to adduce a case in proof of our great progress in mechanical contrivance; it was as follows: "30 years ago the cost of labour for trueing a surface of cast-iron, by chipping and filing with the hand, was 12*s.* per square foot; the same work is now done by the planing machine at a cost of labour of less than 1*d.* per square foot; and this as you know is one of the most important operations in mechanics. It is therefore well adapted to illustrate what our progress has been." Let me now call the particular attention of our agricultural mechanists and farmers to that which follows. He continued: "At the same time this increased production is taking place, the fixed capital of the country is augmented; for in the case I have mentioned of chipping and filing by the hand, when the cost of labour was 12*s.* per foot, the capital required for tools for one workman was only a few shillings; but now the labour being lowered to 1 penny per foot, a capital in planing machines for the workman is required which often amounts to 500*l.*, and in some cases more. This

arge outlay of capital invested in machinery to increase production makes it impossible to curtail the hours of working machinery. In some cases two sets of work-people have to be employed in relays, each working 8 hours a day, and this system, perhaps, may in time be extended." Now, agricultural mechanists, what a lesson does the above teach you! It informs you that the operation of planing, being co-existent with iron manufacture, it should be continuous, therefore they could afford to supersede tools costing only a few shillings by mechanism costing hundreds of pounds. But to meet this they are not only compelled to keep the machinery a going all day, but they must actually have "relays" that it may never stop, or the investment would not pay. Here's a scythe costs a few shillings, and you seek to supply its place by mechanism costing many pounds. Can you also fulfil the essential condition that your expensive mechanism shall be kept continually at work? Or can you guarantee that the article produced shall be sold at a much lower cost than is now the case? Or that there shall be 144 times more of it in the country? I need not pursue the comparison of agricultural to manufacturing operations any further, but assert there is little if any analogy between the two cases, and no inference to be drawn as to the result of an extended use of permanent mechanism in agriculture (that is, in the field). Our mechanists will ask "Am I writing against the use of machinery in the field?" To which I answer "No!" I am merely making a move for its right employment. I warn them that in this particular branch of the farmer's business Man is the thing for the field; and instead of their seeking to make mechanism superior to the man, they must rack their brains to make it subservient or subordinate to him. I tell them that that course of mechanical proceeding which is applicable to a continuous manufacture is inapplicable to an intermittent one. I tell them that so far as regards mechanical precision, so extremely simple are the operations of the field, that man unassisted can now perform nearly the whole; and with a slight addition of power and mechanical aid he would be able to execute the whole at a less cost and with a greater ultimate result than is now obtained; and further, that he is the only cheap mechanism, fulfilling the conditions "temporary and convertible" I know of, suited to plant production. But our mechanists do not study how to aid him to execute with ease to himself the processes of the field; unassisted they find him insufficient, therefore discard him. I blame them for not thinking: they seem only to stand by, ready to minister to every want of the the farmer—not to prevent that want. This course of proceeding may be businesslike, but it is not patriotic. That which (under certain conditions) may be "profitable to the purchaser," may not be so to the consumer—a good war is a good thing for the farmer, but what about the consumer? True wisdom should strive to benefit both; and in the field this can be effected. It will be some time before our mechanists can be made to comprehend that "standing" implements may prove as great a tax upon a community as a standing army. They will think the simile far-fetched—it is not. The one consumes bread, and the other themselves, unproductively. It is evident this question of the right and wrong use of mechanism in the field is not yet understood and requires to be well ventilated by discussion before it will be appreciated by the many. Farmers are not to be blamed, for not making discoveries for themselves; they are too much occupied with the calls of daily practice; but it is to their mechanical and philosophical advisers they look for progress, and on the heads of these latter persons will the recoil be, if under a false analogy or the plea of a resemblance which does not exist they lead them wrong. *C. Burcham, London.*

Early Harvesting.—A recent journey over some 40 or 50 miles of road furnished in almost every direction more or less the display of unharvested grain, the grain-sheaves lying wet and reeking on the drenched surface. There could have been no more striking comment on the evil practice of late harvesting. In some places the grain had been brought home and stacked, but in such a condition as to render it necessary to unstack and scatter the sheaves afresh over the ground, so as to give them a chance to dry. The loss must be very great. In Switzerland, where the climate is also wet and precarious, but where corn is raised at vastly greater elevations than here, it is a practice to string the sheaves of grain on upright poles provided for the purpose, and thrust sufficiently into the soil. This expedient might now be followed with advantage here, did any provision subsist for it. It would also be very practicable to straddle the grain-sheaves on ropes or poles stretched or laid transversely. It must be obvious, one would suppose, how much sooner the grain would dry during the short intervals of dry weather thus suspended than when left on the wet soil, sheaf supported by sheaf. We never, however, see this or almost any other unusual expedient resorted to by farmers. This inability to adapt one's conduct in the matter of harvesting, according to the circumstances of the case, will doubtless continue so long as the children of agriculturists are taught merely on the principle of repetition. The principle of origination, namely, that of striking out something new when a difficulty occurs, is just as needful as the principle of imitation, which should not be alone adhered to in education. It seems very strange, however, that agricultural teachers and preceptors do not turn their more direct attention to the subject of early harvesting, which is quite as important as any question of manures or thorough draining. Unless the grain be saved, what is the use of anything else? As a general rule the grain crop might be housed a full month before the period of our actual harvest. Clay soils should be drained, this not being so necessary with sandy soils. The seed should be brought from an early district and early sown. Above all, but preferably in connection with every other proper agricultural precaution, the grain should be cut as soon as the stem begins to change in colour, so as to allow it to winnow and ripen in the sheaf, and so avoid the risks and uncertainties, if not actual losses, attendant on late harvesting. *Henry M'Cormac, M.D., Belfast.*

Farmers' Clubs.

HEXHAM: *The Lease.*—At the last meeting of this club, Mr. Dods, of Anick Grange, read the report of a committee appointed in reference to leases, from which we make an extract.

"Your Committee, in performing the duty assigned to them by the Club, have thought it better to frame the form of a lease rather than of a mere agreement, and in doing so have borne in mind that, by the terms of their appointment, they were to have regard to the interests of both landlords and tenants. They have endeavoured so to frame the lease that while the tenant will be free to keep pace with every improvement in agriculture, he will be prevented, in as far as a lease can do so, from running out or deteriorating the farm. Thus, by the cropping clause, while he is prevented from taking two white crops in succession, or from growing more than a fixed quantity of Potatoes, without an outlay in purchased manure, he may by such outlay grow as wide a breadth as he chooses. He will also be at liberty to curtail his Grass to a certain extent, so as to take a Pulse or other crop in lieu of it, and thus prevent his land becoming 'Clover-sick.' Your Committee think it right that, in the concluding years of a lease, the tenant should conform to a stipulated rotation, so that he may not have more than a fair share of the farm for an away-going crop, and that the incoming tenant may have a fair portion of Grass and fallow to enter to; and for this the Committee have provided, that rotation may be either a four, five, or such other course as may be agreed upon by the parties. For good land on Tyneside your Committee are unanimously of opinion that a four course rotation, with liberty to substitute a Pulse crop for a portion of the Grass when required is the most profitable; but many of the farms in this district include poor as well as rich soils, and it is evident that on the lighter portions of such farms a less exhausting rotation, such as the five or six course, ought to be followed. What that rotation is to be will be determined according to the nature of the farm and by the parties interested."

The following is an abridged copy of the lease resolved upon:—

It first, of course, names the parties to the lease and the subject to be leased, excepting from the latter all mines, minerals, and quarries, in and under the said farm, with liberty to work. Also excepting all woods, underwoods, trees, and plantations, upon the said farm, with liberty to prune, cut, &c.: also power at any time to take any part of the said farm for roads, to straighten boundary fences with neighbouring proprietors or farms: excepting also liberty for the landlord, or those authorized by him, to enter upon, and hunt and shoot over the said farm, the tenant also having liberty to hunt and shoot over the said demised lands.

Note.—If the farm is situated in the vicinity of the landlord's residence, and the game is to be absolutely reserved, the preceding clause will be omitted, and the following substituted instead.

"And also except the game upon the said farm, with power to the landlord or those authorised by him, to hunt and shoot over the said farm, the landlord making compensation for all damage to be done either by the said game, or by parties preserving or in pursuit of the same, and the amount of such compensation to be fixed by arbitration, as hereinafter provided."

Then follow the details respecting term, rent, penal rents, and taxes, including:—

"The further rent of 10 pounds for every acre cropped contrary to the course of husbandry hereinafter provided; and a further rent of five pounds for every ton of Turnips, Mangel, straw, or hay, which shall be carried away from the said farm unless purchased manure to the value of one pound for every ton of Turnips or Mangel, and of two pounds for every ton of straw or hay so carried away be applied to the said farm within the year immediately following such sale. [The tenant being bound to give due notice to the landlord or his agent of his intention so to dispose of any Turnips, Mangel, straw, or hay, and to produce vouchers of the purchase of the said manures] Provided always that the said last-mentioned rents shall be payable only for the year in which they are incurred, and must be claimed within 12 months after the same shall become due. [Excepting the case of penalties incurred for ploughing up old Grass lands, when they shall be payable from the time they are incurred, and continue yearly during the term.]"

On Cropping it says:—The tenant shall keep and leave in permanent Grass the following fields, viz.:— .... And shall during the said term cultivate the remainder of the land according to the rules of good husbandry, and in particular he shall not at any time take two white crops in succession, nor have less than one-fifth part of the said land in Grass, nor more than ..... acres in any one year under Potatoes, without applying to the said farm within the following year purchased manure to the value of eight pounds for every additional acre under Potatoes; and during the last four years of the term he shall not have more than ..... acres under corn; or ..... acres under Peas, Beans, or Tares; nor shall he have less than ..... acres under one year old Grass; ..... acres under two or more years old Grass; and ..... acres of fallow or fallow crop [without leave in writing from the landlord or his agent for the time]. The tenant shall keep and leave in good and sufficient tenable condition and repair the whole buildings which are now, or may hereafter, during the term, be upon the said farm, with the exception of the main walls, main timbers, and floors [The tenant shall insure and keep insured during the term those parts of the buildings which, by the preceding clause, he is bound to uphold in the sum of £ ..... in some established insurance office, in the landlord's name, and in the event of his not doing so, the landlord is hereby empowered to insure the same, at the expense of the tenant.]

Buildings.—The tenant shall keep and leave in good fencible condition and repair the whole fences, ditches, and gates which are now, or may hereafter, during the term, be upon the said farm, the landlord supplying the wood for the said gates. [And should the tenant, at any time, neglect to make the repairs which he is hereby required to perform, the landlord, after one month's notice, is hereby empowered to complete the same, and the amount expended by him in so doing shall be recoverable as rent.]

Conditions at the End of the Term.—The tenant shall keep trained or uneaten, after the first day of October preceding the expiry of the term .....acres of the best land sown with Clover or Grass seeds in the last 15 months of the term, the same to be appointed by the landlord or incoming tenant, for which seeds he shall receive payment from the landlord or incoming tenant. And it is further declared and agreed as follows, that is to say:—The tenant shall, before the 31st day of December preceding his removal, plough in a good and workmanlike manner all the land which falls to be fallow in the following year, for which ploughing he shall be paid by the landlord or incoming tenant, according to a valuation made as hereinafter provided. The tenant shall cart out, at proper seasons, into such fields as the landlord or incoming tenant shall direct, the whole dung made on the farm during the last six months of the term, for which labour, and one-half the value of which dung, the tenant shall be paid by the landlord or incoming tenant according to a valuation made as hereinafter provided. The tenant shall be allowed an away-going crop from the land which, according to the course of husbandry hereinbefore provided, shall come in course for corn crop in the last year of the term, which away-going crop he shall be bound to sell, and the landlord or incoming tenant shall be bound to purchase at a valuation to be made as hereinafter provided. The landlord or incoming tenant shall have power to sow with Grass seeds such parts of the away-going crop as they shall see fit, and which seeds the tenant shall be bound to harrow or roll in, he being paid for the same according to a valuation made as hereinafter provided. The threshing and grinding mills on the farm to be kept in good working order, and so left by the tenant to the landlord or incoming tenant, and to be paid for according to a valuation made as hereinafter provided. The tenant to be paid for the following unexhausted improvements at the end of the term, viz.—For lime applied to the land with the sanction of the landlord within the last year of the term, the whole cost price at the kiln; in the second year previous to the termination, two-thirds of the said cost price; and in the third year, one-third of the said cost price. For undissolved bones applied in the last year of the term, one-half of the cost price; and in the second year previous to the termination, one-quarter of the said cost price. For guano or other approved manure applied to the away-going crop by the outgoing tenant, one-third of the cost price.

Arbitration Clause.—All valuations to be made, and all matters herein directed to be settled by arbitration, to be made and settled by two neutral parties mutually chosen, and in the event of their differing in opinion, the matters regarding which they so differ shall be settled by an oversman to be appointed by them, whose decision shall be final. In witness whereof the said parties to these presents have hereunto set their hands and seals the day and year hereinbefore written.

The report and lease having been read a few suggestions were made in the course of discussion with the view of rendering it complete. Thus, on the suggestion of Mr. George Lee, it was provided that the tenant should not only not be able to sell Turnips, hay, or straw, &c., off his farm without procuring proportionate manure, but that he must not do it without acquainting his landlord. Furthermore, on the suggestion of the Chairman, Mr. Grey of Dilston, the fine of 5*l.* proposed by the committee for miscropping was raised to 10*l.*, and in the case of ploughing up old Grass land rendered both retrospective and cumulative, on the ground that the tenant might, especially towards the end of the term, gain more by violating the cropping conditions of the lease than the amount of the fine. While the clauses as to taxes were under review, it was agreed to specify such as should be borne by the landlord, in order that no misunderstanding might ensue; and, on the motion of Mr. Dods, a clause on insurance, which had been omitted on the ground that it was needless to provide for what it was the interest of the tenant to do without any conditions, was inserted; along with an additional clause, with a view to ensure the good repair of the fences, &c.; which, as well as the preceding additional and explanatory clauses already enumerated, will be found inserted between brackets in the body of the lease. The clauses which gave rise to most discussion were those affecting game, one of which proposed to give to the tenant the same right of hunting and shooting as to the landlord; the other, to confine it to the landlord, and the tenant to receive compensation for damage. Mr. Dods explained that the committee had been in favour of the former clause, while he was in favour of the latter, the adoption of which he now moved to the exclusion of the other. Mr. Trotter, who denounced the game laws, and held that it was absolutely impossible to compensate the tenant for the damage done by game, by the trespass to which it led, and other sources of annoyance and loss, moved that the former clause stand to the exclusion of the second. Mr. Dods said that so long as the game laws were the laws of the land, they must deal with them as such; and that, if Mr. Trotter's motion were adopted, the landlord would, as soon as he came to it, read no further, but throw the lease aside, as being a tenant's lease; whereas it has been the wish of the committee to frame a lease fair to both sides. The Chairman also, while having no liking for the game laws, pointed out that the clause of Mr. Trotter would be of no use to a tenant who was not a sportsman, and that a sporting landlord might consider it hard that, after being at the expense of watching and preserving game, the tenant should take his share of the sport equally with himself. After some discussion, Mr. Lee, the secretary, moved that both clauses stand, so that the parties to the lease might select that which suited them best. This was carried by a large majority. *Abridged from the Newcastle Journal.*

Farm Memoranda.

ROBGILL TOWER (the residence of J. M'Connell, Esq., about 15 miles to the north of Carlisle).—"My stock here consists principally of sheep, which are kept in the house summer and winter. They stand on sparred floors. The liquid and solid manure passes down between the spars. The liquid portion goes at once to the tank; the solid is washed every day from under the sheep by a gutta percha hose, and is prevented from going immediately into the tank by a large flat grid. The water is then turned on to the grid, and a boy, with the aid of a roller and scraper, soon washes as much of the solid manure as will dissolve into the tank, leaving on the grid only bits of Grass and Turnips, and wool, &c., which are then removed from it into a cart, and laid in a heap on the land, where required, to decompose, or, if I have land ready, it is ploughed in at once. The tank contains nothing but urine, water, and dissolved manure, which latter gradually settles at the bottom. The tank is built of brick, and arched over. Every drain which goes into it is carefully trapped. I ventilate the tank into a common drain, which allows the ingress and egress of air. This drain comes out some 100 yards from the building. Inside the tank I have an agitator, worked by the engine when the pumps are at work. The mixture is drawn out of the tank by two pumps, with a 4-inch suction pipe open at the bottom; but on the surface of the ground the liquid passes through an air-tight box in which is a grid, and in case of any lumps getting in by accident I can look into this box and remove them. I have laid 3-inch iron pipes about 2 feet deep underground, so as to be free from frost, and so arranged with branches and hydrants above ground, that 120 yards of gutta percha hose can water every corner of the fields. In one of these iron pipes near the pumps I have a safety valve, so that if there is any stoppage in the pipes the liquid escapes and runs back into the tank. I avoid putting guano, and particularly gypsum, into the tank, as these substances are apt to cake and gradually fill them up. From May till October, on 25 imperial acres, I have kept this summer 200 sheep, 19 head of cattle, and 7 horses, besides making 24 cart loads of hay. I have cut my Grass four, and some of it five times this summer; and instead of the land getting poorer it gets richer. My land has not yet had time to get up its fertility. As far as the application of sewage is concerned, my experience leads me to believe that it will have a greater effect upon vegetation if largely diluted and frequently applied, than if only occasionally applied and less diluted. The objection to the former plan is, however, that it costs so much more in storage of the sewerage and in the cost of application. I apply the sewage to the land summer and winter. My tank will only hold a fortnight's supply. In the hardest frosts I put it on the ploughed land only, and it escapes through the crevices to the bottom of the furrow, and is absorbed by the land without much exposure to the air when the thaw comes. I do not consider it requisite to have large storage room, so that the manure may decompose before being used, as it can do this quite as effectually in the land as in the tank. The manure in my tank is constantly changing, as it is pumped every second day on to some portion of the land. In summer I use much more water than in winter, and thus have occasion to pump much seldomer in winter, and save expense. If, as I believe, this system will repay me for my outlay, there is no doubt that applying town sewage to the land in the neighbourhood of a town, where the crops can be sold off, will pay infinitely better, as their outlay will be very much less than mine in proportion." This is Mr. M'Connell's statement of facts. What we saw afterwards more than fulfilled our expectations. It was high farming *par excellence*. Mr. Mechi cannot approach Mr. M'Connell in completeness and cleanliness; but whether this characteristic can be preserved with the extension of operations would depend entirely upon the attention that may be directed to details. That attention must be close and unremitting; and there is no reason why it should not be; we saw nothing to lead us to suppose that it would not be. The engine that pumps the liquid manure from the tank upon the surrounding fields is one of Clayton and Shuttleworth's. It cost 200*l.*; the tank cost 100 guineas; the pumps about 60*l.*; and the piping about 3*s.* a yard; laid down, the 120 yards of hose through which the liquid manure is driven, 21*l.* The engine is capable of throwing 3000 gallons an hour, and, at the same time of working many pieces of machinery, such as Grass and Turnip-cutters, corn-crushers, threshing-machines, and others, some of which we saw in active employment, preparing the food of the sheep and cattle for the day. The appearance of the Grass which had been subjected to the constant applications of sewage was certainly wonderful. It was Italian Rye-grass, and had all the freshness and greenness of a spring crop; it seemed to grow under one's very feet. Mr. M'Connell told us that he subjected all crops, more or less, to the same process, and all throve alike. Certainly the contrast between the fields that had undergone this saturation and those which had not, was remarkable. Mr. M'Connell is adding largely to the land under cultivation; it is poor and requiring much preparation, deep ploughing, and subsoiling, there being a layer of what is called "mossdrift," which effectually prevents the escape of water from the spongy soil on the surface. All this is very difficult and expensive, but Mr. M'Connell has the best men, best horses, and the best implements brought to bear upon the work; he has the capital, the ability, and determination to carry it out. Whether it will pay is, we believe, a question which neither he nor any one else at present can solve; but Mr. M'Connell believes that it will. We hope it may with all our heart, for to such enterprising men as Mr. M'Connell, the pioneers of improvement, even though self-interest be at the bottom of it, society is indebted. *Abridged from the Carlisle Patriot.*

Calendar of Operations.

OCTOBER.

BORDER OF THE FENS, *Oct.* 27.—The weather has been extremely favourable during the last week for proceeding with the second harvest of the year, viz., that of root crops, and we are sorry to be obliged to give a sad account of the Potatoes, for however the late heavy rains may have increased their bulk, it has in greater measure diminished their soundness. On the best Potato land the injury sustained by the disease is very extensive, and on all other soils there is hardly any to be had worth preserving; those Potatoes that were gathered earlier have shared the same fate as those now digging, consequently large quantities are forwarded direct for market, and we may therefore apprehend a great scarcity of good Potatoes in the spring, at least if other districts are affected with a similar visitation. Carrots are both good and abundant, their price at the field ready for storing is about 25*s.* per ton. Mangels also promise well, they will not be cleared generally until about the second week in November; they appear to be now growing most luxuriantly. Turnips have quite cheated the expectations of all qualified men, so difficult was it generally to obtain a plant, and so backward and uneven were many fields; but the five days' rain changed the aspect surprisingly of all the green crops. The bulb of the Swede is large and clean, and the foliage looks remarkably healthy, as does also the Coleseed; and as the fine appearance of the pastures will enable the grazier to keep his stock out of doors and on Grass for a longer period than usual, we have a cheering prospect of an ample supply of wholesome roots for spring feeding; the prices of all store stock therefore rule high, and the condition of store stock is more fresh and forward than usual. Wheat seeding commenced in as miry a state of the weather as could be required; it is now performed with greater ease to the horses, and a drill may be seen at work in almost every other field. Farmers of highland in this neighbourhood do not care to sow their Wheat until the last week in October, assigning as their reason that if it grows too much before Christmas it sustains such a check by the spring frosts as to dwarf the ear and lessen the produce. On clay land, however, it is held advisable to sow Wheat as soon in October as the land can be got ready for it, lest when saturated with wet it might not be possible to sow it at all, if a rainy "latter end." So also the skirty land is sown soon rather deep, to get if possible a well-established plant. On fen soils it is thought to be a good time if done by the first or second week in November, some men being anxious to have it done much earlier. The reign of the old Barwell Red Wheat seems to be on the decline, Browick, Siah, Giant, White Chaff, and other novelties taking its place. The demand for seed having slackened markets have had a duller tone, and if the weather prove favourable for threshing when the bustle of seeding has abated, we may expect such a supply as will probably cause prices to recede. Barley still retains a high figure, and horse-corn may be said to be in good demand. There seems to be plenty of employment for labourers, and the greatly increased use of machinery seems to have introduced some animation into their habits; there is no lack of men able to manage the most complicated machinery, and with higher qualifications we may reasonably presume higher wages are received; women and children are also in great request, not merely because there may be a greater desire to get rid of weeds, but that by improved cultivation weeds seem to be more prolific if not attended to. Horses are remarkably dear; there has been no unusual mortality among them, and more attention is given to breeding them, so that the great and increasing demand for good cart-horses can only arise from extended culture or augmented production. *J. W., Peterborough.*

Notices to Correspondents.

AGRICULTURAL SOCIETIES: *F R S.* Their defence was eloquently uttered by Mr. Disraeli the other day at the Amersham Society. He said, "He recollected when the establishment of such societies was ridiculed. It was said that Sir Isaac Newton had not discovered the law of gravitation at a scientific meeting, and it might have been said that at no agricultural meeting was the plough invented; but the instinct of human nature was superior to all such criticisms, and these societies continued to be formed for the benefit of agriculture. Men must feel the advantage of these meetings, whereby they are brought together in communion, in one town, and in one district. Here we find the life and spirit of the country united, and in that union is strength. I place not only the defence, but the vindication of all these societies on the broad truth, that it is beneficial to men to meet together. and where there are, as in large towns, the means of aggregation you must have recourse to societies such as these; and on no occasion do we fail to recognise their beneficial effects. The operations of this and other societies may not be extensive, but the object at which they aim is the beneficial condition of man. You cannot throw your eye over the awards of this day without feeling that they tend to elevate man. It is idle, gentlemen, to suppose that the ceremonies of to-day will vanish as the sun. No; the sturdy ploughman of to-morrow, or the boy who 'whistles at the plough' if he should meet the successful farmer who has cultivated the best five acres of Swedes will feel a spirit of fraternity which all the laws invented by senators can never achieve." A fuller report of the address will be found in "the Newspaper."

IMPROVEMENT OF COTTAGES: *Falcon.* Thank you.

LIME: *Constant Reader* asks for the description of lime suitable for the clay land at Braydon, near Cricklade, Wilts. He has tried the blue lias, but cannot see any change. [We are not acquainted with the district, but if well burned lias lime produces no effect, we should try other means—as burning the soil after drainage.]

SMUT: *W H.* The Wheat is sometimes free, although the seed has not been dressed—but it is not safe to sow seed without dressing it. As to manure, we will answer next week.

SWEDES: *T B.* If there be the quantity named in one field—that, we think, will meet the case, although it may be divided into two plots by an intervening crop

THRESHING MACHINES: *F R I.* The answer depends on the provisions of the local act. From the following case, given in the *Worcester Herald*, they were held not liable to toll. "Thomas Cartwright, the lessee of the tolls of the Bridgenorth and Cleobury Mortimer trust, recently appeared before the magistrates to answer to an information preferred against Charlotte Walford, keeper of the Billingsley toll-gate, for having demanded and taken toll for a steam-threshing machine going through the gate, under the instructions received from Mr. Cartwright. This case excited much interest, and Mr. Lawley, of Kinlet, appeared to press the information, with the object of having the case decided, there being a similar information against the keeper of the Baveney Wood gate on the same trust. On the magistrates explaining the act to Mr. Cartwright, showing the clauses bearing upon the point disputed, as well as showing the decision of the judges in a case in which they had decided against the view he had taken, Mr. Cartwright bowed to their decision, and at once agreed to compromise the matter by returning the toll to Mr. Lawley and paying the costs incurred."

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2¼ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

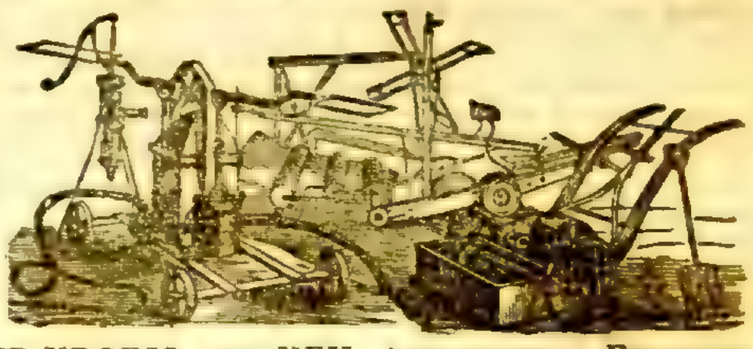
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

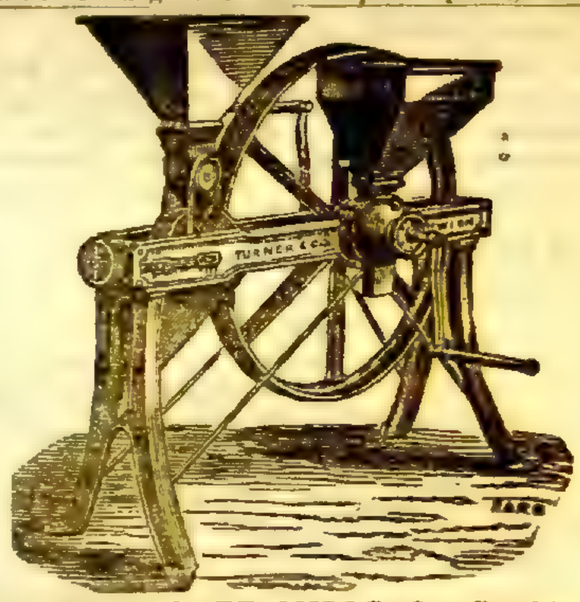
HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery.—Warehouse 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

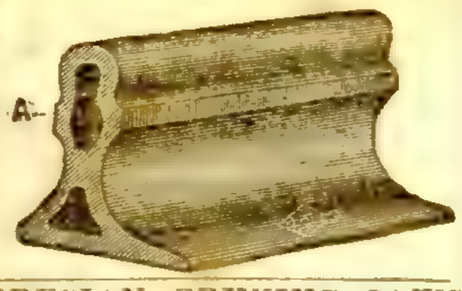
Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 96, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER, Ipswich.

HOGG'S GARDEN EDGE TILES: a cheap, elegant, and durable substitute for Box Edging. 13*s.* per Hundred, or 4½*d.* per yard.

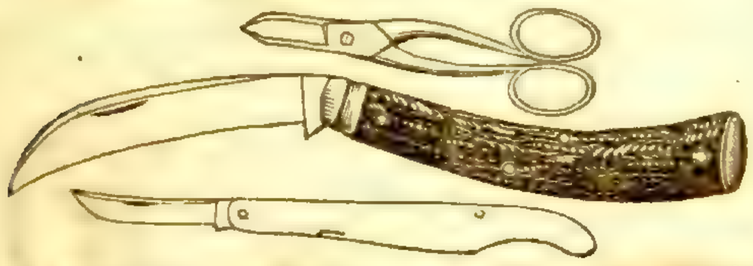


Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

Full particulars from Mr. R. BLACKET, Witham, Essex.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

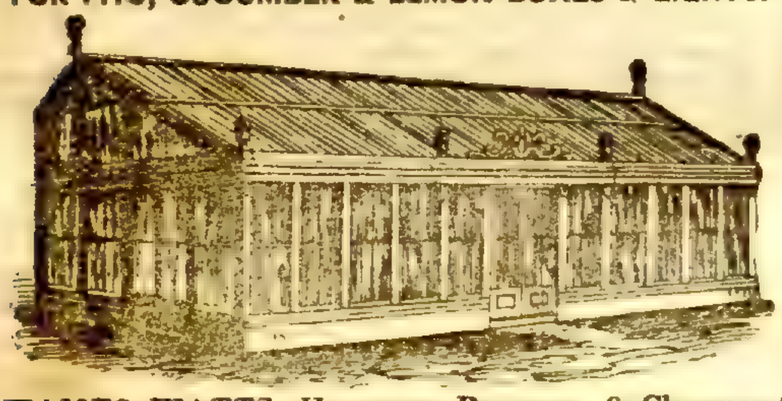
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools, Established 1738.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.

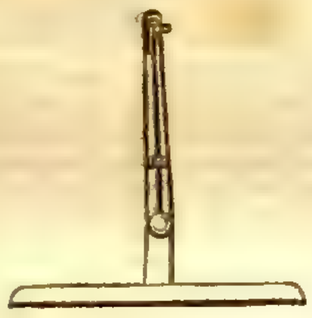


JAMES WATTS, HOTHOUSE BUILDER, 3, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

WEIR'S SPIRIT DRAINING LEVEL. Price 30*s.*; Case 1*s.*

Requires no graduated staff or computation. Any labourer can use them.



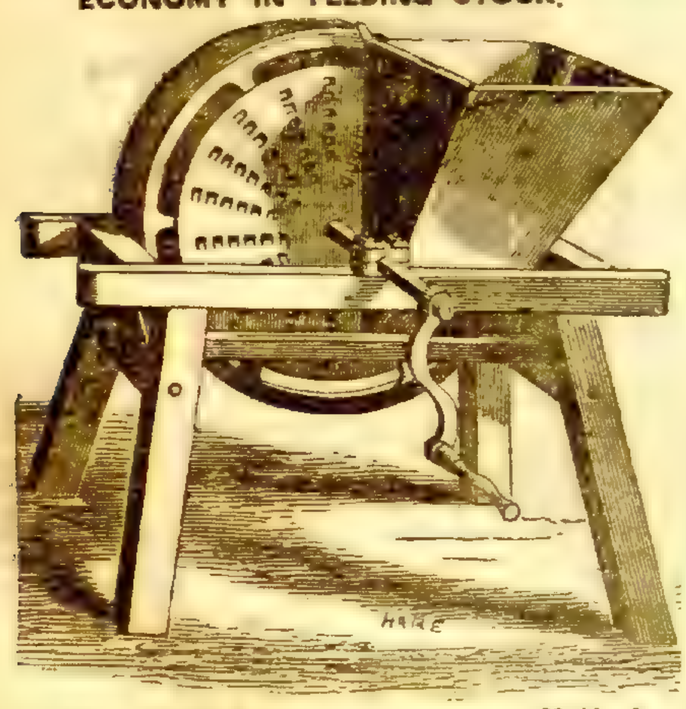
WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain.

Price 15*s.* Terms cash.

Illustrated Catalogues sent post free.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

ECONOMY IN FEEDING STOCK.

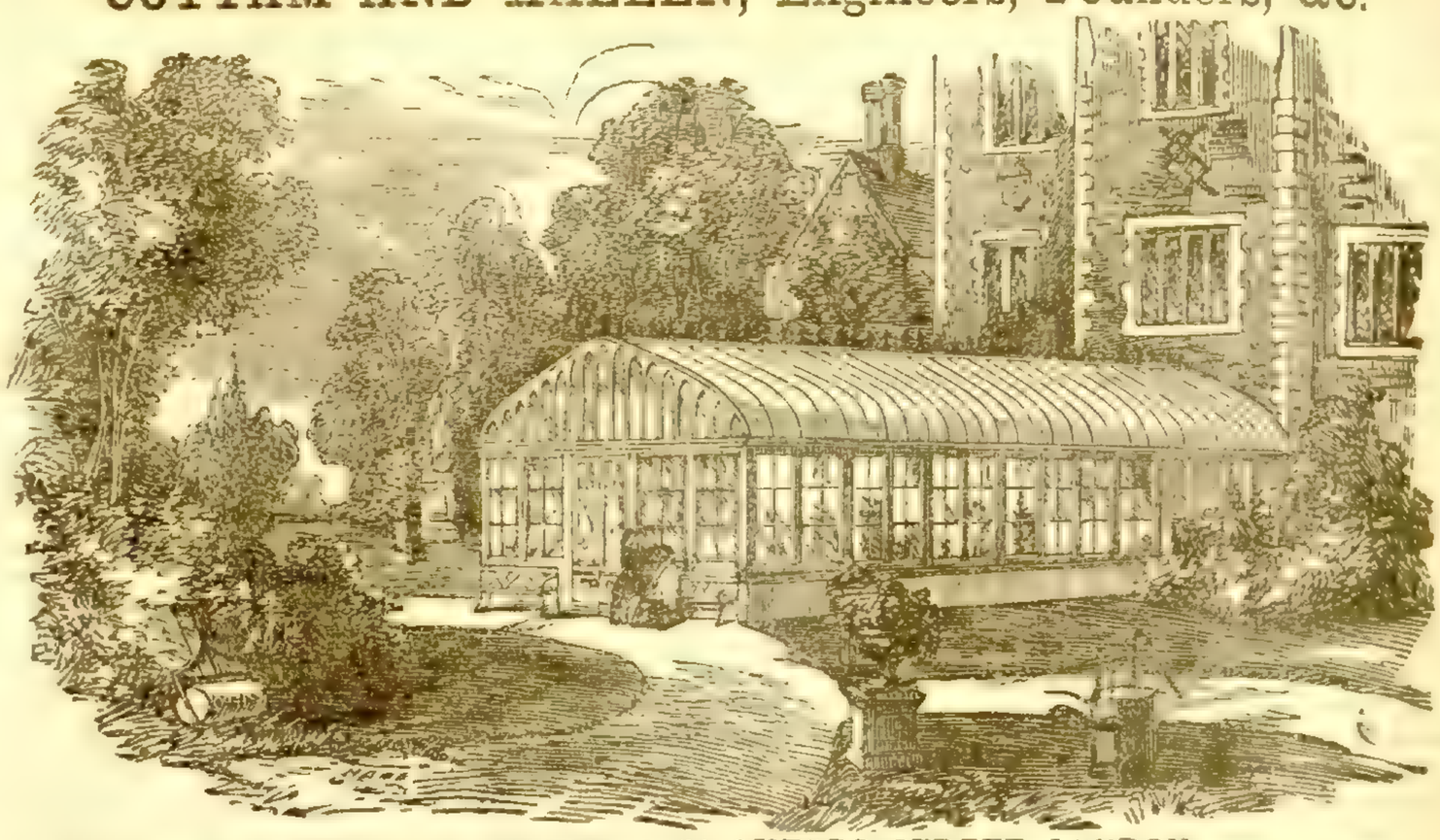


No. 1. Single Grater	£3	10	0
No. 2. Double ditto	5	0	0
No. 3. Ditto ditto, larger size	6	0	0

Extra for Driving Pulley, adapted to Steam Power, 10*s.*

BUSHE AND BARTER'S Patent Root Graters are improved very much this season by A. & T. Fry, (late Fowler & Fry) Temple Gate Implement Factory, Bristol. They are now the cheapest, most simple, and at the same time most effective machines for the purpose of reducing roots of all descriptions into very small gratings or shreds. Testimonials and directions for use may be obtained free from A. & T. Fry, and the machines may either be obtained direct, or from any respectable implement dealer or ironmonger in the country at the above prices. Also, Corne's Patent Chaff Machines, of all sizes, Improved Oat and Bean Mills, Malt Mills, and Gardner's double and single action Turnip Cutters, &c.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

B. SAMUELSON,
BRITANNIA IRON WORKS, BANBURY,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. BETWEEN SIXTY AND SEVENTY THOUSAND of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations, and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

MALT MILLS of various sizes.

LINSEED CAKE BREAKERS, from 2*l.* 6*s.* up to 10*l.* each.

CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

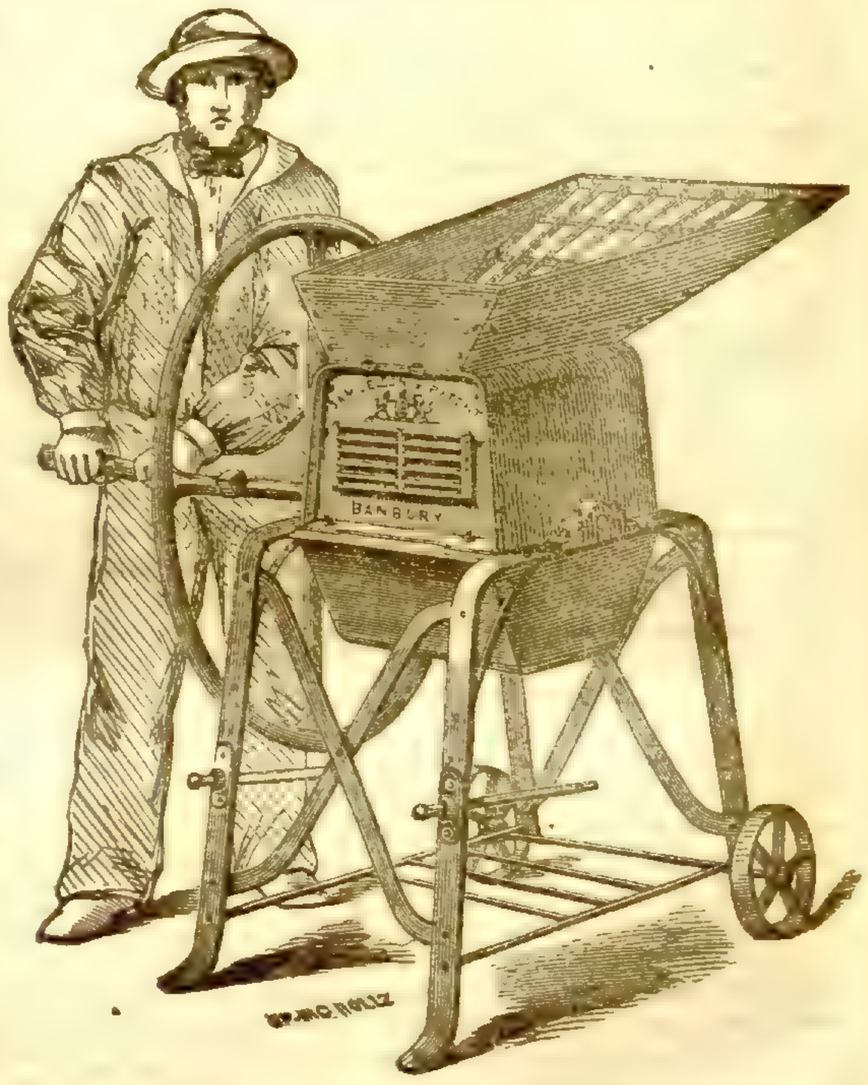
KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

BARLEY HUMMELLERS.

WEIGHING MACHINES, MANGLES, &c. &c. &c.

The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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CRESTS FOR GATE PIERS modelled to order.

Also a large Stock of VASES for the same purpose and for Terraces, executed in Artificial Stone, by

J. SEELEY,
(LATE AUSTIN & SEELEY),
Nos. 1 to 4, Keppel Row, New Road.

JOHN WARNER AND SONS' Crescent, Jewin Street, London.
GALVANISED IRON TUB GARDEN ENGINE,
WITH WARNER'S REGISTERED SPREADER,

is strongly recommended, for durability and low price, viz., 2*l* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gals., 24 gals., & 35 gals. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power, Prices sent on application. Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

NOW READY TO SEND OUT, direct from Yarmouth, during the season, GENUINE YARMOUTH BLOATERS, 100 for 6s.; forwarded securely packed to any address upon receipt of Post-office Order, by JAMES AYERS, Fish Curer, Great Yarmouth. The Trade supplied.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l*. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. MESURE & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly. An inspection is solicited. Silver Levers, four holes jewelled, from 6*l*. 16*s*.; Gold Levers, four holes jewelled, from 16 guineas.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d*. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s*. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9*l*. 10*s*.; bright, 14*l*. 5*s*. and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4*l*. 14*s*. to 13*l*. 13*s*.; ditto with ormolu ornaments and two sets of bars, 5*l*. 5*s*. to 22*l*. Bronzed fenders, with standards, 7*s*. to 5*l*. 12*s*.; steel fenders, 2*l*. 15*s*. to 11*l*.; ditto with rich ormolu ornaments, 2*l*. 15*s*. to 18*l*. Fire-irons, from 1*s*. 9*d*. the set to 4*l*. 4*s*.

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12*s*.; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s*.; and Cots from 20*s*. each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l*. 7*s*. 6*d*. to 15*l*. 15*s*.

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1	4	6
Chintz furniture	0	14	0
Paillasse, wool mattress, bolster, and pillow ...	1	11	0
A pair of cotton sheets, three blankets, and a coloured counterpane	1	5	0
	£4	14	6
A double Bedstead, same	£6	3	0

If without Half-tester and Furniture—

Single bed, complete	£3	13	9
Double bed, complete	£4	15	0

LAMPES à MODERATEUR, from 6*s*. to 7*l*. 7*s*.—WILLIAM S. BURTON has collected from the different makers here and in France a variety that defies competition. As many imported from France are inferior in the works, WILLIAM S. BURTON selects at Paris from the best makers only, and he can guarantee each lamp he sells as perfect in all its parts.

His stock comprises also an extensive assortment of SOLAR, CAMPHINE, PALMER'S, and all other Lamps.

Pure Colza Oil, 4*s*. 8*d*. a gallon.
Patent Camphine, 4*s*. a gallon.
Palmer's Candles, 9*d*. per lb.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gasfiters, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

KEATING'S COUGH LOZENGES.

"A SLIGHT COLD,"—if its first symptoms are not arrested, too often lays the foundation of a variety of Pulmonary Complaints, including Winter Cough, Asthma, and other constitutional derangements. The evil consequences of these disorders may be easily averted or subdued by keeping at hand a supply of the above celebrated LOZENGES, which have now stood the test of public experience for upwards of half a century. The testimonials to their efficacy have been voluntarily given by the most eminent of the Faculty, as well as by all classes of private individuals. Containing neither opiates nor any injurious anodyne, they may be safely taken by the youngest child or the most delicate female.—Prepared and Sold in Boxes, 1*s*. 1½*d*., and Tins, 2*s*. 9*d*., 4*s*. 6*d*., and 10*s*. 6*d*. each, by THOMAS KEATING, Chemist, &c., 79, St. Paul's Churchyard, London. Retail by all Druggists, &c.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dulness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1*s*. 1½*d*. and 2*s*. 9*d*. per box.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as highly conducive to health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying and preserving the teeth to the latest period of life. It will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, and thus fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Its truly efficient and fragrant aromatic properties have obtained its selection by the Queen, the Court, and Royal Family of Great Britain, and the sovereigns and nobility throughout Europe. Price 2*s*. 9*d*. per box.

CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "R. ROWLAND & SONS, 20, Hatton Garden," on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

TO NERVOUS SUFFERERS.—A Retired Clergyman having been restored to health in a few days, after many years of great nervous suffering, is anxious to make known to others the means of cure; he will send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct, Rev. E. DOUGLAS, 18, Holland Street, Brixton, London.

DEBILITY AND NERVOUSNESS.—Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greenecroft Villa, High Fell, Gateshead, Durham.

"THE LANCET"
ON DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL,

The most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

"Dr. DE JONGH gives the preference to the Light-Brown Oil over the Pale Oil, which contains scarcely any volatile fatty acid, a smaller quantity of iodine, phosphoric acid, and the elements of bile, and upon which ingredients the efficacy of Cod Liver Oil, no doubt, partly depends. Some of the deficiencies of the Pale Oil are attributable to the method of its preparation, and especially to its filtration through charcoal. IN THE PREFERENCE OF THE LIGHT-BROWN OVER THE PALE OIL WE FULLY CONCUR. We have carefully tested a specimen of Dr. DE JONGH'S Light-Brown Cod Liver Oil. We find it to be genuine, and rich in iodine and the elements of bile."

Sold ONLY in IMPERIAL Half-pints, 2*s*. 6*d*.; Pints, 4*s*. 9*d*.; Quarts, 9*s*.; capsuled and labelled with Dr. DE JONGH'S Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD & CO., sole British Consignees, 77, Strand, London; and by many respectable Chemists and Druggists.

DO YOU TAKE PARR'S LIFE PILLS?

Upon the answer to that question depends much that can render life safe and agreeable.

It being now an admitted and incontestable fact, that they help to make men vigorous and hearty, and promote longevity.

Considering the virtues and almost universal application of this remedy, it is really doing a service to any friend to ask if he takes them, because the few who do not, really do themselves an injustice. *** Ask for PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in town and country, and by the following appointed Agents:—

E. EDWARDS, 67, St. Paul's Churchyard.
BARCLAY & SONS, 95, Farringdon Street.
SUTTON & CO., 10, Bow Churchyard.
HANNAY & CO., 63, and SANGER, 150, Oxford Street, London.

In boxes, price 1*s*. 1½*d*., 2*s*. 9*d*.; and in family packets, 11*s*. each. Protected and guaranteed in every country by the English Government stamp, which is affixed to each box of the genuine medicine.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

TO LANDSCAPE GARDENERS AND OTHERS.—THE COMMISSIONERS acting under the Leek Improvement Act, 1855, will, up to the 15th November, receive PLANS, accompanied by Tenders, for Fencing, Draining, and Ornamentally Laying-out the Cemetery Lands at Cornhill Cross.

Rejected Plans will not be paid for, nor will the Commissioners be bound to accept the lowest or any tender.

It would be advisable that Candidates view the site selected, and any information required may be obtained on application to the Cemetery Committee, or to Mr. HAMMOND, Clerk to the Commissioners.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

LOCKSBROOK NURSERY, WESTON, BATH.

TO BE SOLD, by Private Contract, the entire Stock and Lease of the above Nursery, containing Four Acres of rich Garden Land, with Dwelling-house and Shop, pleasantly situated within one mile of the Bath Market. The Stock consists of Greenhouses, Pits, and Sheds, Flowers, Plants, and Fruit Trees, and every convenience for the trade. The above Nursery is held for a Lease of 21 years, 15 years of which are unexpired. Rent 36*l*. per annum, tithe free. This is a very advantageous opportunity to parties requiring an established business.—For particulars apply to Mr. JAMES SHACKELL, Market Gardener, Tiverton, Bath.

WANTED, a nicely FURNISHED or UNFURNISHED RESIDENCE, on the line between Chester and Manchester, or between Liverpool and Manchester, required immediately.—Apply, sending particulars, to R. G., Box M 18, Post Office, Liverpool.

Sales by Auction.

CAMELLIAS, AZALEAS, RHODODENDRONS, AND OTHER PLANTS FROM GHENT.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, November 7, at One o'Clock precisely, 450 Camellias, of various heights, well set with bloom; 150 Dwarf Azaleas; 60 Standard Azaleas; 200 Hardy Azaleas and Rhododendrons; 60 Kalmias, and a fine pair of Standard Bays, 7 feet high; Standard Laurustinus: 250 Lilium lancifolium; 200 Gladioli; Deutzia gracilis; Dwarf Roses and other Plants for Sale without any reserve.—May be viewed on the morning of Sale and Catalogues had.

CAMELLIAS AND PEAR TREES FROM MR. DE JONGHE, OF BRUSSELS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Nov. 28, at One o'Clock precisely, 300 Camellias with Flower Buds, of good sorts and various sizes; 300 Pyramid Pear Trees, on free and Quince stocks of first-rate sorts, some adapted for pot culture.—Catalogues may be had one week before the Sale at Mr. J. C. STEVENS'S Offices, 38, King Street, Covent Garden.

To NOBLEMEN AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING, NURSERYMEN, AND OTHERS.

SECOND SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS is instructed by Messrs. Standish & Noble, who are dissolving Partnership, to Sell by Auction, at the Nurseries, Bagshot, Surrey, on MONDAY, November 17 and four following days, at 11 o'Clock precisely, a most valuable selection of specimens of CONIFERS and other Ornamental Plants, all of which have been well prepared for transplanting. It includes—

	ft.		ft.		ft.		ft.
Abies Nordmanniana	1½	to	4	Libocedrus chiliensis ...	1	to	3
" Pinsapo	5	"	7	Pinus Benthamiana ...	2	"	5
" Douglasi	6	"	15	" insignis	2	"	14
" Deodara	6	"	10	" muricata	2	"	8
" nobilis	2	"	5	Taxodium sempervirens	5	"	15
Araucaria imbricata ...	2	"	6	Mount Atlas Cedar ...	6	"	15
Cephalotaxus Fortuni	1	"	3	Hollies (of sorts) ...	5	"	7
Cryptomeria japonica	6	"	12	Irish Yews	5	"	6

Skimmia japonica, Standard, and other choice flowering hardy hybrid Rhododendrons, Standard Sikkim Rhododendrons, named Moutan Pæonies, &c.

12,000 Standard and dwarf Roses,
comprising the most choice new and select sorts in the Trade.
1000 Pyramid Pear, and other Fruit trees.

May be viewed one week before the Sale, when Catalogues 1*s*. each, returnable to purchasers, may be had at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden. Approved bills at 3 months' date will be taken of purchasers from 50*l*. to 100*l*., and at 6 months' date of purchasers above 100*l*.

The Bagshot Nursery is about two miles from the Sunningdale station on the South-Western Railway, where a van will meet the 8 o'clock A.M. train from Waterloo to convey persons to the Sale. The stations of Farnborough, Woking, and Blackwater (S. E. R.), are also within an easy distance.

STANDARD ROSES, DUTCH BULBS, &c.

MR. HASLAM will Sell as above, at the Mart, every WEDNESDAY and FRIDAY till December 12.

N.B. All goods to the amount of 10*s*. and upwards packed and delivered free of charge to Parcels Delivery Company. Baskets and Matting allowed for when returned.—Epping, Nov 1.

STRATFORD.

To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by the late Proprietor to Sell by Auction, on the Premises, Stratford Green, Essex, on TUESDAY, November 4, at 12 o'clock, Four newly-erected Greenhouses; Three Brick Pits; One and Two-light Boxes; 300 feet Hot-water Pipe; a large quantity of 1-inch and ½ inch Slate Slabs and York Paving; Wrought and Cast-iron Tanks, Boiler and Furnace; erection of Poultry House, complete; Wire Fencing; capital Iron Roller; Garden Engine; Dean's Oat Crusher, nearly new; sundry Machinery, with Gun-metal fittings; Bricks; Rockwork; Strawberry Tiles; two splendid specimen Araucaria imbricata, 7 to 13 feet; Seakale and Garden Pots; a capital Spring Plant Van; Garden Tools, and other effects.—May be viewed the day previous and morning of Sale: Catalogues may be had at the Swan, Stratford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, Nov. 6, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest double and single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculus, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom, &c.—May be viewed the morning of Sale. Catalogues had at the Auction Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CONSIGNMENT FROM GHENT FOR ABSOLUTE SALE.

To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction at the Mart, Bartholomew Lane, on FRIDAY, November 7, at 12 o'Clock, 500 fine DOUBLE CAMELLIAS and 400 INDIAN AZALEAS, consisting of all the approved kinds, well set with bloom buds; 6 fine large Orange Trees with fruit; 1000 Gladiolus Gandavensis, and 200 Standard Perpetual Roses, consisting of all the leading varieties.—On view the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery Leytonstone, Essex.

FULHAM ROAD.

To GENTLEMEN, NURSERYMEN, AND OTHERS.

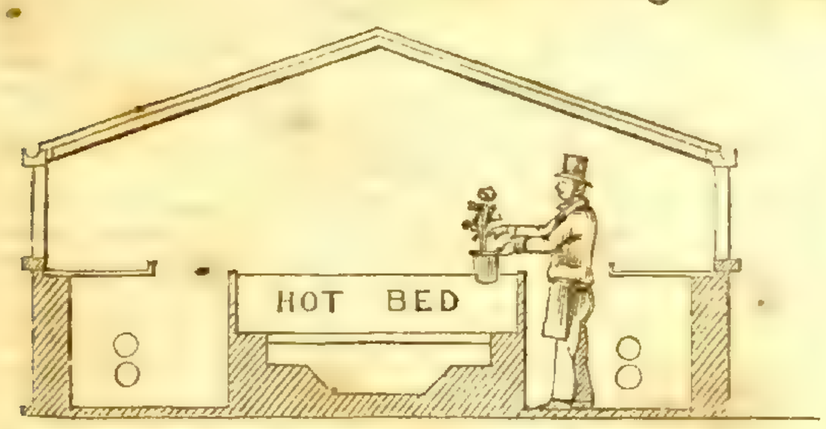
MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Rose Cottage, Queen's Elm, Fulham Road, Brompton, on WEDNESDAY, November 12, at 11 o'Clock, by order of Mr. Shearman, the NURSERY STOCK comprising 600 fine Yews, 3 to 6 feet; Chinese, American, and Siberian Arborvitæ; handsome striped Euonymus, Chinese and common Privet; Savin; a large quantity of common Laurels, Aucubas, Green Box, Lilacs, Ribes, Apples, Pears, and Plums, fine Mulberries, White Jasmine, Privet Hedge, &c. Also an assortment of Pompone Chrysanthemums, 10,000 Pheasant Eye and other Narcissus, &c.; together with a capital light Spring Market Cart, and sundry effects.—May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

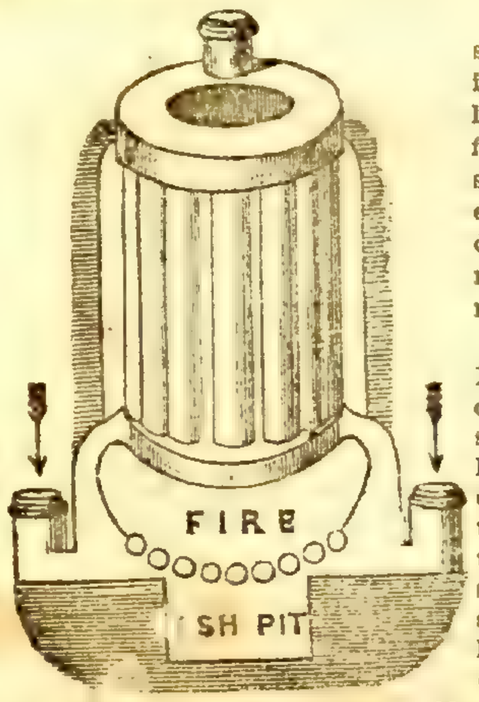
JOHN WEEKS, F.H.S., & CO.,

King's Road, Chelsea.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

SECONDHAND HOT-WATER BOILERS.

TO BE SOLD very cheap, a large stock and a great variety of all shapes and sizes, consisting of the SADDLE, the CONICAL, the RIBBED, the BELL, the FLUE Shapes, and others. JOHN WEEKS & Co. having taken out a great number of boilers from various places where they have fixed them on their ONE-BOILER SYSTEM, they have now for sale a large stock of Secondhand Boilers very cheap.

JOHN WEEKS & Co., Horticultural Works, King's Road, Chelsea.

HOT-WATER APPARATUS.

J. P. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE RAYS OF THE SUN.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light: also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, Westminster.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr. James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

GLASS FOR HORTICULTURAL PURPOSES.

Good 15 oz. sheet, in boxes of 100 feet each:—

8 by 6, and under 9 by 7	... ...	11*s.* per box.
9 by 7, „ 12 by 9	... ...	13*s.* „
12 by 9, „ 14 by 10	... ...	14*s.* „
14 by 10, and not above 2 feet	... ...	15*s.* 6*d.* „
2 feet, „ 3 feet	... ...	16*s.* 6*d.* „

T. & W. FARMILOE, 12, Rochester Row, Westminster.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

by 4, and 6½ by 4½ ...	12*s.*	8 by 6, and 8½ by 6½ ...	13*s.* 6*d.*
by 5, and 7½ by 5½ ...	13*s.*	9 by 7, and 10 by 8 ...	13*s.* 6*d.*

11 by 9,	12 by 9,	13 by 9,	14 by 9 ...		
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ...	14	0
13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...		
14 „ 12,	15 „ 12,	16 „ 12,	17 „ 12 ...		
18 „ 12,	19 „ 12	... ...	... ...	16	0
16 „ 13,	17 „ 13,	18 „ 13	... ...		
19 „ 13,	20 „ 13,	21 „ 13	... ...	18	0
16 „ 14,	17 „ 14,	18 „ 14	... ...		
19 „ 24,	20 „ 14,	21 „ 14	... ...	18	0

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.				Per foot.	Per 100 feet.	
	Under 6	by 4	at	1½*d.*	£0 12	6
From 6 by 4	„ 7	„ 5	„	2*d.*	16	8
7 „ 5	„ 8	„ 6	„	2½*d.*	1 5	0
8 „ 6	„ 10	„ 8	„	2¾*d.*	1 0	10
10 „ 8	„ 12	„ 9	„	3½*d.*	1 2	11

Larger sizes, not exceeding 40 inches long

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
26 oz. „ 3½*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

NO DRIP! NO DRIP!

KENT'S PATENT WATERPROOF GLAZED HORTICULTURAL BUILDINGS.

Illustrated Prices on receipt of four stamps.—Horticultural Building Works, Chichester.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS, 15*l.*—Illustrations forwarded on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

SUBSTITUTE FOR GARDEN MATS.—Waxed Sheeting nearly 2 yards wide, 1*s.* per yard run—admits light and excludes cold; thick Canvas Tarpauling, 1*s.* per square yard; thick Canvas Waxed Sheeting, 1*s.* per square yard, may be had various widths. These Canvases are excellent for roofing Sheds and Outhouses, as they are quite waterproof.—R. RICHARDSON, 21, Tonbridge Place, Judd Street, New Road, London.—N.B. Waterproof Capes, large size, 3*s.*; Police Capes, 18*s.* and 24*s.* per dozen; Driving Aprons, Capes, and Coats of India Rubber, Horses' Loin Cloths, Waggon and Cart Covers, Sacks, &c.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c.—Manufactory, Kennington Lane, Lambeth. Allowance on large orders.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (between 500 and 600) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents. All orders are particularly requested to be sent direct.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 24*s.* List of Prices and Sizes sent free by Post.—196, Tottenham Court Road.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

BERDOE'S UNIVERSAL CAPES, OVER COATS, AND SHOOTING JACKETS.—First-class Garments, thoroughly waterproof, yet perfectly ventilating. Their established character and extensive sale is their best recommendation. A large stock for selection also of LADIES' CAPES, &c.

96, New Bond Street, and 69, Cornhill.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD'S Eurekas are the acme of perfection." *Court Journal.*

In half dozen boxes, ready for use, or made to order. Best quality, 42*s.*; second quality, 33*s.*

CAUTION.—FORD'S Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free.

RICHARD FORD, 38, Poultry, London.

SCHWEPPE'S MALVERN SELTZER WATER.—Having leased the Holy Well Spring at Malvern, renowned for its purity, J. S. & Co. can now produce a SELTZER WATER with all the Chemical and Medicinal properties which have rendered the Nassau Spring so celebrated. They continue Manufacturing Soda, Magnesia, and Potass Waters and Lemonade, at London, Liverpool, Bristol, and Derby. Every bottle is protected by a red label bearing their signature.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*: China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1856.] SATURDAY, NOVEMBER 8. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next General Meeting will be held at the Society's House in Regent Street, on TUESDAY, Nov. 25. On this occasion there will be a special EXHIBITION OF FRUIT, for which the following Prizes are offered:—

	£	s.	d.
For COLLECTIONS OF FRUIT of HOME GROWTH—			
First Prize, offered by Professor LINDLEY	5	0	0
Second do. „ C. W. DILKE, Esq.	3	0	0
Third do. „ Do.	2	0	0
For COLLECTIONS OF FRUIT of FOREIGN GROWTH—			
First Prize	1	10	0
Second do.	0	15	0
For GRAPES, in dishes of three bunches—			
MUSCATS ... ... First Prize	1	0	0
„ ... ... Second do.	0	15	0
„ ... ... Third do.	0	10	0
OTHER KINDS ... First Prize	1	0	0
„ ... Second do.	0	15	0
„ ... Third do.	0	10	0
For TABLE PEARS of HOME GROWTH, in Twelves—			
First Prize	1	0	0
Second do.	0	15	0
Third do.	0	10	0
For TABLE PEARS of FOREIGN GROWTH, in Twelves—			
First Prize	0	15	0
Second do.	0	10	0
For TABLE APPLES of HOME GROWTH, in Twelves—			
First Prize	1	0	0
Second do.	0	15	0
Third do.	0	10	0
For KITCHEN APPLES of HOME GROWTH, in Twelves—			
First Prize	0	15	0
Second do.	0	10	0
Third do.	0	7	6
For COLLECTIONS OF ORANGES, CITRONS, &c., of HOME GROWTH—			
First Prize	1	0	0
Second do.	0	15	0
For COLLECTIONS OF ORANGES, CITRONS, &c., of FOREIGN GROWTH—			
First Prize	1	0	0
Second do.	0	15	0

N.B. Although this Meeting is held chiefly for the Exhibition of Fruit, the Council will be glad to receive any fine Specimens of Plants in Flower, of which due notice will be taken.

All Fruit will remain at the disposal of the Exhibitors.

In addition to the money Prizes, each Exhibitor who gains a First or Second Prize will receive a Certificate of Merit of the first or second class.

FRUITERERS can exhibit when Foreign Fruit is mentioned, but in no other case.

The Council will be obliged by a very early notice of the quantity of space (number of square feet) each **EXHIBITOR** of Collections will require, and of the special number of dishes which others propose to send, in order that the requisite accommodation may be provided. They would also most strongly recommend the Exhibitors of Collections to cause them to be placed and finally arranged in the course of Monday, the 24th inst.

In no case can any subject of Exhibition be received later than 10 a.m. on the 25th of November.

When Exhibitors prove to be of equal merit as far as their Fruit is concerned, the Judges are to place him first who displays the most skill and taste in arrangement.

JUDGES of the Fruit will be specially selected from persons being neither Exhibitors nor Officers of the Society.

The Judges cannot increase the number or value of the Prizes offered, unless it should be found that some are not contended for, in which case the value of such Prizes *may be used at the discretion of the Judges in rewards for very meritorious exhibitions of Fruit not provided for in this Schedule.*

VISITORS will be admitted either—1, by the personal introduction of a Fellow; or, 2, by the production of a Fellow's Transferable Ivory Ticket: or, 3, by the written Order of a Fellow. Each Fellow can issue under the new regulations one such Order for the admission of two persons. Candidates for Election will be entitled to the same Privileges as Fellows.

Each Exhibitor will be entitled to an Order which will admit two persons.

The Judges will proceed to make their award at 11 a.m.
The rooms will be open to Visitors at 1 p.m.
The Chair will be taken at 2 p.m.

SCOTTISH ARBORICULTURAL SOCIETY.—The Third Annual General Meeting for the Election of Members, the Appointment of Office Bearers, the Reading of Papers, Awarding of Prizes, and other Business, will be held on WEDNESDAY, November 12, at 1 o'clock p.m., at the Society's Rooms, 6, York Place, Edinburgh.

JAMES ALEXANDER, Secretary.

6, York Place, Edinburgh, November 8.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The Tenth Annual Exhibition of this Society will be held at the Manor Rooms, Church Street, Stoke Newington, on WEDNESDAY, November 19. Doors open at 12 o'clock. Admission from 12 to 4, 1*s*.: after 4 o'clock, 6*d*.

LANDSCAPE AND ORNAMENTAL GARDENING, PLANTING, &c., UPON ANY SCALE.

MR. W. SHORT undertakes the above Works by Contract or Commission.—For terms, &c., address 21, St. John's Wood Terrace, Regent's Park, London.

FLORICULTURE.—In consequence of Mr. JOHN EDWARDS having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

GRAPE VINES IN POTS FOR SALE.

JOSEPH EATON, Shacklewell Road, Stoke Newington, has a very fine stock of GRAPE VINES struck from eyes for Planting or Forcing in Pots, from 4 to 8 feet long.

Shacklewell Road, Stoke Newington.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. WAITE, Seed Merchant, 181, High Holborn, London.

PRIMULA SINENSIS FIMBRIATA.—Good plants of the above for immediate potting, and which will flower next spring, may be had at 2*s*. 6*d*. per score, post free from WOOD & INGRAM, Huntingdon.

CHRYSANTHEMUMS.—A quantity of fine Plants, just bursting into bloom, and well covered with healthy foliage to the base, of all the leading varieties both of Pompone and large flowered may be had at from 6*s*. to 9*s*. per dozen on application to WOOD & INGRAM, Huntingdon.

CHOICE NAMED PANSIES.

HART AND NICKLIN, FLORISTS, Guildford, Surrey, beg to offer healthy plants of the above, selected from a first-class collection, at 4*s*. per dozen, or three dozen for half a guinea, basket included. Prepayment required.

PANSIES! PANSIES! PANSIES!—Now ready for Autumn planting, strong plants of the above flower, from a large and well-selected stock. Warranted true. Price 4*s*. per doz. Address W. H. DAVIS, Jun., St. Mary's Hill, Newbury.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6*s*. per dozen.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

PRINCE OF WALES' RASPBERRIES.

WILLIAM CUTBUSH AND SON beg to inform the public that they have now on hand a large stock of their CELEBRATED PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation.* Prices per dozen or 100 on application.—Highgate Nurseries, near London.

NEW STRAWBERRIES.—First on the list is KITLEY'S CAROLINA SUPERBA. A Post-office order for 21*s*. will secure 100 good strong Plants of this very excellent Seedling, basket included, or 3*s*. 6*d*. per dozen, free by post.

N.B. See the report of the Pomological Society in this Paper of July 19; and also in the Calendar of Operations, July 26.

JAMES KITLEY, Lyncombe Vale Nursery, Bath.

STRAWBERRIES.—Underhill's excellent Strawberry SIR HARRY, warranted true, strong well rooted plants, (with a ball of earth to each if desired), price 40*s*. per 100, or 6*s*. per dozen; price to the Trade per 1000 may be had on application. Also all other sorts worth cultivation now ready.—Apply to R. S. YATES, St. Ann's Square, Manchester.—Nov. 8.

WANTED IMMEDIATELY, CHOICE FRUITS OF EVERY DESCRIPTION.

Forward to GEORGE TAYLOR, JUN.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.

A Priced Circular post free on application.
Terms—"CASH."

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual* of *first-rate quality.*

JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH FLOWER ROOTS, CHEAP.—The following for 10*s*.:—12 choice HYACINTHS, 12 NARCISSUS, 12 EARLY TULIPS, 12 JONQUILS, 12 beautiful IRIS, 12 splendid ANEMONES, 100 DUTCH CROCUS all colours, 12 GLADIOLUS, 25 SNOWDROPS, 25 RANUNCULUS.—WM. DENYER, Florist, 82, Gracechurch Street, London. No charge for packages.

R. M. STARK begs to intimate that his Catalogue of SHOW PANSIES is now ready, and may be had on application.

He will also publish shortly a LIST of NEW and RARE HERBACEOUS, ALPINE, and GREENHOUSE PLANTS.

NEW AND INTERESTING FLOWER SEEDS.

Edinburgh, 145, Princes Street.—Nov. 8.

A LARGE QUANTITY OF RHUBARB ROOTS, best sorts, such as Prince of Wales, Victoria, Giant, Albert, &c.; also Seakale and Asparagus, strong plants, many thousands, to be sold very reasonable for cash; likewise a surplus stock of Pheasant-eyed Narcissus, and Double Yellow Daffodils, very cheap.—Apply to CHARLES CLARKE, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

CITROUILLE.

THOMAS VEITCH AND CO., SEED MERCHANTS, 195, High Street, Exeter, are now exhibiting a magnificent specimen of the above, weighing 150 lbs.!! It is excellent for Soup, Pies, &c. Seed supplied 1*s*. per packet.

WANTED, DISSECTED LEAVES, SEED VESSELS, &c., either in collection or a large fine group.—Particulars to W. CUTTER, Crystal Palace.

TO BE DISPOSED OF, between 70 and 80 specimens of CACTI, some fine and rare. Price 30*l*.—Apply to Y. Y., Post Office, Southampton.

ONE HUNDRED THOUSAND SPANISH CHESNUT SEEDLINGS, 12 inches, good rooted, for Sale.—Price very moderate on application.

STEPHEN TERRY, Nurseries, Wye, Kent.

DWARF BOX FOR SALE.—Two Thousand yards of the best Dwarf Box for edgings. One yard of the above will plant three yards when divided.—For price, &c., apply to WM. HEALE, Nurseryman, Calne, Wilts.

QUICK THORN.

CHARLES SHARPE AND CO. have a quantity of Strong Quick to offer. Prices and samples on application.

Nursery and Seed Establishment, Sleaford.—Nov. 8.

STANDARD PORTUGAL LAURELS—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

WOOD & INGRAM, Huntingdon.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to WM. BARRATT, LANDSCAPE GARDENER, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

TREES FOR AVENUES, ETC.

E. P. FRANCIS has several hundreds of fine tall straight English OAK, English and Huntingdon ELM, and Spanish CHESNUT, from 9 and 10 to 12 feet, rising with capital roots off deep loamy soil. Prices upon application.

E. P. F.'s new DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded, gratis, upon application.

Rose Nurseries, Hertford.

FOREST TREES, SHRUBS, &C.

EAGLE AND HENDERSON, NURSERYMEN, SEEDSMEN, and FLORISTS to the Queen, beg to intimate that their CATALOGUES of FOREST, FRUIT, ORNAMENTAL TREES and SHRUBS, VINES, FLORISTS' FLOWERS, &c., are now ready, and may be had free on application.—Leith Walk Nurseries, Edinburgh.

FOREST TREES.—The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.

DAVID REID & SON, Nurserymen and Seedsmen, Edinburgh.

FOREST, FRUIT, AND ORNAMENTAL TREES.—The Subscribers beg to intimate that they have this season an unusually large and superior stock of the above Trees, which they are prepared to sell on the most reasonable terms.—THOMAS KENNEDY & Co., Nurserymen and Seedsmen, Dumfries, N.B.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, respectfully announce that their PRICED LIST may now be had on application. Contents: Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Herbaceous Plants and Ferns, Auriculas, Pinks, Greenhouse Plants, &c.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

LARCH.—FOR SALE, prices moderate, very superior LARCH, 2½ to 3 feet; GOOSEBERRIES, a good assortment of fine plants in quantity; strong PRIVET; DWARF BOX EDGING; Standard and Trained FRUIT TREES; CHRYSANTHEMUMS, strong plants coming in bloom; DUTCH FLOWER ROOTS, an unrivalled assortment (see Catalogue).—THORNHILL & DICKSON, Nurserymen, Seedsmen, &c., Lawrence Hill Nursery, and 27, Bath Street, Bristol.

MESSRS. E. G. HENDERSON & SONS' SPRING CATALOGUE (Post free on application) contains full description of the following New Plants:—

Echites Houtteana, finer than crassinoda
Begonia picta, a beautiful foliaged plant
" cinnabarina hybrida, cinnamon red, shrubby habit, and now coming into flower. It is an excellent winter blooming plant.
Dianthus albo nigricans, large double variety, black, edged and interlaced with white; hardy
Camellia Jenny Lind, beautiful form
Azalea the Bride, pure white, very free flowering
" Louis Napoleon, double rich crimson velvet.

RHODODENDRONS.

Countess of Rosslyn	Mrs. Dargan
Duchess of Cleveland	Earl of Rosslyn
Duke of Hamilton	Lord Bolingbroke

Six magnificent rich spotted varieties, having compact conical trusses, and very large and conspicuous flowers.

New and delicious Strawberry "Adair," for particulars and description of which see Autumn Bulb Catalogue or back numbers of this Paper.

A New Plate of Five Choice Show Geraniums is now published, and will be forwarded on receipt of 12 postage stamps.

The Autumn Bulb Catalogue will be forwarded on application, containing descriptions of Cinerarias and Geraniums now being sent out for the first time.

Wellington Nursery, St. John's Wood.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high

Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Nov. 8.

JOHN CATTELL has a large Stock of the following to offer to the Trade, Catalogues of which and other articles may be had on application:—

Delphinium Hendersoni
" magnificum
" grandiflorum maximum
" Barlowi
" hybridum flore pleno
" Wheeleri
Gentiana acaulis
Wahlenbergia grandiflora
Scilla siberica
Lilium speciosum album
" punctatum
" atrorubrum, and other vars.
Phlox Countess of Home, and other fine varieties [suckle
Late and Early Dutch Honey-
Passiflora cærulea, very strong
Wellingtonia gigantea, very fine
Thujopsis borealis
Ghent and other hardy Azaleas
Azalea indica Empress Eugenie
" Eulalie Van Geert
" magnificens
" Admiration
" Criterion, &c.
Leschenaultia biloba splendens (Hunt's fine variety)
Lophospermum purpureum, a fine deep-coloured variety.

Nurseries, Westerham, Kent, Nov. 8.

JOHN CATTELL begs to call the attention of parties about to plant to his very superior stock of FOREST and ORNAMENTAL TREES, SHRUBS, &c., among which the following will be found remarkably fine:—

Abies Douglasi, 1 to 9 feet
" Menziesi, 2 to 7 feet
" Morinda, 4 to 10 feet
Cedar of Lebanon, 3 to 10 feet
Cedrus Deodara, 1 to 10 feet
Pinus insignis, 1 to 7 feet
" Benthamiana, about 1 ft.
" excelsa, 6 to 12 feet
" Lambertiana, 1 to 3 feet
" monticola, 1 to 3 feet
" Ayacahuite, 1 to 4 feet
Picea Nordmanniana, about 1 ft.
" Pinsapo, 1 to 5 feet
" cephalonica, 2 to 6 feet
" nobilis, stout plants from seed
Picea nobilis, fine plants, 1 to 1½ feet, with leaders
Larix Griffithiana, 1 to 3 feet; this is very hardy
Araucaria imbricata, 1 to 4 ft.; very fine
Wellingtonia gigantea, fine young plants, 6 to 18 inches
Ditto, a few fine specimens
Cephalotaxus Fortuni, male and female, handsome young plants, and a few fine specimens
Standard Weeping and Variegated Hollies

Together with a particularly fine stock of the leading kinds of Trees and Shrubs, Coniferæ, American plants, consisting of all the new and choice Rhododendrons, Ghent and English Azaleas, Kalmia latifolia, Andromeda floribunda, &c., catalogues of which for the present season may be had on application.

Nurseries, Westerham, Kent.—November 8.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
" Douglasi, 1½ to 3 ft.
" Menziesi, 1 to 3 ft.
" Morinda, 3 to 10 ft., very fine
" rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
" Lambertiana, 1½ to 3 ft.
" torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
" " Standards, 8 ft.
Laurestinus. 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
" Benthamiana, 1½ ft.
" Cembra, 1 to 5 ft.
" excelsa, 4 to 8 ft., very fine
" insignis, 1 to 6 ft.
" Lambertiana, 1 to 6 ft.
" Llaveana, 1 to 2 ft.
" monticolor, 1 to 2 ft.
" muricata, 1½ ft.
" Pallasiana, 2 to 2½ ft.
" Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
" Nordmanniana, 1 ft.
" Pinsapo, 1 to 4 ft.
" Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
" glauca, 6 to 9 in.
" intermedia, 1 to 1½ ft.
" japonica, 1 to 1½ ft.
" gigantea, 1 ft.
" minima, 6 to 9 in.
" Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
" Canadensis, 1 to 2 ft.
" Cheshuntensis, 3 to 5 ft.
" Dovastoni, 1 to 2 ft.
" elegantissima, 1 to 2 ft.
" gold striped, 1 to 4 ft.
" Irish, 1 to 5 ft.
" stricta, 1 to 4 ft.
" common, 1 to 5 ft.
" " Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
" " Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
" Maple, 8 ft.
" Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
" " variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
" Beech
" Elms, 8 to 10 ft. stems
" Mountain Ash
" Privet
" Willow
" American Willow, 8 ft. stems
" Kilmarnock " 6 ft. stems
" Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
" flava speciosa
Clematis azurea grandiflora
" double blue
" Florida, double and single
" Hendersoni
" Sieboldti
Honeysuckle Evergreen
" Scarlet Trumpet
" flexuosa [finest
" Magnevillea, one of the
Ivy, Irish, strong
" palmated
" gold blotched
" silver
" Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica
Camellias.
Epacris
Ericas
} A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.—Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

TO THE SEED TRADE.

MESSRS. PLATZ AND SON, SEED GROWERS, Erfurt, Prussia, are pleased to say in presenting their CATALOGUE for the season, 1857, that their SUMMER STOCKS are unequalled by any of the growers, and many other Flower Seeds are of the highest merit. A few articles are particularly recommended, such as Acroclinium roseum. Early orders are particularly solicited, addressed to their agent in London, MR. ROBERT KENNEDY, Bedford Conservatories, Covent Garden, of whom Catalogues may be had on application.—Nov. 8.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to execute orders for the annexed:—

CINERARIA PICCOLOMINI, a distinct and pleasing variety, pure white, with blue edge, shaded with lavender, lavender disc, very distinct. 7*s* 6*d*.

CINERARIA WONDER, a strikingly handsome variety, colour gentian blue, extending half-way down the petals, disc and centre pure white; a great improvement on "C. Fascination." 7*s*. 6*d*.

GESNERIA ZEBRINA SPLENDIDISSIMA.—The foliage of this plant is exceedingly handsome, being beautifully marked with velvety crimson; flowers rich orange and scarlet; a great acquisition to our ornamental plants. 10*s*. 6*d*.

TYDÆA ARGYRONENSE, a very distinct winter blooming plant, possessing the double advantage of handsome variegated foliage and beautiful flowers; the blossoms are tubular in form, the upper of which and top lips are scarlet, under side of the tube yellow, lower lips yellow spotted with scarlet. 10*s*. 6*d*.

The Nurseries, Tooting, London.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	*d.*
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3*s*. 6*d*. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

THE PLANTING SEASON.

BASS AND BROWN have much pleasure in calling attention to their very fine and well grown Stock of ROSES, &c., which they offer in collections as under. Catalogues on application.

	£.	*s.*	*d.*
ROSES, 100 standards, in 100 very superior varieties	7	0	0
" 100 " 50 "	6	0	0
" 100 " 100 extra "	8	8	0
" 100 " 50 "	7	10	0
" " selections per doz., 18*s*. to	1	4	0
" 100 dwarfs in 100 very superior varieties ...	3	0	0
" 100 " 50 " ...	2	5	0
" 100 " 100 extra " ...	5	0	0
" 100 " 50 " ...	4	0	0
" " selections per doz., 6*s*. to	0	18	0
" Climbing ... . " ...	0	9	0
HARDY CLIMBING PLANTS, 20 fine sorts, in pots	1	0	0
HERBACEOUS PLANTS, 100 distinct and showy varieties, 30*s*. ... ... per doz., 4*s*. to	0	6	0
Ditto, ditto, 100 superior varieties, 50*s*.; per doz., 7*s*. 6*d*. to	0	10	6
Ditto, ditto, 25 fine vars., best adapted for Rock Work, 12*s*.; or 12 for	0	7	6

Very superb and beautiful collections of PHLOXES, PENTSTEMONS, POTENTILLAS, ANTIRRHINUMS, PÆONIES, DWARF ROCK CISTUS, HOLLYHOCKS, CONIFERÆ, &c., &c.

CHOICE FRUIT TREES.

Peaches, Nectarines, and Apricots, two and three year trained, very fine, handsome, and well grown, each 3*s*. 6*d*. to 5*s*.; Plums, Pears, &c., two and three year trained, do. each, 2*s*. 6*d*. to 3*s*. 6*d*. To gentlemen requiring first-rate wall fruit these are strongly recommended, also Standard, Pyramidal, and other Fruit Trees of the choicest sorts.

Splendid GLADIOLI, ENGLISH, GERMAN, and other IRIS; LILIUM LANCIFOLIUM and other LILIES; and an extensive collection of CHOICE DUTCH, CAPE, and other ROOTS.

GOODS CARRIAGE FREE for orders not under 20*s*. to all the London stations, also to all stations on the London, Norwich, and Colchester line.

Seed and Horticultural Establishment, Sudbury, Suffolk.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in introducing this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited this season at the Royal Gardens, and Mr. INGRAM has forwarded the following testimonial as to its merits:—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour—like that of an Apricot—soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "THOMAS INGRAM.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. POWELL of the Royal Gardens writes:—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side; flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

Extract from the "Transactions of the British Pomological Society" (No. I.):—"A seedling Peach raised in the garden of Colonel Salway, from a stone brought from Italy, was exhibited by Mr. Turner, of Slough. The fruit was of medium size, and of a deep golden yellow colour; the flesh also of a rich deep yellow colour, very melting, juicy, and vinous, with somewhat of the flavour of an Apricot. Although this was gathered from the wall on November 4, it was in as great perfection and as highly flavoured as any of the September varieties, and was highly recommended by the Society as a valuable late Peach."

DWARF-TRAINED TREES ... ... 15*s*. each.
MAIDEN do. ... ... 10*s*. 6*d*. do.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Plants can be had of Messrs. PETER LAWSON & SONS, Edinburgh; Messrs. DICKSONS & Co., Edinburgh; Messrs. JAMES DICKSON & SONS, Edinburgh; and the principal Nurserymen.

Royal Nursery, Slough.

ROSES, ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—Nov. 8.

ROSE CATALOGUE, WITH DIRECTIONS FOR CULTURE.

JOHN CRANSTON begs to announce that his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1856 and Spring of 1857 is now ready, and that he will be happy to forward it free by post on application. Full and accurate descriptions are given of all the finest varieties in cultivation, likewise directions for Pruning, Planting, and general management.—Nurseries, King's Acre, near Hereford.

ROSES.

A. PAUL AND SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

NEW ROSE, BACCHUS.—This Rose is a seedling from the "Géant des Batailles." The flowers are similar, but larger, stouter, and brighter in colour, remaining a long time in perfection on the plant without the faded appearance so objectionable in the parent. It is a most abundant bloomer, both in summer and autumn; and has received first class certificates from the National Floricultural Society, the Royal Botanic Society, and at the Crystal Palace Exhibition. Price 10*s.* 6*d.* each.

A. PAUL & SON respectfully announce that they will send out the above Rose on and after the 1st November next. The usual discount to the Trade when three or more are ordered.

Nurseries, Cheshunt, Herts.

NEW ROSE, by SCHMITT, Rue St. Pierre de Vaise, Lyons, France. — MADAME SCHMITT, Hybrid Ile Bourbon, Perpetual, very vigorous, branches straight, foliage dark green, flowers full, extra large, 4 to 5 inches in diameter, petals very large and round, colour rich rose shaded carmine, the reverse side silvery white; blooms in bouquets of three to five flowers. Price, 15 francs.

NEW SEEDLING ROSES.

BELUZE, Vaise, Rhone, France. — MOSS, DUCHESSE DE VERNEUIL; vigorous, very thorny; leaves, dark and shining green; flowers large and full, in a corymbus of four or five together; delicate rose tint; a showy plant. Price 15f. or 12*s.*

NOISETTE PERPETUAL MADAME SCHULZ; vigorous and spreading branches; leaves dark green; flower medium size, very full; colour, canary yellow, sometimes tinted rose in the centre; strong perfume. Produced from Ophirie, but totally different. Price 20f. or 16*s.*—Letters to be prepaid.

NEW ROSES.

DUCHER, Rue du Vivier, Lyons, France, offers the following:—

BELLE ANGLAISE, hybrid perpetual, growth vigorous; branches, straight and rather thorny; leaves, large and dark green; flowers, medium size, full, very good shape, sweet perfume; colour, rose-tinted, always flowers well.

ETANDARD DE SEBASTOPOL, hybrid perpetual, growth vigorous; branches, straight and rather thorny; flowers, medium size, almost full; colour, dark crimson, velvety. A seedling from Géant des Batailles, but quite distinct in growth and colour.

MADAME HERAUD, hybrid perpetual, growth vigorous; branches straight and strong; flowers very large and flat; colour bright carmine. Always flowers well, and has a most agreeable perfume.

Good plants of the above 15 francs, or 12*s.* each. Parties ordering three will receive a fourth plant gratis. Are now ready.

ROSES.

40,000 Dwarf Roses on their own roots in pots and worked on the Manetti stock. 50,000 Dwarf Roses budded on 6-inch stems. 30,000 Standard Roses. 5000 Général Jacqueminot, Hybrid Perpetual. 7000 Géant des Batailles, ditto. 12,000 Tea-scented and China Roses in pots on their own roots.

WILLIAM WOOD AND SON wish to direct especial attention to their enormous and splendid stock of Roses, which, owing to an entirely new soil and increased facilities of propagation, was never in finer order, and they feel assured the plants they have this season the pleasure of offering to their friends cannot be surpassed, many of the Standard and Dwarf Roses having made shoots 6 feet in length.

Collections of Roses will be supplied on the following terms, when the selection of sorts is left entirely to ourselves:— Per doz.

Extra tall Standards, 4 to 8 feet high, with three to six best varieties of Climbing and Perpetual Roses, in each stem, suitable for training, &c., 3*s.* 6*d.* to 5*s.* each
Tall Standards, fine picked stocks from 4 to 6 feet with large heads, of the most showy kinds, for planting in conspicuous situations on lawns, &c. ... ... 42*s.*
Extra superior selected Standards, in fine varieties ... 24*s.* to 30*s.*
Fine Dwarf Standards, in fine varieties ... ... 18*s.* „ 24*s.*
Superb ditto ditto, the best sorts for exhibition ... 18*s.*
Fine Dwarfs ... ... 12*s.* „ 18*s.*
—— Climbing and Noisettes ... ... 9*s.* „ 12*s.*
Hybrid Perpetuals, budded on 6-inch stems, or on own roots in pots ... ... 12*s.* „ 18*s.*
Ile de Bourbon, in pots, or budded on 6-inch stems ... 12*s.* „ 18*s.*
China, in pots ... ... 9*s.* „ 12*s.*
Tea-scented, in pots... ... ... 15*s.* „ 30*s.*
The best varieties for forcing, established in 6-inch pots, budded on 6-inch stems ... ... 24*s.*
Climbing Roses mixed, without names, for covering banks ... ... 4*s.*
Good Dwarfs on own roots, without names ... ... 4*s.*

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DILLISTONE AND CO. beg to inform their friends and the public that their stock on many acres was never finer than this season, and consists of

Standard and Dwart Roses of all the finest kinds,
Standard Ornamental Trees for Lawns,
Evergreen, Deciduous, and Coniferous Trees and Shrubs,
Hardy Climbing Shrubs in variety,
Fruit Trees and finest trained ditto,
„ „ in pots for Orchard Houses,
Many thousands fine Gooseberries and Currants,
Camellias, Azaleas, and Greenhouse plants in general,
Herbaceous plants, &c.
Forest trees, and transplanted ditto, Quick, &c.
Quantity of fine Box Edging.

Catalogues upon application. Carriage paid to London.

Nurseries, Sturmer, Halsted, Essex.

IMMEDIATE EFFECT IN PLANTING.

J. W. EWING begs to announce to the Public that he is at this time able to supply an extensive and varied assortment of Large Ornamental FOREST and FRUIT TREES, the former adapted for producing immediate effect in Parks, Lawns, Pleasure Grounds or Avenues, and the latter for furnishing an immediate crop of fruit.

The above have been frequently transplanted, thereby rendering them comparatively safe for removal, and have each time been selected for symmetry. Also a full collection of gener l Nursery Stock in the most healthy condition. Catalogues fr; nished upon application.—Eaton Nurseries, Norwich.—Nov. 8.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS *have just received a very unique Collection of Hyacinths, Anemones, Jonquils, Crocuses, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem.*

Prices very moderate. Lists gratis, and post free.

DUTCH FLOWER ROOTS.

PETER LAWSON AND SON, SEEDSMEN to the QUEEN, &c., beg leave to intimate to their Customers and the Public the arrival of a very fine selection of FLOWER ROOTS in excellent condition, and they respectfully solicit early orders for the same. Catalogues may be had free on application.

27, Great George Street, Westminster.

SAFFRON WALDEN NURSERY.

SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ... 5*s.* 0*d.*
Do. 12 do. do. 2 6
Do. good mixed 1 0
Border varieties, good mixed, ground roots, per 100 ... 20 0
Do. do. in colours do. do. ... 30 0

THE LIVERPOOL MARKET'S PRICES FOR CHOICE FRUITS AND VEGETABLES

Will be sent post free at all times during the season by applying to

GEORGE TAYLOR, JUN.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.

Terms—"CASH."

SPECIMEN CEDRUS DEODARA.

WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet ... ... 15*s.* 0*d.* each.
Do. do. 5 to 6 feet ... ... 7 6 „
Do. in large pots, 4 to 5 feet ... ... 7 6 „
Do. do. 3 to 4 feet ... ... 5 0 „

A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.

Stapleton Road Nurseries, Bristol.

NOTICE TO GARDENERS, FARMERS, AND OTHERS.

TO BE SOLD, 150 New Sorts of POTATOES, raised from Crab, unequalled by any old sort now on sale. For further particulars apply to WILLIAM WOOD, No. 10, Montgomery Street, Manningham, near Bradford, Yorkshire.

The above have been approved of by the Rev. W. Mitton, Isaac Rhodes, Thos. Frankland, and Henry Berry, and are considered quite superior.

TO THE SEED TRADE.

HORATIO BUNTING AND CO. beg respectfully to inform the Seed Trade that their annual FLOWER and VEGETABLE SEED CATALOGUE will shortly be published, containing a List of nearly all the varieties of ANNUALS, &c., in cultivation. The Seeds being grown by themselves they are enabled to offer advantages to the purchaser both in price and quality seldom to be met with. All Seeds warranted true to name and genuine. Catalogues forwarded to all parts of the world post-free on application.

Address in full, HORATIO BUNTING & CO., Seed Establishment, Lexden Road, Colchester.

RED LODGE NURSERY.

TWO AND A HALF MILES FROM SOUTHAMPTON.

WILLIAM ROGERS, SEN., has to offer the following in fine condition and well rooted:—Scarlet Rhododendrons and Ponticum in large quantities, Spanish Chesnut, Oak, Larch, Spruce, and Scotch Fir, Abies Douglasi from 1 to 6 feet, Portugal Laurels (very fine). The trained and untrained Fruit Trees are as usual good, and warranted true to their names, including that fine Pear the Beurré Clairgeau, first introduced by Advertiser 8 years since from the Continent. Handsome specimens of the new Conifers, Evergreens of all sizes, and upwards of of 20,000 Roses (dwarfs and standards), including the new varieties. All letters must be addressed in full. WILLIAM ROGERS, Sen., Red Lodge Nursery, near Southampton.

Catalogues on application.

NEW MELON, CRANMER HALL HYBRID.—This very excellent and distinct variety was raised in the gardens of Sir Willoughby Jones, Bart., at Cranmer Hall, Norfolk. It is supposed to be a hybrid between the "Beechwood" and Scarlet-fleshed China. It is large, a good bearer, an excellent keeper and above all is of a most exquisite flavour.

For more full description see remarks of the Editor in the *Gardeners' Chronicle* of Oct. 4; the paragraph ends as follows:—"Flesh a beautiful deep orange, about an inch in thickness, tender, and delicious; altogether quite a first-class variety."

Packets containing 10 Seeds will be furnished, post free, on receipt of 30 postage stamps, by J. W. EWING, Nurseryman, Seedsman, &c., Norwich.

The trade will be furnished with price per 100 upon application.

NEW PANSIES, &c.

GEORGE LIGHTBODY, Falkirk, respectfully intimates that CATALOGUES may be had of his large and splendid collection of AURICULAS, TULIPS, and SEEDLING RANUNCULUSES.

GEORGE LIGHTBODY can now supply the fine Seedling PANSIES, viz.—

EBE LIGHTBODY (CAMPBELL).—Light ground, extra fine, per plant, 5*s.*

ABBOTSFORD (LIGHTBODY).—Light ground, very fine, per plant, 5*s.*

MELANCTHON (CUNNINGHAME).—Ex. ex. fine yellow ground, per plant, 5*s.*

DON RODERICK (LIGHTBODY).—Rich dark self, per plant, 5*s.*

Also the beautiful Seedling PINK CLEMENTINA KEMP (LIGHTBODY), at 5*s.* per pair.

The Stock is very limited. Early orders are requested.—Nov. 8.

GRAPE VINES FROM EYES.

R. GLENDINNING respectfully begs to offer an extensive collection of all the principal kinds of GRAPE VINES in Pots, extra strong, either for forcing in pots or planting out.

PEACHES and NECTARINES, established in pots, two and three years old, full of blossom buds, and will doubtless produce fine crops the next season. Also strong FIGS in pots. A large and extensive assortment of trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, in fine health.

R. G. would particularly direct attention to his very large collection of Pears for Pyramidal Training. They are from 5 to 7 ft. high, and grown especially for the purpose, with abundance of short shoots. The Horticultural Society's nomenclature has been adopted with all the Fruit Trees; they may, therefore, be relied upon as correct. Catalogues of the above and other Nursery stock may be had on application.

Chiswick Nursery, London.

NEW EXOTIC FERN.

GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (MOORE).

ROBERT PARKER begs to offer the above beautiful and distinct Fern, of which a fine specimen was exhibited at the last Crystal Palace Show, and was awarded a first prize for new plants. In appearance it is perfectly distinct from any species in cultivation, the upper and under sides of the fronds being densely coated with white farinose powder, which gives it a most singular and distinct appearance. Good plants, 21*s.* each.

Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

RED BEET SEED.

EDWARD SANG AND SONS, Nurserymen and SEEDSMEN, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full grown roots. The sort is very superior, producing well-shaped medium-sized bulbs of remarkably fine quality and colour. Price on application.—Kirkcaldy, Nov. 8.

NEW EARLY WINTER TARE, recommended by practical agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s* per bushel.

Fine Winter Tares ... ... 6*s* 6*d.* per bushel.
Early Racer Tare ... ... 7 6 „

Address—Mr. H. RAYNBIRD, Basingstoke.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

GERANIUMS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their CATALOGUE of SHOW, FANCY, AND FRENCH GERANIUMS, CINERARIAS, &c., is now ready, and can be had gratis on application.

WILLIAM CUTBUSH & SON *wish to draw particular attention to their stock of the above, which is of first-rate quality, and will give every satisfaction.*

Highgate Nurseries, near London.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s.* each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

CATALOGUES.

H. LANE AND SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—

FRUIT CATALOGUE, containing those grown in pots.
TREE AND SHRUB CATALOGUE.
AZALEA, HOLLYHOCKS, &c., CATALOGUE.

The Nurseries, Great Berkhampstead, Herts.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station: ¾ from Reading.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 8, 1856.

CAN TRUFFLES be obtained like Mushrooms by skilful cultivation? No question has been more frequently put to gardeners, or more unsatisfactorily answered. If we could believe the stories that have occasionally been current upon the subject, or the books that impostors have written, there is no great difficulty in the matter. But when the directions found in such works are reduced to practice failure has been the invariable result. Nevertheless we should take courage, and recollect that all the attempts at cultivation hitherto recorded have been made by persons unacquainted with the natural history of the plant and have been nothing more than blind groping in the dark. No better specimen of this could be found than one which has been circulated by the *Cosmos*, a weekly French journal, from which we last week gave some extracts, reciting the opinions of a M. RAVEL, who professes to have the advantage of 30 years' personal experience. It is needless to repeat the farrago of absurdities which this gentleman has endorsed. The reader will find them at p. 724. We confine ourselves to one or two points.

By far the best account we have of the real habits of Truffles is to be found in the Messrs. TULASNE'S *Fungi Hypogæi* (4to, Paris 1851). In that important work, which exhausts the subject, is found a distinct denial of the parasitical habits assigned to these singular plants by hasty observers. "There is one circumstance," say these learned authors, "which has more influence on the growth of Truffles than the nature of the soil, and that is the presence of trees in Truffle grounds. This has received different explanations. Some persons have ascribed to trees some direct influence, and have imagined such a

relation to exist between their roots and the Truffles found near them as could only be explained upon the supposition that the latter are parasitical on the former (HALLER as well as M. ROBERT, see p. 724, inclines to this view; at least, he suggests that Truffles may adhere to the roots of trees by certain threads). Others, on the contrary, see no further connection between trees and Truffles than this, that the latter require for their growth shade and a soil enriched by the decay of the leaves, fruit, or twigs and small roots of the trees which overshadow them. We have often found Truffle-hunters persuaded that the first opinion was well founded, but nevertheless, notwithstanding the utmost care we have been able to take in digging up Truffles in the vicinity of trees, we have never succeeded in discovering the slightest connection between them and roots." The notion that Truffles are root parasites may therefore be regarded as being definitively negatived.

As to the speculation that they are a sort of gall formed on roots by the puncture of what is called a Truffle-fly, we really cannot condescend to discuss such a question. From dreams let us pass to reality.

There seems to be no doubt that Truffles prefer the neighbourhood of certain kinds of trees; Oaks and Hornbeams are their favourites, but they also thrive under Hazels, Lime trees, Sweet and Horse Chesnuts, the Box tree, and the Lilac. But no sufficient ground seems to exist for the belief that one kind of Oak suits them better than another. Pine trees alone would appear absolutely prejudicial; for although Truffles are sometimes found near such trees, it is only when they are mixed with great quantities of Oaks.

There is no doubt that the soil they prefer, or perhaps require, is calcareous or a marly loam. At least they are found in greatest abundance in such earth.

Such seem to be some of the certain facts which modern science has been able to extract from the rubbish of superstition and ignorant observation. It is to such points that the attention should be directed of those who want to establish Truffle grounds, and not to such absurdities as Truffle-flies. To this we may add two other circumstances which experimental cultivators must bear in mind. The first is that Truffles are propagated by spawn in the same way as the common Mushroom; and that they even spread through the ground in rings like any Agaric. The second is still more important. It is the universal opinion of Truffle gatherers that if the young Truffle is touched or disturbed it will grow no further; for which reason they never leave in the ground the small ones which they may displace. Such Truffles grow no further, and it would be useless to transplant them. Much however as a crop may be injured by disturbing the ground when young, no inconvenience is experienced when they are full grown, and there are always enough then left to produce another crop.

Those who have Truffle grounds take good care not to break up the earth to any depth during spring and winter from fear of hurting the growth. Truffles gathered at such seasons are tasteless, unripe, and found just below the surface. It is the Truffle of December, formed during the heats of autumn, and ripened under the rains of November, in which the flavour of the plant is really developed.

These points we commend to the consideration of all who wish to attack the only apparent impossibility which gardening can now be said to have failed to overcome.

THE origin of CUBA BAST is at length discovered. The substance known under this name has now become familiar to gardeners in consequence of its general substitution for Russian matting in tying up plants; but nobody could make out what tree produced it. In vain was inquiry directed to quarters where information on such points might have been expected to exist. Havannah merchants knew nothing about it, and DON RAMON DE LA SAGRA, formerly the director of the Botanical Garden at the Havannah, and afterwards author of a learned work on the natural productions of the island, was equally unacquainted with its origin—a strange circumstance considering that the substance has a commercial value. But so it is; the commonest things are the least familiar to the learned, who are apt to look so high that they see nothing at their feet. Not that the learned alone are open to this imputation. We have known very worthy painstaking gardeners who would have felt themselves disgraced if they could not furnish you with an hour's discourse concerning costly exotics decorated with Latinobarbarous names, but who did not know the distinction between an Alaternus and a Phyllirea, or a Blackthorn and a Buckthorn.

At last, however, we have come at the private history of Cuba bast, which Sir WM. HOOKER, by diligent inquiries, has ascertained to be produced by a West Indian tree, described years ago by SWARTZ under the name of *Hibiscus elatus*, and which seems to be nothing more than a variety of the common *Hibiscus tiliaceus*. A full account of the discovery is given in the new number of the *Journal of Botany*, from information collected from Mr. HENRY CHRISTY, Mr. SCHARFENBERG, and Mr. WILSON, the Superintendent of the Botanic Garden, Jamaica. There is therefore some hope that this useful material may now be prepared in our own colonies, and sold at a lower price than it bears at present.

THE columns of one of the daily papers have been occupied lately by letters from persons complaining of the desecration of Hyde Park. One gentleman has found out that some magnificent *old* trees have been cut down and instantly removed in what he regards as a very stealthy manner. Another writer charges the unfortunate first Commissioner of Woods, &c., with having, *per se aut per alios*, actually removed, rooted up, felled, or otherwise destroyed some promising *young* trees. So that according to the correspondents of the *Times*, Sir BENJAMIN HALL is a ruthless destroyer, before whom, like another ATTILA, young and old are alike condemned to the axe. It is a great pity that gentlemen will not endeavour to understand the meaning of what they see before they rush into print and abuse public officers for doing their duty well.

It is evident that these writers know nothing about forestry. It is even doubtful whether they can say what the trees are which they declare have been thus shamefully wasted. At all events, it is evident that they are ignorant that death is the fate of Elms as well as men, and that trees require standing room as much as the riders in Rotten Row.

What are the facts? Mr. MANN, the Superintendent of Hyde Park, who is doing his work in a very praiseworthy manner, has stated that the trees which have been cut down were old rotten Elms which it was necessary to remove. He might with great truth have added, which had become dangerous to passers by. The writer in the *Times* does not know that some of the old Elms in Hyde Park are knocked over by every heavy gale; he does not know that the Elm is in its very nature one of the most brittle of trees after it has reached the period of maturity; he does not know that no experienced forester willingly stands beneath the heavy branch of an old Elm loaded with summer foliage; he does not know that while enjoying the shade of such trees in Rotten Row he sits beneath the sword of DAMOCLES. Although he does not know these commonest of common facts he might have heard how in 1851 one of the workmen in the Crystal Palace was half killed by the breaking of a huge limb, which snapped like a Carrot beneath the poor fellow's weight, and he might have seen in the same building two more of these trees which a few years before *broke across the solid trunk*, some feet from the ground, destroyed by the weight of their own heads. We warn this gentleman to take care how he rides too near the old Elms in Hyde Park.

As to the removal of young trees, we shall only say that if we wanted evidence of care and knowledge being now found in the management of Hyde Park and Kensington Gardens, we should put our fingers upon that circumstance. And the more so because it shows the existence of some moral courage in thus offending, under a sense of duty, the prejudices of the ignorant. In nothing is this great country more the scorn of intelligent foreigners than in the state of the plantations to be found in all directions. Belts and so styled clumps of what the owners are proud to call trees, but which ought to be denominated scaffold poles, are their characteristic features. Those who planted them never ventured to thin them; they loved too well their "delightful shade" to venture upon the removal of even one; and so they stand, encumbering the ground, disfiguring the landscape, and useless for all purposes except burning. Such was formerly the state of a large part of Kensington Gardens, as all may see who visit its most wooded part—and such management not only ruined the trees for the time being, but rendered after attempts at cure almost inoperative.

Of course we do not intend these remarks to be taken in a universal sense. On the contrary, a knowledge of the nature of trees is spreading, though not so fast as could be wished, and many examples are to be found in this country of as skilful woodland management as that of France or Germany. But we do say that examples to the contrary are deplorably common, and quite characteristic of England.

The object of those who now have the superintendence of the parks is apparently to substitute skill and knowledge for rude ignorance. For this the wise correspondents of the *Times* are pleased to denounce them. Long may they merit such denunciation.

AMONG to-day's Advertisements will be found an official announcement by the Council of the HORTICULTURAL Society of the arrangements for the meeting on Nov. 25. The principal object is to produce an exhibition of fruit; but flowering plants or other objects are admissible. The new arrangements respecting the introduction of visitors will come into operation for the first time. An unlimited power of admission no longer existing, it will be necessary for strangers to apply to Fellows of the Society or Candidates for an order, authorising them to be present. We are rejoiced to add that as considerable a number of Candidates for election have sent in their recommendations and will be ballotted for on this occasion, as was ever known in the early and most prosperous days of the Society.

WE understand that Mr. HERMANN WENDLAND, Hofgartner at Herrnhausen, is about to proceed to Guatemala with Mr. SKINNER, at the expense of the KING of HANOVER. Mr. WENDLAND'S scientific knowledge raises the expectation of highly interesting discoveries in Natural History being the result of his mission.

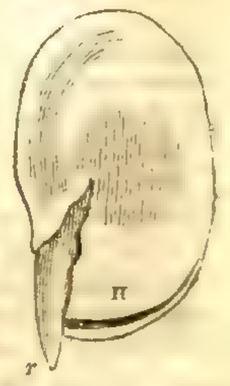
IN another column will be found an advertisement of some remarkable Conifers which are about to be sold by auction on account of Messrs. STANDISH & NOBLE. We understand them to consist of several hundreds of Cryptomeria japonica and Taxodium sempervirens from 7 to 12 feet high, many fine specimens of Cephalotaxus Fortuni, Abies Nordmanniana and Pinsapo 7 feet high, Pinus Benthamiana 5 feet high, Abies Douglasi up to 16 feet, Libocedrus chilensis 5 feet, to say nothing of large Deodars, Araucarias, and Mount Atlas Cedars, among which is a specimen 15 feet high. In addition to these are many fine Rhododendrons and other plants, all carefully prepared for removal.

The locality of Bagshot being little known now-a-days, it is as well to add that plenty of conveyances are to be had at the Sunningdale Station on the South-Western Railway.

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. XII.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk

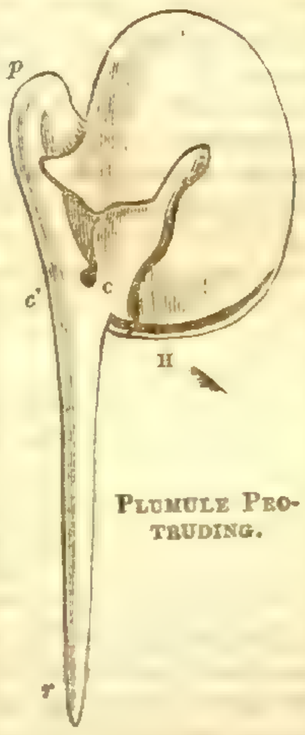
Germination of Embryo Bean.—A convenient mode of observing the first stages in embryos is to scatter seeds upon the surface of moist earth in a pan, and to cover this with a bell-glass. A saucer and tumbler will suffice on a small scale. A few may also be sown in a pot or in the open border and allowed to perfect their flower and fruit. In some cases (as with the pips of an Orange) the pan must be placed near the fire. Generally in a few days, more or less, according to the nature of the seed, the embryo begins to develop. Following up our observations of the Bean, we find the seed-skin cracks near the micropyle, and the radicle (*r*) gradually protrudes. In whatever position the seed may lie the end of the radicle invariably turns downwards and penetrates the soil.



RADICLE PROTRUDING.
H, hile: *r*, radicle.

As the caulicle (*c'*) lengthens above the part where the cotyledons (*c*) are attached, the curved plumule (*p*) at its summit is soon disengaged from beneath the seed-skin.

N.B. In many seeds the cotyledons themselves are also disengaged from the seed-skin, and elevated more or less above the soil in which such seeds may have been sown. They then turn green, and for awhile perform the ordinary function of leaves. As examples, we may refer to French Beans (*Phaseolus vulgaris*), Lupins (*Lupinus*), Mustard (*Sinapis*), and Cress (*Lepidium*).



PLUMULE PROTRUDING.
H, hile: *r*, radicle: *c*, cotyledon: *c'*, caulicle: *p*, plumule.

So soon as the nutritive materials stored within the fleshy cotyledons of the embryo Bean are exhausted, germination is considered at an end, and the young plant for the future depends upon materials which it prepares for itself by peculiar processes which it belongs to the province of botanical physiology to explain. In albuminous seeds the germination of the embryo is considered at an end when the albumen by which it was more or less surrounded is exhausted.

ROOT.—The radicle has now assumed the ordinary condition of a "root" (*r*). As this elongates it forms a central "tap," from which branches

called "fibres" (*f*) are given off. These again often branch, and the term "fibril" (*f'*) is applied to the ultimate subdivisions. The growing extremities of tap, fibres, and fibrils being composed of new tissue are highly hygrometric (*capable of absorbing moisture*), and have in consequence obtained the name of "spongioles" (*little sponges*) (*s*). It is through the spongioles that plants absorb the chief bulk of whatever water they contain.

ROOT.
r, the tap: *f*, fibre, *f'*, fibril: *s*, spongioles.

STEM.—The plumule develops into a "stem" (s) which is here quadrangular, and would technically be considered "square." As the stem extends it gives off leaves, one above another at certain distances, and at regular intervals (*equal angular distances*) round it. The consequence is, that a line drawn from the point where a leaf is given off to that next above it, and so on, would form a spiral along which all the leaves would be seated.

Nodes and Internodes.—The places where the leaves are given off are called "nodes" (*knots*), even though in a vast number of plants the scar left on removing the leaf would be confined to one side of the stem, and there may be no indication of a knot or joint, as the name might incline us to suppose. If we imagine

LEAVES.
s, stem: *pt*, petiole: *l*, leaflet: *t*, imperfect tendril; *st*, stipules.

planes perpendicular to the direction of the stem, to intersect it at all the places where leaves are given off, the part of the stem interposed between every two contiguous planes would be an "internode."

N.B. A distinct appreciation of these terms is important in estimating the general disposition of all "foliaceous" (*leafy*) organs, including numerous modifications, among which we shall find the parts of the flower and other organs.

LEAVES.—The two or three first leaves developed from the plumule are incompletely formed. Those which are afterwards given off consist of a main stalk or "common petiole" (*pt.*) supporting from two to five "leaflets" (*l*), which range on opposite sides of it. The leaflets are without any "partial petioles" (*separate stalks*).

N.B. Leaves formed with distinct subordinate leaflets are termed "compound." Those which consist of only one expanded portion are "simple." I do not deem it advisable to enter into much detail respecting leaves until the student has acquired some degree of tact in referring plants to their natural orders. When we have to point out the distinctions of allied species the less important characters derived from leaves become most useful. The following remarks may be advisable at an early stage. Whether the expanded portion at the summit of a petiole consist of one piece (as in simple leaves) or is composed of leaflets (as in compound leaves), it is called the "limb" (from *limbus* a border) of the leaf. If there is no petiole the limb is "sessile" (*seated* on the branch without a support).

STIPULES.—At the base and on either side of the petiole there is a foliaceous expansion termed a "stipule" (*st*). The two or three imperfect leaves first developed consisted of no more than the stipules closely united with the petiole and terminated by the little imperfect tendril.

N.B.—Stipules are peculiar to certain plants, and even characteristic of large natural groups. They are particularly large in the Bean, Pea, and others of the same natural order, but are small, even minute, and variously modified in some groups.

TENDRILS.—The petiole terminates in a small flattened appendage (*t*), which is a separate but much modified leaflet. It shows a slight tendency to curve, and must be regarded as an imperfect "tendril." The wiry tendrils into which a few of the terminal leaflets of a Pea-leaf are transformed, are good and familiar illustrations of this organ. Tendrils are formed on many plants otherwise than by the metamorphosis (*change in form*) of leaflets. In some, the ends of branches, in others, the petioles of leaves, the stipules, &c., are thus modified; and then, by twisting round neighbouring objects, they serve as supports, more or less effective, for raising plants whose stems are too weak to grow upright.

LEAF-BUDS.—The upper angle made by a leaf with the stem or branch on which it originates, is termed its "axil" (*axilla* the armpit). In every axil of the Bean-plant, and in the axils of almost every leaf-bearing plant on which we may lay hands there will be found a "bud." It forms a small projection from the stem, and when destined to produce only a leafy branch, is organised on the same plan as the plumule or terminal "leaf-bud" of the embryo state of the plant. The nascent leaves of which it is composed are more or less conspicuous, a few of the outermost often retaining the form of scales, and acting as a coat to the inner ones. Some buds are destined to produce flowers. These will be noticed in the next Number.

N.B. So predominant is the law which secures the formation of axillary leaf-buds, that we find them even in the axils of the cotyledons. If not at first apparent, they are capable of being soon developed in the germinating embryo of the Bean, and rise up as two branches bearing leaves like those on the stem developed from the plumule. If the main stem be cut away, here is double provision made against its loss. If leaf-buds are removed from a plant and properly treated by a skilful hand they develop roots, and thus become separate plants. Under our experimental bell-glass we may further cause "adventitious leaf-buds" (*those which are found otherwise than in the axils of leaves*) to be developed about the mutilated extremity of the stalk of a young Horse-chesnut (*Æsculus*), or of an Orange (*Citrus*), two plants which I name from personal experience, though there may be nothing very novel in the plan.

(*To be continued.*)

THE WAR OF THE ROSES.

I HAD returned, after a long day among the partridges, to that which every Englishman considers the natural sequence of his sport—a good dinner; my dessert was on the table; my legs, I am ashamed to say, were on that vacant chair, which some day, I trust, being a bachelor, may be more worthily occupied; and in my hand I held, dearer to me than wine or Walnuts, "A Catalogue of Roses, by Thomas Rivers, for 1856-7." The Turnips that day had strikingly resembled the Rose immortalised by Cowper, and which I have always regarded as the most uncomfortable present, being in a dripping state, which "Mary" could possibly have offered. The clay, too, had been particularly adhesive, and I remember that when I came to the "select Noisette" I took a bumper of sherry, and felt that nothing but love among the Roses could have kept me so long awake. Suddenly, but without surprise (who ever was surprised in the land of dreams, wherein I myself have met, without perturbation, Hercules, Fieschi, and Dick Turpin?) I found myself in my Rose-garden. It was broad daylight and every Rose in bloom. Kean was as glorious in October as his namesake in the "Winter's Tale." General Jacqueminot, H.C., with the fair, ladylike Triomphe de Bayeux by his side (why do not Rose-growers cultivate more generally this distinct and elegant variety?), was glancing gloomily at his rival synonyme, who shone gloriously among the Hybrid Perpetuals. Paul Ricaut bent tenderly over Coupe d'Hebé, and swore that Auguste Mie was coarse and colourless in comparison. But while these summer Roses seemed only interested in their own private affairs, among the autumnal bloomers there was evidently some great topic of public import. I soon discovered that the subject of discussion was the Catalogue I had just been perusing, for it was strewed over the Rose-garden, so that the dwarfest might read, and suspended to the tallest *pillars*, so that the highest standard might see. The Duchess of Sutherland having been requested to preside, the business of the meeting commenced. Her Grace began by remarking that she never remembered, since she had been a Rose, to have been agitated by more painful feelings, or to have realised more sorrowfully the old adage—"No Rose without a thorn." ("Oh, oh," from Inermis.) They had always regarded Mr. Rivers's Catalogue with as much reverence as a Roman Catholic could feel on receiving a letter from the Pope—("Hear, hear," from Pius the Ninth)—for he was indeed the *Papa* or Father of Roses; and they had looked for its appearance as anxiously as young ladies awaiting *les modes* from Paris, for Mr. R. was their *arbiter elegantiarum*, and set the fashion in Roses. Now, for the first time, the publication had been received by certain malcontents with evident disrespect, and not satisfied with expressing their complaints *sub rosa*, they had summoned a general meeting. She called upon them to come forward and state their grievances, that the case might be fully discussed.

Madame Guinoisseau, H.P., then gracefully rose, and a general murmur of admiration followed among the field marshals, generals, colonels, and other gentlemen present, as also from the Emperor Napoleon himself. She felt, in common with every Rose that bloomed, nothing but love and respect for dear Mr. Rivers; still she thought he had not done her justice. Let them recall her history, and judge. She arrived in that garden in November last, and, though a perfect stranger, had experienced a most gratifying reception, being placed in a most agreeable locality and fed upon a most liberal diet. She had done her best, in consequence, to give satisfaction, and had good reason to be proud of her success. One morning, towards the end of June, the master came his usual round. She well remembered watching him as he passed from one tree to another, and the feeling of envy which shot through every petal as he lingered with Madame Rivers. He was hurrying past, as though expecting to find no beauty there, when her first full bloom, on which she had bestowed immense pains, and which really was (to quote the complimentary language of Mr. Lane and Mr. Paul,) "beautifully cupped," "large and double," suddenly caught his eye, and she saw him actually start. Then he drew near admiringly, gently moved the flower into the light most favourable to its best display, and gazed, with the happy smile of a true florist, long and fondly—

> "As though within the petals of a Rose
> A sleeping Love he spied."

Suddenly, and to her great surprise, he rushed away, and darted from the Rose-garden; but soon returned to put an end to her suspense, and bringing him with their respected guardian, Mr. Hirst. Never, never should she forget her happiness, when, pointing to her, he had said, in a joyous and exulting tone—"There, gardener, there *is* a Rose!" Well, the very next morning, just as they were waking, "with their rosy faces washed with dew," she was severed from the parent tree, and found herself reposing on some fresh green Moss, and in the society of 23 other Roses, the most beautiful she had ever seen. For a time they were kept in darkness, and so travelled many miles, being at last brought to light in a spacious hall, and placed among some hundreds of other Roses, collected and arranged like themselves. By-and-by, three shrewd and thoughtful-looking men approached them, and she was informed, in a whisper, by Mr. Paul Ricaut, who had been in the habit of attending similar exhibitions ever since he could remember, that these were the judges. They stayed long with some of the groups, making notes, and examining every flower, but at some they gave but a momentary glance, just shook the head and passed. Arriving where she was they smiled most graciously, and she was feeling particularly proud and delighted, when suddenly one of the triumvirate abruptly seized her by her neck, and, lifting her from her zinc tube, exclaimed—"Hollo! what have we here?"—"New to me," said No. 2, "but evidently good; shape perfect; colour novel, most delicate, and beautiful."—"Why she has petals enough for two Roses," quoth No. 3; "she's a gem, and no mistake." Back she went to her place, and on went the judicial trio. Again they took a general survey, again paid us a visit, and finally placed before us, to our unbounded joy, a large ornamental card, whereon was printed, "First Prize." (Loud cheers from all parts of the Rosarium, the successful competitors colouring and blushing, and some turning quite pale with emotion.) She would not indulge in further eulogy of self, but would content herself with stating that, on two subsequent occasions, she had been equally "victorious, happy, and glorious" as on her first *debut*. Had she not, then, just cause for dissatisfaction, when she found herself classified by Mr. Rivers among Roses "not quite first-rate," merely described as "bright rose," and valued at one-and-sixpence? (Cheers and tears.)

Alphonse de Lamartine might not possess those charms and graces which beautified the last speaker, but she had been thrice successfully exhibited in her society; more than one judge had pointed to her and said that she was "the shape they wanted;" Mr. Lane had kindly said that she was "globular, and very pretty;" Mr. Paul considered her to possess a "fine form, large and full;" she had been called a "duck," "a pet," "a love," and "a darling," by hundreds of young ladies, while scores of gentlemen had pronounced her to be "a stunner," "a tidyish flower," &c.; she was a great favourite with her master, who had budded her in a most ample and complimentary manner; and she therefore did not see why she was to be degraded by Mr. Rivers; she would not endure it—no, that she would not; and if he came within reach of her thorns, she had a great mind to scratch his eyes out.

Miss Naomi would say that a more industrious, steady, little Rose than herself did not grow in that garden. Now was she not most regular in her habits, punctual in blooming, abundant in flowers of never-varying fulness and beauty? Was she not nearly related to, and considered very closely to resemble, the distinguished Duchess in the chair. What *had* she done to offend Mr. Rivers?

Madame Lamoriciere would like to be informed what Mr. Rivers wanted. She knew that she was a little uncertain, but it was the privilege of her sex to be so, and Mr. Rivers ought to be the last to complain on that subject, for she had no hesitation in saying that he himself was a regular flirt. He had said once upon a time that her "shape" was "exquisite," and now he had deserted her for newer charms, and had nothing to say for her except that she was "bright pink." ("Shame! shame!" from all the ladies.)

William Jesse would be blowed—("Order! order!")—that is, he would be blowed in a floral sense, if he stood that sort of thing any longer. Mr. Rivers had said that he was "certainly one of the most beautiful large Roses in existence," and now he had put him in the awkward squad. He knew that he was getting old and could not stand moving about to shows, but he was not afraid of comparison with many modern upstarts; and as for that brute Beranger, who had usurped his place in Class I., he would fight him any day in the week for a gallon of liquid manure. (Loud cries of "Order.") He would back the four Roses who had just sat down against many who had been promoted to the first division. He

did not wish to speak disrespectfully of the fair sex, but he would put it to the meeting whether Miss Alexandrine Bachmeteff had a green eye or not? The Duchess of Norfolk must excuse him for saying that he did not think much of her shape. General Jacqueminot wore a gorgeous uniform, but he wanted padding—there was nothing of him. He had lived for two years next door to Gloire de France, and had not seen a good bloom yet. As for La Reine and Madame Campbell d'Islay, he would only say that in the Midland Counties they were coarse, vulgar Roses. Madame Fremion was pretty, but too slight and slim for his taste. He had seen good blooms of Paul Dupuy, but the generality showed "an eye." As for Prince Chipetouzikoff, in his opinion he was as hollow as a drum. He should move that their mutual friend, the gardener, be requested to light his pipe with "A Descriptive Catalogue of selected Roses," by Mr. Thomas Rivers. ("No, no," and general disapprobation.)

Devoniensis then rose in all her beauty, and so delicious a perfume filled the incensed air, that it did seem almost possible to

"Die of a Rose in aromatic pain."

She was received and heard with the most profound respect and admiration. She said that as an English Rose, born on English ground—("Hear, hear," from George the Fourth, H.C.)—she felt bound to notice the aspers ons which had been cast upon the great English Rose-grower. And first of all she would ask them one simple question—"Who reinstated the Rose, as the queen of flowers, in this country?" (Loud cries of "Mr. Rivers!" and "We love him!" from the ladies, during which Madame Laffay and some other elderly Roses were removed in a fainting state.) Let them not forget their debt of gratitude. Nor should they forget how he, their founder and benefactor, had, with unvarying consistency, rejected from his catalogue those countless impostors who had come of late years from France to deceive the English public. There were not more Hybrid Perpetuals in this year's list than in the last; five had retired, and five had been promoted to succeed them. Was it not an error in the right direction, if Mr. Rivers had pruned with a somewhat too trenchant blade? She thought, with all deference, that he had done so. She thought that the first four Roses who had spoken (and she would add the name of Mr. Joseph Decaisne, whose silence did him credit,) certainly ought to be in the first class. But she would remind them that they were distant many a long mile from Sawbridgeworth, and that in different soils and situations the same Rose presented very different aspects. She believed that if Mr. Rivers had seen the complainants as they bloomed there in the summer, he would have declared them to be "quite first-rate;" and she was equally confident that if Mr. Jesse had seen at Sawbridgeworth those Roses which he had attempted to blight, he would have refrained from uttering his calumnies. Furthermore, Mr. Rivers had told them, "every Rose has its season;" and some of them might find themselves in 1857 unable to maintain the position they had obtained in 1856. At all events, let them rest assured that to merit true and lasting justice must be done; and that Mr. Rivers would be the first to acknowledge their excellence when fairly and fully proven. No really good Rose need fear the aphis of jealousy, or the mildew of ignorance!

This speech was received with general applause, during which the previous dissentients rose *en masse*, and expressed their perfect readiness to abide the test of time (with the exception of Mr. William Jesse, who seemed to have taken a dew-drop or two too much, and to be particularly "cupped").

All was now *couleur de Rose*, and while three cheers were given for Mr. Rivers, I awoke to finish my sherry. *S. R. H., in Turner and Spencer's Florist, Fruitist, and Garden Miscellany for November.*

Home Correspondence.

Potato Crop.—For the last year or two disease has been gradually decreasing in this neighbourhood; this year it has prevailed to a small extent compared with either of the preceding years, and should the next year or two witness such a rapid decrease we may soon hope to hear little or nothing of it. The yield is good, and the quality of the Potatoes first-rate, quite like what they used to be. *F. S., Carclew, Cornwall.*——I think the information which Mr. Bennett offers (see p. 726) respecting the sorts of early Potatoes which he has found least liable to disease this unfavourable season would be useful to many who cannot spare time or space for trying experiments on an extensive scale. By planting in February and taking up in July we have escaped disease with early Ashleafs for the last three years. Our present stock of this Potato for seed is upwards of 30 bushels, and there has not been one diseased tuber amongst them, while within a few yards of them, and on a piece of ground open to the south-west, well drained, and deeply trenched for the purpose of planting fruit trees, the crop of Regents planted in February was one-third diseased, and though taken up in August, and after being carefully sorted and stored away in a dry place with alternate layers of dry burnt soil, we now find many unfit for use. The soil in which the Regents were planted is a gravelly clay dressed with leaf soil, old tan, and decayed refuse from the kitchen garden. I have tried Fortyfolds, Goldfinders, Irish Seedlings, Flukes, Early Shaws, and many other varieties, but in favourable seasons I have not met with a better Potato either for cropping or for table than the Regent. *John Stevens, Gardener, Malvern Hall, Solihull.*

Wellingtonia gigantea.—I have read in your Paper the description (see p. 643) of the "Wellingtonia" as found at the Mammoth Grove, California; in most respects it gives a correct and clear account of those great natural wonders, but I think I can furnish you with some additional particulars that you may consider interesting. Mr. Lane (brother-in-law to Lord Exmouth) and myself while making a tour in the interior of California in March last visited the Mammoth Grove, and found our anticipations more than realised by a sight of that magnificent grove of trees. We had not the means of measuring the height of any of them but the one that had been cut down near the inn. We also counted the rings on the stump of this tree, from the centre to the outer edge on one side, and found them to be 1568. My friend and myself ascended to the height of 120 feet the tree that the bark has been stripped from, by the aid of stakes driven into the tree. The first branch is some feet above this height. The tree did not appear to have suffered from the loss of its bark, although more than two years had elapsed since it was stripped. We picked up several cones, principally from the "Mother of the Forest" (the tree that the bark has been taken from), part of which I brought to England and gave to Mr. Pince, of Exeter, who has now in his nursery a large number of thriving young plants from them. I also obtained on my return to San Francisco a lithographed view of those trees, which is most accurate, and which I forward to you with the description. I have also a small branch with cones attached to it from the "Mother of the Forest," which was cut off by a rifle ball—the only way to get at it. *Jno. Kelly, Filleigh House, Audleigh, Devon.* [The figure alluded to is extremely interesting. We only regret that our limits forbid its insertion. By permission of Mr. Kelly it will be exhibited at the next meeting of the Horticultural Society.]

New Zealand.—Can you inform me whether the climate of New Zealand or any part of it would be likely to suit the growth of such plants as Chinese Azaleas, the Cape Heaths, and other (as they are called) greenhouse plants? Can you also mention a few of the plants which have been derived from that country, and by the letters N. or S. for north or south, describe the part of the islands from whence they have been procured? The object of my inquiry is that (knowing a little of plant growing) I may be enabled to form some idea of the climate of the country. Supposing that Azaleas, Heaths, &c., could be grown successfully there, what would be the best way to keep them alive during so long a voyage? *Emigrant.* [We know of nothing to prevent Chinese Azaleas and Cape Heaths being grown anywhere between Auckland and Canterbury, unless the inundations of the latter place should damage them. They could only go out in Ward's cases. Why not let their seeds be depended upon. You may take the climate to resemble that of Sydney, without its drought and excessive heat.]

Rogers' Conical Boilers and fixing the joints of Iron Pipes with Portland Cement.—Last autumn I purchased one of Rogers' boilers for heating a large Vinery, and I will now give the public the benefit of my experience. I had heard much of this boiler, but I must allow it has surpassed my expectations. I never before knew a boiler which could be left for 24 hours without any attention. (My boiler is on a large scale.) Neither have I met with one which consumes so trifling a quantity of fuel (Welsh coal and cinders), or in which the heating properties have proved so satisfactory. Mine is placed against the back wall without any shed, and merely bricked round to prevent the escape of heat, and if made after Lynch White's pattern with an iron chimney, no other brickwork is required. After the fire is lit the damper is shut and the fuel is left to smoulder at a red heat. The price of these boilers is only 50*s.*, and they are capable of carrying 150 feet of 4-inch pipe, or 200 of 3-inch. The price of 4-inch pipes is 1*s.* 1*d.* per foot, so that the whole sum for heating a large house would only amount to 11*l.* 2*s.* Could anything be more economical for heating an orchard house as recommended in the *Gardeners' Chronicle* of the 11th ult.? The above prices I quote as sold by Lynch White, whose boiler at 50*s.* is one of the most compact things you can imagine, and requires no attention for 12 hours. My pipes are all jointed with Portland cement and fixed by my gardener. A cheap apparatus of the above description (and not only cheap but first-rate) would thoroughly exclude all frost, and if required would tend much to ripen the fruit and the wood. Portland cement I find also answers well for joining all underground iron pipes. *Sigma.*

Iron Water Pipes.—In the month of April last I laid down cast-iron pipes for conducting to my house water from the river. It is used for washing of linens as well as for other domestic purposes. At first the reddish ochry colour of the water rendered it unfit for any purpose. In the course of a few weeks this defect subsided, but even yet the red or yellow colour, derived evidently from the pipes, causes great complaints from the laundrymaid and from the members of my family whose clothes are washed in this water. Can you suggest the use of any substance in the washing tubs which would remedy the evil? Cotton articles suffer much more than linen. *Merseman.*

Swans.—I am indebted to your correspondent "C. P." for a satisfactory and practical answer to my question. I shall be further obliged to him or to any other correspondent who will be kind enough to inform me whether I may expect my swans to swim through a culvert or two which it will be necessary to build to carry a parish road and a cartway or two across my cut. (I am told there is yet a lady who will not travel per railway from Bath to London, but posts to Chippenham for fear of the Box tunnel.) If swans are not afraid of a culvert about 30 feet long, I should be obliged by information as to the headway they will require between the top water line and the soffit of the arch. *Citizen.*

Loquat.—Will any of your correspondents be good enough to inform me if the Loquat of Japan (Eriobotrya japonica) will blossom and bear fruit in a common greenhouse? I have a large plant raised from seed which gives no indication of blossoming. What is the best mode of treating it? *F.* [It will bear very well if grown in a warm well ventilated greenhouse. It does best if planted in the ground. A large tub will, however, do as well. It is a tree.]

Vine Borders v. *Carrion.*—Carrion is very seriously recommended by one writer on the cultivation of the Vine, while others, with reason I apprehend, think differently. I have seen a dead dog buried in a Vine border, and I have seen upon examination after the carrion was decomposed that all the roots near it were dead—could any other result have been expected? If people would but consider under what circumstances the Vine is found growing in a wild state, and also where it does best in wine growing countries, they would, I think, discard the idea of using carrion altogether. It has always appeared to me that too much attention has been bestowed on the stems of the Vine and too little on the formation of a dry, porous, and warm border for the roots; if the formation of the border at first was more attended to, we should hear less about shanking and of Brown Hamburghs. It also appears to me that less heat would be required inside the house if the roots were kept in advance of the top, as Nature teaches us they ought to be. The common method of heating early Vine borders is liable to many objections; it is unsightly, it is attended with a great deal of labour, and as heat always ascends more rapidly than it descends, the plan must be inefficient, at least as respects deep-made borders, which the majority are. A quantity of dung lying upon a border for a number of months has a tendency to make it damp and sodden, and prevents the air from entering the soil. It has always appeared strange to me that so much attention should be paid to such things as Pine Apples as to have the bottom heat for them on rational and scientific principles, and that no such plan is adopted with the Vine; at least such is seldom the case. That there will always be plenty of shanking while such treatment is adopted need not be wondered at. I trust some one will answer the queries put by your correspondent Mr. Gadd at page 709; if there are any of your readers who have made their borders with carrion and bullocks' blood, they ought, I think, to give us the benefit of their experience. *Charles Anderson, Gardener, Monk's Orchard, Bromley, Kent.*

Catsup, about which one of your correspondents inquires, is probably an Indian word. See Johnson's Dictionary. *D. C. L.* [We do not find the word in the edition of Johnson, before us, nor is it in Richardson.]

Sir Harry Strawberry.—Observing in your columns a letter from Mr. Townley stating his own and many others' opinion of this fruit, more especially as regards flavour, I shall be glad to be informed what is the standard by which flavour is to be judged. If Mr. Myatt's Pine, raised some 25 years ago, or his more recent British Queen (matchless in quality), Carolina, and several other old and valuable Pine Strawberries, are to be the test by which Sir Harry shall be judged, I then contend that it will not bear the least comparison with them; it lacks altogether the rich sugary character in which the kinds just mentioned abound. Nevertheless it is an excellent Strawberry and well worth extensive cultivation; it is a very much improved Keens' Seedling (evidently its parent) with all the refreshing and agreeable juice of that old and justly esteemed variety but stronger in growth and an abundant bearer; its fruit is also large. I was an early purchaser of it and have fruited it two years (in '55 and '56), and I have now above half an acre containing many thousands; I therefore do not write in ignorance as to its character. Would you be good enough to say what in your opinion constitutes flavour in a Strawberry in the general acceptation of the term? *Richard S. Yates, Sale, Cheshire.* [High flavour in a Strawberry is, we presume, a peculiar mixture of sweetness, acidity, and aroma; if any one of these qualities is deficient high flavour is also absent.]

Cloth of Gold Rose.—Seeing your account of the Cloth of Gold Rose which grows at Hethel, I think it may not be unsatisfactory to you to know that such is not altogether a rarity in this county. I have a Cloth of Gold worked on a Felicity stock in 1850. It flowered the second year, now measures 5½ inches in the stem, and spreads over a surface of 19 feet by 18 feet. In 1855 I counted on it one day 128 flowers and buds; and at this moment (Oct. 31) it has more than a score, and half of that number almost bursting. I attribute its rapid growth to a copious supply of moisture, which it obtains from a verandah against which it grows; which, it strikes me, has something to do with the gigantic growth of the Hethel Rose. And I have observed a similar effect in other cases. Certainly my Rose has no special advantages. There is also another much larger one than mine in the grounds of J. Webb, Esq., of Stalham, in this county. *N. R. P. Kemp, Erpingham, Norwich.*

Autumnal Raspberries.—I have had such an abundant crop of these all last month and up to the present time, for even now the canes are full of fine fruit, that a few words about their culture may perhaps be useful. There are four varieties more particularly worthy of notice. Rogers' Victoria—Merveille des Quatre Saisons, yellow; this is large, sweet, and excellent—Merveille des Quatre Saisons, red; this is about the size of the Red Antwerp, and very good—Large-fruited Monthly, or to give its long French name, "Framboisier de tous les mois à très gros fruit." The first is a sort sent out many years ago by a Mr. Rogers, then of King's Road, Chelsea; it is rather dwarf, not of a very robust habit, and yields fruit nearly all through September. The second and third have their fruit on very long spikes and bear most abundantly all through October, and till destroyed by the frost. Their culture is very simple, as they merely require being planted in rows in the same way as the summer Raspberries, and cut down close to the ground early in March. No canes to bear in summer should be left, for the fruit they yield then is small and inferior to the summer varieties; in autumn their fruit is large, and of excellent quality. The fourth sort requires a different mode of culture, for unless the soil is very rich and moist it ceases to bear in the autumn if suffered to grow more than one year without removal; the canes should therefore be taken up every season any time during the winter, but not later than February, and planted on a fresh piece of ground, or on the same ground well manured, and then cut down close to the ground, leaving only one bud above the surface; under this treatment they will yield an abundant crop in autumn, till November, of fine large fruit, and well repay the trouble of transplanting. For orchard-house culture in pots they will be found excellently adapted, particularly the third and fourth sorts; for this purpose they should be potted into 11 or 13-inch pots in February, cut down close to the surface, placed out of doors during the summer, and removed to the orchard-house in September; they will then ripen their fruit admirably, and serve to remind the cultivator of the byegone days of Raspberry-tide. *Thos. Rivers.*

Societies.

ENTOMOLOGICAL, *October* 6.—J. O. Westwood, Esq., V.P., in the chair. Mr. Samuel Stevens exhibited a specimen of the beautiful and very rare Carabus intricatus, taken by Mr. Reading in a wood near Plymouth, and Monohammus Sutor, found in an old Ash tree near Yaxley; also a bottle of Liquorice powder destroyed by the larvæ of the small moth Tinea fenestrella; and a beautiful series of minute moths from Moreton Bay, in South Australia. Mr. Stainton exhibited a number of remarkable cocoons and cases of Lepidopterous insects from South Australia; also some specimens of the larvæ of Lepidoptera preserved in small closed glass tubes. He likewise read a note from Dr. Collingwood on the preservation of Lepidopterous larvæ so as to exhibit their colours and markings. Mr. Lubbock made some observations on the blind species of Gammarus, taken in deep wells, and which he considered distinct from the Niphargus speleus of Schiodte and the Gammarus subterraneus of Leach. Mr. Dutton exhibited a remarkable variety of Polyommatus Adonis, very dark in colour and with the markings nearly obsolete. He also stated that he had recently observed Nomophila hybridalis in great numbers at Eastbourne, near Beechey Head, but which had so completely disappeared on the following day that not a single individual was to be found. No change in the wind had taken place. Mr. Westwood brought for distribution among the members specimens of Lophyrus rufus. He had received a number of the larvæ from one correspondent, all of which had produced females. He mentioned other instances of the developement of great numbers of specimens of only one of the sexes of different insects. He also presented, on the part of Mr. Spence, a box of minute and interesting insects of all orders collected in Ceylon by Mr. Thwaites. He also brought for distribution specimens of the small Wax moth which had destroyed a case of preparations illustrative of the products obtained from insects exhibited by him in the Trade Museum at the Society of Arts, and gave some account of different points in the economy of this destructive insect. He also communicated a note received from Mr. Yarrell shortly previous to his death relative to the great scarcity of the May-fly in the trout streams of different parts of the country during the past season. Mr. Nuneham exhibited specimens of Yponomeuta 20-punctata reared from larvæ feeding upon Sedum Telephium. Mr. Moore also exhibited specimens of Lophyrus rufus and its transformations. Mr. Syme exhibited specimens of the larvæ of Deilephila Galii from Deal; the larvæ when young were green, and very much resembled those of Macroglossa stellatarum. Mr. Smith described a new species of bee from South Australia, remarkable for its beautiful bipectinated antennæ.

BOTANICAL OF EDINBURGH, *July*, 1856.—Some account of a mass of fragments of Fossil stems, or of Pseudo-fossil stems, found in the interior of the Trap near Binny Craig, West Lothian, was given by Dr. Seller, who, in presenting to the Botanical Museum several black masses composed of cylinders exactly resembling the pipes of refined liquorice, took occasion to notice the situation where the bodies were found, and to argue the question whether their figure is due to a mineral or to an organic cause. These masses were exposed several years ago, in mining the face of a basaltic rock to procure material for the repair of the adjacent roads. The quantity of these singular bodies laid bare was very limited, and was soon almost entirely exhausted by the specimens distributed among the curious in the neighbourhood. Dr. Seller, by the kindness of a friend, having had for some time a specimen in his possession, was induced last week, when on a professional visit near the place, to inspect the spot where the discovery was made. The cavity from which these bodies had been taken, has the appearance of a large shallow washhand-basin. It is on the face of a perpendicular wall of basalt, the whole height of which is about a hundred feet. The cavity in question is something near 15 feet directly below the summit, and there is access to it by a narrow ledge running for a few yards along this precipitous side of the hill. When the face of the rock is viewed from the little valley below, the basalt seems to rise vertically to the line of this narrow ledge, while the remainder of the height forms a cap running in a transverse direction. That more of these bodies will be found, if the face of the rock is again mined at the same place, seems not improbable. The little hill itself is a few hundred yards north-east of Binny Craig, another eminence of moderate height being interposed. It is on the farm of "Hanging Side," the tenant of which is Mr. Robert Thomson, and is between two and three miles from Linlithgow, towards Uphall.

Dr. Seller proceeded to state the grounds on which he had been led to refer the figure of these bodies to an organic rather than to such a purely physical cause as crystallisation, or any other form of mere aggregation. The *primâ facie* evidence is, that their substance is nearly pure carbon like that of charred stems, that it soils the fingers, that it gives off bubbles of air when put into water, that minute particles of it under the microscope have an appearance very like that of fresh-made charcoal, and above all, that the cylindrical character is quite remarkable, the exceptions being trivial in the extreme, while each body like a vegetable stem is plainly made up of a containing cylinder, and a contained cylinder. He admitted that there were markings present due to crystallisation, and that a distinct arrangement of the component textures of any of the ordinary kinds of stems had not been made out; but he did not regard that as surprising in bodies which had probably been subjected at first to an excessive heat, and had afterwards been buried for countless ages beneath an overwhelming load of mineral matter. He did not attempt to pronounce how far these bodies are altered from their original state—all that he contended for is, that these carbonaceous cylinders are more probably the remains of individuals of one definite species of the vegetable kingdom, modified by the extraordinary circumstances to which they have been exposed during long ages, than a mere mass of carbon derived from vegetable nature at large, changed into the figure of an organic body by the crystalline properties which may be conjectured to belong to anthracite or to silica. He insisted that it was strongly in favour of the view he adopted, that the cylindrical figure lay within the ordinary rule as to the production of stems, but wholly out of the rule as to the conformation of mineral bodies; that as far as he could discover, there is no evidence of the existence in mere mineral nature of a force capable of producing like cylindrical forms in indefinite number; that to compare to the columnar tendency in basalt and greenstone, or to the stalactitic tendency known only to belong to carbonate of lime in aqueous solution, the production of cylinders, some a little greater, some a little smaller, but, for the most part, as perfect as if shaped by an effort of human art, and closely corresponding to the variations in size observable in the individuals of a species growing in the same place, is to carry analogy beyond its prescribed bounds. If, however, they should prove to be pseudo-stems, they are at least most remarkable bodies, and deserve attention as a kind hitherto unnoticed among the products of mineral aggregation.

Notices of Books.

The Journal of the Linnean Society, No. 3., contains seven Zoological and the same number of Botanical papers. The most important of the former are descriptive catalogues of Singapore and Borneo insects by Mr. Walker; among the Botanical contributions the conclusion of Mr. Bentham's paper on Loganiaceæ, and a record of the results obtained by Mr. Darwin and the Rev. M. J. Berkeley upon the Immersion of Seeds in Salt Water, parts of which have appeared in former numbers of this Journal. On the same subject is also a note by Dr. Salter, from which the following is an extract:—

"In the year 1843, the authorities of Poole in Dorsetshire determined to deepen the channels of Poole Harbour to facilitate navigation. For this purpose a large number of ballast-lighter-barges were employed to scrape the mud from the bottom of the channels and convey it to the shore, where it was deposited in large quantities. During the winter sufficient mud was thus obtained to cover an area of some hundred square yards several feet in thickness, and this was accumulated to such an extent, that a quay was made of the hardened mud on the edge of the shore. The quay however was never used, nor its surface disturbed. Early in the following spring I was surprised to see that the surface of this harbour-mud exhibited abundant vegetation, of a character totally distinct from that of the neighbouring shore; and as the season advanced, and the species were recognised, the Flora of this mud quay was not only found totally distinct from the littoral vegetation which surrounded it, but it contained plants which did not grow within many miles of the spot, and one which was probably foreign to the county. Immediately surrounding the mud quay was the ordinary vegetation of our southern harbour shores, *Statice*, *Salicornia*, *Atriplex*, *Carices*, &c., whilst on this exposed mud itself not one of them was to be seen; but instead of these there sprung up a large crop of Oats and Barley, some plants of *Lysimachia vulgaris*, one plant of *Centaurea calcitrapa*, and multitudes of *Epilobium hirsutum*; and besides these there were other plants which I did not recognise, or whose names I have forgotten. To my mind it appeared conclusive, that the seeds which produced this crop of vegetation must have been in the mud at the time it was deposited on the shore by the lighters. Taking the plants I have named as constituting part of the vegetation of this new-made land,—they none of them grew in its neighbourhood. The Cereals, which constituted the most numerous of the plants, were not cultivated within a mile of the spot. This mud quay was made at the extremity of the peninsula upon which the town of Poole is built, and the nearest field upon which Cereals are cultivated is on the other side of the town, and at least a mile from the shore. *Lysimachia vulgaris* does not grow within four or six miles of the spot; *Epilobium hirsutum* two or three miles; and *Centaurea calcitrapa* is scarcely known in the county, and certainly not within ten miles of Poole. Now remembering that none of these plants grew either on the shore around the spot, nor even within miles distant; remembering too that they were the sole occupants of this new-made land, and that the ordinary shore plants, growing in abundance only a few feet from its edges, were not to be seen on it, and further, that this abnormal vegetation showed itself the very next spring, even only a few weeks after it was completed, it must, I think, be conceded that the seeds were in the mud at the time it was spread upon the shore; and that idea is still further sustained because a very possible explanation suggests itself, which would sufficiently account for the presence of the seeds of the plants named, in the situation from which the mud was obtained. The mud was collected in the main channel about midway between the head and the mouth of the harbour. At the head of the harbour two rivers pour their waters into it, the river Frome and the river Piddle. These rivers take their origin in the western parts of the county of Dorset, and in their course pass through districts having every variety of soil and capable of furnishing vegetation of great diversity; on their banks, moreover, two of the species I have mentioned (*Lysimachia* and *Epilobium*) grow in profusion. Is it too much to suppose that the seeds from which these plants sprung had fallen into the rivers in various parts of their course, had gone with their waters into the harbour, and ultimately reached the position from which the mud and they had been collected? That explanation appears to me to be very probably correct; but whether it be received or not, the more important point,—that a variety of seeds had been for a period, probably considerable, at the bottom of Poole Harbour, soaking in water as salt as that of the ocean, had retained their vitality till brought under the influence of air and rain and warmth, and had then produced healthy vegetation—that is a point which I think cannot be disputed."

Prof. Ansted's valuable *Elementary Course of Geology* (Van Voorst) has reached a second edition. It contains 22 pages more than the last, is considerably altered and improved, and excludes the appendix relating to Indian Geology, which is now introduced into the body of the work. There are also additional illustrations. The glossary of mining and other terms is very complete and extremely useful to the general reader.

Miscellaneous.

Peat and Peat-Mosses.—Peat, which is a product of cold or temperate regions, arises chiefly from the annual growth and decay of marsh plants—Reeds, Rushes, Equisetums, Grasses, Sphagnums, Confervæ, and the like, being the main contributors to the mass, which in process of time becomes crowned and augmented by the presence of Heath and other shrubby vegetation. Peat-moss has a tendency to accumulate in all swamps and hollows; and wherever stagnant water prevails, there it increases, filling up lakes, choking up river courses, entombing fallen forests, and spreading over every surface having moisture sufficient to cherish its growth. It occupies considerable areas in Scotland and England, though rapidly disappearing before drainage and the plough; but it still covers a wide extent of surface in Ireland. It is found largely in the Netherlands, in Russia and Finland, in North America, and in insular positions, as Shetland, Orkney, and the Falkland Islands. Of the absolute surface occupied by Peat, we have no accurate estimate; but some idea of the geological importance of the formation may be formed from the fact that one of the mosses on the Shannon is 50 miles long and from two to three in breadth, while the great marsh of Montoire, near the mouth of the Loire, is not less than 50 leagues in circumference.

Some of the Scottish mosses have been dug for fuel to the depth of 20 feet, and many in Ireland and Holland are reckoned at twice that thickness. It occurs in all stages of consolidation, from the loose fibrous "turf" of the previous summer, to the compact lignite looking "Peat" formed thousands of years ago. It has been attempted to classify Peat as turf, hill-peat, bog-peat &c., according to the situations in which it occurs, or according to its texture and composition as fibrous, papyraceous, earthy, and piciform; but seeing that the whole is so irregularly and intimately blended, such distinctions are of little practical value. Besides the peculiar plants which constitute the mass, Peat-mosses contain the trunks of the Oak, Pine, Birch, Alder, Hazel, Willow, and other trees, together with their seeds, fruits, and cones—apparently the wrecks of forests entangled and destroyed by the accumulation of the swampy Peat, prostrated by storms or felled by the hand of man. And, what is deserving of special notice, the trunks of many of those trees are of most gigantic dimensions, in districts where now the same species struggle on for a stunted and dwarfish existence. Bones and horns of the Irish elk, stag, ox, and other animals, are found in most of our British mosses, with occasional remains of human art, as canoes, stone axes, querns, flint arrow-heads, &c., of the British stone period; Roman weapons and coins that date to the first invasion of the island by the legions of Cæsar; and not unfrequently the skeleton of man himself. Some of these fossils are comparatively modern; others point to a period apparently coeval with the dawn of the human race. *Page's Advanced Text-book of Geology.*

Cabbage Timber.—Jersey is celebrated for its Cabbages, and for their tall, tree-like character, a peculiarity partly owing to the custom of the peasantry in removing lower leaves—almost daily—to feed their cows. Thus a Cabbage garden in Jersey has somewhat the appearance of a little grove of Palms; so that in walking between them you literally walk under their foliage, which forms a crown at the top; and such stems are not unfrequently 10 and 12, and more, feet long, quite erect, and straight, and are made use of for a great variety of purposes. Planted closely, as living fences, they keep out fowls and small animals; sheds are thatched with them; they serve as stakes for Kidney-beans, Peas, etc., and the stouter ones as cross-spars for the purpose of upholding the thatch or roof of the smaller classes of farm buildings, cottages, etc., and if kept dry are said to last upwards of half a century. Our friend Mr. Samuel Curtis, a resident in the island, informs us that he has seen a stalk that measured 16 feet in length, and that one that had grown up under the protection of a cider Apple tree had its spring shoots at the top occupied by a magpie's nest! The stems are now much used for making walking sticks ("Jersey Canes"). Stalks 11 feet high, and very good looking and firm walking canes, are deposited in the Kew Museum of Economic Botany. *Hooker's Journal of Botany.*

Temperature of Flower of Victoria Regia.—Dr. Caspary has made experiments on the flower of this plant, and has arrived at the following conclusions:—A short time before its opening, the flower bud exhibits an elevation of temperature, especially in the stamens. About an hour after its expansion, the temperature of the flower falls to the extent of from 0·9 to 2·9 degrees Fahrenheit. After this the heat rises to a maximum, exceeding that of the air, from 14·06 to 24·9 degrees Fahrenheit, and that of the water 1·24 to 10·44 degrees Fahrenheit. This increase of temperature is independent of any change in the heat of the air or of the water. This independent maximum, as it is called, is succeeded by a second period of floral heat, which Caspary calls dependent, inasmuch as it is under the influence of the atmospheric temperature, attaining, like it, the minimum at sunrise, and the maximum a little after mid-day. This second period has two minima and two maxima. The elevation of temperature occurs in the anthers, the filaments, the staminodia, the petals, and the ovules. The greatest heat is exhibited by the anthers; the maximum exceeding that of the water by 6·5 to 13·39 degrees, and that of the air by 19·48 to 29·9 degrees (the latter was observed on 2d November 1855 at 10 A.M.) The filaments are always cooler than the anthers. In the embryos the temperature is not so elevated as in the anthers, and the maximum is only 1·1 to 5·2 degrees above the water, and 4·5 to 18.9 degrees above the air. In the petals and staminodia, the increase of temperature is still smaller than in the embryos, the maximum being 2·7 degrees above the temperature of the water, and 6·4 degrees above that of the air. The increase of temperature is different in different flowers, and in the anthers it sometimes attains 61·83 degrees, in the embryos 60·7 degrees. These phenomena are distributed to the absorption of oxygen and evolution of carbonic acid. *Edin. New Philos. Journal.*

Professor Tineo.—Letters from Naples dated Oct. 4 announce the death of this gentleman, who had long filled the office of director of the Botanic Garden at Palermo. He is succeeded, *ad interim*, by M. Todaro, until the return of Prof. Gussone from Ischia.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The summer flowering twiners which usually get unsightly at this season should be cut back somewhat freely, as should also any others that will submit to that kind of treatment. The slight shade which they afford in summer to plants underneath them it need scarcely be stated is not now required. Give air freely on all favourable occasions, but guard against damp by using gentle fires. Let pot specimens in bloom be frequently rearranged, so as to make the most of them, for the finest plants become too familiar to be interesting when allowed to remain too long in one place. COLD PITS.—If not already done, get straw shutters or whatever else it may be intended to use for coverings for these prepared and put in readiness for use without delay. Straw shutters, if well made, are somewhat expensive in the first instance, but they are considered by many to be the most efficient of any kind of covering in use, and taking into account the time they last they are, perhaps, as cheap as any. Expose the stock here freely to air on every favourable opportunity, so as to check growth and get the wood firm, in which state the plants will be less liable to suffer from the confinement which may soon be necessary than if kept close and coddled with too much warmth and moisture. Very little water will be required at the root, but look over the stock every few days, witholding water until it is absolutely wanted, and then giving a moderate soaking, which is the only safe method of watering at this season. If green-fly makes its appearance on any of the soft-wooded things apply tobacco smoke, and see that this pest is extirpated at once, otherwise it will disfigure if not ruin the plants upon which it is allowed to harbour. Heaths and other things subject to the attacks of mildew must be closely watched, and sulphur applied the moment the enemy is perceived, but neither this nor green-fly will be very troublesome, unless the plants are kept too close and damp; therefore be careful to keep the stock rather dry, giving plenty of air whenever that can be done with safety.

FORCING DEPARTMENT.

PINERIES.—The trying period for those who have to winter their young stock in pits heated by fermenting materials has now arrived, for with sunless weather, such as is common at this season, it is a very difficult matter to preserve Pines in a healthy state, where warmth must be accompanied by excessive moisture. Keep the linings sufficiently strong to maintain the temperature at about 65°, which will allow of giving air rather freely on fine days, and a little must also be given in all states of the weather, when doing so does not cause the thermometer to sink under 55°. There should be no attempt made at inducing growth with the present amount of light, but the linings should be kept rather strong, so as to be prepared against the occurrence of severe weather, and also to allow of giving sufficient air to prevent excess of moisture. See that efficient coverings are prepared previous to the occurrence of sharp frost, and endeavour to keep the bottom-heat steady at about 75°, and the soil in a rather dry state. This system of Pine growing is now, however, but little practised, and it would be economy on the part of those who adopt it to supersede it at once by means of a hot-water apparatus.

FLOWER GARDEN AND SHRUBBERIES.

Choice plants in borders intended to be protected for the winter by slightly covering their roots, &c., should be seen to at once. Moss where it can be obtained in good thick flakes, is by no means a bad protecting material; but unless it can be procured in pieces of considerable thickness it is not so efficient or useful as spent tan, coal-ashes, or half decayed leaves. Also see to getting Fuchsias, and such things as are usually protected for the winter by covering, secured against frost before it is too late. Dry Fern is an excellent material for covering the stems, &c., of plants that require a slight protection in winter, and is, doubtless, the least objectionable as regards colour of anything at command; but this is not easily procured in many neighbourhoods, and probably the best substitute is straw that has been exposed to the weather sufficiently long to darken its colour. Choice sorts of Hollyhocks, of which there is not sufficient stock of well-established young plants in pots, should be taken up, potted and placed under glass; these cannot with safety be trusted to the mercies of a severe winter, and plants taken up, potted now, and wintered in a cool house will be exceedingly useful for furnishing cuttings, and these if got in early in spring will make excellent plants for next season. Where alterations are in hand, push these forward with all possible dispatch while the weather continues favourable for out-door operations. Be very careful to secure transplanted things against wind, especially large plants, which should never be left until they are properly staked or otherwise made fast, for when this is put off it frequently happens that the roots get injured through the tops being rocked about by the wind. Get any projected alterations among the shrubbery or herbaceous borders done in readiness for cleaning up as soon as the leaves are down; also get ground intended to be planted with Dahlias and Hollyhocks next season deeply trenched and ridged up so as to expose the soil as much as possible to the weather, putting in plenty of good rotten manure, especially where the Hollyhocks are to stand, for these require a deep rich soil.

HARDY FRUIT AND KITCHEN GARDEN.

A sowing of Peas and Beans to afford the chance of a very early crop may now be made, choosing a sheltered piece of ground for the purpose; the soil should be of a light dry character. For Peas use an early hardy sort, such as Sangster's No. 1., or Daniel O'Rourke. The forcing of Seakale and Rhubarb must now be attended to; and where there is a good stock of strong roots, a supply of these will be easily kept up. Where there is room to spare in the Mushroom-house, this forms a very suitable and convenient place for forcing these. The roots should be placed on a slight bed of warm dung, filling up the spaces between them with old tan, or the soil and manure mixed from an old Mushroom bed, giving a good watering to wash it in amongst the roots. The bottom-heat should not be allowed to exceed 70°, as too much heat is not favourable to securing strong growth, and, except for the first crop, it may be dispensed with altogether. Take advantage of wet days for making fresh Mushroom beds, and clearing out those that are spent; also collect and prepare droppings for forming fresh beds, by spreading them in a shed, and turning them every day until they are sufficiently dried to prevent excessive fermentation after putting up. Clear up all decaying leaves, &c., and stir the surface of the soil on dry days among growing crops, as Cabbage, Spinach, &c.; also get all acant ground manured and ridged.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Nov. 6, 1856, as observed at the Horticultural Gardens.

Oct. and Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday 31	3	30.313	30.097	58	46	52.0	51	51	S.	.18
Satur. 1	4	30.359	30.313	53	47	50.0	52	51	S.W.	.41
Sunday 2	5	30.306	30.223	58	39	48.5	53	51½	W.	.10
Mon. 3	6	30.212	30.179	53	30	41.5	51	51½	S.W.	.00
Tues. 4	7	30.311	30.198	52	30	41.0	50	51	S.W.	.00
Wed. 5	☾	30.411	30.359	49	22	35.5	50	51	E.	.00
Thurs. 6	9	30.558	30.455	47	31	39.0	49	50	N.	.10
Average .		30.353	30.260	53.0	35.0	44.0	50.8	51.0		.59

Oct. 31—Uniform haze; rain; cloudy.
Nov. 1—Hazy; cloudy; slight rain.
— 2—Foggy; cloudy; hazy at night.
— 3—Uniformly overcast; very fine; slight frost.
— 4—Foggy; very fine; cloudy at night.
— 5—Foggy; light hazy clouds; fine; sharp frost.
— 6—Frosty; clear and cold; cloudy at night.
Mean temperature of the week 1 4-5ths deg below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Nov. 15, 1856.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	51.0	35.9	43.4	12	0.28 in.	2	1	3	2	5	9	3	5
Mon. 10	51.4	36.5	43.9	17	0.67	2	3	1	4	6	8	2	4
Tues. 11	51.5	37.4	44.4	13	1.02	3	5	3	—	7	8	4	1
Wed. 12	51.3	35.5	43.4	14	0.50	2	4	4	2	3	6	7	2
Thurs. 13	50.6	36.8	43.4	16	0.66	—	3	3	3	5	9	3	4
Friday 14	48.8	34.6	41.7	15	1.24	5	4	3	5	2	5	3	3
Satur. 15	48.8	35.5	42.1	15	0.34	2	4	3	2	5	9	4	1

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1854, and 15th, 1843—therm. 18 deg.

Notices to Correspondents.

EVERGREENS: *Shem.* We prefer October to November for transplanting them, but the latter month will do—the sooner the better. It is useless to dig round them till you are ready to transplant.

FERNS: *H.* The lists are, we believe, not sold. Mr. Smith, of Kew, has printed them for purposes of exchange.

LILIUM GIGANTEUM: *H H* hopes Mr. Breadley will be so good as give his mode of treatment of the Lilium giganteum, which he grows in great perfection at Somerleyton.

MUSA CAVENDISHI: *H H.* Encourage a young sucker, and disregard the old stem.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*J B.* It is some Panicum; but we cannot undertake to determine the species from such bad materials.—*Cavanensis.* What the plant now sent may be *cannot* be ascertained with any certainty. We suspect it to be some Juniper, and possibly J. recurva, or something related to Savin.—*Citizen.* 1, Lolium perenne, approaching L. italicum; 2, Holcus lanatus.—*C C.* It is Acacia lophantha, as far as we can judge from the specimen. Epipogum is the most curious discovery that has ever been made among the wild plants of this country. It is a leafless pallid Orchid, related to the common Neottia nidus avis. Germany, Switzerland, Siberia had alone been previously known to produce it. Modern researches have however shown that it has a far wider range; perhaps reaching even as far as Hindostan.—*J B.* 1, Polystichum frondosum; 2, P. falcinellum; 3, Pteris heterophylla. *S.*

ORCHARD HOUSES: *Dundee.* We are considering what sorts can be best recommended, and will give a list next week.

PELARGONIUM DAVEYANUM. Mr. R. Rilott, Nurseryman, Dorrington, near Spalding, in Lincolnshire, says that he can supply this old variety. It may also be had of Messrs. Frazer, Comely Bank, Edinburgh. We have also to thank our correspondent *E C M* for information on the same subject; but the plant he describes does not appear to be at all like the variety in question.

PROTECTING CONIFERS FROM FROST: *A Sub.* There is nothing better than heaping them round with Gorse bushes.

SIR HARRY STRAWBERRY: *J T.* The public has now had quite enough of this subject. The way to deal with tradesmen who "insult" you is to have nothing more to do with them.

TACSONIA MOLLISSIMA: *G M.* It requires more heat than your conservatory affords it. It will only succeed in such a house trained along the top of the roof, which must be close.‡

TOBACCO: *Ishi Wgrgh.* The subject is under consideration.

TREES IN HYDE PARK: *Ampthill.* We would refer you to a leading article in to-day's paper.

VINERY: *M K.* It is immaterial in what order the divisions in your Vinery succeed each other provided only you bear in mind that the late house requires least heat, and Muscats the greatest amount.—*W A B.*—We find nothing to object to.

WELLINGTONIA: *Holyrood.* You can find an answer almost at your door, for the new lists of Lawson & Co. seem to give all the information that you require. We observe that they charge 10*l.* for a Pinsapo 4 to 5 feet high—little enough for a thing of such sterling value as a hardy ornamental tree.

MISC.: *G A.* Guano suits Roses perfectly; give it to them—weak and often—in spring and summer when they are in a growing and flowering state. Crocuses dislike transplanting, which, except where it is absolutely necessary, should be done as seldom as possible. For the culture of Gladioli see p. 680 of the current year's volume. They may if necessary be lifted and replanted annually.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

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Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—ANNUAL EXHIBITION at Gloucester, Nov. 27, 1856.—The Exhibition of Stock, Horses, Roots, Wheat, Cheese, and Implements will take place at Gloucester on THURSDAY, November 27 (being a week earlier this year in consequence of the Birmingham Show), and the Poultry Show will be held on WEDNESDAY and THURSDAY, November 26 and 27.

Entrance to the Yards, One Shilling each person.

The Annual Dinner of the Society will be held at the King's Head Hotel, Gloucester, at 4 o'Clock. The Right Hon. Earl Ducie in the chair. ED. TRINDER, Secretary.

Cirencester, Nov. 8.

CRYSTAL PALACE.—POULTRY SHOW.—The Directors beg to announce that they intend to have a General Exhibition of POULTRY, PIGEONS, and RABBITS, at the Crystal Palace, on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, January 10, 12, 13, and 14 next.

Schedules of the prizes, with the rules and regulations, are now ready and may be had on application to Mr. HOUGHTON, Secretary to the Poultry Exhibition, Crystal Palace, to whom all communications may be addressed.

Crystal Palace, Nov. 8. By order, G. GROVE, Secretary.

SMITHFIELD CLUB FAT CATTLE SHOW, 1856.—The Annual CHRISTMAS SHOW of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 9, and three following days, at the Bazaar, King Street, Portman Square, when Prizes and Medals amounting to upwards of 800*l* will be awarded. Non-Members of the Club have the privilege of Exhibiting on payment of an entrance fee of One Guinea to the funds of the Club. Members exhibit free.

All entries must be made on the printed forms of Certificates, which will be sent on application to the Hon. Secretary.

Intending Exhibitors are particularly requested to observe that the Entries finally close on November 8, and none will be received after that day.

Lists of the Prizes offered, with a copy of the Rules and Regulations of Exhibition and all information required, will be sent post free on application to B. T. BRANDRETH GIBBS,
Corner of Halfmoon Street, Piccadilly, London. Hon. Sec.

The Agricultural Gazette.
SATURDAY, NOVEMBER 8, 1856.

WE have never listened to a more interesting or complete discussion of the influences affecting the condition of the agricultural labourer, nor to one conveying a higher impression of the ability of those who conducted it than that which took place last Monday in the rooms of the London Farmers' Club. It was opened by Mr. SPEARING, of Hampshire, who described in detail the condition of the country working man, and argued for a better description of cottage to be given him—for his better education—for the extension of his cottage garden—for a system of lodging-houses with reading rooms for young men—for a better relationship of master and servant, including attention to such details as payment of wages any day of the week rather than Saturday, but above all, as the principle which should influence it throughout, for an individual acquaintanceship and sympathy on the part of the master with the labourers he employed. Mr. SPEARING concluded by quoting the impressive address of the late Mr. Justice TALFOURD, delivered as his dying charge, in which he lamented that separation between classes, out of which suspicion, ill-feeling, and consequent violence and crime often grew.

Mr. SPEARING's paper was followed by some excellent practical remarks from Mr. BAKER of Writtle. He spoke of after treatment rather than school education as the great cause of the ultimate condition of the labourer. It is when the lad has left school, or even left his home, driven from it perhaps by perpetual discomfort there as contrasted with the light and warmth and society of the public-house, that lawless habits and bad principles are acquired. Writtle is better off than most other places as regards its schools—but it is not on that account the better off as regards the condition of its labourers.

The condition of cottagers too is not wholly dependent on the character of the cottage. Mr. BAKER has built a 4-roomed cottage every year for the last 15; but his efforts have been to a great extent thwarted by the determination of the occupants of roomy dwellings to take in lodgers, thus reducing their accommodation to the same low level as is deplored elsewhere. One of the most satisfactory means he has employed is the extension of the allotment system. He grants but 20 perches of land to every tenant and forbids the growth of grain; his only rule apart from this is that no work be done upon the Sunday. Every plot is held at a week's notice, so that the occupation may be at once determined upon the valuation of crop and cultivation and payment for them—a power held by the landlord in order that he may eject any one who shall commit an act of theft or crime of any kind. Mr. BAKER is the cordial advocate of reading-rooms and evening schools, day and Sunday schools; but he considers the influence of the masters over their servants to be greater than that of any of these agencies. A master who having entered into a contract with his servant, and finding that he is earning more wages by it than had been intended, shall escape from it or alter it, or in any way evade the conditions binding on himself, does thereby teach dissimulation and dishonesty and suspicion for all time coming more effectually than the contrary of all these evils can be inculcated at schools or out of books, or by word of mouth.

Mr. SIDNEY, of Clapham, followed Mr. BAKER, with remarks on the character of school books and the literature generally to which working men had access. He argued for information being conveyed on matters of direct and daily interest, and condemned the publications of the Tract Society as being inadequate to the instruction of their readers upon subjects connected with their maintenance and employment.

Mr. WILLIAMS, of Wiltshire, criticised the addresses of Messrs. SPEARING and BAKER. The difficulty as regards cottages was not to be overcome by the mere inculcation of duty upon landlords. A question to be considered was the difficulty of building the house required for a price on which its tenant could pay a reasonable interest as rent. As to the allotment system, Mr. WILLIAMS would double the extent allowed by Mr. BAKER, and he would allow the cultivation of grain crops. He argued cordially for the extension of schools, and would be glad to see all public-houses closed by law upon the Sabbath day.

The Rev. C. JAMES then delivered a very admirable address upon the interests of the working man. What he desired was not so much the education as the training of the child. At present the master often was labouring to undo what children learn not only in the street but at home. They are generally left neglected till they have already acquired bad principles and habits—whereas what was needed was that they should be properly taken in hand and cared for during youth, and after the period of school education had necessarily closed. Among matters of detail Mr. JAMES declared that it would be a national advantage if farmers would everywhere pay their men on any day but Saturday; and he called upon masters generally to be careful how they abruptly blamed and punished servants—young men and women have been turned out homeless and resourceless for merely accidental inattention or pardonable ignorance!

Mr. THOMAS, of Bedfordshire, then gave a very interesting account of his experience as a master, more especially in reference to the management of boys. He employs 20 of them under a careful superintendent, who can correct and teach them. He gives 3*s.* a week to each, and in addition a 6*d.* ticket as a reward: this is withheld except it be deserved by good behaviour, and every six months, in lieu of the 26 reward tickets which may have been acquired, a card is given enabling the purchase of 13*s.* worth of clothing, and the lads afterwards spend the evening of that day at the table of their master. Mr. THOMAS contended for the personal influence of the master as the great educational influence to be strengthened and improved by every possible means, and to be regarded as far transcending in its effects upon the future life any quantity of school education, of which indeed he spoke somewhat slightingly.

We hope again to refer to this discussion. The resolution at which the Club arrived simply affirmed in succession the sentiments to which utterance had been given by the speakers.

THE sixth harvest is just concluded since the introduction of the American reaping machines, and yet reports are coming into us from every province of their adoption as if they had never been heard of before. Ever since the commencement of the Irish exodus there has been a growing want of labourers experienced to cut down the harvest. Every year as it has rolled past has added fresh proof, if such were wanting, of the necessity of reaping by machinery, and yet harvest 1857 will doubtless return us reports of many having only made the discovery that their crops could be cut down more economically with reaping machines than with the sickle or scythe.

There is perhaps not a greater obstacle to progress in bringing machinery successfully to bear upon the harvest field than the over-caution with which farmers are now purchasing reaping machines, partly arising from the difficulty experienced in selecting the best ones, and partly from the hopes of

next year producing better. Aware of the obstacles to be met with in the field, they at once perceive that none of the machines yet exhibited are capable of removing them, and therefore delay purchasing, in the hopes of another harvest giving birth to the desired improvement. Thus year after year has rolled past, leaving the scythe and the reaping-hook in possession of the harvest field.

It were perhaps as difficult to condemn as to justify such a line of policy. The circumstances of the farmer are best known to himself, and in the absence of the necessary information here, it would be premature to advance argument in support of either side of the question. Perhaps in many cases the price has as much to do in the matter as the merits of the machine. Until something is done to remove from agriculture that over-parsimonious economy of investment which has hitherto characterised the implement, and indeed every department, the price of a thing will continue to exercise no inconsiderable influence upon its merits.

We are, however, fast getting into that advanced state of progress when investments must be governed by results, more especially as regards reaping machines. This will appear evident from a very superficial glance at the facts of the case, for the question is no longer what a machine costs, or whether a crop can be cut cheaper with it than the scythe or no, but whether the principal breadth of the harvest field can be cut by machinery when labourers cannot be had to cut it otherwise. To talk of the scythe when there is none to work it, and when crops are fast being lost from over-ripeness, the weather, &c., is not the reasonable course to pursue: loss by delay will soon cover the value of a machine. It may probably not be very far from the mark to say that a reaper will repay itself in four weeks' time, or during the period of a single harvest. In some exceptional cases it may even redeem itself in a week. The loss of 20*s.* per acre is soon sustained in the harvest field, so that if this can be saved, or the half or fourth of this, it goes to redeem the price. It is not the price therefore which ought to be the first consideration, but the probable saving which a reaping machine will effect during the period of harvest.

The mechanism again is another question which must, like price, give way to the demands of the field. On this head the prizes of the Royal Agricultural Society have all but ceased to be a trustworthy guide, as each individual trial has been dependant upon exceptional data. There is probably a greater difference between the different machines of one implement maker in the hands of different workmen than there now is between those of different implement makers at our summer trials. It is an old saying that "a bad hand never gets a good tool," and the working of the reaping machine will be no exception to this rule. In the selection of all other implements the workman is invariably guided by his own experience, and this may be taken as the safest rule for testing reaping machines. In the course of trial, if a farmer finds one machine better for cutting under special circumstances than another in one case, and inferior in another, he may find an advantage in having both.

But although price and mechanism are secondary considerations, they are by no means unworthy of notice. On the contrary, they merit special investigation at this season, more particularly the former, for the high price now demanded is a great barrier to general adoption. We are not to be understood as inferring that the profits of manufacture are too great; but that a more economical subdivision of labour might produce a cheaper article and a much more extended sale, analogous to what has taken place in all similar cases. Unfortunately implement makers are somewhat in a similar position with farmers—expecting further improvements annually; but making every allowance for obstacles of this kind, something obviously could and will be done to lessen the prime cost of reaping machines. The growing necessity for an increasing demand fully justifies this conclusion.

Companies might be formed for the express purpose of letting out reaping machines, or working them in harvest, as threshing machines and drills are now let and wrought. In every province there is a certain class of farmers who will purchase their own machines, but there is another class who would prefer either to hire a machine or let the cutting of their crops at so much per acre. There is evidently here an open field for the profitable investment of capital, for were machines to be had either way they could not fail to find employment in harvest, while their success would induce those to purchase who preferred investing their own capital. In some districts companies are already being formed for the introduction of improved machinery, and such could take up the subject of reaping without delay, so as to bring their efforts to bear upon the next harvest. Now if a number of such companies were to combine, they could easily enter into arrangements with implement makers to get cheaper reaping machines, as their orders would justify the erection of improved machines for their manufacture. The suggestion merits immediate consideration, as this is the season for making provision in this manner for the harvest of next year. Such companies would not interfere with private enterprise, as those who let out threshing machines and drills to hire could make the necessary provision for supplying their customers with reaping machines also. Such a combination of strength would not only secure the safe ingathering of our crops in harvest, but stimulate invention to produce improvements.

It must not be concealed that there is another side to the reaping-machine discussion beside that presented in the foregoing remarks. There are districts, we are told, where without the reaping machine corn is harvested as cheaply as in others with it: where skilful labour, rightly led and organised, is even more economical and efficient than horse-driven machinery elsewhere has proved to be. Take the following picture of a most tedious and harassing harvest from the pen of our correspondent in Wester Ross as an illustration:—

"On Tuesday, the 9th September," he says, "we commenced the most precarious harvest we have ever had to do with. For the first six days little rain fell, and having a good deal of strong Wheat to cut, our harvest work was scarcely interrupted; the second week we had four whole working days; the third week we had one only; the fourth week we wrought four days, and on Friday, the 10th Oct., with much hard driving and with little attention to our usual working hours, we had the whole crop secured. Our harvest thus extended over 31 days, on only 19 of which were we engaged in the peculiar work of the season, and on 12 of these days, notwithstanding that much of the corn was laid, and laid in all directions, about 90 acres were cut down by five scythe-men, and within the remaining seven days nearly 70 stacks were carted to the stack-yard. A wet and protracted harvest is necessarily an expensive one. Last year we cut and secured the crop grown upon a similar number of acres for 20*l.*, or at the rate of about 4*s.* 6*d.* per acre. This year, the crop being heavier and the season unfavourable, our outlay is 27*l.*, or 6*s.* an acre. In this calculation the wages of the half-year servants are not included, although all were engaged in harvest work. There is still a little to cut in the higher districts in this neighbourhood, and a good deal to secure. There has been more loosing and spreading of sheaves to prevent sprouting and accelerate drying, and more turning of heated stacks, than has been for many years, and we believe that the proportion of the crop is very small that is in that dry condition in which we would desire to see it. The weight of our new Wheat is from 59 to 61 lbs. per bushel, and that of Oats from 37 to 40 lbs., and the weight of the different kinds of grain will continue uncommonly low until it be dried by the winter frosts or winds of spring. Our stackyards are greatly more bulky than usual, and, although much of the grain will be inferior, the quantity will be beyond an average."

Here we have the work completed for 4*s.* 6*d.* an acre in a good year, and 6*s.* an acre in a very bad one—a price which it is not too much to say will barely pay for merely cutting corn, apart from tying and stooking, in many English districts. The cost of the additional labour unenumerated here—that of the half-yearly servants—adds but very little to the amount. If there be one to every 50 or 60 acres of arable land, that is but 2*s.* a day during harvest over 25 or 30 acres of grain, or 1*s.* 6*d.* to 2*s.* per acre, according to the length of harvest time. And it will be generally admitted by English farmers that if the use of reaping machines should reduce their harvest expenses to the experience of this Scottish farmer who gets his crop cut and harvested by hand, it will not be merely justified but highly satisfactory.

Here, then, is the most favourable case that can be put forward for skilled hand labour as against machinery. But the answer plainly is—not only that in many districts there is not that skilled hand labour to which, so skilfully directed, this experience is due, but positively there is not adequate labour of any kind whatever. The reaping machine is not pitted against a full supply of harvest-men, and even if it were, as it might be, it would seem, in Wester Ross—even then, the saving of a week of time, the cutting down of 20 of those acres on the first two days of their one whole week this year of harvest weather, while the men so occupied might have been in attendance on the machine engaged, would have so far saved the harvest as to render the employment of the machine most profitable. The machine is not pitted against an adequate supply of men, it is as a remedy for the want of men that it is called for. Though were it introduced where skilled labour already occupies the ground—that skill which makes hand-labour there so much more economical than it is elsewhere, would cheapen *its* employment also. The experience of our correspondent is thus no answer to the case of the reaping machine as argued above. If it be so urged the rejoinder is two-fold—(1) that the alternative proposed does not exist; we have not that sufficient hand-labour with which it is proposed to contrast it—and (2) that even in those localities where there may be enough of men to cut the corn, a machine which shall shorten the process will, in hazardous and inclement weather, often repay its cost altogether apart from the question of expense per acre, by saving much corn which would otherwise have been spoiled in the field.

OIL-CAKES.

Of all the various oil-cakes which are used for feeding or fattening, Linseed-cake is employed most abundantly, and justly prized as the most valuable kind of cake. Rape-cake, lately imported in large quantities from the Continent, where Rape is much grown, is now also much employed for feeding cattle and sheep. Poppy-cake likewise is a valuable feeding material, but occurs only occasionally in trade. Of the other varieties of oil-cake which are now and then offered for sale, we will only mention here Cottonseed-cake and Mustard-cake. Cottonseed-cake has lately been introduced into England, and been found a very valuable feeding substance. Allusion is made here to Mustard-cake because it is frequently sold as Rape-cake, which it indeed resembles closely.

Many samples of these different oil-cakes, from various countries, have lately been analysed by Professors Way, Anderson, and myself. These analyses have shown that the composition of even one and the same kind of cake is liable to considerable fluctuations, arising principally from the mode in which the cake is manufactured. But as the observed differences in composition do not materially affect the practical deductions to which the analyses of oil-cakes give rise, I shall content myself by presenting in the subjoined table the average composition of oil-cakes, as calculated from a large number of analyses:—

AVERAGE COMPOSITION OF OIL-CAKES.

	Linseed Cake.	Rape Cake.	Poppy Cake.	Cotton-seed Cake.	Mustard Cake.
Moisture	12 44	10.68	11.63	11.19	11.90
Oil	12.79	11.10	5.75	9.08	6.69
Nitrogenised or flesh-forming principles ...	27.28	29.53	31.46	25.16	23.48
Substances not containing nitrogen—					
Heat-giving substances ...	41.36	40.90	38.18	48.93	52.14
Mineral matters (ash) ...	6.13	7.79	12.98	5.64	5.79
	100.00	100.00	100.00	100.00	100.00

The ash which remains behind on burning any of these oil-cakes contains a large proportion of phosphoric acid, lime, and potash. Oil-cakes thus contain much of the constituents of which the bony skeleton of the animal body is made up.

In explanation of the preceeding table, I would observe that the differences in the proportion of oil and flesh forming matters obtained in the analyses of different samples of cakes of the same kind are quite as large, or sometimes even larger, than the differences which are here stated in the average composition of cakes of different kinds. Thus, for example, it is stated in the above tabulated results that Linseed-cake contains on an average 12·79 per cent. of oil, and Rape-cake 11.10 per cent.; but it does not follow from this that Linseed-cake always contains more oil than Rape-cake. Generally it does contain somewhat more oil; but, on the other hand, there are some Rape-cakes which contain more oil than most Linseed-cakes.

This remark, indeed, applies to all feeding materials. We are too much in the habit of speaking of the composition of cake, Turnips, Mangel Wurzel, or hay, as if these complex mixtures of substances were simple chemical combinations, presenting us with a fixed composition, whereas the differences in two samples of the same produce are often very great. Any one who has tried practically the nutritive effect of good and badly-made hay, or of Turnip grown on good Turnip land and on peaty land, knows well that there is a vast difference between hay and hay, or a Turnip and a Turnip. In speaking of the nutritive value of any article of food too precise a language is out of place; and it is simply absurd to draw nice general conclusions from small differences which the analyses of different-feeding materials may have yielded. Unless the differences are strongly marked and constantly observed in a great number of cases, it is unsafe and irrational to attach a precise nutritive value to different articles of food, especially if the opinion is founded solely upon analytical data, and not corroborated by actual experimental trials; for, after all, the chemical composition alone of an article of food is insufficient to determine its practical value.

The history of oil-cakes presents us with a striking example illustrating the truth of these remarks.

Good Rape-cake contains nearly as much oil, and even more flesh-forming principles, than the best Linseed-cake. In a purely chemical point of view, Rape-cake ought to be, if not superior, at least quite as nutritious as Linseed-cake. Notwithstanding a certain

diversity of opinion entertained by practical men respecting the merits of both cakes, I believe an extended experience of the best stock-farmers has proved beyond dispute that, weight for weight, Linseed-cake is much better than Rape-cake. It is not, I believe, difficult to account for this superiority.

In the first place I would observe that Rape-cake has a strong, hot taste, and is not liked much by cattle; whereas good Linseed-cake is sweet and agreeable to the taste. The natural appetite of animals, to a certain extent, it strikes me, may be regarded by us as a guide to what is good or bad for them; and though a dislike for a certain food may be overcome in time, I believe an animal will never get on so well upon food which it naturally dislikes as upon another for which it is greedy.

2. In the second place, it may be stated that the oil of Rape-seed naturally possesses a disagreeable smell and taste, and is apt to turn rancid. Rape-cake, which contains about 11 per cent. of this oil, thus has a great tendency to become rancid, and consequently unpalatable to cattle.

3. In the third place, I would observe that Rape-cake contains a much larger proportion of indigestible woody fibre than Linseed-cake; whereas the latter contains on an average about 9 per cent. of woody matter, the former contains as much as 20 per cent., and even more. As stated above, the proportion of substances not containing nitrogen is almost as great in Rape as in Linseed-cake. But as in the case of Rape-cake, about one half of these substances consists of woody fibre which is of no use whatever to the animal, and as Linseed-cake contains only 9 per cent. of indigestible fibre, it is clear that Linseed-cake must be superior in this respect to Rape-cake.

4. Lastly, it may be as well to bear in mind that good Linseed-cake is hardly if ever adulterated, and seldom mixed with foreign seeds, whereas Rape-cake contains more frequently than any other description of cake the seeds of weeds. The experienced eye will find no difficulty in recognizing in Rape-cake the seeds of Mustard, Charlock, and other weeds. Some of these seeds possess a disagreeable, bitter, or acrid taste, and possibly may possess poisonous properties.

I would direct special attention to the fact that Rape-cake often contains a considerable proportion of Mustard seed. In Belgium, France, and Germany, where much Rape is grown on account of the oil which its seed furnishes, the fields are often very foul with Mustard; but as Mustard itself is grown on account of its oleaginous seed, no care is taken to eradicate it, and hence it is that Rape-cake contains frequently much of the expressed seeds of Mustard. This admixture is injurious if the cake is given to fattening cattle in any quantity. Sheep do not appear to be affected so much as cattle by Mustard. Rape-cake, which is rarely quite free from Mustard, therefore may be given with greater advantage to sheep than to cattle.

The fact that some samples of Rape-cake are full of Mustard and others comparatively free from it, perhaps accounts also for the differences of opinion which farmers who have tried Rape-cake entertain respecting its feeding value. Rape-cake, free from foreign seeds and well kept, may indeed be a valuable and economic article of food; but there is often Rape-cake sold to farmers which contains so much Mustard that it is difficult to decide whether the cake is Rape or a Mustard cake. Such cake should never be used for feeding purposes, for it is certain to injure the condition of the animals to which it is given.

(*To be continued.*)

MR. CHADWICK

ON THE

PROGRESS AND COMPARATIVE POSITION OF AGRICULTURE IN ENGLAND AND ON THE CONTINENT.

THE following is a further portion of Mr. Chadwick's address at the Congress of Bienfaisance at Brussels, containing statistical facts and observations made in England, from his position as Commissioner of Inquiry, into the administration of the Poor Law, and containing comparisons as to the state and progress of agriculture in France and Belgium.

The chief detrimental circumstance which in large districts in England grievously obstructs the operation of the elementary conditions for the improvement of agricultural labourers is the maintenance—under the influence in the House of Commons of proprietors of whole parishes—of the law of parochial settlement which restricts the administration of relief to the destitute persons who live or have lived in the narrow area comprised within the boundaries of those parishes. Under that law proprietors have a supposed interest in preventing dwellings being built on their estates, to avoid the legal liability to legal claims for the relief of the labourers, in the event of destitution arising from any cause; and the lands of these proprietors are worked chiefly by labourers living at a distance in overcrowded dwellings in villages, or in the suburbs of towns. By the operation of that law, in a large part of England agricultural labourers have little or no choice of employment, except in the parishes where they are "settled," and where they are almost *adscripti glebæ;* where, whilst they have the slave's security against want (for whether they work well or ill, they usually gain little more), they have the slave's motives to do the least they can. By the practical operation of this law the cultivator is usually confined to the choice of such labour as may happen to be comprised within his parish. By the continued ignorant maintenance of this law in the face of demonstrations—afforded by comparisons with the free labour districts—that all parties suffer by it, proprietors, farmers, labourers, the circulation and competition of labour, and the rise of its value in our agricultural districts is restricted, and the benefit of the principles of improved administration, with the preparation of which I was charged by my colleagues of the Commission of Inquiry in 1833, have been seriously diminished.

But depressed as are the means of agricultural labourers in England as compared with the means of labourers in manufacturing districts and artisans in our towns, it appears to me to be important for the legislative principles under consideration at the Congress to observe upon the facts—that the budgets of income and expenditure collected by my friends Count Arrivabene and M. Ducpetiaux in Belgium, and by M. Le Play in France, show a still lower material condition not only of agricultural labourers but of small farmers. The Dorsetshire and other agricultural labourers to whom I have adverted as the most depressed labourers in England, will be found to have at present better means than the small farmers in France and Belgium, that is to say, their wages will produce to them more of necessaries and comforts than are actually enjoyed, at all events, by a large proportion of small farmers in France. A person who was himself of a family of Buckinghamshire labourers, one of the lowest in England, examined the condition of the small farmers in Normandy, and declared to me that the living of the labourers of his own county was superior. A Dorsetshire labourer, who earns 8*s.* and 9*s.* per week, has for his principal diet three 4-lbs. loaves of the best wheaten bread per week, or nearly 2¾ oz. per diem; and 3 lbs. of cheese per week, or 5 oz. per diem. He will also have his quart of strong beer, which costs 6*d.* per diem. If he did not prefer the beer, he might have for his 6*d.* three quarters of a lb. of the best, or 1 lb. of ordinary meat. Such a diet would be assuredly far higher than that of the small farmers, who never taste meat except on the occasion of great festivals, and whose main article of diet is a black bread of Rye or inferior grain.

As displaying the inducements to improvement, as involving the condition of the agricultural labourer, as well as subsistences and interchange, allow me to advert more particularly to some points of actual progress and some evidence of future promise of agricultural production.

Some of our political economists have assumed that the future increase of agricultural production can only be obtained by the cultivation of poorer soils for a less and less return, or at a greater and greater expense of labour. But these assumptions I have generally found to be erroneous, even as respects the soils at present the least productive. As respects the promised return of those now under cultivation, it should be borne in mind that all the great expenses of agriculture are nearly constant, whether for heavy or light production; thus rent, local or general taxes, the labour of preparing the land, ploughing, harrowing, rolling, drilling, and the seed corn are the same whatever the crop may be, and that except in the article of manure—*i.e.*, in the amount of ammonia supplied, and a small amount for threshing, &c., there is no substantial difference between a harvest of 20 bushels and one of 40 bushels per acre. The gain of a greater and greater return, at a less and less expense by high as compared with low cultivation, is shown in a table contained in an able treatise by Mons. Lecouteux, Ancien Directeur des Cultures de l'Institut Agronomique de Versailles.

In this table, displaying the relation of the fixed and variable charges of production, the yield of corn and its return in money on the one part, and the quantity of manure applied on the other part, he proves that at low culture, with an expense of 294 francs per hectare, including 74 francs for manure, the yield of Wheat is 14 hectolitres per hectare, or 15 bushels only per acre, at an expense of 17 francs 52 centimes (13*s.* 10*d.*) per hectolitre, *i. e.*, 2.75 bushels; that with intermediate culture, at a total expense of 337 francs per hectare, including 109 francs for manure, the yield is 20 hectolitres, or say 21 bushels, at a total expense of 13 francs 37 centimes the hectolitre; whilst with high culture, at a total expense of 440 francs, with an expenditure of 156 francs for manure, the yield of Wheat is 40 hectolitres, or nearly 42 bushels, at a net price of 7 francs 52 centimes per hectolitre, say at 6*s.* the 2.75 bushels; that is to say at 40*s.*, 32*s.*, and 17*s.* 4*d.* per quarter respectively.

Looking at the great extent of low culture, it will be obvious that at times much corn must be exported from France, and I am assured that it is so often from Poland, not only without any rent, but with low payment to the producers for the labour of production. These figures represent, I do not say exactly, of the like position of high and low culture and of the promise of agricultural progress in England. In the middle ages, it was laid down in law that if a farmer did not produce 11 bushels an acre he might be turned out of his farm for bad farming. In the middle of the last century, or in the time of our first great agricultural improver, Tull, the yield averaged 16 bushels per acre; at the commencement of the present century, in the time of Arthur Young, the average yield of Wheat of the corn growing districts in England was about 20 bushels per acre; at present some statistical returns give about 27 or 28 bushels; but more carefully conducted recent statistical returns give the average of one county (Norfolk) 30 bushels of Wheat: but the returns of the examiners for the great corn factors or merchants, on which I should rely, give more than that, or 32 bushels the acre, as the real average of the corn-growing districts.

In the condition of low culture the expense at which corn was raised approached to 40*s.* the quarter, or 5*s.* a bushel; in 1848 it was, as shown by Mr. Huxtable, to be about 3*s.* 9¾*d.* per bushel for a yield of 32 bushels, rent, tithes, and rates being 1*l.* 8*s.* 4*d.* per acre; whilst, in the cases for France, given by M. Lecouteux, it is put down as 45 francs the hectare, or 14*s.* the acre. Since then Mr. Huxtable has increased his average yield to 36 bushels and reduced his cost of production to 3*s.* 4*d.* per bushel, or between 10 and 11 francs the hectolitre, rent and taxes being as above stated, or 90 francs the hectare;* but this has been on a chalk soil, where there is little water available for the single farm without engineering appliances, which I believe could only be executed profitably there for a district comprising a number of other farms, and where consequently there is not room for the liquified manure cultivation on a sufficiently large portion of the farm. In the Lothians the average yield has been in extensive districts raised to 36 and 40 bushels per acre; and model farms afford standards for a yet further advance.

A member of Parliament for Bradford, Mr. Wickham, a Yorkshire proprietor, who is now here, is I am glad to say ready to challenge as an understatement my statement of 30 bushels per acre as the average, for that he on his own farm and others about him grow 40 bushels per acre. I have little doubt that the Norfolk average is understated in the returns collected by Sir John Walsham, the official reporter. I am happy to be enabled to give the following return from a quarter on which I can implicitly rely; and I invite attention to it, as exemplifying the agricultural progress since the repeal of the corn laws, and as displaying the element apparent in manufacturing productions of undiminished if not increased returns to the producer, coincidently with extended consumption at reduced prices:—

Average Produce of Wheat upon a farm in Norfolk containing 1030 acres under the plough in three periods of seven years each, showing the increase in quantity sown, the increase of produce, and the total amount in money value per acre:—

	Acres.	Bushels per acre.	Price per quarter.		Amount per acre.		
			s.	*d.*	£	*s.*	*d.*
7 years to 1839 ...	214	25½	57	0	9	1	8
7 " 1846 ...	268	29½	56	4	10	8	9
7 " 1853 ...	344	37¾	47	6	11	0	2

Stated in another form, the general progress of agriculture in England may be represented thus;—In the time of Tull four bushels of seed were commonly used, when the yield was only 16 bushels per acre. Later on the yield was five-fold on the seed sown; at the present it is more than 12-fold. In the example of the improved cultivation to which I have referred, two bushels of seed are made to suffice for a yield of 36, or the yield is 17-fold upon the seed sown, and by an improved drill it is expected to be advanced to 20-fold. Indeed, Mr. Mechi states that he only used one bushel of Wheat per acre on his liquified manure farm where his yield this year has been 48 bushels.

Let me look at the agriculture of the continent, with the view to its future and the future of its population. M. Lecouteux concludes a passage:—"And it is thus that adjoining land where the yield is from 30 to 40 bushels per acre, because they are well manured and well tilled, we find other land where the yield of Wheat is no more than from 8 to 11 bushels, and it is thus that the agricultural statistics prove that the average yield is no more than from 11 to 13 bushels per acre, for the whole of France." Whilst the average return even of the Department of the Seine, with all the advantages of proximity to the manure of Paris, and of superior climate as well as soil for Wheat does not appear from the statistical returns to be more than 13 hectolitres per hectare; the average yield upon the seed sown throughout France appears, according to Count Gasparin, to be only five-fold. The average for Belgium appears to be under 20 hectolitres the hectare, or about 20 bushels the acre. Properly considered, these statistics of the present yield may, on comparison with others which follow, be taken as standards of labour, of productive subsistences, alimentation, and interchange for a future, earlier or later, as there may be energy or inaction.

A friend, an *ancien prefet*, to whom I described statistically the condition of much of the small farm or cottier population of Ireland, declared that in its main features it was applicable to large portions of the small farm cultivators of France. And it may be premised that whilst in some districts of Ireland—as in Kerry and Mayo—more than 60 per cent. of the families, chiefly cottier and small farmers, live in mud hovels of only one room; France had, as shown in a late census, 346,000 habitations chiefly occupied by the like population, with only one opening, the door; and 1,817,328 with only two openings, the door and one window; and 1,320,937 with only two windows; and these comprise more than half the number of houses in the country, and comprise a very large proportion of the agricultural population.

I have ascertained from much testimony which I have had official occasion to take, that in the district of small farms and cottier allotments, under conditions which impair or prevent the advantageous application of the energies of the Irish labourer, the *working hours of his days*, or the efficiency of the labour within the hours of his days are reduced to one-half those of an English labourer,—and indeed of an Irish labourer in England, under more systematised direction—that from holydays, saints' days, attendances at meetings, at law suits with which he has nothing to do, at markets where he has nothing to sell, the *working days of his year* are reduced to 200, or to one-third less than those of an English labourer: that from his residence in a mud hovel—himself and all his family, and commonly his pig in the same room—damp, filthy, and unhealthy, the *working years of his life* are reduced by eight or ten years, or nearly one-fourth less than those of an English agricultural labourer in a moderately healthy English county; and from the excessive sickness, and the premature mortality of the adult or productive hands a greater amount of pecuniary charge for the support of a larger proportion of dependent children, orphans, and of dependent hands is charged upon the reduced produce of his reduced working hours, days, and years. This is my poor people of Ireland's case, and the members of the Congress who are conversant with statistics, to whom I submit the form for consideration, will appreciate their dreadful import, in combination with the statistics of the returns of produce from poor culture incident to small farms with little capital.

With us, if we suppose it were put as a dilemma to choose whether we should return to the agriculture and the yield of the commencement of the century or give up the Indies, I believe there would be little hesitation on the part of the majority of the population; and I believe they would far rather abandon every addition of territory than return to the English agricultural yield of the middle ages, or to the present declared average yield of France; and I hope that it may be confidently predicated of the majority of our neighbours on this side of the Channel, that if it were fairly put to the vote they would prefer to have their capital and energies directed to doubling their present production by attaining the average yield of England on their present territory by a better agriculture than that they should have the requisite means expended in doubling the superficial extent of their territory by war.

With our agriculturists the "fly" and the wireworm are now the enemies that excite the greatest apprehension, and they would least unwillingly pay taxes for defences against the Aphis devastator. Marshes and lands surcharged with stagnant moisture are the *officina* of a large proportion of those *gentes;* and one year's pay of each regiment, one year's labour of the men kept unproductively in barracks, will ordinarily suffice for the drainage of a square mile, *i.e.*, for making a square mile of defences against such enemies. To our neighbours the irruptions of the Rhone are the most terrible invasions to which they can be exposed, and I would most respectfully submit that it is on defences against them apparently that the spare labour and arms of their soldiers, under engineering generals, may be the best directed.

(*To be continued.*)

* Mr. Huxtable's charges are—rent, 1*l.*; tithes, 5*s.*; poors' rates, 2*s.* 6*d.*; way rates, 10*d.*; total, 1*l.* 8*s.* 4*d.*: ploughing, harrowing, drilling, crushing, 1*l.*; tradesmen's bills, 5*s.*; bird-keeping and hoeing, 5*s.*; reaping, 10*s.*; harvesting, 3*s.* 1*d.*; taking in rick for threshing and marketing, 4*s.* 10*d.*; threshing 36 bushels at 1½*d.* per bushel, 4*s.* 6*d.*; seed two bushels, 10*s.*; or a total of 4*l.* 10*s.* 9*d.*, or 2*s.* 6*d.* per bushel, exclusive of the chief variable element, the manure, for which he sets down 62½ lbs. of ammonia, at 6*d.*, 1*l.* 11*s.* 6*d.*, making 10*d.* per bushel extra, or 6*l.* 2*s.* 6*d.* for the entire acre. The French fixed charges are per hectare, 2.47 acre: "loyer, 45 francs; travaux de culture, 43 francs; frais généraux, 52 francs"; and their charges classed as variable; "travaux de récolte, batage, charroi au marché, 34 francs (low culture, intermediate culture, 42; high culture, 75); semences, 46 francs (high culture, 69): engrais à 7 francs, 80 les 1000 kilo., tout épandu, 174 francs;" (intermediate culture, 337; high, 440). Mr. Hewitt Davis gives about the same return of the cost of producing Wheat; and he shows, moreover, that with improved culture we should reduce our proportion of seed one-third; and it is shown by Mr. E. Denison that by the improvements in tillage, the working expenses might be further and immediately reduced upwards of 8*s.* per acre. In regard to the rent of land, it is to be observed that the cost of transport is everywhere after all an irrevocable protective duty, which for England ranges from 5*s.* to 8*s.* per quarter.

Home Correspondence.

Large and Small Potatoes as Sets.—At the late meeting of the Witham Agricultural Society, reported in the *Gazette* of October 25, Mr. Dixon in discussion of the Potato crop gave his experience of planting large and small tubers or sets. With us in Ireland, previous to the Potato failure, small Potatoes, round seed as we now call them, were rarely if ever planted—they went to the gentleman who paid the poor man's rent; the sets were cut from the table-sized Potatoes, and of these whole ones were not planted, for they were altogether unsuitable to the ridge, and when I tried some about 30 years ago I believe I was thought crazed; they, however, turned out a very productive crop planted 2½ feet apart every way. My plan was drills opened in the usual way, the manure taken out and spread, a line stretched across the drills at 2½ feet distances, the Potatoes dropped at the intersections, the manure drawn over them by the hoe and then covered with the plough; when strong up they were cross ploughed and finished

off with the shovel, leaving the Potatoes in little mounds—the field was of 6 acres, poor, worn out and stubble, hilly and inferior land, yet it was one of the best crops in the country. On the same kind of ground I have, however, had as good crops in drills from cut sets. Since the Potato failure it has become the general custom to use for sets the Potatoes that are too small for the table either whole, or cut if their size permits, discarding the very small ones; very rarely are marketable Potatoes now cut for sets, and the opinion of the country is that these small sets are equally productive with the larger ones. But the use of these small sets is, I think, objectionable, as tending to deterioration. It cannot fail to have been observed, even in drills, but much more in beds, that some, even in many cases in beds a large proportion of the Potato plants produce a much greater number of small Potatoes than others; some in which these small ones constitute the entire produce of the plant, and in which case they are very generally much more numerous than where larger ones are found, some again produce a large number of small ones with very few large ones. Thus in the aggregate the amount of small sets produced from these inferior plants greatly exceeds that of the small ones under the superior plants. In planting these small Potatoes, we plant to a great extent the offspring of degenerate parents, and, as like produces like, we must under ordinary circumstances expect the return will be of a very large proportion of these small Potatoes, and this deterioration must proceed to increased deterioration in every succeeding crop. As these inferior producing plants are found growing close to the superior ones, we cannot, I think, ascribe their inferiority either to the manure or the soil. It may arise from the later shooting of some of the eyes, but I must think it arises chiefly from degenerate sets; this opinion is in accordance with our experience in all vegetable and animal productions. Indeed, I so fully concur with the advocates of careful selection of seed that I have often proposed in Potato tillage to plant whole and large Potatoes at wide distances, and in digging out to select for sets those that are eminently productive of good large Potatoes, but various disappointments have prevented my carrying out my views. *J. M. Goodiff.*

Agricultural Statistics in Ireland.—When writing to you on the subject of our agricultural statistics I did not contemplate "the commotion" which the publication of the said letter has caused. The fact of my having "stirred the coals" has thrown some light amongst some who kept dark on a subject they now wish to be better illuminated; and hence the great number of letters which I have since received from various parts of Ireland in sustentation of the objections I had but cursorily glanced at against the correctness of the statistics so much lauded by his Excellency the Lord-Lieutenant, and so much extolled by certain portions of the press whose editors and contributors know very little of such matters. Although I have little spare time to reply to the letters I have received on the subject, I have endeavoured to do so privately to some, and would not have troubled your readers further had I not seen a letter from the Registrar-general bearing date September 15, 1856, containing a paragraph or two which I think it necessary to notice. He says, "Your Excellency is aware that the information given to the constabulary is altogether voluntary; and I feel assured it will afford pleasure to your Excellency to learn, as I beg to say it is most gratifying to me to have it in my power to state, as far as I am informed by the enumerators, who amounted to nearly 4000, hostility to the collection of those returns has been displayed by only one landed proprietor in Ireland—a fact most creditable to the good feeling and intelligence of all ranks and classes in this country." Mr. Donnelly, it will be seen, admits that one landed proprietor showed "hostility" to the collection of those statistics; but he does not say how many offered it passive resistance. He goes on to say: "As I find that misapprehensions exist in some quarters relative to the steps taken to insure accuracy in filling the returns by the constabulary, I have given in the appendix copies of the instruction issued by me to the several enumerators, and also of the forms upon which the extent of land under tillage and number of live stock were collected." Never was man more mistaken than was the Registrar-general. There has been no misapprehension, at least that I could learn or hear of, on the part of any one, except that of supposing that we can collect agricultural statistics correctly or nearly so by the machinery employed, at the period selected for it, or in the time allowed for such purposes. One extract more: "In conclusion, I have great pleasure in acquainting your Excellency that in this as upon previous occasions I have received in reference to the collection of these statistics valuable assistance from the magistracy, the clergy of all denominations and other influential parties, and also from the public press," &c. Now, I ask, what assistance could the magistracy afford beyond the aid of the police?—a most efficient aid in keeping the people in awe, but without the power to elicit from the same people one word of truth. Whereas the very presence of the police but awakened their perhaps wrongly founded suspicions, sharpened their wit, stimulated their cunning, and fortified their evasiveness in reply, without contributing in the least degree to their enlightenment, or affording them the least confidence in the land laws which they believe to be one-sided. Let no one suppose that in speaking thus of the subject I am actuated by any personal or unkind feeling towards Mr. Donnelly, of whom personally I know nothing in the world. I believe him to be a man of high character, otherwise he could not obtain the situation he holds. Experience may qualify him in the course of time to ascertain the agricultural statistics of Ireland more approximately correct, but if he ever hopes to do so with any degree of accuracy he must adopt other and better means. What those means should be is no business of mine, though I am not one of those who believe that "what is every man's business is no man's business," for a matter of such importance is the business of all. *Edward Carroll, Cranemore House, Newtownbarry.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Nov.* 5.—Mr. Evelyn Denison, M.P., President, in the chair. The names of 33 candidates for election at the next meeting were read.

FINANCES.—Mr. Raymond Barker, chairman of the Finance Committee, reported that the current cash-balance in the hands of the bankers was 1027*l.* He also submitted to the members the usual quarterly balance-sheets of income and expenditure, and of assets and liabilities.

HOUSE.—Mr. Raymond Barker, as chairman of the House Committee, also reported the progress of the repairs in the course of being made during the autumn in the house of the Society.

STATISTICAL TABLES.—Mr. Thompson, Chairman of the Journal, Committee reported the recommendation of that Committee that the Council should pass a vote of thanks to Henry S. Bright, Esq., of Hale, for the liberal manner in which he had placed his statistical tables at the disposal of the editors of the Journal—a recommendation which the Council at once cordially adopted, and passed an unanimous resolution to that effect.

PRIZE ESSAY.—Mr. Thompson also reported from the Journal Committee that the Judges of Essays had made the following adjudication:—

TO THOMAS F. JAMIESON, of Ellon, Aberdeenshire, the Prize of FORTY SOVEREIGNS for his Essay on the Chemical Results superinduced in newly-deepened Soil by Atmospheric action.

TRIALS OF REAPERS AND STEAM PLOUGH.—On the motion of Mr. Brandreth Gibbs, seconded by Mr. Allen Ransome and Mr. Druce, the best thanks of the Council were voted to Mr. Fisher Hobbs for the facilities he had offered for the deferred trial of reaping machines and steam plough at Boxted Lodge, for the liberality with which he had supplied his horses and men for their working, and for the general courtesy he had displayed on that occasion.

COUNTRY MEETING IN SURREY.—Mr. Alcock, M.P., as chairman of a public meeting held at Reigate on the 4th inst., presented the following memorial on the part of a special committee:—

We, the Committee appointed by a public meeting held in the Town Hall, Reigate, beg to memorialise the Council of the Agricultural Society that Reigate should be the place of the Annual Country Meeting of the Society in the year 1860. Reigate is on the junction of railways which unite London, Brighton, Southampton, and Bristol, having two termini at London Bridge, one at Waterloo Bridge, another at Paddington, and before long will be added a West End terminus. Reigate may be considered the threshold of Great Britain to all the continent. Reigate is the most central and approachable place for the Agricultural Society's meeting for the district of "Kent and Surrey," and we are ready to forward in aid of the funds of the Society 1500*l.*, whenever the Society may call upon us. We would point out that scarcely a spot in England can be found which shall combine so many advantages as to facility of approach and beauty of position, and the salubrity of the place is verified by the statistical returns of the Board of Health. The proposed landing-place at Reigate is close to the Reigate Town Station, adjoining which are 20 acres of meadows, bounded on the north by Reigate Hill, on the east by the Brighton turnpike road, on the west by land which would be available for ploughing experiments, and on the south is offered the unusual advantage to persons on quitting the railway carriages of finding themselves actually within the implement show yard. In fact, we believe that it would be more easy for 250,000 people to profit by the show at Reigate than for 100,000 to be collected at Salisbury or Maidstone, or any other place not in connection with as many railways as are united at Reigate.

SMITHFIELD CLUB.—Mr. S. Brandreth Gibbs reminded those Members of the Society that intended to become exhibitors at the ensuing Christmas Cattle Show, that the latest date for the receipt of entries would be Saturday, the 8th November.

COMMUNICATIONS were received from the Foreign Office announcing that the Cattle Distemper had ceased in Mecklenburg; also, that the Government of Norway had forbidden the importation of Horned Cattle from England and Scotland into that kingdom. Mr. Bolton presented, through the President, a Paper on the Aëration of Land. Mr. Warriner, of 38, Finsbury Square, announced what he believed to be the valuable discovery of a new and cheap source of manure.

The Council adjourned to their next monthly meeting on the 3d of December.

Farmers' Clubs.

WOODBRIDGE.—Mr. Mechi was recently invited to a public dinner at Woodbridge by the inhabitants of Suffolk, as a mark of the esteem with which he is regarded, and as a small acknowledgment of those useful and hospitable gatherings which have now for many years been associated with his name. Andrew Arcedeckne, Esq., High Sheriff of the County, presided upon the occasion. In proposing Mr. Mechi's health, he said—"As an agriculturist, as a gentleman of the highest character, and a most hospitable man, Mr. Mechi was known over the wide world. He did not believe there was a more hospitable, jolly, better sort of man in existence than their friend.—Mr. Mechi, in returning thanks, asked himself what he had done to merit their good esteem and their kind favours? The conclusion he came to was that they had forgiven him for any agricultural follies he had committed, and that after ten or a dozen years' reflection they thought that he was not quite so wrong as they had conceived him to be. When he bought a farm or two he did to those farms what, as a man of business, he thought was right and proper—that was, to begin to spend money upon them, and to alter their unimproved condition. At that time there was a great difference of opinion as to what improvements should be made. He believed that a great many of the farmers of England, at least many of the farmers of Suffolk thought, ten or fourteen years ago, as they had all thought in their time, that the farming of Suffolk was not so bad, and that the farming of England was not so bad after all, and that there was not so very much to learn as he had pointed out; but they must recollect this—that every year they were going on in their population by compound multiplication, which seemed to be such a favourite employment with Englishmen, and it was quite clear that that rapidly increasing population demanded a corresponding increase of production, which could not be carried out unless with improved means—unless they invested in the soil, on the part both of the landlord and tenant, a very much larger amount of capital and intelligence. Had it not been for their invitation to come to Suffolk, he should to-day have been at the Witham agricultural meeting, where he should have seen the steam plough at work. Probably they were aware that there were two kinds of these ploughs now in use: one was by Mr. Fowler, which was worked with a wire rope, and which some of them might have seen in operation upon his farm; and he might mention that his neighbour, Mr. Crump, had also bought one and was now using it; but that gentleman's fields, it should be understood, were not limited to 3 or 4 acres, but were 20, 30, or 40 acres in size, so that he had no difficulty in that respect, and with his common engine he was working the steam plough satisfactorily. Then there was Mr. Boydell's engine, as seen at the Royal Agricultural Show at Chelmsford, walking about like a Mammoth, and which had been doing work which they would see reported in the *Agricultural Gazette* by a careful witness, after two days' close examination. It was stated that it drew ploughs after it, and cultivated land at a great depth at a cost of only one-fifth of that incurred in ploughing by horses; and that the work it was doing which would cost 15*s.* by horse-power was done by it at 3*s.* Let them, however, give it 7*s.* 0*d.* in, and say it did for 10*s.* what with horses would cost 15*s.*, and see what the result of that saving would be to the agriculturist; instead of the horses being obliged to leave off at half-past 1 or 2 o'clock, sometimes when the work was really wanting to be done which was necessary to enable them to continue at work from day to day, they would find that if they had got a steam-horse they would not require to be quite so kind to it, but would "make hay when the sun shone." He saw Mr. Boydell a day or two ago to arrange that one or two of his engines should form part of the civic procession of the Lord Mayor elect, for inasmuch as London could not do without country-made food, they considered they should identify agriculture with commerce as closely as possible. To return to Mr. Boydell, he had no hesitation in saying that his invention was one of those events in agriculture and in the annals of this country that would work one of the mightiest changes ever known; and when he applied to Mr. Boydell for his engine, he replied, "The Emperor of Russia will have both me and my engine in a fortnight, to use in that country for various purposes, but above all for drawing cannon." It was not a little remarkable that that engine would take a weight up or down hill, or over a swamp, where horses could not go—a fact which he recently saw illustrated at the Arsenal at Woolwich, which had an inclination of one in 10. He first saw 10 strong artillery horses attached to a gun without being able to move it, but 12 being put on, they at last managed to get it up the hill; whilst Boydell's engine took the gun (which weighed 10 tons and itself 12) up the hill, and what was still more difficult down the hill too. Besides which he was informed it had gone over rough ground and deep ravines in an extraordinary manner. He mentioned these circumstances because he thought they were worth consideration. He believed that as was the case at present with drills and travelling steam engines, an engine of the kind he had mentioned would also ere long be let out to work at so much per acre; and he had yet to learn that a farmer would object to pay 2*s.* or 3*s.* an acre less to have his land ploughed 2 or 3 inches deeper than at present, and have it done at the critical moment. Mr. Boydell told him with regard to the engine to which he had alluded, that not only had he endured the wearing anxiety of the invention, but that it cost him 10,000*l.* before he could produce it. He believed a similar result had taken place in the case of Fowler's plough, and money had been spent for the public good which he hoped would eventually be for the inventor's benefit. Let them not therefore throw cold water upon such inventions, but rather let them adopt them as soon as possible; and if ever he visited their neighbourhood again (which he hoped, after the reception they had given him that evening, would not be long distant), he should be disappointed if he did not see a very considerable enlarge-

ment of their fields, and find their beautiful Suffolk horses somewhat superseded by the iron steamer ploughing their ground, which would consume coals instead of Oats. "But," some of them would then ask, "what are we to do with our Oats?" Why they must farm Wheat after Wheat, or take some other little liberty with the soil. In conclusion he would remark that he thought the tendency of such meetings as the present was to make gentlemen think these matters over and so improve agriculture. *Abridged from the Ipswich Journal.*

Calendar of Operations.

NOVEMBER.

LAMMERMUIR SHEEP FARM, *Nov.* 3.—Harvest in this upland district has this year been a most tedious business. The grain, however, is now all secured and although much of what was earliest cut has sustained material damage, yet upon the whole we have been fully more fortunate than most of our Low Country neighbours, in having about one-half of our corn to cut when the weather was at the worst. This portion of the crop having been cut in comparatively dry weather, was got in very little the worse, except in so far as it had sustained loss in shaking when the weather was so boisterous. The loss from this cause has been very considerable. What was uncut was shaken by the wind, and much has been lost from the portion which was cut, from so much handling in opening down and tying up. Towards the close of October the weather changed favourably, though even then we had little or no winning weather, and we fear a considerable quantity of grain has been stacked in bad condition. When harvest operations are delayed so long as they have this year been, and when the corn has been thoroughly steeped and soaked, we notice that it is next to impossible to get it into even tolerable condition for stacking, although the weather may be ordinarily dry. The wet weather and open autumn have, however, ensured the Turnip crop, which has not been so large for the last two or three years. Turnips are still growing, as we have had no frosts to damage them yet, and if the weather keeps open and favourable they will continue to bulb for several weeks to come. Pastures are remarkably good for the season of the year, and sheep both in the fields and on the hill grazings having all this summer and autumn had abundance of keep, are in capital condition, and such as to please the most anxious and watchful of flockmasters and shepherds. We have had fewer deaths this backend than for many years past, and have as yet entirely escaped grass-ill, which in some seasons is so deadly; although we generally begin to consider ourselves pretty safe from the disease when it has not made its appearance before the beginning of November, yet cases may occur before the hoggs are put on to Turnips; after that, though we have seen an occasional case, we never have had it to a serious extent. So deadly is grass-ill amongst hill hoggs that we are not aware of ever having heard of a single case of recovery when once seized by it. The disease is generally at its height before the shepherd can notice it. Bathing and smearing will be general in the course of a week. A few farmers still adhere to the practice of smearing with a compound of tar and butter or oil; but bathing or dipping is now all but universal in this range of hills. The expense of smearing is at least double that of bathing, whilst dipping is by far the cheapest method. Wool-buyers, and especially those who are also manufacturers, evince a decided partiality for dipped wool, and readily give more for it. By this process the wool is kept much whiter than when a bath consisting of Tobacco and spirit of tar is used. In the latter case a stain is imparted to the wool by the Tobacco and spirit of tar which it is difficult if not impossible entirely to bleach out. On the whole, however, we prefer the bathing system as the one most beneficial in the eradication and prevention of scab, and except smearing tending most to the preservation of a clean and healthy skin. Where half-bred lambs are reared the tups will, on the more protected and sheltered situations, be put to the ewes about the 8th or 10th of this month, but on the higher grounds the tups are not generally put out till the 22d.

Notices to Correspondents.

DRILLS, &c.: *Tyro.* Messrs. Hornsby of Grantham, and Garrett of Saxmundham, and Smythe of Peasenhall, &c., are makers. Howard's harrows, or Saunders and Williams—both of Bedford, are the best.

DRIVING-BELT: *H Mitchell.* Its use is preferable to "toothed gear," because a sudden obstacle to the working of the machine results in the throwing off of the band, not in the breakage of parts, as is sure to be the case with toothed wheels.

EXTRAORDINARY SHEEP: *A Correspondent from Market Weighton* wishes us to notice here that Mr. Thomas Mitchell exhibited there last Wednesday the three years old Cotswold ram "Champion," bred by T. Beale Browne, Esq., Hampen, Gloucestershire, which has taken prizes at all the leading agricultural shows in England, Ireland, and Paris. His estimated weight is about 100 lbs. per quarter.

FERNS: *J B.* We never heard that Fern used as litter tended to "foul" the cattle or "produce lice." We should have no hesitation in using it.

GAS LIME: *Tonbridgiensis.* It has absorbed sulphuretted hydrogen, and to the extent to which this has been done it is liable on exposure to the air to absorb oxygen, and so become gypsum. Its fertilising influence is, we believe, mainly attributable to its influence on finely divided lime—and to its influence on gypsum.

KEEPING PROPERTIES OF MANGEL WURZEL: *S P.* says:—As I have sometimes seen inquiries on this subject it may perhaps interest some of your readers to hear that I last week exhibited at our agricultural show several roots perfectly hard and sound, the growth of last year, and my pigs were fed regularly on Mangel till the end of August. Last year I kept some roots, the growth of the previous year, till the first week in December, when they were accordingly made away with, but were even then quite sound.

LIDLINGTON. *A Sub.* It is a parish in Bedfordshire; we do not know the district, but perhaps some one there may answer your question as to the date of the sale of stock on "Lidlington level."

RAPE: *Inquirer.* We believe that if cut now it will shoot again, but the second growth would probably be of comparatively little value. Your inquiry on this subject may, however, possibly be answered by some more experienced grower.

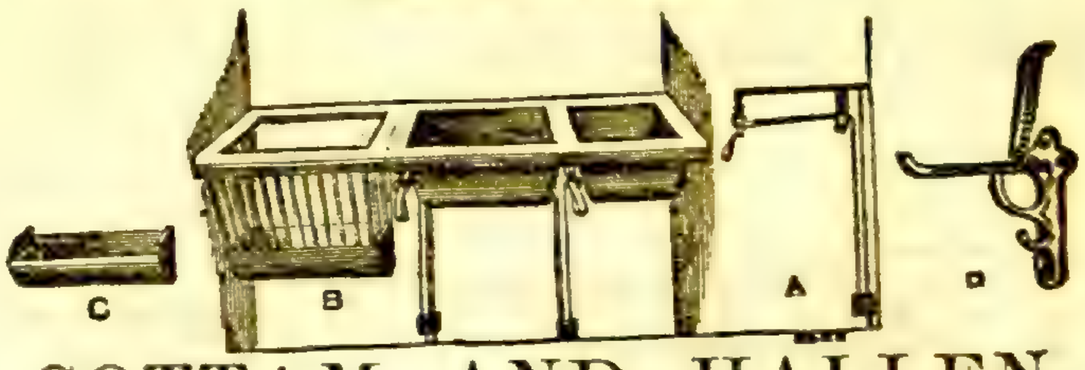
RENNET: *Y Z.* We cannot do better than give you the answer of Mr. Gilbert Murray, of Overstone, to the same question as put to him in the questions proposed at the Agricultural Examination before the Society of Arts.—Milk as it comes from the cow contains a quantity of soda not combined with any acid, by which soda the curd is believed to be held in solution; the rennet when added to the warm milk acts as a yeast in changing its sugar into the acid of milk; the acid produced as in the natural souring of milk combines with the free soda and renders the cheesy matter insoluble, which in consequence separates, in other words, the milk curdles.

TOWN MANURE: *W H, Cheshire.* It is the most variable substance in the world, and guano being worth 12*l.* and superphosphate being worth 7*l.* per ton are no guide whatever to the intrinsic value of town manure. You must ascertain its composition, and calculate according to the known value per ton of the several ingredients.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

B. SAMUELSON,

BRITANNIA IRON WORKS, BANBURY,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. BETWEEN SIXTY AND SEVENTY THOUSAND of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations, and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

MALT MILLS of various sizes.

LINSEED CAKE BREAKERS, from 2*l.* 6*s.* up to 10*l.* each.

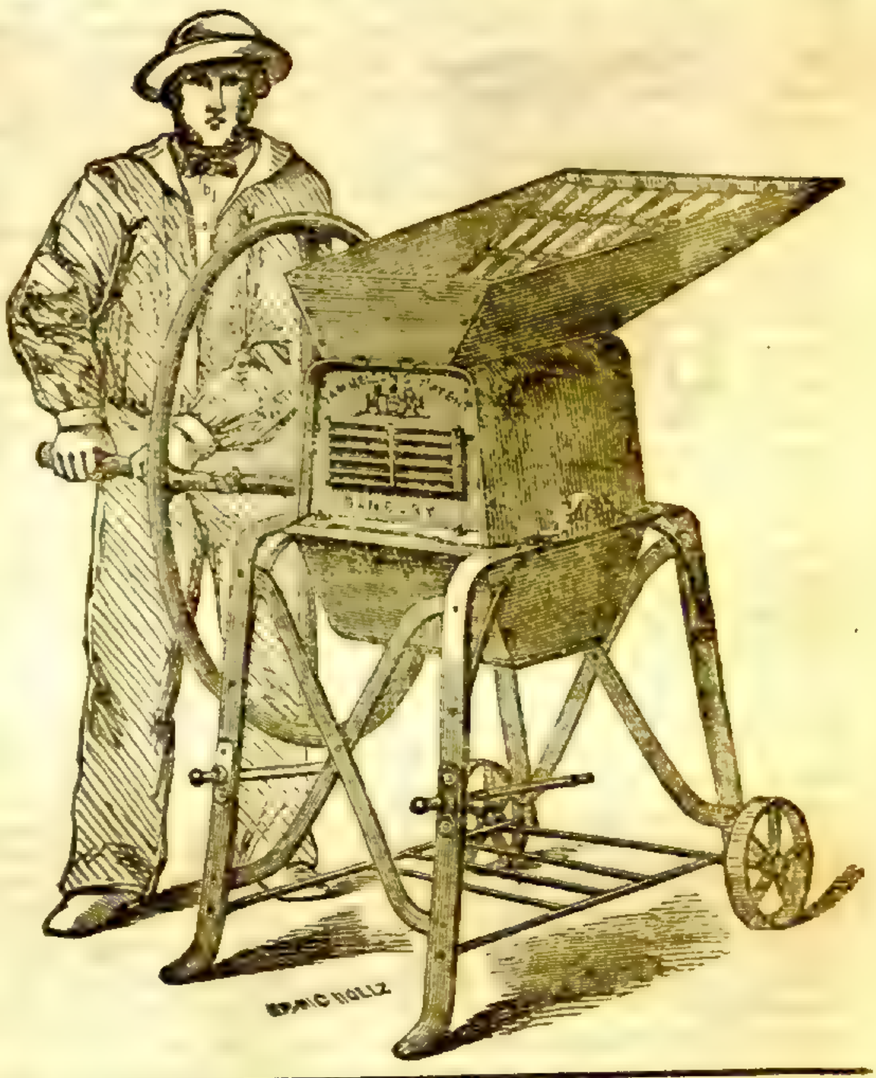
CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

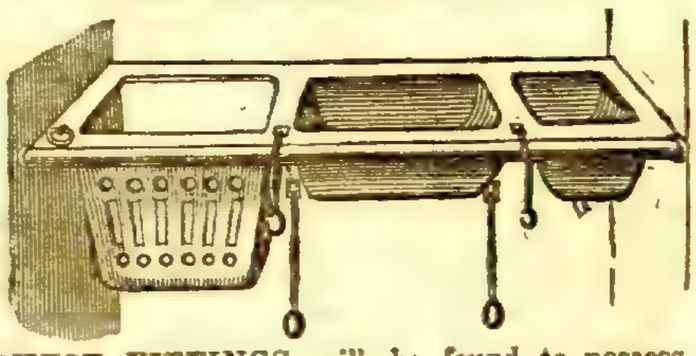
BARLEY HUMMELLERS.

WEIGHING MACHINES, MANGLES, &c. &c. &c.



The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

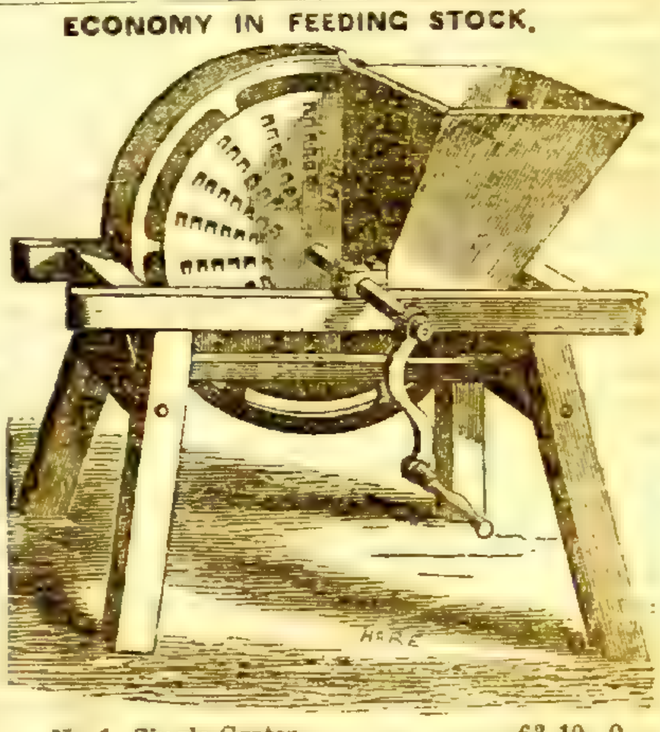
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

ECONOMY IN FEEDING STOCK.



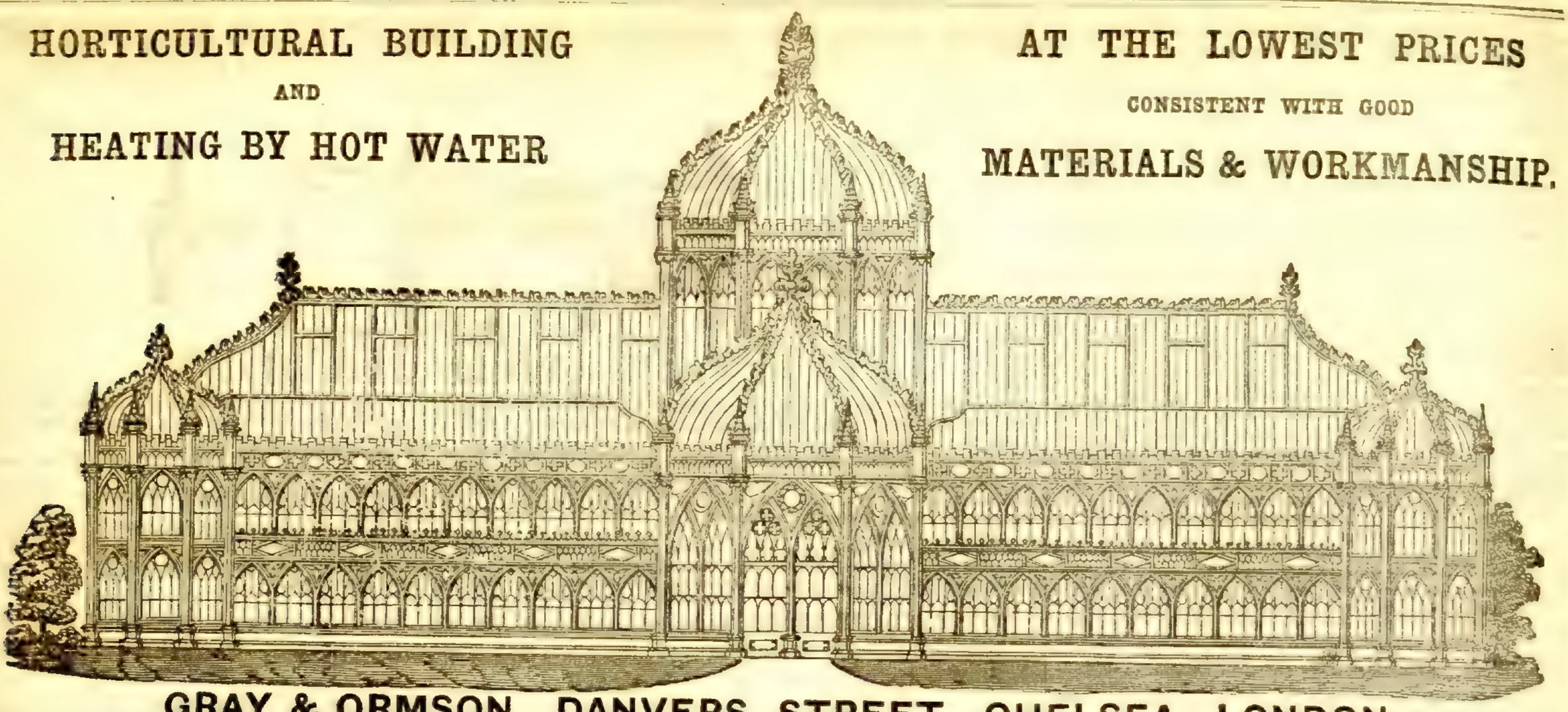
No. 1. Single Grater	£3	10	0
No. 2. Double ditto	5	0	0
No. 3. Ditto ditto, larger size	6	0	0

Extra for Driving Pulley, adapted to Steam Power, 10*s.*

BUSHE AND BARTER'S Patent Root Graters are improved very much this season by A. & T. Fry, (late Fowler & Fry) Temple Gate Implement Factory, Bristol. They are now the cheapest, most simple, and at the same time most effective machines for the purpose of reducing roots of all descriptions into very small gratings or shreds. Testimonials and directions for use may be obtained free from A. & T. Fry, and the machines may either be obtained direct, or from any respectable implement dealer or ironmonger in the country at the above prices. Also, Corne's Patent Chaff Machines, of all sizes, Improved Oat and Bean Mills, Malt Mills, and Gardner's double and single action Turnip Cutters, &c.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

WARNER'S SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)

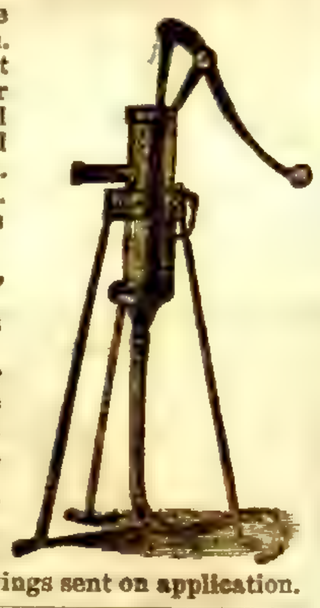
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

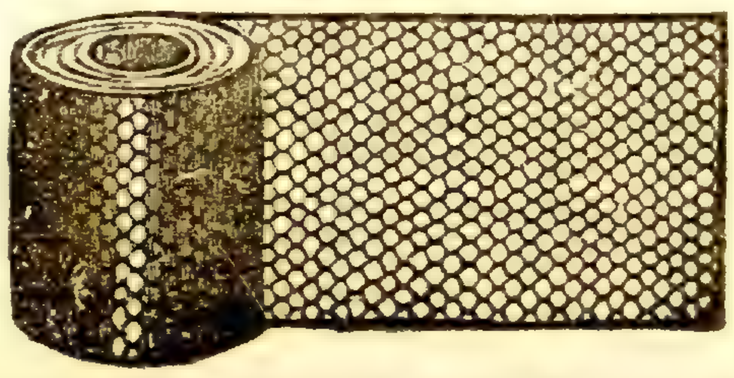
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PRUNING.—The GRECIAN PRUNING SAWS are universally acknowledged to be the best for every description of Pruning. They cut faster and cleaner than any other, and do not bend or break. Price 2*s.* 6*d.*, 3*s.*, and 3*s.* 6*d.* each.—THOMAS HILL, late W. Coleman, Cutler, 4, Haymarket, London.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	... ...	6 „	4½ „
2 inch „ intermediate, do.	... ...	7 „	5½ „
2-inch „ extra strong, do.	... ...	9½ „	7½ „
1⅝-inch „ 24 inches wide	... ...	5½ „	4½ „
1⅝-inch „ strong, do.	... ...	6½ „	5½ „
1⅝-inch „ intermediate, do.	... ...	7½ „	6 „
1⅝-inch „ extra strong, do.	... ...	10 „	8 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

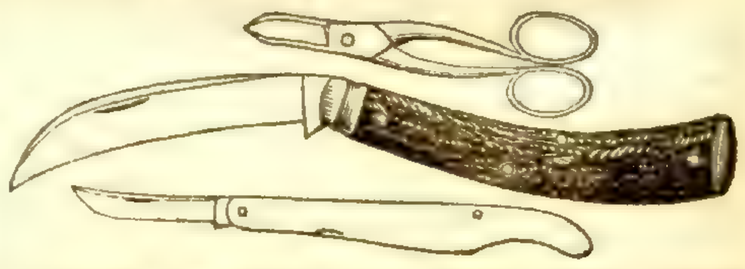
Illustrated Catalogues and Patterns forwarded by post.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

108, Newgate Street, London.

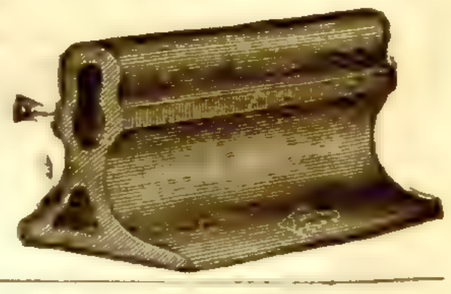
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

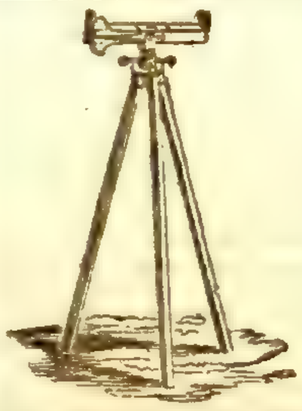
S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools, Established 1738.

HOGG'S GARDEN EDGE TILES: a cheap elegant, and durable substitute for Box Edging. 13*s.* per Hundred, or 4½*d.* per yard.



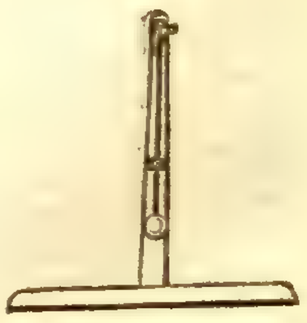
Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

Full particulars from MR. R. BLACKET, Witham, Essex.



WEIR'S SPIRIT DRAINING LEVEL. Price 30*s.*; Case 1*s.*

Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain.

Price 15*s.* Terms cash.

Illustrated Catalogues sent post free.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application.

WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application.

WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS, 15*l.*—Illustrations forwarded on application.

WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s.* 9*d.* each.

HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s.* 3*d.* each.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9*l.* 10*s.*; bright, 14*l.* 5*s.* and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.* Bronzed fenders, with standards, 7*s.* to 5*l.* 12*s.*; steel fenders, 2*l.* 15*s.* to 11*l.*; ditto with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.* Fire-irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.*

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 20*l.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1	4	6
Chintz furniture	0	14	0
Paillasse, wool mattress, bolster, and pillow ...	1	11	0
A pair of cotton sheets, three blankets, and a coloured counterpane	1	5	0
	£4	14	6
A double Bedstead, same	£6	3	0

If without Half-tester and Furniture—

Single bed, complete	£3	13	9
Double bed, complete	£4	15	0

LAMPES à MODERATEUR, from 6*s.* to 7*l.* 7*s.*—WILLIAM S. BURTON has collected from the different makers here and in France a variety that defies competition. As many imported from France are inferior in the works, WILLIAM S. BURTON selects at Paris from the best makers only, and he can guarantee each lamp he sells as perfect in all its parts.

His stock comprises also an extensive assortment of SOLAR, CAMPHINE, PALMER'S, and all other Lamps.

Pure Colza Oil, 4*s.* 8*d.* a gallon.
Patent Camphine, 4*s.* a gallon.
Palmer's Candles, 9*d.* per lb.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

DO YOU WANT LUXURIANT HAIR WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, curly, and glossy. In the growth of the Beard, Whiskers, Eyebrows, and Mustachios, it is unfailing in its stimulative operation. For Children it is especially recommended as forming the basis of a beautiful head of hair. Price 3*s.* 6*d.* and 7*s.*; family bottles (equal to four small), 10*s.* 6*d.*; and double that size, 21*s.*

NEW LABEL.—To prevent the substitution of spurious imitations for the genuine article by unprincipled shopkeepers, a New Label from Steel, by Messrs. Perkins, Bacon, & Co., is now used, upon which are engraved in white letters the words, "Rowlands' Macassar Oil, for the Growth, Restoration, and for Beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS." The whole, with the exception of the profile of Her Majesty the Queen, being covered with a lacework pattern, in transparent colourless ink.—Sold at 20, Hatton Garden, London, and by Chemists and Perfumers.

THE SEASONS. The seasons act upon the human frame in the same way as they change the appearance of the animal and vegetable world. "The winter brings its snow wreaths, and the summer yields its flowers;" and as the material world undergoes a complete transformation according to the time of year, so does the constitution of man in winter. The blood becomes sluggish, the organs are torpid, and men are subjected to colds, rheumatism, and all sorts of chronic disease. At such a time

PARR'S LIFE PILLS

effect wonders, for they stimulate the system and improve the working of all the important functions of the body, and thus help to insure good health from youth to old age.

*** Ask for PARR'S LIFE PILLS.

None are genuine unless the words "Parr's Life Pills" are in white letters on a red ground, on the Government stamp, affixed to each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS & Co., Crane Court, Fleet Street, London," on the direction.—Sold in boxes, price 1*s.* 1½*d.* and 2*s.* 9*d.* each; and in family packets, 11*s.* each, by all respectable Chemists and Medical Vendors in town and country.

NOW READY TO SEND OUT, direct from Yarmouth, during the season, GENUINE YARMOUTH BLOATERS, 100 for 6*s.*; forwarded securely packed to any address upon receipt of Post-office Order, by JAMES AYERS, Fish Curer, Great Yarmouth. The Trade supplied.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. MESURE & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly. An inspection is solicited. Silver Levers, four holes jewelled, from 6*l.* 16*s.*; Gold Levers, four holes jewelled, from 16 guineas.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

TO NERVOUS SUFFERERS.—A Retired Clergyman having been restored to health in a few days, after many years of great nervous suffering, is anxious to make known to others the means of cure; he will send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct, Rev. E. DOUGLAS, 18, Holland Street, Brixton, London.

FOGS, COUGHS, COLDS.—One of DR. LOCOCK'S PULMONIC WAFERS, allowed to dissolve in the mouth, immediately relieves the most violent fit of coughing, and protects weak lungs from all the irritation of Fogs and Frosts. Sold by all Chemists at 1*s.* 1½*d.*, 2*s.* 9*d.*, and 11*s.* per box.

"THE LANCET"
ON DR. DE JONGH'S
LIGHT BROWN COD LIVER OIL.
The most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

"Dr. DE JONGH gives the preference to the Light-Brown Oil over the Pale Oil, which contains scarcely any volatile fatty acid, a smaller quantity of iodine, phosphoric acid, and the elements of bile, and upon which ingredients the efficacy of Cod Liver Oil, no doubt, partly depends. Some of the deficiencies of the Pale Oil are attributable to the method of its preparation, and especially to its filtration through charcoal. IN THE PREFERENCE OF THE LIGHT-BROWN OVER THE PALE OIL WE FULLY CONCUR. We have carefully tested a specimen of Dr. DE JONGH'S Light-Brown Cod Liver Oil. We find it to be genuine, and rich in iodine and the elements of bile."

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.*; Quarts, 9*s.*; capsuled and labelled with Dr. DE JONGH'S Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by ANSAR, HARFORD & CO., sole British Consignees, 77, Strand, London; and by many respectable Chemists and Druggists.

HOLLOWAY'S PILLS A MOST EXCELLENT REMEDY FOR INDIGESTION.—Charles Strong, Bricklayer, of the Parish of Burghfield, near Reading, Berkshire, with great gratitude informs PROFESSOR HOLLOWAY that his Pills have cured him of indigestion, accompanied with all its horrors. After several physicians had been consulted in vain for three years, he was troubled with those terrible symptoms, frequent vomiting and want of rest, until he accidentally heard of HOLLOWAY'S Pills, and persevering steadily with them for a few weeks he was restored to perfect health.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

FRAMPTON'S PILL OF HEALTH.—The manifold advantages to the heads of families from the possession of a medicine of known efficacy, that may be resorted to with confidence, and used with success in cases of temporary sickness, occurring in families more or less every day, are so obvious to all, that no question can be raised of its importance to every housekeeper in the kingdom. For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dulness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and produce a healthy complexion.—Sold by PROUT and HARSANT, 229, Strand, London; and all Vendors of Medicine. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice is now made known as a public duty throughout the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10*s.* 6*d.* by Post-office order, or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

SLEEPING PARTNERSHIP, 12,000*l.*—The Advertiser, already largely engaged in business, desiring to add thereto the manufacture of an article in very extensive demand, and for the sale of which his present connection affords unusual facilities, wishes to meet with a gentleman with this sum at command. If honestly conducted no risk can possibly be incurred, and in proof of the respectability and *bona fides* of the Advertiser, it may be stated that in his present concern upwards of 10,000*l.* of his own capital is already engaged. A gentleman occupying an influential position in the country would be preferred.—Address, in the first instance, Epsilon, Jamaica Coffee House, Cornhill.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orné, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

TO BE LET, in East Yorkshire, a FARM of 170 acres (more or less) of good Wheat and Bean Land with a portion of Grass and Turnip Land, nearly the whole of which is underdrained. The House, which may be entered upon the 6th April next, is within three miles of a first-class station, and four of a good market town, and of easy access to the Hull, Leeds, York, and Wakefield Markets, six hours from London, and eight from Edinburgh. Ample capital and high farming indispensable, as the covenants will be most liberal. The fields are of good size and not injured by game or timber.—Apply to Mr. EDWARD BARKER, Howden, Yorkshire.

TO BE SOLD CHEAP, a neat new GREENHOUSE, 15 feet long by 9 feet wide, consisting of front and two ends, the lights hung all round, with door in the end, the roof a lean-to, 5 lights long and two tier high, the top lights to slide; glazed and painted and ready for fixing.—To be seen on application to Mr. NUTTING, Curle's Cottages, New Road, Hammersmith; or of Mr. DIXON, Greengrocer, near the British Prince, New Road, Shepherd's Bush, Hammersmith.

LOCKSBROOK NURSERY, WESTON, BATH.

TO BE SOLD, by Private Contract, the entire Stock and Lease of the above Nursery, containing Four Acres of rich Garden Land, with Dwelling-house and Shop, pleasantly situated within one mile of the Bath Market. The Stock consists of Greenhouses, Pits, and Sheds, Flowers, Plants, and Fruit Trees, and every convenience for the trade. The above Nursery is held for a Lease of 21 years, 15 years of which are unexpired. Rent 36*l.* per annum, tithe free. This is a very advantageous opportunity to parties requiring an established business.—For particulars apply to Mr. JAMES SHACKELL, Market Gardener, Tiverton, Bath.

Sales by Auction.

STANDARD ROSES, DUTCH BULBS, &c.

MR. HASLAM will Sell as above, at the Mart, every WEDNESDAY and FRIDAY till December 12.

N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to Parcels Delivery Company. Baskets and Matting allowed for when returned.—Epping, Nov 8.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on TUESDAY, Nov. 11, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest double and single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculus, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom, &c.—May be viewed the morning of Sale. Catalogues had at the Auction Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

FULHAM ROAD.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the Premises, Rose Cottage, Queen's Elm, Fulham Road, Brompton, on WEDNESDAY, November 12, at 11 o'Clock, by order of Mr. Shearman, the NURSERY STOCK comprising 600 fine Yews, 3 to 6 feet; Chinese, American, and Siberian Arborvitæ; handsome striped Euonymus, Chinese and common Privet; Savin; a large quantity of common Laurels, Aucubas, Green Box, Lilacs, Ribes, Apples, Pears, and Plums, fine Mulberries, White Jasmines, Privet Hedge, &c. Also an assortment of Pompone Chrysanthemums, 10,000 Pheasant Eye and other Narcissus, &c.; together with a capital light Spring Market Cart, and sundry effects.—May be viewed prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO NOBLEMEN AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING, NURSERYMEN, AND OTHERS.

SECOND SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS is instructed by Messrs. Standish & Noble, who are dissolving Partnership, to Sell by Auction, at the Nurseries, Bagshot, Surrey, on MONDAY, November 17 and four following days, at 11 o'Clock precisely, a most valuable selection of specimens of CONIFERS and other Ornamental Plants, all of which have been well prepared for transplanting. It includes—

	ft.		ft.		ft.		ft.
Abies Nordmanniana	1½	to	4	Libocedrus chiliensis...	1	to	3
" Pinsapo	5	"	7	Pinus Benthamiana ...	2	"	5
" Douglasi	6	"	15	" insignis	2	"	14
" Deodara	6	"	10	" muricata	2	"	8
" nobilis	2	"	5	Taxodium sempervirens	5	"	15
Araucaria imbricata ...	2	"	6	Mount Atlas Cedar ...	6	"	15
Cephalotaxus Fortuni	1	"	3	Hollies (of sorts) ...	5	"	7
Cryptomeria japonica	6	"	12	Irish Yews	5	"	6

Skimmia japonica, Standard, and other choice flowering hardy hybrid Rhododendrons, Standard Sikkim Rhododendrons, named Montan Pæonies, &c.

12,000 Standard and dwarf Roses,
comprising the most choice new and select sorts in the Trade.
1000 Pyramid Pear, and other Fruit trees.

May be viewed one week before the Sale, when Catalogues 1*s.* each, returnable to purchasers, may be had at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden. Approved bills at 3 months' date will be taken of purchasers from 50*l.* to 100*l.*, and at 6 months' date of purchasers above 100*l.*

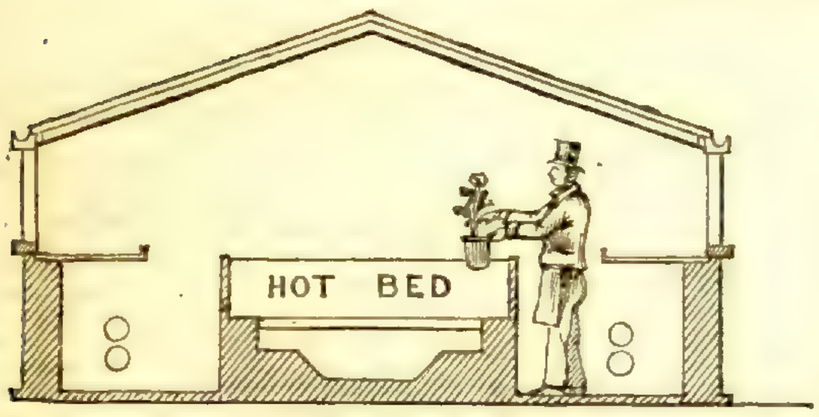
The Bagshot Nursery is about two miles from the Sunningdale station on the South-Western Railway, where a van will meet the 8 o'clock A.M. train from Waterloo to convey persons to the Sale. The stations of Farnborough, Woking, and Blackwater (S. E. R.), are also within an easy distance.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

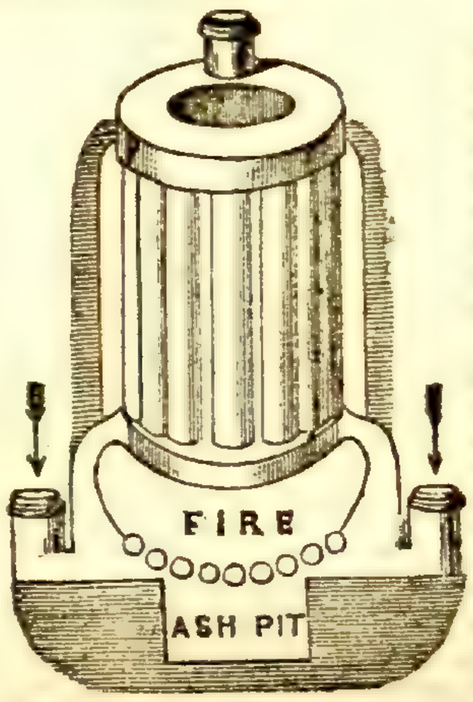
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A arge stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

SECONDHAND HOT-WATER BOILERS.

TO BE SOLD very cheap, a large stock and a great variety of all shapes and sizes, consisting of the SADDLE, the CONICAL, the RIBBED, the BELL, the FLUE Shapes, and others. JOHN WEEKS & Co. having taken out a great number of boilers from various places where they have fixed them on their ONE-BOILER SYSTEM, they have now for sale a large stock of Secondhand Boilers very cheap.
JOHN WEEKS & Co., Horticultural Works, King's Road, Chelsea.

HOT-WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators; Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. TAYLER, Battersea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'s PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety. Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370,** Oxford Street, nearly opposite Princess's Theatre.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, Westminster.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr. James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

HARTLEY'S PATENT ROUGH PLATE GLASS, (1-8th thick, or 2 lbs. to the foot; 3-16ths, or 3 lbs; and 1-4th, or 4 lbs. to the foot), for Ridge and Furrow Roofs, Greenhouses, Railway Stations, Engine Sheds, Mills, Market Halls, and Public Buildings generally.

In Squares Cut to Sizes Ordered.							⅛ s.	⅛ d.	3/16 s.	3/16 d.	¼ s.	¼ d.
14 by 10, 1½ ft. sup. if not above 20 in. long							0	6½	0	8	0	9½
1½ ft. sup., 3 or *if* above 20 & not above 30 in.							0	7	0	8½	0	10
3	"	4	"	20	"	30 in.	0	7½	0	9	0	10½
4	"	5	"	30	"	35 in.	0	8	0	9½	0	11
5	"	6	"	35	"	40 in.	0	8½	0	10	0	11½
6	"	8	"	40	"	45 in.	0	9	0	10½	1	0
8	"	10	"	45	"	55 in.	0	9	0	10½	1	0
10	"	12	"	55	"	65 in.	0	9	0	10½	1	0
12	"	15	"	65	"	75 in.	0	10	0	11	1	0
15	"	20	"	75	"	90 in.	0	11	1	0	1	2
20	"	25	"	90	"	100 in.	1	1	1	2	1	3

Packed in boxes of 50 feet each.

6 by 4, and 6½ by 4½ ... 10*s.* 6*d.* | 8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*
7 by 5, and 7½ by 5¼ ... 12 0 | 9 by 7, and 10 by 8 ... 15 0

Estimates forwarded on application.

London Agents: JAMES PHILLIPS & Co., 116, Bishopsgate Street Without.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

GREAVES & KERSHAW, Warwick.—Nov. 8.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

SEED WHEAT FROM THE CHALK.

MR. H. RAYNBIRD, Basingstoke, can supply CHIDHAM, BROWICK RED, TALAVERA, GOLDEN DROP, RED LAMMAS, NURSERY, and other approved kinds of WHEAT at market prices. A reference or remittance required from unknown correspondents.

WHEAT FOR SEED.

WILLIAM MAULE AND SONS have to offer, of their own growing and well-harvested, RAYNBIRD'S HYBRID, for which a Prize Medal was awarded at the Great Exhibition, 1851, and Gold Medal, Highland Society, Scotland. For reference, numerous testimonials from the leading agriculturists can be furnished. Price, 10*s.* per bushel.
Nurseries, Bristol.

SEEDS TO BE DEPENDED ON.

GLENNY'S IMPROVED BALSAM SEED, not even approached by any other. Six classes, 37 stamps; mixed, 13. Stock, Aster, Geranium, Phlox, Delphinium, Dahlia, Hollyhock, and other florists' flower seed saved with equal care. Glenny's Companion to the Garden Almanac on the 20th. Price 1*s.* with Portrait.—Dungannon House, Fulham.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

TALL'S PATENT TELESCOPIC BLIND ROLLER—This great desideratum so long required, and the want of which has so frequently formed an obstacle in house-letting, is now met by the PATENT ROLLER and FIXINGS, which may be changed to any window. The ease and rapidity with which it is fixed and unfixed, its impossibility to warp, durability, and extremely low price, make it one of the most important and useful inventions yet offered to the public. The Blind, &c., can be removed and changed in one minute, by the most inexperienced person, with an accuracy never before attained. It is affirmed by practical men that in a short time the present wooden roller will cease to be used, which the demand already guarantees.—May be had, Retail, of upwards of 300 of the leading Upholsterers and Ironmongers; Wholesale, of the Patentee, 1, Webber Street, Blackfriars Road; Messrs. DEANE, DRAY, & Co., London Bridge; and of Messrs. HENRIC, HAMPSON, & Co., 64, Strand.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.
Established AD. 1700.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.
A General Catalogue for March 1856 may be had on application.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.
The same prices charged at all the Establishments.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 21*s.* List of Prices and Sizes sent free by Post.—196, Tottenham Court Road.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD'S Eurekas are the acme of perfection." *Court Journal.* In half dozen boxes, ready for use, or made to order. Best quality, 42*s.*; second quality, 33*s.*
CAUTION.—FORD'S Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free.
RICHARD FORD, 38, Poultry, London.

BERDOE'S UNIVERSAL CAPES, OVER COATS, AND SHOOTING JACKETS.—First-class Garments, thoroughly waterproof, yet perfectly ventilating. Their established character and extensive sale is their best recommendation. A large stock for selection also of LADIES' CAPES, &c.
96, New Bond Street, and 69, Cornhill.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, November 8, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 46.—1856.] SATURDAY, NOVEMBER 15. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next General Meeting will be held at the Society's house in Regent Street on TUESDAY, November 25, on which occasion there will be a Special EXHIBITION OF FRUIT. Visitors can only be admitted by the order of a Fellow or Candidate. The rooms will be open to Visitors at 1 P.M. The Chair will be taken at 2 P.M.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The Tenth Annual Exhibition of this Society will be held at the Manor Rooms, Church Street, Stoke Newington, on WEDNESDAY, November 19. Doors open at 12 o'clock. Admission from 12 to 4, 1*s*.: after 4 o'clock, 6*d*.

SCOTTISH GARDENERS' & LAND-STEWARDS' ASSOCIATION.—Election of Pensioner.—Notice is hereby given that the Annual General Meeting of the Members of the Society will take place on WEDNESDAY Evening, November 19, in the Committee Room, 6, York Place, Edinburgh, for the ELECTION of ONE PENSIONER on the Funds of the Association, and on other business. The Chair will be taken at 7 o'clock, and the Ballot will close at 8 o'clock precisely.
By Order of the Board. J. H. Balfour, Chairman.

COTTAGERS' GARDEN SHOWS.—The Advertiser, who wishes to establish Shows of Cottagers' Garden Produce in his neighbourhood, would be obliged by receiving a copy of any rules for managing such shows, with a list of the prizes awarded. Thanks and the postage will be returned.—Address post paid to H. C., Shere, Guildford.

FLORICULTURE.—In consequence of Mr. John Edwards having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

A. D. ALLASON, Nurseryman and Seedsman, Bishop Auckland, begs to inform the Nobility and Public that he has purchased the entire Stock of Successional PINE PLANTS, at the sale of Bishop Maltby. Immediate attention is solicited at low prices.—Nov. 15.

CHARLES NOBLE having retired from the business lately carried on by the Firm of Standish & Noble, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.
Charles Noble also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed Charles Noble, Nurseryman, Bagshot, Surrey.

GRAPE VINES IN POTS FOR SALE.
JOSEPH EATON, Shacklewell Road, Stoke Newington, has a very fine stock of GRAPE VINES struck from eyes for Planting or Forcing in Pots, from 4 to 8 feet long.
Shacklewell Road, Stoke Newington

GRAPE VINES IN POTS.
JOHN WEEKS and Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

THOMAS BELL, Seedsman, Wigan, Lancashire, begs to offer the TRUE LANCASHIRE FLUKE POTATO at 4*s*. per bushel of 80 lbs., or 5*l*. 5*s*. per ton; Red Downs, 4*s*. per bushel.

AMERICAN PLANTS.
JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.
The American Nursery, Bagshot, Surrey.

ROSES.
A. PAUL and SON respectfully announce that their NEW CATALOGUE is now ready for circulation, and will be forwarded free by post in answer to written application.
The Stock never was in finer condition; the Standards are robust, clean, and healthy; and the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.
Nurseries, Cheshunt, Herts.

ROSES, ROSES.
GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure to acquaint his friends, patrons, and the public, that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced List will be forwarded free on application.—Nov. 15.

JUST HARVESTED.
SUTTON and SONS, Seed Growers, Reading, *have now harvested some fine Seed of* TRUE EARLY SHORT-HORN CARROT, MUSTARD, CRESS, LETTUCE, EARLY PEAS, *and other Seeds for early sowing.*
Royal Berkshire Seed Establishment, Nov. 15.

SECOND IMPORTATION
FRESH IMPORTED BULBS *bloom much finer than those which have been long exposed to the air before planting.*
Sutton & Sons, Reading, Berks, can supply fine BULBS, just imported, at low prices.

THE BEST CUCUMBERS YET OUT.
SUTTON'S BERKSHIRE CHAMPION, per packet, 1*s*. 6*d*.
BIRD'S IMPROVED SION HOUSE, per packet, 1*s*. 6*d*.
Sutton & Sons, Seed Growers, Reading, can strongly recommend the above; they will be forwarded post free on receipt of 18 postage stamps for each sort.

NEW CATALOGUES FOR 1856-57.
WILLIAM WOOD and SON are now prepared to send free and post-paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SEED CATALOGUE FOR TRADESMEN.
LOUIS VAN HOUTTE'S SEED CATALOGUE for TRADESMEN is to be had at Mr. R. Silberrad's Office, 5, Harp Lane, Great Tower Street, London.

AMERICAN PLANTS.
WATERER and GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

ROSES.—The DESCRIPTIVE CATALOGUE of ROSES by Mr. Rivers for the present Season is now ready for delivery, and will be sent free on application. It is so arranged as to be a true guide for the Amateur in selecting Roses.—Nurseries, Sawbridgeworth, Herts.

FRUIT TREES.
MR. RIVERS has now ready his DESCRIPTIVE CATALOGUE of FRUITS, consisting of 32 pages. It is compiled with great care, and contains much original and useful matter. Sent free for six postage stamps.
Nurseries, Sawbridgeworth, Herts.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.
Royal Nursery, Slough.

DUTCH AND CAPE BULBS.
JAMES CARTER and CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to all parts of the world, upon application. The Bulbs are *as usual of first-rate quality.*
James Carter & Co., Seedsmen, &c., 238, High Holborn, London.

DUTCH FLOWER ROOTS.—The following for 10*s*.:—12 choice HYACINTHS, 12 NARCISSUS, 12 EARLY TULIPS, 12 JONQUILS, 12 beautiful IRIS, 12 splendid ANEMONES, 100 DUTCH CROCUS all colours, 12 GLADIOLUS, 25 SNOWDROPS, 25 RANUNCULUS.—Wm. Denyer, Florist, 82, Gracechurch Street, London. No charge for packages.

CHRISTMAS SHOW OF CHOICE FRUITS, &c.
"TAYLOR'S GRAND STAND,"
St. JOHN'S MARKET, LIVERPOOL.
Choice Fruit and Vegetables will command high prices during the Christmas week.
Growers forward as above.
Terms—Cash.

CHRYSANTHEMUMS.—A quantity of fine Plants, just bursting into bloom, and well covered with healthy foliage to the base, of all the leading varieties both of Pompone and large flowered may be had at from 6*s*. to 9*s*. per dozen on application to Wood & Ingram, Huntingdon.

NEW CHRYSANTHEMUMS OF 1856.
JOHN SALTER'S unrivalled Collection of CHRYSANTHEMUMS is now in bloom in his Winter Garden, among which may be seen the new varieties of 1856, and many splendid seedlings (both large flowering and Pompones) to be sent out in 1857.—Versailles Nursery, William Street, near Hammersmith Turnpike.

GERANIUMS, ETC.
WILLIAM CUTBUSH and SON beg to intimate that their CATALOGUE of SHOW, FANCY, AND FRENCH GERANIUMS, CINERARIAS, &c., is now ready, and can be had gratis on application.
William Cutbush & Son *wish to draw particular attention to their stock of the above, which is of first-rate quality, and will give every satisfaction.*
Highgate Nurseries, near London.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. Waite, Seed Merchant, 181, High Holborn, London.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6*s*. per dozen.—John Holland, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

CHOICE FRUIT TREES and STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. BARRATT, Landscape Gardener, Wakefield.
"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.
A fine stock of Pyramid and Orchard-house Trees.

WANTED IMMEDIATELY, CHOICE FRUITS OF EVERY DESCRIPTION.
Forward to GEORGE TAYLOR, Jun.,
Fruit and Vegetable Salesman,
St. John's Market, Liverpool.
A Priced Circular post free on application.
Terms—"Cash."

TO WILLOW GROWERS.
WANTED TO PURCHASE, about 500 Bolts of WILLOW THREEPENNY, and 200 FISH TWIG.—Apply by letter, T. H. J., *Gardeners' Chronicle* Office.

WANTED TO PURCHASE, 2000 strong ASPARAGUS for Forcing.—Apply, stating price, to Robert F. Darley, Nurseryman, Cirencester.

CACTI.
TO BE DISPOSED OF, between 70 and 80 specimens of CACTI, some fine and rare. Price 30*l*.—Apply to Y. Y., Post Office, Southampton.

TO THE SEED TRADE.—A few quarters of SCIMETAR and BEDMAN'S BLUE IMPERIAL PEAS, warranted Stocks. Price on application.
Wood & Ingram, Huntingdon.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.
Wood & Ingram, Huntingdon.

DWARF BOX FOR SALE.—Two Thousand yards of the best Dwarf Box for edgings. One yard of the above will plant three yards when divided.—For price, &c., apply to Wm. Heale, Nurseryman, Calne, Wilts.

TO BE SOLD, at Mr. Fred. Perkins, St. Edmunds' End, Northampton, 400,000 of good TWO and THREE-YEAR OLD QUICK, at a moderate price.

TO THE TRADE, &c.
TO BE SOLD CHEAP, for Cash, 1,000,000 one and two year THORN QUICKS: 1,000,000 one year LARCH; 500,000 one year ALDER; 100,000 one year BIRCH. Prices on application (delivered free to Belfast) to John Brown, Rose Cottage, Hillsboro', County Down.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

FINE FRUITING TREES OF PEARS ON QUINCE ROOTS.
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire, begs to offer the above in all the newest and best sorts, at 1*s*. 6*d*. each, or 15*s*. per dozen, a descriptive catalogue of which can be had on application.
Also May's Victoria (large Red Currant) at 12*s*. per 100, and Black Bang-up, the largest and best at 10*s*. per 100.
Catalogues of Plants, Fruit and Forest Trees on application.

FOREST, FRUIT, and ORNAMENTAL TREES.—The Subscribers beg to intimate that they have this season an unusually large and superior stock of the above Trees, which they are prepared to sell on the most reasonable terms.—Thomas Kennedy & Co., Nurserymen and Seedsmen, Dumfries, N.B.

FOREST TREES.—The Subscribers solicit the attention of parties intending Planting to their complete and well-grown stock of the above, Catalogues of which, as also of Ornamental Trees and Shrubs, may be had free on application. Prices moderate.
David Reid & Son, Nurserymen and Seedsmen, Edinburgh.

TREES FOR AVENUES, ETC.
E. P. FRANCIS has several hundreds of fine tall straight English OAK, English and Huntingdon ELM, and Spanish CHESNUT, from 9 and 10 to 12 feet, rising with capital roots off deep loamy soil. Prices upon application.
E. P. F.'s new DESCRIPTIVE CATALOGUE of ROSES is now ready, and will be forwarded, gratis, upon application.
Rose Nurseries, Hertford.

SEED WHEAT FROM THE CHALK.
MR. H. RAYNBIRD, Basingstoke, can supply CHIDHAM, BROWICK RED, TALAVERA, GOLDEN DROP, RED LAMMAS, NURSERY, and other approved kinds of WHEAT at market prices. A reference or remittance required from unknown correspondents.

NEW EARLY WINTER TARE, recommended by practical agriculturists for producing an abundant crop full 10 days earlier than any other variety yet introduced. Orders received for a limited quantity at 15*s*. per bushel.
Fine Winter Tares ... ... 6*s*. 6*d*. per bushel.
Early Racer Tare ... ... 7 6 "
Address—Mr. H. Raynbird, Basingstoke.

RED BEET SEED.
EDWARD SANG and SONS, Nurserymen and SEEDSMEN, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full grown roots. The sort is very superior, producing well-shaped medium-sized bulbs of remarkably fine quality and colour. Price on application.—Kirkcaldy, Nov. 15.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

GRAPE VINES FROM EYES.

R. GLENDINNING respectfully begs to offer an extensive collection of all the principal kinds of GRAPE VINES in Pots, extra strong, either for forcing in pots or planting out.

PEACHES and NECTARINES, established in pots, two and three years old, full of blossom buds, and will doubtless produce fine crops the next season. Also strong FIGS in pots. A large and extensive assortment of trained Peaches, Nectarines, Apricots, Plums, Cherries, Pears, and Apples, in fine health.

R. G. would particularly direct attention to his very large collection of Pears for Pyramidal Training. They are from 5 to 7 ft. high, and grown especially for the purpose, with abundance of short shoots. The Horticultural Society's nomenclature has been adopted with all the Fruit Trees; they may, therefore, be relied upon as correct. Catalogues of the above and other Nursery stock may be had on application.

Chiswick Nursery, London.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a very large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
" Douglasi, 1½ to 3 ft.
" Menziesi, 1 to 3 ft.
" Morinda, 3 to 10 ft., very fine
" rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 3 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft.
(The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
" Lambertiana, 1½ to 3 ft.
" torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
" " Standards, 8 ft.
Laurustinus. 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
" Benthamiana, 1½ ft.
" Cembra, 1 to 5 ft.
" excelsa, 4 to 8 ft., very fine
" insignis, 1 to 6 ft.
" Lambertiana, 1 to 6 ft.
" Llaveana, 1 to 2 ft.
" monticolor, 1 to 2 ft.
" muricata, 1½ ft.
" Pallasiana, 2 to 2½ ft.
" Strobus nivea, 1 to 3 ft. (the Snow Pine).
Picea nobilis, 1 to 2 ft.
" Nordmanniana, 1 ft.
" Pinsapo, 1 to 4 ft.
" Silver and Scotch Fir, 3 to 8 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
" glauca, 6 to 9 in.
" intermedia, 1 to 1½ ft.
" japonica, 1 to 1½ ft.
" gigantea, 1 ft.
" minima, 6 to 9 in.
" Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
" Canadensis, 1 to 2 ft.
" Cheshuntensis, 3 to 5 ft.
" Dovastoni, 1 to 2 ft.
" elegantissima, 1 to 2 ft.
" gold striped, 1 to 4 ft.
" Irish, 1 to 5 ft.
" stricta, 1 to 4 ft.
" common, 1 to 5 ft.
" " Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best variety, 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
" " Weeping, 8 ft. stems
Planes, 8 ft.
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems.
Scarlet Horse Chesnut, 6 to 10 ft., very fine
" Maple, 8 ft.
" Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
" " variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
" Beech
" Elms, 8 to 10 ft. stems
" Mountain Ash
" Privet
" Willow
" American Willow, 8 ft. stems
" Kilmarnock " 6 ft. stems
" Roses, 8 ft. stems

Atragene, white and blue
Bignonia radicans major
" flava speciosa
Clematis azurea grandiflora
" double blue
" Florida, double and single
" Hendersoni
" Sieboldti
Honeysuckle Evergreen
" Scarlet Trumpet
" flexuosa
" Magnevillea, one of the finest
Ivy, Irish, strong
" palmated
" gold blotched
" silver
" Ragneriana

Christmas Roses
Delphinium Barlowi
Dielytra spectabile
Gentiana acaulis
Hepaticas, of sorts
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks (see Descriptive Catalogue)
Roses (see Descriptive Catalogue
Azalea indica
Camellias
Epacris
Ericas
} A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.—Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT LIST of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written applications.

Nurseries, Cheshunt, Herts.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to execute orders for the annexed:—

CINERARIA PICCOLOMINI, a distinct and pleasing variety, pure white, with blue edge, shaded with lavender, lavender disc, very distinct. 7*s* 6*d*.

CINERARIA WONDER, a strikingly handsome variety, colour gentian blue, extending half-way down the petals, disc and centre pure white; a great improvement on "C. Fascination." 7*s*. 6*d*.

GESNERIA ZEBRINA SPLENDIDISSIMA.—The foliage of this plant is exceedingly handsome, being beautifully marked with velvety crimson; flowers rich orange and scarlet; a great acquisition to our ornamental plants. 10*s*. 6*d*.

TYDÆA ARGYRONENSE, a very distinct winter blooming plant, possessing the double advantage of handsome variegated foliage and beautiful flowers; the blossoms are tubular in form, the upper of which and top lips are scarlet, under side of the tube yellow, lower lips yellow spotted with scarlet. 10*s*. 6*d*.

The Nurseries, Tooting, London.

SEEDS TO BE DEPENDED ON.

GLENNY'S IMPROVED BALSAM SEED, not even approached by any other. Six classes, 37 stamps; mixed, 13. Stock, Aster, Geranium, Phlox, Delphinium, Dahlia, Hollyhock, and other florists' flower seed saved with equal care. Glenny's Companion to the Garden Almanac on the 20th. Price 1*s*. with Portrait.—Dungannon House, Fulham.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY, of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had gratis on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

GARDEN KNIVES.

SAYNOR AND COOKE'S KNIVES *may be procured from* Messrs. SUTTON & SONS, Seed Growers, Reading, *who have for many years been supplied direct from* Messrs. SAYNOR'S *Manufactory, and none others are kept on* Messrs. SUTTON'S *Premises.*

IRON FENCE, HURDLES, ETC.

J. R. PEILL, 17, New Park Street, Southwark (late STEPHENSON & PEILL), solicits an inspection of his patterns of WROUGHT-IRON FENCE, which he is now prepared to supply upon very advantageous terms to purchasers. Every description of Ornamental Castings and Metal Works. Prices, &c., at the Manufactory as above.

HURDLES for SHEEP, 6 feet long, 3 feet out of ground, 5 bars ... ... 4*s*. 9*d*. each.
HURDLES for CATTLE, 6 feet long, 3 feet 3 inches out of ground, 5 bars ... ... 5*s*. 3*d*. each.

CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.

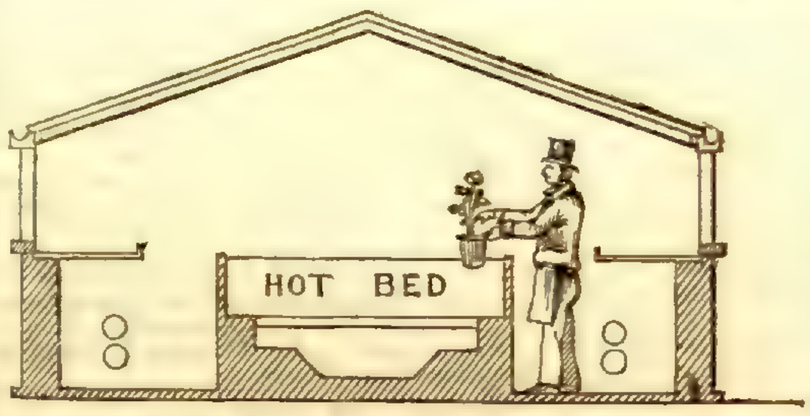
GREAVES & KENSHAW, Warwick.—Nov. 15.

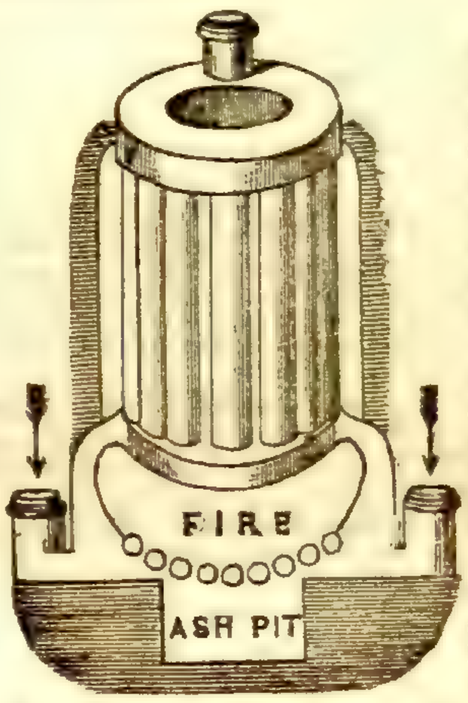
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

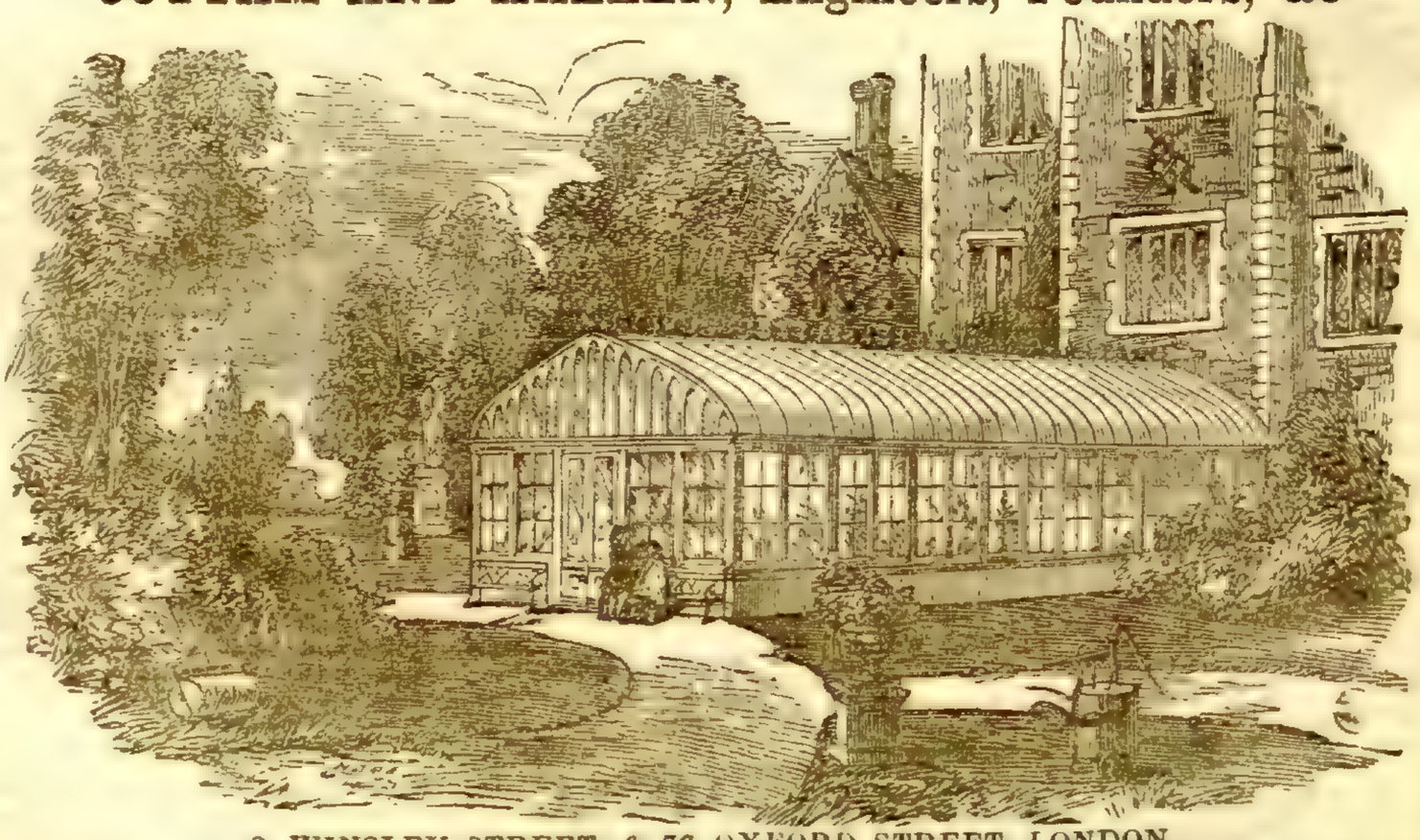
Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN, Engineers, Founders, &c



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

MESSRS. E. G. HENDERSON & SONS' SPRING CATALOGUE (Post free on application) contains full descriptions of the following New Plants:—

Echites Houtteana, finer than crassinoda
Begonia picta, a beautiful foliaged plant
" cinnabarina hybrida, cinnamon red, shrubby habit. It is an excellent winter blooming plant.
Dianthus albo nigricans, large double variety, black edged and interlaced with white; hardy
Camellia Jenny Lind, beautiful form
Azalea the Bride, pure white, very free flowering
" Louis Napoleon, double rich crimson velvet.

The Autumn Bulb Catalogue will be forwarded free on application, containing descriptions of Cinerarias and Geraniums now being sent out for the first time. Also the new and delicious Strawberry "Adair."

A Plate of Five New Show Geraniums is published, and will be forwarded on receipt of 12 postage stamps.

Wellington Nursery, St. John's Wood.

IMMEDIATE EFFECT IN PLANTING.

J. W. EWING begs to announce to the Public that he is at this time able to supply an extensive and varied assortment of Large Ornamental FOREST and FRUIT TREES, the former adapted for producing immediate effect in Parks, Lawns, Pleasure Grounds or Avenues, and the latter for furnishing an immediate crop of fruit.

The above have been frequently transplanted, thereby rendering them comparatively safe for removal, and have each time been selected for symmetry. Also a full collection of general Nursery Stock in the most healthy condition. Catalogues furnished upon application.—EatonNurseries, Norwich.—Nov. 15.

A LARGE QUANTITY OF RHUBARB ROOTS, best sorts, such as Prince of Wales, Victoria, Giant, Albert, &c.; also Seakale and Asparagus, strong plants, many thousands, to be sold very reasonable for cash; likewise a surplus stock of Pheasant-eyed Narcissus, and Double Yellow Daffodils, very cheap.—Apply to CHARLES CLARKE, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

SEED WHEAT FROM BLACK LAND.

WILLIAM BARNES, of the Elms Farm, Spalding, Lincolnshire, begs respectfully to inform his Friends and the Farmers generally that he has of his own growing a genuine stock of OLD LAMMAS or BURWELL RED WHEAT, which is very suitable for late sowing, and immediately available on application.

W. B. has sold Seed in all the principal Counties in England and elsewhere, the unrivalled cleanliness and purity of which has gained for him the confidence of all his customers, to whom references can be given if required.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

CATALOGUES.

H. LANE AND SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—
ROSE CATALOGUE.
FRUIT CATALOGUE, containing those grown in pots.
TREE AND SHRUB CATALOGUE.
AZALEA, HOLLYHOCKS, &c., CATALOGUE.
The Nurseries, Great Berkhampstead, Herts.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5s.	0d.
Do. 12 do. do.	2	6
Do. good mixed	1	0
Border varieties, good mixed, ground roots, per 100 ...	20	0
Do. do. in colours do. do. ...	30	0

SPECIMEN CEDRUS DEODARA.

WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet	15s. 0d.	each.
Do. do. 5 to 6 feet	7 6	"
Do. in large pots, 4 to 5 feet	7 6	"
Do. do. 3 to 4 feet	5 0	"

A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.
Stapleton Road Nurseries, Bristol.

"TAYLOR'S GRAND STAND,"
ST. JOHN'S MARKET, LIVERPOOL.
PRESENT PRICES.

Good PINES, from 2 lbs. to 4 lbs. each, 5s. per lb.
" MUSCAT GRAPES, 5s. per lb.
" HAMBURGH do., well coloured, 3s. per lb.
" CHOICE DESSERT PEARS, 15s. to 30s. per 100.
" CUCUMBERS, 4s., 5s., and 6s. per dozen.
" MUSHROOMS (BUTTONS), 1s. 6d. per lb.
CHOICE FLOWERS, &c.
Growers to forward as above.
Terms—CASH.

DWARF VINES FOR FRUITING IN POTS.—The following varieties cultivated as Dwarf Bushes are full of Fruit Buds, and will bear a good crop next season; they are sold at 3s. 6d. each:—

Chasselas Musqué.	Purple Constantia.
Chasselas Rose.	Prolific Sweetwater.
Black Hamburgh.	White Rosmain.
Grove End Sweetwater.	Early Malingre (very early).
Royal Muscadine.	Esperione.
Muscat of Alexandria.	Purple Fontainbleau.

T. RIVERS, The Nurseries, Sawbridgeworth.

NEW MELON, CRANMER HALL HYBRID.—This very excellent and distinct variety was raised in the gardens of Sir Willoughby Jones, Bart., at Cranmer Hall, Norfolk. It is supposed to be a hybrid between the "Beechwood" and Scarlet-fleshed China. It is large, a good bearer, an excellent keeper and above all is of a most exquisite flavour.

For more full description see remarks of the Editor in the *Gardeners' Chronicle* of Oct. 4; the paragraph ends as follows:—"Flesh a beautiful deep orange, about an inch in thickness, tender, and delicious; altogether quite a first-class variety."

Packets containing 10 Seeds will be furnished, post free, on receipt of 30 postage stamps, by J. W. EWING, Nurseryman, Seedsman, &c., Norwich.

The trade will be furnished with price per 100 upon application.

ROBERT PARKER begs to inform his friends and patrons that his PRICED AND DESCRIPTIVE CATALOGUE OF GERANIUMS, CINERARIAS, &c., is now ready, and will be forwarded, post free, upon application.

He also begs to direct attention to the following, of which he possesses a large stock in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each	21	0
Azalea indica, of sorts, from, per doz.	18	0
Camellias, of sorts, from, per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each ... 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises, of sorts, from, per doz.	18	0
Ericas, of sorts, from, per doz.	12	0
Ferns, hardy, from, per doz.	9	0
" stove and greenhouse, from, per doz.	18	0
Gynerium argenteum (Pampas Grass), per doz.	18	0
Orchids, Exotic, from, per doz.	42	0
Selaginellas, of sorts, from, per doz.	18	0

A remittance or reference to accompany all orders from unknown correspondents.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

JOHN CATTELL has a large Stock of the following to offer to the Trade, Catalogues of which and other articles may be had on application:—

Delphinium Hendersoni	Passiflora cærulea, very strong
" magnificum	Wellingtonia gigantea, very fine
" grandiflorum maximum	Thujopsis borealis
" Barlowi	Ghent and other hardy Azaleas
" hybridum flore pleno	Azalea indica Empress Eugenie
" Wheeleri	" Eulalie Van Geert
Gentiana acaulis	" magnificens
Wahlenbergia grandiflora	" Admiration
Scilla siberica	" Criterion, &c.
Lilium speciosum album	Leschenaultia biloba splendens (Hunt's fine variety)
" punctatum	Lophospermum purpureum, a fine deep-coloured variety.
" atrorubrum, and other vars.	
Phlox Countess of Home, and other fine varieties	
Late and Early Dutch Honeysuckle	

Nurseries, Westerham, Kent, Nov. 15.

JOHN CATTELL begs to call the attention of parties about to plant to his very superior stock of FOREST and ORNAMENTAL TREES, SHRUBS, &c., among which the following will be found remarkably fine:—

Abies Douglasi, 1 to 9 feet	Picea nobilis, fine plants, 1 to 1½ feet, with leaders
" Menziesi, 2 to 7 feet	Larix Griffithiana, 1 to 3 feet; this is very hardy
" Morinda, 4 to 10 feet	Araucaria imbricata, 1 to 4 ft.; very fine
Cedar of Lebanon, 3 to 10 feet	Wellingtonia gigantea, fine young plants, 6 to 18 inches
Cedrus Deodara, 1 to 10 feet	Ditto, a few fine specimens
Pinus insignis, 1 to 7 feet	Cephalotaxus Fortuni, male and female, handsome young plants, and a few fine specimens
" Benthamiana, about 1 ft.	Standard Weeping and Variegated Hollies
" excelsa, 6 to 12 feet	
" Lambertiana, 1 to 3 feet	
" monticola, 1 to 3 feet	
" Ayacahuite, 1 to 4 feet	
Picea Nordmanniana, about 1 ft.	
" Pinsapo, 1 to 5 feet	
" cephalonica, 2 to 6 feet	
" nobilis, stout plants from seed	

Together with a particularly fine stock of the leading kinds of Trees and Shrubs, Coniferæ, American plants, consisting of all the new and choice Rhododendrons, Ghent and English Azaleas, Kalmia latifolia, Andromeda floribunda, &c., catalogues of which for the present season may be had on application.
Nurseries, Westerham, Kent.—November 15.

PRINCE OF WALES' RASPBERRIES.

WILLIAM CUTBUSH AND SON beg to inform the public that they have now on hand a large stock of their CELEBRATED PRINCE OF WALES' RASPBERRIES, which is acknowledged *to be the finest red variety in cultivation.* Prices per dozen or 100 on application.—Highgate Nurseries, near London.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1s. 6d., 2s. 6d., and 5s. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.
Hedenham Rosery, Bungay, Suffolk, Nov. 15.

NEW ROSE, by SCHMITT, Rue St. Pierre de Vaise, Lyons, France.—MADAME SCHMITT, Hybrid Ile Bourbon, Perpetual, very vigorous, branches straight, foliage dark green, flowers full, extra large, 4 to 5 inches in diameter, petals very large and round, colour rich rose shaded carmine, the reverse side silvery white; blooms in bouquets of three to five flowers. Price, 15 francs.

NEW ROSE, BACCHUS.—This Rose is a seedling from the "Géant des Batailles." The flowers are similar, but larger, stouter, and brighter in colour, remaining a long time in perfection on the plant without the faded appearance so objectionable in the parent. It is a most abundant bloomer, both in summer and autumn; and has received first class certificates from the National Floricultural Society, the Royal Botanic Society, and at the Crystal Palace Exhibition. Price 10s. 6d. each.

A. PAUL & SON respectfully announce that the above Rose is now ready to be sent out. The usual discount to the Trade when three or more are ordered.
Nurseries, Cheshunt, Herts.

NEW EXOTIC FERN.
GYMNOGRAMMA PERUVIANA ARGYROPHYLLA (MOORE).

ROBERT PARKER begs to offer the above beautiful and distinct Fern, of which a fine specimen was exhibited at the last Crystal Palace Show, and was awarded a first prize for new plants. In appearance it is perfectly distinct from any species in cultivation, the upper and under sides of the fronds being densely coated with white farinose powder, which gives it a most singular and distinct appearance. Good plants, 21s. each.
Paradise Nursery, Hornsey, and Seven Sisters' Road, Holloway.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5s. each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

TO THE SEED TRADE.

HORATIO BUNTING AND CO. beg respectfully to inform the Seed Trade that their annual FLOWER and VEGETABLE SEED CATALOGUE will shortly be published, containing a List of nearly all the varieties of ANNUALS, &c., in cultivation. The Seeds being grown by themselves they are enabled to offer advantages to the purchaser both in price and quality seldom to be met with. All Seeds warranted true to name and genuine. Catalogues forwarded to all parts of the world post-free on application.

Address in full, HORATIO BUNTING & Co., Seed Establishment, Lexden Road, Colchester.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses, and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Rail, where all Trains stop and conveyances can be obtained.

The Gardeners' Chronicle.
SATURDAY, NOVEMBER 15, 1856.

SOME time since attention was drawn to an APPARATUS proposed by Mr. HAZARD for ŒCONOMISING HEAT, and diverting what is now so largely wasted in glass houses to some useful purpose (see the *Gardeners' Chronicle* for May the 17th of the present year). It was shortly afterwards suggested by a correspondent that the principle might be usefully applied in bad climates or seasons to drying hay or corn, especially where a steam engine exists upon the premises as is so often the case now (see p. 411). The agricultural application of the method not concerning us we shall only observe that we have seen a sample of wet hay thus dried which was as perfectly prepared as if under the most magnificent sunshine.* It is to the importance of a drying apparatus for other purposes that we would direct attention.

There lie now before us samples of Tarragon, Turnips, French Beans, Carrots, Cabbages, Onions, and Celery, dried by a current of air heated to 100°, in which all the good qualities of those vegetables when fresh are as perfectly preserved as in the best French preparations. The Tarragon, the Onions, and the Celery, are most especially remarkable for having retained all their peculiar flavours, without contracting any other; in fact, they are what they were when first gathered *minus* only the water they contained and which has been carried off by the heated air.

In addition then to any advantage that may arise from keeping air in motion in greenhouses by HAZARD's apparatus, or from œconomising fuel, there is this other gain that it furnishes its possessor with an excellent contrivance for perfectly securing summer crops for winter use, or *vice versâ*. Sweet herbs indeed, such as Tarragon, Mint, Savory,

* Since this was in type we have received the *North British Agriculturist* in which is an important letter on this subject which we reprint on the Agricultural side of to-day's Paper.

Marjoram, Basil, and the like are dried without much trouble by means already existing in all gardens; but their quality is necessarily impaired, and under the best management is not to be compared to that of samples quickly dried at a low temperature. If slowly dried they are apt to become musty, if quickly at a high temperature they acquire a well known burnt flavour that spoils them for the kitchen; and it is not in every English summer that the sunshine they want is to be secured *at the right time.*

Supposing however that sweet herbs can already be easily dried sufficiently well, there still remain the materials for soup and other kitchen purposes in winter, such as green Peas in their pods, Celery, Kidney Beans, &c., which cannot be preserved by any ordinary process; and here an apparatus for easy and quick drying becomes invaluable. The dried Kidney Beans and Celery now before us are perfect in their way.

But the value of a drying chamber does not stop here. There are seeds of various kinds to dry after they are gathered; and who does not know the loss of time and vexation that attends the operation in a bad damp sunless autumn. We only need mention Beans, especially Kidney Beans, as an example familiar to all gardeners, who discover to their cost how soon such ill-ripened, ill-dried seeds become mouldy and spoiled during winter. Prepared in such a drying chamber as is now under consideration, their preservation would cease to be a matter of difficulty. The same with Onions and other bulbs.

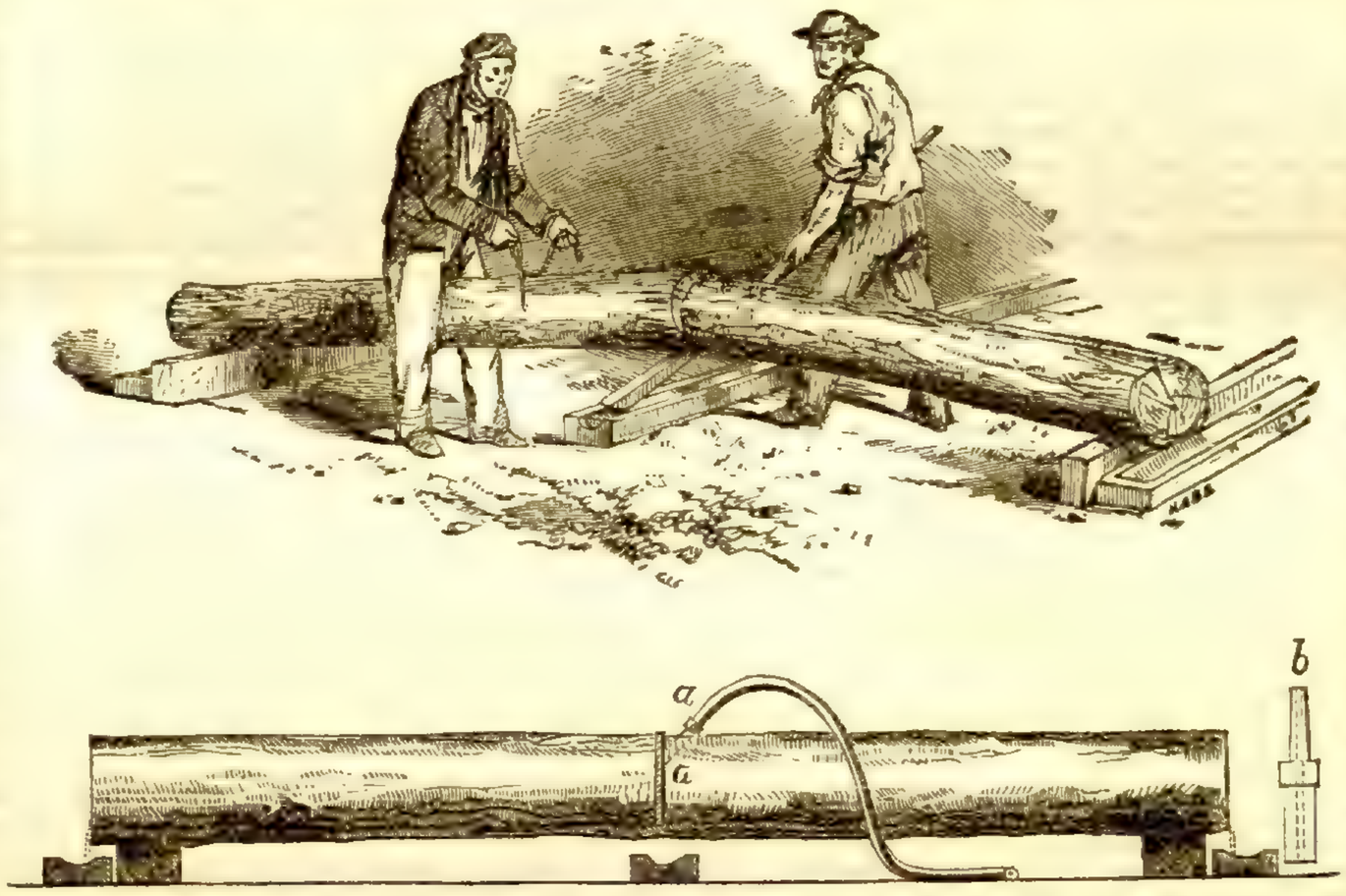
In another point of view the possession of a drying room would be of inestimable benefit. We allude to the curing of bark, which is very often the gardener's business. How enormous are the difficulties against which the forester has to contend in preparing this valuable material; what care to take in the stacking and thatching; what watching, and sometimes what bad success after all in securing a bright clean sample. To nothing would quick drying at a low temperature be of more signal advantage than to the preparation of bark. A great wooden hut, run up in a wood, constructed of worthless slabs and shaky planks, furnished with a temporary chimney, fitted with a drying apparatus, and heated by forest rubbish would secure our precarious bark crop in as fine or even finer condition than the best of the best climate in Europe. As to the cost, we apprehend that the mere saving of labour would soon defray whatever that might be, for the bark, which must be so carefully and ingeniously set up in the open forest, might be thrown pell mell into the drying shed.

We therefore would seriously direct attention once more to Hazard's apparatus, as being the best suited to gardening purposes of all that we are acquainted with. No doubt similar effects may be easily produced otherwise. But we know of no means which, in connection with existing structures, is capable of doing the work required of it so œconomically or perfectly, or with so little trouble.

It is now more than fifteen years since the public was made acquainted, through the columns of this Journal, with Boucherie's mode of preserving wood from decay (see *Gard. Chron.*, 1841, pp. 71 and 147). In May 1842 a lecture was given on the subject at the Royal Institution. At later periods the matter was from time to time reverted to, especially in 1851 (p. 580), when a figure was published representing the process as conducted on a large scale in the forest of Compiègne. From some cause or other it has however made no progress in this country, and until the appearance the other day of a pamphlet on the subject by the Permanent Way Company (26, Great George Street, Westminster), we had supposed that unexpected practical difficulties had presented themselves and stopped the process. In this we were mistaken. It now appears that wood is prepared by Boucherie's method on a very large scale for French railways, and that English engineers are adopting it.

Dr. Boucherie's first idea was to compel trees to fill themselves with preservative substances, by their own natural imbibition; and to a certain extent this was effected. The manner in which fluids direct themselves when sucked in by a growing tree was however apparently capricious, some trees, the Ash for example, as ascertained by Mr. Hyett, of Painswick, and Mr. Forsyth of Dunach, absolutely refusing to take up the fluids presented to them; the process recommended was moreover troublesome except in the case of very small trees, and it was soon abandoned. The next plan was to suspend logs of trees perpendicularly, and to secure a reservoir to the upper end, so that the preserving fluid might by its own weight sink down into the tree, displacing and driving out the sap, whose presence is one of the great causes of decay in timber. This, too, seems to have been superseded by the present method, which is thus described in the pamphlet before us.

"Soon after the tree is felled a saw-cut is made in the centre, through about 9-10ths of its section. The tree is then slightly raised by a lever or wedge at its centre, and the saw-cut is then partially opened. A piece of string is then placed round the saw-cut, close to the outer circumference of the tree, the support is then withdrawn, and the saw-cut closes on the string, thereby making a water-tight joint. An auger hole is then bored obliquely into the saw-cut; a wooden tube is then driven into the hole, the conical end of which is attached to a flexible pipe, which is in connection with a cistern or reservoir at an elevation of from 30 to 40 feet above the tree intended to be preserved." In the case of very long trees the foregoing method is slightly modified. "When the timber is under operation, the sap runs out from the ends in a clear stream, showing the amazing quantity of this fluid which it contains; in fact, the preserving fluid will traverse a tree 12 feet in length with less pressure than is required to force it laterally through a plank three-quarters of an inch in thickness. As the sap is forced out the preservative fluid follows it, and its presence at the ends of the wood is ascertained by a chemical test. Thus the sap and fermenting juices are completely expelled, and the timber impregnated throughout its length with the preserving fluid." The accompanying woodcuts further explain the process.



Such is the method of charging a tree. We have seen it in operation on the premises of the Permanent Way Company, and nothing can be more simple or effectual. As to cost we should not suppose that the apparatus required on a moderate estate need cost more than 10*l*. The small expense will thus enable the process to be applied in cases where it has not hitherto been available. It will be economy for all proprietors of land of any extent thus to preserve the timber used on their estates for fencing, farm buildings, gate posts, &c.; an advantage they could not enjoy so long as the impregnation of the timber required expensive cylinders and costly steam apparatus.

The possibility of introducing any foreign fluid into trees, expeditiously and œconomically, being thus demonstrated, the next question is, how far is the durability of timber secured by the operation? Upon this point the evidence appears to be conclusive. There is a report of three French engineers, Avril, Didion, and Mary, published in 1850, relating their observations at Compiègne upon blocks of Beech and Hornbeam, from which it appeared that Beech injected with sulphate of copper eight years before was still perfectly sound, although the same wood and Hornbeam unprepared or injected with other fluids were for the most part entirely decayed. They further report that they saw several logs of Hornbeam in the bark, from 23 to 26 feet long, impregnated with sulphate of copper; and others of the same dimensions which had been left in their natural state. The first, on being tried with the axe, proved to be in a state of perfect preservation, even at the surface; whilst the latter, being affected with the dry-rot, allowed the tool to sink deeply into their substance. They also caused two trees, of about 12 inches diameter, to be sawn across; one had been impregnated with sulphate of copper, the other was in its natural state. The first was perfectly preserved, except in the centre, where they found a small circular spot of dry-rot, not penetrated by the liquid. The second, that is to say the Hornbeam in its natural state, was decayed, excepting about a twentieth part of its section, in certain portions radiating from the centre, in different directions. They also inspected a number of posts for supporting the wires of the electric telegraph on the Northern Railway, and found them in a state of perfect preservation. The engineer in charge of the line showed them one of these posts which was sunk in the Oise in 1848; this post had a splinter partially detached by a stroke of an axe at the water's edge, The splinter, which had been recently separated from the post, had its edges perfectly sharp, and offered as great resistance as it would have done at the time when the tree was felled. The superintendent of the telegraph assured them that the Fir employed on the Northern line had remained in perfect condition until the present day; whereas the Oak posts on the Rouen line had undergone a very perceptible alteration.

Similar evidence is collected as to sleepers for railways, and some of the specimens may be seen in Great George Street. The practical result is that all the telegraphic posts in the French empire are now prepared by this process. The administration had 200,000 on the 1st of January, 1855, and since that time have caused 32,000 additional posts to be provided. The preservation of the posts is rendered complete, although the first were prepared and laid down in the year 1846. French railways are also having their sleepers thus pickled. The Chemin de Fer du Nord alone, in the year 1846, laid down 80,000 Beech and Birch sleepers; and in 1853, upon examination, these were found in so complete a state of preservation, that the Company immediately ordered a further supply of 300,000. In the South of France large quantities of Vine-props are now prepared by this process; and it is obvious that it may be applied with equal advantage to Hop-poles.

Experiments show that no fluid answers so well as a very weak solution of sulphate of copper, or corrosive sublimate; but the latter is too expensive. Sulphate of zinc, acetate of lead, sulphate of iron, oil, tallow, rosin, pyrolignite of iron, all have been tried without satisfactory result.

What is most important is that the worst kind of timber lends itself most readily to the process, and answers best. Beech, Hornbeam, Poplar, Birch, Scotch and Pinaster, Spruce, Alder, Elm, have been operated on with success. Heart of Oak proves impenetrable. To use the words of Messrs. Avril, &c.: "Those kinds of wood which possess most moisture, and, of the same kind, those which have grown in the dampest soils, are most easily penetrated. It follows that the least-esteemed kinds of timber, and consequently the cheapest, are precisely those which afford the best results when injected with the sulphate of copper." The extent to which this injection goes will be seen from the following experiment. The increase in weight observed in wood after impregnation varies according to its nature, depending on the quantity of air it contained, which is replaced by the liquid. The French engineers give the following examples:—

Beech	...	increased	209 lbs.	per 35 ft.	cube
Oak (sappy part only)		"	55 lbs.	"	"
Hornbeam	...	"	46 lbs.	"	"
Birch	...	"	2 lbs. 10 oz.		"
Poplar	...	"	70 lbs.	"	"
	...	"	50 lbs.	"	"
Alder	...	"	156 lbs.	"	"
Ash	...	"	50 lbs.	"	"
Scotch Fir	...	"	127 lbs.	"	"
White Fir	...	"	53 lbs.	"	"

Only one other circumstance requires to be borne in mind, which is that the operation depends for its success upon the permeability of the timber operated on, and that all timber is most permeable while standing or just felled. It is therefore desirable that if performed in the summer it should be immediately, before the tubes contract, and if in the winter in the course of a few weeks after felling.

We have entered thus at length into the subject because it is second to none in importance in relation to the interests of our country readers. It is to our minds clear that the refuse trees of an

estate will thus acquire the value of first-class timber for posts, rails, beams, fences, and all purposes of permanent construction. There seems indeed to be no reason why a mansion should not be put together with Beech or Poplar, or Hornbeam, with the exception of the floors and fittings. It is also evident that the value of low-priced timber must rise, since experience has shown its applicability to all sorts of purposes in which durability is concerned. A country gentleman has only to fit up an apparatus, purchasing a license to work it from the patentees, and he becomes almost wholly independent of the dealers in foreign timber. We shall hardly be over-sanguine when we predict the speedy arrival of a time when Poplars, Willows, and all sorts of fast growing but now perishable trees, will be universally planted with a view to the purposes for which slow-growing hard wood trees are now alone thought suitable.

THE sorts of fruit trees best suited for an ORCHARD HOUSE cannot be said to have been yet ascertained. They ought to be constitutionally good bearers; and therefore all large fruited varieties should in our judgment be excluded; for the possessor of an Orchard House would we suppose, in most cases at least, prefer a good many fruits large enough for table, to a few very fine specimens. They ought to be of excellent quality, or they will not deserve the protection an Orchard House is able to give them: for which reason we should exclude such a Peach as the Chancellor and many sorts of Plums, although bearing freely under glass. They ought to furnish as long a succession for the dessert as is to be secured, keeping in view the other indispensable qualities of good bearing and good quality. Lastly, the varieties ought to have naturally a compact manner of growth, and not to bear long, weak, and wiry shoots.

In Mr. RIVERS' new edition of "The Orchard House" will be found a list of the varieties that he recommends; and doubtless his opinion may be safely followed. But there are many who prefer being spared the trouble, if not difficulty, of selecting from the best selections; while others may wish to know what other men of experience may have to say. We have, therefore, procured from one of our most practised judges of orchard fruit the following selection, which he recommends as fit for an Orchard House with a view to abundant bearing, good quality and successional ripening:—

12 sorts of Pears:—
- Seckel
- Comte de Lamy
- Beurré de Capiaumont
- Louise Bonne (of Jersey)
- Marie Louise
- Charlotte de Brouwer
- Thompson's
- Beurré d'Aremberg
- Winter Nelis
- Passe Colmar
- Bezi de Caissoy or Nutmeg
- Josephine de Malines

12 sorts of Plums:—
- Early Prolific (Rivers)
- Royale Hâtive
- Drap d'Or
- Early Orleans
- Denniston's Superb
- Perdrigon Violet Hâtif
- Reine Claude de Bavay
- Greengage
- Jefferson's
- Nectarine
- Reine Claude Violette
- Coe's Golden Drop

4 sorts of Cherries:—
- May Duke
- Royal Duke
- Downton
- Late Duke

6 sorts of Apricots:—
- Red Masculine
- Large Early
- Musch Musch
- Breda
- Roman or Brussels
- Kaisha (delicious but ugly)

6 sorts of Peaches:—
- Early New York
- Acton Scott
- Grosse Mignonne
- Royal George
- Noblesse
- Bellegarde

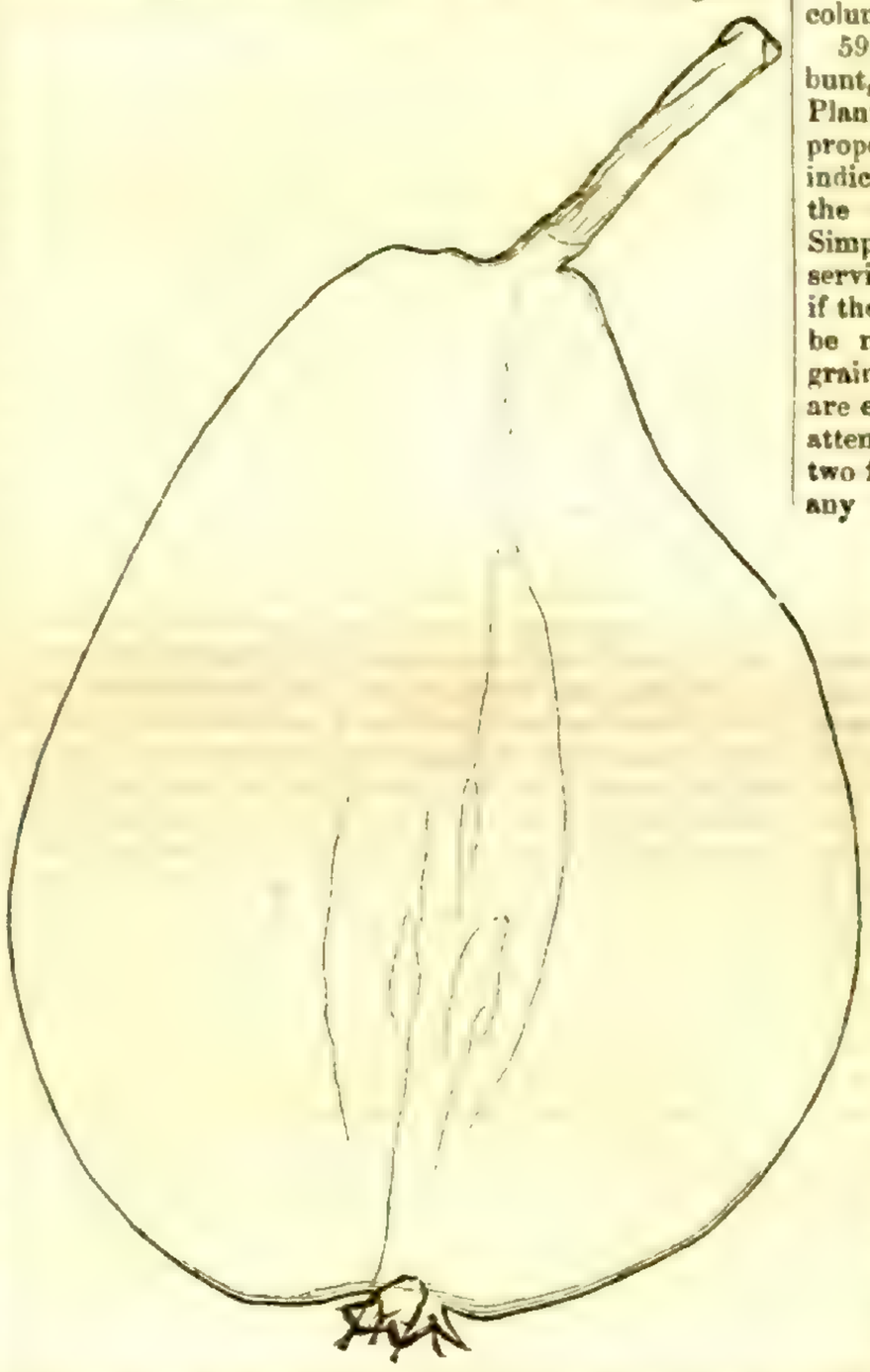
4 sorts of Nectarines:—
- Fairchild's Early
- Elruge
- Downton
- Violette Hâtive

If any of our readers who have personal experience in Orchard Houses can improve upon this list we should be thankful for their suggestions.

COMTE DE FLANDRES PEAR (COLL. VAN MONS).

AMONG the new varieties of Pears there is one which more especially merits the attention of cultivators. It is one of Van Mons' seedlings, and first bore fruit in 1843, the year after his decease. It must have belonged to one of his last generations; and the tree must have grown at a period when Van Mons had ceased to superintend his cultures himself, for it exhibits such unpromising characters as would otherwise have occasioned its condemnation. When its shoots begin to grow, this variety has a whitish down on its foliage similar to that on the leaves of the Gansel's Bergamot, Poire de St. Omer, the Poire Legipont, or Merveille de Charneaux, and Calebasse Tougard. From the observations of Van Mons, this character indicates a summer Pear, a kitchen Pear, or one of indifferent quality.

For 10 years the variety in question, to which M. Theodore Van Mons, son of the professor, had given the name of Comte de Flandres, has existed in the collections of the most intelligent amateurs. During this period there has been time to examine it attentively, and we have heard different opinions upon its merits. Some said that it succeeds upon the Quince stock, but does not live long except against a wall, and in good soil; others who cultivated the variety on the Pear stock, planted in a light and rather poor soil, had gathered fruit which, on the average, ripened in October; others, who cultivated it as a low pyramid, on the Pear stock, did not obtain the desired result. On visiting the extensive collection of an amateur, we remarked in 1854 and 1855 a tree which was growing on a rich humus soil, and trained as a half standard, bearing fine fruit in its upper part, or about 8 or 10 feet from the ground. These fruits, which were perfectly formed and as fine as that figured in the Annals of Pomology, v. ii., p. 87, ripened in the months of December and January, the period when the fruit from the seedling tree ripened in 1843-44. We have had fruit from grafts on the side branches of an old tree, planted on clayey soil, and it has kept in the fruit room till May, and was superior in quality to the Glou Morceau. This year a tree grown as a half standard, after having set more than a hundred fruits, of which we cut off about two-thirds, produced 18 Pears similar to that figured.



This fruit was produced on a spur from the stem. There are longer and narrower fruit produced by spurs on twigs.

Eye large, open, level with the top, with the five segments of the calyx projecting. The sides form three ribs near the eye, skin yellowish green at the time of gathering, freckled with brown, especially near the stalk, which is woody and about an inch in length. The tree is vigorous, hardy, and an abundant bearer when it is worked on a good Pear stock, planted in a rich soil, and trained, not as a dwarf pyramid, but as a half standard. Trained in this way it makes branches and thick shoots, which are slightly kneed in ascending, and bears after eight or ten years handsome and excellent fruit, ripening in December and January. As the fruit is very heavy, and is apt to be blown down by the equinoctial gales, it is prudent to gather it a day or two before the full moon of September. These practical notes will perhaps assist some one in completing the account of this variety, which we consider to be one of the best new Pears. *J. de Jonghe, Brussels, Nov. 2.*

VEGETABLE PATHOLOGY.—No. CXLIV.

594. PARASITÆ (*Tilletia,* Bunt*).—The effect of bunt on corn is like that of smut, to convert the tissues into, or rather to replace them by, a mass of dust-like spores. In smut however these are soon dispersed; in bunt from the stronger texture of the walls they are in general retained and are not broken up till the flail is put to the harvest. In smut, though dirty and disagreeable, there is no offensive smell; in bunt the greasy spores have an odour like that of stale fish. There are moreover differences in point of structure. In smut the walls of the spores are simple, that is, not composed of cells, while in bunt they are reticulated with the dissepiments of the component tissue. The result of germination in the smut which affects Cereals is not ascertained so completely as that of many other parasites. In *Tilletia* they are very curious. Each spore protrudes a thread, from the tip of which grow other curved fusiform threads, which are ultimately connected by lateral processes.† When the connection is completed the new threads produce globose spores, which sometimes produce others of a third order.

595. Though the germination of the spores is easily followed out the mode of entrance of their mycelium into the young Cereal has not yet been ascertained. That it does enter is certain, because corn rubbed with the spores of bunt will almost always give rise to bunted ears. The threads protruded immediately from the spores are larger than the stomates and cannot enter them, but the delicate threads which rise from them are quite capable of entering and may thus affect the corn.

596. Bunt is not confined to the grain, though that is its most usual situation. We have seen it in artificially inoculated Wheat, running in straight lines down the stem, like *Uredo longissima*. Wheat is oftener affected than any other plant, but bunt has been found on *Hordeum murinum*, *Agrostis Spica Venti*, and other Grasses. It is said also to be found on *Sorghum*, but *Tilletia Sorghi-vulgaris* is a very doubtful species, as the spores are quite different from those of *T. Caries*, and the mode of development agrees with that of those forms of the common smut which bear a hard rigid columella.‡

597. No parasite is more injurious to Cereals than bunt, but happily it is one of the few affections of Plants which is readily controlled, insomuch that the proportion of bunted ears in a crop is a tolerably sure indication of the degree of skill or care which belongs to the cultivator. Each farmer has his own remedy. Simple immersion in water alone is of considerable service from washing off the spores of the parasite, but if the crop is to be completely free, some addition must be made to destroy those which still adhere to the grain. Corrosive sublimate, arsenic, and blue vitriol are employed for this purpose, but besides the danger attendant on the use of such poisonous substances, the two former are apt to act upon the seed itself if from any delay consequent on bad weather, it is not sown at once. Blue vitriol, unless prepared of great strength, has not this bad quality. A very simple and effectual mode of treatment is to mix quicklime and boiling water together, and apply it hot to the Wheat placed in small convenient heaps, so that every seed may be covered with the mixture while still at a high temperature. This plan is called puddling. The most efficacious plan, however, though one which is little if at all practised in this country, is to make a strong solution of Glauber's salt (sulphate of soda). The Wheat is then steeped in the solution, and dried off with powdered quicklime, the effect of which is to decompose the sulphate of soda, the sulphuric acid combining with the lime to make sulphate of lime or gypsum, while the caustic soda is left behind to destroy the spores of the parasite.

598. It does not appear that Wheat much mixed with bunt is unwholesome. The colour of the bread made from it is injured, and the nutritive qualities probably impaired, but though extensively consumed at times by farmers and labourers we have never heard that it is injurious to health, nor is it as disagreeable to the taste as might be conceived from the nauseous smell of the raw fungus. Bunted Wheat is bought up principally by the gingerbread makers, for which purpose the dark colour is of no consequence. It might also enter safely into the composition of Katsup, the dark spores answering the same purpose as those of the Mushroom. *M.J.B.*

* Named by Tulasne after Mathieu Tillet, author of three treatises on Bunt and Smut, published in 1755 and 1756.

† This was pointed out some years since in the Journal of the Horticultural Society of London.

‡ We have just received from India an excellent example of this condition in some cultivated Grass, the exact specific name of which we are unable to ascertain from the specimen.

Home Correspondence.

Bowood Muscat Grape.—A seedling raised at Bowood between the Cannon Hall and Muscat of Alexandria. It differs somewhat from both its parents; although it is a week or 10 days later in breaking in the spring the fruit ripens rather earlier than the common Muscat. The bunches are broader and shorter—every bloom sets, even in a temperature comparatively low. This is a marked feature, and the bunches are invariably compact and regular in consequence, and must be well thinned out to allow the berries to attain their full size. The berries are oval; when grown in a light house we find them Pear-shaped, more than oval, large, and of a bright amber colour when ripe. The habit is scarcely so vigorous as that of the common Muscat. It is very productive, there being frequently three and four bunches on each shoot. The bunch sent has been grown in an unfavourable situation—a low dark pit. The original Vine in a light house produced berries much finer, but being weakly it has been cut down to make wood. *J. Spencer.* [This is a very fine thing, and perfectly distinct. The bunch is very large and well shouldered, with strong footstalks. Berries very large oval, inclining to obovate, $1\frac{1}{4}$ inch in length by $\frac{9}{10}$ of an inch across (the proportion between the two axes is as 2.625 to 3.625). The skin was greenish yellow, or of the same colour as that of the White Muscat of Alexandria, but it was evident that the berries had not acquired the colour of complete maturity. The flesh was firm, juicy, with a rich sugary Muscat flavour. Seeds 2-4. This variety, from its being an abundant bearer and a free setter, forming magnificent well shouldered bunches, appears to be highly deserving of cultivation. *R. Thompson.* We have never seen a variety of greater promise. The appearance of the bunch and berries is most magnificent. The quality is

much the same as that of the Cannon Hall Muscat Grape. *Editor.*]

Lilium giganteum.—With us this receives the same treatment as to temperature as that of ordinary greenhouse plants. Like the Japan Lily tribe it is a deciduous herbaceous plant. Let us take, for example, a young plant in a 6 or 7-inch pot, the leaves will now be ripening; keep it without water in any dry cool place until February, then pot (shift) it into a 12-inch pot well drained, using for soil turfy loam enriched with leaf-mould or rotten dung, or what is better, water it with liquid manure, weak and often, when growing. Give little water until growth has commenced, then a little two or three times a week, increasing this quantity as the season advances and the leaves increase in size; give it all the natural heat and light at command; continue this treatment for one month after the leaves have attained their full size, then gradually withhold water, but if possible increase the heat and light. This may be done by moving the plant from the house or pit and placing it under a south wall until the leaves begin to turn yellow, when it may be removed to its winter quarters, which may be a cellar, shed, or under the stage of a greenhouse; any of these places will do equally well. In February shift it into a 16-inch pot, treating it as above, and your correspondent "H. H." may justly expect in 1858 as fine a plant as any of ours have been in 1855. Three here were more than 10 feet high; one had 12, one 13, and one 14 perfect flowers on it. It will also bear a high temperature; this I had proof of with the first plant we had, which opened its first flower in April, 1853. In short the treatment of this Lily may be given in a few words:—plenty of rich soil well drained, and abundance of water while growing (supplying none when quite at rest), a light warm position in a greenhouse or cold pit near the glass while growing, and any dry cool place when at rest. *William Breadley, Somerleyton Gardens.*

Tacsonia mollissima, it is stated in Notices to Correspondents, requires more heat than a conservatory without a closed roof affords to grow and bloom it in perfection. Exactly the contrary is my experience in the matter. A plant here (than which nothing can be more beautiful) has been in bloom during the last six months, and the flowers produced in early summer and late in autumn were in every respect very markedly superior to those that bloomed during the extreme heat of the season, when they were badly coloured and did not expand freely. Being also a plant of most vigorous growth, it has found its way through every possible opening of the sashes or ventilators into the open air, so that it covers the roof both outside and in with foliage and flowers; and finding that it has withstood the cold without injury to either, although they have had a covering of snow, I am confirmed in the opinion that much heat is not only unnecessary but injurious to it, and that it will be found to thrive on a wall or even (where tolerably sheltered) a verandah. As a hint to those inclined to try this, I would advise them to grow it in a pot with holes in the bottom, and to plunge it in good soil at the proper season, precisely as Rivers directs for orchard-house trees; this would enable it to be removed to some shelter during the severity of winter, and render success certain. *J. M., Folkestone.* [What was meant was that it required more bottom heat than the ground of an ordinary conservatory can supply.]

Timber Found in Peat.—Seeing allusion made (in page 743) to Peat Moss and timber found in it, "prostrated by storms or felled by the hand of man," I think it may be interesting to state that I have closely observed and find the fact to be, as stated to me by a very intelligent resident engineer of an Irish railway, that timber found in the bogs of Ireland has never been prostrated by storms or felled by the hand of man. The root is always found as it grew, and the tree separated from it by having rotted off. And I need not say that if blown down the tree would generally be attached to its root, or if cut down it would show some mark of the axe. The same gentleman who stated the circumstance gave me the following (to me) interesting statement of the way in which he accounts for the above fact. "I never could account for it," he said, "until one day, happening to travel along the banks of Lough Neagh, I saw a plantation through which was a watercourse, which, having been choked by leaves, &c., had overflowed its banks and formed a small lake under the trees, and as far as it extended the trees were dead. It struck me that in the same manner the forests of Ireland were first killed, and afterwards the trees, like any other posts, rotted off between wind and water, showing evident marks of decay at the base, although sound in the general length of the stems." My own observation entirely bears out everything as stated above. *I. T.*

Cut Flowers.—I find many flowers cease to be ornamental when cut, owing to drooping immediately on being put into water. Can any correspondent suggest a remedy? I have a large plant of Luculia gratissima coming into abundant bloom, specimens of which will be desirable in the drawing-room. Their beauty was however so short-lived last winter when gathered, since they drooped and withered almost immediately, that I shall hesitate to have them cut unless I can find the means of preserving their freshness. The Mandevilla, Beaumontia, and Brugmansia, with many others, fade in like manner. *A Devonian.*

Siberian Cow Parsnip.—It may perhaps be interesting to some of your readers to see recorded the dimensions of one or two very large specimens of this Parsnip (Heracleum giganteum), which not very long ago I saw growing (not far from the Northumbrian moors) in the garden at Longwitton Hall, the residence of Mrs. Spencer Trevelyan. The specimens in question were in a situation sheltered from the cold north winds. On measuring one of the plants the dimensions were as follow:—height, 12 feet 6 inches; circumference of the stem at the base, 12½ inches; at 4 feet from the base, 10 inches. I do not know whether larger specimens have been seen. I should be glad to be informed whether the plant might not be found useful as food for cattle. They appear to be exceedingly fond of the leaves and stalks. *Ortolano.*

Swans. — In reply to "Citizen's" further inquiry respecting swans, permit me to say that they will swim under a bridge 6 feet wide, 15 yards long, with only 18 inches headway; I think that the culvert should not be less than 2½ feet wide, with 2 feet headway. *C. P.*

Veronica Andersoni.—Last spring I obtained a plant of this in a pot, and afterwards planted it out in the open border. It was then not more than about 14 inches in height, but it grew so rapidly and luxuriantly during the summer that it is now upwards of 4 feet high, and very bushy. All the time it blossomed most splendidly, and is at this moment literally covered with flowers, and the foliage as green and fresh looking as it was during the warm weather, notwithstanding our having had since the beginning of last month several nights of sharp frost. Will you oblige me by mentioning whether or not you think I might allow it to stand where it is during the winter, surrounded with matting, as also a V. A. variegata, which has, in like manner, grown very vigorously but has not flowered? If these can be thus protected, they will, no doubt, attain an immense size in the course of a few years, and become beautiful objects planted on a lawn. *A Subscriber, Whitland.* [We greatly doubt.]

Washing Machines.—I have just been to see Mr. Moore's new washing machine, and as an old housekeeper I venture for the benefit of some of your country correspondents to state that in my opinion it is a decided improvement on all previous inventions of the kind. As far as the saving of time, trouble, and soap goes, nothing can be more economical than its principles. The dirty clothes are fixed into a wooden frame, which works up and down by means of a lever or wheel (which can be managed by any good-sized boy or girl), and submerges the linen into a bath of hot suds, in which are floating 200 wooden balls, which by their constant gentle friction clean the linen in a few minutes, without having a chance of doing it any injury. There are three sizes of 3*l.*, 6*l.*, and 10*l.* each (and if lined with zinc, which renders them more durable, the expense is 8*s.* extra). The smallest size is not suited for large bed lined, but is serviceable for all ordinary washing in a small family; but the larger ones of course answer every purpose, and would I am sure be duly appreciated by all country housekeepers. *An Old Lady.*

Rogers' Conical Boilers, and fixing Iron Pipes by means of Portland Cement.—I wish to heat an orchard house and was much interested by "Sigma's" statement relative to these matters. I shall be obliged if he will state if fuel other than Welsh coal and cinders will answer Lynch White's boiler; would gas cinders do alone? or Scotch coal alone? "Sigma" mentions that Rogers' large boiler may be left for 24 hours without any attention. But I would infer that Mr. White's could only be left for 12 hours; is this owing to its construction, or simply because the size is less? *N. B.*—— Will "Sigma" explain what he means when he says he has a boiler "on a large scale" that only heats 150 feet of 4-inch pipe and yet is deserving of commendation? Surely this is going back instead of forward; I can bear testimony to the efficiency of cement joints, having made them of Roman cement, which stands as well and sets quicker than Portland. Mr. Kay, of Finchley, had used Portland cement successfully three years ago. Will "Sigma" give the items where he makes the heating of a large house only come to 11*l.* 2*s.*? I fear this may mislead those unacquainted with such matters. A Vinery, say 30 feet long by 14 feet wide, cannot be heated so as to have Grapes ripe on the 1st of June at less than 20*l.*, and anything short of this does not deserve the name of heating; the mere exclusion of frost is sometimes set down as heating. "Sigma" is on the right track, but I fear he is not sufficiently acquainted with the matter to be a safe guide, and may get honest enough men into difficulty unless he explains more explicitly what he means by heating a large house. *A Constant Reader.*

Colouring of Grapes.—In the year 1847 I built three Vineries, two for Black Hamburgh and one for Muscats; the borders were made under the direction of a most experienced gardener, and the Vines were planted 4 feet deep with thorough drainage. When the Vines began to bear fruit, the crop was abundant, but the Hamburghs were badly coloured and frequently shanked; the Muscats also were affected in the same way. I was recommended in the year 1854 to take up the Vines from one of the Black Hamburgh houses and to replant them only 3 feet deep. The effect of this was successful in producing a crop beautifully coloured, whilst the other house remained as before, but the extraordinary part of the story is this—that in the present season the Grapes in the house which were transplanted are almost colourless, whilst in the old house where the Vines were planted deep they are abundant in quantity and perfect in colour. If you can explain these circumstances and suggest a remedy you would much oblige one of your earliest subscribers. *F. H. S.* [Has it not been owing to the unusually low temperature of the soil at 1½ feet below the surface?]

Catsup.—You say, "We do not find this word in the edition of Johnson before us, nor is it in Richardson." In my Johnson, folio (seventh edition, 1785,) I find it thus:—"Catsup, a kind of Indian pickle, imitated by pickled Mushrooms." "And for our home-bred British cheer, Botargo, Catsup, and cavier."—Swift. *M. J. P.*

Iris reticulata.—In the Journal of the Horticultural Society for the year 1848, it is mentioned that the scent of this is exactly that of Violets; I have a particular wish to grow some in my room for the spring, but cannot find out where the bulbs are to be obtained, nor the probable price of them. Will you be kind enough to tell me, and if it is too late to plant them, and when they are likely to blossom? Some years ago I read in the *Gardeners' Chronicle* of the Copper Filbert, and although I have repeatedly tried to get news of it, all has been in vain; it would be a very nice thing to introduce into the country, but I can get no tidings of it. *F. N., Shrewsbury.* [The Copper or Purple-leaved Filbert may be had of any good nurseryman. As to I. reticulata we are unable to say where it now is.]

How to Keep Peas from Birds and Mice.—A little rosin powdered and dusted over Peas, &c., when sown, effectually protects them from the depredations of birds, mice, and other vermin. *A.*

Large Citrons. — Some time since Lord Emlyn forwarded you the weight and dimensions of a Lemon grown here, and in noticing it in your Paper you observed that it resembled more the size of a Shaddock than a Lemon; and you then expressed a wish to hear more respecting it. I now by desire of Lord Emlyn forward you with this one of 12 Citrons gathered yesterday from one tree, treated exactly as the Lemon was treated, and the tree is of the same age. Subjoined is a statement of their respective weights when gathered:—

	lbs.	oz.		lbs.	oz.
No. 1	2	9	8	2	5
2	2	2	9	2	7
3	1	10	10	2	4
4	1	13	11	2	10
5	2	7	12 (the one sent) ...	3	0
6	2	3			
7	2	6		27	12

John Hill, Golden Grove, Caermarthenshire. [It is a fine specimen.]

Laburnum.—I have a tree at present full of flower in my garden. This tree blossomed at the usual period last spring, afterwards became totally blighted with the dry weather we had, vegetated again when the rain came on, and now it is a perfect mass of green and yellow. Being sheltered by a thick hedge from the piercing north and east winds, it has not yet suffered in the least from the late cold, although last night the thermometer was 6° below freezing point. *A Subscriber, Whitland.*

Petunia imperialis.—I observed a few weeks ago an article from a correspondent, stating that he could not get this Petunia to flower in the open border. Precisely the same thing occurred with me. Like him, I purchased two plants which, although they displayed a most luxuriant foliage, did not produce a single blossom upon being planted out. Finding such to be the case, I removed every shoot from one of the plants, as well as some of the earth around its roots, which I replaced with a mixture of bog mould and silver sand, and placed a hand-glass over it, with a brick placed underneath in order to admit air, watering it two or three times a week with weak liquid manure, and not allowing more than three or four stems to remain upon the plant. These shoots soon became full of perfect flower buds, but I pinched off the greater number of them as they appeared, letting only a few of them come to maturity. In this way the blossoms became perfectly developed, but, I confess, I could not discover in them the fragrance of the "Oleander," nor did I think they were nearly so pretty as those of single Petunias. *A Subscriber, Whitland.*

Societies.

LINNEAN: *Nov.* 4.—Professor Bell, President, in the chair.—A. Beardsley, Esq., was elected a Fellow. The following resolution of the Council was unanimously adopted by the meeting: "That on this, the first occasion of its meeting since the death of the late Treasurer, W. Yarrell, Esq., the Council is desirous of entering on its minutes an expression of the high sense which it entertains of the personal qualities of that gentleman, of his extensive zoological attainments, and of the services rendered by him to the Society during a long period of Fellowship, and especially during the eight years of his Treasurership; as also of its deep regret at the loss of a colleague so amiable and estimable, and so warmly attached to the interests of the Society." Subsequently Dr. Boott was elected Treasurer, and Dr. Baird a member of Council, and W. W. Saunders, Esq., was nominated one of the Vice Presidents, in the room of the late Mr. Yarrell. Mr. Ward exhibited from his garden a branch of a tree introduced by Mr. Fortune, and apparently a species of Fraxinus, on which it is stated the insect which produces the Chinese insect-wax feeds. It had been growing at Clapham for the last 12 months without protection, and appeared perfectly hardy. The following papers were read:—1. "On Sphærobolus Stellatus," by the Rev. H. Higgins. The paper consisted of memoranda of a microscopical examination of the sporangia of this fungus, taken from specimens

which were obtained in September last from the stump of a felled Poplar in the neighbourhood of Liverpool. Some of the living fungi attached to a portion of the wood were removed and placed under a glass shade, where it was found that the sporangia were discharged with such force as to adhere to the sides of the shade, flattening themselves against the glass. The propelling force which occasions the discharge arises probably from the compression of the globular sporangium by the very strong and elastic tissue constituting the inner peridium, which is glossy and imbricated, and has a somewhat constricted mouth. The discharge may be illustrated by the manner in which a marble or a Bean may be propelled by being squeezed between the finger and thumb. 2. "Description of the Kobo-tree, a new genus of Leguminosæ, collected by Dr. W. T. Daniell in Sierra Leone," by J. J. Bennett, Esq., secretary. This new genus, which Mr. Bennett names Guibourtia, in honour of the learned pharmacologist whose elaborate investigations have thrown so much light on the origin and history of substances used in medicine and the arts, belongs to the tribe Amherstieæ, and is nearly related to Hymenæa and Copaifera. The species, which was named G. copallifera, produces a gum resin, of which it was stated that considerable quantities are exported from Sierra Leone. 3. "On some Entomogenous Sphæriæ," by the Rev. M. J. Berkeley, M.A. The entomogenous Sphæriæ seem to predominate in warm or equable climates, eight of the known species of Cordyceps being found to occur in temperate climates, descending occasionally to warmer regions, and seven being peculiar to tropical or subtropical climates. The author in this paper describes five hitherto unknown species, from South Carolina, all of which appear to grow on larvæ. The species described were also illustrated by figures. In the course of a discussion which followed the reading of the paper, Mr. Westwood pointed out from some recent observations the probability that in these cases the larvæ are attacked by the fungi while they are in a living state, and suggested that inquiries should be instituted in order to ascertain whether or not this is really the case.

Notices of Books.

Dr. Asa Gray's *Botany of the Northern United States*, (Putman & Co. New York; Trübner, London), confessedly the most able and important work that has hitherto appeared on North American plants, has swelled from a sturdy duodecimo of 710 pages to a portly 8vo. of 740 pages with 14 plates, representing the genera of Cryptogamic plants. It now describes for the first time all the country as far south as what includes Virginia and Kentucky, and westward to the Missisippi river. "This southern boundary" to use the words of the author, "coincides better than any other geographical line with the natural division between the cooler-temperate and the warm-temperate vegetation of the United States; very few characteristically Southern plants occurring north of it, and those only on the low coast of Virginia, in the Dismal Swamp, &c. Our western limit, also, while it includes a considerable prairie vegetation, excludes nearly all the plants peculiar to the great Western woodless plains, which approach our borders in Iowa and Missouri. Our northern boundary, being that of the United States, varies through about five degrees of latitude, and nearly embraces Canada proper on the east and on the west, so that nearly all the plants of Canada East on this side of the St. Lawrence, as well as of the deep peninsula of Canada West, will be found described in this volume." Within this area occur 794 genera and 2351 species of flowering plants alone, a number which we have no doubt that some of our writers on *differences without distinctions*, would easily treble.

The technical nature of the work precludes extracts; we shall therefore only add that not only does its publication afford satisfactory evidence of the healthy state of North American science, but that it places its learned author higher than ever in the estimation of men of science, while the paper, typography, drawings and engravings do credit to the New York publishers.

Tytler's Elements of Modern History (Black & Co.; 12mo, pp. 275) has been issued as a school book, the narrative being carried up to the end of the late war. It is needless to say that this is one of the best compendiums in any language, and therefore peculiarly well adapted to teaching.

Of Bostock & Riley's Translation of *Pliny's Natural History* a fifth volume has appeared (Bohn). We retain the favourable opinion we expressed of the previous volumes (see *Gard. Chron.* for the present year, p. 87), so far as the translation goes; but we have nothing to say in praise of the manner in which the press has been corrected. Such misprints as andrachle for andrachne (over and over again), thryselinum for thysselinum, &c., are discreditable.

Maunder's Treasury of Geography adds another to those remarkable works for which the public has to thank the enterprise of Messrs. Longmans. In a 12mo volume of 924 pages of the smallest print in double columns Mr. Hughes, who is the editor and principal author of the work, has compressed all that is most important in its relation to the Geography of the world. Malte Brun's ten 8vo volumes scarcely contain more information. When we add that the volume is illustrated by a considerable number of maps and beautifully executed steel engravings, we shall have described a work the sterling value of which cannot be over-estimated. The price (only 10*s.*) is another feature of no small moment to purchasers.

Glenny's Garden Almanac for 1857 (Cox, King Street, Covent Garden) contains a good Trade Directory, a Calendar of Operations for every month in the year, and some clever articles on other subjects. Among the latter is a very sharp attack on the proceedings of the National Floricultural Society. Several pages are devoted to lists of select florists' flowers, fruits, and vegetables, all of which, as far as they go, will doubtless be found useful.

Garden Memoranda.

ROYAL BOTANIC GARDEN, KEW.—Since we last visited this establishment some important improvements have been made in it. The old museum having become much too small to hold the many interesting subjects which are being continually contributed to it, additional room has been provided in the shape of a new house, which has been erected for their accommodation at the upper end of the lake which lies in front of the great Palm stove. This is a plain substantial brick building, about 112 feet in length, 36 feet in width, and three stories high. Each story has 11 windows in the side, and between each window is to be placed a handsome mahogany case 8 feet high, 9 feet in length, and about 3 feet in width. These cases are to be placed one between every two windows and at a right angle to the wall. By means of this arrangement a greatly increased amount of accommodation will be secured, and, as there will be a window between each pair of cases, the objects they contain will be placed in a very favourable light for critical examination. The building is to be warmed by means of open fire-places, of which there are in all thirteen. The staircases and walls, wherever there is room, will be ornamented with drawings and paintings something in the manner in which the present museum is now decorated. When this new building, therefore, shall have been completed, which it very soon will be, and stored with the many important materials with which the old one is now overcrowded, it will form one of the most interesting features of this noble national establishment.

Another object of much interest connected with this great garden is its new succulent house. This is span-roofed 200 feet in length, 26 feet in width, and 13 feet in height; the roof is tied together by means of circular iron girders, and is otherwise without support, except what it receives from the walls at the sides. It has therefore a light and elegant appearance. It is glazed with glass of a green tint, which is however, not very uniform, some of the panes being much more faintly coloured than others. Along the sides are beds in which creepers are planted to run up the roof, and for forming shelves for the accommodation of the smaller kinds of succulents in pots. These beds are supported on brick arches above the hot-water pipes. A red tile-paved pathway with stone kerb runs all round the house, in the centre of which are arranged the taller plants, such as Euphorbias, Opuntias, Cereuses, Aloes, American and others, Yuccas, Dracænas, Crinums, Littæas, one of which (striata) has lately flowered, and has been figured in the Botanical Magazine; Fourcroyas, different species of the handsome genus Dasylirion, Dianellas, and other smaller growing Grass-like plants. These genera and others which the house contains are all as much as possible grouped together by themselves, so that the differences they present, and those of the species of which they are composed, may be readily perceived. Some of the Fourcroyas, Agaves and Opuntias are immensely large. A few of the latter were a little shaken in removal from their old house to their present quarters, but have now nearly recovered their former health. The plants in this house are in pots and tubs, some of which are set on brick pedestals, in order to give the tops a somewhat uniform and regular appearance. A specimen of the "Old Man Cactus," Pilocereus senilis, measures quite 12 feet in length. It was received at Kew some 10 years ago, since which time it has grown only about 18 inches. Another specimen equally large got accidentally broken over near the base, from which it kept rotting upwards. This was however arrested by cutting the decayed part completely off; the plant was then laid on its side for a short time to dry, when a portion of the cut part being in contact with some leaf-mould soon struck root into it, and now it is potted and doing well though of course shorter by a foot or more than it would otherwise have been. Among Sansevieras, somewhat recently introduced, was that from which in Angola an excellent cordage is manufactured. It has upright terete leaves of considerable size. At one end of this house were arranged the different varieties of Epiphyllum truncatum and such other Cacti as grow on trees after the manner of Orchids, and in another place we noticed in a glass case a plant of Opuntia coccinellifera covered with the cochineal insect. This has been an inhabitant of these gardens for these last 40 years and more; it has, however, sometimes been nearly lost from those unacquainted with it clearing it off the plants, thinking it a pest which had no business there.

As regards the general collection of plants under glass it appears to be in a better state than ever we remember to have seen it at this season of the year. The Orchids have improved considerably, nearly all having been repotted and otherwise put in a condition most favourable for growth. One great drawback to the successful culture of plants of this kind here, as indeed it must be in all gardens to whose houses the public has access, is the continual opening of doors in winter by which cold air is admitted, and for this there is no remedy except shutting up the house during the coldest months. In summer the evil is but little felt. Pitcher plants are also in a better state than formerly, and the extensive and valuable collections of Ferns which this establishment contains, and which Mr. Smith himself takes especial care of, also appear healthier and fresher than when we last inspected them. Some of the hardier New Zealand, Madeira, and Mexican kinds that were planted out on a bank in a house with a north aspect have been lifted and potted and replaced in the same house. This change in their condition has set them off to much better advantage, and their names are more conspicuous and accessible than they were before. Two newly imported plants of South African Alsophila capensis have lately been placed in this house; they have pushed some new leaves, among which their singular Trichomanes-like appendages are already apparent.

The Victoria Regia has not thriven well here. The water it is thought does not suit it. Other aquatics however, such as white, blue and red Nymphæas, Nelumbiums, and even Euryale ferox succeed as well as could possibly be desired. The Ouvirandra fenestralis or Water Yam from Madagascar has also made large and fine leaves, which from their singular appearance are great favourites with the public. This is grown in a pan, and apparently deeper in the water than it is generally found at other places which have been fortunate enough to possess it. Two pans filled with Sonerila margaritacea were in most brilliant condition.

The Palms in the large stove house have made much progress in growth since we last saw them. The different kinds of Cocos have already reached the top of the house, and other sorts have proportionately increased in size. In order to give more head room to some of the tallest it has been found necessary to sink the beds or boxes in which they grow as much below the floor of the building as possible. We may mention that the Banyan tree at the west entrance has been moved. The place was found to be too cold and dry for it, its underground roots having nearly all rotted away. That being the case the tree had to be taken up, the decayed portions removed, and the top placed in a shallow box in a warm house, where it has struck root freely and is now begining to push fresh leaves. The whole of the specimens in this vast house are in progress of rearrangement, so that it may become a collection of groups illustrating genera or orders. In the case of Areca Palms and Cycads this has been already accomplished, and nothing can be more beautiful than the effect thus produced.

The magnificent specimens of tender Conifers in tubs have been placed as usual for the winter in the Old Orangery. The Norfolk Island Pines more especially are now become truly noble trees, which in a year or two it will be impossible to get into this house. Indeed, now it is so over-crowded that more ample accommodation must soon be found for its contents.

The houses generally, it may be mentioned, are in excellent order. In one of the coolest of them the handsome Lapageria rosea has been beautifully in flower. It was growing in a wide shallow pan, in which it is found to succeed perfectly. When the proper cultivation of this plant shall have become better known it will rank among the finest of all greenhouse climbers.

A plant of this Lapageria has been blossoming most beautifully in the nursery of Messrs. Veitch at Exeter, where it produces flowers every year in the greatest profusion. In that establishment we are informed it is planted out in the border of a cool house; a large hole was dug for it, and filled with plenty of good turfy loam and peat, leaf mould and sand, all well mixed together. A particular point in its management is stated to be that it likes plenty of water while in a growing state; in order therefore to permit of this being given, the soil in which it grows must be thoroughly drained. In short efficient drainage, plenty of water, a loose porous soil, and a cool house are all that is necessary to ensure this fine plant growing and flowering abundantly as it should do. It may also be mentioned that the blooms will keep fresh and beautiful for a long time after being cut, even in a warm sitting-room, and thus is added one of the most beautiful of climbers to the list of plants adapted to cutting for the bouquets now so generally employed in internal decoration.

The continuation of Mr. Kemp's description of Biddulph Grange is unavoidably deferred to next week. Two more notices will complete it.

Miscellaneous.

The Yew.—Zuccarini constitutes a distinct species (*Taxus Wallichiana*) for the Himálayan Yew; but though the leaves are more curved, and the berries smaller than in our European tree, the difference is so trifling, that, with our knowledge of such a marked variety as the Irish Yew generally reproducing the common form, a new species seems uncalled for. Dr. Hooker (Journals, ii. 25) holds that the Himálayan, the North American, and several connecting links, all belong to *Taxus baccata*; he tells us (i. 186) that the red bark is used as a dye, and for staining the foreheads

of the Bráhmans in Nepál. The timber found by Layard in the palaces of Nineveh, and pronounced by him to be Cedar, is in reality Yew.——The preparation of a kind of tea from the Yew tree is, I think, peculiar to the H málaya, and it is remarkable that so dangerous a plant should have been selected. Col. Markham (Shooting in the Himálaya, p. 115) thus describes its use in Kashmir: "There is a capital substitute for tea, in the inner bark of the Yew tree, dried and prepared like tea. The colour is perfect; but I never could find much taste in the infusion, although one of my friends once said that he liked it better than tea." It is for this reason that, in Kunáwar, *Taxus baccata* is called Sangchá = Sang tea, perhaps connected with the name of the mountain Sung-lo in Kiangnan, "famous in China as being the place where the green tea shrub was first discovered, and where green tea was first manufactured."——Of the popular idea of the great age attained by this tree, I met with a curious illustration in 1815, when an Irish gardener repeated the following as being an ancient composition taught him by old people. Three years being the age assigned to the unit, the total comes to 2187:—

Tri saoghail muic,	saoghal con;
Tri saoghail con,	saoghal eich;
Tri saoghail eich,	saoghal aufhir;
Tri saoghail aufhir,	saoghal seade;
Tri saoghail seade,	saoghal iolair;
Tri saoghail iolair,	saoghal au iur.

In English.

Three lives of a pig	= life of a dog;
Three lives of a dog	= life of a horse;
Three lives of a horse	= life of a man;
Three lives of a man	= life of a path (or furrow);
Three lives of a path	= life of an eagle;
Three lives of an eagle	= life of a yew.

Abridged from a paper by Col. Madden in the Annals of Natural History.

The Gunyang; a new Australian fruit.—The Gunyang bush is a kind of *Solanum* or Nightshade, and has much the appearance of *S. aviculare* (S. laciniatum *Ait.*), to which species it is indeed in habit so closely allied that superficial observers, seeing these plants growing promiscuously, will hardly become aware of their distinction.——It differs from *S. aviculare* in its green but not dark purplish twigs, its sessile, decurrent, somewhat scabrous, and less shining leaves, whilst those of *S. aviculare* are distinctly petiolate, and consequently not decurrent along the twigs; in its more tender corollas, which are very slightly, but not to the middle, five-cleft, and hardly ever outside whitish, its thinner styles and filaments, the latter not shorter than the anthers, its more acute teeth of the calyx, its almost spherical, transparently green berries with large seeds: the berries of *S. aviculare* are, on the contrary, at all times exactly egg-shaped, of an orange colour, and with seeds but half as large as in *S. vescum*. The natives of Gipps' Land, moreover, reject the berries of the former on account of their disagreeable taste.——The Gunyang has been found, as far as I know, only yet in Gipps' Land, where it occurs on sand-ridges around Lake Wellington; on the coast towards the mouth of the Snowy river; on grassy hills at the Tambo, the Nicholson's River, and Clifton's Morass; on the rich shady banks of the Latrobe River, and near the Buchan River. The occurrence of the plant in such varied localities proves how easily it may be cultivated in any soil. It flowers during the spring, and ripens its fruits towards the end of the summer. The berries only lose their unpleasant acridity after they have dropped in full maturity from the branches, and then their taste resembles in some degree the so-called Cape Gooseberry (*Physalis Peruviana*), to which they are also similar in size. *Abridged from a paper by Dr. F. Mueller in Hooker's Journal of Botany.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Chrysanthemums in most instances will be the chief feature of attraction here at present, and where these are largely grown, which they should be wherever there is a demand for flowers at this season, they make a fine display, and are worth every necessary attention to preserve them in beauty as long as possible. They are very impatient of a close rather warm atmosphere, and if the house contains plants requiring this treatment the Chrysanthemums should, as far as is practicable, be placed in the coolest part where air can be given freely on every favourable opportunity; for except they can be rather freely exposed to air their foliage soon gets attacked and disfigured by mildew, especially if the plants are bushy and well grown. See also that they are kept well watered at the root. Use fire only when absolutely necessary either to prevent the temperature from falling too low or to dry the atmsphere. Endeavour to have everything neat and clean, and set off the plants in bloom to as much advantage as possible. If such things as Geraniums, Cinerarias, and Calceolarias must be wintered in the same house with Heaths and other hard-wooded plants, they should be kept as much as possible by themselves as they will require a somewhat closer temperature than hard-wooded plants; but where circumstances admit of it these should occupy a house or pit by themselves. Cinerarias and Geraniums intended for late flowering will do very well in a cold pit until severe weather sets in; but those intended for flowering early should be placed at once where fire heat can be used at will so as to be able to preserve the foliage from damp. Roses for early forcing should be pruned by this time and placed where they will at least be safe from heavy rains. Where American and other shrubs are used for forcing these should be taken up and potted without delay, placing them in a cold pit until they are wanted for forcing or in a turf pit where they can be protected from severe weather by straw mats, shutters, or other covering.

FORCING DEPARTMENT.

PINERIES.—The plants expected to show fruit early next year will be greatly benefited by being kept in a comparatively dry state for a few weeks previous to subjecting them to a warm moist temperature. The atmosphere should be kept dry, also allowing the soil about the roots to become as dry as can be done with safety; do not, however, subject the plants to a very low temperature, but keep this at from 60° to 65° by means of fire heat, for although the plants will bear a considerably lower temperature without any apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth, and just as effectually induce a tendency to show fruit as checking the energies of the plant by an unnaturally low temperature, and without any of the ill effects of the latter method. No dependence can be placed on the weather at this season, therefore see to plants in pits with insufficient means of heating being well protected by means of covering at night, and maintain the command of a rather high temperature by frequently renewing the linings, &c., so as to be prepared for any sudden decrease of the external temperature; avoid anything approaching excess of atmospheric moisture among young stock, whether in pits heated by linings, or in better arranged structures, which only tends to promote a too free rate of growth for the amount of light, and weakly blanched foliage is the result. VINERIES.—Where forcing is commenced, attend to previous directions as to keeping the atmosphere moist, as there will be some difficulty in getting Vines to break freely at this season except this is attended to. If circumstances allow of having a bed of fermenting manure inside the house, this will be found the best means of keeping the atmosphere regularly moist, but if this cannot be used the house must be sprinkled with the syringe frequently, and the evaporating troughs kept full. Also see that the roots are afforded a steady gentle warmth until the buds are fairly swelled; keep the temperature about 50° by fire heat at night, and 60° by day, letting it rise to 70° on the forenoons of sunny days. Get succession houses cleaned, the Vines pruned, painted and put into order for work, and see that the heating apparatus is in perfect order, for if this or anything else about the house requires any repairs this should be done while the house is not in use.

FLOWER GARDEN AND SHRUBBERIES.

If the beds are not yet filled with their occupants for the winter lose no time in getting them furnished with them, as frost may now soon be expected. Where the land is not too wet alterations of grounds and planting should be carried on with dispatch; but on no account attempt planting when the soil is in a state of puddle; the drier soil is when placed round the roots of newly planted trees (provided they are judiciously watered in) the sooner they will emit fresh roots. Mulching is, however, requisite to keep out frost, and earlier in the season to prevent evaporation. As tree leaves are always in request either as a fermenting material or for leaf soil, they should at this season be carefully collected; if they are required only as a manure they may be stowed away in any bye place, and left to rot; but if, as is generally the case, they are in demand as a cheap mode of furnishing bottom-heat to Pines as well as for forcing different kinds of vegetables, some pains should be taken to keep them dry; for this purpose they should be stacked up in some back place, or behind the garden walls where access can be had to them at all times; and after allowing time for them to settle put on a coat of thatch to effectually secure them from rains. By these means they will be found in a state fit for use for a twelvemonth to come.

HARDY FRUIT AND KITCHEN GARDEN.

Any planting of young trees, or removing of others which may yet remain to be done, should be proceeded with as expeditiously as possible, for the sooner this kind of work is finished for the season the less trouble will be required in watering next spring and summer. Pruning and nailing should now be proceeded with every fine day, even although it should delay some of the other work, which can be done with more comfort in bad weather than nailing; it is most important to get the latter done while the weather is mild. Nailing is a cold enough job for even a warm winter day; but to turn men out to it in very cold or wet weather, and expect them to do a fair day's work indicates bad management. Look over fruit stores frequently to see that all is keeping well, and remove any fruit that may show symptoms of decay, so as to prevent the mischief from spreading. A good stock of Lettuces fit for use should be put into cold frames or turf pits where they can be protected from frost by means of straw mats or some other efficient covering; also take care to secure a good supply of Endive for winter use. Cauliflowers coming in must be frequently examined; those not wanted for use should be taken up and stored till wanted; for these cannot be safely trusted to the weather after this season. Take advantage of frosty mornings to get manure wheeled on quarters where it will be wanted, and get all spare ground trenched and ridged as soon as possible.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Nov. 13, 1856, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind.	Rain.
Friday 7	10	30.570	30.525	49	37	43.0	48	49½	N.E.	.00
Satur. 8	11	30.379	30.119	46	29	37.5	47	49	S.W.	.15
Sunday 9	12	30.089	29.533	51	31	41.0	45	48½	S.E.	.11
Mon. 10	13	29.544	29.413	45	25	35.0	43	48½	N.	.01
Tues. 11	14	29.480	29.348	45	34	39.5	46	48	N.	.07
Wed. 12	○	29.735	29.682	44	30	37.0	45	48	N.	.00
Thurs. 13	16	29.863	29.796	45	36	40.5	45	47½	N.W.	.04
Average		29.951	29.817	46.4	31.7	39.0	46.3	48.4		.38

Nov. 7—Cloudy; overcast; barometer unusually high; cloudy.
— 8—Overcast; densely clouded; fine; rain at night.
— 9—Clear; cloudy and fine; slight showers.
— 10—Slight rain; white and dusky clouds, with clear intervals; frosty.
— 11—Fine but cold; cloudy; rain.
— 12—Cloudy and cold throughout.
— 13—Fine; cloudy; fine; showery at night.
Mean temperature of the week 5 deg below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Nov. 22, 1856.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 16	49.0	33.8	41.4	12	0.41 in.	5	3	1	3	5	7	4	2
Mon. 17	48.4	33.5	40.9	15	0.40	5	6	1	1	6	7	2	2
Tues. 18	48.2	34.4	41.3	18	0.56	[illegible]	6	1	2	3	10	3	3
Wed. 19	48.9	35.3	42.1	15	0.87	1	4	3	4	3	9	3	3
Thurs. 20	48.9	36.0	42.4	12	0.35	1	7	2	—	6	4	6	4
Friday 21	49.3	37.8	43.5	20	0.37	5	4	4	3	1	6	5	2
Satur. 22	48.8	35.1	41.9	19	0.62	3	3	5	2	4	6	6	1

The highest temperature during the above period occurred on the 16th, 1849—therm. 62 deg.; and the lowest on the 16th, 1841—therm. 15 deg.

Notices to Correspondents.

BEES: *Apiarian.* There is no periodical on this subject. "My Bee-book," by Cotton, is a good one; but the best book of all is observation, assisted by the advice of some cottager, who is successful with his hives, from long experience.

CUCUMBERS: *Mary.* Cuthill's Black and White Spines are excellent varieties, either for "early work" or for ordinary purposes.

EDGINGS: *W H D.* The best plant for making an edging under the drip of trees where Thorns and Beech have failed would be the larger Periwinkle, or you might use Ivy kept nicely clipped.

FERNS: *A Dublin Subscriber.* They cannot be copied on steel; but they may on copper. The process is termed Nature-printing, of which Mr. Moore's folio volume of "British Ferns" is a beautiful example. The history of the art is not suited to our columns. You will find it fully explained in Mr. Henry Bradbury's "Nature-printing, its Origin and Objects," a pamphlet published by Bradbury and Evans.

FIR CONES: *J G.* Nothing is more easy or more universally understood by those who really are gardeners. We fear you have had very unskilful advisers. Place the cones in a warm dry place till they fall to pieces—or if they will not do this split them by driving an iron spike through the woody centre. Then separate the seeds and sow them next March in pans of loam placed in a garden frame on a thick bed of leaves, so as to give them a very little artificial heat. When the seedlings have formed their second leaves, or in the autumn, pot them separately in small pots of loam thoroughly drained.

GREENHOUSES: *Reader.* It is undoubtedly useful to cover a greenhouse at night in frosty weather. Frigi Domo and straw mats are good materials for the purpose.

GRISELINIA: *Ferrarius.* It is a native of New Zealand, but perfectly hardy. It is quite a new introduction and has no other name.

HORTICULTURAL SOCIETY: *J H.* Apply to the Secretary, 21, Regent Street.

IVY: *D R.* It is a striking silver variegation—but will it remain true?

MANURE: *A Constant Reader* cannot do better than save the burnt ashes of Laurels and other evergreens; mixed with rotten leaves they form a very useful dressing for all roots and vegetables which do not require very strong manure.

NAMES OF FRUITS: *W Walmsley.* 1, Easter Beurré; 2, Chaumontel; 3, 7, 11, Beurré Diel; 4, 8, 9, Glou Morceau; 5, Urbaniste; 6, Aston Town; 10, Bishop's Thumb; 12, Brown Beurré; 13, Beurré Rance; 15, St. Germain; 16, Black Worcester (stewing); 17, Beurré de Capiaumont; 18, Louise Bonne of Jersey; 19, Marie Louise; 20, Passe Colmar; 21, Swan's Egg. Apples: 1, Hollandbury; 2, Lamb Abbey Pearmain; 3, Beauty of Kent.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Ebor.* Apparently Ipomœa sinuata and the white variety of Clitoria Ternatea. We presume Siebold's Chænomeles japonica umbilicata is merely a "Pyrus japonica" with a more open eye than usual. No, thank you, as to that plant; should be much obliged for any of the others. —*Cassia.* The species of this genus cannot be positively determined without their pods. Yours seems to be near C. viminea. The species are very often beautiful things in the hands of those who know how to grow plants.—*J Fordham.* We know nothing about Cupressus elegans except that it is also called C. Knightiana, and is said to have been introduced from Mexico in 1840. Doubtless it is some garden name of no sort of authority.

ROGERS' CONICAL BOILER: *J H M J and others.* Mr. Lynch White's address will be found at p. 766 of to day's advertiser.

ROSES: *An Old Sub.* Repot them now. We imagine that Mr. Paul's directions respecting Rose growing in pots will answer every purpose. The book costs only a trifle, and can be had upon application to him at Cheshunt.

SEEDLING CAMELLIAS: *W R G.* It is true that a number of seedlings raised from the finest Italian varieties have been received by the Horticultural Society. But they cannot be given to any persons who are not Fellows.

SKELETON LEAVES: *T H.* Steep them for weeks in rain water in a warm place freely exposed to air; when nearly ready add a small quantity of muriatic acid to it. A great deal of care is however required in picking out with needles the parts of the leaves that are not rotted away.

TOBACCO: *Ishi Wyrgh.* We have not yet ascertained what quantity of Tobacco is consumed in the Queen's Tobacco pipes. It is much less than formerly because all seizures are offered for sale, and they only burn what cannot find a purchaser.

YEW HEDGE: *Essex.* Prune hard in any time before next March your fine old Yew hedge, about 14 feet in height, which is getting so very thin that one can see through it. The south side being green enough while the north side dies seems to indicate the action of some external cause which you must also remove.

MISC.: *T v s.* One netting is about as good as another. Spores are the seeds of Cryptogamic plants; spermatia are totally different. Mycelium is the spawn of any fungus. All fungi have mycelium. The St. Bruno's Lily is Czackia Liliastrum.

The Gardeners' Chronicle Newspaper.

SATURDAY, NOVEMBER 15, 1856.

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News of the Week.

AN extraordinary meeting of the French Cabinet was held on Monday at St. Cloud under the presidency of the EMPEROR, and three Cabinet Councils have been held this week in London by HER MAJESTY'S Ministers. The first result of this renewed activity on the part of the two Governments is said to have been the re-establishment of an entire accord on the Russian question, and on the other topics of foreign interest which have latterly occupied their attention. It is said that the Emperor NAPOLEON is convinced that the due execution of the Treaty of Paris is as necessary for the honour of France as it is for the future tranquillity of Europe, and that he has expressed his concurrence in the determination of the British Government to insist on the literal fulfilment of the Treaty, and to reject the pretexts for delay and evasion by which Russia is endeavouring to divert attention from the real questions at issue. It is understood that there will be no new meeting of the Congress of Paris, but that the British fleet will remain in the Black Sea, and the Austrian troops will occupy the Principalities until the affairs of Bolgrad and the Isle of Serpents are satisfactorily settled. With regard to Naples, it appears that King FERDINAND is still indisposed to make concessions, and that the allied Governments have this week sent their passports to Prince CARINI and the Marquis ANTONINI, the Neapolitan Ambassadors in London and Paris, with an intimation that their presence at the allied Courts is no longer advisable.

By the overland mail from India we learn that the expedition for the Persian Gulf was to leave Bombay about the end of October. Herat has fallen from famine, but an Affghan force is said to have recaptured it. DOST MAHOMMED is without supplies, and his troops at Kandahar are in a state of mutiny.

Home News.

THE COURT.—The Queen, Prince Albert, and the Royal family continue at Windsor Castle. On Thursday week after inspecting the troops at Aldershott, the Queen had a dinner party in the Pavilion, which included in addition to the Royal visitors Lieut.-General Knollys, Major-General Sir J. Scarlett, Major-General Lord W. Paulet, and Major-General the Hon. A. Spencer. After dinner her Majesty, with the Royal party, honoured the amateur theatricals performed by the officers in camp with their presence. On Friday morning the Queen drove round the camp with the Duchess of Brabant, and Prince Albert rode on horseback with the Duke. Her Majesty left the Pavilion at 3 P.M., and returned to Windsor Castle. On Saturday morning the Duke and Duchess of Brabant visited the Duchess of Cambridge and the Duchess of Gloucester. Prince Frederick William of Prussia arrived at the Castle on a visit to the Queen. On Sunday morning the Queen, Prince Albert, the Prince of Wales, the Princess Royal, Princess Alice, and Prince Frederick William of Prussia attended Divine service in the private chapel of the Castle; the Dean of Windsor officiated. The Duke and Duchess of Brabant went to the Roman Catholic Chapel at Claremont. On Monday morning the Duke and Duchess of Brabant left the Castle on their return to Brussels. The usual parade of the troops, which was to have taken place on Monday morning in honour of the birthday of the Prince of Wales, who attained his 15th year on Sunday, was countermanded in consequence of the serious illness of the Prince of Leiningen, half-brother to her Majesty. All invitations to the Castle were also cancelled, and the theatrical performances which were announced to take place at the Castle on Thursday were postponed. The Earl Granville, Mahomed Pasha, and M. Musurus, the Turkish Ambassador, had audiences of her Majesty. On Tuesday morning the Queen, with the Princesses Helena and Louisa and Prince Arthur, walked in the Castle Gardens. The Duchess of Kent visited her Majesty. Princess Alice took a carriage drive. On Wednesday morning the Queen, with the Princess Royal, walked in the grounds adjacent to the Castle. Prince Albert came to town and presided at a meeting of the Council of the Duchy of Cornwall. Prince Frederick William of Prussia accompanied his Royal Highness to town and paid visits to the Duchess of Gloucester, the Duke of Cambridge, and the Countess Bernstorff, wife of the Prussian Minister. The Prince of Wales went out shooting, and in the evening his Royal Highness went to Eton College and attended a lecture on Chemistry delivered by Mr. Pepper in the mathematical school. On Thursday morning the Queen and Prince Albert, accompanied by the Princess Royal and Prince Frederick William of Prussia, walked in the Home Park. The Duchess of Kent visited her Majesty. The Prince of Wales rode on horseback. Lord de Tabley has succeeded Lord Camoys as lord in waiting. The Hon. Mortimer Sackville West has succeeded the Hon. Colonel Hood as the groom in waiting on her Majesty.

PRINCE ALFRED arrived at Bonn on Friday from Brussels, and passed the night at the Hotel de l'Etoile d'Or. On Saturday his Royal Highness continued his journey to Coblentz, where he arrived on the same evening. The Prince dined at the Giant Hotel, and afterwards proceeded to the Palace, where the Prince and Princess of Prussia had arrived to receive him. On Sunday morning his Royal Highness accompanied the Princess of Prussia to the Church of England service in the chapel of the palace. The Royal party afterwards drove to Stolzenfels.

PRINCE FREDERICK WILLIAM OF PRUSSIA landed at Dover on Saturday, and proceeded to Windsor Castle, where he still remains on a visit to the Queen.

NEW PEERAGE.—The Queen has created Lord Talbot de Malahide a Peer of the United Kingdom, by the same title which he bears in the peerage of Ireland.

THE CABINET.—The first Cabinet Council of the season was held on Tuesday at the official residence of the First Lord of the Treasury in Downing Street. All the Ministers were present. Cabinet Councils were also held on Wednesday and Thursday.

DISMISSAL OF THE NEAPOLITAN AMBASSADORS.—Prince Carini and the Marquis Antonini, the Neapolitan Ministers in London and Paris, have received an intimation that their presence is felt by the English and French Cabinets to be no longer advisable, and that passports are consequently at their service.

PARLIAMENTARY MOVEMENTS.—On Thursday Parliament was further prorogued by Royal Commission to Tuesday the 16th December. The significant words

"then to meet for the despatch of business" were not included in the commission.

THE JUDICIAL BENCH.—Sir Alexander Cockburn has accepted the Chief Justiceship of the Common Pleas, and Sir Richard Bethell will succeed him as Attorney-General.

RUMOURED RESIGNATION OF THE BISHOP OF ROCHESTER.—It is said that the Bishop of Rochester contemplates the resignation of the see, in consequence of ill health.

THE GERMAN LEGION.—The Sultana and Culloden freight ships left Spithead on Monday with 1200 men and officers of the British German Legion for the Cape.

PUBLIC PENSIONS.—Lord Palmerston has recommended her Majesty to confer a pension of 100*l.* a year on Dr. W. P. Alison, late Professor of the Practice of Physic in Edinburgh University; a pension of 100*l.* a year on Mr. Philip James Bailey, the author of "Festus;" and a pension of 50*l.* a year on Mrs. Waghorn, the mother of Lieut. Waghorn.

PARDON FOR POLITICAL OFFENCES.—The Queen has signified her pleasure that a full and free pardon be granted under the Great Seal to all persons suffering under the consequences of conviction for political offences. What had hitherto been done merely remitted the punishment inflicted in each case, but a pardon under the Great Seal restores the individuals to all their civil rights.

Foreign.

FRANCE.—The Emperor and Empress arrived in Paris on Sunday afternoon from Compiègne, and immediately proceeded to St. Cloud. An extraordinary Cabinet Council was held on Monday at that palace, the Emperor presiding. It is said that all the important questions now pending, both of foreign and domestic interest, were discussed at this Council, and that explanations took place which will render the contemplated changes in the Ministry unnecessary for the present. M. de Persigny left Paris on the previous day for London. During his stay in Paris he left nothing undone to remove whatever misunderstanding had occurred between the two Governments, and to restore things to their former state. A note from Lord Clarendon is stated to have been the final cause of re-establishing an entire accord between France and England on the Russian affair.—General Kisseleff, the new Russian Ambassador, presented his letters of credence to the Emperor at the Palace of the Tuileries on Wednesday, the Emperor having come to Paris on purpose to receive him. The following is the reply made by the Emperor to the speech of the Ambassador on the occasion:—

"Monsieur le Comte,—As soon as the Treaty of Peace was signed it became my constant care, without weakening my ancient alliances, to modify by kind acts all that which the strict execution of certain conditions might make severe. I learnt with pleasure that my Ambassador at St. Petersburg, animated by these sentiments, had succeeded in winning the goodwill of the Emperor Alexander. The same welcome awaits you here, you may rest assured, because, independently of your own personal merits, you represent a Sovereign who so nobly knows how to impose silence on sad reminiscences, which war too often leaves behind, to think only of the advantages of a sincere peace by entertaining friendly relations."

The state of the domestic affairs of France is said to be of much gravity, and more than one influential and plain-spoken member of the Cabinet is said to have declared so to the Emperor in full Council within the last few days, and added that unless certain measures which they suggested were adopted no one could say what the consequences might be. In consideration of this state of affairs his Majesty has abandoned his intention of visiting Fontainebleau, and the Emperor and Empress have placed at the disposal of the Prefect of Police a sum of 100,000f. for the purpose of opening the economical kitchens which were of such great assistance to the poorer classes last winter.—The Paris journals reprint Lord Palmerston's speeches in the manufacturing districts, and express the general feeling that the frank declarations of his lordship on foreign affa rs will be attended with beneficial results throughout the continent, as showing that the English Cabinet remains unshaken in its determination not to give way. The continued occupation of the Black Sea and the Principalities is still the subject of animated discussion in the Paris papers. The Republican *Siècle* warmly defends the English alliance, and manfully supports the policy of maintaining the occupation of the Black Sea. It shows that this occupation has been purposely misinterpreted by the partisans of the Russian alliance, and contends that England is perfectly justified in keeping a squadron in the Black Sea, if she considers the independence of Turkey threatened by the present attitude of Russia, inasmuch as each of the three Powers who signed the treaty of April 15 engaged "jointly and severally" to guarantee the integrity of the Turkish territory, each of "the Powers" binding themselves therefore individually as well as in concert with the other two. The *Débats*, *Union*, and *Assemblée Nationale* reply to this argument at considerable length. The latter urges that the word "solidairement" (which the treaty makes use of) does not bear the interpretation "jointly and severally," but merely signifies "jointly," and that parties bound "solidairement" cannot act independently of one another. The *Union* sneers at the Republican organ for its sympathies towards England; and the *Débats* argues in favour of submitting the questions at issue to the Congress of Paris on the ground that, if Art. 1 of the treaty states that the contracting Powers guaranteed "jointly and severally" the integrity of Turkey, Art. 2 enacts that the Powers shall concert with the Porte on the measures to be adopted, and also on the employment of their military and naval forces. Now this condition, it says, has not been accomplished, and cannot be under present circumstances, since concord does not exist among the three contracting Powers on the manner of examining the question.—Letters from Madame Rachel, dated Cairo, the 18th ult., state that her health had greatly improved by the change of air, and express a confident hope of further amelioration.

SPAIN. — The Ministerial paper *España* declaims against the Anglo-French alliance, and proclaims the advantages of an alliance between Spain and the Northern Powers, in order to counterbalance the "supremacy" of France and England. A Circular relative to the press prohibits discussion in relation to religious subjects, and to matters personal to foreign Sovereigns, and also the diffusion of Socialist doctrines, as contrary to propriety and morality. The bishops are authorised to take the necessary steps to fill up vacant cures. The Infanta Dona Josefa, who is married to M. Guell y Rente, has purchased a small house on the sea-shore near St. Sebastian. Her Royal Highness, whose health is very delicate and who is a prey to profound melancholy, intends to reside there in retirement.

THE CAPE DE VERDES.—The South-American Company's steam-ship Imperador has brought intelligence that the island of St. Vincent, one of the Cape de Verde group, has suffered terribly from cholera. Out of a population of 1200, 800 had died, principally males. The bodies of the dead had to be burnt in the public square for want of means to inter them. The Imperador was coaled by women.

MADEIRA.—Letters from Madeira state that there are symptoms of improvement in the vines, and it is hoped that it may continue, so that the supplies of wine may be kept up. The failure of the vine crops has had the effect of turning the native industry of Madeira into other profitable channels. The sugar-cane has been planted largely during the last few years with very satisfactory results. Attention has also been paid to the cultivation of corn and to the production of cochineal, both of which branches of industry are likely to become important. The poorer classes are growing vegetables of all sorts, especially the potato, and they now seem to be in a comfortable state. The cholera has departed, and the opportune and liberal donations of bedding, clothing, money, and other articles which have been sent out by the people and Government of Great Britain for the relief of the survivors have called forth the most hearty expressions of gratitude.

THE BALTIC.—The Gulf of Finland was covered with ice on Monday as far as Tolbeacon, in consequence of which about 120 ships were unable to get away, and must remain for the winter if a thaw does not speedily take place. Everything indicated an early and severe winter.

LAPLAND.—The Stockholm papers state that the intelligence from Lapland is very deplorable. The severe cold which prevailed during the month of August destroyed nearly all the crops, which is an almost irremediable misfortune there, as there are no means of communication. The Laplanders are in great alarm, anticipating a famine in the coming winter.

RUSSIA.—It is reported that Prince Napoleon, who is now at Stuttgard, is endeavouring to obtain the hand of the young Princess of Leuchtenberg, the niece of the Emperor of Russia; and that a marriage is not improbable between the King of Sardinia and the Grand Duchess Maria, widow of the Duke of Leuchtenberg.—Letters from St. Petersburg state that M. de Morny, the French Ambassador Extraordinary, is occupied in that capital in preparing the bases of a treaty of commerce between France and Russia, by which French commerce will obtain important advantages for the entry of its productions into the Russian territory. His Excellency is said to have sold his state carriage and the rich collection of pictures, which he took with him to Russia, to great advantage in St. Petersburg, where he has the reputation of being "un heureux spéculateur."

BELGIUM.—The session of the Belgian Legislative Chambers was opened on Tuesday by the following speech from the King:—

"Gentlemen,—I longed to find myself again in the midst of you, to address to the nation the expression of those feelings of happiness which have been impressed upon me by those brilliant testimonies of affection and devotion which have been afforded me on the occasion of the 25th anniversary of the inauguration of my reign. Those manifestations, arising out of the patriotic initiative of the Chambers, will not be fruitless to the country. They will raise it higher in its own estimation, and will obtain honour for it in the eyes of the foreigner. Our international relations feel its influence. Never have they been marked by a more kindly character. Providence, in granting us the blessing of a generally abundant harvest, has brought back security to a great number of families who have been suffering many sacrifices and privations during late years. Nevertheless, the problem of public food must continue to occupy our warmest attention. The triennial reports which have just been published prove the solicitude of my Government for the advancement of primary and secondary instruction. An interest no less great is felt by it for the dissemination of a superior system of instruction. The opening of the academical year has furnished it recently with the opportunity of reverting to those principles, the firm and sincere application of which must insure the prosperity of the Universities of the States. The movement of our national literature has not lessened. The arts and sciences shine now with the same splendour, and are extending every day their useful application. Much progress can be yet made by our agricultural industry. With a view of assisting it my Government will propose to you the revision of our legislation in respect to watercourses. Industry borrows more than ever from art the riches and elegance of its forms. It is necessary to complete the legal guarantees in favour of the property in models and the designs of manufacture. The commercial situation of the country is on the whole satisfactory. A law voted in the last session has settled the basis of our commercial *régime*. I expect from the wisdom of the Chambers that the revision of the tariff of our Customs' duties will be continued in that spirit of prudence and of moderation which measures to which such vast interests are attached must necessarily demand. I have concluded a Convention of Commerce and of Navigation with his Majesty the King of Greece. Negotiations have commenced with other States to place the stipulations of treaties in harmony with the principles of our new maritime system. I verify with satisfaction the augmentation of the products in many branches of the public revenue. A project of law to make some modifications in our legislation relative to patent rights will be submitted to your deliberation. The numerous changes which time and circumstances have occasioned in the revenue relative to real property are an obstacle to the just assessment of the local imposts in the provinces, the communes, and in particular places. New land valuations are indispensable, in order to re-establish a proportionate equality in the application of this impost. To effect this object a project of law will be presented to you by my Government. Propositions will be made to you to ameliorate in a certain degree, and in a permanent manner, the condition of the inferior *employés* of the State. The gradual revision of the Criminal Law will take its course. Some articles of the second book of the Penal Code will be submitted for your approval. The maintenance of the inmates in the depôts of mendicity tend to increase the debts of the communes. My Government is engaged in the consideration of measures to diminish those charges. Measures will be proposed to you with that object. My Government attaches a special importance to the project of law regarding the establishments *de bienfaisance*. I hope that it will be shortly discussed. Our citizen militia have shown an eagerness on all occasions to manifest the excellent spirit that animates them. On the other hand, the army has not ceased to merit all the sympathies of the country. The most searching investigations have been ordered, with the view of furnishing to my Government the elements necessary to be submitted to your consideration as to the means best calculated to reconcile the great interests involved in the defence of the country with those of our national commerce and our maritime metropolis. I recommend the solution of these questions to your characteristic patriotism. The great works of public utility undertaken by the State will be followed up with activity. We have seen this year new roads of communication opened. Many lines of railway, sections of routes, and of canals have been opened for general traffic, thus extending and completing without interruption the communication between the different parts of Belgium. Gentlemen, the projects of law, the presentation of which is announced, and those which the Chamber has already in hand, give to the labours of the session now opened a great importance. It is for you to render them fruitful for the future of the country by giving to my Government your loyal and active support."

HANOVER.—A telegraphic despatch announces that the Hanoverian Chambers have been dissolved by Royal order. New elections are to take place, and the new Chambers are to meet on the 10th of February next.

FRANKFORT.—The Germanic Diet in its sitting of the 6th inst. adopted the conclusions of the special committee appointed to make an immediate report on the Neufchâtel question. Those conclusions are to the effect that the Diet adheres to the protocol of London of the 24th May, 1852, recognising the rights of Prussia over the Principality of Neufchâtel; and that it requests the German Governments having diplomatic agents accredited to the Swiss Confederation to support, in the name of the Germanic Diet, the release of the Royalist prisoners, at the same time intimating to the Swiss Government that the Diet will uphold the steps that may be taken for that purpose by the Government of Prussia. These resolutions are to be immediately communicated officially to the Swiss Government by the German representatives accredited to Berne.

SWITZERLAND.—A telegraphic despatch from Berne, dated on Wednesday, announces that General Dufour, intrusted by the Federal Council with a mission to the Emperor Napoleon, left on the previous night for Paris.

PRUSSIA.—The Supreme Court on Tuesday rejected the appeal of Teschen, the police agent, against a sentence of the Court below, which condemned him to eight years' detention on the charge of stealing official despatches.

BAVARIA.—The Bavarian Government has issued a notice to its officials not to permit the disbanded soldiers of the British German or Swiss Legion to enter the territory, and to arrest all Bavarian subjects who may have enlisted in it.

SAXONY.—The marriage of the Archduke Charles Louis, second brother of the Emperor Francis Joseph, with his cousin, Princess Margaret of Saxony, took place at Dresden on the 4th inst. The Archduke is in his 24th, the bride in her 17th year. The festival, according to the customary etiquette of German Courts, lasted four days. The marriage of the Hereditary Grand Duke of Tuscany with Princess Anna of Saxony will be celebrated on the 24th. These alliances are some compensation to the King and Queen of Saxony for the "misalliance" just contracted between their second daughter, the Duchess of Genoa, and Captain Rapallo, who, according to general report, has nothing to recommend him intellectually, and still less if possible personally.

AUSTRIA.—The Emperor and Empress will leave Vienna next week for Italy. The Concordat is producing an unlooked-for result. Vast numbers of persons in Moravia and Bohemia are embracing the Protestant faith. One of the richest manufacturers in Austria, with large landed property also in Hungary, has joined the Evangelical Confession with 300 of the men employed in his foundries. In various parts of the empire the Lutheran and Calvinistic churches have recently been so much frequented by Roman Catholics that there has not been room for the usual Protestant congregations.

ITALY.—The Emperor of Austria is about to issue an Imperial decree restoring the Central Congregations of Lombardy and the Venetian States. The Congregations are to assemble very speedily, with definite and extended powers, and the deputies chosen by the communes are confirmed in their seats. It is related in Ultramontane circles that a very general amnesty will be granted at Rome on the 8th of December, the anniversary of the

day on which the doctrine of the Immaculate Conception was declared to be one of the dogmas of the Roman Catholic Church. The British and French steam frigates stationed at Naples have left on a visit to Messina and Palermo, but they will probably revisit Naples. The *Risorgimento* of Turin, of the 4th, states that the subscription of 10,000 muskets, originating with the Mazzinian party, is a complete failure.

TURKEY.—We have accounts from Constantinople to the 3d inst. Lord Stratford de Redcliffe had invested the Sultan with the Order of the Garter, the ceremonial being conducted with great pomp. The Sultan sent two masters of ceremony and several Court carriages in which the insignia, exhibited on red velvet cushions and carried by the different members of the Embassy and the heralds, were placed, the Ambassador and Garter King-at-Arms occupying the principal carriage. Lord Lyons, Sir Henry Bulwer, and several others who had been invited, followed in the remaining carriages as far as there was room; the rest, who were mainly officers, rode on horseback. The Ambassador made an address, which was translated by the Minister of Foreign Affairs, and then the statutes of the order were read. The insignia were next handed over, a compromise being made between the etiquette which forbids to touch the person of the Sultan and the customs of the investiture, by which the new member must be literally invested. All the insignia were therefore handed to the Sultan with the exception of the riband with the St. George, which the Ambassador placed over the Sultan's shoulder, and the Garter, with which he touched the Sultan's knee. The Sultan seemed to take great interest in the heralds, or rather in their costumes, which he examined with attention after the ceremony. His Highness has conferred on Lord Lyons and Sir Henry Bulwer the decoration of the Medjidie; and has also presented to the former a sabre ornamented with brilliants, in testimony of his satisfaction. The Cressy ship of the line had arrived and joined his lordship's squadron.

CIRCASSIA.—Accounts from Circassia to the 23d ult. state that Sefer Pacha was encamped at Sasdjok with 25,000 men. The forts and blockhouses were still in the possession of the mountaineers. An English steamer had taken the Naib back to Circassia.

BLACK SEA.—The Russians have made another attempt to land at Serpent's Island. They sent a steamer there to land provisions, water, and clothing for the seven men, as well as different materials for the lighthouse. Captain Vansittart, of her Majesty's ship Magicienne, the superior officer in command of the station, went on board, and informed the Russian commander that he could not allow him to land, but that he was ready to take off in his boat the provisions and clothing, though not the materials for the lighthouse, as the latter has been in a perfect state since the 15th of the present month, displaying a splendid revolving light after the best model, and with the latest improvements. He offered likewise to take the commanding officer with him on shore, and allow him to communicate with his countrymen. While the conversation was carried on a boat pushed off from the Russian steamer towards the island, but was prevented from landing, and the Russian steamer departed *re infecta*, after having given over the provisions and clothing.

INDIA.—The overland mail arrived at Trieste on Tuesday, with Bombay news to Oct. 17. The expedition for the Persian Gulf was to leave Bombay in the end of October, and reinforcements of men and supplies were to be furnished by the Imaum of Muscat.—The directors of the Great Indian Peninsular Railway have issued an advertisement for tenders for a line from Wassma to Nagpore, a distance of 487 miles.—The native troops at Peshawur were suffering from fever.

PERSIA.—A detachment from the Persian army before Herat had captured the Affghan city of Furrath, sending the governor a captive to Teheran. The *Delhi Gazette* of the 13th announces the fall of Herat by famine. The governor and his family have been put to death. The Persian army has been reinforced to the number of 100,000 men. Dost Mahommed is without supplies, and his troops in Kandahar are in a state of mutiny. Accounts received through Turkey state that the Persians were subsequently expelled from Herat by an Affghan army.

City Intelligence.

BANK RATE OF INTEREST.—The Bank of England on Thursday resolved upon an advance to a uniform rate of 7 per cent. upon all classes of bills.

ROYAL BRITISH BANK.—In the Court of Bankruptcy last week Mr. James Wyld, of Charing Cross; Mr. Robert Taylor, of Lambeth Terrace; Mr. Henry Sadler Mitchell, of Great Prescott Street; Mr. James Tressam Burke, of Gresham Street; and Mr. John Maxwell, of Bell Square, Finsbury, were chosen assignees of the estate and effects of the Royal British Bank.

CRYSTAL PALACE COMPANY.—In consequence of the letter addressed by the Crystal Palace Company to the Stock Exchange being considered satisfactory, the committee have resolved that the name of the company shall be continued in the Official List as usual.

MONEY MARKET, FRIDAY.—BRITISH FUNDS: Consols for Money, 92⅜ to ½; for the 4th Dec., 92¾ to ⅞; Three per Cents. Reduced, 91 to 91⅜; New Three per Cents., 91¼ to 91⅝; Exchequer Bonds, 1859, 98½ to ⅝; Exchequer Bills, at par to 1s. dis.; India Bonds, par to 1s. prem.—FOREIGN: Turkish Six per Cents., 90⅛ to ⅝ for 28th inst.; Guaranteed Four per Cents., 99⅞ to 100; Brazilian Old Five per Cents. (small bonds) 99½; ditto, Four and a Half per Cents., 97; Chilian Six per Cents., 103; Dutch Two and a Half per Cents., 65 (exch. 12 fl.); Equador Provisional Land Warrants, 4¼; Mexican, for the 28th inst., 21¾; Russian Four and a Half per Cents., 95½; Spanish New Deferred Three per Cents., 23⅛; ditto, for Account, 23, 23¼, and 23⅛; Committee's Certificates at 5 per cent.; Venezuela Deferred, 15.

Bank of England.

ISSUE DEPARTMENT.

Notes issued	£23,389,805	Government Debt	£11,015,100
		Other Securities	3,459,900
		Gold Coin and Bullion ..	8,914,805
		Silver Bullion	—
	£23,389,805		£23,389,805

BANKING DEPARTMENT.

Proprietors' Capital	£14,553,000	Government Securities (including Dead Weight Annuity)	£10,592,679
Rest..	3,237,423	Other Securities	18,626,428
Public Deposits (including Exchequer, Savings Banks, Commissioners of Nat. Debt, and Dividend Accts.)	4,631,967	Notes	2,150,435
Other deposits	9,652,655	Gold and Silver Coin .	615,347
Seven day and other bills	909,844		
	£32,984,889		£32,984,889

13th day of November, 1856. M. MARSHALL, Chief Cashier.

Gazette of the Week.

TUESDAY—BANKRUPTS—J. BARLOW, Bolton-le-Moors, Paperhanger—B. COLLINS, Tipton, Boat Builder—J. and B. DELLAGANA, Red Lion Street, Clerkenwell, Stereotype Founders—A. LAZARUS, High Street, Whitechapel, Tailor—W. R. LEWIS, late of Birmingham, Baby Linen Dealer—R. MARSTON and G. MARSTON, Leicester, Manufacturers of Hosiery—J. H. MASON, Blaydon, Durham, Glass Bottle Manufacturer—T. PREBBLE, Ramsgate, Plumber.

BANKRUPTCY ANNULLED—J. BARNSLEY, Rowley Regis, Publican.

SCOTCH SEQUESTRATIONS—R. BRIMER, Dunfermline, Merchant—J. CAMPBELL, Glasgow, Clothier—J. PEDDIE, Glasgow, Leather Merchant—J. SMITH, jun., Glasgow, Metal Refiner.

FRIDAY—BANKRUPTS—H. BAKER and J. AGUILAR, Adam Street, Adelphi, Cement Manufacturers—E. BLAKE, Kings Kerswell, Devonshire, Clay Merchant—I. CLAY, South Shields, Ale and Porter Merchant—T. DORRINGTON, Durham Place, Grange Road, Dalston, Middlesex, Woollen Merchant—R. J. ELLIS and S. FODEN, Liverpool Commission Agents—W. FAIRBARNS, York Road, King's Cross, Coffee and Eating House Keeper—E. GURLING Praed Street, Paddington, Middlesex, Carpenter—G. HAWKINS, Old Kent Road, Oilman—R. JONES, Hawarden, Flintshire, Innkeeper—P. KELLAND, Bampton, Miller—G. LEDWARD, Liverpool, Boiler Maker—J. E. LOSE, Cricklewood, Middlesex, Builder—R. M'LEAN, Liverpool, Victualler—A. PAGE, Baker Street, Portman Square, Boot and Shoe Manufacturer—W. PERL, Staincliffe, Yorkshire, Blanket Manufacturer—W. D. RUCK, Topping's Wharf and Duke Street, Tooley Street, Wholesale Cheesemonger—J. V. SIMPSON, St. Swithin's Lane, City, Commission Agent—W. C. STEURT, Cambridge, Tailor—W. REEVE, Albion Street, Caledonian Road, Engineer—J. TANNER, Chippenham, Wiltshire, and Bath, Commen Carrier—W. TAYLOR, York, Grocer—J. WAKINSHAW, Monkwearmouth Iron Works, Sunderland, Iron Manufacturer—J. WREN and E. WREN, Charlotte Mews, Fitzroy Square, Iron Bedstead Manufacturer.

BANKRUPTCIES ANNULLED—F. DAVI, St. Paul's Street, New North Road, Builder—J. MILLS, Heywood, Lancashire, Cotton Spinner—L. B. PEARCE, York Road, King's Cross, Brick Merchant.

Metropolis and its Vicinity.

LORD MAYOR'S DAY.—The mayoralty of Alderman Finnis was inaugurated on Monday with the usual ceremonies. Both by land and water the route was longer than is usual on such occasions. It is the practice for the procession to pass through the ward of which the new Lord Mayor is alderman; and as Tower Ward, over which the present chief magistrate presides, is situated at the extreme east of the city, the procession had to pass over a larger space than it has to traverse when the Lord Mayor is alderman of a more westerly ward. The procession from Guildhall Yard was headed by a body of police to clear the way. Then came the music of drums and fifes, the boys belonging to the Royal Marine Society with banners, the City Marshal's man, and three trumpeters. Banners and arms of the City Companies were next borne along, with the Royal standard and union jack. A grand military band followed, and almost immediately afterwards came the allegorical devices of Mr. Sheriff Mechi, which seemed to excite more interest than any other portion of the procession, even more than the Lord Mayor himself. These devices consisted of a traction engine and an endless railway, adapted for agricultural purposes, drawn by six horses (Boydell's patent); a prize reaping machine in a car decorated with agricultural produce from Tiptree Hall Farm, drawn by four horses (Burgess & Key's patent); and a steam plough drawn by two horses (Fowler's patent). Throughout the whole of the route these devices were the great topic of attraction. The next and concluding part of the procession consisted of the civic magnates in their carriages, the under sheriff, law officers, Sheriffs and Aldermen, the late Lord Mayor, the band of the Life Guards, the new Lord Mayor in his state carriage drawn by six horses, followed by the usual guard of honour. The procession, after moving out of Guildhall Yard, passed through Gresham Street and Princess Street, up Cornhill, along Leadenhall Street, Aldgate, Minories, Postern Row, and thence by Tower Hill into the Lord Mayor's ward. The procession then moved along Eastcheap to London Bridge, and thence by water to Westminster, where the Lord Mayor was presented to the Chief Baron of Exchequer and the other judges. The procession then returned to Blackfriars Bridge, where it was joined by the Lady Mayoress, who was in waiting in her State carriage. The return to the Guildhall was through New Bridge Street, up Ludgate Hill, through St. Paul's Churchyard and Cheapside, to King Street.

THE DINNER IN GUILDHALL.—The grand banquet given by the Lord Mayor and Sheriffs in honour of their accession to office, took place on Monday after the return of the procession to Guildhall, and was attended by about 1200 persons. Among the company were the Duke of Cambridge, the Lord Chancellor, the Marquis of Salisbury, the Earl of Harrowby, Lord Palmerston, Lord Panmure, the Chancellor of the Exchequer, the Peruvian, Haytian, and Mexican Ministers, Lord Duncan, M.P., Lord Castlerosse, M.P., Sir W. F. Williams, M.P., Sir B. Hall, M.P., the Lord Chief Baron, Major-General Sir G. Pollock, Sir F. Thesiger, M.P., Mr. Justice Halliburton, Colonel Sykes, Mr. Oliveira, M.P., Mr. Justice Erle, Mr. Baron Martin, Mr. Justice Crowder, Mr. Baron Bramwell, Mr. Justice Watson, Mr. Justice Williams, Mr. Justice Willes, Mr. Wilson, M.P., Serjeant Shee, M.P., &c. After the usual routine toasts, the Lord Mayor proposed the health of the Duke of Cambridge as Commander-in-Chief. In acknowledging the compliment his Royal Highness spoke as follows:—

"My Lord Mayor, ladies and gentlemen,—I feel extremely flattered by the very kind manner in which my health has been proposed and received. I am at all times proud and happy to have an opportunity of associating with my fellow-citizens in London, and this is the first occasion on which I have had the honour of addressing them since I assumed a more important position in the public service than I had hitherto held. I am aware that in undertaking the duties of that position much is naturally and justly expected from me; but I hope you will believe me when I assure you that it ever has been, and will always continue to be, my anxious and earnest desire to act in such a manner that when, at some future period, I may have to resign or retire from the post I have now the honour to occupy, it will be with the feeling that I have conscientiously discharged my duty to my country. If by such a course I gain the good opinion and the kindly feeling of my fellow-countrymen I shall feel that I have obtained the most gratifying reward which can fall to the lot of any public man. I had expected, my Lord Mayor, that your lordship might possibly have honoured me by coupling my name with the toast of 'The Army.' You have in some respects done me great honour by naming me alone; but I am desirous, on behalf of the army, which I now have the honour to represent, to express in their name my sense of the distinguished attention which they have received since their return from the seat of war. Nothing could be more gratifying to the feelings of the army than the cordial welcome they have experienced from the whole community since their return from the Crimea. That good feeling has been nowhere more cordially displayed than in this great metropolis, and we are deeply indebted to my excellent friend the late Lord Mayor for the ability with which he presided over the banquet given to the Guards. On behalf of the army I beg to thank my friend the late Lord Mayor and the citizens of London for the very handsome compliment they then paid to our troops. I am sure, also, that the army must be equally gratified by the cordial welcomes which have been accorded to them in the sister capitals of Dublin and Edinburgh. The best reward of a soldier is the kindly approval of his fellow-countrymen. The people of England have exhibited that kindly feeling towards the army, and, as at this moment the representative of the army, I beg to tell you that they are grateful for the compliment."

The Lord Mayor, in proposing "the health of her Majesty's Ministers," said, they were honoured by the presence of a member of the Cabinet who had rendered most important and valuable services to the nation at a period of its greatest need. That noble lord had carried the country safely through a sanguinary war, and he would now doubtless turn his attention to such measures as would maintain the national prosperity in a time of peace. They had seen that the noble lord had lately employed himself in visiting the manufacturing districts, and wherever he presented himself to the people his talents and acquirements must be highly appreciated. Lord Palmerston, who was received with loud cheering, said,—

"Your Royal Highness, my Lord Mayor, ladies and gentlemen, for myself and for my colleagues, I beg you to accept our most sincere thanks for the honour you have done us by the reception you have given to the toast that has just been drunk. I can assure you that the goodwill—I trust I may say the approbation—of our fellow-countrymen must always be the greatest encouragement and reward of those who are charged with the conduct of public affairs. The different classes in this country are all deeply occupied with their own avocations, and it is not often that they have the opportunity of meeting at such festive boards as that around which we are assembled; and on that account, speaking for my colleagues, I may say that we peculiarly prize the opportunity afforded us of receiving in this magnificent hall the splendid hospitality of this great city, and of here cementing acquaintanceships—I trust I am not saying too much if I call them friendships—which may not only conduce to our personal comfort and gratification, but which must have a useful tendency to facilitate the intercourse of politicians and commercial men in various transactions connected with the business of the country. You, my Lord Mayor, have adverted to the events of the late war, and to the peace which has followed. At the commencement of the present year this country possessed the finest army and the most magnificent fleet that were ever engaged in defending the honour and the rights of England. The spirit of the people was roused to as high a pitch as was ever witnessed in this country. There was every prospect that, if the war had continued, future successes would have been obtained, equal at all events to those which had crowned the armies of the allies; but when we found that we could obtain by negotiation terms of peace which would satisfy our just demands, and which would secure the future peace and independence of Europe, we thought it our duty to sheathe the sword, and, in conjunction with our allies, to put an end to the hostilities which were at the time in progress. We were convinced that the people of England would willingly forego the prospects of future military and naval glory when they were satisfied that the objects of the war had been substantially accomplished. It now remains that the conditions of the peace shall be faithfully executed and honourably observed, and then I trust that the peace of Europe will be placed upon a secure and permanent foundation. The Lord Mayor has adverted to a visit which I have just made to the manufacturing districts of this country. It is indeed most gratifying to those who are charged with the conduct of public affairs to witness everywhere the industry, the enterprise, I will say the genius, of the people of this land—to see upon what secure foundations the prosperity of the empire rests, and to augur from the glorious present the future increasing progress of the wealth, the power, and the prosperity of our common country. I can only express my fervent wish that this great city, which is, I may say, the centre of the commercial wealth and enterprise of the world, which regulates the commercial affairs of almost every country on the face of the earth, may continue for the future to flourish as it has done in the past; that it may continue to be the heart—for so it may be termed—of this great country, and that it may not only contribute to the wealth and prosperity of England, but that it may tend to promote the blessings of peace and civilisation in every country of the habitable globe."

The toast of the "House of Commons" was acknowledged by the Chancellor of the Exchequer, who made the following remarks on the charge of inefficiency which has recently been brought against the House:—

"The time had arrived when very different opinions were entertained with regard to the House of Commons from those which had prevailed some years ago. Persons who had passed the middle period of life could remember the time when fears were expressed that the House of Commons would not confine

itself within the bounds prescribed by the constitution, but that it would trench upon the prerogatives of the Crown, upon the privileges of the House of Lords, and upon the authority of the executive Government. It was thought at that period that there had been so great an infusion of the democratic element into the House of Commons that it would not restrict itself within the limits prescribed by the constitution. Now however they were told that the House of Commons had fallen into a state of inefficiency; but he thought he could confidently appeal to the course pursued by that House of late years as a sufficient answer to the accusation. The House of Commons had not merely to take a prominent share in the legislation of the country, but during the last two or three years, when a great war had occupied the attention of the whole community, it had been the duty of the House of Commons to superintend the conduct of that war, and it had thereby been precluded from prosecuting some important legislative reforms. Happily, however, peace had now been concluded, and the House of Commons would be enabled to devote its entire attention to those reforms which were demanded by the voice of the people."

ADDRESS TO THE LATE LORD MAYOR.—The following address was presented to Alderman Salomons on his retirement from the office of Lord Mayor by the principal bankers and merchants of the City, including the governor, deputy-governor, and directors of the Bank of England, and the chairman and vice-chairman of the East India Company:—

"TO THE RIGHT HON. DAVID SALOMONS, LORD MAYOR OF LONDON.

"We, the undersigned bankers, merchants, and citizens of London, desire, on the expiration of your year of office as Lord Mayor, to convey to your lordship our high appreciation of your conduct during a year more than ordinarily fertile in public events. You commenced your term of office at a period when England was engaged in a sanguinary war. The arms of the Allies have been triumphant; and it has been your peculiar good fortune to be enabled to proclaim to your fellow-citizens the restoration of peace to Europe. You have had the honour of welcoming to the City of London his Majesty the King of Sardinia, one of the Sovereigns allied with England, who was sumptuously received in the Guildhall. A fearful inundation having occasioned great suffering amongst our neighbours in France, our thanks are peculiarly due to you for affording us an opportunity of showing how deeply the British people feel for the happiness and prosperity of their French neighbours. Throughout all the varying circumstances of the year you have admirably maintained the ancient reputation of our city and the character of its magistracy. We rejoice to know that, although placed in a somewhat peculiar position, your conduct in office has commanded general approbation, and that you leave the civic chair enjoying the high respect and esteem of all your fellow-citizens."

THE DRAINAGE QUESTION.—A deputation from Erith consisting of Sir Culling Eardley, Bart., Captain Wheatley, lord of the manor, and several other gentlemen, had an interview with Sir B. Hall on Friday for the purpose of protesting against the drainage scheme of the Metropolitan Board of Works fixing the southern outfall at Halfway Reach near Erith, and the northern outfall on the shore immediately opposite. The deputation stated that the proposed southern outfall was within a mile of the metropolitan limit, and that a large amount of valuable property at Erith, which is yearly increasing in buildings and population, would be seriously damaged by the scheme, that the crews of the shipping moored off Erith would also suffer, and the effluvia from the reservoirs and outfalls be felt for miles around, extending back to the metropolis itself. They therefore urged Sir Benjamin Hall to reject the proposed plan, and protect the inhabitants of the metropolitan eastern suburbs from this great mischief. On Tuesday a deputation from Gravesend, consisting of Mr. Masters Smith, M.P., the Mayor, town clerk, and other gentlemen, had an interview with Sir B. Hall on the same subject. On Wednesday, at the meeting of the Board of Works, a letter was read from Sir B. Hall announcing his rejection of the plan proposed by the Board, on the ground that, as regards the outfall near Erith, the plan is at variance with the intentions of the Legislature and contrary to the spirit of the statute. Sir B. Hall, however, offers to confer with the Board upon the subject of any amended plans which they may have to propose, and to submit to the Government any claims which they may prefer to a contribution of public money for the purpose of carrying out a system of drainage on a more extensive plan than they feel justified in undertaking at the cost of the ratepayers of the metropolis.

TURKISH MISSIONS.—A special public meeting of the Turkish Missions Aid Society, the object of which is to raise funds in aid of existing evangelical missions in the Turkish empire, was held a few days since in Exeter Hall. The Hon. Arthur Kinnaird, M.P., took the chair and stated that the immediate and special purpose of the meeting was to take leave of the Rev. Dr. Hamlin, for 20 years a missionary to the Armenians, on his return to Constantinople. He read a letter from General Sir F. Williams, in which he expressed his regret that he could not personally state to the meeting his experience of 16 years in the various localities of the efforts of the American missionaries, adding that he hoped ere long to testify in that hall to all the advantages gained to Christianity, as well as to humanity, by the unceasing and judicious exertions of the American missionaries both in Turkey and Persia, who had proved themselves so zealous in the work, and so worthy of the sympathy and support of the British public. The Rev. Dr. Hamlin then proceeded to address the meeting:—

He observed that the subject of Christian missions to Turkey was one of vast importance, and he would endeavour to bring before them some of the results that had attended the efforts of the American mission. There were certain general topics connected with the cause that commanded their attention as of prime importance, one of which was the instrumentality of the press in the missionary work. Eighteen years ago, when he first visited Constantinople, the influence of the press as a religious agency was almost neutralised by the anathemas of the patriarchs, which were then mightier than Imperial edicts, and the anathemas of the Greek, Armenian, and Catholic patriarchs were all launched against it. But no patriarch at Constantinople would now make himself ridiculous enough to anathematise the Christian press. The sale of books was now a legal recognised calling throughout the empire, so that *colporteurs* might go through the length and breadth of the land. Formerly all the patriarchs used to anathematise the New Testament, but this had also ceased, and now, such was the demand for the Scriptures in the vulgar tongue, that an effort had been made by the Armenians to induce the Holy Synod to print an authorised version of the Bible in the vernacular, which might be read in all the churches. Another advance had been made in circulating the publications of the press. The postal arrangements were now much more complete than formerly, and the benefit of this had been felt greatly by the religious press in the Turkish empire, on which there was now no restriction whatever. The press had, therefore, become of mighty power in Turkey, and was doing a hundredfold more work than it did 18 years ago. The demand of the people for Christian books had gone beyond their present power to meet it. It was clear that this agency might be extended indefinitely; and so greatly felt was this, that only the day before yesterday a gentleman in Glasgow had presented 100*l.* for its extension. Education, also, he was happy to say, was steadily advancing in Turkey. It would hardly seem credible if he were to contrast the state of education 20 years ago with the present period. The Armenian church had one excellent fundamental principle—that wherever there was a church there also was a school. Those schools were often fruitless, it is true, but still they formed one element by means of which the country was being slowly but surely regenerated. Those schools, at first so inefficient, were now no longer so, and since the establishment of the mission, no less than 100 missionary schools had been founded. He was glad to say that they also had a free church there. At present there were 31 Christian churches there, and they were increasing. They had, therefore, three elements of Protestantism now introduced into Turkey—a free press, free schools, and free churches—and this, with the Bible, was all that was required to carry out their principles. Hitherto the Turks having witnessed only the Roman Catholic form of Christianity, looked upon it as idolatrous and absurd; but now that they had witnessed Protestantism they found it free from idolatry and a religion of sound integrity. This impression of the reliable integrity of the Protestant Armenians had produced a deep impression on the minds of the Turks. The fact that they purchased so many copies of the Holy Scriptures and discussed with the Protestant Armenians the principles of their religion showed that Christianity was taking hold of the people. If Englishmen were to attempt to preach Protestantism among them it would arouse their constitutional jealousy and fanaticism; but, if they could evangelise the Armenians, they were so intimately associated with the Turks that their principles would be disseminated among the Turks. If, therefore, the great problem was how to Christianise Turkey, he believed the way to solve it would be to spread the truth among the Armenians. Direct missions to Turkey would fail, but if they brought the three millions of Armenians in Turkey to embrace the principles of Christianity it would influence the whole empire, and each Protestant Armenian, in fact, would become a missionary to the Turk. Evangelise the Armenians, and they would evangelise Turkey. After giving some interesting details, showing the progress of the mission and the success which had attended its efforts, he concluded by making an appeal to the meeting to support the Turkish Mission Aid Society.

Colonel Sir Henry Rawlinson moved a resolution welcoming Dr. Hamlin, and expressing the high admiration entertained by Christians of all denominations throughout England of his honourable, lengthened, and successful work as a Christian missionary to the Armenians, and the sympathy of the meeting with his co-labourers:—

Having resided in the country many years he could fully testify to the valuable exertions made by Dr. Hamlin and the American missionaries, and the great advantages that had resulted from them. He fully agreed that it was utterly impossible to evangelise the Turks through a direct mission, it being death by the law of Turkey for any Turk to profess himself a Christian. He also spoke of the unfairness with which Protestant missionaries in Turkey were treated by the other Christian sects, who totally ignored their results, and accused them of being mere *dilettanti* missionaries, whereas the Catholics were fixed missionaries. He denied entirely that the Protestant missionaries were, as had been stated by French Catholic writers, mere tourists and gentlemen. He knew no greater instance of human progress than that of the Nestorian Christians in Kurdistan. In 1855 he visited them, and they were in the most barbarous condition; but at the present time, in consequence of the exertions of four or five earnest men, they had churches, schools, an excellent press, and were even able to carry on literary and polemical controversies printed in Syriac. In reference to the political question of Protestantism in Turkey, he rejoiced that in this instance politics and religion went hand in hand. There could be no doubt that the Eastern Christian religions, whether Nestorian or Armenian, had lost their vitality. The two religions with which those sects were brought into contact at present were the Greek and the Roman Catholic forms of Christianity. Now, it must never be forgotten that the spread of the Greek religion was equivalent to the spread of Russian influence, and the spread of Catholicism was identical with the spread of French influence; and therefore that by supporting Protestantism in Turkey they would raise up a power which would act as a counterpoise to Russian and French influence. The British Government was always very loth to mix itself up with religious questions, and would be especially reluctant with respect to Turkey. But although it had itself, as was well known, no ambitious projects with respect to Turkey, it had the greatest interest in preventing the ambitious projects of other Powers, and thus far would be naturally anxious to support the cause of Protestantism in that country. He could not shut his eyes to the fact that the Mahometan religion was fast dying out, and in another century he believed the bulk of the inhabitants would consist of the three denominations of Christians he had named; and he did say that the future relations of European Powers with Turkey would, as it appeared to him, particularly as regarded England, depend very greatly upon which class of Christians was predominant in the Turkish empire.

Dr. Blackwood seconded the resolution, which was carried unanimously. The Hon. and Rev. Baptist Noel then moved a resolution recognising the devoted exertions of the American missionaries, and expressive of the sympathy of the Christian population of England in those exertions; which was seconded by the Rev. Dr. Bagnall, and carried unanimously.

THE TURNER COLLECTION.—The following 20 pictures by Turner were exhibited on Monday for the first time at Marlborough House, and excited great interest:—

459, Moonlight; a Study at Milbank (1797); 466, View in Wales (about 1800): 468, View on Clapham Common (about 1802); *476, Shipwreck (1805); 483, Greenwich Hospital (1809); 485, Abingdon, Berkshire (about 1810); 489, Cottage Destroyed by an Avalanche (about 1812); 496, Bligh Sand, near Sheerness—Fishingboats trawling (1815); *499, The Decline of the Carthaginian Empire (1817), one of his imitations of Claude; *505, The Bay of Baiæ (1823); 511, View of Orvieto (1830); *516, Childe Harold's Pilgrimage—Italy (1832); *518, Apollo and Daphne (1837); *521, Phryne going to the Public Bath as Venus (1838); 522, The "Fighting Temeraire" tugged to her last Berth (1839); 523, Agrippina Landing with the Ashes of Germanicus (1839); 527, Venice—the Bridge of Sighs (1840); 531, The Burial of Wilkie (1842); 535, The "Sun of Venice" going to Sea (1843); 541, Approach to Venice (1844). The pictures from 459 to 496 are in Turner's first style; those from 505 to 523 are in his second style: and the last four works illustrate the more extravagant manner of his latest period. The pictures marked thus * are of large dimensions, and are among Turner's greatest works.

THE MEMBERS FOR SOUTHWARK AND THEIR CONSTITUENTS.—A large meeting of the electors of Southwark was held on Tuesday to hear from their members, Mr. A. Pellatt and Sir C. Napier, an account of their conduct in Parliament during the past session. Mr. Pellatt in his speech said he had had the satisfaction of passing three bills—one on the law of crossed checks, one for regulating the registration of marriages, and one for abolishing the exemptions in the Smoke Bill. The events of the session showed that the Irish Church was shaking to its foundation, and that the day was not far distant when it would cease to exist; and there could be no doubt that the principle of voluntaryism in religion and education was every day gaining a greater hold on the public mind. Sir Charles Napier in his speech gave an account of his votes on the most important questions of the session, and then proceeded to make the following remarks on the campaigns in the Baltic and the Crimea:—

"As to the war in the Baltic, it had not been well conducted. It was known a year before the first campaign that we were going to war, and he had in vain urged the Admiralty to prepare, to commission ships, and to discipline men, but it was not until February, 1854, that they began to get ready. Here the Ministers were to blame. For the disasters in the Crimea they were not to blame, but they were to blame for not having made better naval preparations. Still they were only following the policy of economy which had been insisted on by Parliament for years. In 1840, when we were engaged in the Syrian war, the French had a larger fleet than we had, and 600 000 men under arms, and there was but little doubt that, if Louis Philippe had adopted Thiers's policy, an army might with ease have been thrown on our shores. We were in the same unprotected state when the Tahiti affair occurred. He would not now go into the question of the Baltic campaign, which had been settled, as far as it could be settled at present, in the House of Commons. He had told there a plain, straightforward story, every word of it true, though it could not be expected that he, who was unused to debating, could make head successfully against Sir James Graham—a most unscrupulous man—not to use a harsh word—who could make black white, and white black, at his pleasure. Since the conclusion of peace he had been to Cronstadt, to satisfy himself whether he had done right or wrong in not attacking it. He found the fortifications stronger even, he confessed, than he had believed them to be when he was there with the fleet. In fact they were perfectly and entirely impregnable. The Grand Duke Constantine had granted him an interview, and had shown him all his plans of defence, and, certainly, more judicious and more proper plans never were conceived. He was a man of great talent and ability, and had spoken to him in a perfectly honest, plain, straightforward way. His remark was, 'If you had attempted to come in there would have been nearly 1000 guns bearing on your fleet; these was not water enough for your large ships, the channel was narrow, and it was so thickly filled with infernal machines that our own ships going in and out were afraid of being blown up.' 'Will you allow me,' said I, 'to speak plainly to you? Why did you not come out to meet us at Kiel? We were then badly manned and badly disciplined. If you had come out I don't know what the consequences might have been.' 'Ah,' said the Grand Duke, 'If I had had screws I should have come out to meet you. I did not know that you were so badly manned until it was too late.' And, I think," added the gallant admiral, "that it was lucky he didn't come. Not that there was an Englishman there who would not have fought to the last drop rather than retreat; but after all, ships without disciplined men are no better than fortifications without soldiers. People are fond of talking about the British navy being unconquerable; but the British navy is men, not ships." The admiral then proceeded to allude to the late correspondence between himself and Sir R. Peel. That, he said, was not yet concluded. "He had written to Lord Palmerston, desiring him to lay his case before the Cabinet, and not having received an answer to that letter he had written a second time, and until he had received an answer from the noble lord, it would only be right in him to maintain a due reserve on the subject. He was not afraid of having his conduct investigated. He had demanded an investigation, and if the Government did not grant it, it would go far to prove that they were afraid that something would come out which would prejudice them in public opinion."

"BIG BEN" OF WESTMINSTER.—On Thursday morning a trial took place of the great bell for the clock tower of the Houses of Parliament, whose name it appears is to be "Big Ben," in honour of Sir Benjamin Hall, the present Chief Commissioner of Works. The tongue, which is said to be a fine specimen of wrought iron work, arrived a few days previously from the works of Mr. George Hopper, of Houghton-le-Spring near Durham. The part of the clapper which strikes the bell is a monster spheroid of solid wrought iron, the diameter of which is 24 inches—the total weight of the tongue being 16 cwt. The trial on Thursday took place in the presence of Mr. E. B. Denison, Sir B. Hall, Mr. Taylor, and other gentlemen, and the result, as tested by the tuning forks and subsequently verified by Mr Turle on the Abbey organ, was that the sound is E natural, exactly what it was intended to be; and that the bell itself is without flaw or crack, a perfect piece of casting. The trial excited great interest in the neighbourhood, and the deep, rich, and mellow sounds which "Big Ben" emitted reverberated through Westminster Hall, and occasioned a momentary pause in the business of the Law Courts.

OPENING OF ST. JAMES'S PARK TO BELGRAVIA.—Hackney cabs were last week permitted to pass through the Stable-yard gate at St. James's Palace, and Buckingham Gate, conveying passengers to and from Pimlico and Pall-Mall, making a difference of 1*s.* in the hire of a cab as compared with the old road by Piccadilly, to say nothing of the saving of time.

THE CRYSTAL PALACE.—The subject of a great musical celebration of the centenary of Handel's death, in 1859, has already occupied considerable attention. In order to demonstrate the capabilities of the Crystal Palace for this purpose, arrangements have been concluded between the Sacred Harmonic Society and the directors of the Crystal Palace Company for undertaking, in May next, in the central transept a preliminary Grand Handel Festival or Congress with an orchestra of 2300 performers.

THE MURDER IN PARLIAMENT STREET.—Mr. Cope,

the victim of the ticket-of-leave convict, Marley, after lingering in a state of great suffering for nearly three weeks, died on Sunday afternoon from the effects of the injuries he received on the night of the 20th ult. The fatal termination was not anticipated until within a few hours of his death, when inflammation of the brain set in, and the unfortunate man gradually sunk. A coroner's inquest was held on Wednesday, when the jury returned a verdict of Wilful Murder against the prisoner, who has also been committed by the police magistrate for trial on the capital charge.

SUPPOSED MURDER AND ROBBERY AT ERITH.—The body of a young man called George Carter, the son of Mr. Carter, market gardener at Wandsworth, was found on Saturday morning in Park Spring Copse with 16 punctured wounds in the chest and ribs, five of which had penetrated the heart. When he left home on Friday he had 70*l.* or 80*l.* in his possession, and he is supposed to have been murdered and robbed, as there were only three halfpence in his pockets. The inquest has been adjourned for further evidence.

GREAT FIRE IN ST. MARTIN'S LANE.—On Sunday morning the premises of Messrs. Almond, army and navy tailors, in Swan Yard, St. Martin's Lane, consisting of nine flats stored with valuable property, were destroyed by fire. The flames spread to the adjoining houses, several of which were destroyed or damaged, including those of Mr. Goodwin, livery stable keeper, Messrs. Whittingham & Co., coach-lace makers, Mr. Davis, coach builder, the Parthenium Club Rooms, and others.

FIRE AT THE SOUTH METROPOLITAN DISTRICT SCHOOLS.—On Thursday morning a fire took place at these schools, situated at Sutton, Surrey. The building, which was in the Elizabethan style, was three stories high, extending between 500 and 600 feet, with wings on either side nearly 100 feet in depth. A great portion of the building has been destroyed, with the furniture and stores, including nine of the largest dormitories, the needle room, workshops, and about seven of the officers' rooms. There were upwards of 900 children in the schools, but they were all saved from injury, and have been sent to their homes.

THE FARRINGDON STREET EXTENSION.—The macadamising of the new street leading from Farringdon Street to Coppice Row, Clerkenwell, has commenced under the direction of the City authorities, the work having been hitherto postponed in order that the new ground might become solidified. When it is completed, the portion of the new street out of the City will be handed over to the Holborn district and the parish of Clerkenwell. The Metropolitan Railway Company have taken the ground on the east side of the new street, extending from Peter Street to the back of the Sessions House, at a rent of 7800*l.* per annum, with the option of buying the freehold at 30 years' purchase, the railway company intending the ground as the site for their station.

WOOD PAVEMENT.—Application having been made to the Board of Works for the Holborn district, by a wood paving firm, asking permission to lay down gratuitously a new specimen of wood pavement, stated to be more durable than that at present in that thoroughfare, the members of the Board were almost unanimous in declaring that wood pavement had failed completely wherever it had been tried, and they would have no more of it.

THE IRON PAVEMENT IN LEADENHALL STREET.—The cast-iron pavement, constructed after an American patent, and laid down some months since in Leadenhall Street, having exhibited a want of tenacity and endurance, has recently been taken up, preparatory to being relaid. The bottom upon which the paving rested was found to be insufficient, and has been replaced by a bed of concrete, in order still further to test the experiment.

THE NEW STREET IN SOUTHWARK.—At a meeting of the Metropolitan Board of Works on Friday, it was resolved, on the recommendation of the Committee of Works, to adopt for the proposed new street a line commencing in High Street, proceeding thence to Redcross Street, at its intersection with Castle Street, and terminating in Blackfriars Road, opposite Stamford Street. A division took place on the question whether the point of junction with High Street should be near Red Lion Street or York Street. The junction with Red Lion Street by a straight line was recommended by the Committee on the score of economy; the junction with York Street by a curved line was moved as an amendment, with the view of bringing the new street as near as possible to the railway stations at London Bridge. The total cost of the line with the straight junction, deducting the Government grant, was estimated at 187,711*l.*; the total cost of the line with the curved junction was estimated at 230,671*l.* On a division the amendment was carried by 27 to 8. The chairman and two members of the Board carried up the plan on Monday to the Chief Commissioner of Works, who has since intimated his approval of it.

THE PUBLIC HEALTH.—The Registrar-General's weekly return states that the total deaths in London, which in the previous week were 969, rose to 1006 in the week that ended Saturday, November 8. The average number in the 10 corresponding weeks of the years 1846-55 was 1032, which raised in proportion to increase of population will become 1135, showing a difference of 129 in favour of the return of last week. The births of 820 boys and 791 girls—in all 1611 children—were registered in London during the week; in the 10 corresponding weeks of the years 1846-55 the average number was 1514.

Provincial.

BIRKENHEAD.—A little more than nine years ago the Rev. Joseph Baylee, D.D., Incumbent of Holy Trinity Church in this town, established a theological training school with the view of educating young men for the ministry of the Established Church. The idea had been forced upon his mind by the fact that while there were 300,000 souls in the adjoining town of Liverpool, there were only 100 clergymen to attend to their spiritual wants. It struck him that there was a manifest want of a more ready and accessible means for educating fit men for the work than was presented by the existing universities—a means which, with a laborious course of theological instruction, should include the practice of making the students practically acquainted with the pastor's duties by district visiting in Birkenhead and Liverpool, and by holding cottage lectures under proper regulations, as a means of inducing confidence in preaching. One of the earliest to recognise the movement was the present Archbishop of Canterbury, then the bishop of the diocess, who intimated to Dr. Baylee his willingness to ordain any of the pupils of the college after they had passed through the requisite course of preparation. Dr. Baylee soon found numerous friends to aid him in the work; and the result has been the erection of a large building in the decorated Tudor style of architecture. The land was purchased from the Birkenhead Commissioners for 9325*l.*, and the building has already had 12,000*l.* or 14,000*l.* expended upon it. When complete it will form a quadrangle; at present only the principal façade and west wing are constructed. The College was opened on the 4th inst. with a public dinner, at which the Marquis of Westminster presided. There were also present Earl Vane, Lord Robert Grosvenor, Lord Alfred Churchill, the Marquis of Blandford, Lord and Lady Rayleigh, Mr. Brown, M.P., Mr. Horsfall, M.P., Mr. Greene, M.P., the Right Rev. Bishop Spencer, the Rev. Dr. Baylee, Principal of the College, the Archdeacons of Chester and Liverpool, the Rector of Liverpool, the Recorder of Liverpool, &c. After dinner several speeches were made, and an address was presented to Dr. Baylee on behalf of the students, accompanied by the gift of a handsome pier-glass and timepiece. Addresses, with presentations, were also made to the Rev. H. Linton, Lecturer in Divinity at the College, and to the Rev. H. G. Vernon, Chaplain to the College.

BUNGAY.—Some remarks have been made upon some alleged Puseyite proceedings in the recently established penitentiary for fallen women at Shipmeadow, near this town. It is reported that a "sisterhood" has been established of the young ladies, who devote themselves to the unfortunate objects of the institution, and several of its influential supporters have withdrawn their patronage from it. A meeting is to be held shortly to consider the subject.

CHATHAM.—On Friday the Duke of Cambridge reviewed the whole of the troops belonging to the different branches of the service stationed at Chatham garrison, with the view of brigading them and testing their efficiency and ability to act together.

CHEADLE.—The solicitors to Earl Talbot have issued a circular to the tenantry of the Shrewsbury estates, giving them notice not to pay their rents (some of which are now receivable) to the devisees of the late Earl of Shrewsbury, or "in any way to acknowledge their claim to or right of interference with the estates," and calling on them to pay their rents to the earl. The grounds upon which Earl Talbot rests his claim to the Shrewsbury estates are thus set forth in the circular:—"By the 2d section of the act 6th of George I. (1720), it is enacted that the estates in question shall 'be and remain to the use and behoof of all and every person and persons being issue male of the body of John, first Earl of Shrewsbury, to whom the title, honour, and dignity of Earl of Shrewsbury shall, after the decease of Gilbert, Earl of Shrewsbury, George Talbot, and John Talbot (therein named), without issue male of their respective bodies, by virtue of the said letters patent of the creation of the said earldom descend and come severally and successively one after another as they and every of them shall succeed to and inherit the said earldom, and of the several and respective heirs male of the body and bodies of all and every such person and persons issuing, to attend and wait upon the said earldom and to be annexed to and descend with the same.' By the 8th section of the same act the estates are made inalienable, but with a proviso enabling Protestants, conforming to certain ceremonies, to alienate. This proviso has, however, been repealed by the 32d section of the act 6th and 7th Victoria, chap. 28 (1843), passed upon the petition of the then Earl of Shrewsbury, a Roman Catholic; and the estates have become, in consequence, inalienable alike by Protestant and Roman Catholic. The issue male of the bodies of Gilbert, Earl of Shrewsbury, George Talbot and John Talbot, named in the act 6th George I., has failed; and Earl Talbot, as issue male of the first Earl of Shrewsbury, is now entitled to the estates. In April last the late Earl of Shrewsbury executed a deed by which he sought to disentail the estates, to become absolute owner of them, and to possess himself of an absolute power of disposition over them; and by his will, dated in April last, he professed to devise them to Mr. Hope Scott and Mr. Serjeant Bellasis." The circular states that Earl Talbot is about to take immediate steps to establish in due course his right to the earldom of Shrewsbury and to the estates, and adds that the consideration of his right to the earldom is necessarily deferred till the meeting of Parliament. His lordship's solicitors also offer to the tenants the indemnity of Earl Talbot and his eldest son, Viscount Ingestre, against any other claimant.

DARLINGTON.—On Wednesday week Mr. Lawrence Heyworth, M.P. for Derby, presided by invitation over a teetotal meeting in the Central Hall in this town. From 600 and 700 persons were present. Tea commenced at 5 o'clock, and the "fixings" occupied till half-past 10. The chairman made a speech of considerable length, in which he dwelt upon the magnitude of the evils produced by drunkenness, and praised aërated waters. No better beverage, he said, except water, could be used. Carbonic acid gas infused into water was what supplied all organic vegetable matter with life and substance. Every vegetable and fruit was nourished by imbibing carbon from carbonic gas mixed with the water which descends from heaven. A report was read, and speeches were delivered by other persons.

DORKING.—A young woman called Elizabeth Brooker has been committed for trial on the verdict of a coroner's jury and also by the magistrates, on the charge of having wilfully murdered her new-born child. The accused was a domestic servant in the service of Mr. Abel; and, according to her own confession made to the superintendent of the county constabulary, as soon as the child was born, she became alarmed lest her mistress should hear the cry, and immediately struck its head against a chair, and then cut its throat with a penknife. Subsequently she placed the body in her box, where it remained for two days, and she then buried it in a spot where the remains were subsequently discovered. The penknife with which the deed was committed was found in her box; and the medical testimony clearly proved that death had been caused by the wound in the throat. At the inquest some of the witnesses urged that the mother was suffering from a diseased mind at the time she committed the act; but the coroner informed the jury that they must leave that question for the decision of a superior court.

DURHAM.—Bishop Maltby has munificently presented his extensive library of books to the Durham University. They are to be kept separate, at the Bishop's request, from the other works in the library.

EXETER.—The collision between the Poor-law Board and the St. Thomas's guardians has not yet terminated. A special meeting of the guardians was held on Friday, when a resolution was unanimously carried to the effect that—"The guardians are anxious to assure the Poor-law Board that they have no other object in view than promoting, to the best of their judgment and experience, the interests of the poor in the union and the proper administration of relief therein; that the result, as regards the weekly number of paupers relieved and the weekly amount of out-door relief during the period in which the duties have been discharged by three relieving officers, as compared with the corresponding period of last year, when the duties were discharged by four officers, leads to the conclusion that while there has been a decrease in numbers and in amount, there is no ground for apprehension that either 'the interests of the poor or the proper administration of relief' have been neglected; and that the conclusion is strengthened by the absence of any complaint against the relieving officers for neglect of duty or inattention to the requirements of the poor; that the guardians express their regret that the Poor-law Board should have declined to consent to the proposed division of the union into three districts for general relief, or to sanction a trial of the proposition, for by either of these means the present unpleasant relations between the guardians and the Poor-law Board would have been obviated and the retirement of the late chairman prevented; but, inasmuch as the guardians have had an experience of 15 weeks with, as they believe, favourable results both as regards the 'interests of the poor and the proper administration of relief,' they will have no objection to take steps on Friday, the 20th day of March next, for the appointment of the fourth officer, if in the meantime further experience should have shown that either 'the interests of the poor or the proper administration of relief' have been prejudicially affected."—Earl Fortescue, the Lord-Lieutenant of Devon, presided at the recent annual meeting of the Devon and Exeter Auxiliary of the British and Foreign Bible Society, and made the following remarks on Italian freedom:—

"I heard with peculiar pleasure from my hon. friend Mr. Sillifant the statement he made, and which, if I mistake not, is the result of his own recent observation, that, with respect to the security and freedom now enjoyed by the long persecuted Church of the Vaudois, which we may consider as the foundation of all Protestantism in Europe—I say it gave me peculiar satisfaction to hear that, after all the persecution which that primitive Church has had to endure during more than five centuries, it is at length established on a firm basis, enabled to perform its rites in security under the constitutional Government of that brave and good nation, Sardinia, whose army lately stood beside us so gallantly and covered themselves with glory in the recent struggle in the Crimea, not for the sake of advantage to themselves, but for the sake of justice and right—for the sake of upholding the weak against the strong—I say, to me, as a lover of civil and religious liberty, it is cheering to find that the liberty of that Church has been established under the good and constitutional Government of Sardinia—a Government which, be it recollected, all Roman Catholic as it is, and surrounded by countries more, perhaps, than any other under Papal influence, has nevertheless set the example of saying, of itself, to the Roman Catholic Church, 'Thus far and no further may you exercise your authority in ecclesiastical matters, but you shall not interfere with the freedom of our civil tribunals.' These are the doctrines which have been held in Sardinia, and these are the doctrines which I trust, under God, will always find favour. It has therefore been peculiarly gratifying to me to hear what I have heard to-day with respect to the security and the immunity granted to that Church, and I venture to hope, from what we see with respect to the circulation of the Scriptures in Sardinia, that the circulation of our Protestant Bible there will not have fallen upon an unfruitful soil, but that true religion, under the advantage of a constitu-

tional Government and from the example of that country, will gradually but surely spread over the misgoverned but benighted States of Italy, and though I cannot, at my age, hold out to myself the prospect of seeing this result, yet I do believe that it is allotted to the younger men among you to see that Italy will yet acknowledge and appreciate the advantage of a free Government, and the still greater blessing of a pure religion."

LEEDS.—On Saturday Henry Harrison, the Leeds wizard, was brought up in custody from the borough gaol, and examined before the magistrates on two charges of bigamy; first, with having married Sarah Ann Brown on the 14th of May, 1846, at the parish church of Rothwell, his first wife, Jane Brayshay, being then alive; and, secondly, with having married Maria Steel on the 14th of October, 1850, at St. John's Church, Wakefield. The excitement was by no means so great as on the previous examination of the prisoner on the charges preferred against him by Eliza Croft, but the court was well filled, and the gallery was thronged by women. The evidence disclosed a career of extraordinary profligacy, but conclusively established the charges of bigamy, and the magistrates accordingly committed him for trial on both charges.

LIVERPOOL.—On Friday Lord and Lady Palmerston, accompanied by Sir Benjamin Heywood, paid a visit to this port. On arriving they were received by the Mayor and corporation and the leading merchants of the town, by whom they were conducted to the Town Hall. Addresses were then presented by the Town Council and the commercial bodies, to which his lordship responded at considerable length. He subsequently presented himself at the Exchange balcony, and was loudly cheered by the merchants assembled, whom he warmly thanked for the reception given to him. His lordship afterwards proceeded on 'Change, where he was received with the greatest enthusiasm. He entered the news-room, and there delivered a few words of thanks for the cordial greeting they had accorded to him. His lordship had subsequently a sail on the river in a steamer, which afforded him an opportunity of seeing the extent of the docks and the nature of some of the improvements on the Cheshire shore. He afterwards visited the Albert Dock warehouses and the Sailors' Home. His lordship and Lady Palmerston returned to Manchester by the afternoon train. The following is an extract from the speech delivered by his lordship in the Town Hall :—

"It is most satisfactory to Government to have found, during the continuance of the war in which we were unfortunately engaged, that a sense of the justice of the cause, that a sense of the necessity for the exertions which we called upon the country to make, overpowered, in the minds of the commercial community of this country, all considerations of private interest, and called forth from them that display of energetic patriotism which contributed so greatly to the success of the contest, and which reflected such honour upon the country at large. I may say to those I now have the honour of addressing that the means which the commercial marine of this country placed at the disposal of Government contributed essentially to the successful operations in which we were engaged. The vast means of transport which the commercial marine placed in the hands of Government had this effect—that our armies—and when I speak of our armies I mean the armies of France and England, for they were one upon that occasion—that the armies of the Allies, which (at least our own) were 3000 miles from the head-quarters of their resources, were in truth nearer to those resources in point of time and facilities than those of the enemy, who was fighting upon his own territory. Well, gentlemen, it was not only satisfactory to us to find ourselves thus supported, but I am bound to say that all the energy and zeal of her Majesty's Government — and that energy and zeal were uniform throughout the land—I am bound to say that of the manner in which every member of the Administration co-operated in the common cause, for that energy and zeal was felt throughout every department—that all the energy and zeal, and the confidence with which we were honoured by our Sovereign, the bravery of our army and navy, and the cordial co-operation of our allies would have been unavailing if it had not been for that glorious spirit which was displayed by the people of this country, which not only backed up the Government in all its efforts that were necessary for the war, but which convinced other nations, and more especially the Power with which we were contending, that our resources were growing with the duration of the contest. Instead of being exhausted by the first year's war we were only beginning to put forth our strength; and that indomitable spirit of England, instead of quailing under difficulties, was roused to additional exertion by occasional impediments, and the national ardour increased instead of diminished in proportion to the duration of the conflict. Gentlemen, we were not inattentive to other interests besides those connected with the grave transactions of war. It has been a subject of great satisfaction to us to reflect that at the commencement of that conflict the Government of England, in concert with that of France, made changes and relaxations in the doctrines of war, which, without in any degree impairing the power of the belligerents against their opponents, maintained the course of hostilities, yet tended to mitigate the pressure which hostilities inevitably produce upon the commercial transactions of countries that are at war. I cannot help hoping that these relaxations of former doctrines, which were established in the beginning of the war, practised during its continuance, and which have been since ratified by formal engagements, may perhaps be still further extended; and, in the course of time, those principles of war which are applied to hostilities by land may be extended, without exception, to hostilities by sea, so that private property shall no longer be the object of aggression on either side. If we look at the example of former periods, we shall not find that any powerful country was ever vanquished by losses sustained by individuals; it is the conflict of armies by land and of fleets by sea that decides the great contests of nations; and it is, perhaps, to be desired that those conflicts should be confined to the bodies acting under the orders and directions of the respective States. Gentlemen, you have, if I may say so, bridged the Atlantic. You have connected, by establishing a rapid intercourse, I will not say between two nations, because two nations they are not, but two branches of the same nation, the opposite shores of the great Atlantic. It was the remark of Mr. Burke, when discussing the operations of the American war, that it was difficult to carry on a war when seas rolled and months intervened between the order and its execution. Well, gentlemen, how changed are circumstances now from what they were then! It is quite true that the same seas still roll, and that they are lashed by the same conflict of the elements, but the period of communication which was then counted in months is now only numbered by days. But a greater change may still be marked, for those orders which Mr. Burke spoke of were orders for military operations, and the execution of those orders a bloody conflict between men of kindred race. The orders that now traverse rapidly the ocean in your vessels are orders for peaceful commerce, the execution of which tends to the mutual benefit of the nations inhabiting the two sides of the broad Atlantic. I was sure that the policy which we recently adopted in our difference with the United States must meet with your approbation. We felt that while on one hand it was necessary to maintain the dignity of the country, and that while it was equally necessary not to show that even the calamities of war with a kindred race would prevent us from doing what was right and just to ourselves, that we should still waive all minor and petty considerations—that we ought not to take advantage of circumstances which might perhaps have justified the expression of angry feelings—that it was more dignified to look to what we believed to be the friendly feeling of the great mass of the people of the United States than to take too much notice of circumstances in a narrower sphere that might, perhaps, have justified feelings of irritation. The result, I think, has fully borne out the wisdom of the course. I am persuaded that those opportunities of frequent intercourse which are afforded to the people of the two countries will, beyond anything else, contribute to maintain between them that harmony which acquaintance and personal intercourse form the best foundation for—that the mutual interests which commerce establishes will be cemented by an intimate acquaintance with each other; and I am sure that, in proportion as your prosperity increases—in proportion as your enterprise is developed—in the same proportion may we look to the cementing permanently those ties of friendship and good will which exist, and ought to be perpetuated, between the people on the two shores."

MANCHESTER.—Lord Palmerston's visit to this city has been followed by that of M. Kossuth, who arrived on Monday, and was loudly cheered by a large concourse of citizens. He was received by Mr. John Henry, of Woodlands, Cheetham Hill, at whose house he is to sojourn during his stay in the neighbourhood. On Tuesday evening there was an immense gathering at the Free Trade Hall to hear an address from M. Kossuth on the affairs of Italy. Mr. R. N. Phillips, high sheriff of Lancashire, presided, and introduced M. Kossuth as "a patriot in exile for the cause of liberty, and as such the friend of every true Briton." M. Kossuth then proceeded to address the meeting at great length, beginning by reminding them that on that day five years he had paid his first visit to Manchester, and that he was an exile still. The following is an abstract of his address :—

"The subject of his address was Italy, the vitality of which it was impossible to destroy—the horrors of the scaffold, the butcheries of Milan, the fusillades of Bologna, the bombardment of Venice, dungeons, lingering tortures, the Inquisition, and the more deadly concessions of perfidious Sovereigns, all had failed to trample out the nationality of Italy—of the country. Italy would not die. What, he asked, was the mysterious source of that imperishable life? It was, that when even a community arrived at the consciousness of possessing the elements of national existence, it would never rest until it took its stand as an independent member of the family of nations, and became the mistress of its own destiny. When he read the many blue books published on the affairs of Italy, he was surprised at the narrow view which the British Government were taking of them. No matter what might be said to the contrary, he was ready to contend that the Italian movement was essentially a national movement, and that none of the nostrums prescribed by foreign Governments for her amelioration were worthy of a moment's consideration. The Italian population amounted to 24,000,000. They occupied the finest country in the world. They had the most glorious recollections of any people in Europe; and was it to be viewed, in the language of Prince Metternich, as merely a 'geographical denomination?' Hatred of foreign dominion was the prevailing sentiment in Italy. She wanted to become a nation, and it was vain and idle to prescribe reforms for her. He attributed the present anomalous position of Italy in great part to the Papal Government—the worst of all human institutions. There were three descriptions of governments, which, be they good or bad, were recognised among civilised States. Those were hereditary government, government by conquest, and government by national election; but the Papal Government had no claim to any of these titles—it ruled by the sole agency of that which was in great part a foreign priesthood. A constitutional Pope could not by any possibility exist, and the bare idea of a Papal Sovereign was inconsistent with the form of government which a free people would tolerate in the 19th century. Having denounced the Governments of Spain, Germany, and France, as inconsistent with political freedom, he proceeded in the same strain to declare there never would be true peace on the continent, free trade, absence of foreign intervention, or full scope given to the development of national greatness and power, so long as Russia kept Poland, and Austria Hungary. He believed that Italy, Hungary, and Poland would yet be the watchword of freedom and the forerunner of good government in Europe. Nothing short of a successful popular rising would achieve these great results; and this being admitted, the question was asked by practical Englishmen whether there was a fair prospect of success, as otherwise the English people would never sanction, by word or deed, a mere wanton effusion of blood. He believed there was a fair prospect of success. The whole story of the Italian struggle had been designedly falsified and misrepresented. The Italian movement of 1848 did not owe its impulse to the French Revolution, for it was in full career when, on the 24th February in that year, King Louis Philippe made room for a republic. At that time Italy had nothing to expect from France. The absurd theories of Lamartine, who came into power after the downfall of the Orleanists, were blown to the winds; and when France awakened from her present trance, as assuredly she would do ere long, who would not say that the prospect of Italian liberty was not fairer than in 1848? The view taken by Lamartine was in substance that adopted by the British Cabinet, as Lord Palmerston himself had gone the length of saying that he considered the integrity of the Austrian kingdom as necessary for the peace of Europe. The noble lord had also confirmed and strengthened this declaration when he told Metternich that no change could be made in the territorial arrangement of the Italian peninsula without the consent of all the Powers who had subscribed the treaty of Vienna. He was thoroughly persuaded that whenever Italy or Hungary chose to rise, no British Minister, no matter how popular he might be, would dare to resist the burst of British sympathy which would be sure to follow—or would dare to advocate subserviency to despotism. He then dwelt at considerable length on what he termed the perfidy of the house of Hapsburg; and having explained in detail the circumstances which led him personally to revolt against Austria, expressed his conviction that Austria could never retain her Lombardian provinces without an immense standing army, and that the hour would inevitably come when her own regiments would tear up the black and yellow flag, as the Italian battalions had already done, and follow the tricolour. The conduct of King Carlo Alberto in the Lombardian struggle had been regulated, not by a desire for Italian liberty, but by the hope of preventing the establishment of a republic in his own neighbourhood. He concluded amid loud cheers by declaring that all he had stated was based upon historical facts, and by expressing his conviction that a European crisis was at hand, which all dissatisfied Hungarian and Italian patriots would do well to avail themselves of to promote revolution, and, through revolution, restore nationality.

OXFORD.—The Oxford Free Library and Reading-room, which was opened on the 1st of June, 1854, has proved eminently successful. The number of books in the library on Sept. 30 was 3983; number of books received towards establishing a lending library, 189; number of specifications received, about 12,500; average number of daily visitors, 407; average number of daily book readers, 74; average number of Sunday evening visitors, 66; total number of books read during the last month, 2208, of which 1226 were novels and tales, 421 poetry, drama, and miscellaneous literature, 256 history, biography, travels, &c., 305 theology, philosophy, science, and art.

PEMBROKE.—There is at present great activity in Pembroke Dockyard, which is in progress of being improved by giving greater length to the dry dock by extending it considerably more into the haven, as well as by adding several feet to its length inland. This extension has become necessary from the great additional length given to our men-of-war, one of which now about to be laid down as a frigate is to be 300 feet long, which is considerably more than the line-of-battle ship Duke of Wellington.

PLYMOUTH.—The Court appointed by the Admiralty to make inquiry into the charges preferred by Mr. Triscott, the storekeeper of the Royal William Yard, against Captain Nias, superintendent of the yard, having made their report, their lordships have decided that Captain Nias is to be superseded; and Mr. Triscott himself has not escaped without an admonition.

PORTSMOUTH.—Some serious disturbances have taken place in this town and Gosport in consequence of the disorganised state and riotous proceedings of the British German Legion, stationed at Browndown camp, five miles from Gosport. Quarrels with the regular troops occurred last week almost daily and nightly, ending with the use of the knife. On Friday night the fatigue party of the Legion, who were placed on board the Sultana and Culloden for conveyance to the Cape, endeavoured to force their way out of the dockyard, and a violent struggle ensued between them and the police. It was found necessary for the preservation of order and the security of the dockyard to double the military guard all day on Saturday. At night however the troops were allowed out of the dockyard, and thus could boast of having carried their point in the midst of a garrison numbering upwards of 4000 men of different branches of the service. During the whole night their proceedings were of the most riotous character. The windows of private houses were wantonly broken at Gosport, and several civilians and British soldiers ill-used. In Portsea the state of matters was even worse. A quarrel ensued between some of the men of the Legion who were drinking at a beer house and a scuffle and fight was the result. Knives were used, and finally one man of the Legion was so severely stabbed that he died almost instantly. The embarkation of 1200 men of the Legion was fixed for Monday, but the proceedings of Saturday evening were of so riotous a character as to render it a matter of the greatest danger to allow the men to remain on shore another night. The authorities therefore marched them into the dockyard from Browndown on Sunday afternoon, and the moment they were embarked the ships were towed out to Spithead, from which they sailed on Monday for the Cape. The arms of the Legion were taken from them before they embarked, and when they get to the Cape the patent Enfield rifle will be served out to them. The wives of the married men are to go out together in the sailing-ship Stamboul.

SHEFFIELD.—A movement has been commenced among some of the working men of Sheffield to erect a monument in the town to the memory of their countrymen who fell in the Crimea. They have communicated with Miss Nightingale, through her relative, Miss Shore, of Meersbrook Hall, requesting her to lay the foundation stone. Miss Nightingale has declined this invitation, but has sent a cheque of 20*l.* towards the object, consisting of subscriptions of 5*l.* each from herself, her father, and her uncle and aunt, Mr. and Mrs. Samuel Smith, accompanied by the following letter :—

"Lea Hurst, Matlock, Oct. 23, 1856.

"My dear Lydia,—The purpose mentioned to me in your letter has my deepest sympathy. It would have been most congenial with my feelings, on my return from the death-beds of so many brave men, to take a part in it. I shall be with the men of Sheffield in spirit whenever they execute their proposed plan. It is with real pain that I feel compelled to decline the privilege which they offer to me, of laying the first stone. But I believe I shall best honour the cause of those brave dead by abstaining from appearing to court that publicity which I consider to have been my greatest impediment in the work I have been engaged in for their sakes, impeding it by arousing in some minds care for worldly distinctions. I will ask you to give this letter to Mr. Overend, and I should be glad that Mr. Overend should make known to those who had expressed a desire that I should lay the first stone my reasons and my sorrow for not doing so; and should say also that I feel an especial regret in declining this at Sheffield, from old and dear family recollections connected with the place. I must apologise for so late an answer, as I have only just returned home.—Pray believe me, my dear Lydia, ever truly yours, "FLORENCE NIGHTINGALE."

"Miss Shore, Meersbrook."

—At a public meeting held recently in this town, it was determined to prosecute the scheme for the erection of a monument to the late James Montgomery; and to commence a subscription for carrying out the design of Mr. Bell, already submitted to the public.

STROUD.—The Roman Catholics have recently been making considerable progress in this borough. A large monastery, inhabited by some 30 monks, and a handsome chapel, which is crowded every Sunday, has been erected at Woodchester, about three miles out of the town, and a large church is in course of erection in the town. Various lectures have at times been delivered against Romanism. Some Roman Catholic gentlemen

having complained of some of the observations made in letters to the *Stroud Journal*, a theological correspondence ensued, and the result was that Matthew Bridges, Esq., a Roman Catholic gentleman of the neighbourhood, gave a challenge to Protestants to discuss the question with him. A number of gentlemen formed themselves into a committee to arrange the matter; Dr. Baylee, the Principal of the Theological College, Birkenhead, was engaged as the champion of Protestantism; and three days were fixed for the discussion, which took place on the 28th, 29th, and 30th ult. Admission was by ticket at 6*d*. each, the holders being bound to exhibit no manifestations of feeling during the proceedings. The discussion commenced on the first two days at 12 o'clock, and on the third day at 11, lasting four hours, each disputant being allowed one hour's speech and two half hour speeches. Mr. George Edwards presided. Mr. Bridges argued that Protestantism was indebted to the Catholic Church for the Scriptures, that the Church settled the canon, and they took it in connection with tradition. Dr. Baylee pointed out that the Fathers were all at issue in their opinions as to various books, and that it required no council to settle what was and what was not Scripture, as the holy writ found a response in the heart of man. The subject was treated with great reverence. The proceedings throughout were conducted in the most orderly manner and gentlemanly spirit. The two disputants several times gave expressions to feelings of personal friendship, and mutually invited each other to their respective houses. The audiences were large and highly respectable.

WREXHAM.—The inquest on the 13 men who lost their lives in the inundation of the Bryn Mally Colliery on the 30th September, after several adjournments, terminated on Wednesday in a verdict of Accidental Death, the jury at the same time expressing their opinion that the mine ought to be surveyed and the drivings laid down on the plans more frequently than had hitherto been the case.

YORK.—The late Earl of Scarborough having cut off the entail of his estates, and having three natural sons and a daughter, it was not known until after his death how his property was devised. It has now transpired, however, that his lordship has constituted his cousin and successor to the title, Richard George Lumley, Esq., of Tickhill Castle, his heir, and that the new Earl will have the estate at Sandbeck, the Lumley property in Lincolnshire, and the family castle and estates in Durham. The present (ninth) Earl of Scarborough is the only son of Mr. Frederick Lumley, by Charlotte, daughter of the Right Rev. George de la Poer Beresford, Bishop of Kilmore. He was married in 1846 to Frederica Mary Adeliza, second daughter of Mr. Andrew Robert Drummond, by whom he has several children. His lordship is an ardent admirer of the sports of the field.

Ireland.

THE EDUCATION QUESTION.—A commotion has been created among the Irish national and Roman Catholic journals by the views upon education in its highest branches propounded by Dr. Lyons before Dr. Newman and the Catholic University on the opening of the second session of the Medical School. Dr. Lyons, whose name is familiar to the profession at large, not less by his eminence as a practitioner than by his recent scientific visit to the Crimea at the instance of the Government, shows that while one Scotchman in every 5000 of the population is a graduate of some University, in Ireland only one man in every 20,000 has received a similar proof of superior education. Dr. Lyons proves by figures that Ireland is the most ignorant of all the civilised nations; and further, that she cannot plead poverty as her excuse.

THE TIPPERARY BANK.—There are 19 petitions already filed in the Encumbered Estates Court (on behalf of English holders of deeds sold by the late John Sadleir), for the sale of estates for which those deeds purport to be transfers of mortgages. Some of those instruments, it is stated, will be disputed as invalid or forged, and thus a new source of litigation will be opened in a court which has, up to this time, enjoyed the peculiar reputation of being entirely free from the delays and intricacies of legislation. Meanwhile, the preliminary arrangements for a compromise between the shareholders and the creditors of the Tipperary Bank are in progress; but serious difficulties have yet to be encountered, and it is said that nothing practical can be accomplished in the way of arrangement without a special act of Parliament.

COLLISION AT SEA.—On Thursday week a collision took place off Cape Clear, which resulted in the total loss of the schooner Mary Macklin, of Cork. The schooner, which was on its way to Cahirciveen with a cargo of Indian corn, was run down by the Mangerton steamer, of Limerick, which picked off the crew and landed them at Queenstown. The Mangerton is the vessel which ran down the Josephine Willis, New Zealand packet, off Folkestone, a few months ago.

Scotland.

THE SCOTTISH BISHOPS AND THE BISHOP OF JERUSALEM.—The *Edinburgh Advertiser* states that at a Synod of the Scottish Bishops, held last month, it was unanimously agreed to send an address to the Archbishop of Canterbury, representing that "a bishop who is understood to be of the province of Canterbury, and who is commonly called 'the bishop of the United Church of England and Ireland at Jerusalem,' has recently officiated in several parts of the country in chapels which are not subject to Episcopal jurisdiction; and this in more than one instance, notwithstanding the most solemn remonstrances previously addressed to him by the respective diocesans." The bishops appeal to his grace whether such acts ought to be allowed to pass without some expression of censure on the part of his ecclesiastical superior. The address at the same time complains of the misrepresentations to which the Scottish Bishops are "continually exposed" from adherents of the Church of England, and declares solemnly that "as there is no doctrine held by the Church of England which we have not subscribed, so there is no error repudiated by the Church of England which we do not also repudiate, both in our own names individually, and in the name of the Church whose rights and privileges it is our duty to uphold." In reply to the address the Archbishop of Canterbury states that the bishop referred to is not under his jurisdiction, and that it was not competent for him to entertain the complaint.

Railways.

GIGANTIC FRAUDS ON THE GREAT NORTHERN.—The Great Northern Company has been defrauded of an immense amount of money by the dishonesty of Mr. Leopold Redpath, one of its principal officers, who absconded last week leaving defalcations amounting to 150,000*l*. or 180,000*l*. These defalcations were caused by a series of frauds which throw those of Robson on the Crystal Palace Company completely into the shade. Mr. Leopold Redpath, of 27, Chester Terrace, Regent's Park, was the registrar of shares and transferrer of stock in the Great Northern Railway Company, and in that capacity had a command over the whole of the company's shares. Although his salary was not more than 300*l*. a-year, he lived in a luxurious style in a fashionable house, had his stall at the opera, was a *habitué* of the theatres, a governor of Christ's Hospital, a leading manager of the St. Ann's Society, and a subscriber and director of several charitable institutions. Operating under the prestige which these occupations afforded, he averted all suspicion, and was thus enabled to perpetrate a series of enormous frauds by adding an "0" to every 100*l*. of stock which he had to issue, thus making the amount 1000*l*. in the company's books. This operation extended to stock of 200*l*., 300*l*. and 500*l*., so that out of every 100*l*. stock transferred he gained 900*l*. Associated with Mr. Leopold Redpath in the same office, and acting with him as clerk, was Mr. Charles J. Cumming Kent. This young man bore a high character for honesty and ability, but as the directors had reason to suspect that he was mixed up with the frauds perpetrated by Redpath he was given into custody, and has undergone a private examination by the police magistrate sitting at Clerkenwell Police Court. The case was made out with sufficient strength to induce the magistrate to remand him, and he is now in the House of Detention. It seems to be the general impression that he was the dupe of a well-devised plot on the part of his superior officer. On leaving London Mr. Redpath fled to Paris, but finding that Mr. Williams, the Company's Inspector of Police, was on his track, he returned to London and was apprehended yesterday morning at the house of a friend, No. 4, Ulster Place, New Road. He was examined yesterday at Clerkenwell Police Court, and was remanded for a week. The prisoner, who seemed very self-possessed, was conveyed in the usual way to the House of Detention.

Obituary.

LORD SCARSDALE died at Farnah Hall, near Derby, on Wednesday last. He was born in 1781, and was consequently in his 76th year. The heir presumptive is the Rev. Alfred Curzon, of Kedleston, second son of the late Hon. and Rev. Alfred Curzon, who wos born in 1801, and who married in 1825, Sophia daughter of R. Holden, Esq.

SIR EDWARD SHERLOCK GOOCH, BART., M.P. for East Suffolk, died on Sunday at his residence, Benacre Hall, in that county. He succeeded to the title on the death of his father in 1851. His first wife was a daughter of the late Lord Rendlesham, by whom he had one daughter, who is now married to the Rev. S. Clissold, of Wrentham. His second wife was a member of the Hope family, by whom he leaves one son, 14 years of age (who is now at Eton, and who succeeds to the title), and seven daughters. The deceased baronet for the last 10 years represented East Suffolk in the Conservative interest. In 1851 he was installed Provincial Grand Master of Freemasons, which office he held to the time of his death.

LIEUT.-GENERAL SIR JOHN ROLT, K.C.B., Colonel of the 2d (or Queen's) Royal Regiment, died on the 8th inst. at East Southernhay, Exeter, of disease of the heart.

MAJOR-GENERAL WILLIAM J. BUTTERWORTH, of the East India Company's service, died at his residence, Milmead House, in Guildford, on the 4th inst., after a lingering illness. He had very recently resigned the Governorship of Prince of Wales Island, Singapore, and Malacca, which he had held since the year 1843.

M. PAUL DELAROCHE, one of the greatest of modern French painters, died suddenly on the 4th inst. at his residence in the Rue de la Tour des Dames. He was born in 1797, and was consequently in his 59th year. He exhibited for the first time in 1822, his works for that year being a "Descent from the Cross," and "Joas taken from the midst of the Dead by Josabeth." In 1825 he exhibited "Joan of Arc interrogated in Prison," and "Philippe Lippi falling in Love with the Nun who served him as the Model of the Holy Virgin," exhibited in the Gallery Lebrun, the "Death of Augustin Carracci," "A Scene from the Massacre of St. Bartholomew," the "Death of Elizabeth of England," now at the Luxembourg, and the "Death of President Duranti," at present in one of the rooms of the Council of State. In 1827 he exhibited the "Taking of the Trocadero." In the first exhibition which took place under the reign of Louis Philippe, he exhibited "Lady Jane Grey," "Richelieu and Cinq Mars," "Cardinal Mazarin," "The Children of Edward," "Cromwell before the open Coffin of Charles I.," "The Assassination of the Duke de Guise," "Lord Strafford proceeding to the Scaffold," and "Charles I. insulted by Cromwell's Soldiers." These last two, which are at present in the galleries of the Duke of Sutherland and Lord Ellesmere, were exhibited in Paris in 1837. Since that period M. Delaroche has not shown any of his works to the public, either at the annual exhibition or even in his studio. Among these works, generally unknown, are "Marie Antoinette before the Revolutionary Tribunal," "The Last Banquet of the Girondins," and "Descent from the Cross." The painting of the hemicycle of the Palais des Beaux Arts, so seriously injured last year by the fire in the building, but which was afterwards thoroughly repaired by the artist himself, will probably be considered his greatest work. M. Delaroche has died of disease of the heart after an illness of only three weeks. He married a daughter of M. Horace Vernet, by whom he has left two children.

FRANCIS WOODWARD, ESQ., well known as an eminent agriculturist and an active magistrate and deputy-lieutenant of the county of Worcester, died on the 4th inst. at Bricklehampton Hall, near Pershore. He met with a fall from his horse in riding to one of his farms on the 15th ult., and severely injured his knee, from which injury tetanus ensued, and caused his death, while in the full vigour of life and health, leaving a widow and five children. Mr. Francis Woodward was widely known as an agriculturist of great eminence and enterprise. In all matters relating to agriculture his opinion was much sought after and highly valued, and he was more than once examined before committees of the House of Commons on subjects in connection with his favourite pursuit. He was an active and intelligent county magistrate, and was much esteemed for his benevolent disposition, courteous manners, and integrity.

MISS VINCENT, the actress, so well known for many years past to the visitants of the Surrey and Victoria Theatres, died on Monday at her residence, 13, Barkham Terrace, Westminster Road. For some days previously she had complained of temporary indisposition, arising from what she thought to be a slight cold; but her illness did not prevent her from fulfilling her official duties as directress of the Victoria Theatre, where she attended until the termination of the performances on Saturday evening last. On her return home she became worse, and brain fever supervened, which terminated fatally on Monday morning. She was in her 42d year.

WILLS OF DECEASED PERSONAGES.

The will of Ann Sophia, Baroness Rendlesham, has been proved under 5000*l*.; the Hon. Colonel Knox, 600*l*.; Major-General James Jones, 30,000*l*.; Lieut.-Colonel John Pester, Hon. East India Company, 10,000*l*.; Lieutenant James Rutland, 10th Foot, 20,000*l*.; Mr. Francis Gosling, banker, 90,000*l*.; Mr. William Smith, banker, 40,000*l*.; Mr. Richard Roffey, Canterbury Place, Walworth, 25,000*l*.; Mrs. Arabella Ann Cheap, Elvington, 45,000*l*.; Mr. John Gould, Finsbury, 25,000*l*.; Alderman Hunter, 25,000*l*.; the Very Rev. W. Buckland, D.D., Dean of Westminster, and Rector of Islip, Oxon, 16,000*l*.; Mr. Robert F. Pate, of Wisbeach, 70,000*l*.; Mr. Thomas Coster, of York Terrace, Regent's Park, 70,000*l*.; Mr. Edward R. Adams, of Elmes Lodge, 45,000*l*.; Mr. James Poulter Manser, of Hoddesdon, 20,000*l*.; Rear-Admiral Prickett, 1000*l*.; Lieut.-Colonel W. Murphey, Hon. East India Company, 6000*l*.; Miss Jane Mather, of Liverpool, 30,000*l*.; Mr. J. Patterson, of Cornwall Terrace, Regent's Park, 30,000*l*., within the province of Canterbury.

Miscellaneous.

THE MIRAGE AT SEA.—A singular optical illusion is mentioned in a letter from Aden, dated Sept. 15:—"Yesterday, a little after noon, the signal was made a 'steamer to the eastward,' and was kept flying the whole afternoon. Towards evening the signalman reported that the steamer was gradually receding, and supposed that she had either broken down or run out of coal. On this the political resident ordered the Hon. Company's steamer Queen to get up her steam and go to her assistance. The Queen accordingly left about 9 o'clock and met the Oriental at 3 o'clock this morning steaming along all right. At the time the steamer was signalled she was 150 miles from Aden, and we can only account for this very singular phenomenon by some optical illusion, such as the mirage."

Markets.

COVENT GARDEN, Nov. 15.

Supplies of home-grown fruit are still extremely limited. The best sorts of Pears fetch, in the shape of single specimens, 6d. and 9d. each. Foreign Grapes continue to arrive in excellent condition. Apples still realise high prices. Good varieties for kitchen use are scarce. Peaches are all but over. Filberts are a trifle cheaper. There is still a good demand for Kent Cobs at from 110s. to 120s. per 100 lbs.; Barcelona Nuts, 20s. per bushel; New Spanish and Brazils, 18s. ditto. A few Chesnuts have been offered at high prices. New Oranges have arrived—price from 1s. to 2s. per dozen. Tomatoes are still arriving, but in very bad condition. All kinds of vegetables in season are tolerably well supplied. Portugal Onions fetch from 9s. to 16s. per 100, or from 2s. to 3s. per dozen. Potatoes are very much diseased. Cut flowers consist of Heliotropes, Orchids, Gardenias, Violets, Camellias, Mignonette, Heaths, and Roses.

FRUIT.

Pine apples, p. lb., 3s to 6s	Pears, per doz., 8s to 10s
Grapes, per lb., 2s to 4s	Apples, per half sieve, 6s to 8s
Figs, per doz., 1s to 3s	Lemons, per doz., 1s to 2s
Melons, each, 2s to 5s	Filberts, per lb., 10d to 1s 3d
Peaches, per doz., 3s to 8s	Kent Cobs, p. 100 lbs, 110s to 120s
Nectarines, do., 2s to 4s	Almonds, per bush., 32s

VEGETABLES.

Cabbages, per doz., 9d to 1s 6d	Artichokes, each, 4d to 8d
Cauliflowers, p. doz., 1s to 4s	Capsicums, per 100, 1s to 2s
Broccoli, per bunch, 9d to 1s	Veg. Marrows, per doz., 8d to 1
Brussels Sprouts, per half sieve, 1s 6d to 2s 6d	Tomatoes, per hf. sieve, 4s to 6s
French Beans, per half sieve, 1s 6d to 2s 6d	Shallots, per lb., 4d to 6d
Potatoes, new, p. ton, 60s to 120s	Garlic, per lb., 4d to 6d
— per bush., 2s to 2s 9d	Lettuces, Cos., p. score, 1s to 1s 6d
Carrots, per bunch, 4d to 6d	Endive, per score, 1s to 1s 6d
Turnips, per doz., 2s to 3s 6d	Radish, Turnip, p. doz., 1s to 1s 6d
Spinach, p. sieve, 1s 6d to 2s	Small Salads, p. pun., 2d to 3d
Cucumbers, each, 2d to 1s	Horse Radish, per bun, 2s to 5s
Beet, per doz., 1s to 2s	Mushrooms, p. pott., 1s to 1s 6d
Celery, p. bundle, 9d to 2s	Parsley, per bunch, 2d to 4d
Leeks, per bunch, 1d to 2d	Mint, green, per bunch, 2d to 3d
Onions, p. bushel, 2s to 4s	Marjoram, p. bunch, 1d to 2d
	Savory, do., 1d to 2d
	Chillies, per 100, 1s to 1s 6d

HOPS.—BOROUGH MARKET, FRIDAY, Nov. 14.

Messrs. Pattenden and Smith report that there is still an extensive demand for fine Sussex and Weald of Kent Hops at improved prices.

BRITISH WOOLS.—LONDON, Nov. 14.

Our market keeps about the same on an average. Some articles being rather more in demand, and others rather less,

some realise a small advance, and others experience a corresponding decline. All branches of the trade, however, continue healthy, although the manufacturers are running short time in some places on account of the unprofitable nature of their trade.

	s. d.	s. d.		s. d.	s. d.
South-down Hoggets	1 5½	to 1 6	Leicester Fleeces	1 3	to 1 4
Half-bred ditto...	1 3	— 1 4½	Blanket ditto ...	0 8	— 0 11
Down Ewes ...	1 3	— 1 4½	Flannel Wool ..	1 0	— 1 4
Kent Fleeces ...	1 1	— 1 3	Combing Skins..	0 10	— 1 3½

THE COLONIAL SALES continue to go off at the rates they commenced at.

HAY.—Per Load of Thirty-six Trusses.

SMITHFIELD, THURSDAY, Nov. 13.

Prime Meadow Hay	68s	to 80s	Old Clover	70s	to 110s
Superior do. (old)...	84	90	Second cut	70	95
Inferior do.	50	60	New Clover	—	—
New do.	—	—	Straw	24	28
Rowen	50	70			

E. J. DAVIS.

WHITECHAPEL, THURSDAY, Nov. 13.

Fine old Hay... ...	75s	to 84s	Fine old Clover ...	100s	to 112s
Inferior do.	50	60	Inferior do.	80	90
Rowen	—	—	Fine new Clover ...	—	—
Inferior do.... ...	—	—	Fine old 2d cut ...	90	96
Straw	—	—	Inferior do	60	70

POTATOES.—SOUTHWARK, Monday, Nov. 10.

During the past week there have been a few arrivals from Scotland coastwise, all of which were in bad condition, some entirely rotten, and a few small lots from Germany, which are freer from taint than the English growth. The quotations are:—Yorkshire Regents, 70s. to 100s.; Kent and Essex do., 85s. to 105s.; Lincolnshire do., 40s. to 90s.; East Lothian do., 80s. to 95s.; Perth, Forfar, and Fifeshire, do., 20s. to 85s.; Jersey Whites, 80s.; German Whites, 80s.

METROPOLITAN CATTLE MARKET.

MONDAY, Nov. 10.

We have a very large increase in the number of Beasts, and consequently prices are lower for all descriptions. Several inferior ones remain unsold, but the best kinds find ready purchasers. The supply of Sheep is very small and prices have advanced, notwithstanding trade is not brisk. Good Calves are still dear. From Germany and Holland there are 2290 Beasts, 2720 Sheep, and 135 Calves; from Spain, 63 Beasts; from Scotland, 100; from Ireland, 1000; and 2100 from the northern and midland counties.

Per st. of 8 lb.—	s	d	s	d		s	d	s	d
Best Scots, Herefords, &c. ...	4	4	to 4	8	Best Long-wools...	4	10	to 5	2
Best Short-horns .	4	0	— 4	4	Do. Shorn...		—		...
2d quality Beasts	2	6	— 3	4	Ewes & 2d quality	4	4	— 4	6
Best Downs and Half-breds ...	5	2	— 5	4	Do. Shorn...		—		...
Do. Shorn		—		...	Lambs		—		...
					Calves	4	4	— 5	4
					Pigs	4	0	— 5	0

Beasts, 6113; Sheep & Lambs, 19,710; Calves, 166; Pigs, 420.

FRIDAY, Nov. 14.

The number of Beasts is small and the weather favourable, consequently we are enabled to maintain Monday's quotations, but trade is not brisk. There are very few sheep indeed on offer, however quite as many as are wanted. The quality of the supply is very inferior. Prices are nearly the same as on Monday. Good Calves are scarce and dear. From Germany and Holland there are 154 Beasts, 310 Sheep, and 143 Calves; from Spain, 23 Beasts; 450 from the northern and midland counties, and 143 Milch Cows from the home counties.

Best Scots, Herefords, &c. ...	4	4	to 4	8	Best Long-wools .	4	10	— 5	0
Best Short-horns .	4	0	— 4	4	Do. Shorn		—		...
2d quality Beasts	2	6	— 3	4	Ewes & 2d quality	4	4	— 4	6
Best Downs and Half-breds ...	5	0	— 5	4	Do. Shorn		—		...
Do. Shorn		—		...	Lambs		—		...
					Calves	4	4	— 5	4
					Pigs	4	0	— 5	0

Beasts, 1013; Sheep & Lambs, 2420; Calves, 222; Pigs, 230.

MARK LANE.—MONDAY, Nov. 10.

With the exception of some rain on Saturday afternoon, the weather since Friday has been fine, with north-westerly winds. The supply of English Wheat to this morning's market was moderate, and although the condition was generally improved, a decline of 1s. to 2s. per quarter upon the prices of this day se'nnight was obliged to be submitted to on all but the very best samples. The attendance was small, and foreign met a very slow retail inquiry, but its value is unaltered. Selected samples of malting Barley bring last week's prices, but other sorts are 1s. to 2s. per quarter cheaper. Beans and Peas bring our extreme quotations. Old Oats are unaltered in value, new are 1s. per quarter lower. The Flour trade is quiet, without alteration in price.

PER IMPERIAL QUARTER.	s. s.		s. s.
WHEAT, Essex, Kent, & Suffolk...White	60—80	Red	58—70
— — fine selected runs...ditto	70—74	Red	60—76
— — Talavera.....	70—80		*
— Norfolk	—	Red	—
— Foreign	60—90		
BARLEY, grind.&distil.,36s to42s...Chev.	44—50	Malting .	40—44
— Foreign...grinding and distilling	34—42	Malting	40—46
OATS, Essex and Suffolk	21—27		
— Scotch and Lincolnshire ...Potato	25—29	Feed	20—24
— Irish .....Potato	25—29	Feed	20—25
— Foreign.....Poland and Brew	24—29	Feed	20—27
RYE	40—42	Foreign .	—
RYE-MEAL, foreign.....	—		
BEANS, Mazagan.....33s to 40s.....Tick	35—41	Harrow .	35—41
— Pigeon... .....40s—48s...Winds.	—	Longpod .	—
— Foreign .....Small	38—44	Egyptian	36—38
PEAS, white, Essex and Kent ...Boilers	40—45	Suffolk...	42—46
— Maple.....—s to —s.....Grey	36—40	Foreign .	36—52
MAIZE .....White	—	Yellow...	—
FLOUR, best marks delivered ...per sack	52—60		
— 2d do. .....ditto	42—50	Country .	42—50
— Foreign .....per barrel	28—40	Per sack	50—58

FRIDAY, Nov. 14.

The weather since Monday has been tolerably fine but cold, with strong northerly winds, to-day N.W. Considerable dullness has this week prevailed throughout the grain markets of the kingdom, and Wheat, both English and foreign, has met a slow sale at 1s. to 2s. per quarter decline, excepting hard and such qualities as are adapted for export to France, Portugal, or Spain, the wants of the last named country being evidently considerable. The knowledge that the Spanish Government are adopting means to supply them, and the intelligence of Cronstadt being closed by ice with a large number of vessels frozen in there, imparts confidence to holders here, and makes the majority indifferent sellers excepting at very full prices. Business in Barley, Beans, and Oats has also been languid, with a lowering value. Prices of Peas were generally well supported. With the exception of some few purchases of Flour for export, the trade has been very quiet, and in some instances lower rates were accepted. The arrivals of foreign Wheat and Oats this week have been large, of all other grain and Flour moderate. This morning's market was thinly attended; nevertheless fine white English Wheat was in request at fully Monday's rates, all other sorts with the exception of hard are neglected. In floating cargoes there is very little doing. Barley is a very slow sale at barely Monday's prices. The value of Beans and Peas is unaltered. The large proportion of the supply of Oats is taken to granary, and the trade is firm at Monday's prices. The Flour trade is quiet, and the few sales made were at a reduction of about 1s. per barrel upon the rates current a fortnight since.

ARRIVALS FROM NOV. 10 TO NOV. 14.

	Wheat.	Barley.	Oats.	Flour.
English ...	3130 qrs.	380 qrs.	120 qrs.	610 sks.
Irish	— "	— "	2200 "	—
Foreign ...	30310 "	3020 "	36340 "	— " 6310 brls.

LIVERPOOL, Tuesday, Nov. 11.—At this morning's market, with a fair attendance of millers and dealers, a good sale was effected in Wheat at a reduction on Friday's quotations of 1d. per bushel, making the decline on the week 3d. per 70 lbs. Flour must be called 6d. to 1s. per sack and barrel down. Indian Corn decidedly improved in value, but cannot quote an advance. Egyptian Beans scarce, and 1s. per quarter dearer. Oats and Oatmeal good sales, but with a large supply must be called ½d. per bushel and 6d. to 1s. per load cheaper.

LIVERPOOL, Friday, Nov. 14.—There was a fair attendance of town and country dealers at our market this day, and a very quiet tone prevailed. Wheat and Flour were rather easier than on Tuesday. Indian Corn has slightly improved in price. Other articles unchanged.

AVERAGES	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct. 4...	65s 0d	42s 10d	25s 11d	42s 0d	44s 10d	43s 9d
— 11...	64 9	42 9	25 9	39 11	45 2	43 3
— 18...	65 9	44 0	26 8	40 1	46 1	44 0
— 25 ..	66 4	45 8	27 1	40 11	46 6	44 9
Nov. 1...	66 0	46 2	26 7	41 8	47 2	45 5
— 8...	65 3	46 8	26 5	40 4	46 0	45 9
Agg. Aver	65 6	44 8	26 5	40 10	45 11	44 6

FLUCTUATIONS IN THE LAST SIX WEEKS' AVERAGES.

PRICES.	Oct. 4.	Oct. 11.	Oct. 18.	Oct. 25.	Nov. 1.	Nov. 8.
66s 4d	...	...	...		...	...
66 0	...	...	...	...		...
65 9	...	...		...	..	...
65 3	...	...	...	...	...	
65 0		...	...	...	...	...
64 9	...		...	...	..	...

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

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HOLLOWAY'S OINTMENT AND PILLS THE UNRIVALLED CURATIVES OF THE AGE.—John Swift, of Deptford, in a letter to Professor HOLLOWAY, dated Sept. 19, 1856, says that his wife suffered nearly four years with an ulcerated leg; she consulted the most eminent of the faculty without obtaining the slightest alleviation of pain; at last, advised to use HOLLOWAY'S Ointment and Pills, the wounds were quickly healed. He concludes by expressing his heartfelt gratitude to one who proved the means, under "Divine Providence," of restoring his wife to perfect health.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

TO NERVOUS SUFFERERS.—A Retired Clergyman having been restored to health in a few days, after many years of great nervous suffering, is anxious to make known to others the means of cure; he will send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct, Rev. E. DOUGLAS, 18, Holland Street, Brixton, London.

JOHN WEEKS & CO., KING'S ROAD, CHELSEA, HORTICULTURAL BUILDERS.

REGISTER FOR GARDENERS.

NO CHARGE EXCEPT FOR POSTAGE.

The Nobility and Gentry in want of Gardeners, Bailiffs, Foresters, &c., are respectfully informed that Gardeners are classed here according to their various qualifications. By sending full particulars such Gardeners only will be introduced as are worthy, and well adapted for each particular situation.

Gardeners in want of situations are requested to apply to JOHN WEEKS & Co., Horticultural Establishment, Chelsea.

WANTED, a young MAN, who thoroughly understands the Growing of Plants, including Orchids and Ferns, and who can be well recommended. Liberal wages, if a suitable person be engaged.—Address J. S., 3, Forest Hill Terrace, Sydenham.

WANTED, a respectable Youth, as an Out-door Apprentice to the SEED and FLORIST BUSINESS, in a fashionable and healthy locality. A moderate premium required.—Letters addressed MR. CRAWLEY, 60, Portland Place, London, will meet with attention.

WANTED, a young Man as INVOICE CLERK, by 1st December next. One accustomed to the Retail Trade preferred.—Address, stating age, terms, &c., to JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

WANTED, a MAN and his WIFE, the Man to Groom a Horse, work under the Gardener, and do odd jobs. The Woman to take the Washing of the family at her own house, or at the Hall, as may be agreed on. A good Cottage close to the Hall will be provided.—H. J. TURNER, Land Agent, Richmond, Yorks

WANT PLACES.—Letters to be post paid.

WORKING HEAD GARDENER.—Married, no family; has a knowledge of his profession in all its branches, also Land and Stock. Wife a good Cook or Housekeeper. Good character.—H. Y., Post Office, Church St., Croydon.

GARDENER (HEAD).—Age 32, single; well skilled in Vines, Peaches, Cucumbers, Melons, and Kitchen, Fruit, and Flower Gardens. Also a practical knowledge of Plant Growing. Good character.—E. W., Messrs. Rollisson's Nursery, Tooting, Surrey.

GARDENER (HEAD).—Age 36, single, 23 years' experience; thorough practical working man; wishes a situation where he can carry out each branch of gardening on the best principle. Can lay out Grounds, &c.; understands the Management of Land, Stock, Poultry, &c.—T. C., Post Office Ingatestone, Essex.

GARDENER.—Single, age 30; thoroughly understands all kinds of Early Forcing, together with the Greenhouse, Kitchen Garden, and Pleasure Grounds. Two and half years' good character.—A. C., Post Office, Ashford, Kent.

GARDENER.—Age 36, single; 18 years' practical experience; three years and a half character from late employer.—M. R., Messrs. Lee's Nursery, Hammersmith.

GARDENER.—Has had extensive practice in the whole routine of Gardening, including Growing Plants and Fruits for Exhibitions and other purposes; likewise the Management of Farming, Land, Stock, Draining, &c. Unexceptionable character.—F. H. S., Post Office, Chatsworth, Derbyshire.

GARDENER,—Age 29, married, one child, four years old; understands Early and Late Forcing, Greenhouse, Flower and Kitchen Gardens. Can have an excellent character from the gentleman with whom he has lived three years.—W. F., Messrs. Paul & Son, Cheshunt, Herts.

GARDENER OR FOREMAN. — Experienced in Potting, and a first-rate hand with the Knife; thoroughly understands Pruning, Planting, Nailing, Training, &c. Would like an engagement a few miles from town. Can Manage Land, Milk, &c., if required.—S. S. LANE, Mr. G. Turner, Gardener, East Barnet, Herts.

GARDENER, OR GARDENER AND BAILIFF.—Age 32, married, no incumbrance; has a thorough knowledge of his profession in all its branches.—H. K. H., Duke's Road, Tavistock Square, London.

GARDENER, OR GARDENER AND BAILIFF.—Age 37, married; offers his services to any nobleman or gentleman in want of a first-class Practical Gardener. He has also a thorough knowledge of Land and Stock, and all things connected with rural economy. Can be highly recommended.—A. B. W., 2, Regent Street, Gloucester.

FARM BAILIFF.—A native of Scotland, unmarried; has a thorough knowledge of his profession, Draining and Reclaiming Waste Land, Growing Green and White Crops; has been accustomed to Light and Heavy Soils, Keeping Accounts, &c. Can be highly recommended by the gentleman he has just left.—AGRICULTURIST, Post Office, Thame, Bucks.

BAILIFF (WORKING).—Age 28, married; has been accustomed to new and improved implements. Nine years' character from last employer.—J. C., Post-office, Iver, Bucks.

MANAGER, OR MANAGER AND BAILIFF.—A young Man of respectability is desirous of a confidential situation as above, on an Off or Home Farm under a gentleman. Has a general knowledge of Farming; thoroughly understands the Cultivation of Land, also of Flax; the general Management of Stock, Draining; the personal superintendence of Repairs, &c.; and all accounts connected therewith. Security if required.—C. D., Post Office, Isle Abbots, near Taunton, Somerset.

ASSISTANT PROPAGATOR, OR SECOND IN A NURSERY.—Age 20; has had great experience in the Propagation of Roses, Conifers, &c. Good reference can be given.—A. B. North Row, Uckfield, Sussex.

TO LANDED PROPRIETORS.

LAND STEWARD, &c.—The Advertiser (married, aged 38), a native of Scotland, has had great practical experience in the general management of Estates, is thoroughly acquainted with Draining and Reclaiming Land, the Erection and Repairing of Farm Buildings, the Buying and Selling of Stock, the Management of Brick and Tile Works, Extensive Plantations, Measuring and Valuing of Timber, &c.; is a good Accountant; has no objection to Ireland. Can be highly recommended by his present employer.—A. B., Post Office, Brigg, Lincolnshire.

TO SEEDSMEN. — A young married Man at present engaged with a person with whom he has been in business for the last 12 years. Has had good experience in the Shop; also in Growing, Cleaning, and Preparing Seeds for Sale. Competent to take charge in the absence of the Principal. No objection to Travel occasionally.—B. B., care of Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street.

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BINN'S PATENT MANURE AND TOP-DRESSING,

FOR PROMOTING THE RAPID GROWTH OF VEGETATION,

(ITS FERTILISING PROPERTIES BEING EQUAL TO THOSE OF ANY MANURE AT PRESENT KNOWN),

AND THE DESTRUCTION OF THE FLY, WIRE-WORM, AND SLUG.

THE PROPRIETORS of this valuable MANURE and TOP-DRESSING are now manufacturing it at their Works, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. This Manure is strongly recommended for Wheat, and all other crops that follow in succession, to be used either drilled or broadcast.

Agriculturists will find it invaluable as a Top-dressing for Grass.

Orders addressed HALL & Co., at the Works; the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

The Patentees have also manufactured a CONCENTRATED MANURE FOR THE FLOWER AND KITCHEN GARDENS, which is sold in boxes at 3*s.* and 1*s.* 6*d.* each. No. 1 Box is enough to Manure 12 rods of ground; No. 2, 6 rods. May be had at the Works, and of the undermentioned Agents.

Hooper & Co., Central Avenue, Covent Garden Market.
T. Brigden, Seedsman, 10, Railway Arcade, London Bridge.
Wood & Sons, Seedsmen, East Street, Old Kent Road.
Dawe, Cottrell, & Co., Seedsmen, 36, Moorgate Street, City.
Henry Potter, Seedsman, 65, Farringdon Street.
F. Boshell, Seedsman, 86, High Street, Borough.
John Noble, Seedsman, Pond Lane, Lower Clapton.
John West, Florist, Newington Green.
William Kibble, Florist, Richmond Road, Dalston.
P. S. Plummer, 37, Upper Thames Street; and 54, Seed Market, Corn Exchange.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CABNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ESTABLISHED 1812.

TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the weight and quality of the bulbs which it produces; it is besides especially beneficial to the Grain Crops which follow, while Clover is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to H. & T. PROCTER, Cathay, Bristol; PROCTER & RYLAND, Birmingham; EDMUND SCOTT, Warwick, and Satney, near Chester.

PATENT WOOL MANURE COMPANY (LIMITED).—Wool Manure for Corn, 7*l.* 10*s.*; Turnips, 6*l.* 10*s.*; delivered to any Railway Station or Wharf in London. Applications for Agency from influential persons attending Provincial Markets to be forwarded to C. H. TIDBURY, Secretary, 81, Gracechurch Street, London.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

Trustees.

Abel Smith, Esq., Jun., M.P., Walton House, Ware, Herts.
Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-Gen. Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.

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Chairman—Jonas Webb, Esq., Babraham, Cambridgeshire.
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John Clayden, Esq., Littlebury, Essex.
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Manufactory—Plaistow Marshes, Essex.

BLOOD MANURE FOR WHEAT.

The Directors of the above Company (many of whom are extensive agriculturists) have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and, having secured nearly the whole of the Blood produced by the butchers of the metropolis, and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and, as most of the Directors and many of the Shareholders are themselves large consumers of the Blood Manure, their fixed determination to supply nothing but genuine quality, cannot fail to afford a guarantee and protection to the farmer against imposition.

The great value of Blood Manure as a fertiliser may now be considered as a fully established fact; ever since the first introduction of this valuable fertiliser, the demand has been greater than could be conveniently supplied.

The Blood Manure is composed of bones dissolved in Sulphuric Acid, to which is added a large quantity of pure blood, specially prepared to suit various crops, and may either be applied by the drill or sown broadcast.

It is a very remarkable fact, that the analysis of blood and the grain of Wheat are nearly identical, as proved by the most eminent chemists; it contains all the elements which plants require, and when properly prepared and applied, will become the essence of vegetable as well as of animal life.

The highly fertilising properties of Blood have been commented upon by Professor Way and others, and the success of the Blood Manure for Wheat Crops has been fully proved upon all soils, by the practical experience of numerous agriculturists. Testimonials from the most eminent agriculturists who have used the Manure may be had from the local Agents.

Offices—109, Fenchurch Street, London.

Price 7*l.* 10*s.* per ton, free at any Railway or Wharf in London.

Directions for use.—From 2 to 4 cwt. per acre, according to the condition of the soil. It may either be drilled in with the seed or sown broadcast; if the latter it should be well harrowed in.

The public are cautioned against spurious imitations. As security to the purchaser every bag contains 2 cwt., and is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

LONDON MANURE COMPANY (Established 1840)

Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.

EDWARD PURSER, Secretary.

40, Bridge Street, Blackfriars, London.

THE NATIONAL GUARANTEED MANURE COMPANY (LIMITED).—Incorporated under 19 and 20 Vict., c. 47, limiting the liability of Shareholders. Capital 100,000*l.*, in 50,000 Shares of 2*l.* each. Deposit, 10*s.* per share.

The object is to supply the Agricultural community with Manures consisting of organic and inorganic substances, which will be "guaranteed" by this Company to contain a certain percentage of nitrogen, ammonia, soluble phosphates, silicates, and other fertilisers, so essential to the growth of crops.

Trustees.

Colonel William Petrie Waugh, Branksea Castle, Dorset.
John Evans, Esq. (Evans, Lescher & Evans, Bartholomew Close, London and Liverpool).
Robert John Lattey, Esq., Erin House, St. John's Wood; and Cregg, county of Galway, Ireland.

Directors.

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William Slarke, Esq., Cricklewood, Middlesex.
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Solicitors—Messrs. Humphreys & Knight, Spital Square, Bishopsgate Street; Worthington Evans, Esq., 72, Coleman Street, City.
Brokers—Messrs. Crosley, Brothers, 30, Cornhill.
Resident Chymist—W. H. Read, Esq., late pupil and assistant to Professor Way.
Secretary—Geo. Gorham Lamb, Esq., *pro tem.*
Temporary Offices, 77, King William Street, City.

Two businesses have been purchased by this Company, whose works are in active operation and executing orders daily. Testimonials and samples of the Manures may be seen at the Offices.

Prospectuses and Forms of application for the remaining Shares may be obtained of the Bankers, Brokers, or Secretary.

Temporary Offices, 77, King William Street, City.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the Plans and execution of the Works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

LAND DRAINAGE.

MR. BAILEY DENTON undertakes the Drainage of Estates by Contract or Commission.—For terms apply to him, 42, Parliament Street, Westminster.

ROYAL AGRICULTURAL COLLEGE, Cirencester.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.

Professors, &c.

Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
Manager of Farm—J. Coleman.

The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.—ANNUAL EXHIBITION at Gloucester, Nov. 27, 1856.—The Exhibition of Stock, Horses, Roots, Wheat, Cheese, and Implements will take place at Gloucester on THURSDAY, November 27 (being a week earlier this year in consequence of the Birmingham Show), and the Poultry Show will be held on WEDNESDAY and THURSDAY, November 26 and 27.

Entrance to the Yards, One Shilling each person.

The Annual Dinner of the Society will be held at the King's Head Hotel, Gloucester, at 4 o'Clock. The Right Hon. Earl Ducie in the chair. ED. TRINDER, Secretary.

Cirencester, Nov. 15.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The EIGHTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, ROOTS, and DOMESTIC POULTRY, will be held in BINGLEY HALL, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 2d, 3d, 4th, and 5th of DECEMBER next.

The PRIVATE VIEW will take place on Tuesday, December 2. Admission to Non-Subscribers, 5*s.*

The Exhibition will be opened on Wednesday, Thursday, and Friday. Admission, 1*s.*

Bingley Hall will be Lighted with Gas on the Evening of each day. The Doors will be opened at 9 o'clock each morning.

SUBSCRIPTIONS AND TICKETS OF ADMISSION.—Subscribers of Ten Shillings per annum will receive *three* tickets of admission, available on Tuesday (the Private View), Wednesday, Thursday, or Friday; Subscribers of One Pound to *six* tickets; and Donors or Subscribers of a larger amount to Tickets in the like proportion. Each ticket will secure one admission only, and it must in all cases be delivered to the Checktaker at the entrance to Bingley Hall. JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham.

The Agricultural Gazette.

SATURDAY, NOVEMBER 15, 1856.

THE French Government evidently places a very high value upon English agricultural experience as an incentive and example to the agriculturists of France. A more liberal set of arrangements in order to secure for Frenchmen an exhibition of our results as manufacturers of meat could hardly have been devised than is published with reference to the show of fat stock next spring at Poissy.

British Stock are admitted to this exhibition in order to show French farmers the capacity for feeding, and the value of the produce derived from the breeding stock shown in the Great International Exhibition of Breeding Animals held in Paris in the month of June.

Poissy being a station distant about ten miles from Paris, on the railway from Le Havre to Paris, British exhibitors are advised that one of the best ways of conveying cattle to the show is to send them by the steamers from London or from any other seaport to Le Havre. From Le Havre to Poissy the journey is direct, and a very short one.

The cost of the transport by the French railways will be paid back to exhibitors on their arrival at Poissy by the French Administration. The exhibitors or their servants will have for that purpose to keep carefully their railway receipts, and to present it to the Commissary of the show.

The show takes place on the 6th, 7th, 8th, and 9th of April next year. The following is the list of prizes offered to English exhibitors:—60*l.*, 48*l.*, and 40*l.*, are offered for the best ox under 3 years old of the short-horn, Devon, Hereford, and polled breeds respectively; 48*l.*, 40*l.*, and 36*l.* are offered

for the best ox over 3 years old of these several breeds, and also for the best Highland ox under 4 years old; 36*l.*, 32*l.*, and 24*l.* are offered as prizes for the best ox of any age of the Kerry breed, and for the best ox under 3 years old of any cross-breed; 32*l.*, 28*l.*, and 24*l.* are offered for the best Highland ox over 4 years old, and for the best cross-bred ox over 3 years old; 40*l.*, 32*l.*, and 28*l.* are offered for the best pen of 5 fat yearling wethers of the Leicester, long-woolled, and Southdown breeds respectively; and 24*l.*, 20*l.*, and 16*l.* are offered for the best pen of 5 fat wethers under 3 shear of the Cheviot breed, under 4 shear of the black-faced breed, and shearling sheep of any cross-breed.

In addition to the money premiums, gold medals will be given with first prizes, silver medals with second prizes, and bronze medals with the others. As extra prizes, a silver cup worth 100*l.* will be given for the best fat ox of British breed, and a cup of 48*l.* value will be given for the best pen of sheep. The sheep must be shorn, except a small lock left behind the left shoulder.

Declarations of entry must be made on or before the 15th March, 1857. The certificates must contain the name and address of exhibitor, with the kind, class, breed, and age of the animal. The age of all animals must be calculated up to the 15th March, 1857.

The certificates must be sent to the Minister of Agriculture and Commerce, 78 Bis, Rue de Varennes, Paris, so as to reach the Ministry on or before the 15th March, 1857.

All animals intended to be exhibited at the show can arrive at the yard during the day of Saturday, the 4th April, and they must be at their place on Monday, 6th April, before 7 o'clock in the morning. None can be admitted after that hour.

The French Government will pay the cost of transport within their own frontier, and will provide for the keep of stock during the exhibition.

Application should be made for certificates to the Minister of Agriculture, Paris.

THE storing of root crops and getting in of Wheat are operations engaging the chief attention of the farmer during the current month. A period is no doubt approaching when the practice in either case will be nearly uniform, but as yet a wide provincial diversity exists not unworthy of notice. The opening up of the country by railroads, enabling farmers to judge from observation, and the discussion of the merits of different practices which naturally follows, point to the ultimate adoption of a more general rule. At the same time a diversity of soil and climate must always give to this branch of farm practice more or less of a provincial character.

When Turnips are followed by winter Wheat the former must of course be removed from the field, but when they are to be followed by spring corn it is a not uncommon practice to throw so many drills together and cover them in the field. In this case the number of drills to each row will depend upon the weight of the crop, and other circumstances. With four or five Turnip-baskets, one to every four or six drills, a man will keep three or four toppers going, carrying from 12 to 24 drills on each side, thus making from 28 to 52 drills in each row, the four middle ones being left as a foundation. Thus a company of 12 hands finishes a row, leaving it ready for covering, nine pulling (four on each side and one in the middle), two carrying (one on each side), and the twelfth trimming up the row or line. If the land is wet the roots are stored on the surface; but if dry two plough furrows may be cast out, one to each side, and the roots thrown into the hollow. When this practice is followed the four middle drills have to be pulled prior to opening the furrows. The covering is done partly by the plough and partly by the spade.

By this plan a large breadth of Mangels or Swedes may soon be stored. It is liable, however, to several objections, such as liability to sustain injury from frost, difficulty of removal from the field either in wet or frosty weather, and injury to the land in carting during winter.

The better plan is to store near the homestead, or where that is impracticable from distance, to make the bins in the field where the Turnips are grown or in the one adjoining near a road, so that they can be removed at pleasure afterwards. At this season every expedition must be made to get in Wheat, there being seldom time for the removal of heavy crops, such as Turnips, to a distance. From the bins in the field the roots are taken to the homestead as required, 14 days or a month's consumption being removed at one time. This supply is stored either in barns or bins adjoining the cattle-yards, from whence they are taken by the cattlemen daily. On small farms, where the crop is grown near the homestead, the whole may be carted directly from the field and stored in these barns or bins, thus saving the storing in the field; but on large farms this cannot be done, twice carting being unavoidable, as a month's or six weeks' supply is all that can conveniently be contained at home without interfering with the duties of the cattleman to the injury of their charge.

It is, however, in the mode of storing, or in the construction of bins that the greatest diversity of practice exists. For the sake of illustration the storing of Swedes may be taken. We have seen this crop extensively grown in England, Ireland, and Scotland, identically the same practice of storing being followed in each place. There were no doubt some differences in detail, but not more between the three than between different seasons in each.

The practice followed was to make the bins on the surface, a cart-load to every yard in length. This is not only a convenient size for every purpose at the storing, but it also serves afterwards as a ready measure for carting home and consumption. When made larger they are liable to heat, and when less more expensive to cover. The work itself is simple: a man superintends the emptying of the carts, placing a plank on each side to regulate width and prevent the roots from rolling sideways. When the roots are neatly trimmed up, they are covered with straw and allowed to lie thus for 14 days or a month, according to the quality of the roots and weather. The bins are then covered with earth, leaving a narrow strip along the top uncovered, in which state they remain until the arrival of frosty weather, when they are topped out.

The rationale of this practice is as simple as the practice itself. When Turnips of any kind are pulled and immediately carted to the bin, they are unfit for being covered close up with earth. This arises from the fact that they are living plants, and that the mere topping and tailing do not destroy life. For a time an imperfect state of circulation is kept up, gases being given off from the surface of bulbs, and moisture absorbed by any rootlets remaining, and even by the bottom of the bulb itself when the roots are taken off. This active state must be destroyed and life placed in a dormant condition, and upon the successful effecting of this depends the entire success of storing Turnips. Now the covering of straw allows all gases evolved to escape into the atmosphere; the roots soon dry and scale over, becoming then incapable of absorbing either moisture or gases, at least so freely. The covering of earth with a way of escape for gases at the top completes the process. At first hoar-frost will not lie on this opening, proving that gases are yet being given off. Eventually, however, it lies, proving that gases now cease to be evolved; and then the bin may be earthed up. On the contrary, were it covered wholly with earth at once the gases would then be confined and absorbed by the bulbs setting them into fermentation, when the result would soon be a rotten mass.

Such being the condition of roots when newly stored, we need hardly advert to the impropriety of storing unhealthy ones, or those having sustained injury from frost, as a few bad examples would soon injure the whole. Unhealthy bulbs are easily known by their tops or tails, and when either are unsound they should be thrown aside.

Other modes of making bins are practised, such as digging a pit or trench the breadth of the cart, or placing stuffed hurdles or hoarding on each side, but they are liable to two very serious objections—*first*, being too expensive—and, *second*, the depth of roots being too great, they are thus liable to sustain injury from heating. Hurdles and hoarding may be judiciously used at the homestead for a month's consumption or so, but in the field they are beyond that economy which farmers must ever study to observe.

DRYING OF GRAIN.

There has rarely been a season of harvest in Scotland more calculated than the present to excite the anxiety of the farmer, or to put into peril the interests of the consumer of grain, and it has been difficult to look at the crops of Wheat and Barley, drenched by the rains in the last days of September and in the commencement of October, and in the best parts of Scotland, without asking the question, whether no means can be found to prevent the food of man being destroyed to such an extent, and the just hopes of the best farmers disappointed? The quality of all grain crops must necessarily depend primarily on the season and sunshine by which they have been ripened; but it rarely happens that the quality and sample are seriously deficient, if the moment the crops have ripened they could be secured against the subsequent risks of the season. After the period of ripening has come, it may be asked, to what amount of deterioration is the crop liable? It is to be feared that in Scotland, at least in the present year, that amount is very serious. It may be assumed that the quarter of Wheat in perfect condition is worth, at the present time, at least 70*s.* Its possible deterioration from such a harvest as we have lately had, may be taken at any sum varying from 1*s.* to 20*s.* a quarter; indeed, if the Wheat has sprouted in the field, it is lost as the material of bread, and is saleable only at a low rate for other purposes.

The question is, whether at a cost which it is reasonable to incur, the Wheat crop can be saved from the risks of the season, and its quality preserved at that standard of excellence to which the season may have matured it. It is similar to a case of insurance—a sum to be paid to cover a risk—uncertain in its degree, but the insurance certain to cover the loss, whatever it may be. My belief is, that such a system is attainable, and, if it be, it ought to have a fair trial. It seems to me that it might consist in the following scheme of operations:—

	£	s.	d.
1. A field of Wheat to be cut the moment it is ripe, irrespective of the state of the weather, it being immaterial, so far as the crop is concerned, whether it rains or does not rain—to be cut by the scythe and at a cost of about 8*s.* per acre .	0	8	0
2. Each scythe to be followed by about eight women or young persons, whose duty it shall be, by means of a short knife, as the straw falls from the scythe, to separate the ears from the straw at a cost of about 8*s.* per acre	0	8	0
The ears of Wheat to be immediately put into sacks or carts properly fitted for the purpose, and at once carried to a drying house at the farm buildings.			
4. The drying house to be a barn or other building, properly fitted with an apparatus for heating it with currents of dry air, of a temperature of about 120°. This temperature would expel all water and moisture from the ears of Wheat, in 4, 5, or 6 hours, according to circumstances, create a condition in which the grain would keep in the husk in the best manner, the sample being the best which the season had produced. All risk is from that moment at an end. The cost of the fuel required for this process could in no case, it is believed, exceed 1*s.* per quarter, in many cases only 6*d.*, and labour 6*d.* or 1*s.* more; in all per quarter	0	10	0
Total cost per acre, ...	1	6	0
But from this sum falls to be deducted the cutting down of the crop in the ordinary way, say total	0	10	0
extra expense for one acre producing five quarters of Wheat	0	16	0

nearly 3*s.* 2*d.* per quarter, or 5*d.* per bushel.

This sum is to be placed against the possible deterioration in the quality and consequent money value of grain exposed to all the vicissitudes of weather. Is it reasonable to cover a risk and secure a certainty at this cost? In the case of Scotland in the present year that answer no doubt must be, that over a wide extent, the actual loss incurred far exceeds the cost of the remedy proposed.

It may be stated that an excellent and powerful heating apparatus may be erected for about 40*l.* The cost of separating the corn from the straw is taken at 8*s.* per acre (assuming five quarters of grain); the probability is that in practice it would cost less money. I have a strong persuasion that the whole operation would be practically accomplished for less rather than more money than has been estimated, and the larger the scale, the smaller must be the cost of the drying process—at all events, something between 4*d.* and 6*d.* per bushel.

Another consideration arises from the successful adoption of this scheme; the present system of threshing out the Wheat crop would no longer be applicable, the process of threshing would be applied to the ears alone, the straw would no longer pass through the threshing machine, and consequently a much smaller machine would be required, and much less power to work it. Inasmuch as power and labour are the equivalents of expense, so the discontinuance of powerful machinery and labour implies an important economy in this respect. There would be saved a costly machine, and a costly power of steam or horses, that of water being more rare. The manual labour would be much less, from the less bulky nature of the material to be dealt w th; a very light machine would separate the grain from the husk and clear it of the chaff. Here, therefore, would be an important saving to set against the assumed extra expense of 3*s.* 2*d.* per quarter, or 5*d.* per bushel.

The result or object to be gained seems to be, to place the Wheat crop, after it has ripened, in circumstances of certainty and security, independent of all weather, and to secure its quality and sample at the highest standard to which the season may have matured it. There would be no waiting for dry weather to commence the cutting down of the crop—it would be a matter of indifference whether it rained or not during harvest, except as regarded the comfort of persons employed; a new class of labourers would be introduced into the operations of harvest, it would no longer be necessary to have the most able bodied at high wages, the labour would be comparatively light, and could be performed by the weaker and more numerous, without fatigue and at moderate wages, although, no doubt, the principle of contract would be introduced with advantage, and good wages might and ought to be earned, and vigour and despatch secured.

It is to be observed that the process of drying by currents of pure and dry and heated air can have no injurious effect on the taste and delicacy of the flour. It is not a process similar to drying in a kiln by which the taste of grain is affected—the processes are totally dissimilar, except that both produce dryness.

In conclusion, I may remark that the agricultural world is at present in pursuit of the important object of reaping by a machine as a substitute for the sickle and the scythe, and it seems nearly to be attained. When that object is fully attained, it would only harmonise

with the end and object of the present statement. The separation of the ears of Wheat from the straw would be readily effected as the crop was laid on the ground by the action of the reaping machine—its position would give every facility for the operation. The substitution of machinery for manual labour would liberate a greater number of persons for the various parts of a new system of harvest operations. The complete success of the reaping machine would only facilitate the success of the drying system, which I am desirous to bring under consideration. *A Landlord in the North British Agriculturist.*

MR. CHADWICK

ON THE

PROGRESS AND COMPARATIVE POSITION OF AGRICULTURE IN ENGLAND AND ON THE CONTINENT.

(*Continued from p. 747.*)

IN England the deficiencies of our labouring agricultural population and of our agriculture are vast. In illustration of the miserable economy of labour, I may mention that I have shown that in common instances agricultural labourers have to walk to and from their places of work, six, eight, ten, and even more miles daily, that is to say, to expend a large proportion of the strength in walking which should be given to the productive labour in the field. An American employer of efficient and highly paid labour finds it pay him to provide an omnibus to collect his labourers and bring them to their field of work and convey them to and from different parts of it. In some manufactories, machinery worked by steam is provided to lift and lower the workmen with their tools and material from the lower to the upper rooms and for their descent, as well as in mines, not to waste strength or time in ascending and descending. From the influence of the law of settlement, and the neglect to provide sufficient dwellings, two families are frequently put into cottages of a bad construction for one, and many agricultural labourers are driven into the worst parts of the suburbs of towns. The use of meat as an article of diet is insufficient. Whilst their physical condition is extensively depressed, their education and moral and intellectual culture is neglected; more than 60 per cent. of them can neither read nor write, and in general the rest can only do so indifferently.

The means of removing and preventing *excesses* of moisture by drainage works have only been applied to a miserable small proportion of the land requiring it, and nearly a quarter of a century has elapsed in doing that small proportion very rudely, although it was early proved that the beneficial effects produced repaid the cost of the works in four, five, and six years. Two-thirds of the county of Cheshire, as an example, are shown in a prize report, published by the Royal Agricultural Society, to be too wet to bear sheep properly. The subsoil of the greater portion of the suburban cultivated land around Manchester is disgracefully surcharged with moisture, and ragged Rush-encumbered fields display the low state of agriculture there, and yet I know that in that same county properly directed improvements have been attended with a return of 7½ per cent. of the capital invested in them, whilst whole tracts are continued in a state of fen or dangerous bog. The inhabitants of London are subjected to febrile attacks when the wind prevails from the contiguous Kent and Essex marshes, and their health is lowered by the fogs arising from the want of drainage of the low-lying district and of the suburban site. The arterial drainage of the country is allowed to be obstructed by extensive illegal encroachments, and by the want of means of equitable compensation where there is not positive illegality; and by allowing the very amount of the evil to be made a means of scandalous extortion as a condition of its abatement. The works of arterial drainage, by wide, open, and stagnant ditches, are disgraceful to engineering art, yet, as I have shown, the ground to be gained by pipe drains would pay for the expense of the work.

Whilst the removal by general drainage of all the surplus moisture which in evaporation lowers temperature would immensely advance production, it is proved from the observation of the effects of particular portions done, that in all probability the complete drainage works would raise the general temperature. A farmer being asked whether he had noted any difference in the thermometer in the drained, as compared with the undrained fields, said, they knew nothing of those things, thermometers, there, but he found that it made a great-coat difference to him; formerly he could only go out into the undrained field at night with a great-coat on; since they were drained he could go out without one. There are data for believing that during a portion of the year a general drainage would cause an elevation of 5° or 6° of temperature.

But as yet no idea seems to be entertained, and in the present state of the legislative and administrative arts, no opening appears for proposing any measures for the attainment of that which a full investigation of the subject will show must hereafter be another large correlative work for agricultural production, namely, by works for the storage and distribution of water on a large scale to prevent *deficiencies* of moisture. As drainage works advance the rivers are filled more rapidly after rains. I have known instances where they are already filled in a quarter of the time they were formerly. In some districts, particularly in Lancashire, there is much water stored for use as water power. Storage works will be required with the advance of drainage to guard against damage from floods; but if the subject be duly considered,—as I hope it may now be in France after the devastation by the flood waters,—storage works will be most required for distribution as a means of fertilisation. In some of our former fen or marsh districts of England which are kept clear of the excess of moisture by steam power, at a working expense of from 2*s.* 6*d.* to 3*s.* 6*d.* per acre per annum, they have found by experience that if they pump the water above or below a certain point they are doing too much or too little, and by this power of retention and the prevention of deficiencies of moisture, these former inferior or almost worthless lowlands are by the greater security of the agricultural operations on them rendered more valuable than the most valuable of the uplands, for which such appliances have hitherto been considered unnecessary. We are apt to speak about drying lands as if it were an object to make them dry, whereas it is the object to make them moist, to regulate the hygrospicite, as Count Gasparin calls it, of the earth, so as to suit it to the growth and capacity of the plant. The new machinery enables the agriculturist to perform this process rapidly and economically, and to supply food with the moisture in the best form for assimilation. My friend Mr. Mechi bought land, of which a large portion was valued at 15*s.* an acre, other at 20*s.* per annum, of which a portion was swamp. By drainage he removed the swamp and made it corn growing land. By adopting a principle of liquified manure cultivation, by means of pipes and apparatus, he is enabled at once to distribute water and food, and correct the deficiencies of moisture. He now finds, as others will find, that he wants all the water which by the mere drainage operation in the first instance he discharged unutilised, and that he could use more with agricultural advantage, and as I venture to say, without any sanitary detriment. Whatsoever these works may have cost him, they may be executed by others—pipes, steam power included with the drainage works—at from 12*l.* to 14*l.* per acre; farmers admit the former 15*s.* per acre land to now worth 35*s.* and 40*s.* per acre. His yield of Wheat is from 40 to 48 bushels per acre, or 40 to 45 hectolitres per hectare; and I venture to say he ought to grow even more, as is done in Scotland, and that by an expenditure of from 3*l.* to 4*l.* per acre in pipes and distributing apparatus, he cheapens the cost of distributing manures, and that he and others who use the same means obtain at the least one quarter of Wheat, or upwards of 3 hectolitres more than is obtained by the highest of previous methods of applying manures.

On some 30 model farms on this principle, which are now in operation in different districts—of which, in compliance with the due wish of agricultural members of the Congress, I shall submit some particulars—it is demonstrated that of all the solid farm-yard manures throughout the country not more than one-third of their fertilising powers are derived under the present practice of agriculture, whilst with the exception of some very large farms of the liquid manure—the urine—there is a total loss. In respect to the solid farm-yard manures, Professor Voelcker also, in a recent paper in the Royal Agricultural Journal, shows that two-thirds of the fertilising power of the farm-yard manures is lost; and Count Gasparin proves that the loss of their fertilising power is even greater in France, that is to say, on the old systems of tillage. The right application of these manures would, I apprehend, be generally equivalent in value to an additional rental of the land. To these present losses, which may be enumerated as future gains, may be added the loss of the vast bulk of the town manures.

As a sanitary officer I have had to complain in England of the pollution of the air by the decomposition, and thence the waste of the manure retained in houses, and to mature a system of water closet pipe drainage for the houses and streets, by which all such refuse is put into a state of constant removal. In so far as relates to the removal of cesspools, fosses, I may state that we have succeeded in obtaining their abolition in 50 of our towns, that works are in progress in a still greater number, and that an important rise in the public health of several of these places is already declared. I may mention that Mr. William Lindley, the engineer who rebuilt Hamburgh, states that he abolished all cesspools, fosses, and gave constant supplies of water for every stage, and drained the houses in conformity to my recommendations; and hence freed them from the decomposing and pestilential escapes from cabinets, so-called "inodorés." It is alleged that in the new district of Hamburgh they can now by comparison positively smell even ladies, coming immediately from residence in the tainted air of the best houses of Berlin and Frankfort, where those barbarisms are retained. One result of this improved sanitary construction is stated to be, that whereas formerly retired merchants avoided the cesspool-tainted air of the town houses, and sought residence and comparative purity at the expense of society in the suburban districts, they are now returning and taking residence in the newly-constructed houses at Hamburgh. The inhabitants of continental towns and the owners of the best property there have yet to be made aware how much they lose and suffer by the condition of their houses. In Paris English visitors have to my knowledge been driven from house to house, and finally been obliged to shorten their stay by the polluted condition of the air within them. Even the Parisians themselves, or those of them who have means, quit their metropolis mainly in consequence of its condition at the period of the year when the sun is the hottest, and when decomposition is most rife; and when, to take the agricultural view of the subject, there is the greatest loss of manure. Upon the experience of works directed in England and now in progress for populations of towns in the aggregate of double the population of Paris, I can confidently aver and undertake, for the existing charges of the dreadful process of the vidange, and every tried or proposed modification of it, to remove all refuse before decomposition can have commenced, to have it applied to the land as well as removed inoffensively, and from the mere wasted manure, beyond every proposed form of utilisation as poudrette or chemical manufacture, to supply the Parisians with the superior milk and meat of 40,000 or 50,000 cows. But I had the opportunity of submitting the proceedings in England for improvement of the sanitary condition to the notice of the great man who now presides over the destinies of the French people, who I believe has had and continues to have a real feeling for the improvement of the condition of the labouring population who are unable to help themselves, and under his auspices trial works have been made at Paris by some of the public officers to ascertain the facts as to whether such refuse may be applied inoffensively or not, or productively or not. I have had an opportunity of inspecting the crops, and tasting some milk and butter derived from them; and in my view they speak for themselves. The first results will, however, be reported upon by Professor Moll, of the Conservatoire, and Mr. Mille, the Ingénieur en Chef of Paris. The trials, from the necessity of the case, were made with refuse in an exceptionable form, that is to say refuse decomposed; but so far as they go they can, I apprehend, be no other than confirmatory of the results obtained in England, as at Rugby, where the whole of the refuse (immondice) produced say at 8 or 9 o'clock in the morning, will be received immediately in water, removed inoffensively in water, will be immediately applied to some one or other part of the land out of the town, and before 10 or 11 o'clock will be upon the land, or rather in the land, not merely in mechanical suspension but in chemical combination—not to be washed out, as was at first supposed, by every rain, as was alleged—but only to be taken out by succeeding vegetation. I have with me specimens of the Wheat crop grown there from Mr. Walker, the able and enterprising proprietor of the land under the new cultivation at Rugby, after the third year. I believe it now stands at the rate of 50 bushels the acre, or 50 hectolitres the hectare, and contrasts most favourably, as do the green crops, the milk and butter raised with the produce of ordinary culture.

I press no dicta of my own. I disavow any responsibility for the results of works in which I have had no official or personal direction; I only suggest independent examinations by competent and impartial officers, and next, independent trial works, such as are now in progress in Paris. The particulars obtained in England up to a certain time will be found in the minutes of official information. The principle of liquified manure farms to which I have now on this question of subsistences to request very special attention has received the high sanction of Count Gasparin in his new work on the "Principes d'Agronomie;" they are reported on in the Journal d'Agriculture by Professor Moll, after a close examination on the spot; and by M. Leonce de Lavergne;—but by the two last agriculturists by mistake in association with names of very great merit as adopters and practical workers, but not as originators of the system;—and by M. Lecouteux in his "Principes de Culture Améliorante."

(*To be continued.*)

OIL-CAKES.

(*Concluded from p. 747.*)

LINSEED-CAKE is manufactured in England, in America, France, Holland, Germany, Russia, Belgium, Italy, and other continental countries, and imported into England under names denoting the country in which they have been manufactured. English cake is generally preferred to all other varieties, and fetches a higher price in the market. However, much depends upon the fancy of the purchaser: thus, whilst in most localities English cake is preferred to American, I am told the latter fetches a higher price in Exeter market than English.

This circumstance led me to ascertain whether there was any real difference in the composition of two samples of American and English Linseed, which were bought last season at Exeter, with a greater expenditure of 1*l.* per ton for the American cake. Without mentioning the details of my examination, I will briefly state that both cakes were of excellent quality, and that the differences in their composition were so trifling that both might be regarded, for practical purposes, to be identical. Neither in their chemical composition, nor in their physical properties, could any marked difference be detected which might account for the higher price paid for the American cake in Exeter market.

English cake, it is true, generally, though by no means always, contains more oil than American or other foreign Linseed-cakes, but the differences in the relative proportions of oil in various cakes are too inconsiderable to account for the higher estimation in which English or American cakes are held. The superior value of home-made and also of most American cakes, I believe depends not so much on their chemical composition, as upon the condition in which the cake is found in the market. Good home-made cake, and most American cakes, are always dry and free from mouldiness and rancid smell; they have an agreeable flavour and mild sweet taste, and for these reasons are more highly appreciated than other foreign cakes, which generally possess a more or less rancid smell and taste, and appear often mouldy or damp. Moreover, on the continent the extraction of the oil from the Linseed is frequently aided by a degree of heat which impairs the flavour, and consequently deteriorates the value, of the cake. On the whole, greater care is bestowed on the manufacture of English cake than on that of cakes imported from other countries. Besides, English cake is prepared only in a limited extent, and always finds a ready sale; no time is therefore allowed for the oil still remaining in the cake to become rancid. Foreign cakes, on the contrary, in passing through different hands before they reach their final destination, often attain a considerable age, which impairs the flavour and deteriorates greatly the value of the cake, especially if it is kept in damp places. Like all organic substances, oil-cake is subject to changes, which do not improve its qualities. The fresher it is, the better it is adapted for feeding purposes. Foreign Linseed-cakes, with the exception of American cakes, are seldom so free from foreign seeds as English cakes, and this no doubt is another reason why home-made cake is more highly prized by the practical feeder.

Mustard-cake.—Mustard-cake is imported into England from the continent, and extensively used in the Hop districts of Kent as an excellent manure. This is the only safe use to which it can be applied. But as it is much cheaper than Linseed or Rape-cake, and resembles intimately Rape-cake, it is now and then mixed with this cake by unscrupulous dealers; and instances are on record that even pure Mustard-cake has been sold as Rape-cake.

When Mustard-cake or Rape-cake, containing much Mustard-seed, is made with cold water into a thick paste, and this paste is kept for about six hours, it acquires the pungent taste and strong irritating smell peculiar to Mustard-seed. This pungent taste and smell is caused by the volatile or essential oil of Mustard, which is produced under the influence of cold water from myronic acid and myron, two inodorous and tasteless constituents of Mustard seed. Myronic acid is peculiar to Mustard; myron resembles in its chemical character albumen, and, like all nitrogenised substances, gradually changes myronic acid in the presence of cold or moderately warm water and air into the essential oil of Mustard. At the temperature of boiling water myron becomes coagulated, and in this state is incapable of changing myronic acid into essential oil of Mustard. Mustard cake in a dry state has neither a pungent smell nor taste. It resembles, indeed, in its appearance, smell, and taste, Rape-cake. If Mustard-cake is kept, however, for some time in the mouth, it tastes bitter, acrid, and becomes more and more pungent the longer it is kept between the teeth. On grinding, moreover, it gives a bright yellow powder, altogether different in appearance from powdered Rape-cake. By these characters, and especially by the pungent smell which Mustard-cake develops when mixed with cold water, Mustard-cake is readily distinguished from Rape-cake. Neither Mustard, nor Rape-cake containing much Mustard-seed, should ever be used for feeding purposes, inasmuch as the pungent oil of Mustard, which is gradually generated in the stomach of the beast fed upon such cakes, acts as an irritating poison, which may cause serious injury, and even death. Not long ago a case of poisoning with Mustard-cake was brought under my notice. A gentleman residing at Bibury, a village eight miles from Cirencester, Gloucestershire, lost three valuable beasts, which had been supplied with a small quantity of oil-cake, a portion of which was forwarded to me for examination. The day before the cake was given to them they were perfectly well; and after having eaten some cake, they became suddenly so ill that two died before the veterinary surgeon could administer an efficient remedy. The examination showed that the cake which caused this mischief was either altogether a Mustard-cake or contained a very large proportion of Mustard-seed. There remained thus no doubt that the beasts died from the effects of the pungent oil of Mustard. As the formation of the essential oil of Mustard is prevented by boiling water, and Rape-cake often contains Mustard-seed in a degree which cannot but exercise an injurious effect upon the health of animals, I would recommend to mix all Rape-cake with boiling water before it is given to cattle. By this simple means any injury which Rape-cake containing Mustard-seed would produce, when not submitted to the action of boiling water, may be entirely prevented; but unless the water is in a state of perfect ebullition, it will fail to accomplish this

desirable end. In conclusion of these remarks on oil-cakes, I suggest to purchasers of cake to submit to the following easy tests :—1. Examine a bit of the cake as to its taste and smell ; observe that it is fresh, and free from any mouldiness. 2. Examine another piece with a common pocket lens. This examination will show whether the cake is a Linseed or Rape-cake, inasmuch as the form of Linseed and Rape-seed are widely different. Much more difficult is it to distinguish by the lens Mustard from Rape-Cake. 3. Mix in a tumbler about 1 oz. of the cake, broken into small pieces, with 6 oz. of cold water. Good Linseed-cake will form, under these circumstances, a stiff, agreeably-tasting jelly, without separating any water. Rape-cake will become much less gelatinous, and separate a yellowish or brown, rather bitter-tasting liquid. Mustard-cake likewise will become little gelatinous, and separate a brown liquid, which possesses the characteristic taste and smell of essential oil of Mustard. Rape-cake, fraudulently or naturally mixed with Mustard-seed, under these circumstances will exhibit a similar behaviour to that of Mustard-cake, and by the degree of pungency of taste and smell when compared with pure Mustard-cake, will afford means of estimating approximately the amount of Mustard which the cake contains. *From Dr. Voelcker's Paper on the Chemistry of Food in the Bath and West of England Agricultural Journal.*

Home Correspondence.

Leaf Feeding.—I thank Mr. J. M. Goodiff for his explanatory note on this important subject. I entered on this interesting affair more than 40 years ago, and therefore the story is an old one, though not stale. Every spring brings fresh barm, which starts the crust of the earth into its annual fermentation. Every summer, by its hot and cold, wet and dry, storm and tempest, maintains this ferment, or digestion, which produces food for the roots of plants. Every autumn, by abstracting heat, checks the fermentation and reduces the supply of prepared food in proportion to the demand. And every winter destroys fermentation by congelation or freezing, and prevents the food from becoming stale. Every possible means should be resorted to in the early spring to increase the fermentation of the earth, when our plants are young and require heat and food nicely prepared. This is done by disintegration, letting one particle of earth lie as lightly as we can manage it on the other, because this state of the soil prevents the heat from escaping during the night in a great degree, and the fermentation proceeds satisfactorily, and the plants grow and look cheerful in the mornings. Every means should be resorted to in the summer to prevent a too rapid fermentation from going on, lest the moisture (let us say nothing about compounds) of the soil be sent off in steam or by radiation ; this is effected by similar means ; the hoe, properly directed, should ever be at work during hot dry weather, so long as there is any bare ground round each plant, whatever the crop may be. The surface thus reduced to powder prevents the sun's rays from baking it as it were, and keeps it cool ; this, with the amount of moisture condensed in the soil, regulates fermentation, and the plants grow and look cheerful under a broiling sun. Thus the same kind of culture of the surface which keeps the heat in the earth during our cold nights in the spring, when our days are short and heat deficient, prevents it from burning in the summer, when our days are long and heat abundant. Under ordinary circumstances, in lands which are distant from the manure heaps, this surface-culture can scarcely be carried too far, but in rich lands the time to stop it is when the master thinks that he has prepared food enough to bring his crops (distance of his plants and other items considered) to perfection. My former remarks had no reference to the mere destruction of weeds, though generally speaking the hoe would seldom be set a-going were it not for the purpose of removing those obstructives. Yet there cannot be a doubt but it was this obligation which first taught man to pry a little further into the utility of hoeing, and of stirring the surface in a regular manner. I quite agree with Mr. Goodiff that plants are thirsty creatures. The custom of irrigating the crops in Egypt and all hot climates is proof sufficient. In our own country we never have too much rain for plants generally to thrive well when the temperature is high ; plenty of sunshine produces healthy Grass when the land is moist ; the stock feed and fatten upon it ; but when we have dull wet weather for a length of time the stock eat it but do not fatten, and ere long become diseased. I may be excused, I trust, for digressing to say that the day will come when dry food will be given to stock generally in wet and sunless periods, when the Grasses have become dropsical, as a preventive of disease. Young animals which have been carefully reared, and being "high bred" in a fattening point of view, are cut off in great numbers by disease under a variety of names ; the cause, no doubt, is to be found in the unwholesome state of the Grasses and exposure to that condition of the atmosphere which creates extra succulence in the Grasses, while animals less artificially reared, and having a pasture perhaps in a less artificial state, where they can browse on wholesome bushes or fences when the soft state of the Grasses has caused their stomachs to yearn after something more solid, entirely escape disease of any title. Mr. Goodiff remarks that "it is by the evaporation of moisture that the weightier or inorganic portions of this food are carried up, as salt is carried from the ocean." I cannot subscribe to this. The better the culture the less this evolvement, if any takes place, fine earth being a condenser as well as an absorbent. As to the roots of plants going deep into the earth and "not finding food in a fit state for their nourishment," I doubt it very much, as I think it quite as probable that they send their roots deeper into the earth in search of food less organic than what they find nearer the surface amongst our applications called manure, by which they carry on their economy in a manner that prevents plethora—plethora once established in annual plants they seldom recover. *Ben Giles.*

Scotch Don Potatoes.—In the *Gazette* of Oct. 25 some very good remarks on the Potato culture are made by Mr. Dixon, of Dorward's Hall, Witham, Essex. Having seen his Potato crop last summer I took the greater pleasure in perusing his statements, and am persuaded he is right in planting whole Potatoes instead of cut sets. On deeply wrought land there is nothing like giving Potatoes as well as other plants, abundance of room. Mr. D. seems to grow better crops of the Scotch Dons than of any other sort. This Potato is all but extinct in Scotland now ; it was so liable to become diseased at the time the blight first appeared, that almost every farmer ceased to plant it. With Mr. Dixon, however, it seems to do remarkably well. The Don grows a heavy crop of excellent quality, and it certainly would be a great pity were it going wholly out of cultivation, particularly in Scotland. *A Scotchman.*

How Wages are regulated.—"A Tenant Farmer" in the *Gazette* of the 4th October, denied very emphatically the justice of a remark by the individual who writes under the signature of Martin Doyle, that "in England the price of labour is regulated by the price of bread." As I think that this denial was unjustly and most uncourteously given to the writer in question, who is accused of "great ignorance of England in the present day," I think it fair to state in reply that in my part of England the wages of day labourers depend upon the markets. If the markets are high and the loaf at 20*d.* for instance, the generality of employers raise the wages one or more shillings per week, and after the prices are fairly down then they lower them. At present the average amount is 9*s.* per week, but although the markets are going down and labour is rather in excess of the demand, the wages will remain at what is judged the minimum point, with due consideration for the labourer's condition. *One "who knows what's what," Berks, Nov. 10.*

Societies.

WHARFEDALE : *Award of Turnip Prizes.*—The annual premiums offered by this Society, of Silver Medals to gentlemen, and of 3*l.* and 2*l.* to farmers, for the best and second best crops of Swede Turnips, were awarded on Wednesday last. There were 10 entries in both classes. The judges were Mr. Thomas Horner, East Morton, near Bingley ; and Mr. Henry Tennant Peacock, Haddockstones, near Ripley ; and the following is the result of their decisions. Gentlemen's Class: 1st, Thomas Horsfall, Esq., Burley Hall ; 2d, W. R. C. Stansfield, Esq., Esholt Hall ; highly commended, Edward Akroyd, Esq., Denton Park. Farmers' Class: 1st, Mr. Abram Wade, Arthington ; 2d, Mr. Albaney Renton, Leathley ; highly commended, Mr. John Renton, Leathley. The crops of Turnips in both classes were all commended for cleanliness. The judges gave it as their opinion that although Potatoes had been grown on every alternate ridge in Mr. Horsfall's field, that gentleman had still, from the increased size of his Turnips, a greater weight of Turnips on the whole acreage than any other of the competitors in the gentlemen's class. In the evening the judges, a portion of the committee, and the secretary, sat down to a substantial tea at the White Horse Hotel, Otley. An interesting discussion on agricultural topics ensued, in the course of which Mr. Horsfall gave it as his opinion that the cultivation of Turnips and Potatoes on alternate ridges was advantageous to both crops, inasmuch as the foliage of the Potato attained its full growth long before that of the Turnip, and on the latter having expanded its leaves to the full those of the Potato had considerably dwindled ; the effect was to afford to each crop the advantage of freer access to the influence of the atmosphere when most required. The produce of his Potatoes up to the time of the wet weather had been 10 tons 64 lbs. per acre, reckoning only the ground occupied by Potatoes. The Potatoes taken up since the wet season had been partially affected with rot, and on this account had not yielded equally well. For many years he (Mr. H) had applied his manure (the liquid and solid excrement of his cattle, which is without admixture of straw) quite fresh, and without previous fermentation ; he preferred doing this on his strong land in autumn, but in case of his applying it in spring near to seed time he had found it advantageous to strew guano amongst the fresh excrement at the rate of 2 to 2½ cwt. per acre. The effect of decayed matter being placed in contact with sound, affecting the latter, was well known. In order more completely to satisfy himself of this, he (Mr. H.) had filled two large garden pots with fresh excrement, in one of which he mixed a small quantity of guano ; the effect was soon perceptible by a change of colour and by the appearance of gaseous bubbles on the surface, accompanied by a strong smell, whilst the pot of excrement without admixture of guano did not exhibit the same appearances. The advantage of accelerating the decomposition of manure for Turnips would be acknowledged. The experiment was tried twice in his Vinery at a temperature of about 60°. The larger sized Swedes of Mr. Horsfall's crop measured in girth 2 feet 4 inches to 2 feet 6 inches.

Reviews.

Report to the Committee of the Royal Society for the Promotion and Improvement of the Growth of Flax in Ireland, on Continental Flax Retteries. By J. De Cock-Kenifeck, Belgian instructor to the Society. August, 1856. Belfast.

We extract from this little tract, published at the *Belfast Mercury* Office, passages on Schenck's system of retting Flax straw, which appear conclusive on the superiority of this more rapid warm-water process of steeping and preparing straw for scutching over the old-fashioned plan of retting in pools, or by exposure on the Grass to rain and dew. The report refers to a series of retteries visited by the author. We shall give but one of them as a specimen in detail, along with the general remarks suggested by a review of all.

From the reports given it appears that in a well-conducted rettery, a ton of scutched fibre, ready for market, can be produced at an average cost, for working expenses, of 8*l.* per ton, and that 8*l.* more will represent a fair allowance for wear and tear, and for interest of capital invested—making in all, 16*l.* per ton. "This calculation," says the writer, "is fully borne out in a report made by M. Kindt, Inspector under the Belgian Government, to the Minister of the Interior, in May, 1855, on the rettery of Bouvignes, Province of Namur, established by M. de St. Hubert, under the patronage of Government. He therein calculates the working expenses, wear and tear, and interest of capital at 15*l.* per ton of fibre produced. The Bouvignes rettery, which I did not visit, is not in that portion of Belgium where the management of Flax is so well understood. It is situated in the Walloon country, where the farmers are much behind the Flemish in agricultural skill. Although the soil is capable of producing a very good Flax plant, the culture is carelessly managed, and in place of steeping, the very inferior process of dew-retting is resorted to. M. Kindt reports the result of an experiment in which 800 kilogrammes (about 16 cwt.) of Flax straw was divided into two equal portions ; one-half dew-retted for 30 days produced 17⅛ per cent. of fibre from the retted and dried straw, and was valued at 29*l.* per ton, the total expense being estimated at 16*l.* per ton ; the other half, steeped at Bouvignes, on Schenck's system, in four days, yielded 18½ per cent. of fibre, valued at 46*l.* per ton. But although this showed a very great balance in favour of Schenck's system, it was by no means what it has since become, under the very able direction of M. Auguste Scrive, of the Lille rettery before mentioned.

"I was desirous of obtaining the opinions of the proprietors of all the retteries I have referred to on Schenck's steeping process. The following is a summary of their views :—1. That the principle of Schenck's system of retting rests on a sound basis. 2. That, as far as possible, all the processes should imitate those practised in the ordinary open air steeping. 3. That the wet rolling is a decided improvement, but should be used with great caution. 4. That to meet the demand for Flax fibre, it is desirable to take its management out of inexperienced hands and to place it in those who can carry on with regularity and skill in retteries. 5. That to obtain satisfactory results there is much want of a self-acting scutching machine, giving both quantity of work and yield of fibre, and also of a good tow cleaning machine. 6. That only the worst portion of straw should be steeped in midwinter, or that the steeping should even be totally suspended at that period if possible. 7. That task or piece work, instead of payment of labour by time, should be adopted. 8. That Schenck's process can be profitably worked in all localities where average good Flax straw can be procured at a less cost than 6*l.* per ton.

"Your secretary having considered it of importance that I should closely examine one of the Irish retteries in order to compare it with those on the continent, and having selected that of Messrs. Pownall and Co., near Enniscorthy, for that purpose, I have now to submit a few details concerning it.

"This rettery, which was capable of working 40 tons of straw weekly, was established by an enterprising English company, in a new Flax growing district in the county of Wexford. It has in a short space of time attained great efficiency of organisation. While seeding, straw is sorted into different qualities. There are tanks out of doors for economising the water from the steepvats, for irrigation. Mean temperature of steep, 78 degrees (Fahrenheit), with a small continual supply of cold water. The steeped straw wet-rolled through several pairs of rollers with a high pressure, and copiously washed by a flood of water. Drying in the open air on galvanised iron wire, very ingeniously disposed to secure rapid dessication, and provide against injury from weather. Some of M'Bride's scutching machines (of his first patent) are employed, in conjunction with the ordinary Irish scutch-mill. This rettery is under the immediate management of the principal, as a resident, and possesses many ingenious details, as well for the saving of labour as for the quick handling of the

straw when steeped. From the large difference in the yield of fibre, it is evident that much is yet to be done in the cultivation to ensure a more equal quality of the material.

Price of unseeded straw, per ton, 4*l.* 10*s.*
Yield of seed, 5 bushels.
Loss by seeding, 18 per cent.
Cost of seeding, per bushel, 1*s.*
Value of seed, per bushel, 6*s.*
Cost, per ton, of seeded straw, 3*l.* 5*s.*
Working expenses, per ton, of scutched fibre, 8*l.* 15*s.*
Wear and tear, per do., do., 8*l.*
Loss of weight in steeping, 25 to 33 per cent.
Yield of fibre from unsteeped straw, 15 to 25 per cent.
Average value of fibre, per ton, 50*l.* to 60*l.*

"I now come to a comparison of the different retteries I have referred to, in the principal items. They are as follow :—

Rettery.	Cost of Seed and Straw per ton.	Working Expenses per ton of Fibre.	Loss of Weight in steeping	Yield of Fibre from Steeped Straw.	Value of Fibre per ton.
	£ s. d.	£ s. d.	Pr. cent.	Pr. cent.	£
1. Dordt, Holland ...	3 9 6	20 0 0	25	20	56
2. Dunkerque, France ...	3 1 9	18 0 0	22	23	60
3. Lille, France	6 16 0	16 11 0	24	23 to 24	64 to 68
4. Ghent, Belgium ...	9 12 0	14 0 0	20	23	72
5 Wilton, Ireland	3 5 0	17 0 0	25 to 33	15 to 22	50 to 60

"In none of these returns is any account taken of scutching tow, which forms a very large item. This table shows, in the first place, a wide difference in the first cost of the straw, and is not borne out by the difference of quality in the fibre. There is also a great difference in the working expenses. Though the yield of fibre is variable, it appears that the three best continental retteries give nearly the same per centage.

"The fibre produced from wet rolled straw has been objected to by spinners from its weakness. The question arises as how this is to be remedied. The following recommendations appear to me worthy of trial :—1. The steep straw only to be rolled when well drained. 2. No shower of water to fall on the straw, which I think washes fibre off, but rather an immersion in water, by a continual supply from a reservoir, through which the straw should pass, on an endless web, from one set of rollers to another. 3. A trial of both cold and hot water, at 70 degrees (Fahrenheit), to ascertain which will act best. 4. Not to oversteep the straw, and much attention to the handling of it after rolling.

"Up to this time, much diversity of opinion subsists as to the advantage of wet rolling. By much rolling, and a copious washing, the gum is of course removed, and the full quality of the fibre developed; whereas, when the gum remains, there is a marked difference in the appearance of quality in the fibre produced from the same straw. It remains an open question whether the wet rollers do not actually part of the business of the hackle, for no mechanical action or washing could impart a quality to the fibre which does not exist, and probably the rollers may carry too far a division of the fibre while in a wet state, which must naturally be weakened when heavily pressed upon. As for the total removal of the gummy substance by washing, I cannot see its absolute necessity, when the straw is exposed to the atmosphere, following the same course of treatment by which the best fibre is produced, in the ordinary processes. From the good results I observed in every rettery where the vats receive a constant supply of fresh water, at nearly steeping temperature, I think all retteries should be provided with a similar supply. If no means of obtaining it exists, such as are found in Dunkerque and Lille retteries, a spare reservoir might be constructed, where the water would be heated to the requisite temperature, and regularly kept up to it, which would save much fuel for the vats."

Notices to Correspondents.

BOOKS: *S O.* The Cyclopedia is very costly, but we believe the best.—*F M C.* Bevan on the Honey Bee; Tegetmeier's Profitable Poultry; Bailey on the Dorking Breed.

DISEASES IN PIGS: *B B.* It is mealy pork, often, but improperly, called measles. It is supposed to arise from gross feeding, and it is said the tape-worm can be discovered in the white bodies. We do not consider it infectious, and as it is seldom accurately known until the animals are killed, there is seldom opportunity for treatment. We should recommend when it is suspected an altered system of feeding, and no animal or refuse food to be given. Will you send a few of the white lumps, by post, for microscopical examination to E. O. S., Esq., Blandford, Dorset. *W C S.*

EMIGRATION: *E J C B* asks for an opinion as to the part of Canada to be recommended to an intending emigrant having a considerable capital and some knowledge of farming. He asks for any suggestions, such as what time to start, what books would be useful, &c. [The Transactions of the Highland Society contain the best information on reclaiming land. We do not know if Mr. Fowler is likely to publish any account of his farming in Darmoor.]

PORTABLE TUBING: *Merseman.* What is the best kind of portable tubing for irrigating Italian Rye-grass, and to stand a pressure of 200 lbs. per square inch? Will any one say if he has found anything better than gutta percha? The objection is its weight and tendency to kink; to the canvas and India-rubber hose, their inability to stand the requisite pressure.

PRIZE SHEEP SLAUGHTERED AT HULL: We learn from the Hull papers that the weight given in our last week's paragraph on this sheep was estimated much too highly. It weighed 23 stone, or 80 lb. per quarter, and was a three-shear Cotswold, fed by T. Beale Browne, Esq., of Hampen, Andoversford, Gloucestershire.

TOLLS: *Constant Reader.* This question must be decided by a reference to your local act. As they are generally worded we imagine toll might be legally demanded for bones on their way to the mill to be crushed, but not on their way from the mill direct to the land.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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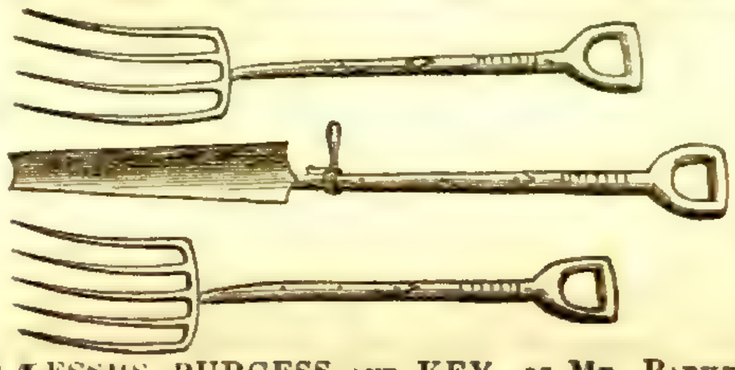

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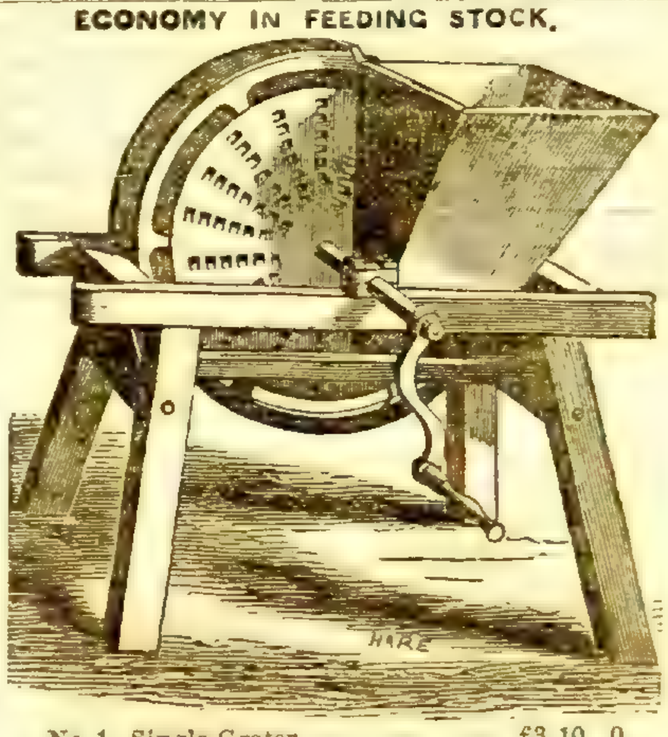

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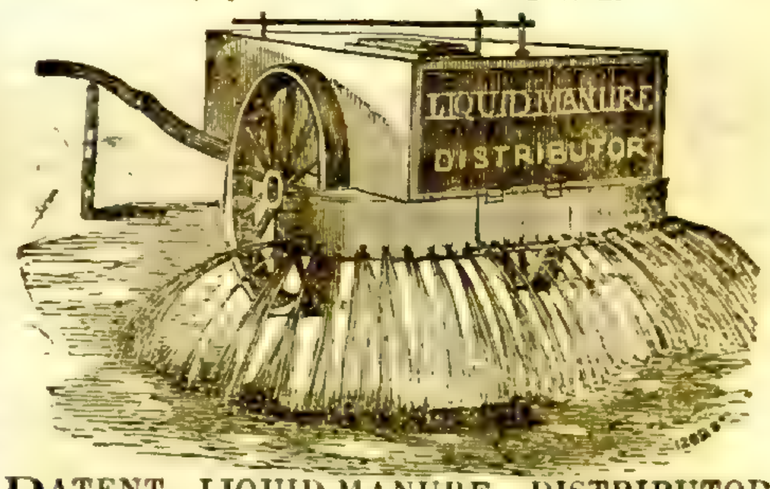

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3 „ ditto	3 „ 6 „		2 8 0
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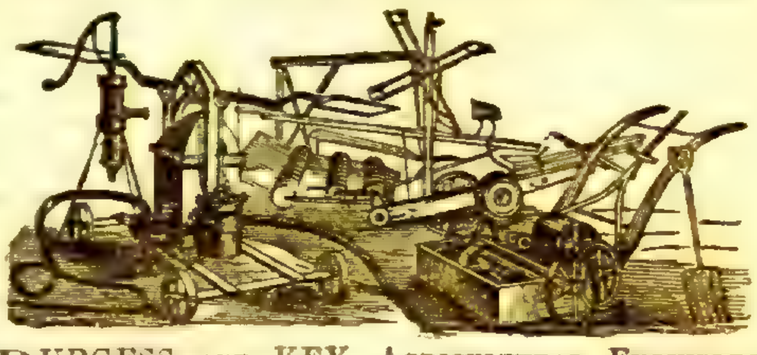

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C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER and HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantial built Greenhouses fixed in any part of the kingdom for cash; 42 feet long by 13 feet wide, 90*l.*; 21 feet by 13, 50*l.*; 12½ feet by 10, 30*l.* A first-rate Conservatory 30 feet by 18, 130*l.* A large assortment kept.—Estimates for Heating, or any branch in Wood or Iron.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

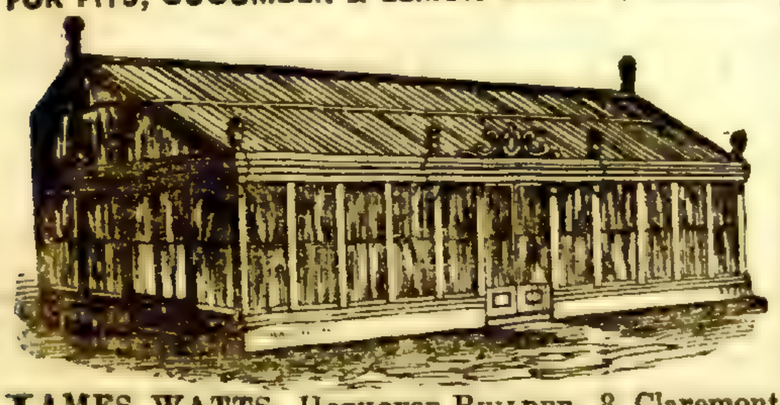
HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

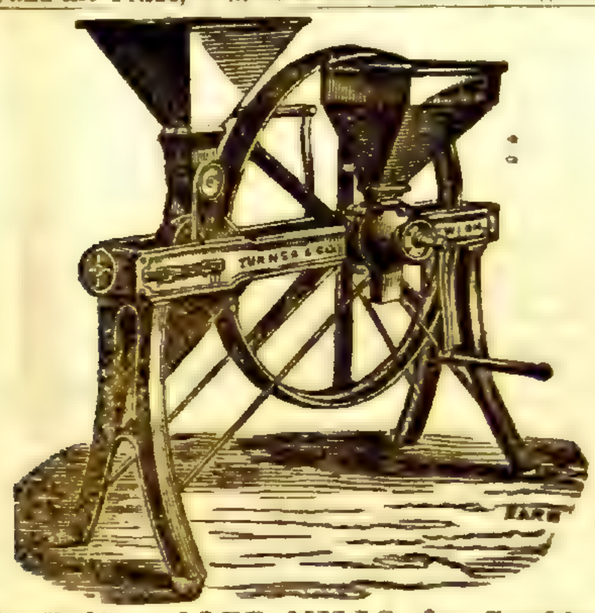
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS FOR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

CAUTION.

Imitations of our Roller Mills, of very inferior manufacture, being offered for sale in London and elsewhere, which, from their resemblance in design to ours, are calculated to mislead the public: We hereby give notice, that Messrs. BURGESS & KEY, 86, Newgate Street, are our London Agents, at whose depôt our Mills may be seen; and also at the Agricultural Implement Department of the Crystal Palace, Sydenham, Stand 43.

E. R. & F. TURNER, Ipswich.

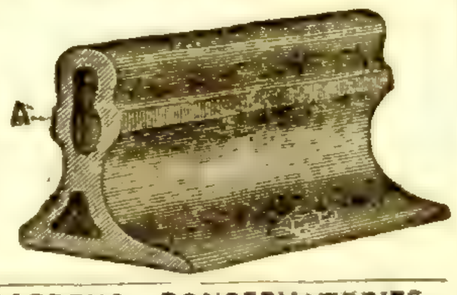
TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS, 15*l.*—Illustrations forwarded on application. WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

HOGG'S GARDEN EDGE TILES: a cheap, elegant, and durable substitute for Box Edging. 13*s.* per Hundred, or 4½*d.* per yard.



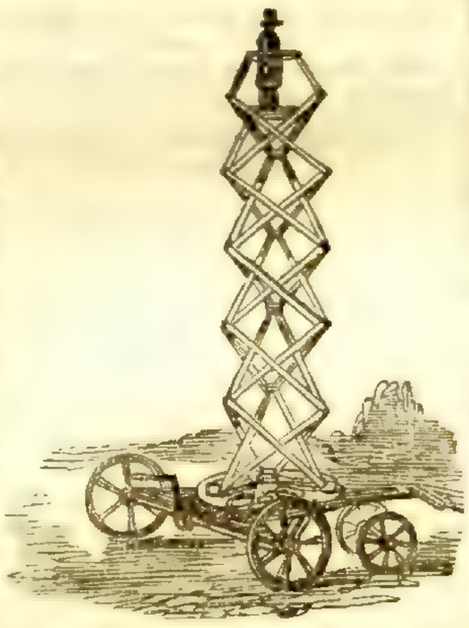
Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

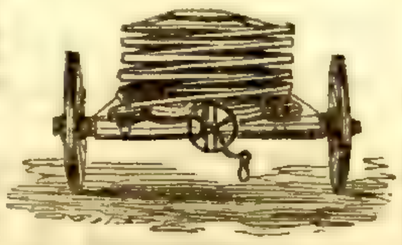
Full particulars from Mr. R. BLACKET, Witham, Essex.

TO OWNERS OF GARDENS, CONSERVATORIES, ORCHARDS, PLANTATIONS, &c.

STOCQUELER & SAUNDERS' PATENT ELEVATOR AND OBSERVATORY.

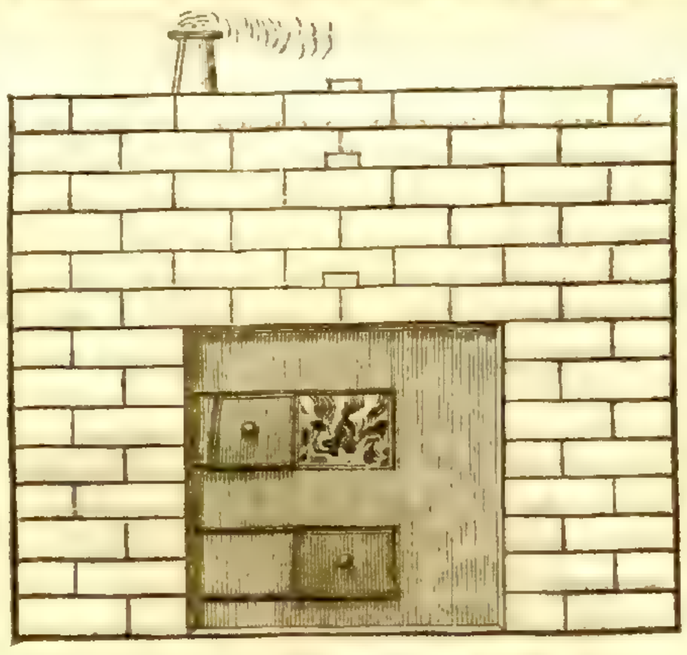
MESSRS. ARMSTRONG AND COMPANY, AGENTS for the above admirable invention, beg to invite the attention of all persons in possession of, or superintending large Gardens, Conservatories, Orchards, &c., to the peculiar merits and useful purposes of the Elevator, consisting of a series of crossed and expanding laths, supported by a stage, occupying only a triangular basis of 7 feet on each side, and wheeled about by one man with the greatest ease. It admits of a person being elevated at pleasure, and with perfect security, to a height of from 10 to 50 feet (or even 100 feet) in the course of two or three minutes, and depressed with equal rapidity. From the height thus attained, Fruit can be carefully gathered, the upper branches of Trees lopped and trimmed, Plantations watered with Artificial Showers, &c., thus superseding all the cumbrous and hazardous application of ladders and scaffolding, and rendering climbing and its risks unnecessary.

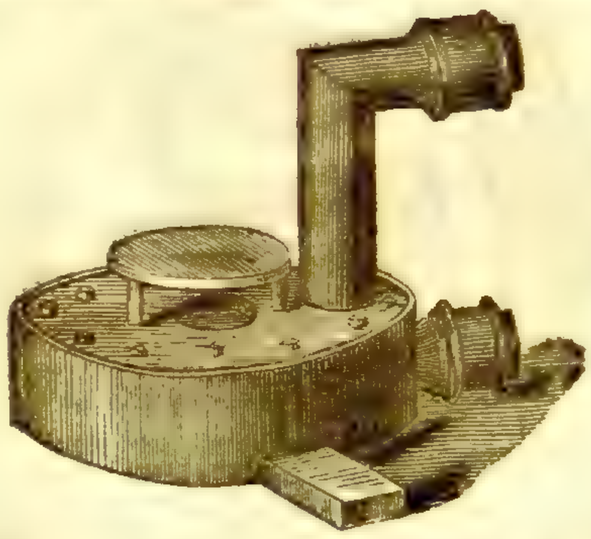




Full particulars in respect to price, &c., may be obtained on application to the Agents, Messrs. ARMSTRONG & COMPANY, 2, Russell Court, St. James's Palace, London.

F. WATSON'S NEW INVENTED ROUND ARCHED BOILER FOR OBTAINING EXTRA HEAT.





F. W. respectfully informs the Public that he has invented a Boiler and Hot-water Apparatus for Heating Conservatories, Vineries, Pits, &c., at less expense and trouble than those now in use. It requires only one attendance in 16 hours; fuel, half bushel of coal, and 1 bushel of cinders will keep the pipes properly heated for 30 hours.

No. 1 Boiler (without fittings), 1*l.* 15*s.*

The Best Cast Iron Pumps fitted with Copper Apparatus and Glazed Pipes. Also Pumps of every other description fixed to order at moderate charges.

FREDERICK WATSON, Pump Maker and Well Sinker, Church Street, Bishop's Stortford, Herts.

SHEET GLASS FOR ORCHARD HOUSES. On Mr. RIVERS' Plan.

20 by 12,	...	...	20 by 13	...	18*s.*
20 „ 14,	...	...	20 „ 15	...	

Per 100 feet.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG. 16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.*, per foot superficial, according to size and quantity.

JAMES PHILLIPS & CO.,

116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand feet of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

NO DRIP! NO DRIP!

KENT'S PATENT WATERPROOF GLAZED HORTICULTURAL BUILDINGS.

Illustrated Prices on receipt of four stamps.—Horticultural Building Works, Chichester.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

W. WOOFE'S NEW PARER.—The Inventor having heard that his principle is further imitated in the last drawings of the "Paring Plough," now made patent, he hereby offers to complete, in the most perfect manner, any set quantity of Land, PARING TURF FOR REMOVING, TURF AND STUBBLE FOR BURNING, in the least possible time; one horse each, with least distress to horse and holder, against the said patent implement, for 25*l.*, or double the amount if preferable. Three experienced Agriculturists to be judges and stakeholders. To meet at 8 o'Clock A.M. on TUESDAY next, 18th inst., at the "Hare and Hounds" Inn, Weston Birt. Every particle of W. W.'s implement being well known to be of his own invention, if the above challenge be not accepted he will at once proceed with his patent, and his implements will be manufactured for sale.—Weston Birt, near Tetbury, Gloucestershire.—Nov. 15.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, Westminster and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr. James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.
Messrs. Sutton & Sons, Seed Merchants, Reading, Berks.
Mr. F. Godwin, Broadfield Nursery; and 1, 2, and 3, Market Hall, Sheffield.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices, Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25s.; galvanised do., 30s.; cast iron, 35s. each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street, London.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9*l.* 10*s.*; bright, 14*l.* 5*s.* and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.* Bronzed fenders, with standards, 7*s.* to 5*l.* 12*s.*; steel fenders, 2*l.* 15*s.* to 11*l.*; ditto with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.* Fire-irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.*

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 20*l.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 14 0
Paillasse, wool mattress, bolster, and pillow ...	1 11 0
A pair of cotton sheets, three blankets, and a coloured counterpane	1 5 0
	£4 14 6
A double Bedstead, same	£6 3 0

If without Half-tester and Furniture—

Single bed, complete	£3 13 9
Double bed, complete	£4 15 0

LAMPES à MODERATEUR, from 6*s.* to 7*l.* 7*s.*—WILLIAM S. BURTON has collected from the different makers here and in France a variety that defies competition. As many imported from France are inferior in the works, WILLIAM S. BURTON selects at Paris from the best makers only, and he can guarantee each lamp he sells as perfect in all its parts.

His stock comprises also an extensive assortment of SOLAR, CAMPHINE, PALMER'S, and all other Lamps.

Pure Colza Oil, 4*s.* 8*d.* a gallon.
Patent Camphine, 4*s.* a gallon.
Palmer's Candles, 9½*d.* per lb.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as highly conducive to health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying and preserving the teeth to the latest period of life. It will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, and thus fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Its truly efficient and fragrant aromatic properties have obtained its selection by the Queen, the Court, and Royal Family of Great Britain, and the sovereigns and nobility throughout Europe. Price 2*s.* 9*d.* per box.

CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "R. ROWLAND & SONS, 20, Hatton Garden," on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

SALT AND CO.'S EAST INDIA PALE and BURTON ALES. BREWERY—BURTON-ON-TRENT.

STORES:

LONDON	Hungerford Wharf.
LIVERPOOL	52, Henry Street.
MANCHESTER	37, Brown Street.
SHEFFIELD	12, George Street.
BIRMINGHAM	26½, Bull Street.
BRISTOL	Black Hall, Baldwin Street.
DUBLIN	4, Crown Alley.
EDINBURGH	Porthopetoun Warehouse.
GLASGOW	St. Vincent Place.

These Ales, in Casks of Eighteen Gallons and upwards, and in Bottle, obtained from all respectable Bottlers.

NOW READY TO SEND OUT, direct from Yarmouth, during the season, GENUINE YARMOUTH BLOATERS, 100 for 6*s.*; forwarded securely packed to any address upon receipt of Post-office Order, by JAMES AYERS, Fish Curer, Great Yarmouth. The Trade supplied.

GOVERNMENT SURPLUS STORES FROM THE CRIMEA.—150 tons BISCUITS in bags one cwt. each, price 10*s.* 6*d.* per cwt., or by the ton 10*l.* On Railway in London. Orders, containing Post-office or Banker's Order, punctually attended to.—Address H. J. HUNT, Bone Mills, Broad Street, Lambeth, London.

NO CHARGE FOR WATERPROOFING.

BERDOE'S OVER-COATS, CAPES, AND SHOOTING JACKETS are guaranteed to resist any amount of rain, without obstructing free ventilation or extra charge. The established character and extensive sale of these well known garments are their best recommendation. A very large stock for selection also of Waterproof LADIES' CAPES, &c.—W. BERDOE, 96, New Bond Street, and 69, Cornhill.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD'S Eurekas are the acme of perfection." *Court Journal.*

In half dozen boxes, ready for use, or made to order. Best quality, 42*s.*; second quality, 33*s.*

CAUTION.—FORD'S Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free. RICHARD FORD, 38, Poultry, London.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 24*s.* List of Prices and Sizes sent free by Post.—196, Tottenham Court Road.

THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. MESURE & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly An inspection is solicited. Silver Levers, four holes jewelled, from 6*l.* 16*s.*; Gold Levers, our holes jewelled, from 16 guineas.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

TO BE LET, in East Yorkshire, a FARM of 170 acres (more or less) of good Wheat and Bean Land, with a portion of Grass and Turnip Land, nearly the whole of which is underdrained. The House, which may be entered upon the 6th April next, is within three miles of a first-class station, and four of a good market town, and of easy access to the Hull, Leeds, York, and Wakefield markets, six hours from London, and eight from Edinburgh. Ample capital and high farming indispensable, as the covenants will be most liberal. The fields are of good size and not injured by game or timber.—Apply to Mr. EDWARD BARKER, Howden, Yorkshire.

TO GARDENERS.

TO BE SOLD, the PREMISES erected for a FORCING BUSINESS, the Land being held on a long lease at a moderate rent. Satisfactory reasons given for parting with the same.—W. R. HURLEY, Coxton Road, Strood, Kent.

SECONDHAND HOT-WATER BOILERS.

TO BE SOLD very cheap, a large stock and a great variety of all shapes and sizes, consisting of the SADDLE, the CONICAL, the RIBBED, the BELL, the FLUE Shapes, and others. JOHN WEEKS & Co. having taken out a great number of boilers from various places where they have fixed them on their ONE-BOILER SYSTEM, they have now for sale a large stock of Secondhand Boilers very cheap.

JOHN WEEKS & Co., Horticultural Works, King's Road, Chelsea.

STANDARD ROSES, DUTCH BULBS, &c.

MR. HASLAM will Sell as above, at the Mart, every WEDNESDAY and FRIDAY till December 12.

N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to Parcels Delivery Company. Baskets and Matting allowed for when returned.—Epping, Nov. 15.

COVENTRY.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Ogden to Sell by Auction on the premises, Warwick Road, Coventry, on MONDAY, December 15, and following days, at 11 o'Clock in consequence of the number of lots, all the select and well transplanted stock of those old established Nurseries, consisting of a choice selection of Fruit Trees, including upwards of 60 strong Dwarf (Quenouille trained) Pears of the best kinds, grown as specimens; a large stock of Green and Variegated Hollies, safe for moving, of all sizes, up to 12 feet high; several hundreds of Grafted English Elms, 10 to 15 feet, and other Trees well adapted for Avenues; fine specimens of Weeping Trees, large Purple Beech, with a general assortment of Evergreen and Deciduous Ornamental Trees, Azaleas, Rhododendrons, Hardy Ericas, Camellias, &c. May be viewed one week prior to the Sale.—Catalogues after 1st December may be had 6*d.* each, returnable to purchasers, on the premises; of Messrs. HURST & M'MULLEN, Seedsmen, 6, Leadenhall Street, Cornhill, London; and of the Auctioneers, American Nursery, Leytonstone, Essex. A suitable time will be allowed to remove the Trees. The Greenhouse and Bedding Plants, with the Greenhouses, Pits, Frames, &c., will be offered early in the Spring, unless the whole is previously disposed of.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, Nov. 20, at 12 o'Clock, a first-class Collection of DUTCH BULBS, consisting of the finest double and single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculus, Gladiolus, &c.; also a selected assortment of fine Standard and Dwarf Roses, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom, &c.—May be viewed the morning of Sale. Catalogues had at the Auction Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TOTTENHAM NURSERY STOCK.

MR. A. RICHARDS will Sell by Auction on the premises, Marsh Lane, Tottenham, a short distance from the Park Station on the Eastern Counties Railway, on TUESDAY, Nov. 18, at 12 o'Clock, in consequence of the ground being disposed of for Building, fine Evergreens, comprising Portugal and common Laurels, Aucuba, Phyllirea, Arbor-vitæ, Rhododendrons, Bays, Cluster Pines, Arbutus, Laurustinus, Brooms, Hollies, Berberis, Box, Privet, double Furze, Lime, Chesnut, and other trees. A large assortment of Flowering Shrubs, &c.—To view the day preceding and morning of Sale. Catalogues obtained on the premises, and of the Auctioneer, Tottenham.

CAMELLIAS AND PEAR TREES FROM MR. DE JONGHE, OF BRUSSELS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Nov. 28, at One o'Clock precisely, 300 Camellias with Flower Buds, of good sorts and various sizes; 300 Pyramid Pear Trees, on free and Quince stocks of first-rate sorts, some adapted for pot culture.—Catalogues may be had one week before the Sale at Mr. J. C. STEVENS'S Offices, 38, King Street, Covent Garden.

TO NOBLEMEN AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING, NURSERYMEN, AND OTHERS.

SECOND SALE AT THE BAGSHOT NURSERY.

MR. J. C. STEVENS is instructed by Messrs. Standish & Noble, who are dissolving Partnership, to Sell by Auction, at the Nurseries, Bagshot, Surrey, on MONDAY, November 17 and four following days, at 11 o'Clock precisely, a most valuable selection of specimens of CONIFERS and other Ornamental Plants, all of which have been well prepared for transplanting. It includes—

	ft.		ft.		ft.		ft.
Abies Nordmanniana	1½	to	4	Libocedrus chiliensis	1	to	3
„ Pinsapo	5	„	7	Pinus Benthamiana ...	2	„	5
„ Douglasi	6	„	15	„ insignis	2	„	14
„ Deodara	6	„	10	„ muricata	2	„	8
„ nobilis	2	„	5	Taxodium sempervirens	5	„	15
Araucaria imbricata ...	2	„	6	Mount Atlas Cedar ...	6	„	15
Cephalotaxus Fortuni	1	„	3	Hollies (of sorts) ...	5	„	7
Cryptomeria japonica	6	„	12	Irish Yews	5	„	6

Skimmia japonica, Standard, and other choice flowering hardy hybrid Rhododendrons, Standard Sikkim Rhododendrons, named Moutan Pæonies, &c.

12,000 Standard and dwarf Roses,
comprising the most choice new and select sorts in the Trade.
1000 Pyramid Pear, and other Fruit trees.

May be viewed one week before the Sale, when Catalogues 1*s.* each, returnable to purchasers, may be had at the Nursery, and of Mr. J. C. STEVENS, 38, King Street, Covent Garden. Approved bills at 3 months' date will be taken of purchasers from 50*l.* to 100*l.*, and at 6 months' date of purchasers above 100*l.*

The Bagshot Nursery is about two miles from the Sunningdale station on the South-Western Railway, where a van will meet the 8 o'clock A.M. train from Waterloo to convey persons to the Sale. The stations of Farnborough, Woking, and Blackwater (S. E. R.), are also within an easy distance.

MANSION, FARM HOUSES, AND LAND, FOR OCCUPATION, FARMING, OR THE ERECTION OF VILLAS.

MESSRS. THOMAS WINSTANLEY AND SONS will offer for Sale on TUESDAY, December 16, at half-past 1 for 2 o'clock in the afternoon precisely, at the Clarendon Rooms, South John Street, Liverpool, (in one or more lots, and subject to such conditions as may be then and there declared, if not previously disposed of by private contract, of which due notice will be given, all that important Freehold Estate called NEW HALL, in the township of Thornton-Hough and parish of Neston, in the county of Chester, comprising Mansion House, two Farm Houses, Stables, and Outbuildings, and about 270 statute acres of excellent arable and meadow Land. The property is situate at about six miles distance from Birkenhead, one from Parkgate and Neston, and three from the Spittal Station of the Birkenhead Railway. The Mansion House is roomy and convenient; the Outbuildings thereto comprise Stabling for 12 Horses, Gardener's Cottage and Lodge. The pleasure grounds and gardens attached to the house occupy about 14 acres, and contain a well of excellent water. There are, besides, a larger Farm House of superior character, with Stabling for 10 Horses, Shippons, and very complete outbuildings, with Cottages for men attached, and a smaller Farm House, a short distance from the Hall, with convenient Outbuildings. The Land consists of about 270 acres, and lies most compactly within a ring fence, being bounded on three sides by the well frequented turnpike roads leading to Birkenhead, Chester, Parkgate, and Hoylake. It affords several very eligible sites for Villas, and is well sheltered with plantations of 30 years' growth. The poor-rates and other local charges are very low.—Plans of the Estate may be seen, and further particulars obtained on application at the Offices of Messrs. TOWNSEND, RIDLEY & JACKSON, Fenwick Street, Liverpool, and Mortimer Terrace, Birkenhead; of Messrs. CHESTER, TOULMIN & CHESTER, Solicitors, 11, Staple Inn, London; of Messrs. JANSON, COBB & PEARSON, Solicitors, 4, Basinghall Street, London; and of Messrs. THOMAS WINSTANLEY & SONS, Church Street, Liverpool.

THE

ALEXANDRE HARMONIUM

AT

SIX GUINEAS.

ALEXANDRE AND SON have made this Harmonium at the lowest price possible, to bring the Instrument within the means of all Classes.

It is in an Oak Case, with four Octaves; is alike calculated for PRIVATE HOUSES and for CHAPELS;

AND IS

INDISPENSABLE TO THE SCHOOL ROOM.

(The Six Guinea Harmonium will be taken in exchange for any of the more expensive description, without loss or diminution.)

ALEXANDRE & SON OBTAINED THE SOLE MEDAL OF HONOUR AT THE GREAT EXHIBITION AT PARIS (1855).

Their Harmoniums have been pronounced the best by

ROSSINI, AUBER, ADAM, THALBERG, LISZT, &c.

AND BY THE

PROFESSORS OF THE CONSERVATOIRE DE PARIS.

THE MORE EXPENSIVE HARMONIUMS RANGE FROM

10 to 55 GUINEAS.

THESE ARE BROUGHT TO THE GREATEST PERFECTION, AND ARE EQUALLY ADAPTED TO THE

CHURCH OR DRAWING-ROOM,

AS AN

ACCOMPANIMENT TO THE VOICE OR PIANOFORTE.

MESSRS. CHAPPELL have just received a number of ALEXANDRE'S celebrated

HARMONIUM PIANOFORTES,

Which combine the excellencies of both Instruments. The two can be used in combination by the same performer, or each Instrument is perfect in itself. Price from Forty to One Hundred and Fifty Guineas.

AN IMMENSE STOCK OF

PIANOFORTES

BY THE BEST MAKERS,

From **TWENTY GUINEAS** upwards, which can be thoroughly recommended and warranted.

MESSRS. CHAPPELL & CO. have just opened a number of

NEW ROOMS FOR INSTRUMENTS,

Enabling the Purchaser to select a Pianoforte or Harmonium from the

LARGEST STOCK IN LONDON,

AND TO TRY THE MERITS OF THE VARIOUS MAKERS SIDE BY SIDE.

Full Descriptive Lists of Harmoniums and of Pianofortes will be sent on application to

CHAPPELL & CO.,

50, NEW BOND STREET, & 13, GEORGE STREET, HANOVER SQUARE.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, and in the County of Middlesex, Printers, at their Office in Lombard Street, in the Precinct of Whitefriars, in the City of London; and published by them at the Office, No. 5, Upper Wellington Street, in the Parish of St. Paul's, Covent Garden, in the said County, where all Advertisements and Communications are to be ADDRESSED TO THE EDITOR.—SATURDAY, November 15, 1856.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1856.] SATURDAY, NOVEMBER 22. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next General Meeting will be held at the Society's house in Regent Street on TUESDAY, November 25, on which occasion there will be a Special EXHIBITION OF FRUIT. Visitors can only be admitted by the order of a Fellow or Candidate. The Judges will proceed to make their award at 11 A.M. The rooms will be open to Visitors at 1 P.M. The Chair will be taken at 2 P.M.

BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, December 4, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

SCOTTISH ARBORICULTURAL SOCIETY.—The Annual General Meeting was held at Edinburgh on Wednesday, November 12. Mr. M'CORQUODALE, V.P., in the Chair, when Office Bearers were elected for the ensuing year. On this occasion 26 new Members were added to the list.

Prizes were awarded as follows:—Medal to Mr. Thomson, Chopwell, for Essay on FENCING. Medal to Mr. R. Philip, Aldbar, for Essay on THINNING; with second premium to Mr. Rutherford, Buckden; and third to Mr. Thomson, Chopwell. Medal to Mr. Thomson, Chopwell, for Essay on GENERAL PLANTING; with second premium to Mr. Philip, Aldbar.

Several papers not intended for competition were remitted to a Committee preparatory to publication in the Society's Transactions. Returns of the prices of Timber, Bark, &c., in various parts of the country were also remitted to the Secretary for publication.

It was agreed that Medals should be offered for Essays on the following subjects for the ensuing year:—1. On the Reclamation of Neglected Plantations. 2. On Dry Rot and other Diseases in Larch and Spruce. 3. On the Management of Coppice Woods and the Curing of Coppice Bark. 4. Planting on Moss Lands. 5. Entomology. 6. Introduction and Cultivation of the Newer Coniferæ and other Forest Trees, with special reference to the Climate of Great Britain and Ireland. 7. On the best method of Book-keeping adapted for Foresters, with examples.

Inventors and Manufacturers of New and Improved Implements for Forest Operations were invited to submit them to the Society. A Committee was appointed to draw up a Schedule to facilitate the Returns of Prices of Timber and Bark, and to distribute Copies of it to the Members and others who might feel disposed to aid the Society's exertions in this department.

It was agreed that next ANNUAL MEETING should be held on the first WEDNESDAY of October, 1857.

Copies of the Society's Laws, with particulars of the Prizes offered, Regulations for Competition, and all other information, may be obtained on application to the Secretary. The first part of the Society's "Transactions" is ready, and will be sent free for 30 stamps. JAMES ALEXANDER, Secretary.

6, York Place, Edinburgh.

FLORICULTURE.—In consequence of Mr. JOHN EDWARDS having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

COLES' "DEFIANCE" DWARF RED CELERY.

JACOB BREWIN, of Farm Lane Nursery, Walham Green, Fulham, near London, has just received from the raisers a fine true stock of the above-named excellent variety of Celery, which he now begs to offer to the Trade at 10*s*. per lb., or in retail packets at 1*s*. each. Early orders are particularly requested as the quantity is limited.

Post-office Orders to be made payable at the Walham Green Post Office.—November 22.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Nov. 22.

NEW SCARLET GERANIUM "SIR COLIN CAMPBELL."

THOMAS JACKSON AND SON are now sending out this beautiful GERANIUM: it is a brilliant scarlet with a large clear white eye, throwing its trusses of bloom well above the foliage; habit slightly compact, foliage ample, with a well marked horseshoe. It was exhibited at the Crystal Palace and much admired, and has been ordered by most gentlemen and gardeners that have seen it. Price 5*s*. each, with one added for every three ordered. The usual discount to the Trade.—Nursery, Kingston-on-Thames.

DUTCH AND CAPE BULBS.

JAMES CARTER AND CO., Seedsmen, &c., 238, High Holborn, London, have *now published* their comprehensive CATALOGUE OF DUTCH AND CAPE BULBS, *the twenty-first Autumnal Series*, which will be forwarded *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, upon application. The Bulbs are *as usual of first-rate quality*.

JAMES CARTER & Co., Seedsmen, &c., 238, High Holborn, London.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

GAINES'S GENERAL CATALOGUE forwarded free of charge and post paid upon application to T. GAINES, Nurseryman, Surrey Lane, Battersea.

P.S. GAINES'S NEW CATALOGUE contains one of the largest Collections of GERANIUMS, both Show, Fancy, and French varieties, in the world.—Nov. 22.

R. M. STARK begs to intimate that his LIST of NEW and RARE PLANTS for the season is now ready. It comprises many interesting Plants seldom offered, which were gathered or purchased on the Continent by him during last summer. A similar List of Seeds may also be had.

Edinburgh, Edgehill Nursery.—Nov. 22.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, respectfully announce that their PRICED LIST may now be had on application. Contents: Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Herbaceous Plants and Ferns, Auriculas, Pinks, Greenhouse Plants, &c.

NEW CATALOGUES FOR 1856-57.

WILLIAM WOOD AND SON are now prepared to send free and post-paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet	5*s*.	0*d*.
Do. 12 do. do.	2	6
Do. good mixed	1	0
Border varieties, good mixed, ground roots, per 100	20	0
Do. do. in colours do. do.	30	0

"TAYLOR'S GRAND STAND,"
ST. JOHN'S MARKET, LIVERPOOL.

Growers of Choice Fruits and Vegetables should forward as above, IN ORDER TO REALISE HIGH PRICES.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT AND VEGETABLE SALESMAN,
Proprietor.
Terms—"CASH."

"TAYLOR'S GRAND STAND,"
ST. JOHN'S MARKET, LIVERPOOL.
WANTED.

Good Pines, from 2 to 3½ lbs. each	Good Muscat Grapes
" Black Grapes	Choice Dessert Pears
" Cucumbers	Small Mushrooms

Choice Flowers, &c. &c.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT AND VEGETABLE SALESMAN,
Proprietor.
Terms—"CASH."

NEW CHRYSANTHEMUMS OF 1856.

JOHN SALTER'S unrivalled Collection of CHRYSANTHEMUMS is now in bloom in his Winter Garden, among which may be seen the new varieties of 1856, and many splendid seedlings (both large flowering and Pompones) to be sent out in 1857.—Versailles Nursery, William Street, near Hammersmith Turnpike.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

VICTORIA RASPBERRIES.

GEORGE CORNWELL is now sending out his Canes of the above at 15*s*. per 100. Fastolf, 15*s*. per 100. Autumn fruited, 12*s*. per 100, and White, 10*s*. per 100. The usual allowance to the Trade.—Market Gardener, Barnet.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. WAITE, Seed Merchant, 181, High Holborn, London.

SEEDS FOR PRESENT SOWING.

EARLY PEAS, BEANS, CARROTS, &c., growth 1856, suitable for present sowing, may be had of JAMES CARTER & Co., Seedsmen, 238, High Holborn, London.

THOMAS BELL, Seedsman, Wigan, Lancashire, begs to offer the TRUE LANCASHIRE FLUKE POTATO at 4*s*. per bushel of 80 lbs., or 5*l*. 5*s*. per ton; Red Downs, 4*s*. per bushel.

THE HEAVIEST LANCASHIRE SHOW GOOSEBERRIES may now be had in strong plants, at 6*s*. per dozen.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester. Catalogues now ready.

WANTED TO PURCHASE, 12 Strong VINES, 6 MUSCAT and 6 HAMBURGH, for immediate Forcing. Also 1000 ASPARAGUS, from an old bed, for Forcing.—Apply to Mr. JARVIS, Gardener, Park Cottage, Greenhithe, Kent.

TO NURSERYMEN.

WANTED, Ten to Twelve Thousand Black and White POPLARS, in equal quantities, 3 to 5 feet high.—Address, stating price per 1000, to A. B., Mr. Ford, The Nurseries, Commercial Road, Southampton.

LIQUORICE.

WANTED, about 20,000 RHIZOMES, or Sets of LIQUORICE ROOTS for Planting.—Apply to Mr. GEO. WOOD, Rochford, Essex, stating price per thousand.

TO NURSERYMEN AND OTHERS.

WANTED, a quantity of English ELMS and PLATANUS OCCIDENTALIS.—Apply to Messrs. STEELE, Nurserymen, &c., Richmond, Surrey, with size and price delivered.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to WM. BARRATT, LANDSCAPE GARDENER, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

FINE FRUITING TREES OF PEARS ON QUINCE ROOTS.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire, begs to offer the above in all the newest and best sorts, at 1*s*. 6*d*. each, or 15*s*. per dozen, a descriptive catalogue of which can be had on application.

Also May's Victoria (large Red Currant) at 12*s*. per 100, and Black Bang-up, the largest and best at 10*s*. per 100.

Catalogues of Plants, Fruit and Forest Trees on application.

FOREST, FRUIT, AND ORNAMENTAL TREES.—The Subscribers beg to intimate that they have this season an unusually large and superior stock of the above Trees, which they are prepared to sell on the most reasonable terms.—THOMAS KENNEDY & Co., Nurserymen and Seedsmen, Dumfries, N.B.

FOREST TREES.

FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

CACTI.

TO BE DISPOSED OF, between 70 and 80 specimens of CACTI, some fine and rare. Price 30*l*.—Apply to Y. Y., Post Office, Southampton.

DWARF BOX FOR SALE.—Two Thousand yards of the best Dwarf Box for edgings. One yard of the above will plant three yards when divided.—For price, &c., apply to WM. HEALE, Nurseryman, Calne, Wilts.

SPANISH CHESNUTS FOR SALE.—Above 2000 fine grown Trees, from 2 to 4 feet high for sale.—Apply to H. ALDRICH, Offham Nursery, near Lewes.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

WOOD & INGRAM, Huntingdon.

TO THE SEED TRADE.

GEORGE TABER, NURSERYMAN and SEED GROWER, of Rose Cottage, Rivenhall, Witham, Essex, begs to inform the Trade that his Carrot, Mangel, Swede, Turnip, and other Seeds are now harvested in good condition; and prices and samples may be obtained on application.

RED BEET SEED.

EDWARD SANG AND SONS, Nurserymen and SEEDSMEN, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full grown roots. The sort is very superior, producing well-shaped medium-sized bulbs of remarkably fine quality and colour. Price on application.—Kirkcaldy, Nov. 22.

TO AMATEURS.

PANSIES.—24 fine varieties, two plants of each, 8*s.* the four dozen. List of names on application to Mr. H. DAVIS, Jun., St. Mary's Hill, Newbury.

GLENNY'S IMPROVED SEEDS. — Balsam, Geranium, Aster, Stock, Calceolaria, Cineraria, and other Florist's flowers.—GLENNY'S COMPANION TO THE ALMANACK with the December Magazines. — Three of the best Six DAHLIAS—Napoleon, Eugénie, and Princess, dry roots, 5*s.* to 10*s.* 6*d.*—Dungannon House Fulham.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Nov. 22.

YORK NURSERIES.

BAINBRIDGE AND HEWISON have much pleasure in offering the following NEW SEEDS, &c., being confident that they will prove to the possessor a great acquisition:—

SHEPHERD'S LARGE EARLY MARROW CABBAGE
(now ready, 1*s.* packet for 13 postage stamps).

This Cabbage will undoubtedly prove one of the best in cultivation, being large, early, and of superior flavour.

YORK NEW PROLIFIC CUCUMBER
(now ready, 4 seeds for 13 postage stamps).

Under good management this may be grown from 18 to 30 inches long. It is a rich dark green, and abundantly productive.

DELPHINIUM, QUEEN OF ENGLAND.
Plants free by post, April 1, 1857, 5*s.* each.

The spike of flower on strong plants 18 inches long; colour dark blue, with a clear white eye.

BELLIS PERENNIS, AUREA VARIEGATA,
Now ready, and may be had free by post for 14 postage stamps.

THE YORKSHIRE FILBASKET GOOSEBERRY,
6*s.* per dozen, October, 1857.

This is an extraordinary great bearer; colour dark red, in size between the Ashton and Brown Bob.

The above may be had of the Proprietors, 7, Bridge Street, York; the principal Seedsmen and Nurserymen in London and in the country; also of DRUMMOND & SON, Dublin and Stirling.

The Cabbage and Cucumber are strongly recommended to Market Gardeners; also the Gooseberry.

7, Bridge Street, York, Nov. 22.

THE PLANTING SEASON.

BASS AND BROWN have much pleasure in calling attention to their very fine and well grown Stock of ROSES, &c., which they offer in collections as under. Catalogues on application.

	£.	s.	d.
ROSES, 100 standards, in 100 very superior varieties	7	0	0
" 100 " 50 "	6	0	0
" 100 " 100 extra "	8	8	0
" 100 " 50 "	7	10	0
" " selections per doz., 18*s.* to	1	4	0
" 100 dwarfs in 100 very superior varieties ...	3	0	0
" 100 " 50 " ...	2	5	0
" 100 " 100 extra " ...	5	0	0
" 100 " 50 " ...	4	0	0
" " selections per doz., 6*s.* to	0	18	0
" Climbing ... . " ...	0	9	0
HARDY CLIMBING PLANTS, 20 fine sorts, in pots	1	0	0
HERBACEOUS PLANTS, 100 distinct and showy varieties, 30*s.* ... ... per doz., 4*s.* to	0	6	0
Ditto, ditto, 100 superior varieties, 50*s.*; per doz., 7*s.* 6*d.* to	0	10	6
Ditto, ditto, 25 fine vars., best adapted for Rock Work, 12*s.*; or 12 for	0	7	6

Very superb and beautiful collections of PHLOXES, PENTSTEMONS, POTENTILLAS, ANTIRRHINUMS, PÆONIES, DWARF ROCK CISTUS, HOLLYHOCKS, CONIFERÆ, &c., &c.

CHOICE FRUIT TREES.

Peaches, Nectarines, and Apricots, two and three year trained, very fine, handsome, and well grown, each 3*s.* 6*d.* to 5*s.*; Plums, Pears, &c., two and three year trained, do. each, 2*s.* 6*d.* to 3*s.* 6*d.* To gentlemen requiring first-rate wall fruit these are strongly recommended; also Standard, Pyramidal, and other Fruit Trees of the choicest sorts.

Splendid GLADIOLI, ENGLISH, GERMAN, and other IRIS; LILIUM LANCIFOLIUM and other LILIES; and an extensive collection of CHOICE DUTCH, CAPE, and other ROOTS.

GOODS CARRIAGE FREE for orders not under 20*s.* to all the London stations, also to all stations on the London, Norwich, and Colchester line.

Seed and Horticultural Establishment, Sudbury, Suffolk.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

ROBERT KENNEDY, SEEDSMAN, Bedford Conservatory, Covent Garden, Agent for Messrs. Platz & Son, Seed Growers, Erfurt, informs the trade that their extensive CATALOGUE for 1857 is ready, to be forwarded on application. It contains a large number of new articles, which can be recommended with confidence. Early orders are solicited.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Arancaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginells, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published, also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

CHEAP IMPORTED BULBS.

	s.	d.
ANEMONES, spendid double mixed, per lb.	4	6
" " single " "	3	0
CROCUS, mixed, fine, all colours, per 100	1	6
" named, separate " " ... ... 2*s.* to	3	0
CROWN IMPERIALS, mixed or named, per doz. ...	3	6
FRITTELARIA PERSICA " "	4	0
GLADIOLIS FLORABUNDUS, large, "	3	0
" GANDAVENSIS "	4	0
HYACINTHS, named for pots or glasses, each, 6*d.* to ...	1	0
" from " sorts mixed, per dozen 3*s.* to ...	4	6
LILIUM LANCIFOLIUM ALBUM, each, ...	1	0
" " RUBRUM "	2	6
NARCIS, fine, mixed ... ... per doz.	3	0
" named ... ... "	4	0
RANUNCULUS, mixed, very fine, ... per 100	4	0

Lists on application.

DAWE & Co. (successors to Dawe, Cottrell, & Benham) 36, Moorgate Street, London.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

TO PERSONS ACQUAINTED WITH SOUTH WALES, &c.

WANTED, A LIST OF THE NAMES OF THE RESIDENCES or SEATS of the principal Nobility and Gentry, &c., having Extensive Fruit Gardens, containing Pineries, Vineries, and other Hothouses attached to their Dwellings in or about any or all of the undermentioned counties, viz.:—

Anglesey	Cardiganshire
Carmarthenshire	Denbighshire
Caernarvonshire	Flintshire
Glamorganshire	Montgomeryshire
Merionethshire	Pembrokeshire
Radnorshire	

Apply per Letter to G. T. L., 30, Norton Street, Islington, Liverpool.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

HOGG'S GARDEN EDGE TILES: a cheap, elegant, and durable substitute for Box Edging.

13*s.* per Hundred, or 4½*d.* per yard.

Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

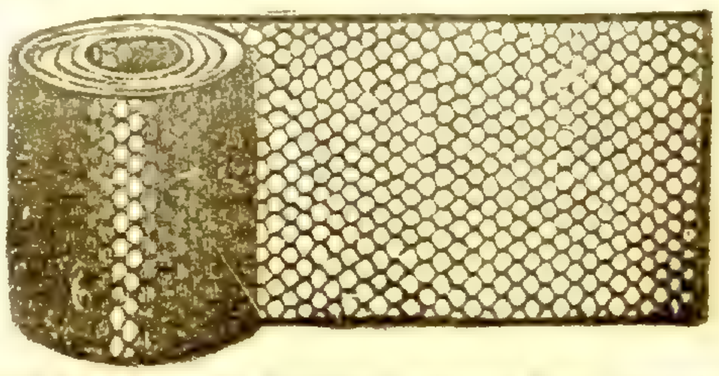
Full particulars from Mr. R. BLACKET, Witham, Essex.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1736.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

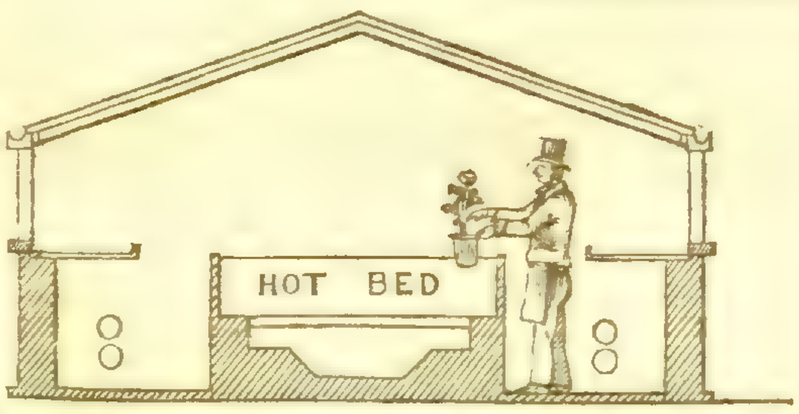
Illustrated Catalogues and Patterns forwarded by post.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

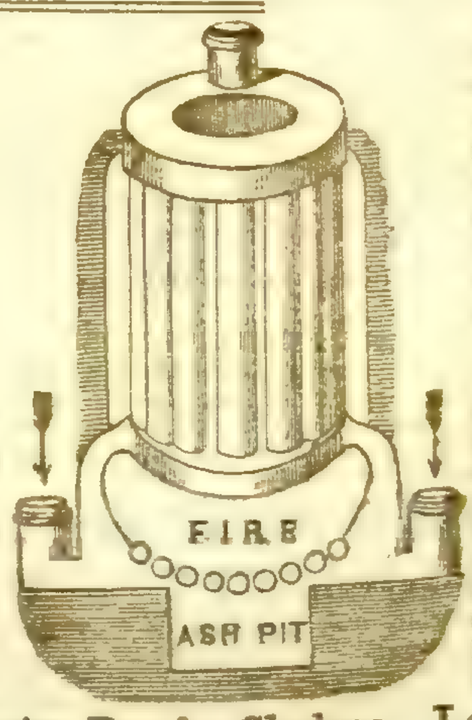
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

GERANIUMS, ETC.

WILLIAM CUTBUSH AND SON beg to intimate that their CATALOGUE of SHOW, FANCY, AND FRENCH GERANIUMS, CINERARIAS, &c., is now ready, and can be had gratis on application.

WILLIAM CUTBUSH & SON *wish to draw particular attention to their stock of the above, which is of first-rate quality, and will give every satisfaction.*

Highgate Nurseries, near London.

NEW ROSE, BACCHUS.—This Rose is a seedling from the "Géant des Batailles." The flowers are similar, but larger, stouter, and brighter in colour, remaining a long time in perfection on the plant without the faded appearance so objectionable in the parent. It is a most abundant bloomer, both in summer and autumn; and has received first class certificates from the National Floricultural Society, the Royal Botanic Society, and at the Crystal Palace Exhibition. Price 10*s.* 6*d.* each.

A. PAUL & SON respectfully announce that the above Rose is now ready to be sent out. The usual discount to the Trade when three or more are ordered.

Nurseries, Cheshunt, Herts.

NEW MELON, CRANMER HALL HYBRID.—This very excellent and distinct variety was raised in the gardens of Sir Willoughby Jones, Bart., at Cranmer Hall, Norfolk. It is supposed to be a hybrid between the "Beechwood" and Scarlet-fleshed China. It is large, a good bearer, an excellent keeper, and above all is of a most exquisite flavour.

For more full description see remarks of the Editor in the *Gardeners' Chronicle* of Oct. 4; the paragraph ends as follows:—"Flesh a beautiful deep orange, about an inch in thickness, tender, and delicious; altogether quite a first-class variety."

Packets containing 10 Seeds will be furnished, post free, on receipt of 30 postage stamps, by J. W. EWING, Nurseryman, Seedsman, &c., Norwich.

The trade will be furnished with price per 100 upon application.

IMMEDIATE EFFECT IN PLANTING.

J. W. EWING begs to announce to the Public that he is at this time able to supply an extensive and varied assortment of Large Ornamental FOREST and FRUIT TREES; the former adapted for producing immediate effect in Parks, Lawns, Pleasure Grounds or Avenues, and the latter for furnishing an immediate crop of fruit.

The above have been frequently transplanted, thereby rendering them comparatively safe for removal, and have each time been selected for symmetry. Also a full collection of general Nursery Stock in the most healthy condition. Catalogues furnished upon application.—Eaton Nurseries, Norwich.—Nov. 22.

TO THE SEED TRADE.

HORATIO BUNTING AND CO. beg respectfully to inform the Seed Trade that their annual FLOWER and VEGETABLE SEED CATALOGUE will shortly be published, containing a List of nearly all the varieties of ANNUALS, &c., in cultivation. The Seeds being grown by themselves they are enabled to offer advantages to the purchaser both in price and quality seldom to be met with. All Seeds warranted true to name and genuine. Catalogues forwarded to all parts of the world post-free on application.

Address in full, HORATIO BUNTING & Co., Seed Establishment, Lexden Road, Colchester.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1¼ mile from Woking Station, South Western Railway, where all Trains stop and conveyances can be obtained.

NEW PLANTS.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to execute orders for the annexed:—

CINERARIA PICCOLOMINI, a distinct and pleasing variety, pure white, with blue edge, shaded with lavender, lavender disc, very distinct. 7*s* 6*d*.

CINERARIA WONDER, a strikingly handsome variety, colour gentian blue, extending half-way down the petals, disc and centre pure white; a great improvement on "C. Fascination." 7*s*. 6*d*.

GESNERIA ZEBRINA SPLENDIDISSIMA.—The foliage of this plant is exceedingly handsome, being beautifully marked with velvety crimson; flowers rich orange and scarlet; a great acquisition to our ornamental plants. 10*s*. 6*d*.

TYDÆA ARGYRONENSE, a very distinct winter blooming plant, possessing the double advantage of handsome variegated foliage and beautiful flowers; the blossoms are tubular in form, the upper of which and top lips are scarlet, under side of the tube yellow, lower lips yellow spotted with scarlet. 10*s*. 6*d*.

The Nurseries, Tooting, London.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in introducing this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited this season at the Royal Gardens, and Mr. INGRAM has forwarded the following testimonial as to its merits:—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour—like that of an Apricot—soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "THOMAS INGRAM.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. POWELL of the Royal Gardens writes:—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side; flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

Extract from the "Transactions of the British Pomological Society" (No. I.):—"A seedling Peach raised in the garden of Colonel Salway, from a stone brought from Italy, was exhibited by Mr. Turner, of Slough. The fruit was of medium size, and of a deep golden yellow colour; the flesh also of a rich deep yellow colour, very melting, juicy, and vinous, with somewhat of the flavour of an Apricot. Although this was gathered from the wall on November 4, it was in as great perfection and as highly flavoured as any of the September varieties, and was highly recommended by the Society as a valuable late Peach."

DWARF-TRAINED TREES ... ... 15*s*. each.
MAIDEN do. ... ... 10*s*. 6*d*. do.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Plants can be had of Messrs. PETER LAWSON & SONS, Edinburgh; Messrs. DICKSONS & Co., Edinburgh; Messrs. JAMES DICKSON & SONS, Edinburgh; and the principal Nurserymen.

Royal Nursery, Slough.

MESSRS. E. G. HENDERSON AND SON beg to offer the following Coloured Plates of new Flowers—

"Stamps taken as Payment."

	s. d.		s. d.
Camellia Jenny Lind ...	0 6	Locheria (Achimenes) magnifica	0 6
Cuphea Eminens	0 6	Tydæa (Achimenes) amabilis	0 6
*Cyclamen Atkinsi ...	1 0	*Group of New Flowers of 1855	1 0
Dianthus albo nigricans ...	0 6	Ditto, 1856	1 0
Gonocalyx pulcher... ...	0 6		
*Fuchsias Emperor Napoleon and Venus de Medici	0 6		

Also a new Plate of Five *Geraniums, including Mrs. Storey's novel white varieties, 1*s*.

* These marked are designed by Mr. Andrews, of Walworth (who is now engaged on the novelties intended for the forthcoming season): the remainder by continental artists of great celebrity.—Wellington Nursery, St. John's Wood.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s*. 6*d*. per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s*. per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to that class of vegetable. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.

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WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet	... ...	15*s*. 0*d*.	each.
Do. do. 5 to 6 feet	... ...	7 6	"
Do. in large pots, 4 to 5 feet	... ...	7 6	"
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A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.

Stapleton Road Nurseries, Bristol.

CATALOGUES.

H. LANE AND SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—

ROSE CATALOGUE.
FRUIT CATALOGUE, containing those grown in pots.
TREE AND SHRUB CATALOGUE.
AZALEA, HOLLYHOCKS, &c., CATALOGUE.

The Nurseries, Great Berkhampstead, Herts.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 22, 1856.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Nov. 25—Horticultural ..... 2 P.M.

THE Court of Chancery has lately pronounced a most righteous judgment in a matter deeply concerning the interests of country gentlemen and cultivators of the soil. It has punished with all the severity it could command a case of great oppression: effectually throwing down the strong man and raising up the weak. Nothing can be more grievous than the nuisances with which we are assailed in all directions by people who seek to make money at the expense of their neighbours. One man sets up a wharf, brings to it all that is most stinking and loathsome, stifles everybody near him, and justifies himself upon the plea that manure making is a public benefit. Another builds a tall chimney, manufactures alkali, kills the trees within half a dozen miles of it, and drives from their houses families who have lived there for generations; the justification is that alkali is a most important article in this great manufacturing country. A third establishes gas works in the midst of fertile fields, covers the neighbourhood with soot, ruins the poor man's crops, and converts his district from a garden into a dirty desert; the defence is that gas illumination is a public necessity. Let us hope that the case of *Broadbent* v. *the Imperial Gas Company* will teach great people that might has not yet overcome right, and little people that the law of England will protect them.

The case in question was this:—The plaintiff, a market gardener at Fulham, sought, and, after a long struggle, succeeded in obtaining an injunction restraining the defendants from making gas in a certain retort house newly erected by them. Mr. BROADBENT carried on the business of market gardener and florist at Sand's End, Fulham, and after he had commenced so doing, the Gas Company erected their works. Until recently their retort houses were too far off to do much injury, but latterly the Company found it necessary to erect new retort-houses, which were built much closer to the plaintiff's grounds than before. He brought an action against the Company for damage caused by the gases and soot evolved from the new buildings. The action ended in a reference to arbitration, and after a long investigation the arbitrator made his award in the plaintiff's favour. The nuisance however continued unabated, and therefore an application for an injunction to restrain the Gas Company from carrying on their works was made to the Court of Chancery. The case was heard before the Vice-Chancellor WOOD, and as already stated the injunction was granted, the effect of which is that the Company must either discontinue their profitable business, or must make ample amends to Mr. BROADBENT for the injury done to his property, so that, when it becomes their own, they may do with it as they like.

The history of this case affords a good example of the way in which powerful companies with money at their command set at nought the rights of private individuals, and for the sake of increasing their own dividends ruin without scruple anybody. Amongst other reasons urged on behalf of the Company in opposition to the plaintiff's application, it was said that the public would be most seriously inconvenienced if the making of gas in the new houses was prevented by the court. A similar argument is, we believe, always urged in cases of this description. It has a specious appearance, but a little reflection will show its utter worthlessness.

In what sense was it necessary for the Company to erect additional works? Obviously only to enable them to supply an increasing demand for gas; and where was the necessity of their doing this? Simply because if they did not some other company would, and thus a good business would be kept more or less stationary, and an opportunity of increasing profits would be allowed to pass by. Such is the argument put into its true light. We acknowledge that cases do occur where for the sake of some great public benefit private rights must be interfered with, and that it may be justifiable to compel a man to part with his own whether he likes it or not upon being duly compensated. But we protest altogether against the conduct of those who for their own pecuniary gain, but under the specious pretence of rendering great services to the public, attempt to violate the rights of others. There is a good old maxim that "no one shall take advantage of his own wrong," and it is not possible to apply this too rigorously where the power, irresponsibility and money of a body of men associated for purposes of gain are used with the view of increasing their own wealth at the expense and even ruin of their less powerful neighbours.

Another feature in this important case which demands comment, is the nature of the evidence adduced by the defendants for the purpose of disproving damage to the plaintiff. Mr. BROADBENT complained and he and his witnesses proved that his fruit trees were destroyed or rendered unproductive, his hedges blackened and decayed; the branches of his trees were covered with soot, his annual crops were injured, and his trade seriously affected by the impossibility of bringing what few vegetables he could raise early into a state fit for sale. His scientific witnesses, one of whom was Prof. WAY, proved that the leaves of his vegetables were covered with white spots, and those of his trees were shrivelled up; that the branches were so loaded with soot that it could scarcely be cleaned off, that their breathing pores were choked up, and their very tissue disorganised.

The Company, in answer to this, attempted to make out that the damage was caused by the coldness of the season, a neighbouring brickfield, the drainage from a heap of "Blue Billy" (the workman's name for gas-lime), an inundation, east winds; and, as if all these were not enough, the exhalations from a neighbouring dungheap! The defendants admitted that after drawing their retorts the hot coke contained sulphur, that when water was thrown on the coke fumes of sulphurous acid escaped from the retort houses, and that such escape in small quantities could not be prevented. But notwithstanding this and the facts deposed to by the plaintiff and his witnesses, persons were found to support the preposterous theory that the injuries complained of might have been caused by hydrosulphate of ammonia derived from a common manure heap. If this absurdity had proceeded from uninformed persons we should have deemed it unworthy of notice; but such was not the case. On the contrary it was supported by gentlemen of known scientific attainments. We unfortunately are too well aware of the little value attached by either the bench or the bar to scientific evidence. We know that scientific witnesses are regarded as partisans; and that their evidence is scarcely thought more trustworthy than that given by horse dealers or seamen in disputes about a horse warranty or the running down of a ship. This impression so unfavourable to men of science has of late been rather strengthened than otherwise. It cannot for a moment be disputed that it is no part of the business of any witness to make out a case. The duty of a scientific witness is especially plain however difficult it may be to perform. All he has to do is to observe carefully, to infer cautiously, and to state

his conclusions boldly, whether they tell for or against the party calling him. If this became general, scientific evidence would be estimated at its proper value, and would not, as is unfortunately the case at present, be regarded with distrust and suspicion even when given by men whose impartiality is as unimpeachable as their talent.

New Plants.

187. CHAMÆCYPARIS THURIFERA, *Endl. Gen. Conif.*, 62, *alias* Cupressus thurifera. *Humboldt, Bonpl., and Kunth, II*, 3, not of others or of European gardens.

There is commonly found in gardens throughout Europe a Mexican Coniferous tree called *Cupressus thurifera*, under the supposition that it is the plant so called by Humboldt. The late Prof. Endlicher however pointed out the mistake, showing that the garden plant is a true Cypress, while that of Humboldt is a Chamæcyparis, and therefore he called the latter *Chamæcyparis thurifera*, giving the name of *Cupressus Benthami* to the wrong-named garden plant. Dr. Klotzsch had previously circulated the name of *C. Lindleyi* for the same thing. No two plants can be more different than Cupressus Benthami and Chamæcyparis thurifera—the first a true Cypress with numerous seeds to each scale of the cone—the second a Chamæcyparis with only two or one, and those not winged.

But nobody seems of late years to have met with this Chamæcyparis in Mexico; even in the vast Herbarium of Kew it is not to be found. A few cones of a Cypress-like plant with roundish wingless seeds having however been received by the Horticultural Society, and raised in the Chiswick Gardens, further inquiry has led to the discovery that this Orizaba plant is in all probability the long lost Chamæcyparis thurifera. Mr. Botteri sent them home without one word of information, but with a small dried specimen, from which we learn that he found it in a cultivated state. Being a true Chamæcyparis, and only one from Mexico being known to botanists, the inference that we have at last the true plant of Humboldt seems inevitable. In that great philosopher's work, above quoted, it is said to be a very tall resinous tree with spreading branches, whose timber is used for building purposes. The young seedlings in the Garden of the Horticultural Society are very glaucous, with almost the aspect of a Thuja. How far they may be able to bear this climate remains to be ascertained.

188. THUJOPSIS BOREALIS *of Gardens.*

What is this beautiful and quite hardy Conifer? Received originally from Messrs. Booth, of Hamburgh, and sent into the trade by Mr. Pontey, of Plymouth, it bears a name for which nobody chooses to be responsible. It has also borne the name of Th. Tchugatskoy according to M. Carrière, who conjectures it may have come from the neighbourhood of "Lake Tschoudskoe," a place we are unable to find in any map accessible to us. But it may also be surmised that this word Tchugatskoy is only an erroneous reading of Tschukotsk, the name of a Cape on the western shore of the sea of Kamtchatka, to which circumstance the name *borealis* might very well point. Should that be so, the question arises whether this Thujopsis borealis may not be the *Chamæcyparis nutkäensis*, a great tree inhabiting the north-west coast of America, about Nootka Sound and Observatory Inlet in the island of Sitcha, a place frequented by the Russians. It must have been seen by the officers of all our expeditions that have been at Nootka, and it is much to be regretted that they did not procure seeds. The Russian botanist Bongard calls Cupressus nutkäensis *Thuja excelsa*, which renders it the more probable that *Thuja borealis* is the very same plant. The difficulty is that *Cupressus nutkäensis* has 4 angled shoots, while those of *Thujopsis borealis* are flat. Is that the difference between youth and age?

NEW GARDEN FERNS.—No. XV.

27. STENOSEMIA AURITA, Presl; not of Hooker. ACROSTICHUM AURITUM, Swartz, POLYBOTRYA AURITA, Blume.

Fronds ternate, puberulous on the veins, the fertile contracted; branches sessile pinnatifid; the segments of the barren fronds lanceolate acute entire, the upper blunt, the lowest posterior ones elongated, broadly lanceolate, and pinnatifid; the segments of the fertile fronds narrow-linear, thickly clothed beneath with spore-cases on both sides the midrib; stipes elongated, paleaceous.

This is one of those Ferns in which the hinder or lower side of the divisions of the frond are more developed than the anterior or upper side, producing considerable obliquity of outline in the parts. It is a very distinct and peculiar looking plant of the Acrostichaceous group, having separate sterile and fertile fronds constructed on the same plan, but the former broad and leafy in the parts, while the latter have the narrow space which borders the rib or rachis, closely covered on the lower surface with spore-cases. It grows from 1 to 2 feet high, with very long stipes, which are scaly below, and terminated by the pentangular fronds. The sterile fronds are 6 or 8 inches long, and nearly as much in breadth in the leafy parts, ternate, *i.e.*, divided into three branches, which are sessile. The upper branch is ovate, somewhat cuneate at the base, deeply and equally pinnatifid, the segments oblong, acute, entire, repand or pinnatifidly lobed below, the upper ones becoming bluntish and confluent. The two opposite lateral branches are also pinnatifid with segments similar to those of the upper branch, but diminishing in size towards the base on the anterior side, and there much enlarged on the posterior side, so that they are very oblique in outline; Blume describes them as dimidiato-cordate. The basal posterior lobe is considerably larger than the rest, and is besides divided half way to its midrib into oblong bluntish secondary lobes; the apex of one of these, representing the peculiar netted venation, is shown in the accompanying figure, which also shows one side of the base of a fertile frond. The fronds are viviparous in the axils of the branches. The fertile fronds are very much smaller and on longer stipes; their divisions are narrow linear, appearing as if reduced to mere skeletons, and the lateral branches again are oblique in consequence of the much greater development of the posterior side. Two or three plants with similar venation, but different in the structure

of their fronds and in the nature of their fructification, were associated with this species by Mr. Smith in his enumeration of the Philippine Island Ferns collected by Mr. Cuming. One of these figured by Sir W. Hooker as Stenosemia, we conceive to be the plant Presl intended by his Digrammaria, judging by his figures in the Tentamen. It is an interesting stove Fern. Introduced from the Dutch gardens. *T. M.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. XII.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

Flower-Buds.—The abundant formation of buds in the axils of leaves is only partially applied to the developement of branches with leaves. Many leaf-buds perish, others lie dormant (often for years) until peculiar circumstances (as the decay or pruning of the upper portions of a branch) cause them to develop. Certain buds, from the earliest stage in which their several parts can be distinguished, instead of presenting the more usual condition of closely packed nascent leaves, assume the character, and develop as an aggregation, of "floral organs." Such buds are termed "flower-buds." The influence (whatever it be) which impressed this condition on some buds, seems also to be more or less felt by the earlier buds which produced the branches on which the flower-buds are formed. In the Bean we observe this to be the case. A bud on the main stem (s) has developed into a short branch (P) without leaves. The leaves which in the usual developement of a leaf-bud would have appeared upon this branch, have been "arrested" (*not formed*), and their position at the nodes is only faintly indicated by slight swellings. The axils of these arrested leaves would lie immediately above these spots, and here it is the flower buds are formed. These develop into flowers with 5 sepals (cohering), 5 petals, 10 stamens (cohering), and one carpel. One or two of the lowermost buds produce a very short stalk to the flower. As the artist, in improving on my own sketch, has introduced the base of a petiole (*p*) with a stipule (*st*), the latter completely hides what I had intended to show. I must, therefore, leave the existence of such a short flower-stalk to the imagination, and content myself with indicating the position (*p*) which such an one would have occupied below the uppermost flower if it had been developed there. The modified branch from which all the flower-buds have been produced is called a "peduncle" (P); and every little branch or stalk supporting a flower is called its "pedicel" (as at *p'* if one had been developed there!)

INFLORESCENCE AND CALYX.
S, stem: *p*, petiole: *st*, stipule: P, peduncle: *p'*, position for a pedicel: B, unexpanded flower-bud: F, expanded flower.

N.B. Oftentimes the branches produced from buds formed on a peduncle do not immediately support flowers; but a further degree of subdivision in branching takes place before the final little branches (pedicels) which support the flowers are developed from the true flower-buds. In numerous cases the flower-buds do not develop a pedicel, and the flowers are then sessile on the peduncle. In many, also, only a single flower is formed from a terminal flower-bud at the summit of the peduncle (see Ex. 2, *Wood* Anemone).

Vernation and Æstivation.—The manner in which young leaves are packed in a leaf-bud is termed their "vernation" (*vernatio*, a renovation); and the disposition of the floral organs in a flower-bud is called their "æstivation" (from *æstiva*, summer quarters).

Bracts.—Leaves developed on peduncles and their branches assume forms and characters more or less distinct from those of ordinary leaves. Such are called "bracts." They are generally small, and often scale-like. No bracts are formed on the Bean, the leaves on the peduncle having been arrested, as we explained.

N.B. In the figure to Ex. 1, *white* Lily, we see many scale-like bracts on the peduncle. In Ex. 2, *wood* Anemone, there are three large bracts, closely resembling ordinary leaves, seated in a whorl round the peduncle. In Example 4, *bulbous* Crowfoot, no distinct bracts are formed, unless the uppermost leaf on one of the peduncles should be so regarded. In Ex. 5, *wild-cherry* Plum (or common Cherry), the little scales at the base of the pedicels are bracts. In Ex. 7, Willow, the flowers are too crowded to show the small scale-like bract at the base of the little pedicel on which each is seated; but it is readily observable in a specimen. In Ex. 8, *great white* Ox-eye (*Oxeye-Daisy*) the numerous scales which in the figure surround the unexpanded head of flowers are bracts. Many plants of the same order (*Compositæ*) have also one or more bracts at the base of every flower. These bracts arise from the receptacle, and (owing to very close packing) become membranous scales, bristles, or hairs.

Inflorescence.—This term is applied in the aggregate to all the flowers that are seated on the same peduncle, or its branches collectively. In many cases it will necessarily be restricted to single flowers.

N. B. In the few woodcuts introduced in Nos. V. and VI. the term Inflorescence will be applicable to single flowers in Examples 2 and 3. It includes more than one flower in Examples 1, 5, 7, 8. The term is, in fact, of rather arbitrary application, though there is seldom any difficulty in determining whether it is to be applied to a single flower or to comprehend two or more. Where the flowers stand apart, or where each stem or branch supporting only one flower bears fully formed leaves, the inflorescence is restricted to such one flower. But if a main stem or branch supporting several flowers has its leaves so modified as to be regarded as bracts, then it assumes the character of a peduncle, and all the flowers directly or indirectly supported by it constitute the inflorescence.

Without here defining or explaining the several terms which designate different kinds of inflorescence, we may advantageously allude to the relation in which five principal kinds stand towards each other. Any elementary work will define the terms employed. Suppose the flower-buds on a "spike" were to form nearly equal pedicels to its flowers, we should have it transformed into a "raceme." If the pedicels in a raceme were so lengthened relatively that the flowers stood nearly on the same level, a "corymb" would be the result. If the internodes between the pedicels of a corymb were arrested, but the length of the pedicels still so regulated as to keep the flowers at about the same level, an "umbel" would be formed. If the pedicels of an umbel were arrested, so that its flowers became sessile, whilst the summit of the peduncle was sufficiently expanded (into a general receptacle) to allow room for their insertion, a "head" would be produced. If the expanded summit (general receptacle) of the peduncle supporting a head were elongated, the obliterated internodes being also restored, we should return to a "spike." These forms of inflorescence, therefore, depend upon relative developements of the peduncle and pedicels.

(*To be continued.*)

THE CROP OF FRUIT IN 1856.

IT has seemed strange during this autumn to travel through the fruit-growing counties and see all the trees bare of fruit, looking, as compared with last autumn, most desolate. Devonshire, Gloucestershire, Worcestershire, Herefordshire, and Kent, counties generally so productive in orchard produce, have failed in common with the counties not so highly favoured by climate and soil. I hear also from a friend who has travelled through the fruit-growing districts of Germany and France that the failure there has been the same. In America (the United States) the main crop of fruit is an entire failure. The cause of this seems worth inquiring into. In my own orchard I imputed the failure not to frost, for there was no frost sufficiently sharp to injure the germs of Pears and Plums which remained green and fresh till they dropped off (the latter even commenced to mulch), but to the succession of moist cold winds from the north-east, which seemed to glue the pollen to the anthers, and thus prevent its proper action; but would this state of the atmosphere exist over so large a space, and with such a variation of surface and climate as above alluded to? Allow me to hope that some of your meteorological readers will discuss in your columns this most interesting subject.

When M. de Jonghe visited England in 1854, in which year the fruit was all destroyed after being fully set, by the frost of the 25th April, he then triumphantly told us that he had plenty of fruit, and that if we obeyed his instructions with regard to thinning and pruning our

trees they would always resist the inimical effects of our climate. In short that climate had nothing to do with it, for that trees well managed would always bear, but that trees managed as English trees were never could give any fruit worth a dump.

I knew that his suggestions as to thinning and pruning were sound and good; but I felt assured he was wrong in asserting that culture could avert the effects of 7° or 8° of frost in the blossoms of fruit trees. It was amusing to see in 1855 our unpruned abused English Pear trees give a direct contradiction to all that M. de Jonghe had advanced in the autumn of 1854, for without any hesitation, and not waiting to be educated, they gave us the most abundant crop of the finest Pears I have ever seen. They have shown something of the same self-will the season just past, for I know some cultivators that in 1855 thinned their trees of fruit and carefully educated them, hoping to have a crop in 1856; but, alas, the obstinate trees have all or nearly all failed to give any produce; thus telling us in tolerably plain terms that certain matters are beyond our control.

Some cultivators have recently put forth the idea that Apple trees if never suffered to overbear will never fail to give a crop. There are some varieties which give a full crop biennially, and in some cases by thinning the fruit severely the trees have not taken their usual rest. This is good practice, but has totally failed this season; in fact it is now apparent that in open air fruit culture the effects of some adverse seasons cannot be avoided. Some few years since I was much struck with the hardiness and excellence of the Sturmer Pippin Apple. I planted it extensively and made it a favourite in Covent Garden Market as a late dessert fruit. For a few years I had fine crops, and congratulated myself on my good fortune. My last good crop was in 1851; in 1852 the blossom was all destroyed by frost; the same in 1853; the same in 1854, by the severe frost of April 25; and the trees were also much injured by it, as they had a blighted appearance all the summer. I thinned the trees with much care the following winter; they bloomed abundantly in spring, but the blossoms were pale and weakly; they all dropped off without setting their fruit; but the following summer (1855) the trees were in fine health; they were pruned in the autumn, and I anticipated from the long rest they had had that I should be favoured with an abundant crop in 1856. The trees last spring bloomed magnificently; the blossoms were vigorous, the weather seemed favourable, and yet I may say that every blossom dropped off, for I have not gathered a dozen Apples from trees that have given me from 400 to 500 bushels. I could not discover that the blossoms were injured, for petals, stamens, and pistils were all perfect, and the weather was so fine that the pollen seemed to perform its office. It appeared to me just one of those mysteries so often very properly brought before the eye of the gardener, to bring him up as it were, and to remind him that although a clever fellow he cannot penetrate into all that Nature pleases to do. I have therefore now come to the conclusion that good culture should always be practised, but that it is idle talking for any cultivator, be he Flemish or English, to assert that he can control his crop of fruit on trees in the open air by any peculiar culture. The most favourable circumstances for the blossoming of fruit trees are a bright sun and cold dry winds from north to south-east. Three or four degrees of dry frost at night are of no ill consequence; this is the climate of the great fruit growing districts of the east of Asia, and also of those parts of Germany where in most seasons such enormous crops of Plums are grown. Our moist Atlantic and oceanic winds which blow over the whole surface of England, Ireland, and Scotland are most inimical to the blossoms of fruit trees, and I fully believe that to ensure regular crops of Pears and Plums our fruit gardens must be covered with glass, and the orchard-house system much enlarged, for espaliers, and pyramids, and bushes may be planted in span-roofed houses and so managed as seldom or never to fail to give good crops. I know of one clever cultivator who has planted a house with Plums as pyramids; these bear so abundantly every year as to do away with the necessity of root pruning, for the large quantity of fruit they give, and the dryness of the soil in winter, prevent the trees making wood vigorous and unmanageable. *T. R., Herts.*

Home Correspondence.

Conical Boilers.—As the author (in England at least) of conical boilers which I have employed now for upwards of 20 years, I may perhaps be able to give a satisfactory answer to the inquiries of some of your correspondents. The fuel suitable for conical boilers is either house-cinders, gas, or oven coke, or Welsh coal; that is to say anthracite or non-bituminous stone-coal, which are valuable in the order in which I have arranged them; though for certain purposes house-cinders are more convenient and more suitable than any of the other kinds of fuel. The most powerful of all fuel is anthracite mixed with coke in the proportion of two of anthracite to one of coal, and broken to about the size of hen's eggs. This I employ only in the severest weather when I want the utmost possible heat. Ordinarily I burn anthracite only. Fuel of equal quality, say oven coke and anthracite, is valuable in the ratio of its weight—that is to say, 1 lb. of fuel will do a certain quantity of work whatever its bulk be. Now, coke is lighter than anthracite, and a greater bulk is required to do a given amount of work. Bulk for bulk the weight of oven-coke is to anthracite about as three to five. The principle of a conical boiler is that it should be filled full of fuel, and a boiler whose furnace is 15 inches diameter will hold about 60 lbs. of anthracite or 36 of coke. It is evident, therefore, that a charge of anthracite will do more work than a charge of coke. Gas-coke is never quite equal, and often very inferior to oven-coke; cinders are not quite equal to good oven-coke but superior to ordinary gas-coke. With respect to the work which a boiler will do, I find that a 15-inch furnace of the construction which I employ will heat thoroughly 150 ft. of 4-inch pipe, and burns from 60 to 75 lbs. of fuel per 24 hours when doing so and working at as high a temperature as I find necessary for an Orchid-house. In severe weather perhaps something over 75 lbs. is burnt, but on an average of six winter months 75 lbs. will cover the daily consumption. This quantity is put in in two, or at most three charges, that is to say two charges of 12 hours each in moderate, and three charges of eight hours each on an average in cold weather. The object of the more frequent charges is that the furnace is not kept quite so full in severe as in ordinary weather in order to allow more draught. With respect to duration of fire it will remain a-light unattended from 24 to 36 hours; but the heat during the last 12 hours in the latter case would be small and uncertain; and if the fire be allowed to get very low, it either becomes extremely fierce or goes out, so that to ensure a regular fire it is best to feed it every 12 hours. The exact management of the fire depends on the fuel employed; it will keep a-light longest with house cinders; it will give most heat for the longest time with anthracite; it will burn out quickest, giving at the same time much heat, with coke. After 20 years' experience I can safely say that there is no boiler which is so easily managed, or which will give so much and such uniform heat, with the same quantity of fuel. Nor is there any boiler which requires so little attendance. In conclusion I would guard your readers against a very common error in fixing conical boilers; viz., the giving them too high chimneys, and consequently too much draught, which makes them almost unmanageable. Where they are attached to a high chimney, the bottom of the chimney should be left open, so as to admit a draught of cool air to pass up it. In this way I use a boiler attached to a chimney 40 feet high which warms my dwelling-house. The proper height of chimney for a conical boiler does not exceed 6 to 8 feet, and there should always be a soot-door or means of admitting air at the bottom of the chimney, which will regulate the fire better than any damper. *J. Rogers.*——Sigma (see p. 742) states that to heat a large house with Rogers' Conical Boiler would only cost 11*l.* 2*s.* He means, I imagine, the expense of boiler and pipes, together with that of fixing them. Another correspondent (see p. 758) says a house 30 feet long by 14 wide cannot be heated under 20*l.* Does he mean the expense of fuel? It is difficult for any one to say what it would cost for fuel to heat a house, so much depending on whether the latter is lofty or low. A low house is best adapted for early forcing and consumes least fuel. Again the expense of fuel varies; in one locality you may buy coal for 10*s.* per ton, in others it may cost 18*s.* per ton. Mild winters also make a difference of several pounds in the expense of fuel for heating purposes. In 1855 I forced a Vinery 44 feet long by 14 feet wide. It was heated with a conical boiler, the fuel for which cost 21*l.* 10*s.* Finding that the boiler just mentioned consumed a great quantity of fuel, I had it removed and replaced with one of Taylor's tubular ones. With this boiler the fuel this season for the above named house only cost 12*l.* 10*s.* The Grapes in 1855 and this year were fit to cut the second week in June. Having given various shaped boilers a fair trial for several years, I can with confidence recommend Taylor's as being both efficient and economical. *A. C., Combermere Abbey, Cheshire.*——Sigma begs to inform "N. B." that he has had no experience as regards burning gas cinders or Scotch coal in Rogers' boilers. Probably Mr. Lynch White could refer him to some one who has used this kind of fuel. The boiler alluded to "on a large scale" was for a Vinery 110 feet by 15 feet, and this one may be left for 24 hours without any attention. Mr. Lynch White's boiler at 50*s.*, and capable of heating 150 feet of 4-inch pipe, requires attention every 12 hours merely because it is smaller. "A Constant Reader" will find the best cement for joining iron pipes to be a mixture of Portland and Roman cement, the former to strengthen, the latter to set quickly if required. Sigma only recommended an economical plan for heating an orchard house, so as to exclude frost during the spring months, and he says that, if required, the plan would tend much to ripen the fruit and wood. If "A Constant Reader" has not already a little work written by Mr. Rivers and styled "The Orchard House," he had better get one immediately, and he will then know what is required for heating an orchard house. Sigma begs again to state that a large orchard house 60 feet by 20 feet can be heated sufficiently to exclude frost and advance the ripening of the fruit and wood for 11*l.* 2*s.*, the boiler costing 50*s.* and the 4-inch pipe and fittings 8*l.* 12*s.*, the gardener fixing the apparatus, as in his case. With regard to Sigma's "statements being likely to mislead the public," and "to his not being sufficiently acquainted with these matters to be a safe guide," perhaps this had better be left to a more competent judge than "A Constant Reader" appears to be. *Sigma.*

Lilium giganteum.—It has often occurred to me that the beauty of this plant might be greatly enhanced if we could introduce more colour into its flowers, say scarlet or crimson. If that could be done without seriously altering its general character, it might make a good foundation for a race of brilliant coloured hybrids. What species do you think would be the best to use for obtaining this result? I have a very strong bulb, the best we have ever had, which will flower next year, and on this I purpose trying the experiment. *W. Breadley, Somerleyton.* [This is so very different in manner of growth from the others, that we fear it will be impossible to cross it. The best way perhaps would be to try it with tigrinum, superbum, lancifolium, and chalcedonicum.]

Iron Water Pipes.—I observe an inquiry from "Merseman" concerning iron waterpipes, and have been troubled in the same way; and I believe the discoloration arises from carbonic acid gas in the water which has an affinity to the iron, and the best remedy I conceive, after much inquiry, to be the use of Paris patent glass enamelled wrought iron pipes made by the Birmingham Patent Iron Tube Company, Smethwick, near Birmingham. These tubes are vitrified or covered inside and out with a coating of glass, and I have every reason to believe will answer well. I have at present only samples but am about using them. *C. Willcoxson, Tonbridge Wells.*——The best remedy to prevent the oxide or rust in pipes for the conveyance of water for washing or house purposes, is before laying them down to thoroughly clean and then limewash the inside. I manufacture these goods extensively, and I have found the above to answer perfectly. *Lynch White.*

Cloth of Gold Rose, &c.—You have had many interesting communications about the Cloth of Gold Rose, and I shall be glad to add my experience to that of your other correspondents. I have a plant on its own root, put out from a pot in 1848 against a south wall. It never moved at all for two years, in fact, I don't think it grew as many inches, but in 1851 it threw out two shoots from the collar, each of which made about 12 feet of wood. These are now the main stems; one measures at the point of separation, nine and three-quarter inches in girth, the other seven. It reached the top of the house about 28 feet two or three years ago, and makes shoots annually of eight or 10 feet in length. The border is narrow, of very poor soil, but the plant is regularly mulched and watered with liquid manure. Now for the blooming. It is its extreme uncertainty in this respect that I believe sets people against it. No one who has ever seen a plant in full beauty would rest till he had one. With precisely the same culture year by year, I can never count on blooms. In 1855 my plant was covered; there could not have been less than 200, or 250. This year, with equal growth of wood there were perhaps 20. I find the blooms come chiefly from eyes starting from strong young wood of the previous year, which makes me think that a hot summer to ripen the shoots thoroughly, is essential to a free bloom. I have also observed that nearly every year two or three strong eyes start from about the collar of the plant which invariably, when about a yard long, cease growth and throw large trusses of bloom, but the individual flowers are not nearly so fine as those which come singly. The plant has no pruning except cutting out dead wood. It very rarely has bloomed in autumn, owing no doubt to a want of a more liberal treatment. I have another plant budded on Sir Walter Scott (Noisette) which makes strong growth, but is too young to determine anything as to its blooming propensities. Now I want to say another word about Roses. How are we unfortunate amateurs, who cannot always go and see for ourselves, to be guided in our choice of new ones? That extract from the "Florist" in your 45th number is to the point. A catalogue one year extols a new Rose, and gives such epithets as "perfect, superb," and so on, while in the following year it puts the same Rose aside as an ordinary flower, or worse. And if an amateur happens to have catalogues from two different growers, he is more lost than ever. Take, for instance, those of Messrs. Rivers and Wood. Here is Mr. Wood's description of Williams' new evergreen climbing rose:—"This is a seedling from Ayrshire Splendens, fertilised with yellow Thea; its rapid growth and elegant habit is precisely like the Ayrshire Splendens, while its glossy foliage and long lemon-coloured buds partake of the character of the yellow Thea; its flowers are creamy white, deliciously sweet scented, and are borne in long racemes of 12 to 20 on a single shoot, being produced from every axil." Now is that not enough to make your mouth water for such a Rose? I had nearly bought a plant in consequence, but happened to have no room for it. Well; now for Mr. Rivers:—"Williams' evergreen climbing Rose has proved quite worthless." Is not this a sufficient difference between "the doctors" to prevent the amateurs from deciding? The old Roses are the best yet. I do not believe there are six better than Coupe d'Hébé, Baronne Prevost, Géant des Batailles, La Reine, Madame Laffay, Prince Leon. This last is a prince indeed, but La Reine beats all when it opens properly; it is uncertain, that is its fault. If you want six more, the following are first-rate, here—General Jacqueminot (hy. China), Louis Bonaparte (hy. perp.), Triomphe de Paris (hy. perp.), William Griffiths (hy. perp.), Wm. Jesse (hy. perp.), Souvenir de la Malmaison. These are 12 old Roses not beaten yet, in my opinion. *A. R., Bromley.*

Swans.—Several inquiries have been made as to the width of a ditch necessary for swans to travel from one pond to another; and also whether they would pass up a tunnel. Is any ditch or tunnel necessary? Swans

will readily find their way from pond to pond if not more than a quarter or half a mile distant—indeed they are often troublesome from this great disposition to ramble from one pond to another. If your inquirer will drive them once from one pond to the other they are wished to frequent, they will visit it quite as often afterwards by land as they would do by a ditch if there were one. While on this subject I will mention a curious fact which occurred a few years' since near Plymouth. One of a pair of swans frequenting a pond died. The owner not being able to get another swan, had a wooden one made painted white and moored in the pond. The survivor took to it at once as a companion, and never left its neighbourhood. A visitor doubted the fact of the live one frequenting that part of the pond on this account, and the wooden swan was removed to the other side of the pond to try, when it was at once followed by the live one. By this contrivance the swan was always kept in the part of the pond which was visible from the windows. I imagine a similar effect might occur with a pair of swans if a wooden one was moored in one spot, but I have not tried it. *W. D. F.*

Lee's Prolific Fig.—I have a specimen of this about 5 feet high with several stems grown in a tub 14 inches square, and from 18 to 20 inches in depth. The plant is from four to five years old, and has been standing in a greenhouse in which late Grapes are cultivated. The soil in which it grows is black earth supplied occasionally with pure cowdung. Last year and this it bore three distinct crops. Between July and the present time I have gathered 20 and 30 Figs in succession. Two days ago two more Figs were gathered ripe; and at this time one more is ripening for a week hence. There is also on the tree abundance of fruit for the coming season. I should add that the fruit was well flavoured and juicy. *C. George Thornton. Marder, Nov.* 15.

Couve Tronchuda.—This is recommended by respectable seedsmen as furnishing a good substitute for Sea-kale in the ribs of the leaves, but it hearts like a Cabbage, so how can it be so used? Have you any experience of its good qualities? *Inquirer.* [It is the best Cabbage known, but is tender, and must be consumed before frost comes. It does not heart, or very little. You seem to have grown the wrong sort.]

Petunia Imperialis.—Having bloomed this Petunia successfully in the open border, I am satisfied in stating that I have found it to answer in every particular the character given it by Mr. Turner when he sent it out to the public. I have found it to succeed best in poor soil. Perhaps your correspondent at Whitland will inform us what kind of soil he grew his plants in. *J. Milner, Lotties Hall, Bedean, Yorkshire.*

Canadian Mountain Ash.—What a pity it is that this is not more cultivated as an ornamental tree. It is a splendid tree when in berry. The only ones I ever saw were six sent me as "the true Service" from Stamford. They are admired by all who see them. *W. D. F.*

Wellingtonia gigantea.—Subjoined are the dimensions of the growth of one of my plants for this season only. One summer's growth:—Length, 2 feet 2 inches; width of branches at base, 2 feet 9 inches. Nineteen branches on the shoot which form a cone. Girth of shoot at base $2\frac{7}{12}$ inches. My largest plant at the base is $6\frac{1}{2}$ inches. They have been planted out two summers. *William Barron, Elvaston Castle.*

Hints on Seed Sowing.—All flat seeds should be sown sideways, for if laid flat on the soil they are apt to rot; and if this misfortune does not befal them they never germinate so readily as those placed sideways. This accounts for so many failures amongst Gourds, Melons, Cucumbers, &c. *An Old Practical.*

The American Washing Machine.—From inquiry and personal observation, I feel confident that the American Washing Machines are very useful. I should say that the medium sized one would be found the most useful in a small family, the small machine being too small. In large families the large one is of course the best. *F. Staffordshire.*

Vegetable Irritability.—Dr. Lindley in his Vegetable Kingdom has described some curious Australian Orchideæ, in which the labellum when touched by an insect suddenly turns round and shuts up the boat-formed column, thus imprisoning the insect. Does the editor know the use of this movement? Does the stigmatic surface lie within the box, and is pollen thus carried into it? I ask from having for some years attended to the action of insects on our British Orchideæ. Mr. Loddiges many years ago told me that in Catasetum (I think) the pollen masses are ejected with such force that they had sometimes struck his face. I cannot remember whether irritation was necessary to cause the movement; if it be necessary, would not the pollen masses be apt to strike any insect causing the irritation, and so adhere to its body? Can the editor tell me how this is? In most cases in which movement is caused by irritation in the stamens or pistil, I think it cannot be doubted from Kölreuter's observations on the Berberry, and Ch. Morren's on the Goldfussia, the insects play an important part in their fertilisation. *C. D.* [The phenomena referred to are only known from the account given by Mr. Drummond of what he saw in the Swan River colony. As the stigma lies within the box in *Caleana nigrita*, and in face of the hammer-shaped labellum in the other instances, it is highly probable that the blow inflicted by the labellum upon the column, when it is sprung, will have the effect of disturbing the powdery pollen and knocking some of it upon the stigmatic surface. As to Catasetum we believe the violent separation between the pollen masses and the anther bed, to arise from a sudden contraction of the strong cartilaginous gland and caudicle. As far as we have remarked a disturbance of some kind is necessary to produce the contraction, the effect of which is occasionally to make the pollen masses jump several feet.]

Epidendrum myrianthum.—An Orchid bought under this name has just flowered in the collection of W. H. P. Gore Langton, Esq., at Newton St. Loe, near Bath. It is of a reddish violet colour, sweet, and of a branching habit. I would be glad to know whether it has flowered before in this country. Another Orchid purchased the same time as the former, and called Gongora cymbiformis, flowered in the same collection last June. The spikes were 2 feet long. *A Subscriber, Harke Beauchamp, Taunton.* [We believe *E. myrianthum* has flowered imperfectly elsewhere. When properly grown it is a very fine thing, with a panicle of flowers a foot long and almost as wide.]

Treddle Spade.—Subjoined is a sketch of my treddle spade. It is a most useful tool for raising trees, so powerful as a lever, and most convenient for root pruning; for although it does not cut cleanly, I find the roots that are cut with it heal more quickly. It is curious to see in rural matters such tenacious customs as one often finds. My men, a large body, 70 or 80, of "cute" labourers, will not use a garden spade; they call them for all nursery purposes "old women's tools." The blade of the treddle spade is 11 inches long, eight inches wide at top and six inches at bottom. From top of haft to blade is two feet three inches; entire length three feet two inches. About four inches of lower part are of steel, so as always to be sharp. *Thos. Rivers.*

Heavy Grapes.—My gardener has this year produced me a bunch of Black Hamburgh Grapes weighing 3 lbs. 9 oz. The Vine is pruned upon Crawshay's plan. Can you name any heavier cases? The remainder of the crop is very good, though not like this bunch. *X., Norfolk.* [Much heavier bunches have been produced. Mr. James, of Gwrych Castle, near Abergele, grew in 1846 four bunches weighing respectively $4\frac{3}{4}$ lbs., $4\frac{1}{2}$ lbs., 4 lbs., and $3\frac{1}{2}$ lbs., thus averaging 4 lbs. 3 oz. each. In the same year Mr. W. Murray, of Polmaise, produced a bunch weighing 5 lbs. In 1847 Mr. Hutchison, gardener to A. L. Gower, Esq., of Castle Malgwyn, sent to London a bunch weighing 5 lbs., and the year after four others weighing 5 lbs., 4 lbs. 2 oz., $3\frac{1}{2}$ lbs., and 3 lbs. 9 oz.; or on average 4 lbs. $\frac{3}{4}$ oz. In November 1851 Mr. Forbes grew in the gardens at Woburn a bunch weighing $5\frac{1}{4}$ lbs., the heaviest yet recorded of the Black Hamburgh variety. Bunches weighing 4 lbs. have also been produced in the gardens of the late Lord Tyrconnel, Mr. R. W. Baker, and Lord de Grey.]

Preserving Cut Flowers.—Has "A Devonian" ever tried glycerine added to water for preserving cut flowers? In the "Journal of the Society of Arts" some time ago the proportions were given. I think they were three parts water to one of glycerine. I generally use a small bit of camphor to keep the water sweet, and I fancy that it has some effect in preserving the flowers. *F.*

Boucherie's Patent.—I would be glad to be informed how to apply Dr. Boucherie's process to the preserving of Hop poles. *A Worcester Subscriber.* [Information on all such points of detail can be had of the Permanent Way Company, 26, Great George Street, Westminster.]

Societies.

BRITISH POMOLOGICAL, *Nov.* 6.—Mr. Hogg in the chair. Four new members were elected. Mr. Spencer, of Bowood, Calne, Wilts, read a communication on the Orchards in his neighbourhood, together with some account of the fruits best adapted for that locality. Some remarks were also made by Mr. Varden, of Seaford Grange, near Pershore, on the effects of the frost last spring upon fruit trees growing at different altitudes and subject to various degrees of exposure. Beautiful bunches of the Bowood Muscat Grape were exhibited by Mr. Spencer. A full account of this new and excellent variety will be found in our "Home Correspondence" of last week. Mr. Melville, gr. at Dalmeny Park, near Edinburgh, showed examples of a Seedling Grape, a cross between the Black Damascus and Black Prince. It was considered to be no improvement on existing varieties. Mr. Turner, gr. to J. Hill, Esq., Streatham, produced a handsome bunch of Barbarossa Grapes, weighing 5 lbs. 7 oz. Specimens of Black Hamburgh ripened in a greenhouse without fireheat came from Mr. Spencer. They were large, well coloured, and excellent in flavour. Mr. Tillyard also sent a boxful of this Grape large and well coloured. A bunch of the curious Lady's Finger Grape, or Cornichon Blanc, was exhibited by Mr. Hogan, Lockwood Gardens, near Huddersfield. Champion Grapes were also furnished by Messrs. Lee, of Hammersmith. Mr. Tillyard sent two Black Jamaica and one Ripley Queen Pine Apple weighing about 4 lbs. each. Some seedling Pears and Apples were exhibited, none of which were however considered worthy of cultivation. Specimens of Portugal and other Quinces were shown by H. B. Ker, Esq., and a collection of Oranges grown against an open wall in Glamorganshire were sent by Mr. Challis, gr. at Margam Park, in that county. They were good-looking fruit and quite ripe. Morello Cherries were shown by Mr. Tillyard, and specimens of a late American variety of yellow-fleshed Peach were exhibited by Mr. Rivers. It is a freestone sort, and was considered valuable for its lateness.

ROYAL OF VAN DIEMEN'S LAND: Extracts.—*Feb.* 8, 1854. A paper was read by Mr. Swainson on the cultivation of English Grasses, and the formation of artificial pastures, in which a comparison of the productiveness, as regards dairy produce and the feeding of live stock upon the native and artificial pastures, is made, greatly in favour of the latter. Mr. Swainson says that, having observed in the Illawarra District of New South Wales an indigenous Grass of a nutritious character as cattle-feed, which continued green and succulent throughout the hottest and driest summer months, he secured so much of the seed as has enabled him to make up about 60 packets (laid on the table) for distribution, and that any member or other person who will give the necessary care and attention to its culture may have a packet for experimenting with or for further dissemination over the colony, the bare, dry, arid, withered aspect of which, he does not hesitate to say, would by the introduction of this Grass be changed to a luxuriant and lively green. Mr. Swainson has named it provisionally "Red Timothy Grass." The English Grasses which Mr. Swainson considers best adapted for cultivation in the climate and soil of Tasmania are:—

1. *Phleum pratense*—Timothy Grass, or cat's tail.
2. *Alopecurus pratensis* Fox-tail.
3. *Festuca elatior*—Tall meadow Grass.
4. *Festuca arundinacea*—Reed ditto.
5. *Dactylis glomerata*—Cock's-foot Grass.
6. *Holcus mollis*—Woolly soft Grass.
7. *Anthoxanthum vernum*—Sweet vernal Grass.
8. *Poa pratensis*—Smooth meadow Grass.
9. *Agrostis stolonifera*—Florin Grass.
10. *Avena flavescens*—Yellow Oat Grass.
11. *Holcus avenaceus*—Tall Oat Grass.

Mr. Swainson mentions that white Clover grows so luxuriantly, and the risk of loss from cattle "blown" by it in moist weather in New Zealand is so great, that he carefully avoids its introduction (!) upon his estates there. Rib Grass (*Plantago lanceolata*) he considers also so inferior in point of value for cattle food as not to be worthy of introduction amongst good Grasses.

April 19, 1854.—A letter was read from the Rev. D. Galer transmitting a small bible, one of a consignment curiously mutilated by insects, though soldered up apparently with the usual care in tin and enclosed in a deal case—a board from which, half eaten away on the inside, accompanied the book. Mr. Galer states that the case of books was sent out from England by the William Woolley, and that the cargo was sent ashore at the Mauritius while the vessel underwent repair, from which it would appear probable that the species of *Termites*, commonly known as the white ant, had there gained a footing in the wood, and afterwards, through some accidental aperture left in soldering up the tin, had found admission to the books, disclosing, however, on the box being opened here, no trace of itself save by its ravages. The Secretary reported the despatch of five cases of plants, indigenous to these colonies, to London, in exchange for plants received or ordered.

May 10, 1854.—Read the following note, dated 2nd February, 1854, from Sir W. J. Hooker:—"Sir,—The Earl of Clarendon having with great difficulty procured from Morocco perfectly fresh seeds of the Argan tree (*Argania sideroxylon*), and placed a quantity of them at my disposal, I deem it my duty to distribute them, and to send them especially to those colonies of our own where the climate is suited to their growth and vigour. The husks are greedily eaten by cattle; the nuts yield a valuable oil, and the wood is hard, and useful for many domestic purposes." A quantity of seeds have been left at the Museum for distribution, and persons desirous of cultivating them, and disposed to furnish a report of their success or otherwise, may obtain a portion on application.

June 14, 1854.—The following donation was announced:—Transactions of the Royal Hawaiian Agricultural Society, vol. i. Part IV.

July 12, 1854.—Read a note from Mr. Francis Cotton, of Kelvedon, Swanport, drawing attention to the unusual character of the season, as evidenced by the fact that in the first week of this month the Raspberry plants in his garden were covered with blossom and fruit in different stages of growth up to ripeness in several instances; that many of his Roses were then in full blossom, and that the Sweet Briar hedges presented quite a gay appearance; Mr. Cotton observing, "nothing of the kind has occurred before in our experience, which extends over 25 years in this hemisphere." Sir W. Denison added that in Dr. Hampton's garden the Pear trees had not only blossomed a second time, but produced a crop of well-formed fruit. Several members adduced similar recent instances of blossom on fruit trees, Rose trees, &c.

August 9, 1854.—The attention of the meeting was called to a bunch of Raspberries in various stages of advancement, from blossom to perfectly ripened fruit, sent to the meeting by Sir Henry Atkinson, from whose garden at the upper end of Macquarie Street they were taken. A note from Mr. H. Hull on the extreme mildness of the present winter, as exemplified by the ripening of these and other fruits, was read. A communication from Mr. H. Hull was also read on a paragraph in the writings of Christian Franc. Paulinus, in

the 9th century, wherein he states that certain trees in the Island Sombrero, in the East Indies, have large worms attached under-ground in place of roots, &c., and which Mr. Hull supposes to indicate the knowledge in that early period of some species of *Spheria*, or plant-caterpillar like that of New Zealand, or of Franklin's Village, Van Diemen's Land.

Notices of Books.

De Candolle's Prodromus, vol. 14, part I. In this new volume are contained Polygonaceæ by Bentham and Meisner, Proteaceæ by Meisner, Myristicaceæ, and Penæaceæ by Alph. de Candolle, from which last the learned author following Sonder, separates Geissolomaceæ, although the so-called order consists of only a single species; a measure which is, we think, open to much objection. Upon such hasty examination of the pages as we have been able to give the volume, we should say that the various authors have done their very difficult work, with care, skill, and judgment. Most especially is it worthy of praise that Prof. Meisner has refused to listen to the arguments of species makers, even in the great and difficult genus Polygonum, which he restricts within 215 species, although he might easily have vamped up 500. P. chinense alone absorbs 13 specific names, and P. acre 8 or 9. Of Myristica 85 species are enumerated, and of Proteaceæ 1027, of which 53 belong to Dryandra, 58 to Banksia, 115 to Hakea, and 176 to Grevillea.

Botanists may well be proud of a work like this, which, we trust, will now be completed in the course of a few more years. It would be a great gain if, before the termination of the work, the first 2 or 3 vols. could be re-edited, or rather rewritten.

Bohn's Standard Library has been extended by the welcome addition of the *Critical Essays contributed to the Eclectic Review* by *the late John Foster*. Edited by J. E. Ryland, M.A. One volume has appeared and others are to follow. The editor has managed skilfully a rather unmanageable mass of materials, and by converting what were originally reviews into essays has rendered the volume better suited to the general reader. That numerous class which in this Protestant country participates in the strong antipapal feelings of Foster, will gladly welcome a book so entirely after their own hearts.

Bohn's Edition of Pliny's Natural History.—The publisher has forwarded us the following letter from the translator of this work:—

"The editor of the *Gardeners' Chronicle* has evidently been sleeping the sleep of Rip Van Winkle over his Pliny of late. Let him awake, rub his eyes, and invest in Sillig's Pliny (1855), and behold! he will find that he is 'all in the wrong.' Sillig distinctly says that 'thryselinum' is a preferable reading to 'thysselinum;' and he adopts 'andrachle,' he says, in *preference* to 'andrachne;' and Sillig's opinion, on Pliny, I would take before that of any other man who has lived since A.D. 74.

"This editor should be reminded that it is my duty to give the *names* of things as they *were* called in the age of this encyclopædist, and not to conform to a corrupt nomenclature which has grown up in the course of 1800 years: more particularly when my own editor, a man who devoted nearly a whole life to Pliny, has taken the matter into due and careful consideration. At the same time, I myself have spared no pains in doing my best to identify each article. You will *please let the editor have a copy* of this; and tell him in my name that he ought in duty to have known the facts before venturing to talk of 'misprints.' References to Numbers apart, I *challenge* and *defy* him to find FIVE 'misprints' in the WHOLE FIVE volumes; and I say it fearlessly that there is not a more pains-taking corrector of the press *in Great Britain* than I am.

"I shall be content with nothing less than a withdrawal of this calumny against the book, rendered all the more stinging by the '&c.' in its tail; and it is equally the duty of the editor in his next Number to apologise for giving me this trouble. The labour of translating and illustrating the work is quite sufficient, without having to teach other people that they know very little about the text of Pliny, as read in the only decent edition of the work. "HENRY THOMAS RILEY."

It seems then that we were wrong in calling the names referred to "misprints." They are worse. According to Mr. Riley's explanation they are deliberate alterations in the orthography of familiar names. He must permit us to say that such changes are unjustifiable without an explanation of the reasons which led to the change; no such explanation is given. Thysselinum and andrachne are common words universally adopted into modern science; and we protest against their arbitrary alteration by even so learned a verbal critic as the late Julius Sillig. We seek in vain in Mr. Riley's pages for the reasons upon which this alteration of familiar names is justified. It is now indeed for the first time, as far as we can discover, that he even mentions the name of the German editor to whom he clings for his defence, and to whom he seems to be so much indebted. We must, therefore, look to Sillig himself; and what does he say? As to the change of Andrachne into Andrachle he merely states (iv. 154) that he adopts the latter because it is so spelt in the Plinian index which forms the whole of his first book. But elsewhere he attaches no importance to the orthography of that index, as in the instance of the very word Thryselinum, one of those under consideration. In the index in question it is not spelt, indeed, Thysselinum, as usual, nor Thryselinum as in the text (iv. 147) but Thrysellion! (i. 69). This uncertainty of purpose is not calculated to reconcile the reader to inconvenient changes against which it is our duty to protest when introduced into Natural History; and we hold a translator highly blameable for copying, *without one word of explanation*, such unmeaning alterations. Mr. Riley will therefore excuse us for saying that there is no calumny in the case. We have given him credit for making a good translation, that is to say, for grinding Latin words into English with commendable industry. But he is mistaken if he imagines himself faultless; and, with his permission, since he has raised the question of accuracy, we will presume to ask him to refer to vol. v., p. 146, and again to look over chap. 106. Pliny says that Erigeron is a plant *cujus caput numerosâ dividitur lanugine;* does Mr. Riley mean to contend that "the head is divided into numerous downy filaments" is a translation of these words? With all possible deference to his scholastic attainments, we presume to say that the meaning is wholly different, as he would have perceived had he studied at Cambridge something more than Latin and mathematics. It would seem as if the translation had been made to suit the common belief that Erigeron was our common Groundsel, a speculation of the old commentators, which is wholly unsupported by admissible evidence. It is far more likely to have been an Evax, or Filago, or even Trichogyne itself. We say this from no desire to depreciate Mr. Ridley's translation; on the contrary, it is as good a one as we are ever likely to get. But it is well that he should occasionally dismount from the high horse he rides so loftily and learn, what he does not seem to suspect, that he is not very familiar with critical Botany, and that he possesses a full share of the imperfections of other mortals.

Die familie der Bromeliaceen, by J. G. Beer (Vienna, Tendler), is an arrangement of the Bromeliaceous order by the same learned gentleman who revised that of Orchids (see our vol. for 1854, p. 679). Being written wholly in German, the merits of the work will be little appreciated in this country, but we dare say that in German gardens it will find admirers. It is to be regretted that we are uninformed whether the long technical descriptions are original or not; from the Preface we understand them to be copied, but the sources are not given; and it is certainly very odd that fossil plants should find a place in a book dealing with plants of the present day, see p. 149, Echinostachys cylindrica. The last pages of the volume are occupied by a list of the Bromeliads known to Mr. Beer, who claims the parentage of a large number by affixing his name to theirs.

Garden Memoranda.

BIDDULPH GRANGE, THE RESIDENCE OF JAMES BATEMAN, ESQ.—(*Continued from p. 727*).—Emerging from the tunnel which divides the Pinetum from the Rhododendron ground, we encounter at once an obscure path on the right, which is so enshrouded by shrubs that it might easily be overlooked, and which leads into a wild rocky little glen to be noticed presently. Pursuing the main walk, however, we pass through masses of shrubs, on low irregular banks, with intervening patches and glades of Grass, and a lake-like piece of water on the right, which is very varied in its outline, and has a large island, chiefly clothed with shrubs, in the centre.

The whole of this region is principally devoted to Rhododendrons and other "American" plants, which are here gathered together in great abundance, and form the most luxuriant groups. Kalmias, Andromedas, Gaultherias, Menziesias, Rhododendron ferrugineum and hirsutum, Epigæa repens, and many other beautiful plants of this tribe, are clustered about in sufficient masses to produce breadth of effect, and to give a true idea of the habit and character of each kind; while the larger-growing Rhododendrons form the staple of the plantations. Cotoneaster affinis grows in this part to a considerable size; and, in ordinary seasons, produces its bunches of handsome coral-like berries with great freedom. The Kilmarnock Weeping Willow occurs several times on the island, and is a plant of striking appearance, from the unusual size of its leaves, but its extremely pendent habit presents a degree of rigidity and formality which is not altogether pleasing. The red-flowering Chesnut, too, is rendered very telling on the island, where there is a group of it, by the peculiar dark green of its autumn foliage.

On that side of the water nearest the house there is a collection of Berberries in one of the clumps. Berberis dulcis is very strong and fine; and several plants of it being brought together, it must be a conspicuous object when in bloom. B. Darwinii, also, which is an extremely neat and elegant little shrub, has several square yards of a border allotted to it.

Keeping to the line of the walk, as it proceeds towards the house, we find ourselves separated from the high road by only a narrow bank of evergreens, but these are so dense and massive that the road is completely excluded. Common Hollies form the principal part of the screen, and their natural picturesqueness is considerably heightened occasionally by broad masses of old Ivy scrambling over them, and (in October, when the place was seen) beautifully clothed with flower. This Ivy is an evidence of the extreme care with which they were transplanted, as it was growing upon them in the hedge-rows from which they were taken.

The steep bank between the high road and the pleasure grounds has its surface covered in parts, by way of relief, with masses of Irish Ivy; and to lift this a little off the ground, display it to better advantage, and produce some amount of diversity, old roots and stumps of trees are now and then employed, by clinging to which it assumes a greater variety of picturesque shapes. With a judicious disregard of petty criticism, Mr. Bateman has, in some instances, inserted the stems of old trees in the ground, and left all the larger roots spreading out from what thus becomes the top, at 8 or 10 feet from the surface. And though these inverted trees look somewhat ridiculous at first, they are, when clothed with Ivy, so exceedingly pleasing, and exhibit the trailing character of the Ivy so favourably, that their temporary bareness and peculiarity may be freely submitted to. The Parsley-leaved Bramble is another plant which, scrambling wildly over other clumps of roots on this bank, produces a decided mass of singular and interesting foliage.

An effect which is at least curious is obtained by attaching a canopy of thatch—a thatched roof in fact—to an old tree on the lawn by the side of this walk. The thatch is immediately overhung by the branches and foliage of the tree, and affords a convenient sheltering place from either rain or sun, as there is a seat round the trunk of the tree.

The Rhododendron ground, and the walk by which it is traversed, terminate at the house, beneath the library window. The space devoted to this charming tribe is very considerable, and the collection unusually rich. When the whole of the plants are blooming, about the end of May or the beginning of June, the place must present a most gorgeous appearance; for one peculiarity of the collection is that the bulk of the plants are of the rarer and better sorts, the common hybrids of R. ponticum being introduced quite sparingly as compared with the others.

But the Rhododendron department does not end with the walk just described. It is continued, and embraces a distinct section of the class, in a little romantic rocky hollow called "the Glen," which is entered from the main walk by the almost imperceptible side path near the tunnel previously referred to. Indeed, there is a propriety in the indistinctness of this minor path, for it leads, by a broken track, and sometimes over stepping stones across a small stream, through the secluded little dell now to be noticed, and in the recesses of which, by the bed of the streamlet, various aquatic and marshy plants find their home, while the nooks and interstices of the rocks piled around its sides afford the happiest points for a very complete series of the Sikkim and Bootan Rhododendrons.

Mr. Bateman has been so singularly successful in providing places for this uncommon group of plants, and has so many of the species under cultivation, that it will no doubt be acceptable to other growers to receive the list of his plants, and his statement respecting them, as it has been kindly communicated. He says: "The following Sikhim and Bootan Rhododendrons have stood without protection during the last winter, and most of them for the *two* last seasons:—

From Sikhim.	*From Bhotan.*
Rhododendron Falconeri	Rhododendron eximium
" Hodgsoni	" Hookeri
" ciliatum	" Windsai
" Thomsoni	" leucanthum
" fulgens	" Kendricki
" lanatum	" Shepherdi
" niveum	" Jenkinsi
" æruginosum	" Keysi (this literally growing like a Willow, making shoots two feet long, but not yet attempting to flower).
" Wallichi	
" Wighti	
" campanulatum	
" robustum	
And several common species.	

"The above are all planted against perpendicular masses of rock facing the north, and most of them in damp and dark situations, screened from every wind; such being the conditions in which Dr. Hooker (in his Himalayan Journals) describes these plants as most luxuriant in their native habitats. Such an arrangement has the further advantage in this climate of retarding their growth in the spring, for all are of an excitable nature, and therefore liable to be injured by late frosts. A marked improvement has, however, been noticed in those species that have stood out during two winters; these having, to a considerable extent, accommodated themselves to circumstances, and exhibited less disposition to make an early growth than was the case after their first winter. R. eximium may be taken as a case in point. Of two specimens of the same size, one was turned out in the summer of 1854, the other in 1855. The former was seriously injured by a late frost last year; but this season did not commence its growth until after the occurrence of a severe frost, which damaged the one that had been planted last. The plant turned out in 1854 has made magnificent leaves this year.

"Besides the species already enumerated, all of which occupy sheltered situations, there are other Sikkim Rhododendrons, such as R. glaucum, R. setosum, R. lepidotum, R. anthopogon, &c., which, being naturally found at a much greater elevation, are planted here on higher and more exposed ledges of rock, where they seem to thrive in company with R. hirsutum, R. ferrugineum, &c. R. lepidotum, R. setosum, and R. glaucum have already flowered. R. anthopogon makes itself perceptible at a distance by diffusing that extremely pungent and disagreeable odour which, in the extensive tracts covered with the species in the higher regions of the Himalayas, causes (according to Dr. Hooker) such violent headaches to the unfortunate traveller. That rare and singular plant, Rhodothamnus Kamchaticus, occupies a dark crevice between two masses of rock, where it grows freely, but has not yet flowered. Rhododendron californicum, introduced by Messrs. Veitch, has proved itself perfectly hardy, and promises to be a great acquisition.

"Among the innumerable hybrids raised of late years (and of which there are specimens here of nearly all the best varieties), Rhododendron Paxtoni stands conspicuous in its singularly large and wavy leaves, which give the plant a very handsome appearance."

There is a high degree of naturalness, and therefore of artistic excellence, about the treatment of this interesting little glen. It has sufficient depth and narrowness to render it perfectly secluded, and to impart a certain amount of that dampness and shade which should belong to it. The outlines of the rocks are so very irregular that it is impossible to see more than a portion of it from any one point. A running stream of clear water issues from the rocks on one side, and taking a very sinuous course among the stones, passes out through a more open and sedgy channel, this being the connecting stream between the upper pool in the Chinese garden and the larger lake before mentioned. The paths through the hollow, and others which enable the visitors to examine the various plants up the banks, are so inartificially contrived and conducted that we step from stone to stone (all of them being tolerably flat, however) without any conspicuous track obtruding itself, and yet without room for doubt as to our pursuing the right route. One of these paths leads to the very summit of the highest eminence,

where there is a seat and a fine prospect of the outlying country; and, what is a still greater merit than any yet recounted, the numberless stones are all piled together on their natural bed, and there is nothing whatever to be seen of the usual rock-builder's trick of standing stones on their edges or their ends for the sake of giving prominence to any point, or producing a greater ruggedness of surface.

By the margins of the rocky streamlet through the glen, a nice collection of half-aquatic and marsh plants is arranged, and some moist spots are specially provided for the many pleasing bog plants of Ireland and Wales Here are various kinds of Reeds, Sedges, the Chinese Grass (Acorus japonicus), the Pampas Grass, the New Zealand Flax, Bambusa Metake—a hardy and pretty Bamboo, the double-flowered Sagittaria, the Water Dock, the charming little bog-loving Pinguiculas, and a great number of other interesting plants, including some of the bolder forms of Fern, for which the shade and moisture are particularly suitable. In truth, here as elsewhere throughout the place, the greatest possible peculiarity of condition is introduced, not merely for the sake of additional variety (though that has been one element of consideration), but to furnish a congenial abode for that wondrous multitude of curious or ornamental plants to which such circumstances are naturally incident. *E. K.*

(To be continued.)

Miscellaneous.

Respiration of Nelumbium.—On watching a little pool of water, on the Lotus leaf thin films of air will be seen leisurely to arise—at first barely swelling above the surface of the leaf itself, to which they seem to adhere with some tenacity. The water flowing over them, by the reflecting light from its under surface, shows the area over which the air is emanating, the form it is assuming as it grows in volume, when increasing in depth from the crest down till it becomes detached in the shape of bubbles, disengage themselves, and rising to the surface. From 15 to 30 seconds is usually occupied in this, and the bubbles rise promiscuously, commonly at intervals of 2 or 3 inches from each other over the whole surface of the leaf. I have endeavoured to ascertain whether there be any particular circumstances or specific time when respiration goes on with greater or less activity, but have been unable to arrive at any trustworthy conclusion on the subject:—it seemed more active about two hours after sunrise—least so in the evening. I have not managed to collect the air respired from the surface of the leaf, but have obtained it in abundance from the leaf-stalks freshly cut across. From this it rushes out for days on end in a continuous succession of bubbles, which obviously come from the larger air vessels, and are in volume proportioned to the size of the apertures from which they emanate. These air vessels, as already observed, have no direct visible communication with the water or atmosphere anywhere: they are cut across half a dozen of times at least by septa, and are entirely closed up at the root joints. Yet the vast volume of air discharged by them must either have been extricated directly from the water, or be the produce of the respiration which I have supposed possible through the lower portion of the leaf. The phenomenon is peculiarly manifest where the leaf continues healthy and strong, while some one or more of the air vessels have become eaten through by the little water snails (*Paludinæ*), which browse on them with such avidity. In this case it continues rising for hours in a continuous rush of bubbles. These proceed from the larger vessels alone, all of which on reaching the leaf pass on to a complex air chamber in its upper surface, from which numberless vessels are seen to extend themselves in all directions through the leaf. These doubtless afford those air bubbles, to be seen in such abundance when the leaf is itself submerged under or covered with water. Just within the outer coating of the leaf stalk are systems of vessels, around the inner circuit the stalk filled with milk, and each provided with a spiral. As the lower side of the leaf is neared, a portion of these expand themselves into air tubes, and in this fashion enter the ribs of the leaf—a portion of them enter, but do not alter or expand, apparently feeding the leaf with milk. This is to be met with in abundance wherever it is cut, especially so near the centre. Each rib contains two large air ducts or channels, affording a triangular section, as represented in the diagram. They contain air only, of what description I am not aware. However often the main ribs branch off, the double channel is maintained both in the principal and secondary, and in both are, from time to time, cut across by partitions or septa, the nature and mechanism of which I have not yet ascertained. These air chambers are like the large tubes, the stalk, inclined here and there with papillæ, presenting to the unitiated eye the appearance of hairs. Unfortunately I have neither had time enough nor a glass of sufficient power at my disposal to come to any satisfactory conclusions as to the more minute portions of the anatomy of the leaf. I offer the following with the greatest hesitation, and as pure conjectures, the facts ascertained being comparatively few—many of them assumed as such, still requiring to be established. It is beyond doubt that all the larger tubes in the root and stalks are air vessels only, and conduce mainly, if not exclusively, to the functions of floatage or respiration. A single stem of one-third of an inch in diameter, containing air vessels of a sectional area of not more than one-fourth of this,—or say—two-tenths of an inch square, even where the leaf is cut off, and the natural energy of exhalation fails, have been ascertained by experiment to discharge 33 cubic inches of air hourly—the velocity with which the column advances must be at the rate of 20 feet an hour. This, considering the mass of the plant, is equal to the entire aerial circulation of many of our warm blooded animals: and the Lotus must needs have been warm were the decomposition of the oxygen in circulation to obtain which takes place under the ordinary economy of respiration. This much is fact: what follows is question or conjecture. The air thus projected upwards to all appearance circulates in the upper surface of the leaf, and is in whole or in part thrown off. What is the function of the 38 large air vessels in the principal ribs, &c., connected with the lacteals, having no visible connection with the larger air vessels? Do they send air forward also; and if so, whence is it derived? The lacteals, which expand at their base, to all appearance contain no free gaseous matter whatever—are they respirants drawing vital air either from the water on which they float, or re-conveying the defected portion of that which makes its way through the large tubes through the upper surface, and thus oxygenising the lacteals which feed the plant? The hypothesis seems not without plausibility: it is hazarded to challenge an inquiry of very great interest, which want of leisure permits me not to pursue. The whole plant seems as remarkable for the beauty and richness of its internal structure as it is for that of its external hue and form. *Dr. Buist's Notes on the Lotus.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—The stock of plants to bloom at Christmas, consisting partly of stove plants grown for the purpose, and partly of forced shrubs and bulbs, should now receive some attention, particularly the latter, which should be undergoing a slight amount of forcing to get them into bloom by that time. Chinese Azaleas and Oranges may be assisted by a little extra heat, being careful, however, to apply it gradually. At the same time, if a forcing house is at command a portion of the stock of Roses, Lilacs, Syringas, Deutzias, and other hardy shrubs from the reserve pit may be placed in the cool end of it, or in a light situation in an early Vinery or Peach house; if they can be afforded a slight bottom-heat all the better. A few of the more easily forced American plants, including some of the earliest flowering Rhododendrons, should be added; they will greatly enhance the display in January. Bring forward Hyacinths and Early Tulips in a gentle bottom-heat. Double Roman Narcissus, Crocuses, Neapolitan Violets, Mignonette, and Cyclamens, bloom early without much forcing, and answer best placed on shelves at the back of Vineries to catch every ray of light, and to insure them from damp.

FORCING DEPARTMENT.

Pineries.—Plants in bloom will require very careful management to prevent their being injured by damp, and the atmosphere must be kept dry, with a rather brisk temperature, admitting a little fresh air on every favourable opportunity; if means exist of admitting air over the pipes, so that it may get warmed before coming in contact with the plants, a little should be admitted constantly. Plants in bloom should also be near the glass, and where they will catch every ray of sunshine. It is nearly impossible to get fruit to swell anything like properly at this season; therefore unless a succession of ripe fruit is indispensable, and cannot be secured except by driving plants that bloomed late in autumn, these had better be kept rather quiet until the sun gains a little more power. Where an attempt must be made at present to get fruit to swell, a moist warm temperature of about 70° at night and 75° by day must be maintained, allowing it to rise to 80°, with the assistance of sunshine, and the bottom-heat must be kept regular at about 85°, taking care to keep the soil in a healthy state as to moisture. But it is difficult to get the fruit to make much progress at present, and a little time lost now will be easily overtaken in spring when the plants will enjoy a high moist temperature, and the fruit will increase more in weight in one month then than in two at present.

Vineries.—As soon as the early house is closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of the syringe or evaporating pans. The most essential point however in successful early forcing is securing a healthy and vigorous root action, and unless this is provided, the best and most careful management of the atmosphere will be of but little importance.

FLOWER GARDEN AND SHRUBBERIES.

The beds being now filled with spring flowering plants, a regular cleaning up of Grass and gravel walks should take place in order that the whole may have a neat appearance through the winter; if the walks are much soiled a surfacing of fresh gravel should be spread over the principal ones in connection with the flower garden, which will keep up a degree of freshness at a season when good keeping and neatnest are the only equivalents for floral beauty that can now be offered. The stock of cuttings and newly potted plants will require care to prevent them from damping off; a good plan is to raise the sashes up at the back and front, and to let them remain in that condition. As the weather may change suddenly, be prepared with plenty of covering material for use when wanted.

HARDY FRUIT AND KITCHEN GARDEN.

A good stock of roots should always be kept at hand in the vegetable shed. Carrots, Parsnips, Turnips, Jerusalem Artichokes, Horse-radish, Beet, Scorzonera, and Salsafy should be thus kept in readiness for use. If the vegetable shed is, as it ought to be, several feet below the ground level, and have a close fitting door, the above named vegetables may be merely laid in heaps. If, however, they are likely to shrivel, store in layers of clean sand.—Let all remaining Cabbage plants still in the seed beds be pricked out forthwith. If time will permit Rhubarb, Seakale, and Horse-radish may be planted now instead of in spring. In all these cases be sure to trench deeply, and loosen the bottom of the ground on the subsoiling principle. Some early frame Radishes may be sown in a week or so. Some plant Kidney Potatoes now on raised beds. In such cases soil them 6 inches deep and sow early Radishes on the surface. The straw covering necessary protects both crops. If not already done let Figs be protected immediately with straw coverings. Let all superfluous nails be drawn from wall trees, and proceed on every favourable opportunity with pruning and nailing, except perhaps in the case of south walls which had better remain till the end of January, as the buds are apt to become unseasonably excited.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Nov. 20, 1856, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 14	17	30.066	29.849	42	25	33.5	44	47	N.	.00
Satur. 15	18	30.040	29.989	43	23	33.0	43	46½	W.	.12
Sunday 16	19	30.249	30.130	47	22	34.5	41	46	N.	.00
Mon. 17	20	30.156	30.108	46	26	36.0	41	45½	N.	.02
Tues. 18	21	30.160	30.042	53	33	43.0	43	45½	N.	.08
Wed. 19	[illegible]	30.075	30.025	51	38	44.5	45	45½	N.W.	.02
Thurs. 20	23	30.082	29.989	53	36	44.5	47	45½	N.W.	.01
Average ..		30.109	30.019	47.8	29.0	38.4	46.4	46.1		.15

Nov. 14—Clear; cold and dry; fine
— 15—Frosty; white clouds and deep blue sky in intervals; rain.
— 16—Clear and frosty; fine; foggy at night.
— 17—Foggy; fine; foggy; slight rain at night.
— 18—Slight fog; very fine; cloudy; rain.
— 19—Rain; very fine; cloudy.
— 20—Densely clouded throughout; clear at night.
Mean temperature of the week 3 1 5th deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 30 years, for the ensuing week, ending Nov. 29, 1856.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 23	47.4	34.9	41.2	13	0.36 in.	—	5	3	1	4	10	4	3
Mon. 24	47.3	32.8	40.0	10	0.50	5	5	2	2	3	7	3	3
Tues. 25	46.2	33.0	39.6	15	0.34	4	4	3	3	4	7	2	3
Wed. 26	46.7	33.0	39.8	14	0.70	1	4	6	1	3	11	1	3
Thurs. 27	46.2	35.3	40.7	12	0.88	1	4	4	1	4	9	4	3
Friday 28	48.0	36.1	42.0	16	1.21	2	3	2	2	8	5	5	3
Satur. 29	47.8	34.8	41.3	16	0.56	4	1	4	3	4	10	3	1

The highest temperature during the above period occurred on the 28th, 1848—therm. 60 deg.; and the lowest on the 29th, 1846—therm. 16 deg.

Notices to Correspondents.

Books: *Propagator.* Sweet's Hothouse and Greenhouse Propagator. Any bookseller will tell you the price.—*J C.* Apply to Mr. Cuthill, Denmark Hill, Camberwell.‡—*Hippo.* Rivers' pamphlet on Orchard Houses.

Camellias: *F H S.* The seedlings received from Florence are of very great interest; they will be given to *all* Fellows of the Horticultural Society who may ask for them; but they will not be ready for distribution before next midsummer.

Cyclamen Atkinsi: *E G.* It should be potted in light sandy loam, leaf-soil, and peat, and grown in a cold frame or cool greenhouse.‡

Gooseberries: *Const. Reader.* If you prefer flavour to size, the following varieties will answer your purpose—Red: Red Champagne, Red Warrington, Keens' Seedling, Rough Red, Red Turkey, Rob Roy, Ironmonger. White: Woodward's Whitesmith, Early White, White Fig, Taylor's Bright Venus, White Honey. Green: Early Green Hairy, Hebburn Green Prolific, Pitmaston Greengage, Green Walnut. Yellow: Rumbullion, excellent for bottling; Yellow Champagne. Four large sorts may consist of Thumper, London, Leader, and Catherine, some of the fruit of which have been found to weigh upwards of 32 dwts.‡

Heating: *Inquirer.* You will find further explanation from Sigma in another column. All three of the fruits you name do equally well on a wall or standard.—*W D M.* A saddle boiler is not the best for a small house. You had better employ some conical one.‡

Hogg's Edging Tiles: An unauthorised use of Dr. Lindley's name has been made by Mr. Blacket, who advertises these objects. Their real nature we shall point out next week.

The Lily of Scripture: *A Devonian.* Not the Crown Imperial, but Lilium chalcedonicum.

Manuring: *J T H.* On no account manure in winter "vegetables" which are intended to be eaten, or at this season, unless it be Asparagus for next year's cutting.

Medical Plants: *J D.* Much is superstitious, much traditional, much false. We cannot be concerned in propagating either the first or last. Such as have any value can only be illustrated by figures. Perhaps we may one day set about sifting the truth out of the chaff of the matter.

Names of Fruits: *Sub.* 1, Royal Russet; 2, Cockle Pippin; 3, Reinette du Canada; 5, Early Nonpareil; 8, Downton Nonpareil; 12, Court of Wick. Pears: 4, Glou Morceau; 5, Beurré Rance; 6, Ne Plus Meuris; 8, Doyenné Blanc; 10, Beurré Diel.‖—*A C.* 1, Early Nonpareil; 2, Golden Reinette; 3, Cornish Aromatic.‖—*R.* No. 3 appears to be the White Costin. The others which you state are from very large old trees are not known. Probably the trees have never been grafted, certainly not with any of the good old sorts. No 2 in particular is of very inferior quality.‖

Names of Plants: *W D F.* Mespilus grandiflora; a sort of Medlar—not at all like a Service. Mulberry, next week.

Practical Lessons in Botany: *A Friend.* Study Prof. Henslow's Papers very carefully. Perhaps they may be some day published separately, but not at present.

Weeds: *J T H.* Force them out of the ground by a good spud or iron hand claw. Actual cautery! how is that possible except in a solitary case or two.

Washing Machine: *A Constant Subscriber.* In another column is a reply to your inquiry from the very place you name

Misc: *J K.* Will you favour us with your address?

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The Gardeners' Chronicle Newspaper.

SATURDAY, NOVEMBER 22, 1856.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains designs and prices of 150 different articles of BED-ROOM FURNITURE, as well as of 100 Bedsteads, and prices of every description of Bedding. Sent free by post.—HEAL & SON, Bedstead, Bedding, and Bed-room Furniture Manufacturers, 196, Tottenham Court Road.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9*l.* 10*s.*; bright, 14*l.* 5*s.* and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.* Bronzed fenders, with standards, 7*s.* to 5*l.* 12*s.*; steel fenders, 2*l.* 15*s.* to 11*l.*; ditto with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.* Fire-irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.*

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 20*l.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1 4 6
Chintz furniture	0 14 0
Paillasse, wool mattress, bolster, and pillow ...	1 11 0
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News of the Week.

Mr. BUCHANAN has been elected President of the United States, by a majority of 38 over Colonel FREMONT in the electoral vote, and by a majority of 155 over Mr. FILLMORE, who only obtained 8 votes from Maryland, the only State which voted for him in the electoral college. Deducting these 8 votes, the absolute majority obtained by Mr. BUCHANAN was 30, a very small majority compared with that of 212 obtained by Mr. PIERCE in 1852. If the election had depended on the popular vote Colonel FREMONT would have been elected by a large majority obtained exclusively from the Free States, all the Slave States having given their popular votes in favour of Mr. BUCHANAN, with the single exception of Maryland, which divided its votes between Mr. BUCHANAN and Mr. FILLMORE. In the Free States Mr. BUCHANAN obtained 348,294 popular votes, and 108,435 in the Slave States, making together 456,729; Colonel FREMONT obtained 554,187 in the Free States alone, and Mr. FILLMORE obtained 199,934 in the Free States, and 26,192 in the Slave States. Colonel FREMONT therefore had a majority of 97,458 popular votes over Mr. BUCHANAN, and a majority of 328,061 over Mr. FILLMORE, his absolute "plurality" in the Free States being 205,893, while that of Mr. BUCHANAN in the Slave States was 82,243. Of the result of this election it is at present difficult to speak. Mr. BUCHANAN'S confidential organ in the Southern States declares that the programme of his policy will comprehend the admission of Kansas as a Slave State, the reduction of the whole of Central America to a slaveholding confederacy under General Walker, a descent from Nicaragua upon Cuba and the West India Islands generally, the re-establishment of slavery in those islands where it has been abolished, and the annexation of the whole group to the Union. On the other hand, it is believed in quarters likely to be well informed and free from the influence of party, that Mr. BUCHANAN'S policy as President of the United States will be widely different from that which he deemed expedient as a candidate for that high office.

Home News.

THE COURT.—The Queen, Prince Albert, and the Royal family continue at Windsor Castle. On Thursday evening the 13th her Majesty received by electric telegraph intelligence of the death of the Prince of Leiningen, which took place at Wald Leiningen, on the morning of that day. Immediately after the receipt of the news her Majesty and Prince Albert visited the Duchess of Kent at Frogmore. On Friday morning the Queen and Prince Albert again visited the Duchess of Kent. On Saturday the Queen and Prince Albert walked in the Home Park, and visited the Duchess of Kent. On Sunday morning the Queen and Prince Albert, the elder members of the Royal family, and Prince Frederick William of Prussia attended Divine service in the private chapel of the Castle; the Dean of Windsor officiated. On Monday morning the Queen and Prince Albert walked in the grounds adjoining the Castle. The Princess Royal and Princess Alice walked in the Home Park. Prince Arthur and the Princesses Helena and Louisa took a carriage drive. Prince Frederick William of Prussia went out shooting. On Tuesday the Queen and Prince Albert walked in the Home Park, and visited the Duchess of Kent. Prince Frederick William of Prussia visited the Duchess of Cambridge at Kew. On Wednesday morning the Queen and Prince Albert walked in the gardens of the Castle. The Princess Royal walked in the Home Park and visited the Duchess of Kent. The Princess Alice also walked in the Home Park. The Princesses Helena and Louisa and Prince Arthur took a carriage drive. Prince Frederick William of Prussia went out shooting. On Thursday morning the Queen and Prince Albert walked in the Home Park and visited the Duchess of Kent. Prince Arthur and the younger Princesses took a carriage drive. The Duchess of Atholl has succeeded Viscountess Jocelyn as lady-in-waiting, and General Sir Edward Bowater has succeeded the Hon. M. Sackville West as groom-in-waiting to her Majesty.

PRINCE ALFRED arrived at Heidelberg on the 10th inst. with his tutor and attendants, and remained there two days, after which he continued his journey by way of Constance to Geneva, where he arrived on Monday.

COURT MOURNING.—Orders were issued on Tuesday from the Lord Chamberlain's Office for the Court to go into mourning on Thursday the 20th inst., for the late Prince of Leiningen, to change the mourning on the 27th, and to go out of mourning on the 4th December.

THE CABINET.—A Cabinet Council was held on Monday, and was attended by all the Ministers. Another Council was held on Tuesday, and another was held yesterday.

THE PERSIAN EXPEDITION.—Sir James Outram, K.C.B., left Southampton on Thursday for Bombay, in order to take the command of the British force destined to operate against Persia.

THE CHURCH.—The ceremony of confirming the election of Dr. Tait as Bishop of London took place on Thursday in St. Mary-le-Bow Church, Cheapside. The consecration of the new bishop will take place to-morrow in Whitehall Chapel, when the sermon will be preached by the Rev. G. E. L. Cotton, master of Marlborough College.—The confirmation of Dr. Longley, as Bishop of Durham, took place yesterday in York Cathedral.—It is said that the Bishop of Rochester contemplates the resignation of his see in consequence of ill health.

THE ARMY.—Major General Sir J. H. Schoedde, K.C.B., has been appointed Colonel of the 2d. Foot, in the room of the late Sir J. Rolt.

BOARD OF INLAND REVENUE.—Mr. Pressly has been appointed chairman of this Board in the room of the late Mr. John Wood; Mr. Herries has been appointed deputy-chairman; Mr. Keogh the chief secretary and Mr. Dobson the chief clerk of the Excise department, have become members of the Board.

THE GERMAN LEGION.—The steam troopship Vulcan, the freight ships Covenanter, Stamboul, Forerunner, and Abyssinian, have left Portsmouth this week with detachments of the German Legion for the Cape.

THE EDUCATION QUESTION.—A Conference took place at Manchester on Wednesday, at the suggestion of Mr. Cobden, between Sir John Pakington and the principal gentlemen connected with the rival schemes of education originating in that city. The gentlemen present were Mr. Bazley, who presided; the Revs. Canon Clifton and Dr. M'Kerrow; Messrs. H. J. Leppoc, J. A. Nicholls, R. Gladstone, P. Bunting, R. W. Smiles, and C. H. Minchin. The following were the points on which agreement was arrived at, with the understanding that none of the parties with whom the gentlemen present respectively acted or had acted, were to be held committed to them:—

"1. That it is desirable to impose a rate for the support of popular instruction in Manchester. 2. That all schools deriving aid from the rate shall be subject to inspection, but such inspection shall not extend to the religious instruction given in such schools. 3. That all schools shall be entitled to aid, provided the instruction, other than religious, shall come up to the required standard, and that no child shall be excluded on religious grounds. 4. That the distinctive religious formularies, where taught, in schools connected with the different religious denominations, and receiving aid from the rate, shall be given at separate hours, to be specified by the managers, to facilitate the withdrawal of objecting children. 5. That there shall be no interference with the management of the schools."

Foreign.

FRANCE.—The Swiss General Dufour has arrived in Paris, charged by the Federal Council with a mission to the French Government relative to the difference between Neufchâtel and Prussia. The Russian squadron arrived at Cherbourg on the 12th, on its way from the Baltic to the Mediterranean. It was composed of the Wiborg line-of-battle ship, bearing the flag of Admiral Behrens, and the Polkam and Kastor frigates, and has since been joined by the brig Philoctète. On entering the port the usual salutes were exchanged. The *Assemblée Nationale*, which is supposed to be the organ of both the Orleanist and Legitimist parties, contains an article headed "Let us be the Allies, and not the Tools of England," in which the theme of English aggression and perfidy is treated with more than the usual amount of bitterness, and the

alliance of Russia covertly recommended. The following is an extract from the article, which is too long to quote entire :—

"There does not exist an Englishman who is not firmly convinced that his country is destined to govern the whole world. In the midst of all our political changes, of all the double-shuffles and weathercock twists of our home policy, let but the Foreign Office give the word, and every person, from one end of the British empire to the other, is suddenly found precisely of the same mind with regard to what should be done abroad ... Never in any opera have the scenes been more suddenly shifted than has British policy—to-day Liberal, to-morrow Absolutist—now taking the part of nationalities, and now ready to oppress them—in turn encouraging and interdicting religious propagandism—humble towards the strong, and insolent towards the weak—the ally of all Powers and all rebellion, according to the interest of the year, the day, and of the hour even. Still, whether just or unjust, right or wrong, the acts of the Government as respects foreign nations find a united phalanx to support them. One might imagine that England had borrowed from the two great rivals of antiquity their distinctive characteristics. Carthage has bequeathed her Punic faith, and the oracle written by Virgil on the cradle of the people's King has been taken for her motto: 'Tu regere imperio populos, Romane, memento.' It is this desire, this thirst of dominion and universal preponderance, which is the cause of the feeling of union which exists between the people and the Government of England; and, although there is much in English history which merits eternal condemnation, we cannot help admiring the harmony which is thus able to resist all the chances and changes of political life. Indeed, we not only admire it—we would wish to inoculate France with it."

SPAIN.—The state of siege was raised on Saturday throughout Spain by Royal decree. Negotiations are in progress for effecting a fusion between the Carlist Princes and the reigning branch of the Spanish Bourbons. The *Gazette* publishes a Royal decree giving fresh sanction to such sales of Church property as were effected before the decree of suspension. A report has been current at Madrid that Senor Bravo Murillo was about to be appointed Minister to London. It is however considered highly improbable that the Spanish Government can contemplate such a step, as it was Senor Bravo Murillo by whom the scheme for the confiscation of the overdue dividends on the foreign debt was concocted and carried out. Queen Christina has passed through Marseilles on her way to Rome.

MADEIRA.—In spite of the prompt and charitable aid rendered by the British Government and people to the inhabitants of Madeira during the late visitation of cholera, the Church authorities of Funchal still cherish their old principles of bigotry against Protestantism. Rita Gomez, a Portuguese Protestant, died at Funchal towards the end of last month, and the Roman Catholic authorities having refused permission for interment, the body was thrown into the sea.

DENMARK.—A rumour is current at Copenhagen that King Frederick VII. has serious intentions of abdicating and of retiring to Switzerland with the Countess Danner, his morganatic wife. Should this design be carried into effect, Prince Ferdinand, who has been just restored to the command of the army, will succeed to the throne. A Danish company has obtained a concession for a submarine telegraph from the island of St. Thomas in the West Indies to the United States, Mexico, and the islands in the Gulf.

BELGIUM.—A marriage is announced between the Archduke Maximilian, brother of the Emperor of Austria, and the Princess Charlotte of Belgium, daughter of King Leopold, and first cousin of Queen Victoria. The Prince is 24 years of age, and the Princess not 17.

SWITZERLAND.—The mission of General Dufour to the Emperor of the French is considered a pledge that the Neufchâtel question will be amicably solved. It is believed that if the prisoners are released, the King of Prussia will not be exacting as to the conditions under which his sovereignty over the canton is to be acknowledged.

NASSAU.—Some hope was entertained in Germany that the example set by Prussia of abolishing the gaming-tables would be followed by the minor states of Germany. A Nassau paper, however, announces that the duke has concluded a contract with a Berlin house for the Wiesbaden tables from the year 1857 to 1872, giving them also an additional month in the year to carry on their trade. The lessees engage to pay 10,000 florins a year to the support of the theatre, and 50,000 to the musical bands.

BAVARIA.—Very great excitement has been produced in Bavaria by the High Consistory of the Lutheran Church of the Confession of Augsburg insisting on auricular "confession and strict church discipline." The laymen are extremely indignant, and declare that they will not agree to any other than that public confession which is customary at certain stated periods when the clergyman publicly asks his hearers whether they repent them of their sins, and on their replying in the affirmative tells them that God grants remission of their sins to all those persons who sincerely repent. The High Consistory it appears wishes to bring private confession into fashion, and as its members are *employés* of the State, all measures which tend to increase their power are looked on with extreme suspicion.

PRUSSIA.—M. Lindenberg, who was convicted in the affair of the Stolen Despatches, has petitioned the Prince of Prussia for pardon. The Prince has replied that the appeal against the sentence must first be withdrawn, which Lindenberg has just done, and renewed his petition for pardon.

AUSTRIA.—The Emperor and Empress of Austria left Vienna on the morning of the 17th for Italy. They intend to stay three weeks in Venice, but it is doubtful if their Majesties will visit Milan. Sir Hamilton Seymour was the only diplomatist who received a special invitation to accompany the Emperor on this Italian tour. This is the most marked indication which has yet been given of the close alliance between England and Austria. The ill feeling between the Courts of Vienna and St. Petersburg is understood to have undergone no diminution; on the contrary, there is reason to believe that the relations between Russia and Austria have become of a very delicate character, and that the petty vexations to which Prince Esterhazy, the Austrian Ambassador at the Czar's coronation, was subjected at Moscow, have contributed to make matters worse between the two Courts. It is a fact that since the return of Prince Esterhazy the sympathies of the high Austrian aristocracy for Russia have greatly diminished.

ITALY.—The *Révue de Paris* publishes the following curious correspondence. The first is a letter addressed to the present King of Naples by Louis Philippe shortly after the revolution of July, which occurred three months before the accession of King Ferdinand II. The second document is the reply of the King of Naples :—

"It is, perhaps, Providence which once more smiles upon the family of St. Louis that has called your Majesty to the throne of Naples at a time when the storm of revolution has been let loose over Europe. The broken health of his Majesty Francis could not have withstood the repeated shocks which succeed each other, and the end of which God only knows; but I have long heard your Majesty praised for energy and foresight, and I do not doubt that you will happily weather the storm, for your Majesty is under the necessity of resisting at the same time the dangerous insinuations from without which might urge you to an anti-national policy fatal to your interests and to the interests of the people you govern, and the internal pressure which blind passions might exercise upon the free action of your Government. I am acquainted with all the insinuations and severe counsels with which your Majesty is beset to compromise you into a blind line of policy, but I am also sure that your Majesty will display sufficient firmness and foresight not to be led astray. We are in a period of transition, when often a little must be relinquished so that all may not be lost, and it would give me real joy to learn that your Majesty has given up a system of compression and of severity which caused many days of intense agony to your late august father, and which often banished the smile from the lips of the enlightened King Ferdinand I. Let your Majesty imitate the system in France; you will be a gainer in every respect; for by sacrificing a little authority you will insure peace to your kingdom and stability to your house. The symptoms of agitation are so strongly pronounced and numerous in Italy that an outbreak may be expected sooner or later, accordingly as the stern measures of Prince Metternich may hasten or postpone it. Your Majesty will be drawn into the current if you are not prepared to stem the tide, and your house will be burst into either by the revolutionary stream or by the measures of repression the Vienna Cabinet may think fit to adopt. Your Majesty may save everything by anticipating voluntarily and with prudence the wishes and wants of your people; for if the revolution breaks out in Italy, Austria will try to act as absolute mistress, and I shall be compelled to take steps I should wish to avoid at any price; and in this I am sure England, if she does not anticipate me, will not leave me alone, for neither of us can allow Austria to extend her influence over the Italian peninsula. I trust, my dear brother, cousin, and dear nephew, that you will think over the wishes I have the happiness to express to your Majesty, and that you will trust to my experience. "LOUIS PHILIPPE."

"To imitate France, if even France can be a principle, I should have to precipitate myself into that policy of Jacobins for which my people has proved feloniously guilty more than once against the house of its Kings. Liberty is fatal to the House of Bourbon; and, as regards myself, I am resolved to avoid, at all price, the fate of Louis XVI. and of Charles X. My people obey force and bend their necks, but woe's me should they ever raise them under the impulse of those dreams which sound so fine in the sermons of philosophers, and which are impossible in practice. With God's blessing I will give prosperity to my people, and a Government as honest as they have a right to; but I will be King alone, and always. My people do not want to think; I take upon myself the care of their welfare and their dignity. I have inherited many old grudges, many mad desires, arising from all the faults and weaknesses of the past; I must set this to rights, and I can only do so by drawing closer to Austria without subjecting myself to her will. We are not of this century. The Bourbons are ancient, and if they were to try to shape themselves according to the pattern of the new dynasties they would be ridiculous. We will imitate the Hapsburgs. If fortune plays us false, we shall at least be true to ourselves. Nevertheless, your Majesty may rely upon my lively sympathy and my warmest wishes that you may succeed in mastering that ungovernable people who make France the curse of Europe. "FERDINAND."

RUSSIA.—The Grand Duchess Marie, sister of the Emperor, and widow of the Duke de Leuchtenberg, who was mentioned last week as likely to become the second wife of the King of Sardinia, is said to have married, with or without the consent of her Imperial brother, the Count Gregoire Strogonoff, and to have left St. Petersburg with the Count on a tour of Europe. The Emperor of Russia in a letter to General Lüders giving him leave of absence for a year on account of his health, significantly expresses his "hope that if circumstances give occasion to recall him to employment before the expiration of the period named," he will come to resume his duties with the same zeal and alacrity which have hitherto signalised his military career. The Russian organ *Le Nord* has contained of late several articles which are considered on the continent as semi-official manifestoes against England. In one of these it protests, in language which might be suitable had Russia been the victor instead of the conquered, against the conduct of Austria and England, in attempting, single-handed, to enforce the execution of the Treaty of Paris. It says that such pretensions are not to be tolerated; or if they are, then France and Russia, to compel Austria and England to execute their engagements, should send back troops to Turkey and to Kars. In conclusion, it appeals to Europe not to sanction so flagrant a violation of the law of nations. In another article, the *Nord*, indignant at the late vindication of English policy in the *Siècle*, makes the following attack on the part taken by England in the Black Sea, the language of which, it will be observed, bears a strong resemblance to that used by the Orleanist organ in Paris, as noticed in our French news :—

"The reason why *Le Siècle* has had the degrading courage to declare itself the partisan of this insular policy is not a secret—it proclaims itself even to-day: it is simply because it is revolutionary. It likes the English alliance, it flatters it, it wishes to familiarise itself more and more with it, because it hopes to obtain from it the re-establishment of the oppressed nationalities and an European revolution. The questions raised by England are not simply Russian questions, but European questions, and put in peril the very principles of political rights. They perfectly comprehend that an infraction of the treaty of peace, premeditated on the part of England, will give, sooner or later, to Russia the right of supposing itself altogether freed from the onerous stipulations of the same treaty. They comprehend, in fine, that the pretexts put in, in the first instance by England, are but aggravations of the wrong—their futility is so far evident. It appears, in effect, that England is reduced to the necessity of looking out for some cases, however few, to magnify to the public opinion of the continent—such cases even evidencing the fact that the real views have been carefully dissimulated for the purpose of disguising the actual objects at which the parties themselves aim. England would not, of course, countenance those objects if they were clearly unveiled. To arguments she opposes injuries. She replies with bad faith to the appeals made to her fidelity, and combats by intrigue the efforts that are made to bring her to an honourable and pacific understanding. Her policy is a mixture of egotism, of jealousy, of covetousness, of hatred, of audacity, and of falsehood. She goes upon the principle that the whole world was made for her alone; and, indeed, it is said that, in the exuberance of her pride, she sometimes imagines that the world is placed under her exclusive government."

TURKEY.—Accounts from Constantinople to the 9th state that all the Ministers remain in Redschid Pacha's Cabinet except the Grand Vizier Aali Pacha. The speech of Lord Stratford de Redcliffe, and the reply of the Sultan, at the investiture of his Majesty with the Order of the Garter, have been published in the Turkish journals. The Sultan expressed the great gratification he experienced at the fresh confirmation now given to his alliance with England. Sir C. G. Young, Garter King-at-Arms, has received a magnificent diamond-mounted sabre from the Sultan.

THE BLACK SEA.—It is rumoured in Russian circles that, with a view to settle the difference respecting the Isle of Serpents to the satisfaction of all parties, Russia has proposed that the island shall be neutral, and that it shall be placed under the management of a mixed commission, who shall provide for the maintenance of the lighthouse. Two English frigates and a despatch steamer are always at anchor off the island, while another English vessel is continually cruising between it and Odessa—with a view of watching the movements of the Russians, and preventing them from communicating with the island. The garrison consists of 60 Turkish soldiers, who live on good terms with the half dozen Russians, who seem deserted in a corner of the island. The regular service of the lighthouse began on the 15th ult., and the light is exceedingly brilliant.

THE PRINCIPALITIES.—The journals which affirm that Russia is willing to renounce her claim to the Isle of Serpents state that she persists in retaining Bolgrad. The Porte is preparing to fortify Giurgevo, and a camp of 25,000 men will be established in the environs.

SEA OF AZOFF.—An English gunboat has been fired upon by the fort of Yenikalé, at the entrance of the Sea of Azoff. It appears that the Russian cruisers of Abasia having captured many Turkish vessels laden with contraband salt, Admiral Lord Lyons despatched some gunboats to require an explanation of this capture. One of these gunboats, the Badger, was desirous to penetrate into the Sea of Azoff; when the Russians refused her permission to pass the Strait of Yenikalé, and fired upon her.

CANDIA.—The island of Candia seems to have been the centre of action of the recent earthquake. The number of persons killed during the earthquake in the island was 1970, viz., 1400 Turks and 570 Christians. The loss of property is estimated at 250,000,000 piastres.

PERSIA.—The reports of the Persian operations before Herat are extremely contradictory. One account states that the city has been captured, and that the chief Esa Khan and his sons have been put to death and quartered; while another account says that though the Persian general obtained admittance into the fortress, the Affghans afterwards repulsed them with a loss of 1000 dead and wounded, and followed up their advantage and again defeated the Persians in the open field. The success or failure of the Persians appears to be regarded in the light of a party question by the rival factions in Affghanistan, and it is clear that neither of these conflicting reports is to be implicitly relied on. A large corps of Russian troops was moving towards the Persian frontier, in order to maintain Russian influence in the approaching crisis between England and the Shah.

INDIA.—The Indian papers give the following list of the troops and staff destined for the Persian Gulf :—H.M. 64th from Belgaum, the 2d Europeans from Hydrabad, the 4th Rifles, under Colonel Honner, from Poona, 20th N. I. from Belgaum, the Belooch Battalion from Hydrabad, the 3d Cavalry from Rajkote, 200 sabres of the Poona Horse, under Colonel Tapp, from Seroor, and a like number of Sappers and Miners from Poona under Major Hill, Captain Blake's troop of Horse Artillery from Poona, Captain Hatch's Company of the 1st European Artillery from Poona, and Brett's Battery from Kurrachee—amounting in all to about 5000 men. The staff is as follows :—Sir James Outram, K.C.B., Commander-in-Chief; General Stalker, second in command; Colonel Leith, Adjutant-General; Captain Collier, assistant; Major Pope, or Captain Gordon, Lieutenants Grey, Le Strange, and Thain, Assistants in charge of the Commissariat. The Quartermaster-General's Department is under charge of Captain Wray and Lieutenant Holland; the Pay Department under Major Barr, and the Medical Staff under Dr. M'Kenzie. The force, if not very large, is said to be as compact and efficient as need be desired, and quite capable of performing to admiration any task that may be assigned to it.

UNITED STATES.—The Presidential election which took place on the 4th inst. has terminated in the return of Mr. Buchanan. He obtained 163 votes in the Electoral College, while Colonel Fremont obtained 125, and Mr. Fillmore obtained only 8. In the Free States Colonel Fremont had a plurality of 205,893 in the popular vote, and a majority of 74 in the Electoral vote. In the Slave States Mr. Buchanan had a plurality of 82,243 in the popular vote, and a majority of 104 in the Electoral vote. Mr. Fillmore's 8 votes were given by the Slave State of Maryland. It is expected by the Democratic party, who have returned Mr. Buchanan, that this election will decide the fate of Kansas, the preponderance of the slaveholding power, and the extension of slavery into new territories. It also indicates the acquiescence of a majority of the American people in the principles of foreign policy proclaimed by the Ostend Conference, in which Mr. Buchanan took a prominent part. The acquisition of Cuba by almost any means, and the assertion of the "manifest destiny" of the United States as an excuse for their aggressions on other American States, may therefore be regarded as the keystone of the foreign policy of the Union for the next four years. The official programme of the new President, as laid down in his confidential organ, the *New Orleans Delta*, is, after the admission of Kansas as a slave State :—

1. The reduction of the whole of Central America to a slave-holding confederacy under General Walker.
2. A descent from Nicaragua, by Walker, upon Cuba and the West India islands generally, the re-establishment of slavery in those islands where it has been abolished, and the annexation of the whole lot to the Union.
3. The adoption of this policy of slavery extension as the Union-preserving plank in the democratic platform of 1860.

AUSTRALIA.—By the packets James Baines and Lightning we have news from Sydney to the 23d August. The Ministry had resigned, and Mr. Cowper had been charged by the Governor with the formation of a new Cabinet, the principal members of which are expected to be Mr. Plunkett, Mr. Isaacs, Mr. Murray, and Mr. Flood. The elections for the two Houses of Parliament had commenced and there was much political excitement. Ninety members were wanted for both Houses—30 for the Upper House, and 60 for the Lower. Owing principally to the high property qualification demanded of the members there was a dearth of candidates, and there was little or no competition for the Upper House; and even for the Lower House there were several constituencies for which no candidates had presented themselves. In addition to her large consignment of gold, the James Baines has brought from Melbourne 1000 tons of copper and tin ore. This heavy cargo is supposed to have been the cause of her long passage.

City Intelligence.

ARRIVAL OF GOLD.—The packet ship James Baines, which has been some days overdue, arrived at Liverpool on Thursday from Melbourne with 173,539 ounces of gold, valued at 694,156*l.*, being the second largest import of gold by one vessel. The packet ship Lightning arrived on the same day from Melbourne with 140,000 ounces of gold, valued at 560,000*l.*

MONEY MARKET, FRIDAY. — BRITISH FUNDS: Consols for Money, 93⅛; for the 4th Dec., 93¾ to ⅞; Three per Cents. Reduced, 92⅛ to ¾; New Three per Cents., 92⅝ to ⅞; Bank Stock, 215; Exchequer Bills, 1*s.* dis. to 1*s.* pm.; Exchequer Bonds, 98⅜ to 98¾ — FOREIGN: Turkish Six per Cents., 93⅜ to ⅝; Guaranteed Four per Cents., 100⅛ to ¾; Brazilian Old Five per Cents. (Small Bonds), 100¼; ditto, Four-and-a-Half per Cents., 1852, 99; ditto, Five per Cents., 1843, 99¾; Dutch Four per Cent. Certificates, 96¼; French Four-and-a-Half per Cent. Rentes, 92fr, (exch. 25fr. 17½c.); ditto, Three per Cents., 67fr. 25c., and 67fr. 75c. (exch. in each case, 25fr. 20c.); Mexican, for the 28th inst., 22⅜; Russian Four-and-a-Half per Cents. at 96; ditto, Small Bonds, 96½; Spanish Old Three per Cents., 42 to 41¾; ditto, New Deferred Three per Cents., 23⅞; ditto, for account, 23¾.

Bank of England.

ISSUE DEPARTMENT.

Notes issued	£23,536,235	Government Debt	£11,015,100
		Other Securities	3,459,900
		Gold Coin and Bullion ..	9,061,235
		Silver Bullion	—
	£23,536,235		£23,536,235

BANKING DEPARTMENT.

Proprietors' Capital	£14,553,000	Government Securities (including Dead Weight Annuity)	£10,457,969
Rest..	3,254,649	Other Securities	19,014,017
Public Deposits (including Exchequer, Savings Banks, Commissioners of Nat. Debt. and Dividend Accts.)	4,924,785	Notes	3,606,815
Other deposits	10,113,368	Gold and Silver Coin .	623,852
Seven day and other bills	895,831		
	£33,741,633		£33,741,633

28th day of November, 1856. M. MARSHALL, Chief Cashier.

Gazette of the Week.

TUESDAY—BANKRUPTS—B. BAKER, Monckton Combe, Somersetshire, Dairyman—J. FOORD, Dover, Licensed Victualler—W. FOSTER, Birmingham, Timber Merchant—J. HARRISON, Southport, Lancashire, Coffee House Keeper—C. HAWKINS, Strand, Camp Equipage Manufacturer—T. HOWITT, Sheffield, Licensed Victualler—W. HUMPHREYS, Kingswinford, Staffordshire, Innkeeper—M. KAYE, Tottenham Court Road, Hosier—G. K. KING, Brighton, Dealer in Embossing Presses—C. VAN LOHE, Bread Street, Woollen Warehouseman—J. MACKENZIE and S. COTTON, Leeds, Machine Makers—W. C. STUART, Cambridge, Tailor—W. WILLIFORD, Scarborough, Wine Merchant.

SCOTCH SEQUESTRATIONS—G. G. DODDS, Airdrie, Engineer—J. D. HUNTER, Glasgow, Tool Agent—J. MARTIN, Carluke, Lanark, Timber Merchant—A. MUNRO, Tain, Merchant—J. RANKIN, Glasgow, Wine Merchant—A. STEWART, Glasgow, Tailor—A. THOMSON, Portsoy, Banffshire, Miller.

Metropolis and its Vicinity.

THE DRAINAGE QUESTION.—A deputation from the Board of Works, consisting of the chairman, 12 members of the Board, the engineer, and clerk, had a conference with Sir B. Hall on Thursday, as proposed in the recent communication of the First Commissioner rejecting the plan which the Board had proposed for the main drainage of the metropolis. Sir B. Hall read to the deputation a letter from Capt. Burstall, R.N., who had been appointed by the Admiralty, at his request, to survey the Thames and report upon the ebb and flow of the river. The result as stated in the letter showed that the sewage discharged at the point selected by the Board would (during springs) reach the town of Woolwich before it was arrested by the ebb stream, and at the neaps would reach to a quarter of a mile below the Royal Arsenal. Captain Burstall reported further, that the nearest point to London at which the outfall should be made so as at all times to be certain that the fullest proportion discharged at an hour and a half before high water would not flow in or near the inhabited part of the metropolis, is in the upper part of Erith Reach, 15 miles from London Bridge, 7-8th of a mile from Erith Church, and a quarter of a mile below Jermington Point, nearly opposite Rainham Creek. The additional length of drain necessary to be constructed by this outfall is exactly one mile, and the additional portion of river above it thus freed from sewage would be 7-8ths of a mile. For similar reasons Captain Burstall suggested that the outfall at the north should be at Rainham Creek, which would be an extension of 5-8ths of a mile beyond that proposed by the Board. Sir B. Hall informed the deputation that he will be satisfied if these outfalls be adopted, and that he did not think he should be justified in asking the Board to go beyond them; but at the same time they might go to the German Ocean if they liked. The right hon. baronet added, that when the question of outfalls is satisfactorily settled, the course he will take, as a duty towards the public and the Government, will be to submit the plans which may be put into his hands to the consideration of one or two of the most eminent engineers in the kingdom, in order that they may check those plans, and advise him as to whether they embody a scheme which may with safety, propriety, and expediency be undertaken. In explanation of Sir B. Hall's remark about the German Ocean, we may state that at a meeting of the Board of Works on Friday, a letter was read from Sir Morton Peto in favour of a plan proposed by Mr. M'Clean for taking the sewage from West Ham station, in Essex, through the river Crouch into the German Ocean. Sir S. M. Peto says that he is prepared to execute it for a fixed sum, and if the Board will pay 4 per cent. on it, and let him have the manure from the sewage, he will guarantee its being carried out.

THE NEW ENTRANCE TO ST. JAMES'S PARK from Pall Mall next Marlborough House into St. James's Park was permanently opened on Monday, when the following notice was issued by the Duke of Cambridge: "Ordered, that private carriages and hackney cabs only be permitted to pass through these gates, and proceed through the park to the gates at Buckingham Palace.—(Signed) GEORGE, Ranger. Nov., 1856." The thoroughfare to and from Belgravia and Pimlico through the Park will now be free day and night.

HARROW SCHOOL CHAPEL.—Upwards of 4000*l.* having been subscribed towards the completion of this building, the works have now been resumed, and it is hoped that in a year's time the two remaining portions of the design, including a beautiful memorial aisle to the Harrow men who fell in the Crimea, will be ready for use. From 800*l.* to 1000*l.* will still be wanted, if the spire, projected by Mr. Scott, is to be a part of the work.

THE SATURDAY HALF HOLIDAY.—By an order just issued by the Lord Chancellor the registrar's offices of the various county courts in England and Wales are to be closed on Saturdays at 1 o'clock, thus affording several hours' relaxation to the clerks employed.

THE LATE LORD DUDLEY STUART.—Monday being the anniversary of the death of Lord Dudley Stuart, the Polish exiles assembled at Sussex Chambers, St. James's, to commemorate the event by paying a tribute of respect and gratitude to the memory of the departed champion of the Polish cause. Major Giegud occupied the chair. In the course of his speech Major Szulczewski said :—"The whole state of Europe points now, as before, to Lord Dudley Stuart's policy as regards Poland, as the only effectual chronic disorder under which it has been suffering ever since the annihilation of the national independence. An independent Poland upraised again between Europe and Russia is the only means of effectually checking her aggressive European policy and her undue influence and power in the West, and is the only basis on which a free Italy and a free Hungary can be permanently established and the equilibrium restored, which will leave no other battlefields open to the nations of Europe than those of peaceful industry and moral and intellectual progress."

LAW AMENDMENT SOCIETY.—At a general meeting of this society which took place on Monday evening in Waterloo Place, Lord Brougham who was in the chair, stated that he had been informed by Lord Lyndhurst that it was not the intention of Government to proceed in the next session of Parliament with Sir Fitzroy Kelly's measure in reference to the Ecclesiastical Courts. This was a subject of much regret, as it was to be feared that any new measure to be propounded by Government would be less effective than that which it would supersede. He had been in correspondence with Sir F. Kelly on the subject, and the council of the society had passed a resolution that it should be referred to a committee to consider and report thereon. His lordship moved that that resolution be confirmed. This was agreed to, and the committee appointed. Mr. Hastings, the secretary, read a report of a committee on law reporting, which suggested that an official record of all judicial decisions should be undertaken by the Government and sold to the public at a moderate price, it being supposed that all expenses of publication would be defrayed by such sale. Mr. Macqueen moved that the report be received. Mr. Serjeant Gaselee strongly protested against Government undertaking such a subject as an official record of judicial decisions. So far from it conducing to expedition it would be far otherwise, and for numerous other reasons he thought such a step injudicious. After some discussion the motion was adopted. Mr. Serjeant Woolrych moved a resolution to the effect that all bills introduced into Parliament ought, after passing through committee, to be referred to an officer for revision and preparation, subject to the third reading, for the public service; and that until the appointment of such officer that society should receive, for the purpose of such revision and preparation, any bill originated by, or under the care of, any member of Parliament who is a member of the society—every effort being made to carry out the utmost economy of language in such acts. The further consideration of this subject was deferred.

CRIME AND CRIMINALS IN THE METROPOLIS.—For some months past London has been labouring under a plague of criminals so accurately known to the police that the Commissioners have actually reported their numbers to amount to 107 burglars, 110 housebreakers, 38 highway robbers, 773 pickpockets, 3657 sneaksmen or common thieves, 11 horse stealers, and 141 dog stealers besides a host of other offenders, not habitually using violence, who swell the number of criminals in London to 16,900 personally known to the police. The most dreaded at the present time are the 217 burglars and housebreakers and the 38 highway robbers, the former carrying on their depredations on private houses to the extent of from 40,000*l.* to 50,000*l.* a-year; the latter garotting people in the streets, and making it dangerous to walk in any but the leading thoroughfares after dark. It is notorious that all these ruffians, who are mostly ticket-of-leave men, carry on their business as systematically as any trade in the metropolis, and that numerous householders have felt it necessary to arm themselves with revolvers, in order to defend their houses and property and enable their families to pass through the dark and long nights of the present winter in ease and security. In consequence of the general impression that the police have hitherto shown themselves unequal to this emergency, a deputation of 18 gentlemen from the parish of Paddington waited upon Sir George Grey on Tuesday, for the purpose of bringing under the notice of the Government the insufficient number of the police force doing duty in that district. The deputation consisted of Mr. Russell, M.P., Mr. Oliviera, M.P., Sir Harry Goring, Messrs. Burslem, Jackson, Halsey, Baylis, Woolsey, and Harwood, Justices of the Peace; and other gentlemen. They laid before Sir G. Grey the details of a variety of outrages against person and property which had not been detected by the police. They stated that the rateable value of the property in the parish of Paddington is 522,570*l.*, the population upwards of 50,000, the streets repaired by the parish 22 miles, besides 10 miles not taken to by the parish, and the annual payment to the police force 10,570*l.* The deputation did not complain of inefficiency on the part of the police individually, but strongly urged upon the Home Secretary the propriety of increasing, without delay, the number of police in the district. Sir G. Grey paid marked attention to the statements brought before him, asked a number of questions bearing practically upon the subject, and promised immediate inquiry. With reference to the ticket-of-leave system it appears from remarks which have recently proceeded from the judicial bench that the operation of the system in this country is about to be very much restricted, and that convicts sentenced to penal servitude have been informed that the whole term of their imprisonment will, as a general rule, be henceforth enforced.

THE GREAT BULLION ROBBERY.—William Pierce and James Burgess, the former for some time employed in the printing department of the South-Eastern Railway Company, and the latter till last week a guard in the service of the Company, were brought before the Lord Mayor on Monday on remand, charged with having been concerned in the robbery of 15,000*l.* worth of gold from a package in its transit from London to Paris, in the month of May, 1855. It appeared from the evidence that the robbery was committed with great deliberation and adroitness, and that four persons were concerned in it; the two prisoners, a man named Edward Agar, who is a witness on the part of the Crown, and a fourth person, named Tester, who at that time was employed as a clerk in the office of the Railway Company, and who is not at the present moment in England. Of the four accomplices, therefore, Agar was the only one not in the service of the Company. He is now a convict at Portland, undergoing a sentence for forgery, and is in other respects not unfamiliar with crime, and one of a class who are engaged systematically in the commission of what are called large offences. The way in which the discovery of the robbers was

brought about was somewhat remarkable. Agar at the time the offence was committed was living with a young woman named Fanny Kay, by whom he had a child, now about two years of age. After the robbery had been carried out Agar was apprehended on the charge of forgery, whereupon he left the woman Kay and his child and about 7000*l.* worth of the booty in the charge of his accomplice, Pierce. But Fanny Kay had a quarrel with Pierce, who turned her and her child adrift upon the world, and refused to pay the money due to her. She retaliated upon him by going immediately to the South-Eastern Company and communicating to the authorities there what she knew of this matter. It appeared however that what she knew as direct proof of the robbery was extremely small, for great care was taken by both Agar and Pierce, and also by Burgess, so far as he had any communication with the house where they lived, that she should not know what they were engaged in during the time of this robbery. But her evidence was so conclusive in many of its details that it led to the arrest of Pierce and Burgess, to the pursuit of Tester, and to the appearance of Agar as Crown witness at the Mansion House. The difficulties which the enterprise presented at first sight were these:—Bullion transmitted on the South-Eastern Railway is deposited in an iron chest at the London terminus. This chest is placed under the especial charge of the guard, and is by him delivered at the other end of the line to the clerk, who deposits the chest in an iron safe, of which he keeps the key. It is thus easy enough for any one who has corrupted the guard, or for the guard himself, if he has succeeded in obtaining master-keys, to deal with the iron chest as he will during its transit between London and Folkestone. The real difficulty lies in obtaining impressions in wax of the keys which open the safe and the chest. The other points are merely questions of detail, which can be dealt with easily enough by graduates in crime. The robbery, according to Agar's statement, was originally projected between himself and Pierce. When the difficulty about the impression of the keys was mentioned Pierce said that the iron chest in which the bullion was transmitted was about to be sent up to Chubb's for a new key, as one had been lost, and that the new keys would for a brief space be in the possession of Tester. This man Tester was brought by Pierce to a beer-shop at the corner of Tooley Street; he had with him the new keys, and Agar carefully took from them impressions in wax; but, as it appeared afterwards, only one impression was available for use. It became therefore necessary to go down to Folkestone to obtain an impression of the other key. By one of those chances which turn up in favour of rogues they were enabled to carry out their design with the greatest facility. The clerk in charge at Folkestone had gone into another room, forgetting that he had left the key of the safe in the lock. Agar, admitted by Pierce, immediately took an impression of the key of the bullion-box, which was inside the safe. The preparation of the keys from the impressions occupied a very considerable time, and was carried out entirely by Agar. At length the task was accomplished. When thus prepared the accomplices resolved to carry out their designs as soon as bullion of sufficient value should be transmitted from London to Folkestone under the charge of Burgess as guard. Some further arrangements were however necessary. Lest the robbery should be prematurely discovered, they would find themselves compelled to substitute one weight for another in the iron box. The expedient which presented itself to their imagination was to fill a number of small bags with shot, and to replace equal weights against the bullion which they might succeed in abstracting. These bags they carried about with them, tied under their clothes, until the opportunity, so long waited for, arrived in the month of May in last year. On the evening in question Burgess was guard of the down express train to Dover. Agar and Pierce came to the station in a cab, with their shot-bags around them, and other shot-bags stowed away in two carpet bags which they brought with them. Tester also was at the station. Pierce was disguised with a large black wig and whiskers, and had on a broad-brimmed hat. When his accomplices arrived at the platform Burgess raised his cap and passed his hand over his face, the signal agreed to denote that the gold was there. The two carpet bags containing the shot were handed to Burgess, who placed them in the van in which was the iron box with the bullion. After a little manœuvring Agar contrived, with Burgess's help, to slip into the van, Pierce all the while remaining in a first-class carriage. In a few minutes the signal was given, and the train started on its way. Then, between London and Redhill, the strangest scene might have been witnessed by any one who could have obtained a peep within the van. The guard Burgess had joined his accomplice Agar; they had opened the iron box with the master key, and were employed in taking out bags of coin and bars of gold as rapidly as they could, and in making up the weight with shot bags. At Redhill Pierce also got into the van; and at Redhill, too, one of the bags, which had been previously filled with gold bars, were handed out to Tester, in order to avoid embarrassment when they arrived at the other end of the line. Between Redhill and Folkestone the three accomplices continued their work, and abstracted gold to the equivalent in weight of the shot which they had brought with them. They swept up the floor when all was done, and at Folkestone the iron chest was taken out in the usual way and deposited in the safe. They went on with the train to Dover, where Burgess, as if in the usual course of his duty as guard, delivered the carpet-bags containing the bullion to Pierce and Agar. They supped at Dover, and came up the next day by a train of which Burgess was guard. On their arrival in town they took a cab to Euston Square station, and thence proceeded to the house of Pierce, who immediately busied himself with the sale of the foreign coin. The gold bars were melted down in the washhouse of Agar's abode at Shepherd's Bush, the windows of the apartment having been previously whitened and great precautions taken to prevent the young woman Fanny Kay from obtaining any knowledge of the proceedings. When melted and beaten into another form the gold was sold partly at the Bank of England, and partly got rid of through the instrumentality of a man named Seward, described as a "barrister," bird-fancier, and gold-fancier. A considerable portion was thus disposed of and exchanged against Bank of England notes, which were divided among the accomplices. Agar's arrest and conviction for another crime followed, and then the quarrel between Fanny Kay and Pierce, which led to the discovery of the real criminals. Agar's evidence on Monday was not shaken on cross-examination, and it was corroborated by that of the young woman Kay, who proved that the firmness of Agar to his compact with his associates, which had resisted all other attempts at influence, had fallen before the natural affection that he had for her and their child. At the close of the examination the Lord Mayor refused to take bail, and the case stands over for further investigation.

THE FRAUDS ON THE GREAT NORTHERN RAILWAY.—The adjourned examination of Mr. Leopold Redpath and James C. Comyns Kent, the clerk, arrested on suspicion of being his accomplice, took place yesterday at Clerkenwell Police Court. Evidence was given at great length to show that Redpath had received dividends on the amount of stock fraudulently standing in his name, that Kent was the attesting witness to an instrument which had been forged; and that there had been a unity of action between the prisoners. The magistrate remanded them for a week and refused to admit Kent to bail, though two sureties of 4000*l.* each were offered on his behalf.—The examination of the books which commenced on Monday week, has daily revealed forgeries of the most startling character, which make it almost a matter of certainty that Mr. Leopold Redpath's frauds will far exceed the amount originally stated. It is said to have been already ascertained that the company have been for a long time past paying dividends upon 200,000*l.* or 250,000*l.* of capital, the existence of which they are unable to trace. An hour or two after the examination at the Clerkenwell Police Court on Friday week, and after Mr. Redpath had been removed to the House of Detention on the magistrate's remand, Superintendent Loxton, of the metropolitan police, received orders from the Secretary of State to proceed to Weybridge and take possession of a house and estate which Mr. Redpath had in that town. On the arrival of the superintendent in Weybridge, he found that a large mansion nearly opposite the parish church, called Messelington House, was Mr. Redpath's freehold, having been purchased by him last year for 30,000*l.*, together with the extensive grounds by which it is surrounded. In this mansion he found that 10 servants were engaged, including a fisherman to attend to a punt on the river, a coachman, and a courier, who was specially employed to accompany Mr. Redpath upon his continental travels. The cook was paid 30*l.* a year, and the others on a scale of equal liberality. Here, too, the Superintendent met Mrs. Redpath, who was in a cheerful state of mind, and inquired about the expected return of her husband in a manner which clearly showed that she knew nothing of the frauds for which he was then a prisoner in the hands of justice. It was the melancholy duty of the superintendent to communicate to her the intelligence of the fate of her husband, when she became painfully depressed, and fainted. Fortunately she has no children. When the superintendent searched the house he found it furnished in a style of the greatest splendour. Pictures by first-rate artists, jewellery of the most costly description, plate in the greatest abundance, were found; while the dresses of Mrs. Redpath were so numerous that it is said a large cart would be insufficient to carry them away. In the stables adjoining the house were found four horses, a brougham which cost 180 guineas, a basket carriage, and other articles calculated to contribute to the gratification of the most luxurious taste. Some documents, too, of an important character were found bearing particularly upon the charges against the prisoner. The furniture was sealed up with the official seal of the police, and a body of officers left in possession of the house. The police, under the direction of the Home Secretary, are also in possession of the prisoner's house in Chester Terrace, which he purchased about three years ago for a sum exceeding 3000*l.* This house is furnished in an elegant and costly style, and is said to be filled with articles of *vertu*, antiquities, and pictures. Soon after purchasing it he mounted his carriage, and, in addition to an establishment of five or six female domestic servants, he kept a coachman, groom, butler, and footman. Redpath lived there in the highest and most luxurious style. He was in the habit of receiving a great deal of company, and gave parties and dinners of the most expensive character. Whether or not peas were in season they were to be seen on his table, at a time when they could not be obtained at Covent Garden Market at less than 7*s.* or 8*s.* per quart. Grapes at 10*s.* per lb. were also to be found there, and the same remark applies to every other article of luxury. His munificence and generosity (with other people's money) were the talk of the entire neighbourhood. As an instance of his extravagance and of the style in which he did everything, it is mentioned that it was his practice, prior to leaving home every morning, to have his hair dressed by a perruquier from Strathern's, in Princess Street, Hanover Square. Either the principal of that establishment, or some one deputed by him, arrived at 27, Chester Terrace, every morning in a cab, which was usually kept at the door for about an hour, whilst the hairdresser was performing his operations. Redpath was not only well known as a constant guest at fashionable parties, but even contrived to get presented at Court. He was almost as well known in Paris as in London, being a frequent visitor to the Hotel Windsor, where he lived in most princely style, his hotel bill being said to have averaged 100*l.* a-week, besides what he expended at the expensive cafés which he was in the habit of visiting, and where he thought nothing of ordering wines at 30 or 40 francs a bottle. During a recent visit it is stated that he became a competitor with the Emperor for a beautiful antique model of Leda and the Swan in silver. The Emperor offered 700*l.*, and Redpath 750*l.*, and the coveted ornament was duly conveyed to the mansion at Weybridge. Redpath, like Robson, with whom he was extremely intimate, was a great patron of the theatres, and might be nightly seen either at the Royal Italian Opera or the Haymarket, to the stage of which he had ready access, and where his love of display caused him often to give away his money to the actors in a most extraordinary manner. It was also a feature of his sytem to be considered a most charitable man, and his position as a governor and almoner of Christ's Hospital and of the St. Ann's Society, aided in obtaining for him a high character in that respect. Since his capture however circumstances have transpired, in connection with the traffic in votes, in these, as well as other similar institutions for money considerations, which, if pursued, may open a large field for inquiry among the governors and subscribers. As regards the St. Ann's Society, it is said that he was not only a governor, but an auditor of the institution. On the occasion of its annual festivals, Redpath was in the habit of paying from 50*l.* to 100*l.* from his own pocket in order to add to the splendour of the dinner—a fact of which very few of the guests were cognisant. At the first dinner of the society, after the return of the Duke of Cambridge from the Crimea, when his Royal Highness presided, 100 guineas were so expended, the subscription lists also bearing the names of "Leopold Redpath, Esq., 50*l.*; and Mrs. Redpath, 50*l.*;" and in the course of the evening Redpath handed in another cheque for 105*l.*, as a donation from a "Citizen who admires the character of the Duke of Cambridge, and who wishes to congratulate his Royal Highness on his return from the Crimea." With regard to his antecedents, it appears that about 18 or 20 years ago he was clerk to Messrs. Wilcox & Anderson, then the owners and managers of the line of mail steamers to the Peninsula and Mediterranean. He left their employment shortly before the service became so extensive that it was found expedient to organise the Peninsula, and Oriental Steam Company. Redpath then attempted to establish himself in business as a seller of steam-vessels, and resided at Dartmouth Terrace, Blackheath Hill, but after furnishing his house and contracting debts which he never paid, he became a bankrupt, and seems to have retired to a very private life. He then became a lawyer's clerk, and occupied obscure apartments in Cumberland Market, whilst his wife (who was the daughter of the late Major Sherman, an Indian officer who resided at Maryland Point, Stratford, Essex), obtained a situation as companion to an elderly lady named Simmons, at No. 3, Cumberland Place. After this he emerged again from obscurity, and obtained employment at less than 2*l.* a week as a clerk in the transfer office of the Great Northern Railway, in which office Robson of Crystal Palace notoriety was also then employed. From that time it appears they have been on terms of intimate friendship. Robson was known as what is generally termed "a fast man," while Redpath's predilections seem to have gone in the direction of a magnificent display at home as a connoisseur in art, a man of literary taste, a patron of charitable and religious institutions and projects, and as surrounding his table with men of distinction in the Church, art, literature, and science. Redpath and Robson for a long period lived as neighbours near the Regent's Park, and were in constant communication with each other, though they were men of entirely dissimilar habits and pursuits. There is reason to believe that at a future examination this acquaintanceship will be proved in a manner which will leave no doubt about their having worked in concert, and having been connected with each other in the perpetration of the great frauds with which their names have become identified. Both Robson and Redpath trafficked largely on the Stock Exchange, and it is believed that Redpath was unlucky to an extent which induced him to commit further frauds, and which eventually led to his detection.

ANOTHER EXTENSIVE FRAUD ON THE GREAT NORTHERN.—William Snell, chief clerk in the accountant's office of the Great Northern Railway, a very respectably dressed man, aged 27, residing at Nightingale Place, Hornsey, was brought before the magistrate at Clerkenwell Police Court on Thursday, charged with defrauding the Company of about 1000*l.* He had admitted his crime to the chief accountant, who had ascertained that a cheque for 500*l.* had been stolen from the Company's cash box and applied by the

prisoner to his own use. The magistrate remanded him for a week.

GREAT FIRE IN THE CITY.—On Thursday evening the premises of Messrs. Hodgkinson and Rolls, envelope manufacturers on Bennet's Hill, facing Herald's College, and abutting on the Prerogative Court, were destroyed by fire. The flames spread with such rapidity that Doctors' Commons was for some time in imminent peril, for if any portion of it had ignited the whole range of buildings would have been destroyed, as there is not a single party-wall throughout the precinct.

THE POOR LAW BOARD AND THE PARISH OF MARYLEBONE.—At the last meeting of the parochial authorities of Marylebone, a letter from the Poor Law Board was read, recapitulating the proceedings between the commissioners and the directors and guardians from the inquiry instituted by their inspector into the alleged flogging of women in the workhouse to the resignation of the master, and stating that unless the directors and guardians at once fill up the vacant office of Master, the Poor Law Board, however reluctant to adopt such a course, will apply to the Court of Queen's Bench for a mandamus to enforce upon the directors and guardians their legal obligation. A special meeting is to be convened to take this subject into consideration.

STARVATION OF A MOTHER AND FAMILY IN MARYLEBONE.—On Thursday week a woman called Elizabeth Mann, the reputed wife of a carpenter named Franklin, was discovered with her four children in a state of starvation in Walmer Place, Bryanstone Square. The mother was quite unconscious and died soon after the discovery was made. It appeared from the evidence at the inquest that she was a woman of very peculiar and sullen temper, and had been in the workhouse until September last, when she insisted on leaving the house with her children in direct opposition to the wishes of the parochial authorities. She then went to live in Walmer Place, and nothing more was heard of her by the parish officers until they received information that the family was in a state of destitution. Accordingly, the assistant overseer and inspector of poor for the district, went to 7, Walmer Place, and there they witnessed a horrible spectacle. The mother in a complete state of nudity, and having all the appearance of extreme starvation, lay stretched in an unconscious state on a dirty mattrass on the floor of a miserable apartment, while the children, three girls and a boy, were huddled together in one corner of the room, in as naked a condition as their parent. The whole family were quickly removed to the workhouse, where the deceased gradually sank and died. The children, who stated they had not tasted food for five days have fortunately rallied, and, with the exception of the two eldest, are progressing favourably. The workhouse surgeon made a post-mortem examination, and proved that the mother suffered from disease of the brain, the immediate cause of death being an effusion into the brain, resulting from a tumour. It was clearly proved that neither the deceased nor the children had applied for parochial assistance since they left the workhouse. The coroner, in summing up, said that from the state of the poor woman's brain it was quite clear that it had rendered her wholly incapable of doing anything for herself or her children, and hence the frightful state of destitution into which they fell. His only surprise was that the elder girl, 13 years of age, had not had sense enough to apply to the workhouse. It appeared, however, that she had not done so, and therefore there could be no blame whatever attributed to the parochial authorities. The jury returned a verdict of Natural Death.

THE SUPPOSED MURDER NEAR ERITH.—The inquest on George Carter, whose dead body was found near Erith last week, was resumed on Tuesday, but nothing further of a positive character was elicited, and the inquiry was adjourned for a week. Government has offered a reward of 100*l.* for the apprehension of the murderers, 100*l.* has been offered by the friends of the deceased, and 50*l.* by a local society for the prosecution of felons. It was stated by the local medical men at the inquest that it was impossible for the deceased to have inflicted the wounds himself. Of the 16 punctured wounds in the chest, breast, and ribs on the left side, no less than five had penetrated the heart, and there was an extensive fracture of the skull at the back part of the head, a portion of the skull about the size of an egg being beaten into the brain. The deceased George Carter was the son of a market-gardener, now dead, but who formerly resided in York Road, Battersea. He intended to proceed to Australia, and on the 21st of October he executed a power of attorney appointing a cousin to attend to his property, and also with the object of obtaining 100*l.* in ready cash to enable him to proceed on his voyage. When he was last seen alive he had a bundle containing his outfit, and is believed to have been on his way to join his ship. At the close of the proceedings it was stated that the police had obtained important information, which, if divulged at present, might defeat the ends of justice, but which would probably lead to the apprehension of the murderer. A young man called Worrell was subsequently apprehended on suspicion, but he destroyed himself yesterday morning in his cell by taking prussic acid, leaving a letter stating that he was innocent of the charge, but the disgrace of the accusation had driven him to commit suicide.

SUSPECTED MURDER AND SUICIDE IN THE HACKNEY ROAD.—On Saturday night a man called Henry Fenn, a carver and gilder, residing in Great Cambridge Street, committed suicide by cutting his throat. About an hour afterwards the body of his wife was found drowned in the canal near Haggerstone Bridge, and there is reason to believe that the husband murdered her and then took his own life. In the absence, however, of positive evidence to establish the fact, the jury returned a verdict of "found drowned" in the case of the wife, and one of "temporary insanity" in the case of the husband.

FOUNDLING HOSPITAL.—A statue to the memory of Captain Coram, the founder of this hospital, was placed, on Monday, on the stone structure in the centre of the entrance gates. The work is by Mr. Calder Marshall, R.A., and the expense of it has been defrayed by private subscription. The figure, which represents the philanthropist as handed down to us by Hogarth, is 8 feet high; and relieves the monotony of a line of low buildings hitherto offensive to the architectural eye.

THE CITY GAS COMPANY.—In consequence of the complaints which have recently been made respecting the gas works in Blackfriars, negotiations have been opened, under the auspices of the present Lord Mayor, for the purpose of effecting an amalgamation of the City Company with the Great Central, which would have the effect of removing the works of the former from their present locality in Blackfriars to the site of the latter on Bow Common. The only difficulty which has presented itself is one connected with the price of gas. Parliament has fixed the price of that manufactured by the Great Central at 4*s.* per 1000 feet, on the supposition that it could be made at a profit at 1*s.* 9*d.* The difference between this sum and 4*s.* has hitherto been sufficient to defray all charges affecting its distribution, and yield a dividend of 8 per cent. to the shareholders, which is expected to be increased to 10 per cent. when the consumption becomes greater. On the other hand the City Company, which sell their gas at the same price of 4*s.*, pay only 3 per cent. dividend, and have a strong conviction that it is not possible to supply gas of the quality now in use at 4*s.* per 1000, and at the same time pay a fair interest for the capital embarked. It is said that the difficulty occasioned by this difference of opinion is likely to be adjusted, and the two companies will apply to Parliament for the necessary powers early in the ensuing session.

GENERAL POST OFFICE.—Arrangements have been made by the Board of Works to open up the central portion of the large entrance-hall at the General Post Office, St. Martin's-le-Grand, in order to obtain more light, which is much needed. This object is not to be effected by means of a ridge and furrow roof, similar to that of the Crystal Palace, but by forming a hipped roof over the opening, under which there will be constructed a strong horizontal light, occupying the area of the centre compartment of the ceiling.

THE PUBLIC HEALTH.—The Registrar-General's weekly return states that the deaths registered in London, which in the two preceding weeks were 969 and 1006, rose in the week that ended on Saturday, November 15, to 1090—an increase which is usual in this month, proverbially known for bringing with it cold weather and fogs. In the 10 corresponding weeks of the years 1846-55 the average deaths were 1051, which if raised in proportion to increase of population becomes 1156. The present rate of mortality is therefore still considerably below the average. The births of 816 boys and 739 girls—in all 1555 children—were registered in London during the week; in the 10 corresponding weeks of the years 1846-55 the average number was 1433.

Provincial.

CHEADLE.—The following letter, in reply to Lord Talbot's circular, has been sent to the Shrewsbury tenants by Messrs. Currie, Woodgate, & Williams, the solicitors for Lord Edmund Bernard Howard and Mr. Hope Scott and Mr. Serjeant Bellasis, his trustees:

"Lincoln's-Inn Fields, Nov. 12.

"Sir,—You have probably received a notice from Earl Talbot requiring you to pay your rent to him, and not to the trustees of the will of the late Bertram Arthur, Earl of Shrewsbury. We beg you will pay no attention to this or any similar notice from Earl Talbot, or any other person. No one has even a pretence for claiming the estates against the devisees of the late Earl until it has been proved to the satisfaction of the House of Lords that the claimant has become 'Earl of Shrewsbury.' It is confidently believed that the earldom has become extinct, in which case the estates now belong, without question, to the late Earl's devisee, Lord Edmund Bernard Howard, an infant, the second son of his Grace the Duke of Norfolk. Under such circumstances, it could not be expected that Mr. Hope Scott and Mr. Serjeant Bellasis, the trustees for Lord Edmund during his minority, would voluntarily surrender the possession of the estates and submit to have a receiver appointed by the Court of Chancery at the instance of Lord Talbot or any other person; though it may be added that, with the desire of preventing annoyance to the tenants, and at the same time of treating Lord Talbot with all proper consideration, the trustees did offer to satisfy his lordship that the rents of the estates, less the actual necessary expenditure, should be invested and accumulated by them pending the litigation which his lordship threatens. If ever Lord Talbot, or any other person, should, contrary to all expectation, succeed in establishing a title to the earldom of Shrewsbury, the devisees of the late Earl will be fully prepared to maintain in the courts of law the validity of the disentailing deed executed by the Earl of his family estates. In the meantime, to secure the tenants from being involved in any personal liability, it has been arranged, with the sanction of the Duke of Norfolk, that a full written indemnity against the claim of Earl Talbot, and every other person, shall be given to the tenants on their continuing to pay their rents to Mr. Hope Scott and Mr. Serjeant Bellasis, as trustees for Lord Edmund Bernard Howard during his minority; and we have no doubt that such an arrangement will prove as satisfactory to you as it has proved to the tenants of the other estates the rents of which have fallen due since the late Earl's death."

CANTERBURY.—On Monday morning the police office of this city was crowded with persons anxious to hear the details of a series of assaults committed by three officers on Saturday evening. In two cases they were disappointed, the injured parties having been induced by the friends of the accused to absent themselves, so that those charges were not gone into. In the third case the complainant refused the bribe tendered him, and appeared in support of the charge. The defendants (who gave their names as Robert Gibson, ensign of the 29th Regiment, and John Stace, fruiterer, of Devonport), were seen between 8 and 9 o'clock on Saturday evening near the Fountain Hotel, St. Margaret's, in company with a third officer, who bears the sobriquet of "Brown." Two of them were provided with riding whips, and they were heard to say that money was cheap, and they would have a "spree" somehow. They first commenced a series of attacks upon an old man selling sponge, whom they brutally knocked about, and then assaulted an auctioneer, a feeble old woman, and a tailor named Laming. In this way they passed through several streets, creating the greatest uproar and excitement, striking at every one they came near. The crowd increased as they approached the barracks, until the police arrived and took them to the station-house amidst yells, hisses, and great confusion. Direct charges were only made against two of the officers, who procured bail, and were shortly afterwards released. On Monday morning they were placed at the bar, when evidence having been given, the defendants said they merely acted in self-defence having been first struck, but by whom they could not tell. The bench convicted them of the assaults and sentenced them to pay a fine of 30*s.* each and the costs, or in default one month's imprisonment. The fine was quickly paid and the parties released. It is stated that a full report of the affair will be forwarded to the Horse Guards.

DONCASTER.—Between 12 and 1 o'clock on Sunday morning a fire was discovered among some corn stacks in the farm premises of Dr. Mathews, a magistrate for the West Riding, in the village of Hatfield, near this town. The flames spread with the utmost rapidity, and in a short time extended to 14 stacks, the whole of which were destroyed. A powder-flask was subsequently found near one of the stacks, and there is no doubt that the fire was the work of an incendiary. The value of the property destroyed is estimated at 1400*l.*

MANCHESTER.—M. Kossuth delivered his second lecture on Wednesday week, and his third lecture on Saturday in the Free Trade Hall, the subjects being respectively the Neapolitan question and the Austrian Concordat. The following is a summary of the lecture on Naples:—

"The just interference of England and France in the affairs of Naples was ominous. He had often been asked what was the meaning of royal congresses and the presence of French and English fleets in foreign waters? His answer was, 'Woe to the nations when kings put their heads together, and diplomatists met in fond embrace.' England, which Austria had recently characterised as a 'second-rate Power,' was acting in concert with Louis Napoleon; and the French Emperor was interfering merely to prevent the French people from pondering on their own affairs. Would England, he asked, lend herself to such a policy? Revolutions were not possible where they were not wanted. Englishmen might require reforms, but they did not want a revolution. With the French people the case was different. Sprung like a toadstool from a pool of blood, the ruler of France could take no root in the soil of his country. His government could have no future, because there was no reason why it should ever have existed. Revolution in France was a question of time only. It could not be far remote when the 3 per Cents. were at 66, while in 1848 they stood at 73. Louis Napoleon knew that Italy was a volcano, and therefore his whole solicitude was turned to prevent an explosion. Hence his desire for joint intervention with England. But let the people of England take care that there was no trifling with the destiny of unfortunate nations. Having given a description of the rise and fall of Sicily, once the garden of Europe, but now the most miserable place within the pale of Christendom, M. Kossuth referred to the insurrection of 1848, contending that Great Britain, having once recognised the nationality of the Sicilians, was bound either to follow the policy of non-intervention with the Governments of foreign nations, as laid down by Canning, or to control, by her authority, any attempt to break down the form of government which she had herself assisted to set up. Either of those courses would be reasonable, but to paralyse the democratic energies of a people, to swing them upon the rope of diplomacy, and then to let them fall to the ground, was trifling with the destiny of a nation. The object of the British Government, as represented by Lord Palmerston in the course it was now pursuing, was to secure the peace of Europe, endangered by the atrocious misrule of the King of Naples. But how was that object to be attained? A spark kindled at Naples would set the whole continent in a blaze. The ruler of France knew that, and wanted intervention, to avert the catastrophe. But why should Great Britain lend her shoulder to support the tottering throne of European despotism? England had nothing to fear from continental revolution. The throne of her Sovereign rested upon the affections of her people, and not upon the personal safety of any Hapsburg, Bourbon, or other continental despot. Diplomatic relations were broken off with the King of Naples, and vessels of war were cruising off his coast to protect, it was said, the lives and property of French and British subjects. This might be so, but he warned the people of England how they lent themselves to the promotion of French influence in the adjustment of the Neapolitan difficulty. Ours was a great nation. Its glory was raised upon the self-reliance of its sons; but let it not, in the zenith of its fame, in the height of its moral and material grandeur, descend to the leading-string of foreign influence by trifling with the destinies of Italy."

The following is an extract from the lecture on the Austrian Concordat, in which M. Kossuth treats of its effects on Hungary and its bearing on the interests of Protestantism:—

"The present Austrian Concordat was so far as he knew the first instance in history when a temporal Sovereign was seen submitting to—even courting such an infliction, without the shadow of any compulsion or any plausible pretext. In the dominions of the bigoted House of Austria the interests of the Romish religion stood in the most flourishing condition of security, prosperity, and even splendour. He went not at all with the idea that the State should legislate in affairs of religion. He wished the time had come when the right of adoring God according to the dictates of one's conscience should be as free as the air and as wide as the universe. Whenever legislative interference in religious affairs appeared a fatal necessity the State should at least take care to use its own authority, and not to abdicate it to

a foreign Power. The Hungarian nation, Catholic in its majority, yet never until now had allowed herself to be visited with the infliction of Concordats. England was less fortunate, or more careless, in former times, and there was more than enough of Papal interference with English national concerns; but now, happily, her only danger was that of locking herself too fondly in her security—of neglecting, unlike her sailors, to take heed of the smallest speck on the remote horizon, lest a tempest be couched in it, for if England allowed her sworn enemy in principle of despotism to combine spiritual and temporal means in a coalition, the tempest might prove too powerful for even Britannia's proud bark to weather. Towards such a coalition the present Austrian Concordat was a well calculated danger-fraught step. It was not religion about which the Papacy cared, but 'the penny of St. Peter,' a modest expression for the coveted tribute of a world, and for the ambition of universal supremacy. Having described the provisions of the Concordat, M. Kossuth said he now came to the inquiry how it was that the present Emperor of Austria, who had recoiled not from crimes innumerable to arrive at arbitrary dominion and unlimited despotism, and now voluntarily abdicated his ill-gotten power in favour of such a Pope as Pio IX., whom history had proved to be nothing better than an untuned harp in the hands of malignity. The strange fact was very easily explained, for we had but to remember the secret treaty of Verona, dated 22d November, 1822, concluded between the Russian Czar, the Catholic Emperor of Austria, the Catholic King of France, and the Protestant King of Prussia, in which the high contracting parties declared their intention to sustain in their respective dominions such measures as the Church might adopt for the strengthening of their interests, and pledged themselves to each other to exert all their efforts to annihilate representative Government wherever it might exist, and to adopt all measures proper for the suppression of the liberty of the press throughout Europe, as well as in their own dominions. The first victim of their policy was Hungary, which in all past times, before the Reformation, had been a chief bulwark of the Christian religion against the pretensions of Popedom. He had said enough to make it understood how important the Pope and the Hapsburgs must think it to break that spirit of independence in Hungary which heretofore not all the powers of despotism had been able to effect. It must be borne in mind that in Belgium the Ultramontane party actually possessed the sway; that in France Napoleon, who prides himself upon being the first-born son of the Church while there was reason to think that something like a concordat was actually under consideration in Russia. With such facts as these before them it was obvious that without a timely outbreak in Europe it was impossible to break the forces that were about to muster against the civil and religious liberty of the peoples. He said it with sorrow that, as far as Hungary was concerned, the time for this conspiracy was well chosen, because, if asked how they had so long maintained their independence, he would say it had been by the free words resounding in their halls of Parliament, and their numerous municipal assemblies, now extinguished through Russian intervention. Now was the moment or never to make Hungary a slave, and give the Papacy an opening that would make it dangerous to civil liberty. He believed Europe was on the eve of a great political crisis that would destroy this convention, but it was a great thing for the Pope that his dictates were elevated to temporal authority throughout the whole land. If it succeeded, the religion and liberties of Poland were felled with a blow. He agreed that the State should not interfere in the affairs of the Church, but there was another principle as a corollary to that, which was that the Church should not interfere in the affairs of the State. He would not say one word to give offence to the religious feelings of Roman Catholics, but religion was one thing and priestcraft another. After dwelling upon the effects of the Concordat in Hungary, and the great power it gave the Catholic clergy over the schools, as already seen, the lecturer said, if he were asked what was all this to England he would reply, as Oliver Cromwell did 200 years ago, 'Look how the House of Austria is prepared to destroy the whole Protestant establishment in Hungary. You may say this is a long way off; you may say, what is it to us? but I tell you it concerns all your religions and all the best interests in England.' And, verily, the time might come when many should say that he who said this was not only a great captain and an eminent statesman, but something of a prophet likewise. A distinguished clergyman at Liverpool, having listened to his lecture on this subject at Liverpool, said it had caused him sleepless nights, for after pondering over his words he felt impressed with the belief that an immense danger was gathering over the Christian world. And it was a sad fact that in Europe now the number of Protestants was actually smaller in proportion to the whole population than it was some centuries ago. This fact told volumes that everything was not with Protestantism as it ought to be; the world wanted a new Luther and a new reformation."

NOTTINGHAM.—The peculiar circumstances under which the late Earl of Scarborough was placed, and the immense property which his lordship had to dispose of without being trammelled with the law of entail or of those of primogeniture, have been the cause of much speculation, not only in this county but in those of York, Lincoln, and Durham. It is said that the late earl's father was a man of singular character and the most peculiar habits, and very little intimacy existed between himself and his son; indeed it is well known that it was through his violent conduct towards his son when a boy that the late earl was a cripple through life. Somewhat early in the life of the late earl, then Mr. John Lumley Savile, he became intimate with a French lady, who had been banished from the home of her husband in her native country, the issue of which intimacy was three sons and one daughter, all now living. Previous to his accession to the estates his income was very circumscribed, and when he entered upon his inheritance he found himself involved to the amount of upwards of 200,000*l.*, which not having the means of liquidating he secured the payment upon the estates, but although during the last 20 years he possessed a rent-roll of 60,000*l.* a-year, his lordship only liquidated 30,000*l.* of such debt, so that 170,000*l.* still remains on the estates, the payment of which he has apportioned as follows: viz., from the Sandbeck estates 90,000*l.*, and from the Rufford estates 80,000*l.* The estates at Rufford, of the value of 37,000*l.* a-year, he has bequeathed to his second son, Captain Lumley of the 1st Life Guards, on the condition that he takes the name of Savile after that of Lumley. To his eldest son, at present the English *charge d'affaires* at Washington, in the United States, he has left only 500*l.* a-year for life. To his third son, the Rev. Frederick Wm. Savile Lumley, M.A., rector of Bilsthorpe, Notts, he has only bequeathed a small legacy, barely sufficient to pay his life insurance policy, which his lordship had previously compelled him to effect. To his daughter he leaves a small annuity. The succession duty upon the Rufford estate, at 10 per cent., will amount to upwards of 300,000*l.* The present Earl of Scarborough succeeds to the Sandbeck estates, of the annual value of 23,000*l.* a-year, with the debt above stated of 90,000*l.*; the succession duty upon this part of the property, at 6 per cent., will not be less than 210,000*l.*

SHEFFIELD.—A numerous meeting of the inhabitants was held on Wednesday in the Town Hall to hear addresses from Mr. Hadfield and Mr. Roebuck, the two members for the borough. Mr. Hadfield having first addressed the meeting and given an account of his votes during the past session, Mr. Roebuck made a long speech on the policy of non-interference, the justice of the late war, and the Maynooth grant, declaring on the latter point that he will not vote for the putting down of Maynooth until the Irish Church is put down, and that he would rather have no State church and endow none. The following is an extract from his speech relating to the war:—

"I am for non-interference for England. I don't want her to be eternally meddling in the quarrels of Europe. I want her to consider her own interests, for those interests happen to be the interests of mankind. But she has a mighty power to wield and a great destiny to fulfil. She cannot move without the world feeling that she moves. If she moves in error, woe to mankind; if she moves in the right path, glory be to her, and happiness to the people who constitute her whole population. I believe we ought not to interfere in the internal affairs of other nations; but while we abstain we must see that nobody else does so interfere. I beg of you to remember that we are at the head of the great Liberal party of the world. Despots banded together may oppress humanity, and therefore we have the duty to see that humanity is not oppressed. Therefore I say that England should, if she can, ally herself against the despots of Europe—against the despotisms which oppress humanity. I will illustrate this. You saw the Hungarians rise up against that monster despotism of Austria; you saw a gallant people making a gallant fight. You saw that people conquering the Austrians; but you saw that other fearful despotism of Europe and of the world—Russia—march in her hired hordes and put down that gallant people. Where was England then? She stood by and saw the iron heel of despotism crushing out the heart of that people. I say, if we had stood by and had seen the iron heel of Russia put upon Turkey, that we should have reiterated the fault we committed when we allowed Hungary to be put down. I sided on that occasion with the wise, and as I believed, the benevolent object of putting our hand upon the mane of the great bear of Europe. No, I made a mistake. Zoologically, a bear has no mane; but we put our hand on its neck. In siding with that object, I believed I was endeavouring to make England fulfil her great destiny. And, just as I mourned over the gallant Hungarians—and I must say, the gallant Austrians, too—and I should have mourned over the Piedmontese if they had been oppressed by the Austrians—as I should mourn over the Belgians if they were oppressed by France—so I should have mourned if Turkey had been oppressed by Russia. It was, then, in furtherance of this great principle of non-interference, not the non-interference of England alone but of everybody else, that I acted. Austria, Russia, and Prussia can, if they please, unite; and shall England stand by and see them swallow up, bit by bit, every particle of freedom in Europe? Is that her duty? That is not my idea of what her duty is. I know that there is a part—a portion of mankind who believe that the only religion upon earth is the worship of the almighty dollar. I do not. I am not of that opinion. I believe that, for the good of mankind, good men ought to unite when bad men combine. Therefore I say I united with that party which proclaimed war with Russia. I was in the House of Commons upon that solemn occasion when the message of the Queen was brought down to us in the House which told us that we were at war with Russia. I felt great sorrow, for war, as my hon. friend has said, is a great calamity to mankind. I felt great sorrow that there was any man among the millions on the earth who could for some paltry petty object inflict that great calamity upon the rest of the world. For, mark you, the Duke of Wellington well said, 'England can wage no little war.' We are a great nation, and the moment we declared war against Russia we roused Europe at once. Europe felt all the calamities of war, but for that we were not to blame. It was the Russian despot not us. But if we, upon the suggestion of my hon. friend, stood cowering by and had seen the hordes of the Russian despot marched across the Pruth—if we had merely entered our 'solemn protest' upon that occasion—not the protest backed by bayonets and guns, but in the empty form of diplomacy—I think we should have placed England in a disgraceful position. We should have disgraced her in the eyes of the world. I should have disgraced myself if I had acted on that opinion of non-interference, and I believe you coincided with me. Such, then, was my view of the Russian war. Now I will state to you my views upon this Neapolitan interference. I think we are militating against our own rule in this matter, in interfering between a people and their Sovereign. Now if the Austrians had marched their troops into Naples, then I say we might fairly have declared war against Austria. But Austria has done no such thing. We have said to King Bomba—as I think he is called in derision—'You oppress your subjects; you must not do so any more.' Though I lament as much as any one that there should be such an animal upon this earth as King Bomba, yet between him and his people I think it is our duty not to interfere. The moment any other Power interferes then we can step in. With our mighty fleet, that can cope with all the other fleets of the earth, and our gallant army, of which nothing can be said too high, we could put down the Austrians as we might, if we had been wisely guided, have put down the Russian. We have been the friends of freedom, of good government, of humanity; but if we had narrowed our minds to the consideration simply of making money, of spinning cotton, of hammering iron, and weaving cloth, I think we should have been a despicable people—not England filled by Englishmen. Upon this point my hon. friend and myself differ. I don't know whether he will take the interpretation I have given you of non-interference, but sure I am that we shall be called upon to make this application very soon, for I believe that the world is now upon the eve of great events. We live in great times. Talk about the apathy of the English people! There is no apathy in the people of England. I saw them rise as one man in support of the war. I saw them rise as one man in support of that gallant army we sent abroad. We welcomed them back—aye, with those heartfelt thanks which such men worthily deserved at our hands. We are in a position to send forth our sons on a glorious mission, for no man will interfere with us when we fulfil our destiny, and do not let any of our sons at least disgrace England so far as to make her an abettor of oppression in any part of the world. That is my view. Of America, all that has been said by my hon. colleague I entirely agree with. With her I should be loth, more loth than with anybody else, to enter into war; but even with her I would go to war if she did an injustice to us. It is not the time to mince matters; and I like straightforward speaking on all occasions. There is at this moment—and I use an American term—a Fillibustering spirit in America, and if that leads them beyond their own boundary—if that leads them to attack foreign nations—we, in the fulfilment of our non-interference principle, should be bound to interfere also. I say that a war between England and America would be almost the greatest calamity that mankind could suffer. We have everything that can bind us to that nation; they are of the same blood, they have the same language, they have the same literature, laws, and institutions; they are bone of our bone and flesh of our flesh; they are Englishmen on the other side of the Atlantic. But if they should do an injustice, are we to stand by and see it done? (Cries of 'No!') No, England's great destiny makes her the protector of mankind, and we should be derogating from our own dignity if we allowed any nation, however great however nearly allied to us, to do aught that would bring discredit upon the great principles of humanity, if we could prevent it. I say, though I would have us bound to America by everything that can bind—though I would by every tie unite us to her, and would not interfere one iota with her internal transactions, though I look with great sorrow upon them—I will not express in public my opinion on the matter,—yet rather than see her oppress mankind I would oppose her, and oppose her to the death."

SHEFFIELD.—The Yorkshire papers state that the garotte robbers do not confine their ravages to the metropolis. They are diffusing themselves throughout the country, and the West Riding appears already to have received more than a fair share of their attentions. "Garotting," says a Sheffield contemporary, "appears to be particularly in favour, in fact, as one may say, in fashion. The operations up to this point have shown more than an average amount of vigour and spirit. In our own county, and in this particular riding, especially Leeds, Bradford, York, Sheffield, Rotherham, there is scarcely a town of note that has not contributed a robbery with murder, or something within an ace of it. Now, if a man is a mile from home after dusk, and is an hour after the usual time, the wife sits seeing visions of robberies and murders; and if a couple of hours elapse the man's friends start in quest of his body. We have suddenly tumbled back into the social state of a hundred years ago, before the invention of gas; with this disheartening difference that in those days a constable did now and then apprehend a thief or a murderer, but our present policemen know better." So flagrant has the evil grown, that last week Colonel Pollard, the chairman of the Halifax magistrates, announced, for the benefit of the belligerents on society, that a number of gentlemen living in that neighbourhood carry double-barrelled pistols, which they are fully resolved to use whenever the occasion shall arise.

TOTNESS.—The body of an old man named Stanley, the "Gipsy King of the West," was found a few days ago in the river Dart, and there is no doubt, from the medical evidence and other circumstances, that he has been murdered. At the inquest it was stated by Rhoda Stanley, the wife of the deceased, that her husband left the van early on Tuesday week to go to Totness fair; she did not accompany him, but saw him in the afternoon, when they had some drink together. He left her to go to the horse fair, and she never saw him alive again. Almost his last act was to buy a pony for his "poor old woman to ride," as he thought she was getting up in years, and needed such help in her wandering about the country. The witness seemed frantic with grief, as she said deceased "was such a good old man to her." The ostler at the inn where deceased stopped last saw him standing in the passage in company with a "strange man," who was respectably dressed. A surgeon deposed that death had been caused by strangulation. There was a dark red band round the neck, evidently produced by the neckcloth being tightly pressed against it. The hands were clinched, and raised as if in self-defence, and there was a heavy frown on the countenance. It was suspected that the old man had met with foul play by some of the Gipsy tribe, but the evidence did not tend to support that suspicion, inasmuch as he seems to have been popular among his fraternity. Active exertions are making by the police to endeavour to discover the murderer, and the inquest has been adjourned for that purpose.

WAKEFIELD.—A meeting of magistrates was held in this town on Friday for the election of a chief constable for the West Riding. The Hon. E. Lascelles, M.P., presided, and 144 magistrates were present. There were altogether 64 candidates, but 10 were struck off the list, in consequence of their not having sent in testimonials, and only two were proposed and seconded, namely, Colonel Cobbe, of the 2d West York Militia; and Colonel Monckton, of the 1st West York Rifles. Previous to the election a resolution was agreed to, making it imperative on the chief constable to live within a mile of Wakefield. Colonel Monckton, in consequence of this resolution, withdrew from the contest, and Col. Cobbe was consequently elected unanimously.

WOKINGHAM.—On Friday the 14th inst a dreadful murder was committed at the village of Embrook, near this town; Mr. Charles Forrester, a dissenting minister and tract distributor, who has hitherto borne an irreproachable character, having murdered his only child a boy five years of age, of whom he had always appeared exceedingly fond, by nearly severing the head from the body by means of a razor. He immediately went to the Wokingham police station and gave himself up as the murderer, and in the course of the day was fully committed by the magistrates to take his trial at the assizes on the capital charge. It appears that he was formerly a tradesman in London and has been for two years past employed by Mrs. Saltmarche of Rose Hill, near Wokingham, as a tract distributor and visitor of the poor. In this capacity he obtained much respect for his earnestness, but Mrs. Saltmarche in July last considered that his intellectual qualifications were not of a sufficiently high character, and she therefore told him to find some other employment. The loss of this situation seems to have preyed upon his mind and to have induced a desponding state. Being unwell at that time, and having indications of consumption, he succeeded in becoming a patient in the Consumption Hospital at Brompton, where he remained until a fortnight ago. He returned to his home at Embrook on Monday week, and found that his

wife during his absence had opened a shop for the sale of grocery, and was doing comfortably. He was however in a very low, desponding state, and continued so until Friday when he committed the murder, it is supposed, in a paroxysm of insanity.

Ireland.

ACCIDENT TO THE CHIEF SECRETARY.—Mr. Horsman met with an accident on Saturday while hunting in the county of Dublin with the Ward hounds. His horse fell and rolled over him, but fortunately without causing any serious injury. Mr. Horsman rode home 18 Irish miles after the accident, and was able to transact business as usual on Wednesday.

DREADFUL MURDER OF A RAILWAY CASHIER.—A most painful sensation was created in Dublin on Friday afternoon by the discovery of a shocking and mysterious tragedy at the terminus of the Midland Great Western Railway, the body of Mr. George Little, the cashier, having been found in his office with his throat cut in a frightful manner, and under circumstances which at first led the public to suppose that he had committed suicide. In the early part of the morning the absence of the deceased was not noticed, and his office door remained closed without attracting particular attention until 11 o'clock, when his sister arrived at the terminus to inquire about his absence, stating that he had not returned home during the previous night. Inquiries were then made, and as one of the porters observed then for the first time that the gas in the office was still lighted, a good deal of alarm was felt. A ladder was procured, and a boy entered the room through a window, when he discovered the body of the unfortunate gentleman lying on his face in a pool of blood. The door was broken open, and several persons connected with the railway entered. The body was examined and found to be quite cold, the throat being cut from ear to ear, in such a manner as to leave the head almost hanging from the body. Such a discovery at the present moment, when men's minds are filled with reports of the defalcations of railway and other officials, immediately created the impression that Mr. Little had been guilty of some such breach of trust, and had sought to escape from the consequences by suicide; but the circumstance of a large sum of money being found in his desk, and the discovery of his accounts being made up to the day in the most exact manner, completely falsified the supposition. An inquest was commenced in the afternoon, but only a very imperfect examination of the circumstances having been made, the coroner thought it right to adjourn the proceedings, and in the meantime caused the detective police to make a rigid search on the premises. On resuming the inquest on Saturday the evidence obtained in the meantime left no doubt that deceased had been the victim of a most brutal murder. The instrument with which his throat had been cut had disappeared, nothing with a sharp edge having been found in the room except a penknife, which was quite clean. The key of the door had also vanished, the murderer having evidently locked the door and taken the key with him. A towel was found covered with marks of blood and some cuts, as if the knife with which the deed was done had been wiped on it in a hasty manner. The throat was mangled in a shocking manner, the lobe of one of the ears was cut off, and one side of the skull nearly battered in with some blunt instrument. Some of the mysterious circumstances of the case remain, however, still unexplained. Thus, a large sum of money amounting to several hundred pounds in gold and notes, still lay on the desk of the unfortunate gentleman, indicating that the robber either did not see it, or was satisfied with a sum of 300*l.* which he appears to have taken from the iron safe or press in the office. The secretary of the company showed that the deceased had made up his accounts in a satisfactory manner up to Wednesday last, and that no circumstances could be discovered to impeach his character in the slightest degree. After hearing some general evidence, as well as that of the medical gentlemen who had examined the body, the jury returned a verdict of Wilful Murder against some person or persons unknown. On Wednesday the canal near the station was drained, when an engineer's hammer, with human hair still adhering to it, was discovered. There is no doubt that this is the instrument with which the crime was committed, and it is said that the police are now on the track of the murderer.

Scotland.

ELECTION OF LORD RECTOR OF GLASGOW UNIVERSITY.—The election to the highest office in Glasgow University, now vacant by the retirement of the Duke of Argyll, took place on Saturday. Three candidates were originally nominated—viz., Sir Edward Bulwer Lytton, Lord Stanley, and Sir John Herschel. The last was dropped, and a very keen canvass was carried on on behalf of the others. Sir E. Bulwer Lytton was supported by the Conservative students as well as by an influential section who desired the election to rest upon purely literary grounds. Lord Stanley, on the other hand, was supported by the Liberals on political grounds, as a rising statesman likely to do honour to their party. The result was that Sir Bulwer Lytton had a considerable majority in all the Nations into which the students are divided, and was elected by a total majority of 108, the numbers being 242 to 134.

THE ROMAN CATHOLIC CHURCH IN SCOTLAND.—The Duchess of Atholl, Lady in Waiting to the Queen, has been received into the Roman Catholic Church within the last few days. There are now four Scotch Duchesses converts to the Roman Catholic Church, viz., the Duchesses of Hamilton, Buccleuch, Atholl, and the Dowager Duchess of Argyll.

Railways.

FATAL COLLISIONS ON THE NEWPORT AND HEREFORD.—On Wednesday the 12th inst. a collision took place near Pontrhydrun, between the express train from Hereford to Newport and about a dozen trucks which had escaped from the Pontypool station on the Monmouthshire line, and were running at a fearful rate down the steep decline towards Newport. The driver, guard, and firemen having done all they could to reverse the train, and seeing a collision inevitable, jumped off and escaped unhurt, but several of the passengers, including some Irish sailors on their way to Birkenhead, were severely injured. In the afternoon a still more serious collision took place on the same line near the Nantyderry station. The engine of the down express from Hereford after leaving Abergavenny jumped off the line and crossed the up-line, when a goods train came up, and ran into the passenger carriages. The engine was thrown upon its side down the embankment, and the train presented the appearance of a wreck. Two of the passengers were killed, viz., Mr. Edward Henry Hands, of Wolverhampton, and Mr. Mark Hicks, of Tetbury; and several others were severely bruised, among whom was the guard of the express.

FATAL ACCIDENT ON THE WATERFORD AND KILKENNY.—A fearful collision took place on Wednesday near Dunkill, two miles from Waterford. The Dublin day mail ran into a ballast train, killing five labourers in the latter, and severely injuring four passengers in the mail train, one of whom, Dr. White, of Dublin, Inspector of Lunatic Asylums, is lying in a precarious state at Waterford. Of the labourers killed, four had their heads cut completely off, and the other, who was the only one who showed any signs of life after the collision, had his arms cut off.

Obituary.

HIS SERENE HIGHNESS THE PRINCE OF LEININGEN, whose death is announced in our Court News, was the only son of the late Prince by his marriage with the Princess Victoria Marie-Louise of Saxe-Coburg (now the Duchess of Kent), and was consequently half brother to her Majesty. He was born in 1804, and succeeded his father in July, 1814, being then in his 11th year. In September, 1823, he was declared "of age." He then entered the Bavarian army, in which he held the rank of lieutenant-general and colonel-in-chief of the 5th regiment of cavalry. The Prince married in 1829 Marie Countess of Kletelsberg, by whom he leaves issue—Prince Ernest, born 1830, and Prince Edward, born 1833. Prince Ernest, who succeeds to the title, is a lieutenant in the British navy. He distinguished himself during the recent operations in the Black Sea, and in May last was appointed second lieutenant of her Majesty's steam frigate Magicienne.

PRINCE WORONZOFF died on the 18th inst., at Odessa, where he had arrived only a few weeks before. He was the son of Count Simon Woronzoff, Russian Ambassador at this Court, and was born at St. Petersburg, in 1782; he was therefore 74 years old. He was educated in England, and during his father's residence in this country his sister married the late Earl of Pembroke, and became the mother of the Right Hon. Sidney Herbert. Michael Woronzoff, at the age of 19, entered the Russian army, served in the Caucasus, and afterwards in several campaigns against Napoleon from 1812 to 1814. He represented Russia at the conference of Aix-la-Chapelle. In 1823 he was appointed Governor of New Russia, and continued to hold that office until the late war. He was engaged in the Turkish war of 1828, and held the command after Menschikoff had been wounded at Varna. In 1845 he was sent to subdue the Circassians, and although the brave mountaineers were able to resist even the immense forces at his command, he succeeded in the capture of Dargo, one of Schamyl's strongholds in the Caucasus, and was rewarded with a Princedom. The civil administration of Prince Woronzoff has entitled him to much praise. When the conflict between Russia and the Allies broke out in 1853, he was permitted, at his own urgent request, to retire from office.

THE RT. HON. LADY STAFFORD, the wife of the present Lord Stafford, was found dead in her bed on Thursday morning at Costessy Park, near Norwich. Her ladyship had suffered recently from the rupture of a bloodvessel, but was believed to be returning to convalescence. She was in her 49th year, and was married to Lord Stafford in 1829. She was daughter of Edward Charles Howard, Esq., uncle of the late Duke of Norfolk.

SIR WILLIAM TRELAWNY, BART., of Trelawny, Lord Lieutenant of Cornwall, died on the 15th inst. He was born in 1781, and is succeeded in the baronetcy by Mr., now Sir John Salusbury Trelawny, formerly member for Tavistock.

ADMIRAL FREDERICK WATKINS died a few days since. He was the oldest admiral in the navy, his commission as lieutenant bearing date as far back as November, 1790. He was senior lieutenant of the Blanche at the capture of the French frigate Pique, in 1795. When captain of the Nereide, he engaged with six privateers, one of which, the Vengeance, 16, he captured; in 1800 he obtained possession of the island of Curaçoa, which the French was obliged to evacuate. He had received a silver medal and two clasps for his services. He was placed on the reserved list in 1851, and was in receipt of a service pension of 150*l.* a-year in addition to his half-pay.

MAJOR WILLIAM NUGENT MACNAMARA, who for many years represented the county Clare in Parliament died last week. He was perhaps one of the most popular men of his day during the stormy period which preceded the Catholic Emancipation Act. His name will also be long associated with one of the most memorable events in the career of the late Mr O'Connell, in whose fatal duel with Mr. D'Esterre, in 1815, Major Macnamara acted as his second. The extensive estates of the deceased devolve upon his son, Lieut.-Colonel Macnamara, formerly of the 8th Hussars and now Lieut.-Colonel of the Clare Militia.

MR. JAMES PIM, the treasurer of the Dublin and Kingstown Railway, the first line constructed in Ireland, and the second established in the United Kingdom, died last week in Dublin.

LIEUT. DANIELL, R.E., was killed last week by an unfortunate accident which occurred near Guildford. He was driving with two other officers in a dog-cart, when he was thrown out of the vehicle and killed upon the spot. The other gentlemen were not injured beyond a few bruises. In consequence of this melancholy accident, the performances at Aldershott Theatre, in which the deceased was an amateur, were postponed to the 20th inst.

THE REV. J. G. MOUNTAIN, of Newfoundland, died at St. John's on the 10th of October. He was about 39 years of age, and was second son of the Rev. Dr. Mountain, and rector of Blunham, Bedfordshire, and nephew of the Bishop of Quebec. He was educated on the foundation of Eton College where he greatly distinguished himself, and obtained the Newcastle Medal in 1837 for classical scholarship. He entered the University of Oxford as "Postmaster" of Merton College, and graduated as second-class man in classical honours in 1841. He returned to Eton, after taking his degree, as a private tutor, and officiated for some time as curate to the Rev. T. T. Carter, rector of Clewer. About 10 years ago he determined to undertake the arduous life of a missionary in the climate of Newfoundland. He therefore went out to his friend, Bishop Field, who made him his chaplain and principal of St. John's College.

MR. DAVID BOGUE, the well known publisher of St. Bride's Passage, Fleet Street, died suddenly on Wednesday morning at his residence in Camden Villas. He retired to rest on the previous evening in his accustomed health and spirits, and about 8 o'clock on Wednesday morning, before breakfast, he complained of a sudden sense of suffocation, almost immediately afterwards became speechless, and in two or three minutes had ceased to exist. The deceased was for many years in partnership with Mr. Tilt, at whose retirement he carried on the business alone, and was greatly respected for the uprightness and straightforwardness which marked all his transactions. Mr. Bogue was about 45 years of age, and has left a widow and five children.

Miscellaneous.

THE GREAT WROUGHT IRON GUN.—A very elaborate report respecting the experiments at Shoeburyness with the great wrought-iron gun has just been issued showing the results of 50 rounds, each fired with a 50lb. charge, the projectile being solid shot, 280lb. weight. The length of the gun, it will be remembered, is 15 feet 10 inches, and its weight (exclusive of the carriage) 437 cwt. From these experiments it appears that its ranges exceed by 10 per cent. those of the best solid shot guns in her Majesty's service, and by 20 to 25 per cent. those of the 8 and 10-inch (shell) guns. Further experiments are to take place on the 25th inst. when the power of the gun will be tried against the bomb-proof floating battery Trusty. This vessel will leave Sheerness for Shoeburyness early on that morning under steam power, assisted by steam-vessels, and a gunboat will be in attendance to convey the officers who are to superintend the experiments. The Trusty will be towed upon the sand within 600 yards range of the battery erected for the purpose. On the larboard side of the vessel, a large target is to be painted, so that each gun may be laid for the target. Thirty-two pounders will be first tried, and the weight increased until the monster gun is fired. It is reported that several officers have voluntered to remain on board. While under actual fire they will remain down in the fore hold; and after each shot, will report the effect by a preconcerted code of signals, which will be arranged and carried out by Captain Halstead and the officers of the screw steam guardship Edinburgh.

Markets.

COVENT GARDEN, Nov. 22.

Supplies of most things have somewhat improved. The best sorts of Pears are, however, still dear. Foreign Grapes continue to arrive in small quantities. Apples still realise high prices. Good varieties for kitchen use are scarce. Filberts are a trifle cheaper. There is still a fair demand for Kent Cobs at 110s. per 100 lbs.; Barcelona Nuts, 20s. per bushel; New Spanish and Brazils, 18s. ditto. A few Chesnuts have been offered at high prices. New Oranges have arrived—price from 3s. 6d. to 9s. per hundred. All kinds of vegetables in season are tolerably well supplied. Portugal Onions fetch from 9s. to 16s. per 100, or from 2s. to 3s. per dozen. Potatoes are very much diseased. Cut flowers consist of Heliotropes, Orchids, Gardenias, Violets, Camellias, Mignonette, Heaths, and Roses.

FRUIT.

Pine apples, p. lb., 3s to 6s	Oranges, per 100, 3s 6d to 9s
Grapes, per lb., 2s to 4s	Lemons, per doz., 1s to 2s
Figs, per doz., 1s to 3s	Filberts, per lb., 10d to 1s 3d
Melons, each, 2s to 5s	Kent Cobs, p. 100 lbs, 110s
Pears, per doz., 8s to 10s	Almonds, per bush., 32s
Apples, per half sieve, 6s to 8s	

VEGETABLES.

Cabbages, per doz., 9d to 1s 6d	Tomatoes, per hf. sieve, 4s to 6s
Cauliflowers, p. doz., 1s to 4s	Shallots, per lb., 4d to 6d
Broccoli, per bunch, 9d to 1s	Garlic, per lb., 4d to 6d
Brussels Sprouts, per half sieve, 1s 6d to 2s 6d	Lettuces, Cos., p score, 1s to 1s6d
Potatoes, new, p. ton, 60s to 120s	— Cabbage, per score, 9d to 1s
— per bush., 2s to 2s 9d	Endive, per score, 1s to 1s 6d
Carrots, per bunch, 4d to 6d	Radish, Turnip, p. doz., 1s to 1s6d
Turnips, per doz., 2s to 3s 6d	Small Salads, p. pun., 2d to 3d
Spinach, p. sieve, 1s 6d to 2s	Horse Radish, per bun, 2s to 5s
Cucumbers, each, 4d to 2s	Mushrooms, p. pott., 1s to 1s 6d
Beet, per doz., 1s to 2s	Parsley, per bunch, 2d to 4d
Celery, p. bundle, 9d to 2s	Mint, green, per bunch, 2d to 3d
Leeks, per bunch, 1d to 2d	Marjoram, p. bunch, 1d to 2d
Onions, p. bushel, 2s to 4s	Savory, do., 1d to 2d
Capsicums, per 100, 1s to 2s	Chilies, per 100, 1s to 1s 6d
Veg. Marrows, per doz., 8d to 1	

BRITISH WOOLS.—LONDON, Nov. 21.

A fair demand continues for most descriptions of wool, the finest still continuing to have the preference. The alteration in the rate of interest by the Bank of England has produced no effect in our market rates. JOHN MORREN.

	s.	d.		s.	d.					
South-down Hoggets	1	6	to	1	6½	Leicester Wethers	1	3	to	1 3½
Half-bred ditto...	1	4½	—	1	5	Ditto Hoggs ...	1	4	—	1 4½
Down Ewes ...	1	3½	—	1	4½	Flannel Wool ..	1	0	—	1 5
Kent Fleeces ...	1	3½	—	1	4	Blanket ditto ...	0	7	—	0 10
						Combing Skins .	0	10½	—	1 3½

THE COLONIAL WOOL SALES.—The fine descriptions of wool fully maintain the late rates. East Indian wool sells at a small reduction, in consequence of the depressed state of the blanket trade.

POTATOES.—SOUTHWARK, Monday, Nov. 17.

During the past week the arrivals coastwise have been very small for the season of the year, and the most of them in bad condition, which causes the consumption to fall off, and the trade is very heavy, at the following quotations:—Yorkshire Regents, 70s. to 110s.; Kent and Essex do., 85s. to 110s.; Lincolnshire do., 40s. to 90s; East Lothian do., 80s. to 105s.; Perth, Forfar, and Fifeshire, do., 20s. to 90s.: Jersey Whites, 80s. to 85s.; German Whites, 80s. to 85s.

HOPS.—BOROUGH MARKET, FRIDAY, Nov. 21.

Messrs. Pattenden and Smith report that the demand for fine Hops increases, and such are very scarce.

HAY.—Per Load of Thirty-six Trusses.

SMITHFIELD, THURSDAY, Nov. 20.

Prime Meadow Hay	68s	to 80s	Old Clover	70s	to 110s
Superior do. (old)...	84	90	Second cut	70	95
Inferior do.	50	60	New Clover	—	—
New do.	—	—	Straw	24	28
Rowen	50	70			

E. J. DAVIS.

CUMBERLAND MARKET, THURSDAY, Nov. 20.

Sup. Meadow Hay .	90s	to 96s	Inferior Clover ...	80s	to 97s
Inferior do.	60	84	New do.	—	—
New do.	—	—	Straw	28	32
Superior Clover ...	105	110			

JOSHUA BAKER.

WHITECHAPEL, THURSDAY, Nov. 20.

Fine old Hay... ...	70s	to 80s	Fine old Clover ...	95s	to 110s
Inferior do.	50	60	Inferior do.	70	80
Rowen	—	—	Fine new Clover ...	—	—
Inferior do.... ...	—	—	Fine old 2d cut ...	90	96
Straw	—	—	Inferior do	55	60

METROPOLITAN CATTLE MARKET.

MONDAY, Nov. 17.

The number of Beasts is very much smaller than on Monday last, and consequently rather higher prices are obtained; however, trade is not brisk, and it is difficult to effect a clearance. There are a few more Sheep. There is a demand for them, and prices have not much altered. Good Calves are scarce and dearer. From Germany and Holland there are 1420 Beasts, 1600 Sheep, and 137 Calves; from Spain, 60 Beasts; from Scotland, 100; from Ireland, 700; and 1800 from the northern and midland counties.

Per st. of 8 lb.—	s d	s d		s d	s d
Best Scots, Herefords, &c. ...	4 8	to 5 0	Best Long-wools...	4 10	to 5 0
Best Short-horns .	4 4	— 4 6	Do. Shorn... ...	—	...
2d quality Beasts	2 8	— 3 8	Ewes & 2d quality	4 2	— 4 6
Best Downs and Half-breds ...	5 2	— 5 4	Do. Shorn... ...	—	...
Do. Shorn	—	...	Lambs	—	...
			Calves	4 4	— 5 4
			Pigs	4 0	— 5 0

Beasts, 4891; Sheep & Lambs, 20,470; Calves, 178; Pigs, 505.

FRIDAY, Nov. 21.

There are a few more Beasts than on Friday last. The demand is exceedingly small, consequently Monday's quotations cannot be supported, and a considerable proportion remains unsold. The supply of Sheep is remarkably small, yet it exceeds the demand. We cannot, however, quote much lower than on Monday. Calves are sold at a decline of about 4d. per 8 lbs. From Germany and Holland there are 120 Beasts, 350 Sheep, and 131 Calves; from Ireland, 200 Beasts; 450 from the northern and midland counties, and 143 Milch Cows from the home counties.

Best Scots, Herefords, &c. ...	4 8	to 4 10	Best Long-wools .	4 8	— 4 10
Best Short-horns .	4 4	— 4 6	Do. Shorn	—	...
2d quality Beasts	2 6	— 3 6	Ewes & 2d quality	4 0	— 4 4
Best Downs and Half-breds ...	5 0	— 5 2	Do. Shorn	—	...
Do. Shorn	—	...	Lambs	—	...
			Calves	4 0	— 5 0
			Pigs	4 0	— 5 0

Beasts, 1108; Sheep & Lambs, 2400; Calves, 192; Pigs, 150.

MARK LANE.—MONDAY, Nov. 17.

The weather since Friday has been unusually fine for the season, but not without fog in London. This morning's market was fairly supplied with English Wheat. Fine dry white was in request at fully last week's prices, but red met a slow sale, and must be written 1s. to 2s. per quarter cheaper. Business in foreign was very limited, and its value unaltered, the market being only moderately attended. Fine Barley brings about last week's prices, other qualities are rather cheaper. Beans and Peas are the turn lower. The Oat trade is slow, and new corn rather easier. In Flour there is very little doing, and prices are rather in favour of the buyer.

PER IMPERIAL QUARTER.	s. s.		s. s.
WHEAT, Essex, Kent, & Suffolk...White	60—80	Red	58 - 70
— — fine selected runs...ditto	70—74	Red	60—76
— — Talavera.....	70—80		
— Norfolk	—	Red	—
— Foreign	60—90		
BARLEY, grind.&distil.,36s to42s...Chev.	44—50	Malting .	40—44
— Foreign...grinding and distilling	34—42	Malting	40—46
OATS, Essex and Suffolk	21—27		
— Scotch and Lincolnshire ...Potato	25—29	Feed	20—24
— Irish .....Potato	25—29	Feed	20—25
— Foreign.....Poland and Brew	24—29	Feed	20—27
RYE	40—42	Foreign .	—
RYE-MEAL, foreign.....	—		
BEANS, Mazagan.....33s to 40s.... .Tick	35—41	Harrow .	35—41
— Pigeon... .....40s—48s...Winds.	—	Longpod .	—
— Foreign .....Small	38—44	Egyptian	36—38
PEAS, white, Essex and Kent ...Boilers	40—45	Suffolk...	42—46
— Maple.....—s to —s.....Grey	36—40	Foreign .	36—52
MAIZE .....White	—	Yellow...	—
FLOUR, best marks delivered ...per sack	52—60		
— 2d do. .....ditto	42—50	Country .	42—50
— Foreign .....per barrel	28—40	Per sack	50—58

FRIDAY, Nov. 21.

The weather this week has been cold, frosty, and wet. Wind chiefly N.W., but yesterday the temperature became milder. The grain trade throughout the kingdom has been very inactive, with a general tendency to lower prices. English and new foreign Wheat in the majority of markets has declined 1s. to 2s. per quarter, in some instances more. In some cases lower prices have also been submitted to upon old soft Russian, to clear vessels coming on demurrage. Barley is generally depreciated in value 1s. and 2s. per quarter. Beans and Peas have likewise undergone a similar reduction of price in many markets. Oats have been generally purchaseable on somewhat easier terms. Flour has been neglected, and in the little business transacted buyers have had the advantage. Prices of Wheat in Hamburgh and the Baltic ports, where supplies are increasing, have also declined 2s. per quarter. The arrivals of all foreign grain and Irish Oats this week have been large, good of Flour, and moderate of English grain. The attendance at this morning's market was very small, and scarcely any business was transacted in either description of corn. Wheat of all kinds must be written the turn lower. Barley is dull, and rather cheaper. Beans and Peas are unaltered in value. The Oat trade is very heavy, and new corn fully 1s. per quarter lower. Flour is a slow sale, and Monday's prices barely supported.

ARRIVALS FROM Nov. 17 TO Nov. 21.

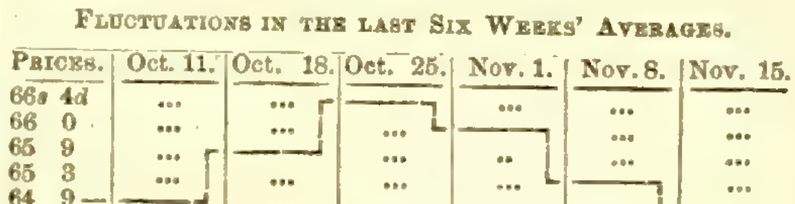
	Wheat.	Barley.	Oats.	Flour.
English ...	2270 qrs.	3740 qrs.	50 qrs.	2320 sks.
Irish	— "	— "	23850 "	—
Foreign ...	35130 "	12810 "	21070 "	560 " 9550 brls.

LIVERPOOL, Tuesday, Nov. 18.—Our Corn Exchange this morning was moderately attended by country millers and dealers, who acting very cautiously took only sparingly of Wheat, at prices much about the same as those obtained on Friday last for average runs, but the better sorts of white American being in free supply at present are 1d. to 2d. per 70 lbs. under last market day. The decline on the week may be taken all round at 3d. to 4d. per bushel. Flour, neglected sale, and upon the few transactions made our quotations cannot be altered. Indian Corn held firmly at extreme rates, with only limited demand. Oats and Oatmeal rather easier. Egyptian Beans, outside quotations enforced. No change as regards other articles.

LIVERPOOL, Friday, Nov. 21.—There was a fair demand for Wheat in our market this day, although the attendance of millers and traders was small. Flour-like Wheat was in moderate demand, but the prices of both were rather weaker than on Tuesday last. Oatmeal 1s. per load lower. Indian Corn unchanged. Peas, Beans, Oats, and other articles without alteration.

AVERAGES	Wheat.	Barley.	Oats.	Rye.	Beans.	Peas.
Oct. 11 .	64s 9d	42s 9d	25s 9d	39s 11d	45s 2d	43s 3d
— 18 .	65 9	44 0	26 8	40 1	46 1	44 0
— 25..	66 4	45 8	27 1	40 11	46 6	44 9
Nov. 1.	66 0	46 2	26 7	41 8	47 2	45 5
— 8 .	65 3	46 8	26 5	40 4	46 0	45 9
— 15..	64 4	46 7	26 2	41 7	47 3	43 2
Agg. Aver.	65 5	45 4	26 5	40 9	46 4	44 5

FLUCTUATIONS IN THE LAST SIX WEEKS' AVERAGES.



THE PERFECT EIGHT-DAY WATCH.—A most important invention.—L. MESURE & Co., Patentees of the Eight-Day Watch, 12, King William Street, Charing Cross, beg respectfully to announce that they have succeeded in perfecting an EIGHT-DAY WATCH, for which patents have been obtained in England, France, Belgium and Holland. These sound English Watches, which do not exceed in size and price the ordinary watches now in use, require to be wound up only once a week with three turns of the key, instead of every day with six or seven turns, thus greatly diminishing the wear upon the works. Warranted to go correctly. An inspection is solicited. Silver Levers, four holes jewelled, from 6l. 16s.; Gold Levers, four holes jewelled, from 16 guineas.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, curly, and glossy. In the growth of the Beard, Whiskers, Eyebrows, and Mustachios, it is unfailing in its stimulative operation. For Children it is especially recommended as forming the basis of a beautiful head of hair. Price 3s. 6d. and 7s.; family bottles (equal to four small), 10s. 6d.; and double that size, 21s.

NEW LABEL.—To prevent the substitution of spurious imitations for the genuine article by unprincipled shopkeepers, a New Label from Steel, by Messrs. Perkins, Bacon, & Co., is now used, upon which are engraved in white letters the words, "Rowlands' Macassar Oil, for the Growth, Restoration, and for Beautifying the Human Hair." Under which is the Signature of the Proprietors in Red Ink, "A. ROWLAND & SONS." The whole, with the exception of the profile of Her Majesty the Queen, being covered with a lacework pattern, in transparent colourless ink.—Sold at 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

TO NERVOUS SUFFERERS.—A Retired Clergyman having been restored to health in a few days, after many years of great nervous suffering, is anxious to make known to others the means of cure; he will send (free), on receiving a stamped envelope, properly addressed, a copy of the prescription used.—Direct, Rev. E. DOUGLAS, 18, Holland Street, Brixton, London.

DEBILITY AND NERVOUSNESS. — Encouragement to those in despair, and suffering from debility, spermatorrhœa, relaxation, nervousness, and exhaustion of the system. Advice and prescriptions, with a treatise on these diseases, for a successful course of self-treatment, by which a permanent cure of the most protracted case is effected, sent post free upon receipt of 14 postage stamps, and symptoms, by E. J. ROBERTS (late Army Surgeon), Greencroft Villa, High Fell, Gateshead, Durham.

JOHN WEEKS & CO., KING'S ROAD, CHELSEA, HORTICULTURAL BUILDERS.

REGISTER FOR GARDENERS.

NO CHARGE EXCEPT FOR POSTAGE.

The Nobility and Gentry in want of Gardeners, Bailiffs, Foresters, &c., are respectfully informed that Gardeners are classed here according to their various qualifications. By sending full particulars such Gardeners only will be introduced as are worthy, and well adapted for each particular situation.

Gardeners in want of situations are requested to apply to JOHN WEEKS & Co., Horticultural Establishment, Chelsea.

ESTATE AGENT.—Several landed proprietors will be happy to answer any inquiries respecting their ESTATE AGENT, who is desirous of adding to his present engagements, and can advance 10,000l. on the property which may be intrusted to his care and management, at a reasonable rate of interest for a term of years. A commission on the rental or a fixed charge will be taken as remuneration, and no other expenses incurred: a guarantee will be given for no arrears of rent and the punctual payment of rent when due; any nobleman or gentleman being anxious to improve his Estate and increase his rent-roll will find this an eligible opportunity for so doing.—Address D. D., care of Messrs, King and Loder, Stationers, 239, Upper Thames Street, Blackfriars, London.

WANTED, a good GARDENER, who thoroughly understands the growing of Vegetables and Fruit, and who is able to lay out Grounds. A single man would be preferred; but if he is married, he must have no children, and his wife must be a good Laundress. The strictest inquiries will be made as to character.—Apply to FREDERICK M'CONNEL, Esq., Robgill Tower, near Ecclefechan, Dumfriesshire.

WANTED, a LAD, from 15 to 17, who has been accustomed to Horses and Stock, and Garden.—Direct to A. B., 26, James Street, Covent Garden, London.

WANT PLACES.—Letters to be post paid.

GARDENER (HEAD).—Age 38, married, with a small family; thoroughly understands Greenhouse Plants, Early Forcing of Flowers and Fruits, Flower and Kitchen Gardening, &c. Ten years' good character.—A. Z., Mr. Mason's, Low Leyton, Essex.

GARDENER (HEAD).—Single, age 30, a native of Scotland; has had 14 years experience, and gained a thorough knowledge of the improved principles of Modern Gardening in all its branches. Unexceptionable character. Liberal Wages expected, with Cottage, &c.—J. M., Corsham Court Gardens, Chippenham, Wilts.

GARDENER (HEAD), age 26, single.—JAS. DREWETT Gardener, the Denbies, near Dorking, Surrey, can recommend with confidence to any nobleman or gentleman a young Man who understands the routine of Gardening in all its branches, including the Cultivation and Fruiting of Vines in pots to the highest state of perfection.—Direct as above.

GARDENER (HEAD).—Married, age 26; has had great experience in all branches of his profession; has been upwards of four years Foreman to the Right Hon. Lord Viscount Palmerston, Broadlands, where first-class Forcing is carried on. Can have a high character from the above place; also a recommendation from the nobleman whom he served before. Salary 65l. a year, with cottage, &c.—R. BIDE, Broadlands Gardens, Romsey, Hants.

GARDENER (HEAD).—Age 34, married, no family; understands Vineries, Stove and Greenhouse Plants, Flower and Kitchen Gardens, and Plantations; has had 18 years experience. Four years' excellent character from last situation, which he has just left in consequence of the death of his employer.—A. B., 11, Mount Pleasant, South Fields, Wandsworth.

FOREMAN.—Age 24; where Gardening is carried on in all its branches.—R. W., Post Office, Dorking.

GARDENER.—Age 36, single; 18 years' practical experience. Three and a half years' character from late employer.—M. R., Messrs. Lee's, Nursery, Hammersmith.

GARDENER.—Age 27, single; thoroughly understands Greenhouse, and Kitchen and Flower Gardens. Can have four years' character from last employer.—A. B., Mr. Bennett, Seedsman, Dulwich.

GARDENER.—Age 29, single; has had good practical experience in the Management of Forcing of Fruits and Flowers, and the Management of Kitchen and Flower Gardens.—G. W. BRAMLEY, Guildford, Surrey.

GARDENER.—Has had extensive practice in the whole routine of Gardening, including Growing Plants and Fruits for Exhibitions and other purposes; likewise the Management of Farming, Land, Stock, Draining, &c. Unexceptionable character.—F. H. S., Post Office, Chatsworth, Derbyshire.

GARDENER.—Native of Scotland, married, with little incumbrance, can engage as a single man; has varied experience in every branch of his profession. Can act as Bailiff, having acted in both capacities in large establishments. Also the Management and Valuation of Timber; is a good Accountant. Testimonials will be found very satisfactory as to character, abilities, &c.—R. E. H., 51, Edward Street, Albany Street, Regent's Park.

GARDENER (SECOND).—Age 23, single; desirous of improvement in the higher branches of Gardening. Can have a very good character from the gentleman for whom he has worked for some years.—F. W., Weald, Seven Oaks.

GARDENER, OR GARDENER AND BAILIFF.—Age 32, married, no incumbrance; has a thorough knowledge of his profession in all its branches.—H. K., 4, Duke's Road, Tavistock Square, London.

STEWARD AND BAILIFF.—Age 32, married; has had some years' experience in the management of an Estate, and perfectly understands Farming in all its branches. Wife capable of managing a Dairy and Poultry if required. Highest reference.—A. T., Post Office, Whitchurch, Hants.

FARM BAILIFF.—Should this meet the eye of any one wanting a steady single Man that knows his business in all its branches, and will make himself useful. Good reference given.—95, Edgeware Road, London.

FARM BAILIFF.—Age 38, married, without incumbrance; thoroughly acquainted with the routine of Farming, including Hops, Draining, Breeding, and Rearing Stock, &c. Wife can undertake the Poultry or Dairy. Satisfactory reference.—A. B., Post Office, Yalding, Kent.

CLERK OR ASSISTANT.—Age 24; having eight years' experience in the Trade, desires an engagement in either of the above capacities. Unexceptionable references.—L. Z., 165, Aldersgate Street, London.

SHOPMAN IN THE SEED TRADE.—A young person of good address and business habits is desirous of obtaining a permanent situation as above. No objection to travel or assist in the Nursery.—C., Hurst and M'Mullen, 6, Leadenhall Street, London.

WAREHOUSEMAN.—Has been employed in the London Trade above 11 years. Conversant with all the details of a Warehouse.—J. C. R., 22, Wormwood Street, City.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ESTABLISHED 1812.
TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the weight and quality of the bulbs which it produces; it is besides especially beneficial to the Grain Crops which follow, while Clover is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to
H. & T. PROCTER, Cathay, Bristol;
PROCTER & RYLAND, Birmingham;
EDMONSCOTE, Warwick; and SALTNEY, near Chester.

PATENT WOOL MANURE COMPANY (LIMITED).—Wool Manure for Corn, 7*l.* 10*s.*; Turnips, 6*l.* 10*s.*; delivered to any Railway Station or Wharf in London. Applications for Agency from influential persons attending Provincial Markets to be forwarded to C. H. TIDBURY, Secretary, 81, Gracechurch Street, London.

LONDON MANURE COMPANY
(Established 1840)
Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.
THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.
EDWARD PURSER, Secretary.
40, Bridge Street, Blackfriars, London.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

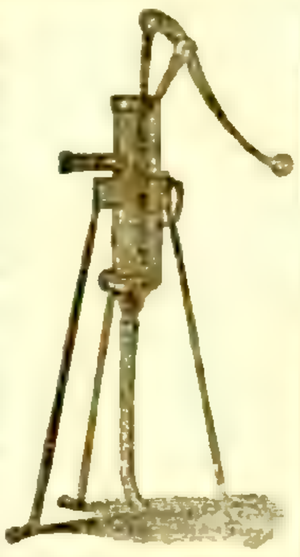
CONCRETE FOR WALKS AND FLOORS.—PORTLAND ROMAN AND BATH CEMENT AND GROUND BLUE LIAS LIME in Sacks or Casks, by Railway or Canal. Reduction in price if Six Tons are taken by Railway, or a full cargo by Canal.
GREAVES & KERSHAW, Warwick.—Nov. 22.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM THE MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.
The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.



WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1 10 0
2½ „ long	3 „ 3 „	gutta percha,	1 14 0
3 „ ditto	3 „ 6 „	or cast iron	2 8 0
3½ „ ditto	3 „ 6 „	flanged pipe,	2 12 0
4 „ ditto	3 „ 6 „	as required.	3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

LAND DRAINAGE undertaken to any extent, by Contract, or on Commission, and immediately executed by THOS. SCOTT, Land Agent, 5, Charing Cross.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of Prize Cattle, Seeds, Roots, Implements, &c, commences on TUESDAY MORNING and closes on FRIDAY EVENING, December 9, 10, 11, and 12. Bazaar, King Street and Baker Street. Open from daylight till 9 in the evening. Admittance One Shilling.

SEED WHEAT FOR LATE SOWING.
TALAVERA, RED NURSERY, AND HYBRID WHEAT, the best sorts for late sowing, may be had on application to H. RAYNBIRD, Basingstoke. A reference or remittance required from unknown correspondents.

SEED WHEAT.
MR. MORTON has still some BROWICK RED WHEAT FOR SEED, on Sale at 10*s.* 6*d.* a bushel.
Post Office Orders to be made payable at Kingston-on-Thames, to Mr. JOHN C. MORTON, West Molesey, Surrey.

The Agricultural Gazette.
SATURDAY, NOVEMBER 22, 1856.

AT the present moment the comparative merits of thick and thin sowing are actively discussed, not only at farmers' clubs but at every market table. Farmer HOLDFAST, whose white head and wrinkled brow would lead us to suppose that he had farmed for at least half a century, gives as his conclusion, derived from all those years of experience, that he should rarely think of sowing less than three bushels; whilst Mr. NEWLIGHT, who is but a young agriculturist, states with equal confidence that the best crop he has ever seen was from the sowing of three pecks.

Now, as there is in this a great deal of difference, one may at first be led to conclude that one or both of these gentlemen must be in error as to facts; but if we inquire a little further into the matter we shall find that while the larger quantity might not have been too much in past times, and may not even now where the condition of the past is maintained, the smaller seeding on the other hand is not too little where all the conditions of the soil have been improved.

Farmer HOLDFAST when he was young, and we all know with what tenacity the lessons of our youth are adhered to, was taught that the rougher you got in your Wheat the better, and so the ground with a single ploughing was sown with the grain, and imperfect harrowing left some of the seed exposed whilst much was covered up with huge clods. Here, then, on a cold undrained soil a large portion perished from exposure; much of what was covered suffered from similar causes, and a large proportion of the plants that ultimately appeared would spring from such a depth that their tillering would have to commence at the third or fourth joint or node upwards, in which case new roots must be made at that node and all below would die away, and thus much time and energy of growth is lost to the plant, which would therefore tiller but slightly, yielding even then but weak stalks and stunted ears.

But the process of tillering is interfered with in another way by too thick sowing, for if the seed should come up well this, like thick planting of trees, causes the plants to grow up thin and emaciated; the central axis is elongated, in which case the lateral buds are not usually brought to perfection, or, if they do grow, they are thin and irregular, and without a disposition to *rebranch*, for it must be remembered that when lateral branches are strong they in turn give off others. So in deep and thick-sown Wheat each successful grain has to answer for at most but three or four ears, whilst one seed under the best tillage will make from 10 to 20 ears of corn, and well tillered corn has always the largest heads. Upon this subject the following experiment which we carried out last year may not be without interest, although even here we have no analogy to the rough work of Farmer HOLDFAST's youth, as our ground was so smooth that our seeds came up well, and did tolerably afterwards.

On February 2, 1854, we planted eight rows of Wheat with 24 grains in each row at depths as follow:

½ inch	Came up March 21	= 48 days		Starved.
1 „	„ „ 20	= 47 „		
1½ „	„ „ 22	= 49 „		Good plant, and tillered well in spring.
2 „	„ „ 23	= 50 „		
2½ „	„ „ 24	= 51 „		
3 „	„ „ 25	= 52 „		A weakly plant, and tillered but slightly.
3½ „	„ „ 26	= 53 „		
4 „	„ „ 27	= 54 „		

The produce of these bracketted groups may be stated in proportionals as 2, 6, 4, so that from this experiment we were led to the following conclusions:—

1. Shallow sowing perils on account of the winter exposure of the whole plant.
2. A range of depth from 1½ to 2½ inches is best.
3. That deep sowing is longer in producing the plant, and its plants are always weakly.
4. Irregular sowing at different depths within a wide range requires far more seed for a good crop than depositing the seed uniformly at a proper depth or within a moderate range.

Again in the comparatively rougher farming of the past much grain was choked with weeds; and thus it appears that thick sowing was an absolute necessity in the earlier days of farming, in order to guard against the contingencies arising,

1st. From the colder climate attributable to a general want of draining.

2d. From the consequent bad tilth of land, thereby resulting in rough clods, amongst which seed would be scattered at irregular intervals.

3d. From the very irregular depths at which it must consequently be sown.

Let us now glance at the condition of matters as Mr. NEWLIGHT, an agriculturist of the modern school, would have them. His land is well drained, and already great changes have been made in the climate of our soil thereby. Formerly we have seen a Wheat crop perilled because the seed could not be sown in time to get a good plant before Christmas, and now in the same districts we have seen winter Wheat sown in January and February answer remarkably well under thin sowing. The land is more free from weeds, and though much remains to be done in this way, yet it is seldom we see so foul a stubble under the hands of the modern school as are met with on the farms of those who retain the prejudices while they have lost the energy of their youth. Under the present mode of farming too only the most intractable soil is obliged to be left in large clods, so the seed can be deposited by the drill or the dibble with a regularity as to distance and depth that enables us to calculate the effect of quantity with a degree of certainty not formerly attainable. In the present day a wider range of time can be taken for Wheat sowing than formerly on account of the great improvements of modern husbandry; but inasmuch as one sort of Wheat is better for sowing at one season than another, it also happens fortunately that science and energy has been brought to bear upon the production of varieties of Wheat adapted for different circumstances. This is a matter of which we shall see the force on examining the following Table extracted from an essay in the Journal of the English Agricultural Society. In the experiment upon which the Table is founded a plot of Red Lammas Wheat was sown on the 14th day of each month in the year. The soil, it may be stated,

was thin, and the district was considerably above the level of the sea.

Table of Growth of Wheat in each Month of the Year.

Year.	Sown in :—	Height of Crop.	Length of Ear.	Remarks.
		ft. in.	Inches.	
1851	June	3 5	3	Clean straw.
	July	2 10	2	Ditto.
	August ...	4 1	4	Ditto.
	September ...	3 11	4	Ditto.
	October ...	3 10	4	Rather blighted.
	November ...	3 9	4	Ditto.
	December ...	3 10	3½	Much blighted.
1852	January ...	3 10	3½	Ditto.
	February ...	3 6	4½	Ditto.
	March... ...	.....	.....	Failed as a crop.
	April	.....	.....	
	May	.....	.....	

This, while it shows that for the same Wheat September, October, and November are the best months for sowing, yet for four months afterwards, though the same Wheat may grow, yet it will be blighted in the straw. The straw of winter Wheats sown after December are almost certain to be blighted, so that different sorts should at all times be chosen for different seasons.

Again, as the old farmer from necessity got in his Wheat very early, he could thus trust to a strong plant—for usually only the strongest survived—for tillering, and thus it happened that of his seed he always provided for the greater part being lost; with the modern farmer, however, too early sowing is often liable to objection as bringing on the state called "winter proud," which means a thin attenuated growth—a result sure to happen with early and thick sowing on improved land.

These remarks therefore tend to show that under certain conditions thick sowing is a necessity—a necessary evil, however, because certainly the crops of the past were, when the practice was required, not equal to those of modern agriculture. The increase per acre over whole counties has been as much as from 5 to 10 bushels.

On the other hand thin sowing under improved tillage is as much a necessity as thick under the older mode, and we believe that even thinner sowing than our friend NEWLIGHT has been supposed to advocate, will some day be the topic which will occupy his descendants.

CONVERSAZIONE AT THE ROYAL AGRICULTURAL COLLEGE.

IT may be interesting to our readers to learn that a scientific conversazione, the first we trust of a series, was held in the hall of the Royal Agricultural College on the 11th inst., and fully realised the idea of its promoters, in affording to numerous visitors, many of whom were attracted from a considerable distance, a very agreeable and instructive evening; presenting to their view, in well arranged series, a great variety of agricultural products and scientific objects elucidating farm practice. The chair was taken by Edward Holland, Esq., M.P., who introduced the various subjects to be brought before the company in his usual happy and interesting style. The room, which is 70 feet long and lofty, was well lighted, and presented a most effective appearance; the walls, hung with a variety of diagrams illustrative of the various departments of instruction; several of them being the work of students, especially a very comprehensive geological survey of the oolitic range in the neighbourhood. The botanical department was here represented by a series illustrative of forest trees, from the pencil of —— Lees, Esq., of the Worcestershire Naturalists' Club, who illustrated them by a short lecture, specially alluding to the poetical features of forest scenery. Natural history found a place in numerous fossil remains and a great variety of insect life, described by Mr. Jones, of Gloucester. Space would fail were we to attempt anything like a regular enumeration of the diagrams, which were generally admired, as excellently adapted for the purposes of instruction. Above these, and floating proudly over this peaceful scene, were the flags of various nations, our competitors and coadjutors in the great race for that which will prove of more value than territorial riches—the knowledge of nature. Ranges of tables on either side of the room were devoted to the various departments of science bearing on agriculture, which form part of the college course; tables were covered with agricultural produce, principally from the college farm, and very creditable both as to size and quality; together with other feeding substances, amongst which we noticed the Carob or Locust Bean side by side with the living plant from the botanical garden. Mangel Wurzel of various kinds were shown; and here a fact was pointed out which may be worthy of remark, the finer size of those sown on the ridges immediately above the manure over others where winter manuring and spring ridging had been adopted. We were informed that the root crops upon the farm generally are very good. Two tables were devoted to productions from the Botanical Garden of no ordinary interest, showing principally the extraordinary effects of cultivation upon wild plants hitherto considered as of totally distinct species from their cultivated relations, and the reverse process of a downward tendency when field crops are neglected. The Wild Parsnip, Pastinaca sativa, after some years' education having produced a root rivalling our garden crop both in size and quality. The Wild Oat Avena Fatua has produced both Potato and Tartarian Oats, and the cultivated Oat has been proved to degenerate into the wild variety. A case containing the produce of successive years exhibited the various stages. We need not stop to point out the immense importance of such experiments as are constantly being carried on in the Botanic Garden, and we rejoice to learn that the British Association have requested the indefatigable Professor Mr. Buckman to furnish an annual report of them. In connection with this department we noticed a large collection of hybrid Wheats grown by Mr. Maund, who during the course of the evening delivered a short lecture in explanation. Veterinary science, justly considered of great importance to the agriculturist, was well represented by some excellently prepared anatomical specimens, amongst which we particularly noticed the teeth of animals as indicating age. Further on we found a table covered with roots of Swedish Turnips, varying greatly in size, the result of a series of experiments by the Professor of Chemistry on the effect of various manuring substances, any remarks upon which, save that they promise to be of the highest interest, would be forestalling that information which we look for from Dr. Voelcker at some future period. Amongst various chemical productions, a bar of the newly discovered metal aluminium excited much interest. Powerful microscopes revealed the wonders of the invisible world, whilst on an opposite table electrical apparatus served to amuse and interest.

A NEW DISINFECTANT.

Sir J. S. Forbes recently called the attention of a meeting of agriculturists at Fettercairn N.B., to M'Dougall's disinfecting powder, a quantity of which he had obtained, and was using in the byres and stables with advantageous results. In his remarks upon this powder he said that he had not yet had sufficient time to try its effects in preserving the essential qualities of the manures, but he had no doubt whatever that it was perfectly capable of achieving that important result. They were aware that the exposure of animal manures to the action of air and moisture greatly deteriorated their value, and in time rendered them altogether worthless. But the loss of the manure was not the only evil sustained from such exposure. The noxious gases yielded by animal manure when in a state of decomposition were highly detrimental to health, and their effects as Mr. M'Dougall, of Manchester, in a lecture delivered at the Bakewell Farmers' Club, pointed out, were visible in the "unsanitary condition of the atmosphere in and around the stables, cow houses, piggeries, &c.—a lowering of the general health of the locality, from which neither the farmer his family, nor his servants can escape,—and a greatly increased liability to disease among the cattle." The great loss of cattle of late years is attributed in a great degree to this cause, yet, says Mr. M'Dougall—"Amazing as it may seem, it is nevertheless true, that many farmers have a prejudice in favour of a strong smell of putrid dung upon their premises; they have been so long accustomed to it—having been in fact reared near it—it appears to them so natural and necessary a thing in a farm yard, as I was once told, 'It smells so like home,' that they would feel as if all were not comfortable without it." Now it was obviously supplying a great desideratum to obtain a disinfectant which would have the effect of removing all offensive smells, and at the same time preserve all those elements in the manures which gave them their agricultural value. Mr. M'Dougall pointed out that the ordinary deodorizers or disinfectants failed to accomplish this, and were besides open to objection, on the ground that they introduced pernicious substances into the manures to which they were applied. Thus, chloride of zinc and nitrate of lead are strongly acid and corrosive, both being costly and both highly poisonous. Chloride of lime is also expensive, unpleasant to use, and "acts most detrimentally upon manures by decomposing the ammonia they contain." Other substances, such as charcoal and copperas, are also pernicious in their action upon organic manures. The noxious emanations from these manures, which it is desirable to remove, are sulphuretted hydrogen and phosphuretted hydrogen, and the fertilising elements, which it is necessary to preserve, are phosphoric acid and manure. Mr. M'Dougall says that his powder fulfils both these objects—thus realising what the late Professor Johnston confessed as the desideratum that must still be sought, viz., "an effective disinfectant either to decompose or to combine with both the alkaline and acid products of decomposition." It is composed of two acids and two bases, the acids being sulphurous and carbolic acid, and the bases, magnesia and lime. The general effect is thus described by Mr. M'Dougall:—"We use sulphurous acid to remove the offensive smell, carbolic acid to prevent putrefactive fermentation, a little lime to neutralise and dry this latter acid, and magnesia to combine with and preserve the phosphoric acid and ammonia; and, in special cases, we add a soluble phosphate to prevent the loss of any of the ammonia." Thus the chemical action is complete, decomposition is arrested, and the valuable organic agents in fertilisation are retained in quiescence, spell bound by their affinities, until they are brought into juxtaposition in the seed-bed with their objects of nutrition. The proof that this problem is solved is the complete and instantaneous subjection of the most outrageously offensive odours by the exhibition of this deodoriser, and the increased amount of valuable manurial ingredients which are found in excrement treated with it, or prepared for use in any other manner. This point cannot be said yet to be fully developed, as Mr. M'Dougall compared pure night-soil prepared by his powder with the common privy dung of Manchester mixed up in open ashpits, which are not at all parallel circumstances; but he had promised him shortly a careful analysis of stable-dung prepared with and without it, to show the actual money difference in chemical value. The money value of a ton of town night-soil disinfected and prepared by this powder Sir John quotes as follows:—

	£	s.	d
Ammonia, 4 per cent, or 99 lb. per ton, at 6d. per lb.	2	5	0
Phosphates, 7 per cent., or 156lb., at ¾d. per lb.	0	9	9
The other constituents cannot be estimated at less than	0	10	0
	£4	4	9

—while that of a ton of the ordinary night-soil, as usually sold to farmers, and which contains 0.5 per cent., or 11 lb. per ton, is only 6*s.* 2½*d.* Sir John next referred to the benefits which had been derived from the use of the disinfecting powder at Mr. Murray's extensive horse bazaar in Manchester, and concluded his interesting observations on the subject by reading the following letter from Mr. Murray:—

"Broughton Mews, Manchester, Nov. 3, 1856.

"SIR JOHN S. FORBES, BART.

"Sir,—At the request of Mr. M'Dougall, I send you my candid opinion of the merits of his disinfecting powder. I have used for two years about nine cwt. per month, for both my house, stables, and outbuildings; I find it the most important ingredient I ever tried. Since using it in my stables, in which I have upwards of 80 valuable hunters, it has removed all smell, and made my stables perfectly sweet, dry, and wholesome; also, my horses have enjoyed better health, and are free from disease and coughs. Moreover I can sell my manure for 5*s.* per ton more than I ever could before to experienced farmers, and before I had my midden fit for sale I had 20 customers for it. The next year we shall have a good proof of its value, as I have sold it to the Mayor of Manchester, who is deeply interested in observing the result.—Believe me, I am, Sir John, your obedient servant, W. MURRAY."

"On this," said Sir John, "I have only to observe that the large increase in the market value of the stable-dung we are assured is all profit, as he actually saves the price of the powder by the saving of litter, from its additional effect (perhaps from the chlorine evolved, besides the mere quantity of dust) in drying his stalls. The operation of the powder I shall show you upon well made court and byre dung as you go down stairs to the yard; and, savoury as I believe you will find the original deposit to be, I think his olfactory nerves must be sensitive indeed who can detect, even on close juxtaposition, the slightest effluvium, even immediately after a moderate sprinkling of the powder has been applied. I have only to add that the last requisite of a deodoriser to meet our wants is here completely fulfilled. Its portableness you see, and its cheapness Mr. Murray's letter proves, by the saving of litter equal to its cost; but as the cost, at 10*s.* per cwt., scarcely exceeds 1*d.* per lb., and as half a pound, dredged through a white iron dredger over the foot of the stall when the dung has been removed, before the fresh litter is laid down each day, will serve two beasts or one horse, it cannot be considered, in any circumstances, an extravagant outlay, taking into account the sanitary effects which the dragoon officers' certificates so confidently declare to result from its effects, independent of enhanced manurial value."

Dr. Foreman, Fettercairn, at the request of Sir John, next stated the result of some experiments he had made with the powder. His experiments were directed to generated sulphuretted hydrogen in large volumes in a close room, which was immediately overcome, and carbon deposited, blackening the locks of the doors, &c., from the carbon deposited by the action of the powder.

In answer to Mr. Cowie, Sir John stated that the powder could easily be applied as a whitewash to the walls and ceiling of a room, and could be otherwise used as a fumigator in infected apartments.

The company then proceeded to the farmyard, where a quantity of farmyard manure was turned over, emitting, of course, a powerful odour, which disappeared almost instantaneously on the application of a slight sprinkling of the powder. *Abridged from the Montrose Standard.*

FARMING IN STAFFORDSHIRE.

HAVING now been one of the judges of farms and crops for the Keele Farmers' Club for several years, which has given me an opportunity of several times going over the estate belonging to Ralph Snyde, Esq., of Keele Hall, and remarking the improvement going on upon his estate, the following may perhaps be thought not without its use, or uninteresting to some of your readers.

Keele Hall and village are situated on a high ridge of land in North Staffordshire, on the west side of the river Trent, and very near the source of that river; consequently at a considerable altitude above the sea, and of course not situated favourably as respects climate, either in temperature or moisture, and thus less adapted for the cultivation of arable crops than a great extent of country in the same county. The corn harvest seldom commences before the middle or latter end of August. The soil is mostly a strong clay loam resting on a strong red marl, or rock, in the neighbourhood of Keele, Norton, and Badenall. That portion of the estate which lies more eastward, and in the Potteries, is mostly a poor clay loam with a nasty tenacious clay subsoil, difficult to drain, and difficult to cultivate.

Some years ago the estate was undrained, the fields small, and the fences broad and crooked, the roads indifferent, the farm buildings and homesteads bad and inconvenient, particularly for the present improved system of farming and keeping stock.

Keele is bordering on the Potteries, but is fairly and comfortably out of that very disagreeable district. The village is about two miles west of Newcastle, and three miles east of Madeley station. The country around is beautifully undulated and wooded. When drained and boned it is excellent grazing land, and with good management, grows heavy crops of Wheat, Oats, Barley, Beans, roots, and Clover.

The gardens and pleasure grounds around the Hall are very extensive and beautifully laid out. The varieties of flowers, plants, shrubs, and trees, are exceedingly numerous and well arranged for producing effect. My favourite flowering shrub and the Queen of flowers (the Rose) is cultivated in the greatest perfection, and in the greatest profusion. There are beautiful walks and drives in the gardens and pleasure-grounds amongst rocks and trees, the former clothed with Ferns, Mosses, Lichens, and other rock plants, either natural or planted, and the foliage of the trees very healthy and beautiful, particularly the Oaks. To see and inspect the gardens thoroughly would require a man a whole day. I was never in any other gentleman's garden where every part was so well kept and the plants so healthy, both in the open ground and in the forcing houses. The old Hall has lately been taken down and a new one built (not yet finished). I liked the old one best; it was plain but substantially built, I believe in the Norman style.

The squire—an elderly man—is a true English gentleman of the right sort. He loves his home, his gardens, his tenants, and his neighbours, better than politics and London. It would be well if more landed gentlemen followed his example.

Some years ago he engaged Mr. Thomson, his present agent, who I believe is from the West of Scotland. Under his direction the estate has undergone, and is undergoing great and permanent improvements, by thoroughly draining the land, making exchanges so as to make the farms more compact, opening water-courses, draining the ditches, and stocking up old fences and planting new ones where required; thus improving the size and shape of the fields, and increasing the extent of the cultivable land, and reducing the annual expense of keeping up the old fences and of cultivating small crooked fields. New roads are made where required for the more convenient occupation of the farms and fields. New farm-houses, out-buildings, and homesteads are erected, more adapted for the improved system of farming and of feeding stock. There are few estates in the county of Stafford where greater improvements have been made in the buildings, farms, and farm management. And lastly, Mr. Snyde and his agent do not forget the labourer and his family, that class to which the whole world is indebted for its food, its drink, clothing, and shelter; for what would the land be worth, or how could we live without workers? He takes care that the labourers on his estate have comfortable cottages and gardens. There is no village in England where the cottages are more comfortable, more convenient, more substantial, or in better taste than in the village of Keele. Every attention is paid to the sewerage, neatness, and good order. He does not, like the landowners in the East of Scotland, build "bothies" for the labourers worse than pig-cots, and the labourers fed in about the same style. Nor does he adopt the present movement of the Scotch landowners, who it seems are becoming ashamed of their conduct in this respect, and are calling meetings to discuss the subject, and to induce each other to turn over a new leaf. Mr. Snyde does the thing without consulting any one except his agent and architect as to the best mode of doing it. Here the example is set and can be seen by any one. I am glad to see that many of the English landowners are going in the right direction as respects the improvement in their cottages, as well as on their farms.

There is another individual at Keele who deserves notice,—Mr. James Young, a tenant farmer in the village, and who I believe comes from the west of Scotland. Great merit is due to him for the skill he has acquired in his profession, and for his energy, industry, and determination in carrying out his own views in introducing a better system of cultivation in a neighbourhood surrounded by men whose views were different from his own. Neither have his eyes or his mind been closed to anything useful in the practice of the old tenants, and more adapted to the soil and situation than what he had been used to in his own experience and in his own country. For want of this sometimes great mistakes are made by strangers. Many of the resident or native farmers on the estate are now quite alive to the improved system of cultivation and of managing stock. Many are very enterprising active men, cultivating green crops in the best style, raising heavy crops of Wheat, Barley, Oats, Beans, Clover, and adopting the best mode, and sowing the best seeds, in laying down land to permanent pasture. Mr. Charles Holland, a very active energetic farmer, of Lymes, near Keele, has laid down 30 acres this season without a corn crop (sown on a bare fallow), which in September had a most beautiful appearance, full of plants, of great variety, and very luxuriant. The Alsike Clover seemed to grow well. Mr. Ford, of Badnall, near Norton Bridge, a very enterprising farmer, laid down 30 acres last year on a Barley crop, which has now the appearance of old rich pasture, and here the Alsike Clover is growing well. Both these gentlemen had the prize awarded to them for laying land down to permanent Grass.

Mr. Francis Stanier, of Silverdale, is the "Mechi" of Staffordshire. He has had the first prize awarded him this year for the best cultivated farm. This farm has been entirely remodelled, and new farm buildings erected. The new fences are now well grown, which gives the farm a remarkably neat appearance. The cultivation of each crop seems perfection as respects cleanness and the weight and quality of the produce. The Swedes are the heaviest, the most uniform, and the cleanest crop I have seen this season in the county of Staffordshire. He had the first prize awarded him for this crop. There are two very large tanks at the homestead, underground pipes laid, with all other necessary machinery for covering 70 acres with liquid manure. Whether this be a profitable speculation or not, from my want of experience on this practice, and from want of a clearer detail of cost than I have hitherto seen, I am unable to judge. As to all other outlay on permanent improvements and on cultivation I have not the least doubt of a proper remunerative return. It is very clear that Mr. Dodd, the bailiff, understands his business. Mr. Stanier has very extensive iron works, to which he has to pay attention. Mr. Peake, of Bradwell Hall, who has gained several prizes, has made great improvements in the cultivation of a cold, high-lying, stubborn clay land farm. The same may be said of Mr. W. Shaw, of Cold Norton. A new tenant on the property, Mr. Henry Ralston, Honeywell, near Keele, is commencing in good earnest. This is his first season, and his green crops are very good and correctly managed. He won the second prize for Swedes and the first for Mangels. In my opinion he made a mistake in letting his Oats grow too ripe before cutting, by which he lost far more than the seed, besides being thrown into bad weather. Mr. Adam Mountford, of the Snyde Arms, in Keele, has improved the cultivation of his farm and obtained several prizes.

The live stock on the Keele estate is in the course of improvement equally with the land. The members of the club are composed of the tenants of the estate, and their landlord at the head. They have annually a show of stock, implements, roots and seeds, with ploughing and draining matches, and like all other meetings of Englishmen finish with a good dinner and wine. Mr. Joseph Stockton, of Newcastle, is the Secretary to the club, a post which he appears to fill with credit. *W. Rothwell, Haydock Park Farm, near Warrington.*

MR. CHADWICK

ON THE

PROGRESS AND COMPARATIVE POSITION OF AGRICULTURE IN ENGLAND AND ON THE CONTINENT.

(*Continued from p. 763.*)

The view of the improvement which I have described as already made, and the further advances I have indicated as practicable, by the application of capital and machinery to agricultural production may appear at the first sight to hold out but faint hopes where the farms are small, and the owners poor. But unless I am greatly mistaken, and I invite particular scrutiny into what I am about to advance, the new system of high cultivation will be found more extensively applicable to the districts of petite culture than is commonly supposed.

The agriculturists who carried out this new method of cultivation the most completely on old farms were embarrassed by the great amount of produce obtained; it was more than their buildings arranged for their former produce of large farms could hold, and the results indicated the necessity of additional constructions for its reception; but it was also found that more produce was got than their cattle and stock, in the proportions assigned to such farms on the old system, could feed, and hence more cattle are required to consume the additional produce: but for this additional stock new buildings are necessary. The production is quickened and the crops are continuous, or required to be cut more frequently, and at new times when there is not a market prepared for it.

These practical embarrassments to the old farm managers, which are deemed by them to have diminished immediate advantages on very large and widely-spread farms, in which one disadvantage—it has been actually stated as such—is the removal of unusually heavy weights of crops to long distances, have led to the suggestion from the managers of large farms that the system will lead to high cultivation on smaller farms, a suggestion which is a practical recognition of the conclusion which I have advanced, that this system operates practically to extend the area of cultivation without extending the roads, the hedges, or superintendence, to increase the gross production in a three or four-fold degree without proportionate increase of the fixed charges of cultivation.

Mr. Telfer, of Ayr, who has adopted the principle on a small farm which has been the subject of much examination, of which it is worthy, and who on 25 acres or 10 hectares of sandy land keeps effectively from its produce 47 cows and one bull, assured me that from his own accounts he can demonstrate that a farm of that size will pay for the use of a small steam-engine. One year's yield in this 25 acres or 10 hectares are thus stated by Mr. Morton, the editor of the Agricultural Cyclopedia. "Of the 25 acres under irrigation there were eight and two fifths acres under Italian Rye grass, yielding 270 tons (or 30¾ tons per acre) of green food, besides a crop of hay; three and three-fifths acres, yielding 150 tons of Cabbages, or 31¾ per acre; seven and one-fifth of an acre of Mangel Wurzel, yielding 250 tons (at 34¾ tons per acre), and nearly six acres of Wheat which yielded the extraordinary 'measured produce of 405 bushels, or 67½ bushels per acre;'" that is to say, 66 hectolitres the hectare. "The Wheat, and some of the Cabbages and Mangel Wurzel were sold, and the price saved, to purchase hay and other food on which these cattle were fed. This year's produce from 47 cows was 30,660 gallons of superior milk, producing a butter which, carried 400 miles to the London market, fetches a first-class price there." I give these particulars because although the gross amount of produce may be extraordinary, and it is doubtless a fact in respect to the yield—it is not, as to the green crops, deemed extraordinary by farm cultivators of another class, whose operations are too commonly neglected,—namely, market gardeners, or as they are termed at Paris the *maraichère cultivators*, to whom I have shown them.

In answer to some general observations of mine on the great advantage the system of liquified manure farming appeared to me to offer under the climate and soil of France, Mr. Telfer writing to me in May, 1855, says, "I am fully alive to the advantages France possesses over this country in temperature, the most important element in vegetable life. With a moderate temperature all that remains to be supplied is manure and moisture, food for the plant in suitable form. This the system of pipeage enables you to furnish in exact accordance with the requirements of the plant. I am satisfied liquified manure could be successfully applied to grain crops in such a country as France, whereas here from the uncertainty of the weather at harvest, it is accompanied with greater risk. Had I been favoured last year with dry weather during the time my Wheat crop was ripening, my yield would have been 100 bushels the Scotch acre (1¼ English, or upwards of 85 hectolitres the hectare), instead of being confined to a small piece of the field that did not lodge, but on it the average of the field was a high one, 85 bushels (or 69 hectolitres). This high average is in some measure to be attributed to the thorough admixture with the soil of the various manures which had been applied in former crops by means of pipes. I am supplying ammonia this season entirely through my pipes, and at one half the cost I did formerly, as the article can only be used by those who have pipes." "I find the supply of manure must be in proportion to your command of moisture, the one being of little use without the other."

On this I have to observe that whatsoever may be the remaining risk in England in the cultivation of Cereals under this method, it is now proved on various of the new farms to be no greater than the risk there under the ordinary method. Count Gasparin gives an instance of the production of 70 hectolitres of Wheat per hectare in France, but he gives it—as a feat. Lord Kinnaird tells me that he has had as much grown on a farm belonging to him in Scotland, as a feat. In this feat of Mr. Telfer he used, as I understand from him, in addition to his farm-yard manure, a large proportion of guano, and his easy advance is due to the new implement for its distribution in solution as liquified manure; but in other farms, which I think the most important examples, 40 and 45 bushels or hectolitres are given without any foreign or other than liquified solid stable dung or diluted stable urine as manure.

Mr Telfer's farm, however, would furnish an example of the practical dangers attendant on the reasonings of the class of abstract or "geometrical reasoners" in political economy, who have on the question of subsistences assumed as a present general and absolute condition of a less and less return being obtainable from the cultivation of inferior soils. Now, it so happens that quite as good returns under the new method of cultivation have been obtained from inferior soils as from superior ones; verifying the views of the great vegetable physiologist De Candolle, who predicted that the future of agriculture would depend on arrangements for giving to plants food and water or moisture at the same time. The soil of Mr. Telfer's farm is a common sea sand. It is thus described by Mr. Morton in his report, as "an old enclosure from the blown sand of the sea shore, formerly a sandy waste;" and "while the difference which to the farmer it exhibits from the wilderness it was, is at least as great as that exhibited by the richest specimens of fertility, I know that the difference is in this case due wholly to art and not to nature. The land on some of its extent has been heavily clayed, and has yielded heavy crops of Wheat; but a great deal of that I saw was as light a sand as was ever cultivated—a pure sand soil, which the severe frosts of the winter have not made cohere."

Mr. Wilmot, an eminent agriculturist, who has had under his management the estates of the Duke of Newcastle and several of the largest landed proprietors—has on a farm near Congleton, in Cheshire, brought a sandy peat to almost as great fertility as that of Mr. Telfer, and excepting the Wheat crop and the Italian Rye-grass on most crops to a greater amount of fertility, without any foreign yard manures whatsoever. Thus, on the same peaty sand he gets a Cabbage weighing 30 lbs. on every superficial yard, or 60 tons per acre. I might adduce other examples to show that the poorer soils were preferable for the new culture from their poverty. Mr. Wilmot's outlay was for draining this land about 5*l.* per acre and about 2*l.* 10*s.* for the distributing apparatus, composed of wooden pipes, which of course would be eligible for those countries where iron or superior earthenware is dear. The sandy peat land was valued at 15*s.* per acre rent; after the improvement it was valued as worth from 40*s.* to 45*s.* per annum. The cost of iron pipes distributing apparatus on such a farm as Mr. Telfer's would be in England 3*l.* to 5*l.* per acre, according to the closeness of the pipes; and the working expenses of distribution, including the interest on the outlay, would be, if done by gravitation, about 9*s.* per acre, and if by steam power, allowing for the use of the steam-engine for other purposes, 13*s.* or 14*s.* per acre, including 7½ per cent. for wear and tear. In the published minutes the agricultural members of the Congress will find data as to the sorts and quantities of materials on which to form their own estimates. I need not speak in Belgium or in Switzerland on the advantages of liquid manure; but where I have objected to its being so long retained and wasted by noxious decomposition; to its being delivered in too high a state of concentration, in single instead of repeated applications, I have urged that it ought generally to be diluted in some six or seven times its bulk of water, to which the answer has been, that the labour of distribution was already very high. To this I reply, that by the new method by one man and a boy, aided by steam power, as much liquid manure is distributed as by between 100 and 200 men, distributing manure from vessels on their back as in Switzerland; and that it appears in England, that as much manure may by the improved means be distributed, at an expense of from 6*d.* to 1*s.*, as is done there for 16*s.* by the water-cart, the method commonly in use in Belgium. When the term irrigation is applied to the new method of distribution, I would observe that, as the chief paid executive officer of the General Board of Health in England, whilst I have protested against the retention of manures in houses, in cabinets said to be inodoré or chemical manipulations there in any form, I have equally protested against the method of applying liquid manures to cultivation near towns, or even to plain water irrigation near towns or villages by the method of submersion, which produced ague, typhus, and diseases injurious to men and to cattle. I found my objections confirmed by experience and by the Legislature in Italy, which in several parts prohibits the formation of water meadows nearer than six miles to towns. But I am enabled to object to this method, which will appear hereafter to be only worthy of the Saracenic period in which it originated, on the economic ground of the expense of the works, which in Italy have amounted in some instances with the connected works to as much as 40*l.* per acre, and in England from 4*l.* to 30*l.* per acre; generally costing double the expense of the pipe distribution. I object to the waste of water as well as of manure, for, properly applied, one-tenth of the quantity is found to be of even better effect. By immediate applications of manure before decomposition can commence, the waste in noxious evaporations,—in stables as well as in houses—is avoided,—the fertilising matter is at once fixed in chemical combination with the soil,—and we now find that when applied in proper doses it is held permanently in the soil until it is removed by the action of vegetation. Any one who will pass proper solutions through soils, or will apply them by hand to any portions of his land, and during the growing season will give it—in the intervals of horticultural culture of two doses a week of manure highly diluted,—and one dose of plain water in the interval, may easily test the capability of any soil.

The more they are examined, the soundness of two leading maxims I have elsewhere enunciated will be recognised, namely, that whilst for towns all offensive smells from the decomposition of animal and vegetable matter indicate the generation and presence of the causes of insalubrity and preventible disease, for the rural districts all continuous offensive smells from animal and vegetable decomposition denote the loss of fertilising matter, loss of money, and bad husbandry. In the house, in the street, and in the farm-yard, in urban as well as in rural districts, you may test almost every species of administration, the

superior as well as the interior, the general as well as the local administration, by the nose.

On the production of meat as part of the question of alimentation, I beg to offer some special instances of agricultural powers. The system of liquified manure cultivation has recently been introduced on the National Agricultural Training Institution for Ireland, at Glasnevin, and applied to about 20 hectares of land; from the very untoward season of last year, and perhaps from some errors in management, the results were deemed somewhat of a failure, but the failure was 27 tons 8 cwt. of Italian Rye-grass per acre. Mr. Morton reports that Mr. James Kennedy, who has managed one farm successfully on this system and has now taken the management of another farm under Sir Robert Peel, undertakes by this method of cultivation to keep 60 sheep per acre for five months of summer, raising for this purpose 65 tons of green food per imperial acre, and "that," says Mr. Morton, "I do not doubt is a possibility as an individual fact, but it is a possibility as an average experience." In this particular farm the new culture had been in operation six years, and it is generally attested that the improvement of the culture is progressive.

Mr. Frederick M'Connell, a gentleman who has adopted it on a farm near Annan, writing to me in the spring of this year, says—"I kept last summer on a field of nine acres 215 sheep (as well as eight horses part of the time) from June the 15th to October the 1st. I have 117 acres, or 47 hectares, under my own hands, and from what I see I expect to be able to keep 1000 sheep all the year round."

But I expect that next year we shall have in operation several small farms of less extensive culture than the one I have cited of Mr. Telfer's, which may be of more especial interest as examples to the French and other members of the Congress. Of other small farms now in operation I cite one of Mr. May, a gentleman who has near Macclesfield a farm of 25 acres or 10 hectares, on which he keeps a steam-engine of four-horse power for distributing the liquified manure, as well as for cutting hay, straw, and roots, bruising Oats, &c. He writes to me this summer: "I am on my 25 acres keeping 17 cows, 24 sheep, and one horse, and part of the year two. To accomplish this I have only 2½ acres of Italian Rye-grass. Six and seven cows were the usual stock three years ago. My Wheat and Oats and the Mangels, Turnips, and Carrots promise well." In reply to my question as to the productive power of the new system, as compared with other similar farms, he says: "I cannot well compare my farm with others about me, as they differ so much in size and quality; but there is a farm near me which was highly improved, *i. e.* in the ordinary system, a few years since, and now is one of the best in the neighbourhood. It is 75 acres, and keeps 16 cows, 7 one and two-year old calves, and two horses and a foal. This is its average stock."

Mr. Philip Miles, of Bristol, one of the brothers of the county member, has begun the system and applied the sewage from his mansion on some adjacent land. He writes to me at the beginning of the present year:—"I have had no experience of liquid manure on ploughed land, as I have not sufficient manure to do more than irrigate a certain portion of my Grass, about 30 acres," *i. e.* nearly 12 hectares. "It cannot be put on too strong, *i. e.* too much of it, in winter or in summer. I find that it may be put on stronger every year as the Grasses become more and more used to it, or rather as the peculiar Grasses fitted for it increase. In the field that is mown the cows when turned out on it always increase in milk about four gallons a day in about 20 cows. On the field that is always fed the milk does not increase quite so much, but the cream is of great richness and very thick."

I cite this example as illustrating a result which has been invariably attendant on the new method of culture in giving the plant food as well as water at the same time, namely an increase of nitrogen in the plant, finer instead of coarser vegetation, the growth of new plants never seen in the soil before, far richer milk and butter. At Rugby, the place last irrigated by the undecomposed town sewerage, a few days only before, may be distinguished by the cattle selecting it to feed upon. The milk and butter derived are both of a superior quality, as also the cereal productions. I have exhibited at the Congress specimens of the Wheat, which is one-third heavier than Wheat grown on the same land unirrigated, and is estimated by Mr. Walker, as I have stated, at 50. The milk derived from the Grass of a portion of the rampart of Paris, irrigated as a trial work, but only with decomposed town sewerage, is pronounced by those who have partaken of it to be "delicious."

From Mr. Worsley, a gentleman who has undertaken to apply upon his own estate the sewerage of the town of Rushholme, near Manchester, I have general information as to his progress, confirmatory of the conclusion from other instances of the increased powers of production from the liquified manures of towns, which are now wasted—but in this instance, from the bad drainage of the town, the manure, like that under trial at Paris, is decomposed manure.

The Earl of Essex, who has undertaken to apply on the new method, the whole of the sewerage of the town of Watford upon a farm belonging to him at his seat near Cassiobury, being convinced from the practical example set by Mr. Walker with the sewerage of Rugby that every apprehension of offensiveness or of sanitary inconvenience is there demonstrated to be illusory—has also laid down on the new principle a distinct small model farm of 18 acres, or between 7 and 8 hectares, on which I am informed 30 cows are now kept, and that there is no doubt they will be kept throughout the year.

(*To be continued.*)

Home Correspondence.

A Green-topped White Turnip was gathered last week off the farm of Mr. John Hewitt, of Lea, near Gainsbro', Lincolnshire, measuring 3 feet 4 inches in circumference, weighing 27½ lbs. The field, which is sand, was manured with "Tiger's manure," from Beverley, 2 cwt. to the acre, drilled in with other management. The Turnips in the same field averaged 14 lbs. apiece—many much more.

Boydell's Endless Railway Engine. — To show how backward people are to appreciate valuable inventions possibly destined hereafter to work a complete revolution in the agricultural world, I will instance Boydell's Engine, an engraving of which will be found in the Patent Journal, March 7, 1847, entitled "Boydell's Improvements in applying Apparatus to Carriages to Facilitate the Draft." When on the committee for the examination of implements at the Society of Arts about eight years since, we were called on to give our decision on the merits of rather an ingenious steam plough, exhibited by an American. At a glance it could be seen that immediately the engine had got well into an arable field it must inevitably, from its weight, sink up to the axles, and possibly disappear altogether. It was at this time that I was more than ever forcibly struck with the advantages to be derived in ploughing land by use of Boydell's engines to draw the ploughs as brought before us by the American. I drew a diagram at the time, and called the attention of my fellow judges to the importance of an invention of this description, thinking it admirably adapted for drawing a series of ploughs and other heavy weights; but I have heard nothing of the matter till lately, and now I trust it is meriting that attention which is the just reward of so important an invention. Having been fully alive to its properties I may be blamed for not calling greater attention to it myself, but I was at that time, and have been ever since, engaged in matters of equal importance; and probably this might have been the case with the other members of the committee. *Sigma.*

Seed Hybridising.—Your leader in the *Gazette* of the 1st November on Turnip seed and hybridising is worthy of attentive perusal, for in no part of our profession are we farmers more at sea than among our root crops. Ask a farmer which Wheat he finds most prolific, or produces the best sample, you may receive a satisfactory answer—because the bushel decides the former, and the miller the latter. But ask him which Turnip or Swede produces the most weight on a given space, equally manured, and most nutritious; I venture to say that in nine cases out of ten the answer will be evasive. The reason is obvious. It takes too much trouble to ascertain. In carrying out experiments which the writer has conducted, it has been found that, equally manured, some varieties of Swedes have produced one-sixth more weight; and moreover, from equal weight more nutritive value was found. The produce per acre the farmer can determine if he would only take the trouble, but the solid matter or nutritive value requires the chemist to determine. It is a well known fact that we farmers are no chemists, and we talk lightly of the science; therefore, as the farmer and seedsman are linked together in the matter, I would suggest they should go hand and hand in the matter, the farmer to find the Turnip or Swede most productive on his soil and manuring, the seedsman to have the specific gravity of each class tabulated, in order when called for to show his farmer friends. In the Baker Street Bazaar, I doubt not as usual we shall have exhibited gigantic Mangels and magnificent Swedes, all being well to gaze upon and admire by Londoners. But for us farmers, "who live to learn," the weight per acre from which the specimens are selected, the kind of soil where grown, the manure applied, and the distance grown apart—these, combined with the seedsman's specific gravity, would be interesting hints, and for which none would be more thankful than your humble servant. *A Friend to Improvement.*

Rape.—There is no doubt that Rape cut now will send up shoots, seed shoots, in the spring which will be luxuriant in foliage in proportion to the present strength of the plants, and as the ground is or may be made rank with manure, and as it is deep, &c., as with everything else so with Rape, these conditions will in increasing the rankness of the leaf delay the appearance of the seed bloom and of course make the crop more valuable for feeding in the spring by bringing it so much later as well as more abundant. In poor land and with late plants for feeding the spring shoots will be hardly worth leaving upon the ground, still they will give some picking for sheep. But as to cutting now or in the course of the winter, as to the production of spring shoots, I think it is immaterial when it is done, and so for feeding purposes it may be done at once, as the growth is now pretty well over. Rape, as doing pretty well in indifferent conditions, does not receive in general the treatment it deserves; under the same treatment as Turnips it is very productive, and is preferred by cattle to almost anything else. I have weighed in November a plant transplanted in July from a May sowing, that without its root and lower stem weighed 6 lbs., and I think with good treatment the weight of a general crop might be brought up very near to this; and as this might be effected after some early removed crop, with the addition of what the spring shoots would produce, perhaps there could not be a more valuable green crop. From its oily nature it ought also to be a very nutritive food. I have offered it and Vetches together to a cow, and she has left the Vetches and taken to the Rape; a plot of Cabbage in which there happened to be a few plants of Rape was trespassed on by pigs and ducks, they did not touch the Cabbage, or at least only in passing, till they had picked every Rape plant bare. Ducks thus feeding may seem something strange; we used ever to consider them not only inoffensive in a garden, but most useful in the destruction of what was injurious. In Ireland they were then fed on Potatoes; but since the fatal disease in these, ducks, like everything else, have been taught to eat Cabbage, and now no green thing in the garden is safe from them, and we have thus lost the benefit of their services as insect destroyers. Can we have a more beneficial treatment of land or a more profitable green cropping year than a highly manured crop of winter Vetches followed by transplanted Rape, affording three crops of green food with frequent stirrings of the land, two of these crops being full and heavy ones, the third perhaps equivalent to a half one, and most of the stirrings of the land occurring at the most leisure time of the year? Even the transplanting of the Rape, the most operose of the operations, falls in between hay and corn harvests, and if driven into the corn harvest may occupy the men and women on wet days, or at any intervals when there is not work for them in the harvest field. It is true the crop cannot be stored, but then it may be cut in frost and snow; neither should I think it so cold and watery a food as Turnips. I am not aware that it has ever been used as fatting food, but I should think it better adapted to that purpose than Turnips. I question whether much less corn, and certainly less oilcake, might not be required with it. *J. M. Goodiff.*

Societies.

NORTH WALSHAM.—At the late annual meeting held the other day, Mr. Cubitt said his object in establishing the society was to do good to the agriculture of the neighbourhood, and they could not do better than give a practical turn to their meetings. They had had a very good show during the day, and he might perhaps commence with the first class—the cart horses. The circumstances of the district ought to be considered, they lived in a district hemmed in by the sea, and he thought the show of cart horses under all the circumstances was an excellent one. The animals exhibited had been hard at work up to the day of the exhibition, and their condition was, therefore, highly creditable. A good cart horse was now worth 50*l.*, and, therefore, the breed was more deserving of attention than the improvement of the breed of hackneys, which were only worth 30*l.* He had been offered 44*l.* for a two-year-old; and if they could get between 30*l.* and 40*l.* for a two-year-old, he discarded the idea of breeding hackneys, and he advised them to apply all their energies to cart horses. Next year he should propose that they should increase their prizes in this department. The breeding of cart horses was indigenous to the district, but it was not so successful with sheep or bullocks. They farmed very little land, but their object was to farm well; they paid a high rent, and wanted, therefore, to grow the utmost they could upon a small extent. The Turnip crop he considered a very important one, though perhaps on that subject they might think that he spoke from interested motives. Without a good crop of Turnips, it was impossible that a farmer could show a good balance-sheet at the end of the year. Without a good crop of Turnips, the farmer could not have good stock, and it was, in fact, the sheet-anchor of his business. Perhaps it might be interesting to the company to know how he succeeded in growing his Turnips. His friend, Mr. Gayford, had alluded to artificial manures, and his friend, Mr. Theobald, had expressed an opinion that the farmers were humbugged a great deal with regard to them. He *knew* they were. There were three grand secrets in growing a good crop of Turnips—plough deep, sow early, and make your own artificial manures. The basis of manure was dissolved bones, and it required no skill, and no capital, but simply a little attention, to dissolve bones. Any farmer could dissolve bones by getting some sulphuric acid, making a cistern, and placing the bones in it. By this means he could dissolve bones as well as the most scientific man in the world, and by putting on 5 bushels per acre of this manure, and a little guano, they might come to the association and compete successfully for the prizes for roots. His own land was extremely good, he lived under a most liberal landlord, who had granted him a 20 years' lease, and he hoped at its expiration that he should have made himself independent. He had said a few words upon the cultivation of Turnips, but good tillage was equally important. There was an immense deal of difference between good hoeing and bad hoeing. After he had been in the north of England, and had seen the manner in which the Scotch farmers executed this work, he was perfectly disgusted with the process pursued at home; and he had told his men that if they hoed his Turnips so that he gained the prize he would give them the money, and he had no doubt if other farmers did the same they would beat him another year in the production of roots. Mr. Theobald had alluded to the education of farmers. That was a most important question, for education might be carried too far, and their sons and children might be made good for nothing. Farmers' sons, he believed, should be educated at the plough's tail; they should be educated well, but when they were brought home they should be made practical men. He was not ashamed to confess that he had gone through every description of work on the farm, and he believed that if all farmers thoroughly understood the nature of field work they would be in a much better position. There were many farmers ruined by theory but very few ruined by practice. [!]

Farm Memoranda.

DISHLEY FARM, IN MR. BAKEWELL'S OCCUPATION.—The following is abridged from Arthur Young's "Farmer's Tour."

Mr. Bakewell, of Dishley, one of the most considerable farmers in this county, has in so many instances improved on the husbandry of his neighbours that he merits particular notice. His breed of cattle is famous throughout the kingdom; and he has lately sent many to Ireland. He has in this part of his business many ideas which I believe are perfectly new, or that have hitherto been totally neglected. This principle is to gain the beast, whether sheep or cow, that will weigh most in the most valuable joints; there is a great difference between an ox of 50 stone, carrying 30 in roasting pieces, and 20 in coarse boiling ones, and another carrying 30 in the latter, and 20 in the former. And at the same time that he gains the shape that is of the greatest value in the smallest compass, he asserts, from long experience, that he gains a breed much hardier, and easier fed than any others. These ideas he applies equally to sheep and oxen.

In the breed of the latter the old notion was, that where you had much and large bones, there was plenty of room to lay flesh on; and accordingly the graziers were eager to buy the largest-boned cattle. This whole system Mr. Bakewell has proved to be an utter mistake.

He asserts, the smaller the bones, the truer will be the make of the beast—the quicker she will fat—and her weight, we may easily conceive, will have a larger proportion of valuable meat—flesh, not bone, is the butcher's object. Mr. Bakewell admits that a large-boned beast may be made a large fat beast, and that he may come to a great weight; but justly observes that this is no part of the profitable inquiry, for stating such a simple proposition, without at the same time showing the expense of covering those bones with flesh, is offering no satisfactory argument. The only object of real importance is the proportion of Grass to value. I have 20 acres—which will pay me for those acres best, large or small-boned cattle? The latter fat so much quicker, and more profitably in the joints of value, that the query is answered in their favour from long and attentive experience. Among other breeds of cattle the Lincolnshire and the Holderness are very large, but their size lies in their bones; they may be fattened to great loss to the grazier, nor can they ever return so much for a given quantity of Grass as the small-boned, long-horned kind.

The breed which Mr. Bakewell has fixed on as the best in England is the Lancashire, and he thinks he has improved it much, in bringing the carcase of the beast into a truer mould and particularly by making them broader over the backs. The shape which should be the criterion of a cow, a bull, or an ox, and also of a sheep, is that of an hogshead or a firkin; truly circular with small and as short legs as possible; upon the plain principle that the value lies in the barrel, not in the legs. All breeds, the backs of which rise in the least ridge, are bad. I measured two or three cows, 2 feet 3 inches flat across their back from hip to hip—and their legs remarkably short. Mr. Bakewell has now a bull of his own breed which he calls Twopenny, which leaps cows at 5*l.* 5*s.* a cow. This is carrying the breed of horned cattle to wonderful perfection. He is a very fine bull—most truly made, according to the principles laid down above. He has many others got by him, which he lets for the season, from 5 guineas to 30 guineas a season, but rarely sells any. He would not take 200*l.* for Twopenny. He has several cows which he keeps for breeding that he would not sell at 30 guineas a-piece.

Another peculiarity is the amazing gentleness in which he brings up these animals. All his bulls stand still in the field to be examined; the way of driving them from one field to another, or home, is by a little switch; he or his men walk by their side, and guide him with the stick wherever they please, and they are accustomed to this method from being calves.

In the breed of his sheep Mr. Bakewell is as curious, and I think, if any difference, with greater success than in his horned cattle, for better made animals cannot be seen than his rams and ewes; their bodies are as true barrels as can be seen*, round, broad backs, and the legs not above 6 inches long, and a most unusual proof of kindly fattening is their feeding quite fat, just within their fore legs on the ribs, a point in which sheep are never examined in common, from common breeds never carrying any fat there. In his breed of sheep he proceeds exactly on the same principle as with oxen; the fatting in the valuable parts of the body, and the living on much poorer food than other sorts. He has found from various experience in many parts of the kingdom, as well as upon his own farm, that no land is too bad for a good breed of cattle, and particularly sheep. It may not be proper for large stock, that is large-boned stock, but undoubtedly more proper for a valuable well made sheep than the usual wretched sorts found in most parts of England on poor soils—such as the moor sheep, the Welsh ones—and the Norfolks. And he would hazard any moderate stake that his own breed, each sheep of which is worth several of those poor sorts, would do better on those poor soils than the stock generally found on them. A good and true shape having been found the strongest indication of hardiness, and what the graziers call a kindly sheep, one that has always an inclination to feed.

He has an experiment to prove the hardiness of his breed which deserves notice. He has five or six ewes, that have gone constantly in the highways since Mayday, and have never been in his fields; the roads are narrow, and the food very bare; they are in excellent order, and nearly fat, which proves in the strongest manner the excellence of the breed. And another circumstance of a peculiar nature is his flock of ewes, that have reared two lambs, being quite fat in the first week of July—an instance hardly to be paralleled.

The breed is originally Lincolnshire, but Mr. Bakewell thinks, and very justly, that he has much improved it. The grand profit, as I before observed, is from the same food going so much farther in feeding these than any others; not, however, that Mr. Bakewell's breed is small—on the contrary, it is as weighty as nine-tenths of the kingdom; for he sells fat wethers at 3½ (? 2½) years old at 2*l.* a head. Other collateral circumstances of importance are the wool being equal to any other; and the sheep standing the fold better. He sells no tups, but lets them at from 5 guineas to 30 guineas for the season.

(To be continued.)

* The following is an account of two sheep of Mr. Bakewell's measured in the wool:—

I this day measured Mr. Bakewell's 3 years' old ram, and found him as follows:—

	Feet	Inches.
His girt	5	10
His height	2	5
His collar broad at ear tips	1	4
Broad over his shoulders	1	11½
Ditto over his ribs	1	10½
Ditto his hips	1	9½

H. SANDFORD, Dishley, 17th March, 1770.

This day measured a two year old barren ewe.

Height	1 ft.	11 in.
Girt	5	9

Breast from the ground, the breadth of four fingers.

N.B.—I would have measured her breadth but for a fall of snow.

H. S., Dishley, ut sup.

Miscellaneous.

Agricultural Education.—When farming is conducted on scientific principles, the increase of crop would amply compensate for the labour and capital expended in its production; but when it is, as too often happens, regarded as one of those callings that only require strong arms and industrious habits to ensure success, it is very likely to prove anything but successful so long as the true principles of cultivating and maintaining the fertility of the soil remain unlearned. Strong hands and patient industry might suffice while population continued thin and scattered, and while the land was subject to a very small amount of impost, but in these days, when population has become dense, when the land is subject to high rent and heavy taxes, strong arms and industrious habits will not alone suffice to enable the farmer to meet and overcome his difficulties. In these days "the battle is not with the strong," but with the intelligent; and if the farmer expects to succeed in his profession, he must begin by acquiring a knowledge of the nature of the materials he has to operate upon—the nature of the productions he is to raise from them—and how best his great machine, the soil, shall be best maintained in efficient order. *Mr. Quinn, of the Dromiskeen Model Agricultural School, County Louth, in the Journal of the Albert Agricultural Training Institution.*

Calendar of Operations.

NOVEMBER.

FARM, NEAR HEXHAM, *Nov.* 17.—The cessation of actual wet in the end of October, though the weather was far from drying, permitted one of the most tedious harvests on record to be brought to a conclusion. It is not often we hear of a three months' harvest, but this year we had Barley cut near this on the fifth of August, and in the beginning of this month there was still Corn out. Not only has the harvest been tedious, but disastrous; a very large portion of the Wheat crop is unsound, and little of what is sound is in marketable condition. The weather though not favourable for bringing the damp stacks into condition, has been very much so for Wheat sowing and Turnip storing. We are now in the midst of the latter operation, and have a strong force on. We pay 5*s.* 6*d.* per acre for topping and tailing. Our plan of storing is to leave a portion of the nearest stubble field (if near a road) unploughed, and there to store our Swedes. If there is no stubble field convenient, we store in the field, where they are grown, a portion being brought home to the steading for immediate use. The carts are filled by our own workers, putting on carts and fillers enough to store close up to the pullers every night if possible, and taking care that there are fillers enough to keep the carts constantly going; each cart going from 10 to 12 turns in the afternoon when storing close at hand. A man at the heap helps to empty the carts and keep the heap well thrown up and covered with a thick coating of straw. We put no soil on the heaps, except a few spades full here and there to keep the straw from flowing off, as we find the Turnips keep much better without soil; our heaps are about 10 feet wide, and from 4 to 5 feet in height, and lying north and south. We purpose trying a portion of our crop this year in a large flat-topped heap about 2 feet deep and well covered with straw, the result of which we shall report upon. Weather permitting, we hope to have all our Swedes stored this week, when the tops will be ploughed in and the ground sown with Wheat. Our sheep were put on Turnips on the 8th, and the cattle put into the yards on the 15th of October. The latter are doing very well; but a considerable number of the hoggets have fallen. Fully the half of the Potato crop is lost with disease.

WEST SUSSEX, *Nov.* 19.—We have had one of the finest seasons for Wheat sowing that has been for many years, and it is now nearly all in. There will be a little sown no doubt after Turnips, which are now being fed off, although it is now doubtful whether there is much inducement to sow Wheat where Barley used to be put, as the price of Barley is now so high that it competes in value with Wheat per acre. Suppose we say that land that will produce 5 quarters Wheat at 70*s.* will produce 7 quarters Barley at 50*s.*, which are now about the prices of each, there is little choice in the matter to the farmer, but to the nation the Wheat is the most valuable as a necessary of life, and especially if we consider how Barley is so often converted into an evil to the poor. However in practice these matters will not enter into calculation: *l. s. d.* will be the guide, and it is not likely that the doubt will exist another year, as much of the Barley was damaged this year so that the better qualities are scarce. The late Turnips do well with the mild weather that we have, and there is still abundance of Grass, so that we are not likely to be so badly off for food as we thought. There are now a good many lambs dropt of the horned breeds, and the luck is generally good. Mangel Wurzel has been got up and is in most cases a good crop, and appears already to find buyers, so that we may soon expect to see it more generally cultivated than it is; we every year see more of it, and no one who once grows it gives it up. Storing of Swedes is not common, and I fear will not for some time, for we can hardly like to pull them now as they are not stopt growing. Our market is now well supplied with Wheat and in much better order than it was. Beef is neither in great supply nor much demand, mutton in good supply, fat pigs not yet very plentiful. *G. S*

Notices to Correspondents.

GAS LIQUOR: *R. Varden.* There is no doubt that it may be usefully poured undiluted over a stubble or clay soil. Plough it in, and you may sow in a few weeks or days, according to the quantity applied and the nature of the weather, which if wet will soon distribute it throughout a well drained soil.

LINSEED: *J H.* Your letter has been forwarded to our correspondent at Mark Lane.

MANGEL WURZEL: *A Grower* asks "S P" to inform him the mode he adopted in keeping his Mangel Wurzel the second year? Also the sort of root he prefers? and the best description of artificial manure to use for them on light or fen soil?

STEEL MILLS: *W.* We do not know Mr. White's Steel Mills.

STORING ROOTS: *F L.* The inconsistency was not noticed, and it is right to add that the papers you allude to are from different pens. We had been accustomed to store 1000 tons of roots per annum on the plan by hurdles and straw recommended in the Cyclopædia. This was on a farm where the ground about the building was conveniently adapted for storing roots, where the growth of straw was excessive, and where any supply of strips from the sawpit could be had for the asking with which to manufacture the rough fencing which this mode of pitting needs. If you have all these conveniences you cannot do better than adopt that plan, notwithstanding that the writer at page 762 objects to it on the score of cost. His second objection was remedied in our case by the insertion of a faggot of wood every two or three yards in the heap which projected at the ridge and carried off any gaseous emanation which might have created a tendency to ferment.

SHEET GLASS FOR ORCHARD HOUSES
On Mr. RIVERS' Plan.

20 by 12, ... 20 by 13 ...	}	18*s.*
20 „ 14, ... 20 „ 15 ...		

Per 100 feet.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.
16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d* per foot superficial, according to size and quantity.

JAMES PHILLIPS & CO.,
116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d* per square foot, for the usual sizes required, many thousand of which are kept ready packed for immediate delivery.

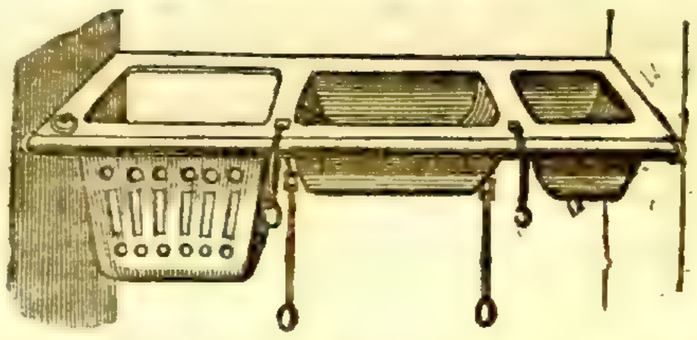
Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

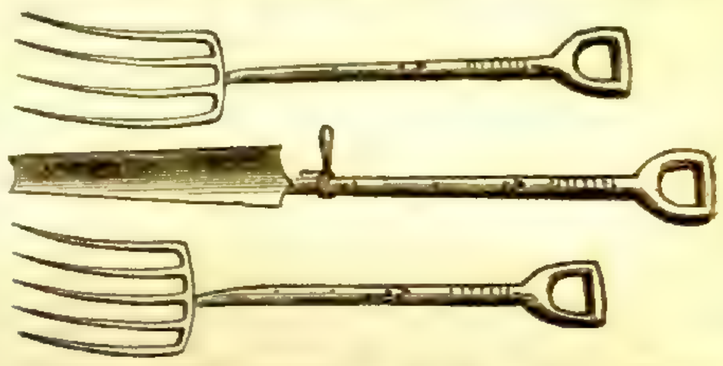
IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



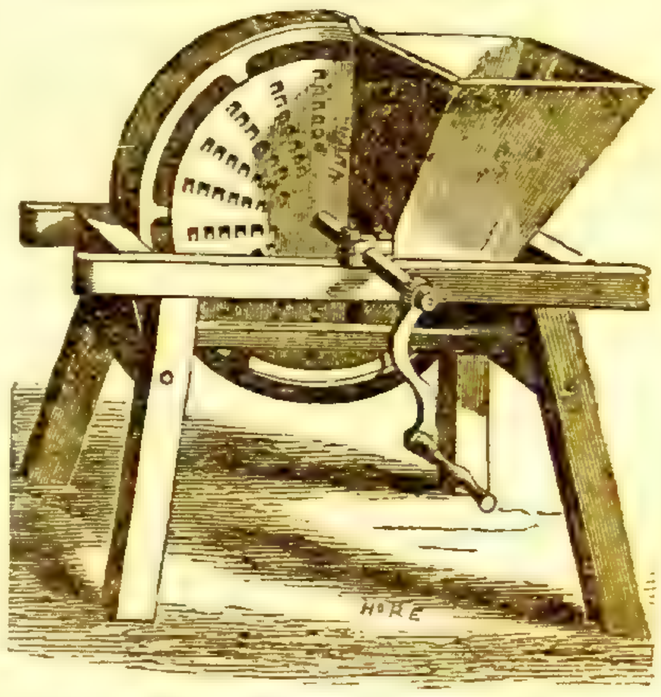
THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.
JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
95, Newgate Street, London.

ECONOMY IN FEEDING STOCK.



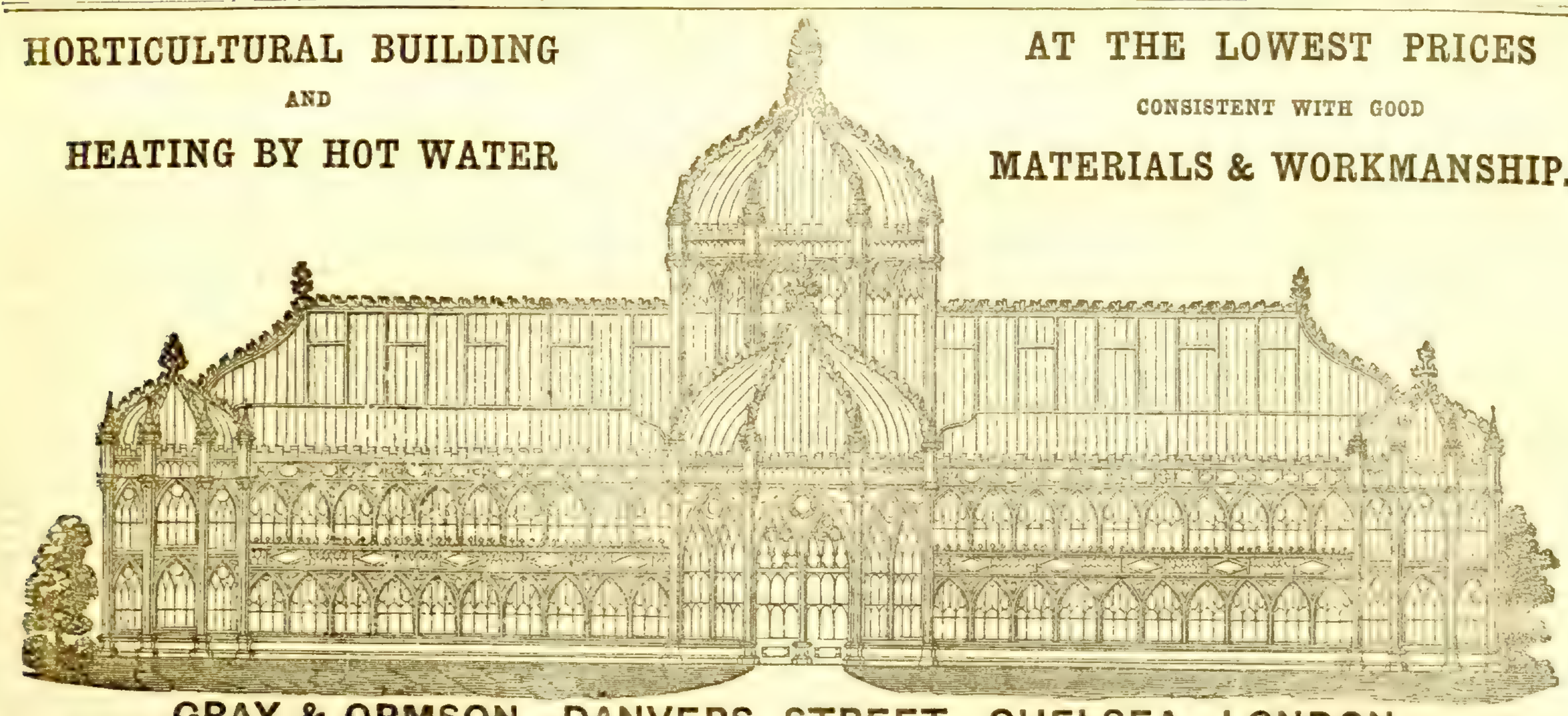
No. 1. Single Grater	£3 10 0
No. 2. Double ditto	5 0 0
No. 3. Ditto ditto, larger size	6 0 0

Extra for Driving Pulley, adapted to Steam Power, 10*s.*

BUSHE AND BARTER'S Patent Root Graters are improved very much this season by A. & T. Fry, (late Fowler & Fry) Temple Gate Implement Factory, Bristol. They are now the cheapest, most simple, and at the same time most effective machines for the purpose of reducing roots of all descriptions into very small gratings or shreds. Testimonials and directions for use may be obtained free from A. & T. Fry, and the machines may either be obtained direct, or from any respectable implement dealer or ironmonger in the country at the above prices. Also, Corne's Patent Chaff Machines, of all sizes, Improved Oat and Bean Mills, Malt Mills, and Gardner's double and single action Turnip Cutters, &c.

HORTICULTURAL BUILDING
AND
HEATING BY HOT WATER

AT THE LOWEST PRICES
CONSISTENT WITH GOOD
MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

SUBSTANTIAL POULTRY-HOUSE, 12 feet by 4 feet, for 4*l.*, consisting of house 4 feet square, and covered run for fowls 8 feet by 4, nest-boxes, perches, ladders, &c., painted, and delivered within 4 miles from London. Drawings of several sent free. The above are portable, and can be erected by any ordinary labourer. Also summer-houses for Gardens from 50*s.* each, and small houses 6 feet square, 5*l.* each, with door and window. Drawings of 28 sent free. R. RICHARDSON, 21, Tonbridge Place, New Road, London. N.B.—Maker of Iron and Wood Houses for Emigrants. Drawings of 21 and prices sent free.

WIRE FENCING, Three Farthings per Foot, less than 2-inch Mesh, painted, from 1 foot wide to 6 feet wide; the 6 feet high 1*s.* per yard run; made by powerful machinery, and little more than half the price of the cheapest article of the kind in the market. It is worked in oil, and warranted not to rust. Also on Sale, Rabbit-proof Iron Hurdles, 6 feet by 3 feet, 5*s.* to 6*s.* 6*d.* each.—R. RICHARDSON, Patent Wire Maker, 21, Tonbridge Place, New Road, near Euston Square, London. The Wire-work is Rabbit-proof. Wire Sheep Fencing, 4*d.* per square yard.

PATRONIZED BY HER MAJESTY.

WILLIAM SHAKESPEAR,
(SUCCESSOR TO CLARK AND JONES),
Manufacturer of Metallic Hothouses, Conservatories, &c., Hot-Water Apparatus, and General Horticultural Builder,
55, LIONEL STREET, BIRMINGHAM.

WILLIAM SHAKESPEAR in soliciting the attention of the Nobility and Gentry to this old and well-known Establishment, begs to say that in addition to continuing the Manufacture of Metallic Hothouses, &c., for which his predecessors were so justly celebrated, he undertakes the erection of Horticultural Buildings to any extent in Wood, and since taking to the business in 1852 having gone to considerable expense in putting up the most improved Steam Machinery, he is enabled to execute orders in the best manner and at the very lowest price for which first-class materials and workmanship only can be afforded.

Among the many examples of the superior mode of construction peculiar to this Establishment, W. S. can with pleasure refer to the magnificent range of METALLIC FORCING HOUSES in the Royal Gardens, Frogmore, which after having been in operation for some years, are allowed to be unsurpassed in their suitability to the purposes required and the excellence of the workmanship.

Designs and Estimates on application. Experienced workmen sent to any part of the kingdom.

ESTABLISHED IN THE YEAR 1818.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER APPARATUS, for Heating Hothouses, Conservatories, public and private Buildings, and ensuring Ventilation; improved Boilers, with self-acting regulators; Hot-air, Drying, and Hydraulic Apparatus, manufactured and erected by S. S. TAYLER, Battersea.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS, 15*l.*—Illustrations forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety: Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

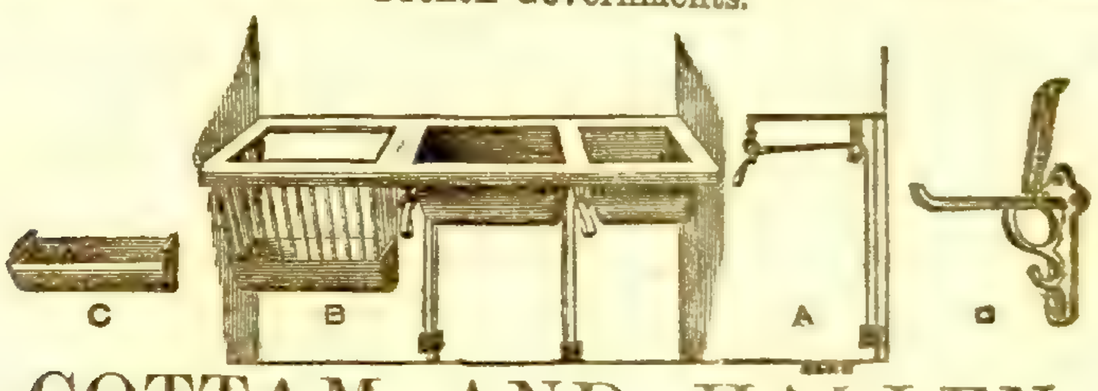
Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, Westminster and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr. James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.
Messrs. Sutton & Sons, Seed Merchants, Reading, Berks.
Mr. F. Godwin, Broadfield Nursery; and 1, 2, and 3, Market Hall, Sheffield.

NEW PATENT INVENTIONS FOR STABLE REQUISITES.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Double Corner Mangers, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—The New Illustrated Catalogue for 1856, and Estimates gratis on application.

Gardner's Patent Turnip Cutters, Turnip Graters and Pulpers, Chaff Cutters, Linseed Cake Breakers, Corn Crushing Mills, and other Agricultural Machines.

B. SAMUELSON, Britannia Iron Works, Banbury,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. **BETWEEN SIXTY AND SEVENTY THOUSAND** of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS. — B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

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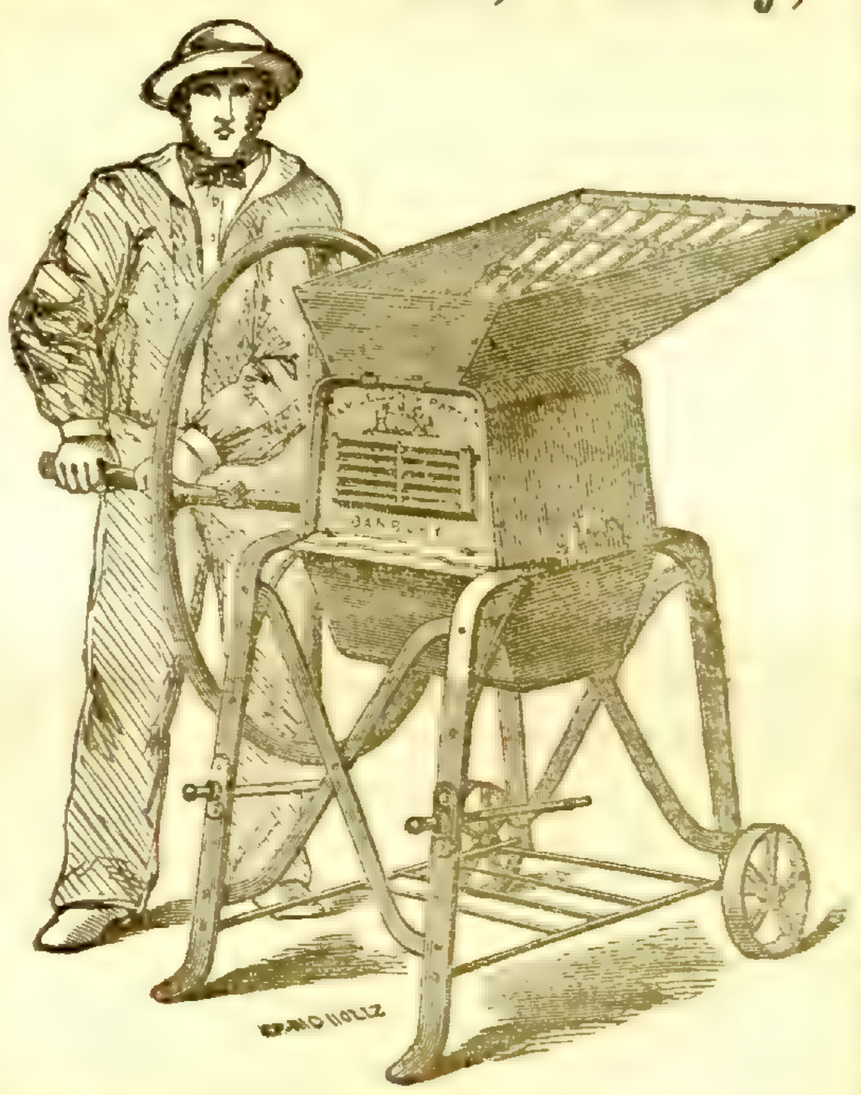
CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

BARLEY HUMMELLERS.

WEIGHING MACHINES, MANGLES, &c. &c. &c.



The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.

The Prices in the Catalogue include carriage to any Railway Station.

THE SEASONS. The seasons act upon the human frame in the same way as they change the appearance of the animal and vegetable world. "The winter brings its snow wreaths, and the summer yields its flowers;" and as the material world undergoes a complete transformation according to the time of year, so does the constitution of man in winter. The blood becomes sluggish, the organs are torpid, and men are subjected to colds, rheumatism, and all sorts of chronic disease. At such a time

PARR'S LIFE PILLS

effect wonders, for they stimulate the system and improve the working of all the important functions of the body, and thus help to insure good health from youth to old age.

*** Ask for PARR'S LIFE PILLS.

None are genuine unless the words "Parr's Life Pills" are in white letters on a red ground, on the Government stamp, affixed to each box; also the fac-simile of the signature of the Proprietors, "T. ROBERTS & Co., Crane Court, Fleet Street, London," on the direction.—Sold in boxes, price 1*s.* 1½*d.* and 2*s.* 9*d.* each; and in family packets, 11*s.* each, by all respectable Chemists and Medical Vendors in town and country.

HOLLOWAY'S PILLS A RESISTLESS REMEDY.—Mr. Turner, Chemist, of Banhaur, Norfolk, has much pleasure in informing Professor HOLLOWAY, of a wondrous cure effected by his medicines in the case of James Turner, Labourer, Kenning Hall, Heath, who was grievously afflicted for many years with a complication of disorders, combining disease of the chest, dropsical symptoms, and chronic rheumatism, rendering him quite unable to gain his livelihood. Having been given over by the entire faculty, he had recourse to HOLLOWAY'S Pills, and now gratefully testifies his miraculous restoration to health and strength.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

BLAIR'S GOUT AND RHEUMATIC PILLS —This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind: for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

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RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice is now made known as a public duty throughout the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10*s.* 6*d.* by Post-office order, or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

SUBSTITUTE FOR GARDEN MATS.—Waxed Sheeting nearly 2 yards wide, 1*s.* per yard run—admits light and excludes cold; thick Canvas Tarpauling, 1*s.* per square yard; thick Canvas Waxed Sheeting, 1*s.* per square yard, may be had various widths. These Canvases are excellent for roofing Sheds and Outhouses, as they are quite waterproof.—R. RICHARDSON, 21, Tonbridge Place, Judd Street, New Road, London.—N.B. Waterproof Capes, 3*s.*; Police ditto, 18*s.* per dozen. Waggon Covers, 2*s.* per square yard.

TO BE LET, 3 miles from Oxford Street, about 5 Acres of MARKET GARDEN GROUND, partly Cropped.—Apply to A. B., 2, Curle's Cottages, New Road, Hammersmith. A Shop may be had near.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orneé, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The days fixed for the EXHIBITION of PLANTS, FLOWERS, and FRUIT in the Gardens of this Society next season, are WEDNESDAYS, May 20, June 17, and July 1, 1857.

By order of the Council, J. De C. Sowerby, Secretary.

BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, December 4, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

William Davidson, Assistant Secretary.

SCOTTISH GARDENERS' & LAND-STEWARDS' ASSOCIATION.—At a General Meeting for the Election of ONE PENSIONER on the Funds of the Association, held at 6, York Place, Edinburgh, on November 19, Professor Balfour in the Chair, the following was the state of the Poll at the close of the Ballot:—

WILLIAM INGRAM	399
JOHN M'COLL	176

William Ingram, having the greatest number of Votes, was thereupon declared duly elected.

James M'Nab, James Dodds, } Scrutineers. J. H. Balfour, Chairman.

FLORICULTURE.—In consequence of Mr. John Edwards having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

HOLLYHOCK SEED.

BIRCHAM and WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Nov. 29.

NEW CHRYSANTHEMUMS OF 1856.

JOHN SALTER'S unrivalled Collection of CHRYSANTHEMUMS is now in bloom in his Winter Garden, among which may be seen the new varieties of 1856, and many splendid seedlings (both large flowering and Pompones) to be sent out in 1857.—Versailles Nursery, William Street, near Hammersmith Turnpike.

GLENNY'S IMPROVED BALSAM SEED, not even approached. Six classes, 37 stamps; mixed, 13. Stock, Aster, Geranium, Phlox, Delphinium, Dahlia, Hollyhock, and other florists' flower seed saved with equal care.—Fulham.

NEW CATALOGUES FOR 1856-57.

WILLIAM WOOD and SON are now prepared to send free and post-paid Copies of their CATALOGUE of ROSES and GENERAL NURSERY STOCK.—Address Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

CHARLES TURNER'S New Catalogue of GERANIUMS, FANCY GERANIUMS, CINERARIAS, CARNATIONS, PICOTEES, PINKS, HOLLYHOCKS, PANSIES, &c., is now ready, and can be had on application.

Royal Nursery, Slough.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.

WATERER and GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

GAINES'S GENERAL CATALOGUE forwarded free of charge and post paid upon application to T. Gaines, Nurseryman, Surrey Lane, Battersea.

P.S. GAINES'S NEW CATALOGUE contains one of the largest Collections of GERANIUMS, both Show, Fancy, and French varieties, in the world.—Nov. 29.

ROBERT KENNEDY, Seedsman, Bedford Conservatory, Covent Garden, Agent for Messrs. Platz & Son, Seed Growers, Erfurt, informs the trade that their extensive CATALOGUE for 1857 is ready, to be forwarded on application. It contains a large number of new articles, which can be recommended with confidence. Early orders are solicited.

CATALOGUES.

H. LANE and SON'S (Great Berkhampstead) CATALOGUES for the present season, containing a selection of the best varieties and novelties, may now be had at the Nurseries, or sent post free. They consist of—

ROSE CATALOGUE.
FRUIT CATALOGUE, containing those grown in pots.
TREE and SHRUB CATALOGUE.
AZALEA, HOLLYHOCKS, &c., CATALOGUE.

The Nurseries, Great Berkhampstead, Herts.

GERANIUMS, ETC.

WILLIAM CUTBUSH and SON beg to intimate that their CATALOGUE of SHOW, FANCY, AND FRENCH GERANIUMS, CINERARIAS, &c., is now ready, and can be had gratis on application.

William Cutbush & Son *wish to draw particular attention to their stock of the above, which is of first-rate quality, and will give every satisfaction.*

Highgate Nurseries, near London.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5*s*. 0*d*.
Do. 12 do. do.	2 6
Do. good mixed	1 0
Border varieties, good mixed, ground roots, per 100 ...	20 0
Do. do. in colours do. do. ...	30 0

"TAYLOR'S GRAND STAND," St. JOHN'S MARKET, LIVERPOOL.

Growers of Choice Fruits and Vegetables should forward as above, in order to realise High Prices.

GEORGE TAYLOR, Jun.,
Choice Fruit and Vegetable Salesman,
Proprietor.
Terms—"Cash."

CAMELLIAS, AZALEAS, AND FERNS.

	Per doz.
CAMELLIAS, with Flower Buds	30*s*. and 42*s*.
CHINESE AZALEAS, with Flower Buds ...	18*s*. and 30*s*.

A great variety of Ferns at moderate prices.

Chandler & Sons, Wandsworth Road, Vauxhall.

SEED WHEAT FOR LATE SOWING.

TALAVERA, RED NURSERY, and HYBRID WHEAT, the best sorts for late sowing, may be had on application to H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

PERPETUAL FLOWERING OR TREE CARNATIONS BLOOMING SUMMER AND WINTER.

YOUELL and CO. beg to offer a very choice and select collection of the above beautiful class in good healthy plants at 12*s*. and 18*s*. per dozen.

Royal Nursery, Great Yarmouth, Norfolk.

GRAPE VINES IN POTS.

JOHN WEEKS and Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

MESSRS. JOHN WEEKS and CO., King's Road, Chelsea, beg to intimate that they have received their supply of SEEDS for the ensuing Season, in the best possible condition, *direct from eminent growers;* and are thus enabled to vouch for the purity and excellence of each article.

Their annual Catalogue is in course of delivery, and will, on application, be sent free by post to any address.

VICTORIA RASPBERRIES.

GEORGE CORNWELL is now sending out his Canes of the above at 15*s*. per 100. Fastolf, 15*s*. per 100. Autumn fruited, 12*s*. per 100, and White, 10*s*. per 100. The usual allowance to the Trade.—Market Gardener, Barnet.

WORCESTERSHIRE CHAMPION CUCUMBER—BLACK SPINE.

JOHN JENNINGS can confidently recommend the above Cucumber as good, in quality a great bearer, and has been grown to the length of 38 inches.

12 Seeds, 30 postage stamps. | 6 Seeds, 18 postage stamps.

Furze Hill Nursery, Shipston-on-Stowe.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. Waite, Seed Merchant, 181, High Holborn, London.

TO THE SEED TRADE.—A few quarters of SCIMETAR and BEDMAN'S BLUE IMPERIAL PEAS, warranted Stocks. Price on application.

Wood & Ingram, Huntingdon.

CHOICE FRUIT TREES and STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. BARRATT, Landscape Gardener, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

H. WALKER, Londonderry, offers for sale a quantity of 1 and 2 year PEARS on Quince Roots. Prices on application.

FINE FRUITING TREES OF PEARS ON QUINCE ROOTS.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire, begs to offer the above in all the newest and best sorts, at 1*s*. 6*d*. each, or 15*s*. per dozen, a descriptive catalogue of which can be had on application.

Also May's Victoria (large Red Currant) at 12*s*. per 100, and Black Bang-up, the largest and best at 10*s*. per 100.

Catalogues of Plants, Fruit and Forest Trees on application.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

TO BE SOLD, a large quantity of Sweet-Scented LILY OF THE VALLEY ROOTS, at 2*s*. per bushel.—Mr. J. Noy, Market Gardener, London Road, Brentford, Middlesex.

ENGLISH YEW TREES FOR SALE.—Three Hundred handsome Yew Trees, from 4 to 6 feet, to be sold. Price 7*l*. 10*s*. per 100.—Mr. Surman, Nurseryman, Lavender Hill, Wandsworth.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

Wood & Ingram, Huntingdon.

SPANISH CHESNUTS FOR SALE.—Above 100,000 fine grown Trees from 2 to 4 feet high for Sale.—Apply to H. Aldrich, Offham Nursery, near Lewes.

PHIOGLOSSUM LUSITANICUM.—Four plants of this interesting little FERN, with directions for culture, will be forwarded, post free, for 12 postage stamps.

J. Helman, Cronte, Guernsey.

GENTLEMEN requiring large ORNAMENTAL PLANTS will find a variety of HOLLIES, also good old CHERRY TREES and General Nursery Stock, at William Bradley's, Pill Street Nursery, Trindsbury, near Strood, Kent.

THOMAS BELL, Seedsman, Wigan, Lancashire, begs to offer the TRUE LANCASHIRE FLUKE POTATO at 4*s* per bushel of 80 lbs., or 5*l*. 5*s*. per ton; Red Downs, 4*s*. per bushel.

RED BEET SEED.

EDWARD SANG and SONS, Nurserymen and Seedsmen, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full grown roots. The sort is very superior, producing well-shaped medium-sized bulbs of remarkably fine quality and colour. Price on application.—Kirkcaldy, Nov. 29.

SEEDS FOR PRESENT SOWING.

EARLY PEAS, BEANS, CARROTS, &c., growth 1856, suitable for present sowing, may be had of James Carter & Co., Seedsmen, 238, High Holborn, London.

TO THE SEED TRADE.

GEORGE TABER, Nurseryman and Seed Grower, of Rose Cottage, Rivenhall, Witham, Essex, begs to inform the Trade that his Carrot, Mangel, Swede, Turnip, and other Seeds are now harvested in good condition, and prices and samples may be obtained on application.

CHRONICLE NEWSPAPER PENNY

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.

9, Mansion House Street, London.

SPECIMEN CEDRUS DEODARA.

WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet	... ...	15*s*. 0*d*. each.
Do. do. 5 to 6 feet	... ...	7 6 „
Do. in large pots, 4 to 5 feet	... ...	7 6 „
Do. do. 3 to 4 feet	... ...	5 0 „

A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.

Stapleton Road Nurseries, Bristol.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20*s*.
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20*s*.
25 American Azaleas, do., do., do., 16*s*.
Hardy Heaths, Ledums, and Kalmias, per doz., 6*s*.
12 „ Rhododendrons, including scarlet, white, and rose, 12*s*.
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15*s*.
Greenhouse Azaleas, best new vars., per doz., 12*s*. to 18*s*.
Camellias, fine sorts, well set with buds, per doz., 30*s*.
50 choice hard-wooded Greenhouse Plants, one of a sort by name, 45*s*.
12 Orchidea Plants, one of a sort, fine species, 40*s*.
24 choice Ericas, one of a sort, small pots, by name, 16*s*.
12 fine Chrysanthemums, new, large and small flowered, 6*s*.
Best Climbing Roses of sorts, per doz., 6*s*.
Fine Standard and Half Standard Roses, 12*s*. to 15*s*. per doz.
50 Dwarf Roses, on their own roots, by name, 16*s*.
Cedar of Lebanon, in pots, 2 feet, well grown, per dozen, 10*s*.
Various choice Hardy Climber, for walls, trellis, &c., p.doz., 10*s*.

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 2*s*. 6*d*. each, or 26*s*. per dozen.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each, 2*s*.
Fine Gooseberries, Currants, and Raspberries, per dozen, 3*s*.
Filberts, new, thin-shelled and red-skinned, per dozen, 4*s*.
Strong Vines, in pots and out, best sorts, per dozen, 18*s*.
Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Vines, grown expressly for pot culture, per dozen, 18*s*.
Ornamental Forest Trees and Evergreen Shrubs in any quantity.

Albion Nursery, Stoke Newington, London.—Nov. 29.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
„ „ 1 and 2 feet by the 100
„ „ 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
„ insignis, ditto ditto
„ Montezumæ, fine plants, 3 and 4 feet high
„ Benthamiana, in large quantities from seed
„ macrocarpa ditto ditto
„ Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
„ Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
„ nobilis, in quantities from seed [grafted
„ ditto, 1, 2, and 3 feet, with perfect leads, and none of them
„ grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
„ „ several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
„ Lebanon, 2, 3, 4, and 6 feet
„ „ some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
„ Goveniana, 2, 3, and 4 feet
„ Lawsoniana, from seed
„ MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
„ Chinese, 2, 3, and 4 feet
„ „ a fine lot, 7, 8, and 10 feet
„ Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
„ Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens, 10 and 12 feet high
„ Golden Yews by the thousand, 1½, 2, and 3 feet high
„ „ worked, 4, 5, 6, and 8 feet
„ „ worked on Irish, and very ornamental, 5 to 8 ft.
„ elegantissima (or new striped), in large quantities, 1½ to 3 ft.
„ Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
„ adpressa, fine bushes, 2 and 3 feet
„ adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
„ occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
„ Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
„ „ smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
„ Clanbraziliana, ditto ditto
„ elegans, ditto ditto
„ Gregori, ditto ditto
„ compacta, ditto ditto
„ pygmæa, ditto ditto
„ pyramidalis, ditto ditto
„ diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
„ „ a fine stock of the best Gold-striped Hollies, 2 and 3 feet high

Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyreas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

CHRYSANTHEMUMS.

W. HOLMES offers the above in strong plants, at 5*s*. per dozen. The large flowered varieties include Alfred Salter, Voltaire, Webb's Delight, Stellaris globosa, Antigone, Madame Lebois, &c. Pompones include Scarlet Gem, Duruflet, Aurore Boreale, Saint Thais, &c. For the cultivation of the above see Monthly Calendar by W. H. in "Gossip for the Garden."—WM. HOLMES, Florist, Well Street, Hackney.

THE TRUE LANCASHIRE SHOW GOOSEBERRIES,

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply, in strong 3 and 4 years old plants, the following set of 24 Gooseberries for 12*s*., or 12 for 7*s*., package, &c., included. They are of fine flavour, and have this season been grown to the weights attached.

Weights taken from the Gooseberry Growers' Register of 1856.

RED.	dwts.	grs.	YELLOW.	dwts.	grs.
London	27	18	Leader...	24	12
Conquering Hero ...	24	19	Drill	24	8
Companion	24	0	Catherina	23	8
Lion's Provider ...	23	22	Gunner	21	10
Dan's Mistake ...	22	15	Peru	21	9
Roaring Lion... ...	20	12	Goldfinder	21	1
Napoleon le Grand ...	20	11			
GREEN.			WHITE.		
Thumper	24	12	Freedom	25	4
Turnout	22	11	Snowdrop	23	17
Weathercock... ...	21	2	Queen of Trumps ...	23	0
General	20	21	Lady Leicester ...	23	0
Keepsake	17	5	Eagle	21	0
			Tally Ho!	18	8

The following varieties of Black Currants, in very strong plants, at 3*s*. per dozen:—Black Bangup, Black Naples, Black Grape.—Catalogues now ready.

Post-office Orders payable at Middleton, Lancashire.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway. — The Nursery, Bagshot, Surrey, Nov. 29.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had gratis on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

TO PERSONS ACQUAINTED WITH SOUTH WALES, &c.

WANTED, A LIST OF THE NAMES OF THE RESIDENCES or SEATS of the principal Nobility and Gentry, &c., having Extensive Fruit Gardens, containing Pineries, Vineries, and other Hothouses attached to their Dwellings in or about any or all of the undermentioned counties, viz.:—

Anglesey	Cardiganshire
Carmarthenshire	Denbighshire
Caernarvonshire	Flintshire
Glamorganshire	Montgomeryshire
Merionethshire	Pembrokeshire
Radnorshire	

Apply per Letter to G. T. I., 30, Norton Street, Islington, Liverpool.

SHEET GLASS FOR ORCHARD HOUSES.

On Mr. RIVERS' Plan.

20 by 12, ...	20 by 13 ...	18*s*.
20 „ 14, ...	20 „ 15 ...	

Per 100 feet.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d*. to 3½*d*., 21 oz. from 3*d*. to 5*d*., 26 oz. from 6*d*. to 7½*d* per foot superficial, according to size and quantity.

JAMES PHILLIPS & CO.,

116, Bishopsgate Street Without, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d*. to 8*d*. per square foot, for the usual sizes required, many thousand of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s*. 6*d*. per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s*. 6*d*. per box, in 21 oz. 1*s*. per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s*.; and 21 oz., 25*s*. per 100 feet. Boxes charged 2*s*. each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d*. per yard or 5*s*. per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, Westminster and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

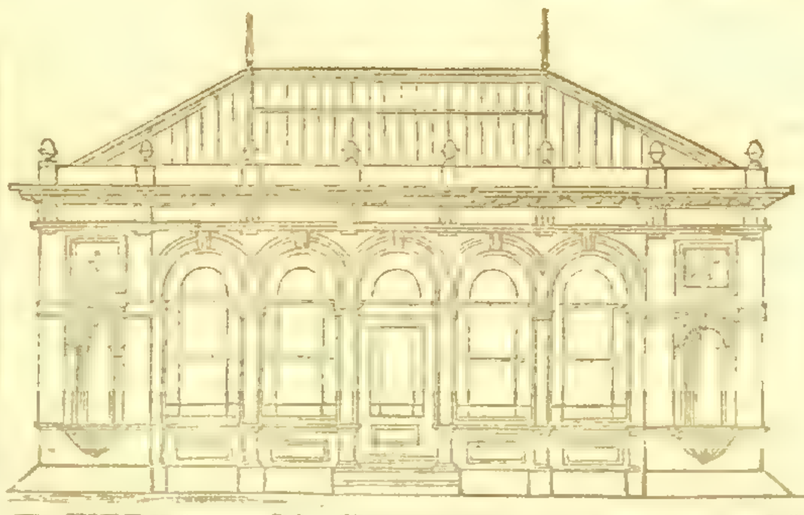
Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr. James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.
Messrs. Sutton & Sons, Seed Merchants, Reading, Berks.
Mr. F. Godwin, Broadfield Nursery; and 1, 2, and 3, Market Hall, Sheffield.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

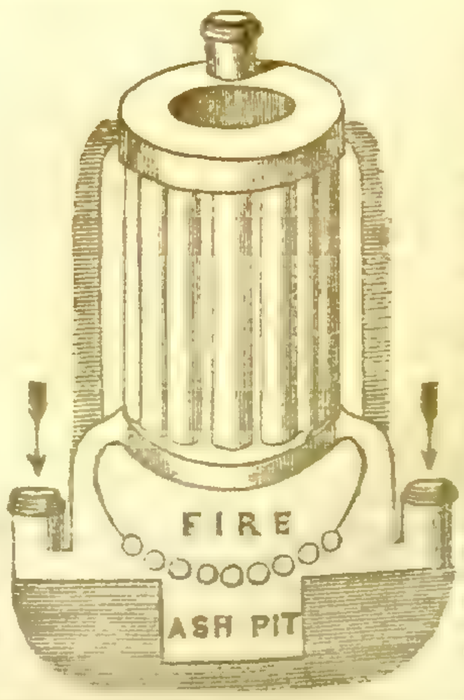
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREEN HOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE is now ready, and can be had free on application, comprising Choice Coniferæ, Hardy Evergreens, and Ornamental Trees and Shrubs, all of which are well grown and constantly removed; is also an extensive grower of Roses and Fruit and Forest Trees.

G. J. particularly wishes to call attention to his Dwarf-trained Fruit Trees, being clean grown and well trained, including all the leading kinds.

Woking Nursery, 1½ mile from Woking Station, South Western Railway, where all Trains stop and conveyances can be obtained.

NEW ROSE, BACCHUS.—This Rose is a seedling from the "Géant des Batailles." The flowers are similar, but larger, stouter, and brighter in colour, remaining a long time in perfection on the plant without the faded appearance so objectionable in the parent. It is a most abundant bloomer, both in summer and autumn; and has received first class certificates from the National Floricultural Society, the Royal Botanic Society, and at the Crystal Palace Exhibition. Price 10*s.* 6*d.* each.

A. PAUL & SON respectfully announce that the above Rose is now ready to be sent out. The usual discount to the Trade when three or more are ordered.

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JOHN HARRISON'S DESCRIPTIVE CATALOGUE of ROSES, with directions for Culture, Pruning, &c., may be had post free on application.

J. H. having a large stock of the following Plants, begs to offer them to the trade, viz.:—

Manetti Rose Stocks, 1 year old, at 7*s.* per 100; 60*s.* per 1000; per 10,000, 27*l.* 10*s.*

Transplanted, 10*s.* per 100; 80*s.* per 1000; 1 year from pots, fit for immediate working, 25*s.* per 100.

Falstaff Raspberry, 7*s.* per 100; 60*s.* per 1000.
Northumberland Fillbasket, 10*s.* per 100.
White Raspberries (in sorts), 10*s.* per 100.
Victoria Currants, 1 year, 7*s.* per 100: and 2 year, 12*s.* per 100.
Houghton Castle ditto ditto ditto ditto
Black Currants (in sorts), 1-year old, 5*s.*; 2 year, 10*s.* per 100.
Seedling Holly, 2 years, fine, 7*s.* 6*d.* per 1000.
Ditto ditto, 1 year transplanted, 15*s.* per 1000.
Ash, 2 years seedling (fine), 9 to 12 inches, 2*s.* 6*d.* per 1000.
Delphinium Barlowi (strong), 25*s.* per 100.
Rhubarb (Victoria), 25*s.* per 100.

Fruit Trees of every variety, Evergreens and Deciduous Shrubs. Grounds Laid out and Planted, Forest Plantations contracted for and maintained until permanent. Experienced Gardeners, Bailiffs, and Estate Managers combined, recommended.

Darlington Nursery.—Nov. 29.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	*d.*
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
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Ferns, hardy, from per doz.	9	0
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Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
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A remittance or reference to accompany all orders from unknown correspondents.

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JUST PUBLISHED,

HORATIO BUNTING'S WHOLESALE FLOWER SEED CATALOGUE FOR 1856-57, containing a list of nearly every popular Annual, &c., in cultivation. The whole of the seeds having been grown under his own immediate superintendence not only enables him to warrant them true to name and genuine, but also to offer advantages in the prices (to purchasers) seldom to be met with. Catalogues forwarded to any Seedsman in the world post free on application. A Vegetable List is in preparation for publishing.

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SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

PRUNING SEASON.

WANTED, a few hundred Scions of Louise Bonne of Jersey, Marie Louise, and Gratioli of Jersey Pears; a few thousand Scions of Roses, in collections not to exceed 12 best Perpetual, 6 Yellow Tea, and 6 Bourbons; also shoots without flower buds of named Rhododendron Blandyanum Victorianum, or of any good crimson or scarlet sort, except Smithi. List of kind, price, and quantity, addressed within a month, to Mr. SOLE, Londonderry, will meet with attention

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

MESSRS. E. G. HENDERSON AND SON beg to offer the following Coloured Plates of new Flowers—

"*Stamps taken as Payment.*"

	s.	*d.*		*s.*	*d.*
Camellia Jenny Lind ...	0	6	**Locheria (Achimenes) magnifica**	0	6
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*Cyclamen Atkinsi ...	1	0	*Group of New Flowers of 1855	1	0
Dianthus albo nigricans ...	0	6	*Ditto, 1856	1	0
Gonocalyx pulcher... ...	0	6			
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Also a new Plate of Five *Geraniums, including Mrs. Storey's novel white varieties, 1*s.*

* Those marked are designed by Mr. Andrews, of Walworth (who is now engaged on the novelties intended for the forthcoming season): the remainder by continental artists of great celebrity.—Wellington Nursery, St. John's Wood.

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	s.	*d.*
ANEMONES, spendid double mixed, per lb.	4	6
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CROCUS, mixed, fine, all colours, per 100	1	6
„ named, separate „ „ ... ... 2*s.* to	3	0
CROWN IMPERIALS, mixed or named, per doz. ...	3	6
FRITTILARIA PERSICA „ „	4	0
GLADIOLIS FLORABUNDUS, large, „	3	0
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HYACINTHS, named for pots or glasses, each, 6*d.* to ...	1	0
„ from „ sorts mixed, per dozen 3*s.* to ...	4	6
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„ „ RUBRUM „	2	6
NARCIS, fine, mixed ... ... per doz.	3	0
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RANUNCULUS, mixed, very fine, ... per 100	4	0

Lists on application.

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"TAYLOR'S GRAND STAND,"

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WANTED.

Good Pines, from 2 to 3½ lbs. each	Good Muscat Grapes
„ Black Grapes	Choice Dessert Pears
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Choice Flowers, &c. &c.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT AND VEGETABLE SALESMAN,
Proprietor.
Terms—"CASH."

FOR TERRACES.

STANDARD PORTUGAL LAURELS.
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STANDARD COMMON HOLLIES.
STANDARD LAURUSTINUS.
STANDARD COMMON BOX.
STANDARD RHODODENDRONS of sorts.

SEVERAL HUNDREDS of the above on clean straight stems with good well-shaped heads of various heights and sizes. All transplanted last year. Prices may be had on application to JOHN & CHARLES LEE, Nursery and Seed Establishment, Hammersmith, near London.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE, having largely increased their Stock of this indispensable and interesting class of FRUIT TREES, have still several hundred very superior plants to offer of the following kinds, which they will warrant to produce good crops of Fruit in FORCING or ORCHARD HOUSES the ensuing season.

PEACHES.	CHERRIES.
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APRICOTS.	APPLES.
FIGS.	PEARS.

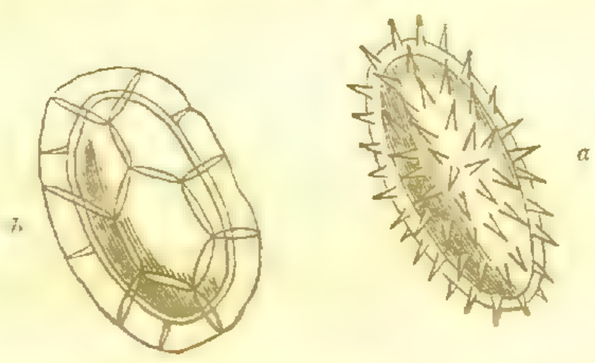
Priced Catalogues on application.

Nursery and Seed Establishment, Hammersmith, near London

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 29, 1856.

IF Truffles are ever to be cultivated successfully, the starting point must be, a correct knowledge of what we want to cultivate. But unfortunately this is the very point in which there has been the greatest deficiency in those experiments which in our own country at least promised the best results. It is perfectly useless to choose the most favourable site, to prepare the most promising compost, or to make other arrangements which may be supposed likely to succeed, provided we do not select such a species of Truffle as is capable of flourishing in our variable climate. Now to the generality of persons in England, a Truffle is but a Truffle, whatever be its peculiar structure. They have no notion that the species are very numerous, that a few only are fit for food, or of such a size as to make them worth notice, or that the Truffle of the English market is a totally different species from that of Paris. If then French Truffles are selected for experiment, even should they be fresh, and much more if they are the mere sweepings of the oilman's shop,



a, a sporidium of *Tuber melanosporum*; *b*, one of *Tuber æstivum*.

the greater part of which have been submitted to some process of drying by artificial heat with a view to preserve them from decay, it might be augured very safely that no success can possibly attend the experiment. To show how very different the common British Truffle is from that of the French markets, we have subjoined a sketch of the sporidia of the two species.

In outward appearance indeed there is little or no difference, but the aroma and the colour of the veins are so distinct that even without a microscopic examination there can be little doubt about the matter. Now though several species of Truffle have been found in England, it is curious that the black seeded Truffle (*Tuber melanosporum*) which supplies the Paris markets, with an occasional admixture indeed of what may be called the English Truffle (*Tuber æstivum*), has never yet been found as a native of Great Britain. TULASNE indeed states that it was found by Mr. BROOME at Rudloe, in Wiltshire; but Mr. BROOME's specimens belong really to *Tuber brumale*, a species which seldom attains any size in this country, and which together with *Tuber macrosporum*, which is also a native and which attains a marketable size in France, may be safely pronounced as quite unfit for cultivation. *Tuber melanosporum* requires doubtless a warmer climate than we have to offer, and its cultivation therefore in the open air may at once be set down as hopeless. Having then satisfied himself as to what he wants to cultivate, that it is the English and not the French Truffle, the next point for the cultivator is to obtain a supply of the proper species at the proper time. Now here he must not be misled by mere names. The Truffle gatherer will probably tell him that he finds both English and French Truffles. The fact however is that what he calls French Truffles are merely those young and almost worthless individuals in which the veins are still pale, because the sporidia to which they principally owe their colour are not yet developed. Such specimens may be thrown aside as utterly unfit for propagation.

If Truffles are to be cultivated at all, it must be from the germination of the sporidia, or in other words from the running of the spawn, and this can only be anticipated from ripe and perfect individuals. Now, *Tuber æstivum*, which must be the object of cultivation, is a species which, as the name implies, is of earlier growth than some other species. Even in summer individuals may be found which have arrived at their full size, and in which the fruit is perfected, but this is by no means usually the case, and the safer practice would be to take Truffles of the present season for experiment. These must of course be of English growth, and the best plan will be to procure them directly from the Truffle-hunter. As, however, much depends upon the particular year, the cultivator should not trust to chance, but should examine for himself. A common pocket lens is quite sufficient for the purpose, as that will show at once, if a thin slice be taken and held up to the light, whether the little sacs imbedded in the veins are colourless, and filled merely with the matter of which at a later period the reproductive bodies are to be formed, or whether they are of a rich golden brown and teeming with fruit.

Having ascertained precisely what kind of Truffle we are to cultivate, and having obtained a proper supply of seed Truffles, our next point is to consider what are the habits of the Truffle with a view to its successful cultivation. Now there is not a particle of evidence to show that the Truffle is parasitic in any stage of growth, much less that it is in any respect due to the agency of insects. It grows from spawn like other fungi. The difficulty is how are we to get that spawn to run. This must of course be effected by placing the seed Truffles in conditions as nearly as possible similar to those in which they are found in nature. In Poitou the mode of forming Truffle grounds is very simple. A portion of the naked down is inclosed and sowed with acorns, and in the course of a few years the soil teems with Truffles, and continues to have a crop till the trees have become large enough to expose the soil. The English Truffle does indeed sometimes grow on lawns which are very imperfectly shaded, but this is not its usual habit; the richest Truffle grounds that we have seen have been in young plantations where the lower branches were not thick enough to exclude the light, but where the heat of the sun could not penetrate, and, if so, where it was modified before reaching the soil by a thin but compact layer of vegetable matter. The Truffles do not however grow in the vegetable mould, but in the soil itself, which may be of various degrees of density, but which must be thoroughly drained. It is useless therefore to make vegetable matter enter largely into any compost for Truffle beds. What is wanted is a good firm soil, free from half decayed vegetables, and intimately mixed together, so as neither to become positively hard after having been sodden by water, nor to be filled with cavities like a sponge. English Truffles are, we believe, never found where the soil is essentially sandy, though we are not prepared to say that they are found only in a calcareous soil. A few yards will sometimes make a difference. Truffles, for instance, have never been found at Kew, but on the Syon side of the Thames, where the soil is no longer sandy, they are sometimes met with; though, however, a few

Truffles may occasionally grow in districts which are not calcareous, all the best Truffle grounds of England are in districts which are strictly so. It is, therefore, a matter of prudence that the cultivator, while he secures a proper texture, should at the same time supply calcareous matter. If not absolutely essential, which we are rather inclined to think would prove the case if the soil of Truffle grounds were carefully analysed, it is at least clear that the admixture of such matter must be beneficial.

Our advice, then, is first to choose a site for the Truffle bed in some young plantation, consisting of Oak and Beech slightly mixed with Fir, where the ground is perfectly drained, and then to remove the soil to the depth of a foot, without however destroying the young roots of the surrounding trees. The space should then be filled up to within a couple of inches of the original surface, with a mixture of equal parts of good loam and road scrapings arising from pulverised limestone, with a slight admixture of old leaf mould perfectly decomposed and thoroughly incorporated with the other materials. If the road scrapings cannot easily be procured, soil from some chalky district into the composition of which chalk enters largely, but does not remain in a crude undigested state, might be substituted. On the soil thus prepared the Truffles should be studded, and a fresh layer of the compost added, till it is level with the original surface. The whole should then be protected by about 2 inches of fallen leaves, amongst which a few Fir leaves will be found useful, as they will help to retain the broader leaves in their place. Much of course will depend upon the locality, but the bed should not be placed in a position where it is likely to be exposed to prevailing winds, and the Truffles must be protected from squirrels and other animals to which they are acceptable. The experiment might be varied by planting a bed with divided instead of whole Truffles; or the Truffles might be grated and mixed with water, and the mixture applied by a common watering-can; but I believe the two former methods are the best. If these experiments should succeed, there will be an opportunity of ascertaining how the spawn runs, which is in reality a desideratum as regards the English Truffle.

As regards the French Truffle TULASNE has had an opportunity of examining young Truffles in September proceeding from the spores of the former year, and there is every reason to believe that the process is much the same with our English Truffle. The spawn is at first white, and forms cylindrical branched threads, except where it is closely wrapped round the fungus. As the Truffle grows the spawn vanishes, leaving behind only a few brownish threads, as may be often seen in *Tuber æstivum*. Should the habits of the two species prove the same no results can be expected under at least a twelvemonth from the commencement of the experiment; but if the spawn can once be made to run with any certainty it may soon be possible to prepare it for the market.

For ourselves we feel sanguine that a few well considered attempts, founded on the principles now pointed out, will lead to success if the matter is taken up by intelligent minds. Rules cannot be given at present; they will follow the trials which we hope will be made now that the habits of the Truffle are correctly known, and that we have put an end to the foolish recipes of the quacks who have hitherto misled gardeners. The trials will be attended with very small expense. Almost every country clergyman must have access to a plantation in which to operate. If not he can sow some acorns in his garden and make a plantation for himself. As to gardeners, there is not a place in which every facility for conducting the proposed experiment is not at hand, and they must recollect that no result could be more acceptable to their employers than supplying the cook with plenty of good fresh Truffles. We should think it would answer the purpose of those who live in the proper districts to advertise fresh seed-Truffles for sale.

A MR. R. BLACKETT, of the Rivenhall Tile Works, Witham, has sent into circulation a handbill eulogising a contrivance for border edgings called HOGG'S EDGING TILES, which he manufactures for sale. Mr. BLACKETT has put prominently forward, as was natural, a favourable opinion that was expressed of these tiles in the year 1852, and again in *February* 1853, when it was stated that they *appeared* to possess much merit. Nothing could be more true; they are very good looking, and *appear* to be extremely well suited to the purpose intended. But Mr. BLACKETT has forgotten to add that this appearance was deceptive: we must therefore supply the omission. An indispensable quality in all such inventions is that they shall stand the weather. In September 1853 we reported *that they did not stand;* and this was explicitly repeated in the October following. Their value was therefore merely apparent. What they were really worth may be seen at this day in the Garden of the Horticultural Society, where their remains are still left in the place they occupied originally. What the strength of Mr. BLACKETT's may now be we do not know from personal experience, but we think it right to state that a correspondent reports the new ones to be no better than the old ones.

VEGETABLE PATHOLOGY.—No. CXLV.

599. PARASITÆ (*Uredines,* Rust*). Under this are comprehended numerous parasitic fungi, which attack plants belonging to almost every natural order. Some of them are nearly harmless, while many are extremely mischievous. Their spores are of different colours, yellow, orange, white, brown, &c., and their structure very various.

600. The white rust is familiar to every one from its prevalence on Cabbages, Shepherd's Purse and various other Crucifers. The mycelium spreads amongst the tissue, distorting every part, and in the flowers increasing everything to an enormous size. A figure illustrative of this will be found in the Transactions of the Horticultural Society of London, vol. 3, p. 266, and the same deformity is represented in the annexed woodcut. The mycelium of parasitic fungi is often difficult to observe because of its minuteness, and the perplexity caused by the outlines of the cells of the matrix. In the white rust, *Cystopus*, it is so large that it is easily seen; and any one who is sceptical about the true nature of these plants cannot do better than to make it a subject of investigation. Nor is this the only point of interest. Few plants in point of fact are more curious as regards structure, and few were more puzzling till Tulasne explained that two kinds of spores are produced in the same heap, the one more numerous forming moniliform chains with cylindrico-globose articulations separated from each other by a short narrow connecting thread, the other larger, thicker, and darker, divided into three distinct lobes, after the fashion of *Triphragmium*. Both of these germinate, but the larger seem the more perfect. The same thing occurs in the common Rose Rust, which belongs to the genus *Coleosporium*. Some of its spores germinate at definite points, like many pollen grains. Roses often suffer greatly from this blight, which is capable of being propagated by the spores, as where the soil in which a healthy Rose tree is planted is sprinkled with water in which infected leaves have been immersed, the tree is pretty sure to be rusted the following season.

601. The most important, however, of the species of rust is that which attacks the spikes and leaves of corn. We must, however, first distinguish between *U. linearis* and *U. rubigo-vera*, the former being simply the young state of *Puccinia graminis* before the dissepiments are formed. As the two plants frequently grow together it was at one time thought that *U. rubigo-vera* was also a mere state of the Wheat mildew. As long as the rust is confined to the leaves it is of little consequence, especially if the growth of the plant be vigorous. The leaves at length flag, and the effect seems merely to check undue luxuriance; but if the spikelets and germen are affected, a circumstance which takes place at a later period of growth, the effects are disastrous. The matter which was intended to nourish the germen is diverted, while the mycelium causes a sort of hypertrophy, and the grain, which was at first swollen, becomes in consequence meagre and shrivelled. In red Wheat the disease is scarcely ever prevalent, but in the white Wheats it is so virulent that in countries which do not suit them it is often almost impossible to secure seed. In all these cases so many of the spores fall to the ground that no system of washing or steeping is effectual. The only remedy is to avoid growing those especial varieties which are most subject to the complaint, a remedy which is very easy where red Wheats form the staple of the crop, but where white Wheats are most suitable to the soil we fear that there is no known remedy. The rotation of crops is however greatly in favour of the cultivator, for rust is far less common on other cereals than on Wheat, though unhappily it occurs on many Grasses, by which the plague is propagated.

602. It is right to state that Desmazières considers the species which grows on the inflorescence as different from that which grows on the leaves, and has therefore published it as *U. glumarum*, Roberge; but after an examination of his own specimens this opinion is not borne out, for there is no one essential character to separate them, nor are the spores as he describes them smooth, but minutely granulated as in undoubted *U. rubigo-vera*. *M. J. B.*

* From ὠρὸ to burn. In the last line but one of par. 594, for "globose" read "oblong."

NEW ROSES.

IT seems to have become a fashion to depreciate "new Roses," for what reason it is difficult to divine. Perhaps the fable of the "Fox and the Grapes" is not altogether inapplicable in the case. But that it is a fashion, and a mere fashion founded on a little truth and much error is my conviction, and for that reason I am induced to offer an investigation of the matter. Let me admit at the outset that numbers of worthless new Roses are annually palmed on the public at high prices, but this does not establish the position of your correspondent "A. R." that "the old Roses are the best yet." Surely he has just awakened from a long long sleep to recommend among 12 "not beaten yet" such second-rate kinds as La Reine, Madme. Laffay, General Jacqueminot (Hybrid China), Louis Buonaparte, and William Jesse! The first is sometimes fine but very uncertain, the second small and transitory; the third loose, flimsy, and often washy in colour; the fourth of indifferent shape; and the last little more than semi-double! Where would "A. R." find himself if he relied on such kinds in competition? Surely at the bottom of his class; and their position is about the same viewed from the mere decorative point of view. No one can regret more than I do the dishonest practice of sending out with falsely flaming descriptions so-called new Roses, which are neither novelties nor improvements. The practice is too general with flowers and fruits too, and deserves to be strongly reprobated. I have known a raiser of seedlings to offer from 10 to 25 new kinds in one year at from 10 to 25 francs each, and not one of them prove worth as many sous. The remedy is, I apprehend, to be found not in repudiating novelties *in toto*, but by keeping a watchful eye on the sources whence real acquisitions proceed, and whether a dealer errs from ignorance, carelessness, or selfishness, ignoring him in future transactions. Not that this rule should be too strictly enforced; no point in the entire range of horticulture is more difficult to arrive at correctly; there must be some risk on the part of purchasers; all will err occasionally, but there are those who err continuously. Now for the examination of facts. For 12 proved new Roses I would invite the attention of your readers to the following:—Hybrid Perpetuals: General Castellane (rich crimson), General Jacqueminot (brilliant purplish red), Gloire de Vitry (bright rose), Lord Raglan (scarlet crimson), Madame Desirée Giraud (white, striped with carmine, (Madame de Cambacères (rich rosy carmine), Madame Masson (reddish crimson, changing to violet), Madame Martel (white, suffused with rose), Madame Vidot (transparent flesh-colour), Souvenir de Leveson Gower (dark red, changing to ruby). Bourbon: Prince Albert (the best bright Bourbon rose). Tea-scented: Gloire de Dijon (yellow, shaded with salmon). Although these have issued from the hands of the raisers within a space of two or at most three years, I would place them in the scale against the 12 of "A. R." which are a sort of *omnium gatherum* of all time, notwithstanding the presence of the ideal Rose Coupe d'Hebe in the opposite balance.

Thus far I write boldly, because supported by ascertained facts, but I am now about to enter an imperfectly explored territory to grapple with a more difficult question—the improved new Roses. The difficulty in judging of the quality of new Roses arises from the roots becoming dried in their transmission to this country, so that they seldom fairly establish themselves the first season. What we are about to offer now must therefore be taken on trust, but we believe we shall be found correct in the main. Of the 70 or 80 new varieties imported and flowered here last season the following bloomed to our satisfaction: Hybrid Perpetual—Arthur de Sansal (purple shaded with crimson), Bacchus (crimson scarlet, brighter than Géant des Batailles), Dr. Henon (white, tinted with yellow), General Simpson (rosy carmine), Imperatrice des Français (flesh colour, tinged with white), Mathurin Regnier (pale rose), Madame Knorr (bright rose, pale edges), Ornement des Jardins (brilliant crimson), Pæonia (reddish crimson, showy, with many good qualities, but indifferent shape), Prince Noir (almost black, but not full), Souvenir de la Reine d'Angleterre (bright rose), Triomphe de l'Exposition (reddish crimson, very fine), Triomphe d'Avranches (bright red).

One word in conclusion. Permit me to ask those Rose amateurs and dealers who repudiated the new Roses some two or three years since (and there were many), whether their collections have not suffered in consequence? And I believe there are as good new Roses now as then. The object is to reach them; to draw out by the exercise of the judgment the few real diamonds from amidst the multiplicity of paste imitations glittering on every hand. To wait till these are known—demonstrated—to be invaluable, is to lose all the hope of expectation, the surprise of novelty, and one or two years of the enjoyments of possession. *William Paul, Nurseries, Cheshunt, Herts.*

GENERATION OF FUNGI.

THOUGH so much has been done by Tulasne, Caspary, and others towards the elucidation of the various modes of fructification which are assumed by individual species of fungi, insomuch that from two to five different forms

of fruit may exist concurrently or otherwise in the same fungus, and at the same time so many indications have been discovered of bodies either actually endowed with the power of impregnation, or representative of such organs, it is curious that as regards the higher fungi research has either been altogether baffled or has met with but little success. This is indeed in keeping with the fact, that while in the higher Cryptogams the organs of impregnation approximate so closely to the animal type, even plants so low in the scale as Algæ exhibit vital phenomena in this respect of a higher order than any Phænogams. In the same tribe of plants, then, we need not be surprised if we find inferior species endowed with more distinct indications of sexual distinctions than those which we have every reason to believe are of higher systematic dignity. The subject has lately been taken up by Hermann Hoffmann, and the results of his investigations are given in the Botanische Zeitung of March 1856. His attention was first directed to the vesicular bodies which are so conspicuous on the gills of the inky Agarics which are now known by the name of Coprini. He was however, like his predecessors, unable to find anything which made it probable that they have any sexual function. After maceration for some days he found in one species monads generated in their cavity, but, as he very prudently observes, the same phenomenon takes place so often in other cases as to make the fact of little weight. He therefore considers it as certain that these bodies, which he calls Pollinaria, are of no great significance, and that they are in fact mere modifications of the sporophores.

His attention was then turned to the lower part of the stem, and he there discovered oblong bodies produced at the tips of certain privileged threads which at last separate from their attachment. These bodies were submitted to the influence of a damp atmosphere without obtaining any germination, and he therefore concludes that there is much probability in favour of their being true spermatia. He ascertained however in *Agaricus metatus* that the true spores certainly germinated apart from these so-called spermatia, and that their influence therefore, if exerted at all, must be directed to the fertilisation of the mycelium, after the fashion of the higher Cryptogams.

On the whole the result obtained is not of any great importance, but the investigations as far as they go are not without their worth. *Agaricus racemosus* is perhaps the best object to which attention can now be turned, with a view to the confirmations of Hoffmann's notions, but unfortunately it is of rare occurrence. The two kinds of fruit, the one like that of an ordinary Agaric, the other like that of a *Stilbum*, are palpable enough, and it would be interesting to ascertain whether the Stilboid fruit would germinate. In closing our remarks we cannot help adverting to the carelessness with which well-known plants are so often described as new by German botanists. *Actinobotrys Tulasnei*, Hoffmann, was described in the first volume of the Journal of the Horticultural Society, under the name of *Botrytis ganglioniformis*, and it is mentioned in Caspary's memoir on allied species; and if a new generic name is wanted *Bremia lactucæ*, Regel, is the same thing; a name moreover proposed in the Botanische Zeitung. Again with respect to *Sphæria acuta*, Hoffm., the nature of the spores was so well known that a genus *Aposphæria* was proposed for its reception many years since, besides which it has been long ago shown that Greville figured the fruit of *Sphæria coniformis* for that of Hoffmann's *S. acuta*. Whether or no the latter may be a mere *Pycnidium* of the former is a distinct question.* *M. J. B.*

* A critic of Caspary's paper, On the Binary or Ternary Fruit of certain Moulds, in the same No. of the Botanische Zeitung, says that Caspary's *sporidangia* are Tulasne's *pycnidia*. This is not correct. Caspary's sporidangia have a simple and not a cellular covering, and, what is of more importance, the bodies they contain do not arise from sporophores, but are generated like the sporidia of *Mucor* from the protoplasm.

Home Correspondence.

Preservation of Wood.—Your Paper of the 15th inst. describes a cheap and easy mode of impregnating wood with preservative liquids, and it will probably induce many to adopt it. I must however beg leave to deny the assertion that sulphate of iron has been found to fail, for I have witnessed instances of its perfect efficacy. Towards the end of the last century Dr. G. Fordyce had an observatory window much injured by dry rot; he directed me to scoop out the decayed parts of it, then to fill up the crevices with a saturated solution of sulphate of iron. This not only checked the dry rot but preserved the window for many years. So satisfactory a result induced a friend to try the experiment on beams in his cellar, which were decaying from dry rot, and it proved most successful. When the ships of H. M.'s fleet were attacked in the same way Sir Samuel Bentham was desired to report upon them, and his report fully proves that sulphate of iron has been found an efficient preventative of dry rot. Sulphate of copper was recommended by Dr. Hales nearly a century ago for the preservation of wood, but being more costly than sulphate of iron, the latter is preferable. The preservation of wood was a subject much considered by the late Sir S. Bentham, who was of opinion that a thorough impregnation of it was the only means by which its durability would be insured. He accordingly took out a patent for effecting this purpose by exhaustion, which still appears to be the only efficacious mode of preservation where the pieces are of large scantling, but the cheapness of the apparatus described in the *Gardeners' Chronicle* is decidedly in its favour for all rural purposes. The saturating wood with preservatives is not however the only mode by which it can be preserved, for Sir Samuel has instanced that in the case of most ancient structures, the interior beams have been preserved by simple exposure to the air, thus insuring their slow dessiccation, so that the interior moisture may evaporate without rending their exterior surface. Indeed, slow dessiccation seems essential for timber as well as to preserve the flavour of vegetables, as instanced in the *Gardeners' Chronicle*. The late Mr. William Strutt said that dessiccation by steam would be found a superior method, indeed this has been proved in an instance practised by the father of the late Mr. R. Prosser of Birmingham, who contracted for the erection of an edifice, of which the timber was still growing. Nothing daunted by this circumstance, he dried the wood by steam, and it still bears evidence of the correctness of his views. It must be observed that to this day it has not been ascertained whether the preservatives act mechanically, or chemically, or conjointly. *M. S. B.*

Fuel for Boilers.—After reading your correspondent's remarks (see p. 773) respecting boilers and fuel, I confess myself unable to make out what he means. In the first place, he says, "The fuel suitable for conical boilers is either house cinders, gas or oven coke, or Welsh coal. These," he adds, "are valuable in the order in which they stand." House cinders are therefore set down as best, next coke, and last Welsh coal. Further on he says, "Gas coke is never quite equal and often very inferior to oven coke; cinders are not quite equal to good oven coke, but superior to ordinary gas coke." Again, he says, "The principle of a conical boiler is that it should be filled full of fuel." In another place he says that the boiler is most powerful when it is only partly full. Now, as an old stoker of nearly 40 years' standing, who has had all sorts and sizes of boilers to deal with, I would advise every one who is not practically acquainted with those matters to "fight shy" of these three-dozen-hour-boilers; any stokehole boy would shudder to be told that he had only to make up his fire something like every other day. Such statements as those of Mr. Rogers and "Sigma" are to the point if they were confined entirely to orchard houses, but their tendency is to induce a belief that the erection of a heating apparatus, and the keeping it supplied with fuel, is quite an easy matter; while every gardener knows that as far as forcing is concerned just the contrary is the fact. *D. A., Devon.*

Petunia imperialis.—Mr. Milner having asked me "in what soil I grew this plant on its being turned out," I beg to inform him that in the autumn of last year I excavated a bed about two feet, and then filled it up with fresh loam from an adjoining Grass field, thoroughly incorporated with a certain proportion of well decomposed cow manure and finely sifted coal ashes, or rather, I should say, the ashes from culm formed into balls with an admixture of clay, the kind of fuel generally used in this quarter. The bed was then allowed to remain undisturbed in a rough state until the second week in May, when it was merely hoed and raked over, and the Petunia plants were inserted therein along with other varieties, some of which were turned out of pots from cuttings struck in the autumn, and the rest from seed previously raised in a hot bed. Every plant grew most luxuriantly, and with the exception of imperialis, blossomed splendidly. By it, nothing but empty calices or green cups were produced, precisely as described by your correspondent "J. G." in a previous Number, and several of my neighbours to whom I gave cuttings, which readily rooted under a handglass, have told me that they met with no better result from those in the open border. It is far from my wish to disparage the merits of the plant, whatever they may be. I only adduce facts that have occurred in my own experience, and perhaps the failure in my case may have arisen, as Mr. Milner states, from improper cultivation; yet the circumstance of my having got it to develop its flowers upon being treated in the way I formerly communicated to you, leads me to imagine that in this locality at least it is not at all calculated to form a bedding plant, so far as its flowering is concerned. I dare say, however, that if it be kept in the greenhouse until the flower buds are formed upon it, and then planted out, some of these may come to maturity in the open air; but I have my doubts as to any that may afterwards appear in embryo doing so here, no matter what the soil may be that is used. Nevertheless if Mr. Milner will be so kind as to inform me what mode of treatment he would recommend my adopting, I shall feel exceedingly obliged to him, and will have much pleasure not only in trying it next summer, but in giving him the result of my experience in the matter. *J. H., Whitland, South Wales.*

Quercus sessiliflora.—The specimens sent herewith were gathered by me some weeks ago in one of the combes of the Quantock Hills, in the west of Somersetshire. The tree grows plentifully there, though generally of a small and stunted form, owing no doubt in part to the high situation, but more perhaps to its being so frequently lopped to obtain wood for charcoal. A few low trees bore, as thickly as Oak trees usually bear acorns, the Pear-shaped appendages of which I send a specimen. From their position on the branchlets they appear to occupy the place of acorns. What are they? Are they formed of the material of which acorns are usually formed, and therefore an anomalous formation of the acorn? *Halesleigh.* [Yes. The imbricated scaly bodies you speak of are female flowers converted into leaf-buds in consequence of some disturbance of their structure at the time they were about to form acorns.]

Setting Boilers.—Will you allow me to ask your correspondents to give their experience as to the best mode of fixing, more particularly the conical boilers; whether to fix them on bricks, so as to allow only a flue to pass round them, or to allow the fire to have an opportunity to pass from the bottom all round; I mean as though the boiler was swung; if the latter, what depth should there be from the level of the bars to the bottom of the boiler? Being about to alter my boiler, which heats four houses, I wish to do it in the best possible manner. *Ore in the Trade.*

Stem Tubers of Potatoes.—When taking up the Leather Jacket (round) Potato, which had flowered well and seeded, it had a number of small tubers growing from the leaves up the stem, besides an abundant supply at the roots. Is this detrimental to the main crop, or is it an advantage? Will these small tubers if set produce Potatoes? I have observed this also in the Walnut-leaf Kidney, but to a less extent; it is common in the Chinese Kidney, but I have not seen it in a round Potato before. Qy. Was it owing to the dryness of the season that an old set of the Irish Lump Potato produced a second show of tubers? *E. S. H.* [These stem tubers are very common, and will do perfectly well for sets.]

Seeds of Gourds.—It may only be partially known that the roasted seeds of many of the Gourd tribe furnish an excellent addition to the dessert, particularly those of the Cucurbita Pepo gigantea, which are produced in abundance, and possess a nice nutty flavour. *Amicus.*

Incomparable White Celery.—In the first week of March last I sowed this and Cole's Crystal White; the sorts were planted out in ridges the last week in May and treated alike in every respect; the first week in September the Incomparable was fit for use, while Cole's Crystal White was not for nearly a fortnight after, and when it was fit it bore no comparison with the Incomparable during the whole time the two sorts lasted. The Incomparable showed no symptoms of running to seed, but kept perfectly solid, crisp, and white. The Crystal White showed a great disposition to seed, and was tough to eat. The Incomparable grows about 18 inches high, and is very bulky. It occupies little room, and no great embankment in earthing up. This is the first season in which I have grown this sort; it was sent here with other seeds from Mr. Veitch of Chelsea; and I am so pleased with it that I shall not in future grow any other White Celery. *Samuel James, Patshull, Ulbrighton, Wolverhampton.*

Mulberry Tree.—Can any one tell me how I can get a Mulberry tree trained on a south wall to bear fruit? Mine is about 11 years old, and covers a largish extent of wall. It is very healthy and vigorous, but bears very small fruit, and that generally falls off before ripe. I was induced to plant it from seeing one at Downton Castle in a similar situation, which bore splendid fruit abundantly. I have root-pruned mine several times without effect. Should it be cut to spurs in the winter, and then have the shoots cut back in the summer? I can make nothing of it. *W. D. F.* [Mr. Knight managed his in the following manner. He says (alluding to a Mulberry belonging to the late Mr. Williams, of Pitmaston) his tree is suffered to protrude its bearing branches, as spurs, several inches from the wall; and in the soil and climate of Pitmaston (both of which are extremely favourable), the fruit ripens in great perfection and abundance. But in cold situations (and it is chiefly in such that the Mulberry tree will be found to deserve a place upon a south wall), little fruit will be produced, and that will ripen but ill, unless the bearing wood be brought closely into contact with the wall; and the great width of the leaves, and vigorous habit of the tree, present some difficulties to the cultivator, when this mode of training and pruning is adopted. It will be found necessary to diminish the luxuriant growth of the tree, and at the same time to increase its disposition to bear fruit. Such effects may, however, be readily produced by several different means; by destroying a small portion of the bark, in a line extending round the trunk, or large branches, or ringing, by tight and long-continued ligatures, or by training the bearing branches almost perpendicularly downwards. I have adopted the last-mentioned method, because it greatly increases the disposition in the tree to bear fruit, without injuring its general health, and because it occasions a proper degree of vigour to be everywhere almost equally distributed. My garden, at Downton, contained six years ago two Mulberry trees, which had been trained more than 25 years upon a south or south-east wall in the usual fan form, and had each extended nearly 30 feet in width, and 13 in height, without having ever produced fruit of any value, except small quantities, near the extremities of their horizontal branches. At that period, I cut away all the larger branches, except three on each side, leaving one on each side to extend its whole length upwards, with an elevation of about 45°, another with an elevation of 30°, and another of 15°. As much of the young and slender wood of these large branches was preserved as I found practicable, and the whole of this was trained nearly perpendicularly downwards, with the exception only of a small part, near the tops of the most upright large branches, which was bent inwards on each side, with a considerable inclination downwards, to occupy the central part of the space allotted to each tree. In the first succeeding year I had necessarily a small crop only; but in every subsequent year my trees have borne well, except in the last season, when, owing

to the badness of the preceding summer, a small quantity only of blossoms appeared in the spring. By bringing much of the bearing wood into contact with the wall, by the means above mentioned, I have had Mulberries ripe as early as the 20th July, and the crop continued successively to ripen, in much perfection, till the end of October. As the blossom buds of the Mulberry tree cannot be readily distinguished from others in the winter, the best period for pruning is when the blossoms first become visible in the spring; and it is my practice to pinch off every barren shoot, which is not wanted to cover the wall, and to stop every bearing shoot, under similar circumstances, at the third or fourth leaf. Mr. Williams has stated that the bud immediately below the point at which a bearing or other branch is pinched off usually affords fruit in the following year; and I have found his observation in this, as in all other cases, to be perfectly accurate. If I were now to plant Mulberry trees I should wish to obtain such as had stems 3 or 4 feet long, as the first shoots of these, after being planted, might conveniently be trained downwards, and if plants of this height, previously propagated from bearing branches, were selected, I do not entertain any doubt but that fruit might be obtained in the second year after planting; and by proper attention, to shorten and renew the dependent bearing branches, such trees might easily be very long retained in an almost equal state of perfection. The Mulberry, as Mr. Williams has remarked, is a much superior fruit, both in richness and flavour, when ripened upon a south wall, than upon a standard tree, even in situations where it ripens well under both modes of culture; affording an exception, I believe, to all or almost all other fruits, to which the wall gives increased bulk and beauty, at the expense of richness and flavour.]

Ginger.—I have got a good crop of Ginger this autumn. Will any of your correspondents acquaint me with the best method of preparing the root for preserving—the outer coat of the root being rough and unsightly? *W. Mason, Necton, Norfolk.*

Syrian Fruits.—I feel particularly obliged for your kindness in answering my inquiries so promptly. May I again refer to Vol. III., Part 2, of the Horticultural Society's works for 1848, regarding Syrian fruits in the possession of John Barker, Esq., of Suædia, to whom a Knightian medal had been awarded for the introduction of the Stanwick Nectarine. He says, "I beg leave to make the Society my humble acknowledgments for the honour which they have been pleased to confer on me, and which I regard as an earnest of the distinguished favour I presume to hope to receive at their hands, when I shall have introduced into England 20 varieties of—1. A new species called 'the Sweet-kernelled Jhach,' among which are six varieties of the Nectarine, all of equal, and some of superior value to the 'Stanwick Nectarine.' 2. A new species of the Apricot with a sweet kernel called 'Sheker Para' (bit of sugar) of Ispahan. 3. 'The large sweet White Mulberry of Iran,' from which a syrup is extracted hardly to be distinguished from syrup made from sugar. It is highly extolled by Sir Alexander Burnes in his 'Travels in Bokhara.' 4. A Plum, with a sweet kernel, called 'Aloo Bokhara,' which is also celebrated by the same traveller. When ripe its stone is in view through the skin. 5. The famous 'Pomegranate of Tabriz,' without seed, weighing from 50 to 60 ounces, and the still more renowned 'Quince' of most parts of Persia of the same size, which ripens on the tree or in the store, losing all its austerity and eaten at the dessert like a soft ripe Pear. This wonderful production of nature, and the 'Pomegranate of Tabriz,' are yearly forwarded as presents by caravan to Bagdad. The Pomegranate is not eaten as are the common sorts, but is squeezed into a goblet, and drunk off like a draught of sherbet; and the high perfumed odour of the 'Quince' is such, in Oriental exaggeration, as that when there is a single ripe specimen of the fruit in a caravan, every one who accompanies it is conscious of its presence." Then he goes on to say, "I am to-day packing to be forwarded to my son-in-law, Mr. Warmington, 100 small seedling Mulberries, budded with 'the large white sweet Mulberry of Ispahan.' At the same time will be forwarded to that gentleman 500 specimens of 'the Dwarf Apple of Armenia;' they are all much past the age of puberty, though only 18 inches high. I received them two years ago from Armenia, and they do not appear to have grown at all; they increase slowly in thickness. I have often seen them planted in pots and cases on the terraces in the city of Aleppo, of 40 and 50 years' growth, never exceeding 2 feet in height, nor in the thickness of their stems that of your forefinger, without their ever having been pruned. To test the fact that their diminutiveness was not caused by their being always kept in pots and boxes, I planted out three of full 15 years' growth, and after keeping them 18 years in the open ground found they had made no perceptible progress. I remarked that they bear best when their roots are cramped; they are very easily propagated, as they make abundant offsets, and take remarkably well from cuttings. Among the trees now sent there are 17 which were made from cuttings two years ago; and 10 budded at the same time with the Ribston Pippin and other sorts." Pray tell me, sir, have these most valuable species of different trees been introduced, or have they been lost sight of? The Armenian Apples would do exceedingly well for the orchard-houses so much spoken of in the *Chronicle* if the warmth was enough for them. *F. N.* [None of these fruits ever reached the Horticultural Society except the Dwarf Apple of Armenia, which seems to be the French Paradise. What were sent to Mr. Warmington were bought by Messrs. Veitch. It is very doubtful whether many of them would be worth having in England. Our summers are too short, dull, and cold. The Kaisha is however the best, though the ugliest, of Apricots, and the Stanwick Nectarine in heat is the queen of her race. Therefore all are worth trying except the Pomegranate, which is hopeless, even in an accelerated orchard house.]

Slate Walls, and how to prevent Damp rising up Stone and other Walls.—Two years ago I built 48 square of stone wall, 2 feet thick at the bottom, rising gradually to 9 inches at top, with a coping 13 inches wide; the inside was faced and perpendicular, the outside rough and what is called "battered." The stone in my part of the country is very porous, and when taken out of the quarry soft and easily worked, it becomes, on exposure to the air, case-hardened and very durable. All our old churches and abbeys are built of this sandstone. In consequence of the porosity of this stone damp rises rapidly, and causes it to look dark and green, so that brick has now almost taken the place of stone. To counteract this I hit upon the following expedient, a notice of which I inserted in the *Gardeners' Chronicle* about a year and a half since; I again refer to it as the experiment has proved perfectly successful. Immediately above the ground-line on the inside of the wall I had boiling coal tar poured on evenly from an iron ladle, on this as much slaked lime as the tar would absorb; this was left for a few days to harden; the next course of stone was bedded in mortar in the tar; this cost me 5*s.* for a wall 400 feet long and 20 inches thick at the ground line. These are the results: immediately above the tar line the stone is perfectly white and hard, and the mortar, composed of hot grey lime and finely-sifted coal ashes, as hard as cement and not affected by frost. On the outside of the wall, the ground being here, a course of stone is visible below the tar line; this course is green, damp, and soft, the mortar is also soft, and the frost has crumbled it away. I am aware that slate in cement cuts off capillary attraction, but it is very expensive when the wall is thick. I have lately used the same means with the same success in brick walls. I will next week give a description of a slate wall I have recently built; it has a most workmanlike appearance. It is very economically built, and I trust, as the north side is nearly as warm as the south (the rays of the sun I do not get), I shall be able to ripen fruit on this side. *Sigma.*

Stone Pines.—What had I better do with my seedling Stone Pines sown in March? I have but five, one in a box where 30 were sown, but only three came up, and four in a large pot where some 24 were sown. They are strong healthy plants from 5 to 7 inches high, and are in the open garden plunged to the rim in the soil. They have stood 25° and 20° on Grass with impunity, with no more protection than some Scotch Fir branches over them. I want to leave them out all winter. Can I venture to do so? Our winters are not severe, but they are wet. We seldom have such sharp frosts so early as we have this year, and yet I do not remember frost being so long in coming; the night of November 6th was the first we had. Until then not a plant had been hurt in the gardens. I have some seedling Cypresses sown in March also, from seeds I picked in a burial ground near Constantinople. They are about 4 inches high, and are by the side of the Stone Pines in a pot in the open ground. Can I venture to leave them out all winter also? The cold at Constantinople is often very severe. *T. S. P., Windermere.* [It is not our cold that kills Cypresses and southern European Conifers, but our bad summers, in which they cannot ripen their wood. We doubt whether the Cypress will live out-of-doors at Windermere; but the Stone Pines may live if they survive the first three or four years, for trees are said to exist both in Durham and the south of Scotland. We advise you to place an old box or some such covering over the seedlings for the present winter, and in the spring to pot them separately, or to plant them out for the ensuing summer.]

Wellingtonia.—Should not the scientific men of Europe entreat the Government of the United States to protect from destruction the few specimens that remain of their wonder of the vegetable world? It would be a sad thing if these giants, trees which have been (if the calculations are correct) thousands of years in attaining their present growth, should be at the mercy of any money-making speculator. If the ground on which they stand is not national property it should be purchased for the nation, in order to preserve them, and to form the nucleus of an arboretum worthy of the Union. *C. T. W., Uxbridge.*

Societies.

HORTICULTURAL, *Nov.* 25.—J. J. Blandy, Esq., V.P., in the chair. The following were elected Fellows:—

Rear-Admiral James Ryder Burton, K.H., 15, Park Square, and Dunston Priory, Kent.

Captain Hugh Berners, R.N., Landford House, Downton, Salisbury.

Elphinstone Barchard, Esq., Putney Heath.

Charles Wentworth Dilke, Esq., the youngest, 76, Sloane Street.

J. R. Scott, Esq., Crouch End, Hornsey.

John Deacon, Esq, Turnham Green.

Matthew Thomas Hodding, Esq., 38, Craven Hill Gardens, Hyde Park.

Maurice Medlane, Esq., Sutton Court Lodge, Chiswick.

John Kirby Hedges, Esq., Wallingford, Berks.

Mortimer G. Thoyts, Esq., Sulhamstead House, Berks.

George Barker, Esq., Stanlake Park, Berks.

Thomas Huntley, Esq., Whitley Grove, Reading.

Robert Allpay, Esq., Wokefield Park, Berks.

Joseph Gurney Barclay, Esq., Knott's Green, Leyton.

Charles Bagot Phillimore, Esq., 6, Green Street, Grosvenor Square.

Edward H. Reynard, Esq., Sunderland Wick, near Driffield, Yorkshire.

Richard Benyon, Esq., Englefield House, near Reading.

Albert George Sandeman, Esq., Hyde Park Gardens.

Prof. Edward Solly, 15, Tavistock Square.

William Charles, Esq., 27, Austin Friars.

Rev. Mathew H. Buckland, Laleham, Middlesex.

Rev. James J. Peach, Holme Pierrepoint, Notts.

Rev. Thomas Staniforth, Storrs, Windermere.

Miss Charlotte Louisa Walpole, Hampton Court, and 9, Grafton Street.

Miss Frances Margaretta Walpole, Hampton Court, and 9, Grafton Street.

Miss Caroline M. Jervis, Newsell's Park, Royston.

Miss Charlotte Bertrand, Golders Hill, Middlesex.

Mrs. Henry P. P. Crease, Antron House, Helston.

Mrs. William Wylde, Sulhamstead House, Turnham Green.

Mr. Robert Parker, Nurseryman, Hornsey.

Mr. George H. Bunney, Nurseryman, Stratford.

Mr. John Standish, Nurseryman, Bagshot.

Mr. Stephen Shilling, Nurseryman, N. Warnboro'.

Mr. Wm. Davidson, 36, Great Russell Street, Bedford Square.

Mr. George Fleming, The Gardens, Trentham.

Mr. Henry Phelps, Bowood, Wilts.

Mr. Thomas Moore, Physic Gardens, Chelsea.

M. Jules de Liron d'Airoles of Nantes, as a Foreign Corresponding Member.

A crowded meeting of Fellows and their friends assembled on this occasion to inspect one of the most interesting house exhibitions which has ever been held under the auspices of the Society. The principal display consisted of fruit, and it was impossible not to admire the skill with which our English gardeners had contended against as bad a season for its production as was ever known. On this, however, as on all occasions of competition all could not win. But it is not too much to say that all deserved much commendation. We trust we shall be found to have done justice to all.

The collection from Mr. Tillyard, gr. to the Right Hon. the Speaker, was especially remarkable, not merely for its excellence but for the variety of fruits which it included. Among them were Black Jamaica and Queen Pine Apples handsomely grown, Black and Dutch Hamburgh Grapes, beautiful fruit of winter Nelis, Urbaniste, Passe Colmar, Beurré Diel, Delices d'Hardenpont, and Ne Plus Meuris Pears; fine fruit of Rivers' Double Bearing Raspberry, Red Currants, Oranges, and American Cranberries, some account of Mr. Tillyard's mode of growing which will be found at p. 40 of our present year's volume. To this collection Dr. Lindley's prize of 5*l.* was deservedly awarded. The next prize of 3*l.*, offered by C. W. Dilke, Esq., was won by Mr. Ingram, gr. to her Majesty at Frogmore. Here were Black Hamburgh, West's St. Peter's and Muscat Grapes, a very good Cayenne Pine, a Queen and another sort of Pine Apple something like an Enville from Bahia; Glou Morceau and Chaumontel Pears; Court Pendu Plat, Blenheim Pippin, and Cox's Orange Pippin Apples, the last a handsome fruit as yet not known. Of fruit of foreign growth, Mr. Lewis Solomon of Covent Garden had a magnificent collection. His Duchesse d'Angoulême, Beurré Diel and Glou Morceau Pears had acquired a size and brilliancy of colour seldom found in fruit of English growth. Among Apples he had large and handsome specimens of the White Calville, and we also remarked a punnet full of the beautiful little Lady Apple or Pomme d'Api of the French.

Apples of home growth were more numerous than might have been expected considering the scarcity of this kind of fruit this season. By far the best collection came from Mr. Snow, gr. to Earl de Grey, Wrest Park, Beds. It consisted of Blenheim Pippin, Court Pendu Plat, Old Golden and Franklin's Golden Pippins, the Golden Harvey or Brandy Apple, Ribston, Cockle, Fearn's, Sturmer, and King of the Pippins, Newton Spitzemberg, Beachamwell, Court of Wick, and Kirk's Golden Reinette. Mr. Ingram, of Frogmore, next in point of merit, sent Old Nonpareil, Rosemary Russet, Court Pendu Plat, Old Golden Pippin in fine condition, Cox's Orange, and Frogmore Golden Pippin, the last a clean, healthy, good-looking fruit. Mr. Munro, gr. to C. Pearce, Esq., of Russell Farm, Watford, also furnished some good table Apples which were however not different from those just named. In collections of Apples for kitchen use Mr. Snow was again first. His sorts were Reinette du Canada, Orange Pippin, Hanwell Souring, Fearn's Pippin, Winter Queen, Normanton Pippin, Selina Apple, Royal Russet; Golden Noble, clear yellow, large and fine; a red coloured Apple unnamed, Bedfordshire Foundling, Dutch Mignonne, and Flower of Kent. The next best collection of Apples for culinary purposes came from Mr. Frost, gr. to E. L. Betts, Esq., of Preston Hall, Kent. Among them some specimens

of the Wellington or Dumelow's Seedling were especially remarkable for their size and beauty.

Pears of home growth were numerous and unusually fine, but several of the collections contained unripe fruit. This remark especially applies to those from Mr. Robinson, gr. to Lord Boston, and to handsome specimens of Beurré Rance from Mr. Jones Nash of Bishop Stortford, and others. Mr. Snow's collection, to which the first prize was awarded, was however everything that could possibly be desired. It contained Ne Plus Meuris, Beurré Rance, Passe Colmar, Vicar of Winkfield, Old Colmar, Beurré Diel, large and fine; Marie Louise, Chaumontel, Glou Morceau, Winter Nelis, Easter Beurré, and Forelle or Trout Pear. Mr. Ingram of Frogmore, whose collection stood second, had Knight's Monarch, Glou Morceau, Vicar of Winkfield, Chaumontel, Easter Beurré and Beurré Diel. Mr. Tillyard had Beurré Diel, large and fine; Easter Beurré, Passe Colmar, Ne Plus Meuris, Glou Morceau, and Winter Nelis. Pears of foreign growth were contributed by Mr. Webber, of Covent Garden. They consisted of Glou Morceau, Easter Beurré, and Beurré Diel.

Muscat Grapes that could hardly be excelled and that have rarely been equalled were furnished by Mr. Hill, gr. to R. Sneyd, Esq., of Keele Hall, Staffordshire. To these Mr. Dilke's prize of 2*l.* offered for the third general collection (not contended for) was very justly transferred on account of their extra merit. Excellent fruit of this variety of Grape was also shown by Mr. Wortley, gr. to Mrs. Maubert, of Norwood, Mr. Nash, of Bishop's Stortford, and A. Glendinning, Esq., of Ashgrove, Seven Oaks. Mr. Frost also showed a good dish of Muscats. Other kinds of Grapes consisted of beautiful specimens of Black Hamburgh (to which a first prize was awarded) from Mr. Hill, of Keele Hall; from Mr. Nash, of Bishop's Stortford; and from Mr. Hall, gr. at Colebrooke Lodge, Putney. Fine bunches of Barbarossa likewise came from Mr. Lancaster and Mr. Povey, gr. to the Rev. J. Thornycroft, of West's St. Peter's from Mr. Frost, and of Royal Muscadine from Mr. Ingram, gr. to J. J. Blandy, Esq., of High Grove, Reading, who was also an exhibitor among table Pears.

A beautiful Collection of Oranges, &c., of home growth, came from Mr. Miller, gr. to Sir W. Smith, Bart., of Eardiston House, Worcestershire; Mr. Ivison, gr. to his Grace the Duke of Northumberland at Syon, produced others. Mr. Robinson, gr. to Lord Boston, had also some extremely well grown plants of Otaheite Oranges in pots loaded with fruit. These it would seem had been overlooked by the judges; for no prize was awarded them although they certainly well deserved such distinction.

Of Miscellaneous Subjects Mr. Jones, of Dowlais House, Glamorganshire, sent three well grown Black Jamaica Pine Apples, Mr. Frost a good smooth Cayenne Pine, Mr. Hamp an Antigua Queen Pine, Mr. Samuel Solomon of Covent Garden two varieties of Pine Apple, and some large and handsome Catillac Pears from Jersey; and Mr. Edward Moss examples of late Strawberries. They had been sent through the post from Roby Hall, near Prescot, and were unfortunately considerably injured from that mode of travelling. Mr. Lewis Solomon furnished good-looking bundles of green and white Asparagus with which the French are now supplying Covent Garden Market; Messrs. Henderson, Pine Place, three kinds of Beet, of which their "short topped" was evidently the best; and Crimson Beet was also shown by Mr. Cutbush of Highgate.

Several exhibitions of roots of the new Chinese Yam (Dioscorea Batatas) were produced. Of these one of the most important came from Mr. Sibbon, gr. to R. C. L. Bevan, Esq., of Trent Park, East Barnet, and along with it Mr. Sibbon furnished the following memoranda. He says, "My first trial with the Dioscorea was in the spring of 1855. I commenced with 10 small tubers no bigger than Peas, weighing less than a quarter of an oz., which I received from Mr. Cutbush, nurseryman, Highgate. *Only seven of the* 10 *grew*, the produce of which was 2 lbs. 5 oz.; the longest tuber was 19 inches and the circumference 4½ inches. That lot I cut up in *March*, 1856, into about 1½-inch pieces, and put them into two shallow pans in loam, sand, and leaf-mould, and placed them in the fruit room, where they remained one month. Seeing no *signs of their breaking*, I then placed them in a pit with Cucumbers; there they broke nicely in a month. On the 10*th May* I potted them separately in small pots, and put them under glass with no heat, all growing till June, then planted them on a raised bed of half decayed leaves, covered over with common garden mould; the space they occupied was 12 yards by 2. I found 1 *foot* apart to be ample room for them, and a very convenient distance for cleaning and taking them up. I dug them up the first week in November, the largest tuber being 39 inches long, in circumference 7 inches, and the weight 1 lb. 8 oz. The weight of the whole was 42 lbs. 8 oz.—a very good crop, I think, from such a weak beginning. This plant is self-protecting, needs no watching, and defies any one to pull it out of the ground, as may be done with Carrots or Turnips, which is so much complained of by farmers, &c."

Dr. Lindley observed that the planting in pans, keeping them in a fruit room, and then starting them in heat was unnecessary, as they would have succeeded quite as well if they had been planted out in the open ground at once in March. Neither was 1 foot apart required. Roots of this Yam, which had been made the subject of four different experiments, were furnished from the garden of the Society. They had been planted out 6 inches apart early in March, and the following is the result of the different methods of culture pursued:—

A Return of the Results of Experiments in the Cultivation of Dioscorea Batatas, planted March 5th, and taken up November 24th, 1856.

PARTICULARS.	Feet long of Row.	Number of Roots taken up.	Weight of Roots taken up. lbs.	oz.	OBSERVATIONS.
No. 1.—Planted the small axil tubers, about the size of Marrow Peas, 6 inches apart	14	30	3	3	These roots when taken up were all very equal in size, none of them being much smaller than those sent to the Meeting.
No. 2.—Planted small roots, from 3 to 4 inches long, but very slender, at 6 inches apart ...	14	48	10	12	These are very nice roots; one-half like those sent to the Meeting, the other half much smaller.
No. 3.—Larger sized roots, about 5 or 6 inches long, and stouter than those of No. 2, were planted 6 inches apart	3	11	5	12	These sets produce roots nearly all of a size; some produce two roots from the same plant.
No. 4.—*Cut roots* of different thicknesses, as will be seen by the old portions adhering, were planted 3 inches apart	28	90	14	4	These produce very nice roots, and more equal-sized than any of the others.

It will be seen that the three latter cases were satisfactory as to produce, and that of the four trials the result of employing small axillary buds as sets is the least encouraging, and is not to be recommended, except in cases where no better sets can be obtained. The produce from them is small, and they are very apt to fail. When cooked this Yam was stated to be excellent. That it can be successfully cultivated in this country the specimens before the meeting fully proved, and in order to show that the past season has not been particularly favourable for its growth the following table had been prepared:—

Monthly mean temperature of the soil at 1 foot and 2 feet deep, from April to November, 1856.

1856. Months.	Temperature At 1ft. deep.	Temperature At 2ft. deep.	
April + ..	48.91	45.95	—
May — ..	52.19	49.48	—
June + ...	60.93	56.48	—
July + ..	63.37	59.40	—
Aug. + ..	64.39	61.87	+
Sept. + ..	59.73	57.87	+
Oct. + ...	54.51	54.84	* +
Nov., to 24	46.75	48.06	+

Temperature of the soil at 1 and 2 ft. deep, from April to November, on the average of 10 years (1844 to 1853 inclusive).

Average. 1844–1853. Months.	Temperature. At 1ft. deep.	Temperature. At 2ft. deep.
April	46.47	46.25
May	53.11	52.01
June	60.02	58.47
July	62.85	61.71
Aug.	61.80	61.26
Sept.	57.44	57.81
Oct.	51.52	52.79
Nov.	46.01	47.25

* Oct. 25. Min. temp. of air at night 26°; Rad. 22°
" 26 " 25° " 23°
" 27 " 25° " 21°
" 28 " 26° " 23°
} Growth of tops of D. Batatas checked by frost.

Three pyramidal Pear trees were exhibited by Mr. Rivers, of Sawbridgeworth, and with them the following memoranda. He said:—"The trees (Louise Bonne of Jersey) are from seven to eight years old. No 1, a tree budded on the Quince, has struck root from the collar of the graft; as soon as this took place, about three or four years ago, all the Quince roots died, for, as will be seen, the stump is quite bare. These (Pear) roots penetrated into the solid calcareous clay to the depth of nearly 5 feet, and so hard was the clay that the spade could not penetrate it so as to take them out to their full length. As soon as these roots struck into the clay the tree ceased to bear, and its shoots became full of cankery spots, the leaves more green than those on the Quince roots, and the young shoots more vigorous, although they cankered and died back. Out of a plantation of 2000 pyramids of this variety on the Quince only the tree now sent and another have struck root from the collar of the graft, and both are in the same state. Last year every tree except these two was covered with the very finest fruit; the tree sent did not bear one, the other produced two or three, which were cracked, spotted, and worthless. No. 2 is a tree of the same sort on a Quince stock, which grew within 5 feet of No. 1; this, in common with the others in the same plantation, has no canker, and has borne fine clean fruit. The soil is moist, and brings on moss to a small extent. No. 3 is on the Quince, and is a young tree that has been twice removed. Trees of this kind where the soil is not favourable, and I have a part of my nursery the soil of which is very wet and cold, I remove biennially, giving them a compost of sand and rotten manure. In a few years their roots become like those of Rhododendrons, and keep close to the surface, so that the trees keep in good health and bear profusely. The fibrosity of the roots of the tree sent is remarkable."

These specimens were extremely interesting, showing, as they did, that the Quince was better suited for certain kinds of soils than the Pear stock; they also showed how necessary it is to keep the roots of ou fruit trees near the surface, and indicated that, unde certain circumstances at least, to deep rooting we ow barrenness and canker.

Although flowers were not specially invited, there were a few rare specimens. Foremost among these was that most beautiful of all greenhouse climbers, the Chiloan Lapageria rosea from Messrs. Veitch. This is a plant which few flower well; but which in the Exeter nursery is every year literally loaded with rich rosy blossoms. The secret of this success is attributed to planting it in well drained porous soil, and giving it abundance of water while it is growing. Its flowers were stated to have the good quality of keeping in perfection in water three weeks together in a warm sitting room. Messrs. Maule, of Bristol, sent a magnificent bunch of cut flowers of Vanda cærulea, which is certainly one of the handsomest of all our winter blooming Orchids. A good specimen of Calanthe vestita also came from Mr. Woolley, gr. to H. B. Ker, Esq. Messrs. E. G. Henderson had a well flowered Liparis longipes, a graceful looking plant, and among other things some pretty cut flowers of hybrid Bouvardias, which seemed likely to be acquisitions. Messrs. Jackson of Kingston, and Mr. Warner of Broomfield, both exhibited Orchids, the latter showing Sophronitis grandiflora and the pretty little Cattleya bulbosa. Mr. Glendinning, of the Chiswick Nursery, showed what was supposed to be a new Tussilago, from Japan; it had large dark green leaves handsomely spotted with yellow; it was stated to be hardy, and will therefore make a most splendid plant for rockwork and other out-door decoration. Chrysanthemums were exhibited from Mr. Doxat's garden at Putney Heath, and by M'Intosh, of Hammersmith. Mr. Holmes, of Stoke Newington, requested space to be kept for him, but neglected to send his plants.

Examples of the first cones seen in England of Abies cephalonica were produced by H. L. Long, Esq., of Hampton Lodge, Farnham. The tree which produced them is from 25 to 30 feet in height. In Loudon's Arboretum Britannicum, Mr. Long, in a letter dated Dec. 3, 1837, says:—"I lost a great number of plants by spring frost and by rabbits, owing to want of care whilst I was on the continent. I have only three plants left, and they are in full vigour, and have made shoots during the past summer from 6 to 7 inches in length. The highest plant is 3 feet, and the breadth of space covered by its branches is 4 feet in diameter." Growers of Conifers well know how tender this Fir is when shooting in the spring. Mr. Long was however able, by temporary shelter for a few years, to rear the plants described in the foregoing paragraph, till they were too high to be injured by the low ground frosts of spring.

From the Garden of the Society came spikes of Pampas Grass, which has flowered magnificently in the garden this autumn; also bunches of Black Hamburgh and Braddick's Black Hamburgh Grapes, small but ripe and well coloured, from Ewing's glass wall, and Eugenia Ugni and Psidium Cattleyanum, both bearing fruit. There were also specimens of Cucurbita farinæ, which the French say is an excellent variety for soups and other culinary purposes.

In reference to the Pampas Grass, it was mentioned that, through the kindness of Mrs. John Wood, the Society had a good supply of its seeds for distribution, and that they would be given away to all Fellows who might apply for them.

Notices of Books.

The Unity of Worlds and of Nature. By the Rev. B. Powell, 2nd ed. 8vo. Longmans pp. 556.

The spirit of inductive philosophy, the unity or plurality of worlds, the philosophy of creation—such are the lofty subjects to which the learned and acute Savilian Professor has addressed himself in the volume before us. It is to the famous "Vestiges of the Natural History of the Creation" and to those essays on the "Plurality of Worlds" which not long since attracted so much attention that we owe the admirable volume before us; so that the authors of the works just mentioned have rendered a double service to science, the first by exhausting the arguments to be found in support of their peculiar views, and the second by eliciting a most skilful dispassionate review of the arguments for or against their several views. Professor Baden Powell concurs in the "broad physiological principles" of the "Vestiges," but does not believe in a plurality of inhabited worlds. To quote his arguments briefly would be unjust; to give them the space their importance demands is beyond our power. We therefore content ourselves with recommending his pages to the perusal of all who are interested in high science and natural theology, and with making a few extracts, chiefly from the chapter on final causes. There are those who require that a reason should be found for every peculiarity of structure, for all that is unusual in function, and even for the very existence of one living species in a given place rather than of another. They demand to know why the Dionæa springs upon a fly and holds it in its rigid claws, why the Rose is armed with thorns or the Hawthorn with spines, why Oaks are caused to shed their leaves, and Laurels to retain them. And when the man of science avows his inability to find an answer, the world throws itself into the arms of ingenious theorists, delighted to know that the Dionæa feeds on putrefying matter, that thorns are given to Roses for defence, and that Oaks shed their leaves so that snow

may not break their limbs in winter. Upon this subject our author's remarks are admirable.

"In a strictly philosophical point of view the inference that everything 'has a use' may certainly be regarded as a generalisation which carries with it a high degree of probability. We find that many things have a manifest use; but then we find innumerable others for which we can discover no use, and by which no visible end or purpose is answered, but it is not an unfair extension of the inference that, in these cases, some unknown end is answered; that, in fact, everything in Nature is adapted to other things, and to the whole; though in by far the greater part of Nature we fail to perceive *what* the particular relation or dependence may be. It may suffice to convince us of this, if we merely ask for what purpose is life itself conferred? or, to what end does the material universe altogether exist?"

"The remark of Bacon that final causes are not in themselves to be rejected, but have been wrongly placed in philosophy, is one of more value than seems generally understood. It may be very true that sometimes hints towards inductive investigation have been obtained from the consideration of the ends to be answered by certain observed conditions. But it is in general a more safe and philosophical rule, that we may in all cases argue from physical inductions to final causes, but not from final causes to physical inductions. The old and limited view of final causes will not meet the increasing demands of scientific enlightenment; it will not suffice now to argue solely on the adaptation of means to a known purpose, or a practical design evinced, and an obvious end answered. If we cannot discard the term, we must enlarge its meaning. We may speak of 'design' with reference solely to 'order' and 'arrangement,' without looking to the idea of practical utility. Such modes of expression are far preferable, as not leading the mind to any undue expectation of what it will not realise. Thus in reference to physiology, the higher argument acquires an expansion in proportion to the progress of the science. We obtain more enlarged ideas of design as we advance from the more confined views of the older schools towards the wider principle of symmetry and unity of composition. So that 'final causes,' properly understood, so far from receding (as some pretend) before the advance of modern science in the wider and more philosophic sense, eminently derive increasing evidence from its progress. The study of the higher principle of symmetry and unity of composition can in no way prejudice that of adaptation; the latter being but a part of the same great argument. Nor is it just to accuse those of the modern school who are engaged, as their special and legitimate object, in investigating the former, of undervaluing the latter."

Not less excellent is the manner in which the permanence of species is handled. We can find room for two paragraphs only.

"In the first place, then, the belief in the essential and inherent immutability of species, not only in the present state of things, but as an eternal law of Nature, extending backward through all the countless ages of the ancient earth, has been upheld confessedly on the limited experience of modern observation, but thence extended by analogy in the same way (it is alleged) as in the case of other great natural laws.

"This argument, however, appears to me altogether unfounded. Of the operation of other great natural laws, through all the series of past ages, we have direct evidence. The laws of gravitation, heat, light, equilibrium, and the like, present positive proof of their influence in the records preserved to us through all geological time; whereas of the permanence of species in those past epochs, except within certain limits of particular formations, we have no evidence whatever: on the contrary, the apparent phenomena (to say the least) are all opposed to it; and it is the very question at issue, whether those perpetual changes in species which we observe, are to be considered real gradual variations in the development of organisation, or to be explained in any different way."

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Should dull weather continue occasional fires will be required for conservatory and greenhouse plants; they should be lighted in the morning in order that the houses may be thrown open during the day to promote a free circulation of air; this will dry up damp, and help to keep the plants in a healthy state. The more delicate kinds of Heaths and hard-wooded plants are often attacked with mildew, and as nothing induces this so much as a damp stagnant atmosphere, there should be some means for giving air during the night and in bad weather to plant-houses independent of the sashes. Let the surface soil of the pots be lightly stirred so as to remove Moss, &c., as well as to promote a free evaporation from the surface. Fuchsias which have been out of bloom for some time, and which have ripened their wood, should be removed to a pit or spare house where they can be protected from frost, or in the case of want of room to back sheds for the winter, and protected with Fern or straw in frosty weather. The remarks just made with regard to affording ventilation to hard-wooded plants are equally applicable to Pelargoniums, Cinerarias, and Calceolarias; these latter will require a night temperature of 45°. Place the plants as near the glass as means will permit, in order that they may get as much light as possible. Seedling Cinerarias and Calceolarias should have a shift if requisite; if the plants are strong they may be transferred at once to their blooming pots; after potting place them at the warm end of the house. Pelargoniums should now have their shoots thinned and neatly tied out to stakes; keep them then to produce stocky plants, and fumigate on the first appearance of green fly. As many plants suffer from drip at this season, a careful look out should be kept and either the cause remedied or the plants removed. Orchids will more especially require frequent examination, as an exposure to its effects would be most injurious. As Camellias come into flower preserve rather a drier atmosphere in the house, as the blooms soon become spotted, and decay when the air is damp.

FLOWER GARDEN AND SHRUBBERY.

Let lawns be well rolled when sufficiently dry for the purpose; every part of the turf should be frequently swept during the winter. Nothing adds so much to the enjoyment of pleasure-ground scenery as well kept turf, and when connected with evergreen shrubs an agreeable relief to the dreariness of the season is afforded which renders the loss of more attractive plants less to be regretted. At the same time see that the walks are kept dry and firm, in order that they may be traversed with comfort at all times. While the weather continues mild the planting of deciduous trees may be proceeded with, provided the state of the land will permit the operation to be profitably conducted, with the exception of the more hardy kinds; the planting of evergreens had better be deferred till April. Deciduous shrubs may be pruned whenever there is time except during severe frost. Many of the larger growing plants will only require going over once in two or three years, to reduce straggling shoots to proper limits and to thin out where too thick. Smaller growing shrubs, as some kinds of Robinias, Cytisus, Spiræas, Deutzias, &c., should be pruned annually if a good show of flowers and uniform shaped flowers are desired. Secure standard Cytisus, &c., by firmly staking them after pruning. The pruning and tying in of climbing plants on trellises, &c., may remain till February. Many of the above plants are partly evergreen, and when pruned at this season their supports have a somewhat naked appearance through the winter; any straggling loose growths should, however, be cut away at once.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is wholly dependant upon tan or other fermenting material it is very apt to decline too much at this season, when the temperature of the atmosphere is being kept rather low. If this is found to be the case a few inches of fresh tan should be put on the surface, which will generally be found sufficient, but if the beds have not been renewed lately, and have got worn out, it will probably be necessary to remove the plants and add a considerable quantity of tan or leaves. Where shed room can be spared, a quantity of tan should always be kept in readiness for such work in winter, as if used fresh from the tan-yard it is almost certain to starve the roots before fermentation commences, and then heats too violently. Let no trouble be spared, however, which circumstances may render necessary to secure a steady bottom heat so as to preserve the roots in health, for if the roots get injured it will be in vain to expect the plants to make vigorous growth in spring. Be especially careful of those expected to start into fruit soon, for if the roots of these are injured now there will be little chance of getting the fruit to swell well.

HARDY FRUIT AND KITCHEN GARDEN.

Where orchard trees have been for some years left unpruned, the hand-saw will be required to thin out the larger branches; keep the middle of the trees open to admit air and to promote the formation of fruit buds on the interior branches. It is however a bad practice to leave any description of fruit tree to itself, as it would in all cases pay the cultivator to prune them once a year at least. Whenever the ground becomes dry put in a second crop of early Peas and Mazagan Beans, as the first crop will most likely fail through the wet state of the soil. If Peas are sown in the open quarters the drills should be protected by a ridge of earth left to the north or east of the rows; keep down mice by trapping, they are troublesome to early sown crops of the above. On a dry warm border a few beds of early frame or short-topped Radish should be sown either singly or with the short horn Carrot; cover the beds with straw or litter till the seeds germinate, when they should be uncovered every day when not frosty. A frame should likewise be placed on a gentle bottom-heat for a sowing of the above to draw early. Place some protecting material round the stems of Globe Artichoke or earth them up to keep off frost. Celery and Cardoons may have a final earthing up when the soil is dry if the weather has prevented its being done sooner. Leeks should likewise have more earth drawn to them before frost sets in; they are an excellent vegetable when well blanched. Hoe between the earliest planted Cabbages, Lettuces, &c.; this should be frequently done to growing crops through the winter, as by keeping the surface loose and open frost is prevented from penetrating to any great depth, and the roots are kept in a more active state.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Nov. 27, 1856, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep	Wind	Rain.
Friday 21	24	30.216	30.172	52	43	47.5	47½	46	N.	.00
Satur. 22	25	30.211	30.167	55	44	49.5	48	46½	W.	.10
Sunday 23	26	30.116	29.986	57	49	53.0	49	47	W.	.10
Mon. 24	27	29.882	29.788	56	34	45.0	50	47½	W.	.00
Tues. 25	28	30.008	29.970	40	28	34.0	49	47½	N.	.00
Wed. 26	29	29.657	29.5[illegible]	40	29	34.5	45	47	N.W.	.49
Thurs 27	●	29.[illegible]23	29.608	50	24	37.0	42	46½	W.	.01
Average		29.970	29.891	50.0	35.8	42.9	47.2	46.9		.50

Nov. 21—Hazy; cloudy and mild; overcast.
— 22—Overcast; cloudy and fine throughout.
— 23—Uniformly overcast; cloudy and mild.
— 24—Cloudy; fine; overcast.
— 25—Densely overcast; quite cloudless; clear, cold, with very dry air.
— 26—Heavy fall of snow early A.M.; sleet; rain; cloudy.
— 27—Fine; very fine; cloudy; overcast.
Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Dec. 6, 1856.

Nov. and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 30	48.6	35.9	42.2	17	0.31 in.	2	3	1	3	3	9	7	2
Mon. 1	48.4	36.2	42.3	13	0.25	1	2	2	4	2	7	9	3
Tues. 2	47.4	35.1	41.3	14	0.51	2	2	2	1	4	9	2	8
Wed. 3	47.0	35.9	41.4	14	0.17	1	4	3	1	3	9	7	2
Thurs. 4	47.1	36.7	41.9	14	0.39	4	2	1	2	4	11	5	1
Friday 5	47.5	35.2	41.3	18	0.25	—	1	2	1	2	12	8	4
Satur. 6	46.6	35.2	40.9	15	0.30	1	2	1	1	4	12	7	2

The highest temperature during the above period occurred on the 30th, 1835—therm. 58 deg.; and the lowest on the 5th and 6th, 1844—therm. 14 deg.

Notices to Correspondents.

BOOKS: *German Sub.* Williams on Orchids will possibly answer your purpose.‡

DIOSCOREA BATATAS: *B W.* The roots will not bear much cooking, a decided advantage. We are making inquiries into the matter, and hope to report next week. In the meanwhile do not consume yours in experiments.

HORTICULTURAL SOCIETY'S MEETINGS; *C C C.* It is unreasonable to expect that you who in no way whatever contribute to the support of the Society should be permitted to frequent the meetings at your pleasure. The Council have been far too liberal in this respect. But that is over. If you wish to participate in the advantages and pleasures of the Society you ought to become a member, as others are. If not you must find some friend who is a member from whom you can obtain the requisite order of admission. The same as regards the Garden. It is wonderful how many people expect to have everything for nothing.

HOT-WATER PIPES: *Homer.* We presume Sigma quotes London prices. Rain-water iron pipes *might* answer if the joints can be made good, but the common size is too small. They ought to be 4 inches in diameter. No hot-water apparatus ought to descend. It should always rise a little from where it enters a house till it reaches the point from which it has to return.

MELON PITS: *A Constant Reader.* Heat them with 3-inch hot-water pipes carried in a chamber covered with rough slabs; but take care that there is a space between the slabs and front wall by which warmth may pass upwards. Sink in the earth of the Melon bed, so as to rest on the slabs, common chimney pots or similar contrivances into which water can be poured when you want to water the earth of the bed without giving water over-head.

NAMES OF FRUITS: *P G.* 2, Court of Wick; 3, 5, Scarlet Crofton; 4, 13, Scarlet Nonpareil; 6, Hollow-crowned Pippin; 7, Dumelow's Seedling; 15, Crimson Queening; 17, Alexander; 18, 24, 51, Lamb Abbey Pearmain; 20, Martin Nonpareil; 25, 48, 55, Kerry Pippin; 28, Gravenstein; 30, 39, Ribston Pippin; 31, Wormsley Pippin; 32, 33, London Pippin; 34, Golden Reinette; 35, Downton; 38, Bedfordshire Foundling; 44, Fearn's Pippin; 49, Golden Harvey.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Halesleigh.* Scrophularia canina from Sekengen, and Kleinia suffruticosa.—*Hippo.* It has all the appearance of a Pinaster. *A. Ainslie.* A very large specimen of Clavaria fragilis.

NEW ZEALAND PLANTS: *M G Y.* All are greenhouse plants. They will live through the winter in any place where light is admitted, and from which frost is excluded. For the present keep them shaded, and only give them air by degrees. Water very sparingly indeed. Dr. Hooker's Flora of New Zealand in 1 vol. 4to gives ample accounts of all New Zealand plants hitherto discovered.

PEACH HOUSE: *A B C.* You do not explain distinctly how you propose to plant it. The dimensions, &c., are necessarily regulated by that circumstance. If the trees are to be nailed to the back wall the house need not be more than 6 feet wide and 10 or 12 feet high, with the sashes carried as near the bottom as good front ventilation will permit. If you mean to add a trellis then the width of the house must be increased in proportion to the space you mean your trees to occupy, and your front sashes must be high enough to give head room.

PLANTING; *G.* Excuse us. We did not advise you what to do. You asked us how to do a certain thing, and we told you. You most certainly did not inquire whether we advised you to do it.

POTATO DISEASE: *Beginner.* Take our advice, and study your business practically, without perplexing yourself and others with wild speculations concerning matters which the wisest and most experienced heads are unable to understand. If you communicate to others your ideas as to the cause of the Potato disease you will be laughed at—and very deservedly.

SILVER PLATE: *Alpha.* That your silver plate although cleaned once a week becomes tarnished before three days have expired indicates, we presume, the presence of sulphuretted hydrogen, which is no proof of the *healthiness* of the place, but the reverse.

SULPHUR: *Tyro.* Syringe your plants, and dust the flowers o sulphur over them while wet, from a common dredging box.

THE VINEGAR PLANT: *C N R.* The information you have received is perfectly correct. But you must not put the plant into the mixture of treacle and water until cold.

TRANSPLANTING: *S Derbyshire.* Transplant large Hollies in September, certainly not now; Horse Chesnuts now. Prune Laurels in April. We recommend Barron's "British Winter Garden."

WALNUT TREES: *W of England.* Root-prune them now, or beat the branches with long poles, so as to break the points, as is the case when the nuts are knocked off—a rude practice but an effectual one. With patience they will soon bear, even if you let them alone. A Walnut tree from seed does not naturally arrive at a bearing state in less than 20 or 25 years, except where the autumns are very hot and dry.

BINN'S PATENT MANURE AND TOP-DRESSING,

FOR PROMOTING THE RAPID GROWTH OF VEGETATION,

(ITS FERTILISING PROPERTIES BEING EQUAL TO THOSE OF ANY MANURE AT PRESENT KNOWN),

AND THE DESTRUCTION OF THE FLY, WIRE-WORM, AND SLUG.

THE PROPRIETORS of this valuable MANURE and TOP-DRESSING are now manufacturing it at their Works, 332 and 333, Wapping, and are enabled to supply any quantity of either at the rate of 5*l.* per ton. This Manure is strongly recommended for Wheat, and all other crops that follow in succession, to be used either drilled or broadcast.

Agriculturists will find it invaluable as a Top-dressing for Grass.

Orders addressed HALL & Co., at the Works; the City Offices, 3, Leadenhall Street; or to Mr. SAMUEL FOWLER, West End Agency, 9, Pall Mall East, will be immediately executed.

The Patentees have also manufactured a CONCENTRATED MANURE FOR THE FLOWER AND KITCHEN GARDENS, which is sold in boxes at 3*s.* and 1*s.* 6*d.* each. No. 1 Box is enough to Manure 12 rods of ground; No. 2, 6 rods. May be had at the Works, and of the undermentioned Agents.

Hooper & Co., Central Avenue, Covent Garden Market.
T. Brigden, Seedsman, 10, Railway Arcade, London Bridge.
Wood & Sons, Seedsmen, East Street, Old Kent Road.
Dawe, Cottrell, & Co., Seedsmen, 36, Moorgate Street, City.
Henry Potter, Seedsman, 65, Farringdon Street.
F. Boshell, Seedsman, 86, High Street, Borough.
John Noble, Seedsman, Pond Lane, Lower Clapton.
John West, Florist, Newington Green.
William Kibble, Florist, Richmond Road, Dalston.
P. S. Plummer, 37, Upper Thames Street; and 54, Seed Market, Corn Exchange.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

ESTABLISHED 1812.

TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the weight and quality of the bulbs which it produces; it is besides especially beneficial to the Grain Crops which follow, while Clover is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to

H. & T. PROCTER, Cathay, Bristol;
PROCTER & RYLAND, Birmingham;
EDMONSCOTE, Warwick; and SALTNEY, near Chester.

LONDON MANURE COMPANY
(Established 1840)

Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.

EDWARD PURSER, Secretary.

40, Bridge Street, Blackfriars, London.

PATENT WOOL MANURE COMPANY (LIMITED).—Wool Manure for Corn, 7*l.* 10*s.*; Turnips, 6*l.* 10*s.*; delivered to any Railway Station or Wharf in London. Applications for Agency from influential persons attending Provincial Markets to be forwarded to C. H. TIDBURY, Secretary, 81, Gracechurch Street, London.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." † These observations accompanied an additional order.—Oct. 22, 1856.

ROYAL AGRICULTURAL COLLEGE,
Cirencester.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.

Professors, &c.

Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
Manager of Farm—J. Coleman.

The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

LAND DRAINAGE.

MR. BAILEY DENTON undertakes the Drainage of Estates by Contract or Commission.—For terms apply to him, 52, Parliament Street, Westminster.

LAND DRAINAGE undertaken to any extent, by Contract, or on Commission, and immediately executed by THOS. SCOTT, Land Agent, 5, Charing Cross.

THE BIRMINGHAM CATTLE AND POULTRY SHOW.—The EIGHTH GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, ROOTS, and DOMESTIC POULTRY, will be held in BINGLEY HALL, on TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY, the 2d, 3d, 4th, and 5th of DECEMBER next.

The PRIVATE VIEW will take place on Tuesday, December 2. Admission to Non-Subscribers, 5*s.*

The Exhibition will be opened on Wednesday, Thursday, and Friday. Admission, 1*s.*

Bingley Hall will be Lighted with Gas on the Evening of each day. The Doors will be opened at 9 o'clock each morning.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of Prize Cattle, Seeds, Roots, Implements, &c., commences on TUESDAY MORNING and closes on FRIDAY EVENING, December 9, 10, 11, and 12. Bazaar, King Street and Baker Street. Open from daylight till 9 in the evening. Admittance One Shilling.

SMITHFIELD CLUB CATTLE SHOW.—

Show Days: 9th, 10th, 11th, and 12th December.

See BENTALL'S NEW PATENT ROOT PULPER, Stand 192.

Manufactory—Heybridge, Maldon, Essex.

SMITHFIELD CATTLE SHOW.

W. SKIRVING begs to acquaint his friends and the public that he will attend at the ensuing Smithfield Cattle Show on the 9th, 10th, 11th, and 12th December, to exhibit ROOTS of his IMPROVED SWEDE TURNIP, and take orders for the Seed of it and all approved kinds of Agricultural Seeds.—Liverpool, November 29.

The Agricultural Gazette.

SATURDAY, NOVEMBER 29, 1856.

"VERY few are ever ruined by practice." So said Mr. CUBITT at an agricultural meeting at North Walsham the other day. Now, we had supposed that if ever a man was "ruined" at all it was precisely this to which his ruin was to be attributed. What is the cause of agricultural failure if it be not imperfect, ill-judged, careless practice? It is surely to what a man does, or to what he does not do, that we must attribute whatever consequences overtake him.

Perhaps, however, we are hardly doing justice to the statement that was made. It was as follows:—"There are many farmers ruined by theory, but very few are ruined by practice"! To the former part of this assertion we make no objection. No doubt many a man has been ruined by theory, though not of course until he has attempted to develope it in practice; and what is the theory to which, more than any other, agricultural distress has properly been attributable? There are such theories as—that the style of farming by which the former generations prospered will answer for the present—that "education may be carried too far," even to the extent of "making farmers' sons and daughters good for nothing"—that the doctrines of the chemist and geologist are mere speculations—in short, that "an ounce of practice is worth a ton of theory." Let these theories be developed into actual practice so that the average produce of the farm shall be maintained just as it was when the grandfather of the present tenant occupied it—so that the tenant next in turn shall have all the strength of arm and strength of prejudice derived from education merely at the plough tail—so that no experience but his own shall be held of any weight or influence whatever—and very probably they may lead to agricultural distress and ruin.

But the theories referred to by the speaker at North Walsham, we presume, were not such as these. We may suppose that he referred to such speculations as those of Baron LIEBIG, when he taught us the uses of ammonia in the air and rain, and therefore in manures; or when he pointed out the agricultural value of the mineral part of the manure heap, and the relative values of the several ingredients in substances used as food—or those of Professor JOHNSTON, who brought to bear so extensively the force of chemical analysis on agricultural products, and on the substances and on food both for plants and animals—or those of Professor WAY when he pointed out the absorptive powers of soil, and the stores of fertilising matter which have thus accumulated there, and the tendency of tillage and of liming, on the one hand to increase those stores and on the other to bring into play a portion of them for annual use—or those of Messrs. LAWES and GILBERT, when they indicated how the theory of growth as being mere building up of the matters presented to the plant or animal as food, is overruled by the influence of specific habit in the plant or animal in question: or possibly he referred to the doctrines of such theorists as BUCKLAND, DE LA BECHE, TRIMMER, MORTON, PAINE, and others—the ideas they had promulgated and developed in detail, that a knowledge of the under structure of the land has a bearing on the practice of those who cultivated it.

Are these the theories which have led so generally to ruin? We had supposed that it was to these and such as these upon the contrary that recent agricultural progress was due. We had thought that the management of the manure-heap, so as to retain its fertilising powers, had been greatly improved by the suggestions of such men as LIEBIG—that the enormous extension of our guano imports and of our manufactures of manures, with all the consequent extension of our average annual produce, was for the most part due to the information these theorists had given us on the nature of those mineral substances which plants require as food. We had thought that the discoveries of phosphate of lime and soluble silica which geological theories have extended and to which they have even led—that the light thrown by such theories on the practice of land drainage and on the means of improving the mineral constitution of our soils were generally admitted to have been useful.

Mr. CUBITT could not have alluded to the "theories" which had led to all these beneficial results. He must have merely meant to point out how the tendency to listen to the advice of men who are not farmers is leading agriculturists from the real source of their guidance and their strength. Few have been ruined by adopting as their guide the results of practical experience. How many on the other hand have suffered by taking as their guide the literature of science and the records of its progress, instead of those results of local experience in which they could put all the confidence of actual observation!

Was this his meaning? Let the speaker select his locality and compare the produce of the land at present with its produce 20 years ago—let him enumerate all the particulars in which the agricultural management characteristic of it now differs from what existed then—and let him then inquire how many of the altered plans originated in the locality itself. The land is drained where formerly it was wet and winter cultivation was impossible; and how much of the force and energy which have been directed to that one operation has been inspired and directed by the researches of PARKES and others into the philosophy of the subject. Perhaps this, together with the use of imported manures and that of more nourishing food for cattle and for sheep, by which the home-made manures have so much increased in value, will be admitted to be the chief causes of the increased produce of the district. But here again, where would be our certainty in the use of purchased manure and purchased food were it not for the researches and the aids of science? Where, indeed, would have been the employment of so-called artificial fertilisers at all had not scientific men first

discussed the operation of manures as the food of plants, and pointed out the possibility of concentrating the really efficient portions of them within manageable limits as to weight and bulk. We do not think that a speaker so intelligent as the remainder of his address on the occasion we allude to proves him to have been, could have ventured to recommend a disregard either of the lights of science in their influence on the future, or of the obligations under which agriculture has undoubtedly thus been laid in reference to the past.

What then could have been the meaning of the words employed? Alas! they will not bear analysis. They were but the empty echo of a cry of 20 years ago. They then expressed a sentiment which was believed, and for which in the then undetermined state of many branches of science there may have been some foundation. But no one now will listen to a warning which, whatever be the phrase employed, must be taken as a blow at the belief, gratefully entertained by all intelligent men, that science, here called theory, has had a most beneficial influence on the practice of agriculture, and on the prosperity of agriculturists.

No one is prepared with greater earnestness than the writer to insist on the importance of practice and experience as essential parts of agricultural education: Mr. CUBITT cannot speak too strongly on the value of a field education for the farmer—no art *can* be taught except by the actual practice of it under the superintendence of one acquainted with it: but it cannot be allowed that this undoubted truth be so expressed as to convey either ridicule or denial of what is equally true—that farm practice has been greatly improved by the researches and suggestions of scientific men, and that agriculture will prosper most in the hands of men of liberal education.

THE influence of agricultural maxima upon agricultural averages is a subject to which we have often referred in these columns. It is very small indeed. We doubt not there are instances of yield as great whether of grain or roots to be quoted, both of French and of American agriculture, as any that we can point to here, though their average acreable yield does not nearly reach our own.—It is not a very remarkable thing that a single Turnip should weigh 27½ lbs., as a correspondent last week told us in reference to a crop near Gainsboro', but it is very remarkable indeed if true that the general produce of the field should average 14 lbs. apiece. Indeed, unless our correspondent shall be able to inform us that the gross weight of the roots was actually divided by their number in order to ascertain it, we must pronounce it to be incredible. It is said that many weighed much more — but it is plain that to constitute an average of the weight asserted, one half the number must exceed that weight as much as the other half fall short of it. If the field was drilled 27 inches wide, and the roots were 15 inches asunder, there would be upwards of 17,000 Turnips on the acre, and these at 14lbs apiece would exceed 100 tons. That this is a possible crop of course we don't deny, seeing that it is *possible* to grow a single Turnip 14lbs in weight on the 17000th part of an acre; and we are obliged to correspondents who inform us of these remarkable instances of growth because it is well that attention should be occasionally directed to the possibilities of agriculture. We must say, however, it is not likely that Mr. HEWITT has obtained the crop to which this statement points, although it is certain that he grew a Turnip just short of a quarter of a cwt. in weight.

As an illustration of ordinary experience we may mention that we had occasion to weigh and number the roots (Swedish Turnips) on three patches in a Turnip field the other day, each 500 square feet in extent; they numbered 319, 319, and 360 respectively, and weighed 515, 523, 514 lbs. respectively. Here was a thicker crop than usual, drilled upon the flat in rows 18 inches wide, but many roots exceeded 5 and 6 lbs. in weight, although the average was only 1½ lb.—and a very good crop it was:—1 lb. per square foot very much exceeds the average of the Turnip-growing experience of the country.

RAPE CAKE AS FOOD.

HAVING on various occasions occupied the pages of your periodical (see *Gazette*, September 21, 1854, p. 634,) as an advocate of Rape-cake for food, in the use of which I have had considerable experience, I beg to offer some remarks on Dr. Voelcker's paper on oil-cakes, which appears in your *Gazette*, November 8th and 15th. I agree with Dr. Voelcker's observation that it is unsafe to attach a precise value to different articles of food; we well know that well got hay is very different in composition and also in effects from spoiled or inferior hay—a remark equally applicable to other materials; in assigning a value to such substances we include only those of good average quality.

It is about six years since I began the use of Rape-cake for food. After various trials for fattening, and also for milk, I gave up the use of Linseed-cake altogether, being fully persuaded that in point of economy for both purposes, Rape-cake had the advantage. In regard to milk I was convinced that Rape-cake afforded quite as much in quantity, but had not then observed any difference in the quality.

When I first gave an order to the manufacturer with whom I deal for Rape-cake for feeding, he required time to prepare it; his object was to enable him to select seed free from Mustard or other impurity. On one occasion only have I had from him cake of which I had reason to complain, and on that I sent for a small supply towards the close of the season without previous notice.

I now proceed to notice Dr. Voelcker's objections seriatim:—

1. Before I commenced my present process of steaming the cake together with Bean-straw, malt combs, or other substance rich in aroma, I had some difficulty in persuading my cattle to eat Rape-cake; by perseverance, however, I invariably succeeded. In my present practice (by steaming) I find no such difficulty; I can as readily accustom them to eat Rape-cake as I formerly could Linseed; many of my cows become so partial to it that they sort it out from amongst the materials with which it is blended.

2. I do not at all object to Rape-cake when kept for six or 12 months. Before I commenced steaming I found my cows refused cake when quite fresh, whilst when kept a few months, the same cows eat it readily; it becomes milder and more tender (easier to masticate) by keeping. To preserve it from mould I cover it with rough seeds (shells of Oats) which have been kiln dried; saw-dust or chopped straw, if dry, will equally answer the purpose. Since I began steaming I find no objection to its being given fresh; I am led to think that this process affects the essential oil, renders the taste milder, and the cake easier of mastication, besides which the flavour of the Bean-straw or malt combs will in some degree be imparted to the cake.

3. In regard to the objection of a greater proportion of woody fibre in Rape than in Linseed-cake, it would be of easy remedy to feeders who like myself use Turnips or other roots in limited quantity (I never give more than 50 lbs. to 60 lbs. each per day), by allowing 8 lbs. of Turnips per day, or 56 lbs. per week in addition. If we take 5 lbs. per day or 35 lbs. per week, which I hold to be the maximum allowance of cake or other food rich in albumen per beast, and reckon 10 per cent. of woody fibre more in the Rape-cake than in the Linseed-cake, it will amount to 56 oz. for the week, whilst the 56 lbs. of Turnips supply 82 oz. of sugar, starch, &c. If we assume the price of Linseed-cake at 4*l.* 10*s.* per ton higher than that of Rape-cake, this on 35 lbs. will be about 1*s.* 5*d.*, whilst the 56 lbs. of Turnips at 10*s.* per ton will only cost 3*d.* Swede Turnips contain also about 15 per cent. (reckoned as dry) of albuminous matter, which is doubtless the most valuable component of food, whether we consider it assimilated in fibrine or as an ingredient of manure.

A pound of lean beef, say rump-steak, will cost 9*d.*, reckoned as dry without moisture equal to 3*s.* per lb.; a pound of suet at the same time will cost 6*d.* to 7*d.*; suet or other fat is almost free from moisture. Nitrogen is known to be the most valuable ingredient in manure, whilst sugar, starch, &c., have no ascertained value whatever.

I would not be understood to adopt the teaching that substances used as food are efficient for fattening in proportion to their greater per centage of nitrogenous compound. I hold such doctrine to be untenable.

4. As to the more frequent adulteration of Rape-cake as compared with Linseed, this might reasonably be expected so long as it was sold for the purpose of manure only, Mustard-cake being but slightly inferior to Rape-cake for this purpose. But at present, a higher charge of 1*l.* to 1*l.* 10*s.* per ton being made for Rape-cake for feeding as compared with that for manure, I should hold the vendor responsible for supplying me with genuine Rape-cake.

If the experience of the best stock farmers shows that Linseed is more efficacious for fattening than Rape-cake, I am inclined to think this attributable rather to the quality of the oil than to the properties noticed by Dr. Voelcker.

In the composition of feeding substances we discover as proximate elements albumen, legumin, gluten, protein, compounds all very similar in chemical composition, but differing somewhat in form and solubility. We find also sugar, starch, gum, dextrine, agreeing with and differing from each other in like manner. We find also oils, a distinct class of substances with peculiar and varied properties; they consist of two varieties, the unctuous represented by Rape and the dry by Linseed oil. Hitherto these oils have obtained no distinction in agricultural chemistry, but I entertain a strong persuasion that in the animal economy their effect is different. These oils consist of proximate elements, oleine and stearine or margarine fats; in what proportion I have not been able to ascertain. In a small volume kindly lent to me by Mr. Wilson, the scientific director of Price's Candle Manufactory, I find a popular treatise on the preparation of manufacture of oils by Fontenelle, which supplies interesting statistics derived from the researches of French chemists, who appear to have given more attention than our own to the properties of oils or fats.

The unctuous class of oils, Olive, Rape, &c., are found to congeal at a temperature of about 32° (freezing point), some at a little higher, others at a little lower degree. Linseed and other oils of the drying classes require a degree of cold 47° 30′ below freezing point, or 17° 30′ below zero, to effect their congelation.

Fontenelle supplies only analyses of a few of the oils, showing their composition in olein and stearine:—

Olive oil is found to contain of olein	72
" " " of stearine	28
	100
Rape oil is found to contain of olein	54
" " " of stearine	46
	100

Fontenelle does not supply the composition of Linseed oil.

An analysis of Linseed, Cotton, and other oils which are or may become used for feeding seems highly desirable.

The olein fats require but a low temperature to melt or liquefy them, whilst the solid fats, margerine and stearine, require a temperature of 120° to 130° for the same purpose.

Linseed contains a great proportion of mucilage, and on being dissolved in water forms a stiff jelly.

Lehman, in his Physiological Chemistry (a translation of which by Dr. J. Day, F.R.S., has been published by the Cavendish Society), a work displaying great research, a copy of which I have been unable to obtain except for a short time on loan, states that the olein is known to be more easy of consumption, *i. e.*, more available for respiration than margarine, and thus accounts for the fat of animals being more of the solid (margarine and stearine) than the oil of plants, which contains a considerable portion of olein.

The practitioners in medicine are now using extensively pure Cocoa-nut olein for pulmonary complaints in lieu of cod liver oil. I propose shortly to occupy your pages with the treatment of pleuro-pneumonia, in which I have used Cocoa olein with apparent advantage.

Those of your readers who peruse the Royal Agricultural Journal will have noticed the peculiar results of my dairy practice from cows treated with Rape-cake as part of their food, showing a more than ordinary produce of butter in proportion to milk, and a still more extraordinary richness of cream. On examining my food I could discern no material so likely to account for this peculiarity as the Rape-oil accompanied by an adequate supply of albuminous matter.

I have from time to time held conversations with stock feeders possessed with information beyond the reach of prejudice, who state that after comparative trials they had come to the conclusion that Linseed-cake was more effective for fattening than Rape-cake. These considerations, together with the persuasion that food rich in albumen is generally speaking too freely given for fattening, has led to a change in my mode of feeding. I am now using as extra food, together with straw, and a limited supply of Turnips or other green food—

2½ lbs. per day of Rape-cake ...	Steamed with the straw.
1 lb. per day of malt combs ...	
½ lb. per day of Linseed-oil ...	

The ½ lb. of Linseed-oil represents the quantity contained in 4 lbs. of cake; the oil alone costs 40*l.* per ton, whilst in cake, reckoned as oil only, it costs 88*l.* per ton, the cost of Linseed-cake being 11*l.* per ton, having 12½ per cent. of oil. The whole of these extra ingredients of food cost 3*s.* 1*d.* per week each. This practice was begun in the autumn of 1855, on 30 beasts; their increase was very satisfactory till December and January, when they were sold off to Mr. Wilson, of Bradford, who reported them of prime quality, with a great deal of loose fat.

In the spring of this year I observed the like treatment on 30 heifers, but without any roots or hay from March to July, when they were sold to different parties, who, as far as I have learnt, reported favourably of them. The average gain was 14 lbs. per week each. One of the lot gained 24 lbs. per week throughout the course of 16 weeks. She cost 11*l.* at the Easter fair, and sold in July for 18*l.* 10*s.* In my experience as a feeder I have not had an instance of a like gain. It will be observed that these cattle were without a particle of roots or other green food during a part of March, the whole of April, and a part of May. I am at present treating 30 for fattening in like manner, with some addition of green food; their appearance and weighing denote a very satisfactory improvement.

The readers of your *Gazette* will be pleased to accept some portion of these statements as conjectural rather than ascertained. If in offering them for publication in your pages I succeed in engaging the attention of Dr. Voelcker and other teachers of agricultural chemistry, and also of those who, like myself, are seeking to apply the rules of science to economise their practice, I shall attain my object. *Thomas Horsfall, Burley Hall, Nov.* 18.

THE AGRICULTURAL LABOURER.

THE means of improving his condition exercises the ingenuity and engages the interest of all benevolent men, but it must be confessed that however sincerely they address themselves to the task, they do not always succeed in advancing the position or adding to the comforts of the working man, inasmuch as he is sometimes the subject of a mere experiment; sometimes the intrusion of the charitably disposed is resented, and sometimes the superiority and pretensions of the volunteer philanthropist are contested. And in asserting his independence, although we may withhold pecuniary

aid we must extend to him our sympathy and our respect, and instead of imploring for him "a continued attention to his wants on the part of the employer," we should be more disposed to congratulate the employer for having a skilful, honest, industrious, and self-relying man who can earn his livelihood, so as not merely to keep himself "from the parish" but maintain his family in comparative comfort. It may be said that this is exceptional, but we believe that there are more of this description than is generally supposed, that nearly all farmers of 100 acres and upwards have more than one such man in their employ, and that the improvement in farming and in the resources of farmers have during the last three or four years considerably advanced the information, corrected the habits, and raised the condition of the labourer; and it would not be a matter of surprise if some fine day it was suddenly discovered that he was no longer out at nurse, that he really had faculties of observation and acquisition, and that he was worthy to share in all privileges and responsibilities of an English householder. And truly in some villages it is high time that an intelligent labourer was allowed to fill the minor offices patent to all small communities, as there are some instances of the one or two farmers being at one and the same time guardian, churchwarden, overseer, constable, tax collector, overseer of highways, and nominated to other offices belonging to the locality, with not a very superfluous ability to perform the manual operations required in filling up forms, keeping the necessary accounts, and transacting the complicated business attached to every parish in the kingdom. Is this the agricultural labourer that occupies the tender commiseration of so many gentlemen and ladies? of so many clergymen and amateur agriculturists? or is it a poorer class more numerous in towns—far more than in villages!—a class of disorderly or defective people, morally, mentally, or physically unequal to steady persevering exertion and good conduct? Many of these are applicants for relief even in the middle of summer if a wet week deprives them of their "hand to mouth" sort of independence. Illness or misfortune will, we know, sometimes reduce a flourishing family to want, but are there not many who, whether ill or well, cannot or will not thrive?—objects of charity with numerous friends, always craving, never satisfied, no house would be large enough to make them clean or prosperous, they know too much already. There is an outcry for better houses, but how tardily is it recognised. If a large proprietor builds, with much pomp and circumstance, 10 or 12, according to his measure of the wants of the tenant farmers on his estate, a small bricklayer or a retired publican takes his measure of the wants of a district by running up 40 or 50 in a row, to cost 20*l.* or 30*l.* each, and pay 2*s.* a week rent; tenant farmers can do very little in this case, their interest is only an annual interest in the affair; they must pay more for labour, and their labourers must walk a long way to work because some landlords are afraid of increasing the number of their settled poor. Such landlords covet all the landed property in a parish, therefore small capitalists are shut out of the market; perhaps a lot of almshouses, the legacy of some repentant or kindly disposed person, attracts a lot of poor widows or old men to make the rates larger, and the effective poor of the parish less in number than these might otherwise be. For such cases the only desirable change appears to be that every facility should be afforded for the legal transfer of small estates, that houses of various calibre and of convenient disposition might be built, and as soon as the worldly wealth of the agricultural labourer will enable him to pay the rent of such places we may hope the law of supply and demand will furnish them in sufficient number. Allotments small or large are good for labourers; the large stimulate his ambition and energy, and awaken him to a path for promotion. Education is more appreciated by working men than formerly and is now well and properly attended to in union workhouses, and with the best effects; there are also instances where it does not overcome early initiation into vice and imposture, but there are far more numerous instances where it introduces the child to a good situation and wherein it helps him to be useful and induces him to reach forth from pauperism to independence; it is a blessing to those who taste it, and if there be exceptions, they prove the rule that education is qualification for a better position, it is consciousness of power to use faculties, it is latent capital, a sure help to the well disposed. The occupations and habits of the young when cast on their own resources require a little further consideration, and we will if you please allude to them on another occasion. *J. W., Peterborough.*

MR. CHADWICK

ON THE

PROGRESS AND COMPARATIVE POSITION OF AGRICULTURE IN ENGLAND AND ON THE CONTINENT.

(*Concluded from p.* 780.)

It is to such practical examples that the serious attention of our neighbours, for inspections and report, not on casual visits of a day, but for careful examinations and reports, by competent and responsible officers, with the view to the construction of trial works and of model farms, with plans and estimates of works on which proprietors and occupiers, engineers and architects might make their own estimates. On the occasion of a public audience which I had the honour to have, with others of my countrymen, with the Emperor of the French, I availed myself of the opportunity of submitting the importance to his subjects, in the peculiar position of their agriculture, of showing not what may be done on large farms but what it is possible to do on small farms. Whilst from 10 to 12 hectolitres of Wheat is declared in the official returns to be the average yield obtained from our neighbours' fine climate and soil, and at the model farm, the Grignon, 30 hectolitres per hectare, at that same model farm of no less than 270 hectares, of which 150 were in pasture in 1853. There were 200 head of cattle, or three-fourths of a head of cattle per hectare. In Germany the state of things appears not to be much better. At the *model* farm of Hohenheim Wurtemburg, composed of 286 hectares, Royer found in 1845 only the equivalent of 190 heads of cattle, or two-thirds of a head per hectare. The domaine of Moeglin, Prussia, illustrated by Von Thaer, there were found only 214 heads of cattle to 420 hectares, or nearly half a head of cattle to the hectare.

Now on the experience of what has been accomplished in England already, I venture to express a confident opinion that farms of 10 hectares, or 25 acres, may be made to keep at the least two or three head of cattle per hectare, and give a yield of from 40 to 45 hectolitres of Wheat per hectare as a general average. One great object for France, the Emperor has said; is to increase consumption,—first no doubt of food—and certainly, if the rural population, as well as the greater population of the labouring population of towns, were so advanced in alimentation, from the regime of inferior to superior grain, from a perpetual fast to a meat diet (like that of our best workmen), so as adequately to develope their physical condition and productive power as workmen, France, even with the highest improved culture, would find its best market at home, and would have little or nothing of food to export; and we have our interest in their prosperity, that they would have much more to export of wines, and more to import of our manufactures.

The promulgation of a system of maximum cultivation on small areas would have the collateral advantage of counteracting the desire of small cultivators of little capital merely to extend the areas of their land, which Professor Moll, in his "Manuel d'Agriculture," denounces as being injurious to them, and as injurious to agriculture by taking away from them the capital required for it. He says:—"What is especially deplorable is to see cultivators who have not capital sufficient to work properly the land they already have, borrow at 8 or 10 per cent. to purchase land which will not return more than 2 per cent. Let cultivators be convinced that land pays only in proportion to the amount of manure and care that is bestowed upon it, and that the expense of cultivation, seed, and harvest being the same for good land as for bad, there is an immense advantage in gathering a given quantity of produce from as small a space as possible. Twenty hectolitres of corn from one hectare will give a good return, but from two hectares they will not pay the expenses, because those will be doubled. It is much more advantageous to improve the land one has than to add to the extent of it."

In respect to the amount of capital required, I have always considered that more economical methods of distribution might be used, peculiarly adapted to the circumstances of small farms and to places where fuel is expensive than those at present adopted. Indeed in England steam power is frequently applied where it is not economical, and it is found out that it is frequently not economical for the intermittent exercise of small powers. In Glasgow, Manchester, and other towns where fuel is very cheap, and where steam power is very cheap for continuous application, hydraulic engines on the principle of the Brahmah press are coming into use as the cheapest and most convenient for work requiring only sudden or intermittent applications—as for working cranes, for loading or unloading waggons, required only for an hour or two, or during a part of the day. Hydraulic engines are also coming into use, even in those districts of cheap coal and great steam power, for continuous applications in those cities in the cases where comparatively small power, as of one, two, or three horses is required. For the appreciation of small power on the principle of the Brahmah press, it is only necessary to turn a cock and the power is instantly exerted: and it may be as instantly stopped. For the proper management of the steam engine skilled service is required, but the hydraulic engines may be worked with comparative safety by the common farm labourers.

Professor Moll has pointed out horse power as available for the distribution of liquified manures. He shows that a horse of a medium size working a rotatory engine may raise 1 066 litres per second, or 3837 per hour, or 38,370 per diem of ten hours, and might, at the rate of 50,000 litres per hectare, water more than 73 acres, or nearly two acres per diem.

Our eminent mechanist, Mr. Joseph Whitworth, in his report on the American Exhibition of Industry, notices the horse power machine, now brought into extensive use in America. He commends it for its principle of a direct action of the power to pumping or any other use: as being compact and easily removeable from place to place, and as being of a cheap construction, and to be made in England at an expense of between 20*l.* and 30*l.* It may be made for two horses; probably one or two oxen may be made to assist upon it. I append a plan of the machine which Mr. Whitworth has given to me. At the Exposition in Paris this machine was objected to on account of the apparent severity of the labour, which is like walking an ascent, as shown by the plan, and the objection would no doubt be valid if the application of the power instead of being intermittent were for whole days instead of for parts of days.

Mr. Cuthbert Johnson, one of our eminent agricultural writers, whose land inclines from his manure-tank, uses wooden spouts instead of iron pipes for distribution; and he shifts these spouts with the applications, which for saving the manure, are daily throughout the year. In places where iron pipes are difficult to get and the expense of flexible pipes very great, and where the position of the cattle shed and the land permits, the use of small wooden spouts in the manner in extensive and successful use for plain water irrigation in Norway and Sweden may be recommended as the most eligible.

It would to my mind be a serious diminution of the advantages of the application of the new system of high culture to small areas, if it were to be accompanied by the poor wages to the labourers incident to the old systems of petite culture. But from the experience in England I anticipate an opposite result.

I have already referred to the standards of practical agricultural production, which, apart from the new model farms, we already have had for a long time in the garden culture near London for the supply of vegetables (potagères) for the kitchen. These market gardens are also to a great extent practical standards of highly skilled agricultural labour. Near London this cultivation is carried on with an annual application of capital of nearly 50*l.* per acre, namely, of 20*l.* for manure—though the manure is often obtained for little more than the expense of the return cartage from London—20*l.* for labour, and 8*l.* or 10*l.* per acre rent, local taxes, and other charges A number of these garden farms are not above two acres and a half or three acres, but the most successful are certainly on a large scale. On one of 400 acres I am informed that 4000*l.* sterling per annum is expended for labour and 3000*l.* for manure. One farm or garden of 8 hectares chiefly for fruits has by the adoption of the liquid manure cultivation carried away the highest horticultural prizes. The expenditure on labour on these farms is not merely on greater quantities of low-priced labour but in highly disciplined, highly improved, and highly skilled and, as I find as a necessary consequence, highly priced labour. By this high cultivation the price of this special agricultural labour is brought up nearly to the price of labour in the manufacturing districts; in the agriculture of the low culture I found the common wages of one adult male, one adult female, and one working hand below the adult stage, that is, the father, mother, and one working child, average 4*s.* 6*d.* and 5*s.* 6*d.* per head per week; but in the manufacturing districts of Lancashire I found the average wages of father, mother, and working child average 9*s.* or 10*s.* per week, or 27*s.* and 30*s.* per week per family, and in these market garden farms I found the average wages of the working families 7*s.* 6*d.* and 8*s.* 6*d.* per head, or 24*s.* and 29*s.* per family. This highly paid agricultural labour was nearly all piece-work and highly skilled, and the least affected by any competition in the supply and demand of the labour. The skill arose from the interest of the labourer in his work as well as bodily capacity, and would inevitably fall with poor wages. Intelligent and competent garden agriculturists have declared to me that if they were engaged in the cultivation of the ordinary farm produce they would still for a great proportion of the farming operations employ their own highly skilled labour, because they are convinced that it is the cheapest in production.

I have examined this special agriculture, the maraichère cultivation adjacent to Paris. In skill, in the use of water for irrigation; in contending with variations of climate and forcing produce under glass cases; in variety of production it appeared to me to exceed the special high agricultural production near London, though it did not come up to it in the vigour of the application of labour and capital, and the gross amount of produce. On points where they have come into competition with the common farmers they have beaten them. At Paris, notwithstanding the excessive rents they pay of 1000 to 1600 francs the hectare, or from 16*l.* to 20*l.* per acre, the garden agriculturists, in the Cabbages and other produce attempted by the farmers, have beaten them out of the market by raising them cheaper. On the other hand, in England, Mr. Wilmot, whom I have already mentioned, has by the use of the system of liquified manure cultivation successfully invaded the province of the market gardeners in his neighbourhood.

Now competent agricultural improvers and administrators who come into contact with agriculture recognise with me this garden cultivation as the standard of future agricultural improvement, with the substitution of labour-saving machines, for this highly expensive skilled manual labour; and there is no doubt that machinery will at no distant period perform great portion of such labour sufficiently well for high garden cultivation. But even so,—on the experience already obtained,—superior labour, superior in skill, in intelligence, and trustworthiness will still be required for the most economical direction of this machinery.

Some very high priced labour may be reduced, but I believe the general average of wages must be maintained and must even be advanced, as we find it advancing in the manufacturing districts. With high cultivation too the numbers of the population will be maintained, and when cultivation advances to the extent to which it is capable, we may expect Ireland to be sending for labourers provided they are highly trained and educated, and practically skilled.

In our existing condition I hail all circumstances which raise the price of manual labour as stimuli to the use of labour-saving machinery and processes, and thence to the necessary improvement of the whole condition of the population engaged in those processes. Our emigration, great as it was, has been checked too soon.

On the whole if the evidence which I have submitted, only as yielding indications for further inquiry, be further examined, it will I believe lead to the conclusions that the future of agriculture will generally be by *intensive* instead of *extensive* culture; that farms, as food-producing machines, will have the like progress with manufactures, and require for their improved processes and machinery an improved class of labourers, of advanced technical skill, of improved means and alimentation, and improved social and general condition."

The Congress, on the recommendation of the agricultural section, adopted a resolution to the effect that it should be recommended to their several Governments, that an examination should be made by competent persons of the works completed or in progress for the sanitary improvement of towns, more particularly those indicated for the application of the refuse to agricultural production.

THE POTATO BLIGHT IN IRELAND.

THE following details of the Potato blight in my locality, where it has especially prevailed this season, may not be quite uninteresting or useless. In February I put into drills of garden mould, manured with farmyard dung, sets of the Primrose variety of the Potato; the crop was dug out in the course of July, and no diseased tuber appeared. Early in March, sets of the same sort were planted in a field bed of fresh lea which had not been broken during 20 years, with which the rich mould of a hedge ditch was intermixed—no other fertilising substance was applied; the aspect of this bed was due south, and a close hedge sheltered it on the north. The foliage of this crop was extremely luxuriant, and the tubers were large and abundant. Some which were dug at the close of July were perfectly sound: it was thought best to let the remainder mature their growth; the result was, that at the end of August one-third of these was rotten.

Another head-ridge of lea at right angles to the former was cropped in the same manner and with the same sort of Potato, but at a later period: the fertility of the soil and the consequent luxuriance of the foliage of the plants diminished gradually towards the lower extremity of this headland. Where the foliage was rank and the tubers were most promising, the greatest degree of malady prevailed; where the contrary appearances occurred the least failure took place. After the sowing of Barley in this field had been completed, another head land opposite to the latter, of very poor soil, which had been long waste, was cropped also and manured in the same way. I expected little produce from this as the season was far advanced. The plants grew, however, in a healthy manner, though not luxuriantly by any means, and preserved their verdure (assisted I think by the light application of guano) until their late maturity; here there was no disease.

My principal crop, of Primroses also, drilled in March and chiefly manured with a compost of lime and earth and artificial* guano, grew well but not luxuriantly; the haulms did not intermingle and crowd or overshadow each other; the loss from blight was about 4 per cent. In adjacent fields the failures were from 20 to 40 per cent. of the same variety of Potatoes.

Fresh broken old lea has been always considered (and I am sure rightly so) as the most favourable soil for Potatoes, yet I have lately seen 30 per cent. diseased on such soil, half the drills in this instance being manured with farmyard dung, and the other with fresh seaweed, no difference in result being perceptible. I have had proof in my own case that the potash obtained in ashes of burnt weeds was powerless as an antiseptic; the earth teemed with large tubers, and rank stems and foliage gave the most promising indications of a heavy crop where I had applied such

* This was imported from Messrs. Nottidge, Gracechurch Street, London, and to the use of it I chiefly attribute the healthiness and productiveness of my Potato crop.

ashes, but there the rotten tuber was frequent. We see the failure on peat soil also. The philosophical part of the subject is quite beyond my range, yet I cannot avoid allusion to the question, what is the morbific agent in the cases of Potato murrain? I think it is not presumptuous at least to try and determine what it is not.

First, I cannot conclude that the decay arises from an hereditary taint or debility in some of the varieties of the Potato, though it must be admitted that some sorts are more able to resist blight than others. Of this, indeed, I have seen a decided proof. One of my workmen this year planted 30 drills with Primroses and two with Scotch Downs (qy. Dons); he lost about 25 per cent. on every one of the drills, with the exception of those bearing the Downs (qy. Dons or Duns); all the drills were manured in the same manner, and seeded on the same day. Reports reach me also from various parts of my neighbourhood that the Downs have altogether or nearly escaped the malady; a red-streaked and inferior sort has also suffered very slightly if at all; but I am disposed to think, notwithstanding, that the comparative non-liability of such sorts is to be found in some peculiarity of organisation distinct from constitutional taint. If the contrary were the case, how do we account for the fact that the Primrose sort has not now failed generally throughout this county but only in particular localities, and even in these but partially, severely in some fields, and scarcely, or not at all, in others?

One of the correspondents of this *Gazette* (July 16, 1853) stated: "It is a strange fact that of three gardens at Restronguet, in Mylor, adjoining each other, the middle one only has disease in it; they were all planted at the same time and under precisely similar circumstances." Some of the cases which I have cited coincide with this statement.

Ammoniacal manures have been more than suspected of occasioning the mischief, but the healthiness of Potatoes continually raised through their agencies disproves such allegation. The ammonia contained in the guano, which I freely used, was decidedly serviceable to my crop, and I cannot suppose that the same gaseous substances conveyed from stable litter would be noxious to the same sort of crop. A very imaginative theorist has suggested, I ought to say dogmatically asserted, that nitre in the soil causes the malady in question, and that salt would correct it. But sea weed and sea sand saturated with salt are freely used, and yet the preventive is not practically found in salt. Early sowing may and probably will secure the escape of the early sorts from disease, because the blighting period usually occurs at a season subsequent to their maturity, or at least to their state of equal succulence, when I think they are most liable to injury; but in my case some of the latest planted tubers and least luxuriant in vegetation were found to be among the healthiest.

Coldness of temperature and much moisture have been assigned as predisposing causes of the murrain, but neither cold nor moisture prevailed before our Potatoes showed the unmistakable signs of disease. About the 20th of last August the temperature was higher than the average; the weather was steady, there was no apparent combination of unpropitious circumstances. Moisture!—the soil was too dry, there was neither moisture below the surface, nor in the atmosphere, to cause the malady.

It was about the middle of August when two or three days of dark, calm, and rather foggy weather caused us to ask the question, is not this blight? and then we hopefully thought that both Beans and Potatoes were too far advanced in their growth to receive serious injury. But two or three days afterwards rumours were rife that the dreaded disease had appeared in various fields, and especially very near the sea side. I observed the black-spotted leaves of Beans on my own land in patches here and there, and similar affections on the leaves of Sycamore trees in a plantation. These effects—so commonly perceptible—on the Potato led me to conclude with more competent inquirers that currents of electricity occasioned the malady which seemed traceable in their apparently capricious courses. Those very leafy and strongly stalked plants, which most abounded in moisture, would be much more attractive of the electric fluid than less succulent ones, and consequently the most severely affected by it. Convinced that electricity exercises powerful influence on the temperature of the air and on vegetation, I see much reason for believing that the morbid changes which so suddenly occur in the Potato plant when excess of electricity (atmospherical or terrestrial) may prevail, are attributable to this uncontrollable agent of good and evil. An obvious difficulty however arises here—if electric influences now cause the ailment in question, why did not the same results follow from the same agency previously to the last 10 years? We cannot suppose that there is a new modification of the physical laws of electricity. I leave the philosophy of this to those who are qualified to discuss it. *Martin Doyle.*

Home Correspondence.

Large and Small Potatoes as Sets.—As my experiments in Potato planting were carried on extensively during the 17 years that I occupied my property, on Maidenhead Thicket, I feel authorised to offer the following remarks. During the 7 or 8 years that I was favoured with the correspondence of the late President of the Horticultural Society, Thomas Andrew Knight, Esq., of Downton Castle, I had every opportunity to ascertain his own theory and practice in the cultivation of this his favourite esculent, an assertion which is borne out by the few lines that I now quote from a letter dated Aug. 4, 1830:—"Of the powers of the Potato to supply us with animal food, no person has yet formed anything approaching a fair estimate." Mr. Knight entertained the highest opinion of the "no-blowing Ash-leaved Kidney;" and as regarded the production of new early varieties, it was his great desire to prevent the development of blossoms and seed vessels. The annexed quotation from another letter will convey a pretty correct idea of Mr. Knight's principles and practice:—"I always plant the tubers (of Ash-leaved) whole, selecting the largest I can raise, and from very early crops. As a general rule, I think Potatoes ought to be planted in rows distant from each other in proportion to the height of the stems; the height being full 3 feet, the rows ought to be 4 feet apart, and the tubers of the very largest varieties, whole, never to be more distant from centre to centre than 6 inches. By such mode of planting the greatest quantity of leaf (the organ in which alone the vital nutritious fluid is made), is exposed to the light, the rows always pointing from north to south." These directions were adopted in practice with most satisfactory results till the fatal attack of the disease in August (1847), when one of the most promising crops was destroyed. Recurring to Mr. Goodiff's article, wherein we observe many just remarks upon the consequences of planting very small sets, I cannot but concur with him in proposing "to plant whole and large Potatoes at wide distances," provided always that these distances be restricted to the rows only; and I am the more confirmed in the opinion that very minute Potatoes tend to deterioration, in size at least, as I have seen here entire roots of the Ash-leaved and Cuthill's Lapstone Kidneys, without one single tuber that could be brought to table. To close the subject, I think it will be found that where whole medium-sized Potatoes (either of Ash-leaved for summer use, or Regents for the winter stock), are planted in February or early in March, the final result at digging will be found comparatively satisfactory in every respect. *J. T.*

Storing Turnips.—In a late number of your Paper you give an account of the different methods of storing Turnips. My system for a number of years has been to employ women or boys at from 6*s.* to 8*s.* per acre, who pull tops and clear the roots, and fill them into carts. Each person takes two rows or ridges, of which they pull tops and clear, throwing the roots into one continuous row; in this way the roots which grew on four ridges are thrown into one row, which leaves three clear drills between the rows of roots for the carts to pass when taking them up. It is likewise more convenient for filling by taking two rows at the same time; the fillers work on each side of the cart without confusion; one third are drawn home to be consumed in the yards by cattle, the remaining two-thirds are eaten on the land by sheep with corn or cake. Those consumed on the land are drawn together into oblong heaps about 6 feet wide at the bottom, and containing from 8 to 12 one-horse carts. The heaps are afterwards covered with stubble and a light covering of earth, well beaten down to shoot off the rain. Those that are drawn home are either stored in the root-house or made into narrow pits and neatly thatched with stubble, but not covered with earth. If early storing of Turnips was more generally practised we would see fewer rotten ones and hear less frequent complaints of their not keeping. It is asserted by some farmers that the use of artificial manures is injurious to the keeping qualities, and predisposes the Turnip to decay. This I believe to be the case, not because the manure produces anything in the roots to cause this, but by producing a more rapid growth, and hence it attains an earlier maturity; having arrived at maturity, the longer they remain in the soil the more susceptible they will be of frost, more subject to rot or decay, and also deteriorate in value for feeding. All plants, while the leaves remain green, are during the day continually appropriating carbon from the air. When night comes this process ceases, they then absorb oxygen and give off carbonic acid; therefore when the roots arrive at a certain stage, and comparatively cease to draw nourishment from the soil, the leaves may still remain green, but the temperature being low the plant is losing more carbon through the leaves, in the form of carbonic acid, than what it is absorbing both from the air and the soil. *G. Murray, Overstone.*

Drying of Grain.—I have on a former occasion in your columns suggested that reaping machines to be perfect should be made adjustable, in order that during wet weather in harvest time the ears might be reaped separately from the straw. To effect such a desideratum, the cutting apparatus of the reaping machine would have to be adjusted higher than at present; and preceding by a few inches the comb-like teeth between which the stems of the corn are received, there should be a rod (and this should be adjustable) the breadth of the machine. The object of this rod would be to bend down the corn, which, as soon as relieved from it, would spring back and be received between the comb-like teeth, and there amputated, as at present the straw lower down is by a reaping machine; by means of the cross rod being adjustable the machine would be adaptable for the various descriptions of corn and the length of the ear, and with the small portion of straw cut off along with it, would be nearly uniformly of one length. I would, however, suggest that parallel with but in advance of the cutting edge, there should be a little in advance and higher in elevation a strong wire or other blunt edge for the purpose of bending back the ear when in between the comb-like teeth, and thus the cutting edge immediately following would amputate the ear from the standing straw with less friction in cutting, and at the same time the ears would be projected into the receptacle—canvas bags, &c.—provided to collect them in. In the *Agricultural Gazette* of the 15th inst., "A Landlord" in the *North British Agriculturist* proposes that after the corn is cut by the scythe, the ears should be separated by women with short knives. I beg to suggest that this operation would be more quickly performed by having a low cart, at the back of which should be placed an 18-inch or 2-feet projecting rack inclined towards the cart, the teeth of this rack being more open at the outer ends, and narrowing so that when the cut corn is placed between by one set of labourers, the heads would be prevented from falling through, but open enough to allow the weight of the straw to bring the ear down to where it is allotted to it. Another set of labourers might then with knives or shears separate the ears, and the teeth of the rack being sufficiently inclining towards the cart the ears would fall into it. Cutting edges could be fixed to the edges of the rack, slightly moveable by pressure, so that by pulling at the straw the head would be separated and fall into the receptacle, *i.e.*, the cart or sacks placed suitably for that purpose. Another mode suggests itself by having in place of the rack a flat surface, but, as before, inclining sufficiently so that when the ears are amputated they will slide into the cart or receptacle placed for them; at one side of this inclined platform a long knife should be at one end attached, similarly to a "clogger's" knife, and the handle being at the other end and held by one of the labourers, who would elevate it and depress it as required. This knife would, I think, be better if its cutting edge was serrated, and the operation would be performed by one set of labourers bringing the cut corn, and spreading it across the inclined plane, where the knife would have to be depressed with its edge at a suitable angle upon the straw, which, by being withdrawn by the party who brought and spread it, would have its heads cut off. Being in the north during the late unfortunate wet harvest, it struck me much Wheat might have been saved in various ways, if not from all damage, at least the injury might have been considerably less. No doubt some fields of Wheat were left uncarted and unstacked where fit, with the object of getting it dried sufficiently to thresh, and have it in "condition" to sell to the millers on an early day; but unfortunately along with the rain there was little or no wind, and even when the intervening finer weather occurred, the wind was very slight, and not near enough to dry off the wet attached to the cut corn. As the farmer's horses, &c., were unoccupied, it occurred to me they might have been very profitably employed by making a cheaply constructed platform revolve, and by placing the stooks upon this platform, and with the horses whirling it round and round in the open air, a substitute for wind would have been obtained, and a great object attained of shaking off the wet and drying the corn considerably, so that germination if not wholly arrested would have been vastly retarded; whatever grain would have been shaken out on the platform could have been easily collected. If it was only sufficiently dried to enable the farmer to make it into small stooks with the ears inside, leaving an opening in the centre if circular, and an alley if rectangular, it would have been greatly preserved from receiving the amount of damage it inevitably did by being allowed to stand untouched in the fields. A platform as suggested would be easily and cheaply constructed in a rough way, and canvas or sacks placed to form the floor to collect the falling grain. Although a few preceding harvests have been very favourable to getting the corn crop dried with little trouble, surely when the harvest is overtaken by an unfavourable wet season, some effort to alleviate the injurious effects of such a catastrophe should be a regular and customary business of the farmer. *W. Wooler.* [We fear the scheme of revolving platforms will be pronounced whimsical and impracticable.]

The Advantages of Planting or Dibbling Grain at defined intervals and proper and uniform depths are the following:—The plants are enabled to grow in a natural or circular form; they can be hoed every way; the straw is clean, stiff, and erect; the crop, however heavy, is never laid or lodged, thereby co-operating with the reaping machine; every grain grows, if planted at a proper and uniform depth, and the ears and grain are of great weight. For the last 9 or 10 years it has been my endeavour to invent and perfect an implement that should plant the grain at defined intervals and uniform depths, and at the same time that a man should be able to deposit the grain with the greatest accuracy and at the rate of 2 or 3 acres a day without fatigue to himself. Whether I have at last accomplished this it must be left to others to decide. The forthcoming Smithfield show will have the honour of introducing this implement to the public. *Sigma.*

Farm Memoranda.

DISHLEY: *continued from p. 781.*—Relative to the rot in sheep, Mr. Bakewell has attended more to it than most men in England. He is extremely clear, from long attention, that this disorder is owing solely to floods—never to land being wet, only from rains which do not flow, nor from springs that rise. He conjectures that the young Grass which springs in consequence of a flood is of so flashy a nature that it occasions this common complaint. But whether this idea is just or not, still he is clear in his facts that floods (in whatever manner they act) are the cause. Perhaps the most curious experiment ever made on the

rot in sheep is what he has frequently practised. When particular parcels of his best bred sheep are past service, he fats them for the butcher; and to be sure that they shall be killed and not go into other hands, he rots them before he sells, which from long experience he can do at pleasure. It is only to flow a pasture or meadow in summer, and it inevitably rots all the sheep that feed on it the following autumn. After the middle of May, water flowing over land is certain to cause it to rot, whatever be the soil; he has acted thus with several of his fields, which without that management would never affect a sheep in the least; the water may flow with impunity all winter, and even to the end of April, but after that the above effect is sure to take place. Springs he asserts to be no cause of rotting, nor yet the Grass which rises in consequence unless they flow; nor is it ever owing to the ground being very wet from heavy rains, unless the water flows. This theory of the rot upon the whole appears satisfactory, and that part of it which is the certain result of experience cannot be disputed.

In the breed of stallions for getting cart-horses, Mr. Bakewell is also very attentive; he has those at present that he lets at from 25 to 150 guineas the season. He conceives the true make of a cart horse to be nearly that described above for an ox—thick and short bodies, and very short legs. He makes them all particularly gentle, and apprehends that bad drawing horses can be owing to nothing but bad management. He has one stallion that leaps at 5 guineas a mare.

Mr. Bakewell is remarkably attentive to the point of wintering his cattle; all his horned beasts are tied up in open or other sheds all winter through, from November till the end of March, feeding them according to their kind, with straw, Turnips, or hay; all the lean beasts have straw alone; he never litters them, on account of making the straw go as far as possible, that it may be eaten up perfectly clean. Young cattle, that require to be kept quite in a thriving state, have Turnips, and also fattening ones; and late in the spring, when Turnips are gone, hay is wholly their substitute.

The conveniencies for tying up beasts, which Mr. Bakewell has built at his own expense, are a remarkable instance of spirited husbandry; he has formed such numbers of stalls for them, by building new sheds, and converting old barns and other places into standings for cows, that he has more than once wintered 170 beasts of all sorts; and all in the house.

The floors on which the beasts stand are paved, and 6 or 8 inches higher than the level of the yard, they are just broad enough for a beast to stand on with some difficulty; the consequence of which is, that his dung falls beyond his standing, and on the lower pavement, and when he lays down, he draws himself up on to the higher pavement, and is clear of it—by this means they are kept quite clean without litter, and the men who are employed on purpose keep the whole constantly swept down, and barrow the dung into the area of the yard, that is surrounded by the sheds, and then pile up the dung in a square clamp.

By using no straw in litter he makes it go so far in wintering cattle, that he much reduces the expense of winter feeding them; and this has occasioned his adopting a new system in the management of his horned cattle. He used to draw with teams of oxen, and found that he must keep double the number worked, to have, in the common manner, one set coming into work, and another going out; and then he had his cows bulled at 2 years old, consequently they were wintered on hay when 3 years old. But now he has changed his system; he draws all with cows, they live on straw at 3 years old, when they are bulled, and worked till 4 years old; hence one winter at hay is changed to two at straw, which, from Mr. Bakewell's management, is a great saving, and the work all gained at the same time; and let me observe further, that the calves bred from a cow rising from 3 to 4, must far exceed those from cows rising from 2 to 3—the latter age is too early to breed, both for the calf and the dam.

I saw the teams of cows at work, and they were to the full as handy as oxen; and Mr. Bakewell finds that they draw just as well as oxen of the same size. He would not have taken 120*l.* for one of his teams of six cows.

He has water in cisterns in his farmyards, and all the beasts are let loose to drink once a day, except those on Turnips, which do not want it.

He prefers, in the raising of manure, the dung arising from cattle that eat a given quantity of straw to any manure to be gained from such quantity of straw by littering, inasmuch that if he had more straw than he could eat, he would not litter with it, but take in his neighbour's cattle to eat it for nothing; and would give them the same attendance as his own. This is a particular idea, which may very probably be just; but experiment alone can prove it.

Mr. Bakewell very justly considers the raising dung as one of the most important objects of husbandry; and for this purpose his vast stock of cattle is of noble assistance. The proportion of his stock to his land will show not only the excellence of his management, but also the hardiness of his breed; for no tender cattle could be kept in such quantities. His farm in all consists of about 440 acres, 110 of which are arable, and the rest Grass. He keeps 60 horses, 400 large sheep, and 150 beasts of all sorts—and yet he has generally about 15 acres of Wheat, and 25 of spring corn; the Turnips not more than 30 acres. If the degree of fatness in which he keeps all these cattle be considered, and that he buys neither straw nor hay, it must at once appear that he keeps a larger stock on a given number of acres than most men in England—the strongest proof, of all others, of the excellence of his husbandry.

He makes his Turnips go as far as possible by carting every one to his stalls, in which manner 1 acre goes as far as 3; his straw, I before observed, he makes the most of by giving it all to his lean beasts, not in litter—or as food in quantities at a time, but keeps the cattle hungry enough to make them eat clean, giving but a small quantity at a time.

Of his hay he is also very choice; and the means he has taken to command as large a quantity as possible are perhaps to be reckoned amongst the rarest instances of spirited husbandry ever met with among the common farmers of England. It is that of watering his meadows that lie along a small brook which runs through one part of his farm. This improvement was begun by his father, now living, and carried on and finished by himself.

I cannot conclude these observations on this very spirited farmer's undertakings, without expressing the satisfaction I felt at viewing them. Nowhere have I seen works that do their author greater honour; they are not the effect of a rich landlord's determining to be a good farmer on his own land, but the honest and truly meritorious endeavours of a tenant performing great and expensive works on the property of another. It is true, he is fortunate in a generous and considerate landlord; and much do I wish that such excellent farmers may always meet with the same encouragement. A truly good farmer cannot be too much favoured, a bad one cannot have his rent raised too high. Let me exhort the farmers of this kingdom in general to take Mr. Bakewell as a pattern in many points of great importance; they will find their account in it, and the kingdom in general benefited not a little.

Miscellaneous.

The Albert Training School, Glasnevin.—The educational arrangements of this important national Institution have, within the last two or three years, been greatly extended, and the present course of instruction which it affords may be regarded as calculated, in an eminent degree, to prepare the young farmers and teachers of the country for future usefulness in their occupations. Among the courses of lectures which have been rendered available to the pupils, those of Professor Hodges on the structure and feeding of the animals of the farm are, we consider, of great practical importance. The lectures in this department are at present in progress, and are illustrated by an extensive collection of specimens and drawings. Examinations of the pupils have also been conducted by Dr. Hodges; and we have learned that the degree of proficiency exhibited was regarded as strikingly illustrative of the advantages of the system of training pursued in the establishment. It must be gratifying to the friends of education to perceive the progress of this Institution. That it is now regarded by the agricultural public as a valuable school is shown by the applications for admission from all parts of Ireland. We do not, indeed, know any Institution in the United Kingdom which offers so many advantages to the young farmers of that class who would otherwise be shut out from the means of obtaining professional knowledge. Much of the present efficiency of the establishment must be attributed to the zealous exertions of its excellent Director, Dr. Kirkpatrick, by whose efforts, liberally supported by the Commissioners of Education, a comparatively insignificant farm school has been elevated to the position which the Albert establishment now so worthily occupies. *Belfast Northern Whig.*

Notices to Correspondents.

AGRICULTURAL STATISTICS: *D C L.* We have not a copy of the resolution by us; it was carried as an amendment to one by Mr. Williams, who introduced the subject at the meeting of the Club on the 4th of February last, and it was declaratory of the importance of the subject, and the importance of information on all the results of agriculture as well as on the other topics, average prices of corn, &c., by which many agricultural payments are regulated. Mr. Corbet, the Secretary, Farmers' Club, Bridge Street, Blackfriars, would we do not doubt give you the information which you wish.

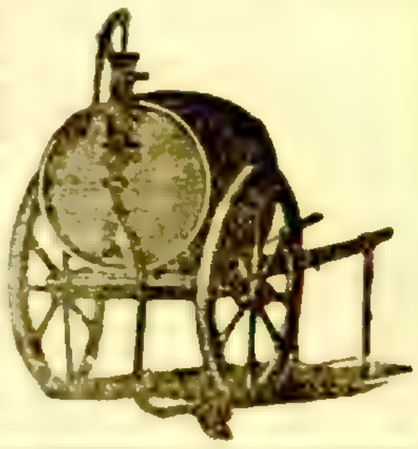
DISINFECTANT: *F H.* Mr. M'Dougal's address seems to be Manchester; probably Broughton Mews, Manchester, would find him. He should advertise.

MANURE FOR BEANS: *Young Farmer.* Farm-yard dung is the best manure in all cases where you make a succession of crops depend upon the application. Beans have been found especially to benefit by the application of alkaline manures, as wood ashes, &c. If you wish to obtain such luxuriance of growth as shall ensure that whatever power the land naturally possesses shall be put forth, apply ammoniacal manure, and 3 cwt. per acre of Peruvian guano is perhaps the best thing you can add under the circumstances.

PIG FEEDING: *J S E.* "Green Clover cut daily, and occasional feeds of meal, with sometimes common Grass," will keep growing pigs in good order during summer. But your "occasional" feeds must be daily a small quantity. Turnips and Cabbage, with similarly a small quantity of meal, will keep them during the winter, and sows when suckling pigs will do well on similar food made better by the addition of a larger quantity of the meal. The young pigs would not on an average fetch 30*s.* each when three months old. Symphitum is not likely to suit your scheme of pig feeding, or indeed to be of any further use than it may serve by occupying damp corners where better crops cannot be grown. Perhaps some of our correspondents may give you their experience on the "profit and loss" of pig feeding.

TO BREAK UP GRASS LAND: *A D R.* We would not trench and bury the sward, but rather pare and burn the sward in spring. Grow Swedish Turnips, with the aid of 3 cwt. of superphosphate per acre along with the ashes—feed them off on the land—and then lay down again in the following spring without a grain crop. You will then have cleaned the land and invigorated it.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2¾ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2¼ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

RADIATING AND REFLECTING STOVE.—WILLIAM S. BURTON'S new register stove combines completely the well-known principles of both Stephen's and Sylvester's celebrated patent stoves, while it has others equally valuable which are peculiarly its own, and for which a patent has been granted. Its reflecting and radiating powers are perfect, it is very simple, and cannot be put out of order, consumes but little fuel, is most cleanly and cheerful in use, while its general appearance, no fender being needed, is most imposing. Prices, complete, black or bronzed, from 9*l.* 10*s.*; bright, 14*l.* 5*s.* and upwards. One may be seen in action in his show rooms, which contain such an assortment of fenders, stoves, ranges, fire-irons, and general ironmongery, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright stoves with bronzed ornaments, and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.* Bronzed fenders, with standards, 7*s.* to 5*l.* 12*s*: steel fenders, 2*l.* 15*s.* to 11*l.*; ditto with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.* Fire-irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.*

BEDSTEADS, BEDDING, AND FURNITURE.—WILLIAM S. BURTON'S Stock on Show of Iron and Brass Bedsteads and Children's Cots stands unrivalled either for extent, beauty of design, or moderateness of prices. He also supplies Bedding and Bed Hangings of guaranteed quality and workmanship. Portable Folding Bedsteads, from 12*s.* 6*d.*; Patent Iron Bedsteads, fitted with dovetail joints and patent sacking, from 17*s.*; and Cots from 20*s.* each. Handsome Ornamental Iron and Brass Bedsteads, in great variety, from 2*l.* 7*s.* 6*d.* to 20*l.*

A Half-tester Patent Iron Bedstead, 3 feet wide, with Bedding, &c., complete—

Bedstead	£1	4	6
Chintz furniture	0	14	0
Paillasse, wool mattress, bolster, and pillow ...	1	11	0
A pair of cotton sheets, three blankets, and a coloured counterpane	1	5	0
	£4	14	6
A double Bedstead, same	£6	3	0
If without Half-tester and Furniture—			
Single bed, complete	£3	13	9
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LAMPES à MODERATEUR, from 6*s.* to 7*l.* 7*s.*—WILLIAM S. BURTON has collected from the different makers here and in France a variety that defies competition. As many imported from France are inferior in the works, WILLIAM S. BURTON selects at Paris from the best makers only, and he can guarantee each lamp he sells as perfect in all its parts.

His stock comprises also an extensive assortment of SOLAR, CAMPHINE, PALMER'S, and all other Lamps.

Pure Colza Oil, 4*s.* 8*d.* a gallon.
Patent Camphine, 4*s.* a gallon.
Palmer's Candles, 9½*d.* per lb.

The late additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

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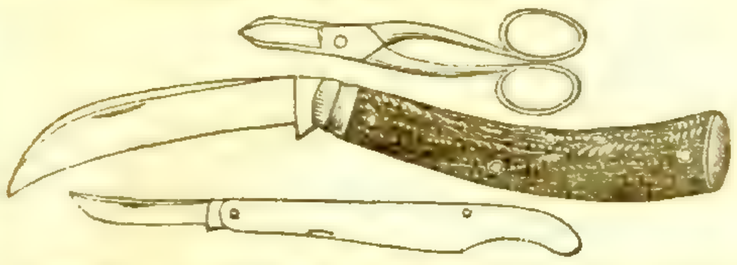
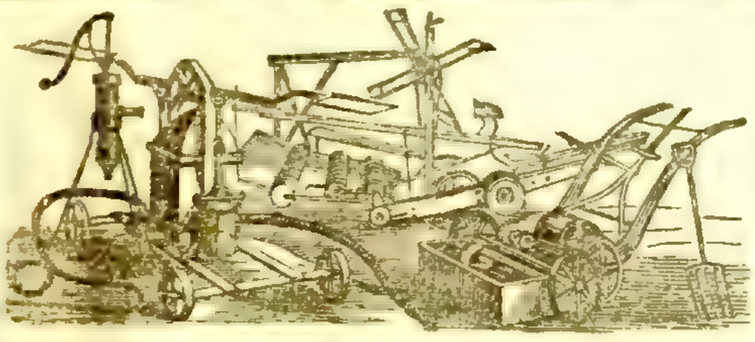


SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back.

S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools. Established 1738.



BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery.—Warehouse, 95, Newgate Street, London; Factory, Brentwood.

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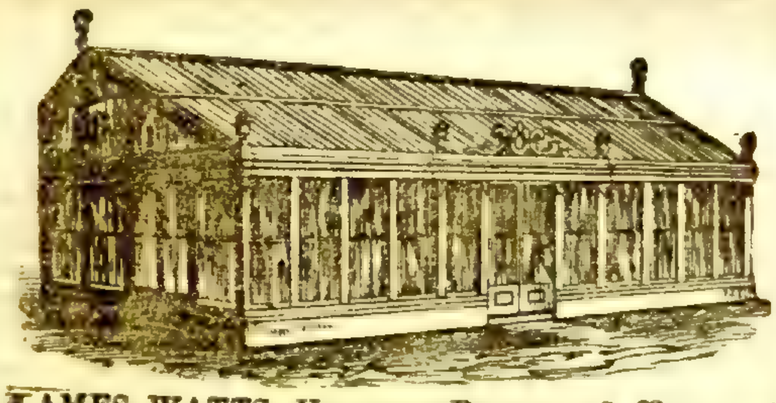
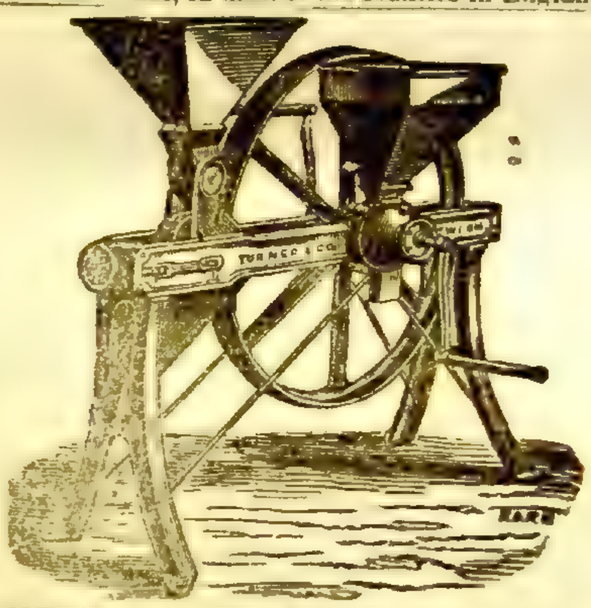
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

NOTICE.

SMITHFIELD CLUB CATTLE SHOW, BAKER STREET BAZAAR, Dec. 9th, 10th, 11th, and 12th.

E. R. & F. TURNER'S STANDS, Nos. 69 and 70.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices, Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25s.; galvanised do., 30s.; cast iron, 35s. each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street, London.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

Gardner's Patent Turnip Cutters, Turnip Graters and Pulpers, Chaff Cutters, Linseed Cake Breakers, Corn Crushing Mills, and other Agricultural Machines.

B. SAMUELSON, Britannia Iron Works, Banbury,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. BETWEEN SIXTY AND SEVENTY THOUSAND of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

MALT MILLS of various sizes.

LINSEED CAKE BREAKERS, from 2*l.* 6*s.* up to 10*l.* each.

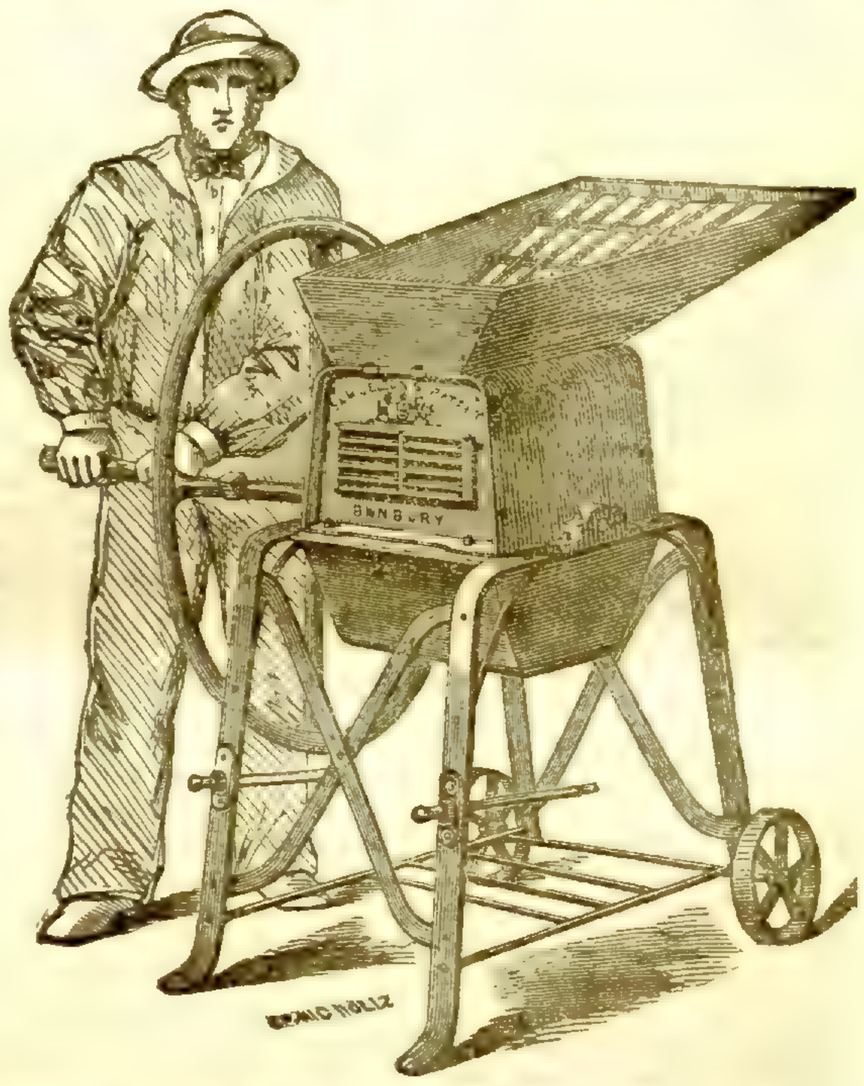
CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

BARLEY HUMMELLERS.

WEIGHING MACHINES, MANGLES, &c. &c. &c.



The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.

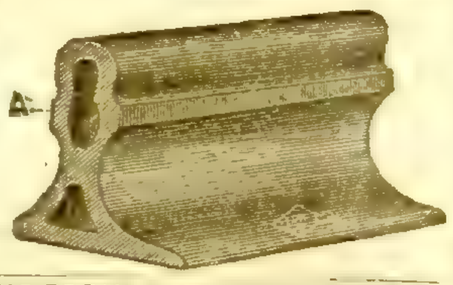
The Prices in the Catalogue include carriage to any Railway Station.

HOGG'S GARDEN EDGE TILES: a cheap, elegant, and durable substitute for Box Edging.

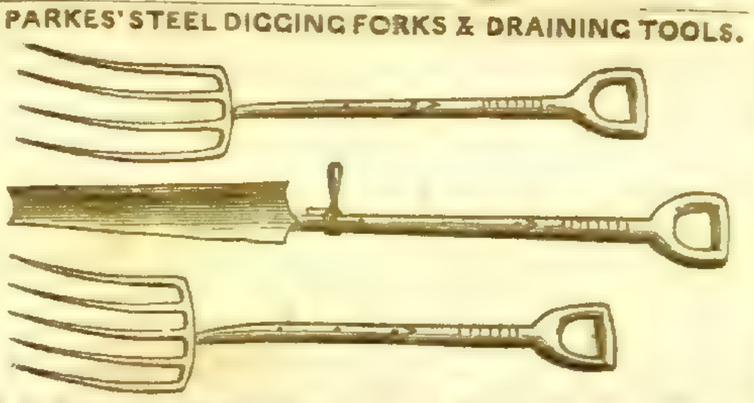
13*s.* per Hundred, or 4½*d.* per yard

Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

Full particulars from Mr. R. BLACKETT, Witham, Essex.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps. 95, Newgate Street, London.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established AD. 1700.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as highly conducive to health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled in its capability of embellishing, purifying and preserving the teeth to the latest period of life. It will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, and thus fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Its truly efficient and fragrant aromatic properties have obtained its selection by the Queen, the Court, and Royal Family of Great Britain, and the sovereigns and nobility throughout Europe. Price 2*s.* 9*d.* per box.

CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "R. ROWLAND & SONS, 20, Hatton Garden," on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

AT A

MEETING OF NOBLEMEN AND GENTLEMEN,

HELD IN WILLIS'S ROOMS

FOR THE PURPOSE OF PROMOTING THE ERECTION OF

A PUBLIC MEMORIAL TO THE MEMORY OF THE LATE

JOSEPH HUME,

IN GRATITUDE FOR HIS LONG AND EMINENT SERVICES IN THE HOUSE OF COMMONS,

EARL FORTESCUE IN THE CHAIR,

The following Resolutions were carried unanimously, viz.:—

Proposed by LORD PANMURE, seconded by Sir B. HALL, Bart., M.P.

"That the disinterested services of Mr. Hume for above 40 years in the House of Commons, his successful efforts to check the waste of public money, his constant support of all measures conducive to the spread of moral and intellectual improvement, and his unvarying advocacy of constitutional liberty, claim a lasting record of the gratitude of his countrymen."

Proposed by the Duke of SOMERSET, seconded by THOMAS THORNLEY, Esq., M.P.

"That a subscription be therefore opened for the erection of some public memorial in honour of Mr. Hume."

Proposed by the Right Hon. E. ELLICE, M.P., seconded by Lord HATHERTON.

"That such subscriptions be limited to sums not exceeding 10*l.* from each Subscriber."

Proposed by Earl GRANVILLE, seconded by Lord ROBERT GROSVENOR, M.P.

"That the promotion of such subscription throughout the Kingdom, and the application of the same to the object proposed, be entrusted to a Committee."

Proposed by W. EWART, Esq., M.P., seconded by Colonel SYKES.

"That the following persons be requested to form the said Committee, with power to add to their number :—

Earl of Zetland.
Lord Panmure.
Lord Hatherton.
Lord Stanley of Alderley.
The Lord Mayor.
Sir J. Anderson, M.P.
J. Anderton, Esq.
Sir F. Baring, Bt., M.P.
J. Ball, Esq., M.P.
M. T. Bass, Esq., M.P.
Earl of Bessborough.
Rt. Hon. E. Bouverie, M.P.
Marquis of Breadalbane.
J. Brotherton, Esq., M.P.
Lord Broughton.
W. Brown, Esq., M.P.
B. Carter, Esq., M.P.
Sir W. Clay, Bt., M.P.
R. Cobden, Esq., M.P.
R. P. Collier, Esq., M.P.
Raikes Currie, Esq., M.P.
C. Wentworth Dilke, Esq.
Sir James Duke, Bt., M.P.
George Duncan, Esq., M.P.
Viscount Ebrington, M.P.
Right Hon. E. Ellice, M.P.
Sir De Lacy Evans, M.P.
W. Ewart, Esq., M.P.
W. Fagan, Esq., M.P.
George Foggo, Esq.
Earl Fortescue.
W. J. Fox, Esq., M.P.
Dr. Glen.
G. C. Glyn, Esq., M.P.
Earl Granville.
Lord R. Grosvenor, M.P.
Rt. Hon. Sir B. Hall, Bt., M.P.
William J. Hall, Esq.
T. Hankey, Esq., M.P.
A. Hastie, Esq., M.P.
T. E. Headlam, Esq., M.P.
W. Hutt, Esq., M.P.
Joseph B. Hume, Esq.
Hon. Locke King, M.P.
R. D. Mangles, Esq., M.P.
Sir James Matheson, Bt., M.P.
W. Marshall, Esq., M.P.
J. J. Mechi, Esq., Sheriff of London.
R. M. Milnes, Esq., M.P.
Earl of Mulgrave, M.P.
J. A. Nicholay, Esq.,
Joseph Parkes, Esq.,
Sir S. Morton Peto, Bart.
L. Ricardo, Esq, M.P.
J. A. Roebuck, Esq., M.P.
Colonel Romilly.
F. Russell, Esq., M.P.
Lord John Russell, M.P.
Rt. Hon. Sir W. Somerville, Bt., M.P.
Sir. G. Strickland, Bart., M.P.
Right Hon. E. Strutt, M.P.
Lord James Stuart.
Colonel Sykes, Chairman, East India Co.
Thomas Thornley, Esq., M.P.
John Thwaites, Esq.,
J. B. Travers, Esq.
Rt. Hon. C. P. Villiers, M.P.
Sir Joshua Walmsley, M.P.
W. Williams, Esq., M.P.
John Wood, Esq.

At a PUBLIC MEETING held at the MANSION HOUSE, City of London, for the purpose of promoting the erection of a Public Memorial to the Memory of the late JOSEPH HUME, the Right Hon. the LORD MAYOR in the Chair, the Resolutions passed at the Meeting held in Willis's Rooms were unanimously adopted.

Subscriptions to the present date (November) £1411 11s. 2d.

Subscriptions received by Coutts & Co.; Glyn, Mills, & Co.; Grote, Prescott, & Co.; Ransom & Co.; Robarts, Curtis, & Co.; Williams, Deacon, & Co.; London & Westminster; London Joint Stock; City of London; Union; and Bank of London.

Post Office Orders to be made payable to J. A. NICHOLAY, Esq., Old Cavendish Street, Mary-le-bone.

All Communications to be addressed to Earl Fortescue, Court House, Mary-le-bone, London.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice is now made known as a public duty throughout the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10*s.* 6*d.* by Post-office order, or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

HOLLOWAY'S OINTMENT AND PILLS UNPARALLELED REMEDIES FOR SCORBUTIC ERUPTIONS.—John Nicholl, Dale Street, Liverpool, informs Professor HOLLOWAY he was suffering for many years with a Scorbutic Eruption on both arms. This painful complaint affected his bodily health, he became seriously ill, and consulted the most eminent practitioners in Liverpool without experiencing the slightest relief, when he was advised to give these far-famed remedies a trial, and in an inconceivably short time was completely cured, gratefully rendering his testimony for the benefit of others similarly affected.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than 1 peck), carriage free. Whites, for pastry, at per bushel (56 lbs.), 11*s.* 8*d.*; Fine Households, recommended for bread making, 11*s.*; Seconds, 10*s.* 4*d.*; Wheat Meal, for brown bread, 10*s.* 4*d.*; Best Coarse and Fine Scotch Oatmeal, Indian Corn Meal, &c.—Address, HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or, Caledonian Road, Islington. Directions for making bread supplied gratis.—Terms cash. German Yeast.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

MR. DONNE'S DORKINGS & BUFF COCHINS.—The Rev. STEPHEN DONNE has Dorking Chickens and a few Adult Hens to dispose of, bred from the Birds which have won the Silver Cups at Birmingham, Liverpool, and Windsor. Also, Eggs from the best Dorkings and Cochins will be ready shortly.—Oswestry, Nov. 29.

TO GENTLEMEN, NURSERYMEN, FRUIT GROWERS, BUILDERS, ETC.

THE whole of the valuable NURSERY STOCK to be disposed of at reduced prices, by order of the Executors of the late Messrs. Willmott & Chandy, Lewisham, Kent, consisting of EVERGREEN, ORNAMENTAL, and FOREST TREES, DECIDUOUS SHRUBS, FRUIT TREES, &c., in consequence of the ground being required for building.

TO BE LET, a delightful RESIDENCE, within 5 miles west of Norwich and 2 miles of a railway station.

The House, which is built as a Cottage Orné, consists of Entrance Hall, Study, Dining Room (22 feet by 17), Drawing Room, seven Sleeping Rooms, and two Dressing Rooms, Kitchen, Scullery, Servants' Hall, &c. &c. In front of the house is a beautiful Pleasure Garden, and Meadow or Lawn, with a very productive Kitchen Garden at the back containing altogether about 6½ acres.

Contiguous to the house is a capital Four-stalled Stable, two large Loose Boxes, two Coach-houses with men servants' sleeping rooms over, Harness-room, Hay-loft, and all other usual conveniences, and the water is excellent.

Note.—Near the above is a Lake of 3 acres, upon which the tenant will have permission to keep a boat.

For terms apply to E. FREESTONE, Solicitor, Norwich.

GUILDFORD.—TO NURSERYMEN, FLORISTS, SEEDSMEN, MARKET GARDENERS, AND OTHERS.

TO BE LET, with immediate possession, all that valuable old-established Nursery Grounds, Garden, and Seed Business known as DICKINSON'S GUILDFORD NURSERY GROUNDS, an area of about 5½ acres of rich soil in a good state of cultivation, close to the entrance of the town. The Nursery Ground has been in the above family nearly 50 years. The present Tenant, a widow, is disposing of the same in consequence of the concern being too large for her to manage. This opportunity is worthy the attention of those seeking a profitable and increasing business, being the only Nursery Ground near the much improving neighbourhood. The present stock is good and saleable. The whole amount of the valuation for stock, &c., will not be required to be paid down, but a convenient arrangement can be made for the payment of the balance.—Particulars and orders to view may be had of Mr. DRURY, Estate Agent, 50, High Street, Guildford, Surrey.

STANDARD ROSES, DUTCH BULBS, ETC.

MR. HASLAM will Sell as above, at the Mart, every WEDNESDAY and FRIDAY, till December 12.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered free of charge to Parcels Delivery Company. Baskets and Matting allowed for when returned.—Epping, Nov. 29.

PLANTS—FROM GHENT FOR ABSOLUTE SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, Dec. 12, at 12 o'Clock precisely, a collection of Plants from the Nursery of Mr. Jean Verschaffelt at Ghent, viz., Camellias, of choice sorts with flower buds; Azaleas, including six beautiful new varieties which have not yet been sent out; a new Rhododendron, Kalmias, Pæonies, Magnolias, Liliums, Gladioli, Fruit Trees, &c.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, Dec. 4, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest double and single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Snowdrops, Ranunculus, Gladiolus, &c.; also a selected assortment of fine Standard and dwarf Roses, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; and American Plants, comprising Hybrid Rhododendrons, Ghent and other Azaleas, Kalmias, Andromeda floribunda, beautifully furnished with bloom, &c.—May be viewed the morning of Sale. Catalogues had at the Auction Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction at the Mart, Bartholomew Lane, on FRIDAY, December 5, at 12 o'Clock, two cases of DUTCH BULBS, consisting of Hyacinths, Narcissus, Jonquils, Double and Single Tulips, Crocus, &c.; also an assortment of Standard and Dwarf Roses, Ornamental Trees, and American Plants.—On view the Morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

COVENTRY.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Ogden to Sell by Auction on the premises, Warwick Road, Coventry, on MONDAY, December 15, and following days, at 11 o'Clock in consequence of the number of lots, all the select and well transplanted stock of those old established Nurseries, consisting of a choice selection of Fruit Trees, including upwards of 60 strong Dwarf (Quenouille trained) Pears of the best kinds, grown as specimens; a large stock of Green and Variegated Hollies, safe for moving, of all sizes, up to 12 feet high; several hundreds of Grafted English Elms, 10 to 15 feet, and other Trees well adapted for Avenues; fine specimens of Weeping Trees, large Purple Beech, with a general assortment of Evergreen and Deciduous Ornamental Trees, Azaleas, Rhododendrons, Hardy Ericas, Camellias, &c. May be viewed one week prior to the Sale.—Catalogues after 1st December may be had 6*d.* each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex. A suitable time will be allowed to remove the Trees. The Greenhouse and Bedding Plants, with the Greenhouses, Pits, Frames, &c., will be offered early in the Spring, unless the whole is previously disposed of.

MANSION, FARM HOUSES, AND LAND, FOR OCCUPATION, FARMING, OR THE ERECTION OF VILLAS.

MESSRS. THOMAS WINSTANLEY AND SONS will offer for Sale on TUESDAY, December 16, at half-past 1 for 2 o'clock in the afternoon precisely, at the Clarendon Rooms, South John Street, Liverpool, (in one or more lots, and subject to such conditions as may be then and there declared, if not previously disposed of by private contract, of which due notice will be given, all that important Freehold Estate called NEW HALL, in the township of Thornton-Hough and parish of Neston, in the county of Chester, comprising Mansion House, two Farm Houses, Stables, and Outbuildings, and about 270 statute acres of excellent arable and meadow Land. The property is situate at about six miles distance from Birkenhead, one from Parkgate and Neston, and three from the Spittal Station of the Birkenhead Railway. The Mansion House is roomy and convenient: the Outbuildings thereto comprise Stabling for 12 Horses, Gardener's Cottage and Lodge. The pleasure grounds and gardens attached to the house occupy about 14 acres, and contain a well of excellent water. There are, besides, a larger Farm House of superior character, with Stabling for 10 Horses Shippons, and very complete outbuildings, with Cottages for men attached, and a smaller Farm House, a short distance from the Hall, with convenient Outbuildings. The Land consists of about 270 acres, and lies most compactly within a ring fence, being bounded on three sides by the well frequented turnpike roads leading to Birkenhead, Chester, Parkgate, and Heylake. It affords several very eligible sites for Villas, and is well sheltered with plantations of 30 years' growth. The poor rates and other local charges are very low.—Plans of the Estate may be seen, and further particulars obtained on application at the Offices of Messrs. TOWNSEND, RIDLEY & JACKSON, Fenwick Street, Liverpool, and Mortimer Terrace, Birkenhead; of Messrs. CHESTER, TOULMIN & CHESTER, Solicitors, 11, Staple Inn, London; of Messrs. JANSON, COBB & PEARSON, Solicitors, 4, Basinghall Street, London; and of Messrs. THOMAS WINSTANLEY & SONS, Church Street, Liverpool.

Now ready, price 2*s.* 6*d.*,

PUNCH'S POCKET-BOOK FOR 1857, with a Coloured Plate (DRESSING FOR THE BALL IN 1857), by JOHN LEECH, and numerous Wood Engravings by JOHN LEECH and JOHN TENNIEL.

BRADBURY & EVANS, 11, Bouverie Street.

This day is published, fcap 8vo, with Illustrations, price 3*s.* 6*d.*,

MATTER: ITS FORMS AND GOVERNING LAWS. By GEORGE DUPLEX.

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Woking Nursery, 1½ mile from Woking Station, South Western Railway, where all Trains stop and conveyances can be obtained.

CAMELLIAS, AZALEAS, AND FERNS.

	Per doz.
CAMELLIAS, with Flower Buds	30*s*. and 42*s*.
CHINESE AZALEAS, with Flower Buds	18*s*. and 30*s*.

A great variety of Ferns at moderate prices.

CHANDLER & SONS, Wandsworth Road, Vauxhall.

SAFFRON WALDEN NURSERY.

SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet	5*s*. 0*d*.
Do. 12 do. do.	2 6
Do. good mixed	1 0
Border varieties, good mixed, ground roots, per 100	20 0
Do. do. in colours do. do.	30 0

"TAYLOR'S GRAND STAND," ST. JOHN'S MARKET, LIVERPOOL.

WANTED.

Good Pines, from 2 to 3½ lbs. each	Good Muscat Grapes
" Black Grapes	Choice Dessert Pears
" Cucumbers	Small Mushrooms

Choice Flowers, &c. &c.

GEORGE TAYLOR, JUN., CHOICE FRUIT AND VEGETABLE SALESMAN, Proprietor.

Terms—"CASH."

JUST PUBLISHED,

HORATIO BUNTING'S WHOLESALE FLOWER SEED CATALOGUE FOR 1856-57, containing a list of nearly every popular Annual, &c., in cultivation. The whole of the seeds having been grown under his own immediate superintendence not only enables him to warrant them true to name and genuine, but also to offer advantages in the prices (to purchasers) seldom to be met with. Catalogues forwarded to any Seedsman in the world post free on application. A Vegetable List is in preparation for publishing.

Address in full HORATIO BUNTING, Lexden Road Seed Establishment, Colchester.

THE CHAMPION HAMBURGH.

JOHN AND CHARLES LEE have a few good VINES of this magnificent BLACK GRAPE to offer, which is unsurpassed for size both of bunch and berry and abundance of crop. These qualities, combined with a thin skin and a luscious flavour, render it desirable for every good collection. Price 10*s*. 6*d*.

Nursery and Seed Establishment, Hammersmith.

CHRYSANTHEMUMS.

W. HOLMES offers the above in strong plants, at 5*s*. per dozen. The large flowered varieties include Alfred Salter, Voltaire, Webb's Delight, Stellaris globosa, Antigone, Madame Lebois, &c. Pompones include Scarlet Gem, Duruflet, Aurore Boreale, Saint Thais, &c. For the cultivation of the above see Monthly Calendar by W. H. in "Gossip for the Garden."—WM. HOLMES, Florist, Well Street, Hackney.

VICTORIA RASPBERRIES.

GEORGE CORNWELL is now sending out his Canes of the above at 15*s*. per 100. Fastolf, 15*s*. per 100. Autumn fruited, 12*s*. per 100, and White, 10*s*. per 100. The usual allowance to the Trade.—Market Gardener, Barnet.

THE LANCASHIRE SHOW GOOSEBERRIES AND CURRANTS.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to refer the readers of the *Chronicle* to his list of the HEAVIEST SHOW GOOSEBERRIES AND CURRANTS in this Paper of November 29.

WANTED, 50 SAM YOUNG APPLE; 50 RED QUARRENDEN APPLE; 50 WILLIAMS' BON CHRETIEN PEAR.—Apply to F. DICKINSON, Wenlock, Shropshire, stating price for any part of the above. Strong Standard Trees are required.

FINE FRUITING TREES OF PEARS ON QUINCE ROOTS.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire, begs to offer the above in all the newest and best sorts, at 1*s*. 6*d*. each, or 15*s*. per dozen, a descriptive catalogue of which can be had on application.

Also May's Victoria (large Red Currant) at 12*s*. per 100, and Black Bang-up, the largest and best at 10*s*. per 100.

Catalogues of Plants, Fruit and Forest Trees on application.

GENTLEMEN requiring large ORNAMENTAL PLANTS will find a variety of HOLLIES, also good Standard CHERRY TREES and General Nursery Stock, at WILLIAM BRADLE'S, Bill Street Nursery, Frindsbury, near Strood, Kent.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to WM. BARRATT, LANDSCAPE GARDENER, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

H. WALKER, Londonderry, offers for sale a quantity of 1 and 2 year PEARS on Quince Roots. Prices on application.

FOREST TREES.

FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE, having largely increased their Stock of this indispensable and interesting class of FRUIT TREES, have still several hundred very superior plants to offer of the following kinds, which they will warrant to produce good crops of Fruit in FORCING or ORCHARD HOUSES the ensuing season.

PEACHES.	CHERRIES.
NECTARINES.	PLUMS.
APRICOTS.	APPLES.
FIGS.	PEARS.

Priced Catalogues on application.

Nursery and Seed Establishment, Hammersmith, near London.

SPECIMEN CEDRUS DEODARA.

WM. MAULE AND SONS invite the attention of Planters to their fine grown plants of this Tree, which are calculated to produce immediate effect:—

Plants in the open ground, 6 to 7 feet	15*s*. 0*d*. each.
Do. do. 5 to 6 feet	7 6 "
Do. in large pots, 4 to 5 feet	7 6 "
Do. do. 3 to 4 feet	5 0 "

A large quantity of small sizes for mixing with Larch and other plantations. Prices may be had on application.

Stapleton Road Nurseries, Bristol.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

WOOD & INGRAM, Huntingdon.

FOR TERRACES.

STANDARD PORTUGAL LAURELS.
STANDARD COMMON LAURELS.
STANDARD COMMON HOLLIES.
STANDARD LAURUSTINUS.
STANDARD COMMON BOX.
STANDARD RHODODENDRONS of sorts.

SEVERAL HUNDREDS of the above on clean straight stems with good well-shaped heads of various heights and sizes. All transplanted last year. Prices may be had on application to JOHN & CHARLES LEE, Nursery and Seed Establishment, Hammersmith, near London.

FLORICULTURE.—In consequence of Mr. JOHN EDWARDS having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

VERONICA SYRIACA,
NEW BEDDING ANNUAL FOR 1857.

MESSRS. E. G. HENDERSON AND SON having just concluded arrangements with Messrs. Ernst & Von Spreckelsen, successors to J. G. Booth & Co., Seedsmen at Hamburgh, relative to the above, have great pleasure in announcing the purchase of the entire Stock of Seed of this new and striking dwarf annual. Colour beautiful (Gentian blue), lower petals white, habit very dwarf, from 8 to 9 inches in height, compact, and covered with bunches of flowers; foliage ample and bright green; in packets at 2*s.* 6*d.* each.

Early in January next a coloured plate of above by Mr. Andrews will be published and presented with every order received previous to the 15th January, 1857.—Trade Packets, 5*s.*, 10*s.* 6*d.*, and 21*s.* each.—Wellington Nursery, St. John's Wood.

NEW PEAS.—EUGENIE: the earliest white wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON: the earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Unique and Masterpiece), *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn; J. W. NUTTING & SONS, Cheapside; and CHARLWOOD & CUMMINS, Covent Garden, London. Price 5*s.* per quart.

JOSEPH SHEPPARD, Hill Place, East Grinstead, Sussex, has now to offer for Seed a quantity of his true ASHLEAF POTATOES. The superiority of this favourite Potato to the Planter has now been placed beyond a doubt; by the smallness of its haulm and early maturity, thereby allowing a full crop of Mangel Wurzel or Swedes to be grown between each row. Price 8*s.* per bushel, including package and carriage to London, or any station on the London, Brighton, and South Coast Railway. Also a quantity of Early Frame Potatoes, 6*s.* per bushel. Post-office Order for quantity required with the order will receive prompt attention. A liberal allowance to Seedsmen.

MR. ROBERT BAKER, of Writtle, Essex, having for many years past paid great attention to the improvement of Agricultural Seeds by selecting and transplanting the best roots, begs to offer them at the following reduced prices, and warranted to grow at the rate of 95 per cent.:—

	s.	*d*
Purple-top Swede.—Very superior, per bushel	36	0
Improved Skirving's Swede.—Do. do.	36	0
Long Red and Globe Red Mangel Wurzel.—Very select, and the most productive of any, per lb.	1	6
Globe Orange and Long Orange.—Do. do.	1	6
Cattle Cabbage, for March sowing.—A celebrated hardy and prolific variety, produces from 40 to 60 tons per acre, invaluable for winter and spring feeding, per lb. ...	4	0

Remittances, or Post Office Orders upon Chelmsford Office from unknown correspondents.

THE TRUE LANCASHIRE SHOW GOOSEBERRIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, will supply, in strong 3 and 4 years old plants, the following set of 24 Gooseberries for 12*s.*, or 12 for 7*s.*, package, &c., included. They are of fine flavour, and have this season been grown to the weights attached.

Weights taken from the Gooseberry Growers' Register of 1856.

RED.	dwts.	grs.	YELLOW.	dwts.	grs.
London	27	18	Leader...	24	12
Conquering Hero ...	24	19	Drill	24	8
Companion	24	0	Catherina	23	8
Lion's Provider ...	23	22	Gunner	21	10
Dan's Mistake ...	22	15	Peru	21	9
Roaring Lion... ...	20	12	Goldfinder	21	1
Napoleon le Grand ...	20	11			
GREEN.			WHITE.		
Thumper	24	12	Freedom	25	4
Turnout	22	11	Snowdrop	23	17
Weathercock... ...	21	2	Queen of Trumps ...	23	0
General	20	21	Lady Leicester ...	23	0
Keepsake	17	5	Eagle	21	0
			Tally Ho!	18	8

The following varieties of Black Currants, in very strong plants, at 8*s.* per dozen:—Black Bangup, Black Naples, Black Grape.—Catalogues now ready.

Post-office Orders payable at Middleton, Lancashire.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway. — The Nursery, Bagshot, Surrey, Dec. 6

THE BUSINESS hitherto carried on at No. 73, Adam Square, Edinburgh, by A. B. WRIGHT, St. Catherine's, and the Business of NURSERY and SEEDSMEN carried on at Leith Walk, by WALTER RENWICK, under the firm of EAGLE & HENDERSON, are hereby conjoined, and will in future be conducted by Mr. WRIGHT and Mr. RENWICK, the sole representatives of these two Houses, under the firm of WRIGHT, RENWICK, & COMPANY. A. B. WRIGHT, W. RENWICK, Dec. 6.

WRIGHT, RENWICK, AND CO., successors to EAGLE & HENDERSON, Nurserymen, Seedsmen, and Florists to the Queen, beg to intimate that they can supply very fine Vine Plants from eyes of the following sorts:—

Black Constantia	Esperione
" Gibraltar	Frontignan, grizzly
" Hamburg	" white
" Prince	Muscadine, Royal
Canon Hall Muscat	" white
Chasselas Musqué	Tokay Charlesworth

From 30*s.* to 42*s.* per dozen.

Catalogues of Forest, Fruit, and Ornamental Trees, Shrubs, Flower Flowers, Herbaceous Plants, &c. &c., may be had free on application.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to announce that his NEW CATALOGUE, No. 63, for the year 1857, is now ready, and can be obtained on application at his Agent's, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London. His Catalogue contains all the English and Continental Novelties.

A. V. also recommends his work "L'Illustration Horticole," of which the 12th Number (December) of the 3d Volume has just appeared, and contains the following coloured plates:—

1. Rose (Perpetual) Victor Trouillard.
2. Lilium philadelphicum.
3. Meconopsis simplicifolia.
4. Cocos botryophora.
5. Rhododendrum Blandfordiæflorum.

N.B. The same Number contains the General Programme of the Grand Horticultural Exhibition of the Royal Botanic Society of Ghent, open to all nations, and which will be held on the 1st, 2d, and 3d of March next (1857).

Price of VERSCHAFFELT'S "Illustration Horticole," 12*s* a year.

CHRYSANTHEMUM SEED from the best Pompones, grown in the south of France.

BALSAM SEED, from double flowers three inches over, 6 classes for 37 stamps; mixed, 13.

HOLLYHOCK, 13; GERANIUM, 37; Calceolaria, Cineraria, Heliotrope, 13 each; and other

FLORISTS' FLOWER SEEDS, saved as directed in GLENNY'S Garden Almanack.

THE THREE SPLENDID DAHLIAS, Napoleon, Eugenia, and Princess, dry roots, 5*s.* to 10*s.* 6*d.*

All Letters upon all subjects to be addressed, G. Glenny, Horticultural Agent, Fulham.

TO PERSONS ACQUAINTED WITH SOUTH WALES, &c.

WANTED, A LIST OF THE NAMES OF THE RESIDENCES or SEATS of the principal Nobility and Gentry, &c., having Extensive Fruit Gardens, containing Pineries, Vineries, and other Hothouses attached to their Dwellings in or about any or all of the undermentioned counties, viz.:—

Anglesey	Cardiganshire
Carmarthenshire	Denbighshire
Caernarvonshire	Flintshire
Glamorganshire	Montgomeryshire
Merionethshire	Pembrokeshire
Radnorshire	

Apply per Letter to G. T. I., 30, Norton Street, Islington, Liverpool.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than 1 peck), carriage free. Whites, for pastry, at per bushel (56 lbs.), 11*s.* 8*d.*; Fine Households, recommended for bread making, 11*s.*: Seconds, 10*s.* 4*d.*; Wheat Meal, for brown bread, 10*s.* 4*d.*; Best Coarse and Fine Scotch Oatmeal, Indian Corn Meal, &c.—Address, HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or, Caledonian Road, Islington. Directions for making bread supplied gratis. Terms cash. German Yeast.

AMERICAN BEEF CAKES FOR PIGS, DOGS, OR CHICKENS, at 9*l.* per ton, delivered at the Docks.—These Cakes are free from moisture, and will keep sound any length of time. They may be boiled or soaked in cold water, when broken in small pieces. In either way they yield a nutritious food.—TAYLOR & PEARS, 8, George Yard, Lombard Street, London.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner. J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged

HOT-WATER APPARATUS ON AN IMPROVED PRINCIPLE.

MESSRS. COLLS AND CO., Builders, Camberwell, beg to inform the nobility, gentry, and the public in general, that they have made arrangements with an eminent Inventor and Hot-water Engineer for the management of this portion of their business, and are prepared to take contracts for Warming Churches, Chapels, Private Residences, Greenhouses, &c.

Estimates upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

THOMSON'S RETORT BOILERS.

The Triple Retort, to heat	3000 ft.	of 4-inch pipe			£8	10	0
The Single do.	do.	1000	do.	do.	4	0	0
The Amateur's do.	do.	500	do.	do.	2	10	0

These unique and most powerful Boilers have been invented by Mr. THOMSON, of Dalkeith Gardens, where in some instances he has fixed one of them to supersede six of those previously in use there, and the Advertiser has obtained Mr. T.'s sanction to manufacture and supply the public with them, which from his great facilities he is able to do at the above extremely moderate rates for Cash. The price includes a peculiar boiler plate, and free delivery to Ship or Rail in Edinburgh.

JOHN MEIKLEJON, Westfield Foundry, Dalkeith, N.B.

GARDEN VASES, FOUNTAINS, ETC.

J. SEELEY respectfully solicits immediate orders for any work of this kind that may be required next spring. It is always desirable that it should be made two months before it is used.—Artificial Stone Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

IRON HURDLES MADE BY MACHINERY.

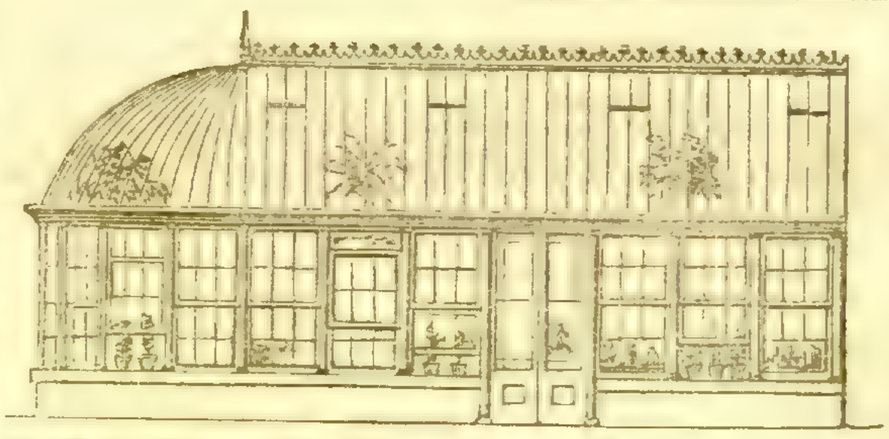
COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

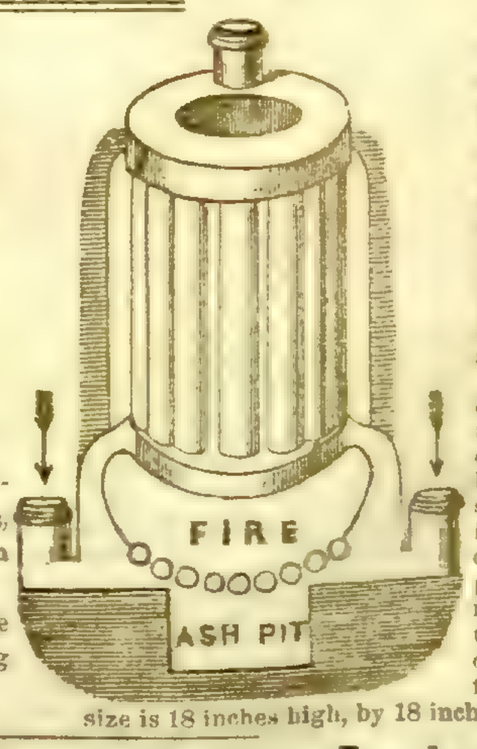
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA; and they have supplied several RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage."*

Our plan of packing them succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & CO. Foreign and Export Seed Merchants, Plymouth.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each .. 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published, also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

THE PLANTING SEASON.

BASS AND BROWN have much pleasure in calling attention to their very fine and well grown Stock of ROSES, &c., which they offer in collections as under. Catalogues on application.

	£.	s.	d.
ROSES, 100 standards, in 100 very superior varieties	7	0	0
" 100 " 50 "	6	0	0
" 100 " 100 extra "	8	8	0
" 100 " 50 "	7	10	0
" " selections per doz., 18*s.* to	1	4	0
" 100 dwarfs in 100 very superior varieties ...	3	0	0
" 100 " 50 " ...	2	5	0
" 100 " 100 extra " ...	5	0	0
" 100 " 50 " ...	4	0	0
" " selections per doz., 6*s.* to	0	18	0
" Climbing ... . " ...	0	9	0
HARDY CLIMBING PLANTS, 20 fine sorts, in pots	1	0	0
HERBACEOUS PLANTS, 100 distinct and showy varieties, 30*s.* ... ... per doz., 4*s.* to	0	6	0
Ditto, ditto, 100 superior varieties, 50*s.*; per doz., 7*s.* 6*d.* to	0	10	6
Ditto, ditto, 25 fine vars., best adapted for Rock Work, 12*s.*; or 12 for	0	7	6

Very superb and beautiful collections of PHLOXES, PENTSTEMONS, POTENTILLAS, ANTIRRHINUMS, PÆONIES, DWARF ROCK CISTUS, HOLLYHOCKS, CONIFERÆ, &c., &c.

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Peaches, Nectarines, and Apricots, two and three year trained, very fine, handsome, and well grown, each 3*s.* 6*d.* to 5*s.*; Plums, Pears, &c., two and three year trained, do. each, 2*s.* 6*d.* to 3*s.* 6*d.* To gentlemen requiring first-rate wall fruit these are strongly recommended; also Standard, Pyramidal, and other Fruit Trees of the choicest sorts.

Splendid GLADIOLI, ENGLISH, GERMAN, and other IRIS; LILIUM LANCIFOLIUM and other LILIES; and an extensive collection of CHOICE DUTCH, CAPE, and other ROOTS.

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TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S EXHIBITION, Nov 19.

LIST OF SUCCESSFUL COMPETITORS.

CLASS 1.—6 PLANTS.

Mr. R. James, Rochester Castle, Stoke Newington ...	Silver Cup		
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill	£1	13	0

CLASS 2.—SINGLE SPECIMEN PLANT.

Mr. J. Scruby, Gr. to Mrs. Indle, Stoke Newington Road	1	5	6
Mr. R. James, Rochester Castle, Stoke Newington ...	1	3	0

CLASS 3.—6 PLANTS, POMPONES.

Mr. Weatherill, Gr. to D. M'Neil, Esq., Hornsey Road	Silver Cup		
Mr. J. Scruby, Gr. to Mrs. Indle, Stoke Newington Road	1	10	6
Mr. Smith, Nursery, Hornsey Road	1	8	0
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill	1	5	6
Mr. Argent, Nursery, Park Street, Church Street, Stoke Newington	1	3	0

CLASS 4.—24 CUT BLOOMS, DISTINCT VARIETIES.

Mr. G. Taylor, Gr. to J. Williams, Esq., Stamford Hill...	Silver Cup		
Mr. E. Sanderson, Stoke Newington Green	1	13	0
Mr. R. James, Rochester Castle, Stoke Newington ...	1	10	6
Mr. Arthur Wortley, Stoke Newington Common ...	1	8	0
Mr. J. Scruby, Gr. to Mrs. Indle, Stoke Newington Road	1	5	6
Mr. D. Monk, Gr. to ——, Upper Clapton	1	3	0
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill	1	0	6

CLASS 5.—12 CUT BLOOMS.

Mr. E. Sanderson, Stoke Newington Green	Silver Cup		
Mr. Arthur Wortley, Stoke Newington Common ...	1	10	6
Mr. J. Scruby, Gr. to Mrs. Indle, Stoke Newington Road	1	8	0
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill	1	5	6
Mr. Merry, Nursery, Stamford Hill	1	3	0
Mr. Elliott, Gr. to John Foster, Esq., Stamford Hill ...	1	0	6
Mr. C. Sanderson, Bow	0	18	0
Mr. G. Taylor, Gr. to J. Williams, Esq., Stamford Hill	0	15	6
Mr. W. Monk, Gr. to ——, Tottenham	0	13	0
Mr. R. James, Rochester Castle, Stoke Newington ...	0	10	6
Mr. D. Monk, Gr. to ——, Upper Clapton	0	8	0
Mr. J. Williams, Stoke Newington	0	5	6

CLASS 6.—6 CUT BLOOMS.

Mr. G. Taylor, Gr. to Jas. Williams, Esq., Stamford Hill,	1	10	6
Mr. Elliott, Gr. to John Foster, Esq., Stamford Hill ...	1	8	0
Mr. R. James, Rochester Castle, Stoke Newington ...	1	5	6
Mr. J. Scruby, Gr. to Mrs. Indle, Stoke Newington ...	1	3	0
Mr. E. Sanderson, Stoke Newington Green	1	0	6
Mr. G. Monk, Gr. to ——, Ilford	0	18	0
Mr. Arthur Wortley, Stoke Newington Common ...	0	15	6
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill,	0	13	0
Mr. C. Sanderson, Bow	0	10	6
Mr. D. Monk, Gr. to ——, Upper Clapton	0	8	0
Mr. Dawes, Gr. to — Hunt, Esq., Upper Clapton ...	0	5	6

CLASS 7.—6 CUT BLOOMS (ANEMONE).

Mr. R. James, Rochester Castle, Stoke Newington ...	1	10	6
Mr. R. Oubridge, Gr. to Jas. Foster, Esq., Stamford Hill,	1	8	0
Mr. Arthur Wortley, Stoke Newington Common ...	1	5	6

CLASS 8.—6 CUT BLOOMS, for Exhibitors that have never taken a prize before.

Mr. Peachey, Gr. to — Willmot, Esq., Stamford Hill ...	1	8	0
Mr. Putnam, Gr. to ——, Upper Clapton	1	5	6

EXTRA PRIZES, by Mr. Salter, Nursery, Hammersmith, for the three best blooms of "Alfred Salter."

Mr. Arthur Wortley, Stoke Newington Common ...	0	10	6
Mr. Salter, Nursery, Hammersmith	0	7	6
Mr. Arthur Wortley, Stoke Newington Common ...	0	5	0

By Mr. Weatherill, for the best Pompone Plant, exhibited without sticks.

Mr. Scruby, Gr. to Mrs. Indle, Stoke Newington Road	0	5	0

ARTHUR WORTLEY, Hon. Sec.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 6, 1856.

To our reporter's account of KEW GARDENS, published a fortnight ago, an old correspondent objects that it is laudatory rather than critical. "While it is the duty of a reporter," he writes, "to praise what is praiseworthy, it equally behoves him to blame what is blameable." And then he proceeds to say, "although the cultivation is very much improved, the health of the plants excellent, the keeping perfectly satisfactory, and the new arrangements in progress in the Palm stove admirable, yet the ugly misplaced Museum, the miserable Victoria House, and the great dark heavy Orangery stuffed with Araucarias and other fine things which are dying there ought to have been pointed out as being discreditable. As to the new Museum, for which so much of the beautiful piece of water, so many noble trees, and so picturesque a part of the garden have been needlessly sacrificed, it is difficult to conceive what head could have planned such a monstrosity. Seen from the road with which it is neither parallel nor at right angles, it is frightful, seen from the garden it is mean as well as misplaced."

We by no means deny that these remarks are well founded; on the contrary we agree with our correspondent in much that he says. Undoubtedly the place occupied by the Museum is most unfortunate; but there it is; nobody can remove it, and it is now useless to complain. The consolation is that however much there may be to criticize externally, it is a good roomy place and we doubt not will show to advantage the multifarious collections it is to receive. The Victoria House, a mistake of a former Chief Commissioner, would be better removed from the vicinity of the great Palm House, and altered so as to become habitable by plants. In its present unventilated condition nothing can grow in it except Gourds and tropical weeds; were it provided with an ample and constant supply of fresh air there is no reason why it should not be found well suited to water plants, as well as others.

Upon the Orangery and its contents we have something more to say. That it is crowded with plants is true; that those plants suffer from their confinement is undeniable, and what is still more important it is well known that the plants themselves are the finest of their kinds in Europe. Such Norfolk Island Pines and other Conifers can only be found in the countries they naturally inhabit. But where are they to be placed? Kew contains no other shelter than the old Orangery; so that crowded and suffering these regal specimens must remain until a proper residence is provided for them.

Let us hope that one of the first of the future improvements at Kew will be the construction of a vast glass shelter, under which may be cultivated in perfection those beautiful plants of temperate countries, which are impatient of winter cold and damp, but for which our English summers are perfectly adapted. The races of so called greenhouse plants are in no respect less striking or less beautiful than the Palms and similar trees for which the noble Palm House was constructed, and they are far better suited for ornamental purposes in the United Kingdom; for few can afford to construct a hothouse, or even to maintain it, while the half hardy trees and shrubs of climates only a little better than our own are enjoyable by every body. We would therefore urge upon the consideration of Government the completion of the grand collection of Kew by a greenhouse worthy of the nation and the place. Therein might be found the natives of our great Australian and South African colonies, associated with all that is rarest and best in temperate America, and the rich Mediterranean region. Orange trees and Australian Myrtles, Pomegranates and Gum trees, Acacias and Proteads, Norfolk Island Pines, Alerces, Araucarias and Saxegotheas would blend their foliage or intermix their flowers with all that is most picturesque in the vegetation of the Eastern and Western worlds. If our artists are to enlarge their ideas and improve their taste by the contemplation of unfamiliar natural objects it is in such a collection that they would most effectually do so.

But it may be asked, where is this construction of hothouses and greenhouses, and this constant increase of Garden plants to stop? Our answer is, STOP HERE.

No mistake could be greater than to imagine that a national garden ought to contain all known plants in a living state. When we consider that above 80,000 species of cultivable plants are known, exclusive of endless varieties scarcely inferior in importance to species, the object is obviously unattainable. Nor is it worth attaining. What our ancestors happily called the *Hortus siccus* or dry garden, which moderns term the *Herbarium*, is the place where all vegetable forms are to be preserved for purposes of science. It is there that most species and varieties can be compared and examined; it is there they can be systematically arranged, which is impracticable in a living garden, and without which they are useless for purposes of study. And such is the skill of those who now prepare plants for the Herbarium that multitudes of species are just as examinable when dead as when alive. A garden, whether public or private, must of necessity, and should from choice, be a mere SELECTION of species remarkable for their beauty, or singularity, or diversity, or utility to man. But especially should it contain those which from their magnitude, or colours, or texture, or manner of growth, are unsuited to the cabinets of an Herbarium, and these should be shown to the utmost possible advantage. Were the aim of a public garden directed to these points alone its whole aspect would be wonderfully improved and its value for all public purposes be greatly increased. We no longer see in this country at least endless ranks of sticks standing in pots with a few leaves at one end and a label at the other, the collection being denominated a Botanic Garden; the whole aspect of such places is changed under the influence of improved taste, aided by the skill of modern gardeners; but we have not carried the alteration far enough, as some of the houses at Kew themselves testify. And there is great danger lest the eagerness with which new plants are introduced should again lead, in spite of all resistance, to crowding plants into glass houses, especially in public gardens, for the sake of gratifying the vanity of persons who expect to be able at all times to point to a plant and say "See! this is what I gave them."

While then we earnestly advocate the construction of one other most noble Greenhouse at Kew, as indeed seems to be inevitable, we most certainly would stop there. Nor would there be any need of

further outlay if the views now explained were adopted as a fixed principle of the establishment. SELECTION NOT COLLECTION should be painted over the gates of the garden; COLLECTION NOT SELECTION over the doors of the Herbarium and Museum.

RECENT letters from ASCENSION report the continued and signal success of the interesting experiment in reclaiming a volcanic waste which is now in progress on that island, under the orders of the Admiralty, as we explained on a former occasion (see p. 851 of our last volume).

Crops of all kinds were looking extremely well. From Oats shaken out of the bags of Cape Oat straw some land on the Peak had been successfully cropped for green food. The variety, although very coarse, frequently producing seven stems from a single seed, seemed well adapted to the soil and climate. Nearly 30 acres were under cultivation with Vegetables and Fruit, eighteen were occupied by Sweet Potatoes, the most important crop. Eight acres and a quarter were in Grass, twenty-seven and a quarter were occupied by trees, roots, &c., and about an acre and a half were fallow.

Nothing could surpass the health and good condition of the animals on the island, consisting of cattle, horses, sheep, and donkeys. Ewes had lambed abundantly, and imported Southdowns had proved as active and hardy as any of the island sheep. Their introduction promised to be attended with the best result. The following statement of the supplies issued to the fleet and garrison during the first six months of the present year shows conclusively what the productive powers of the island are likely to become:—

	lbs.
Sweet Potatoes	3402
Pumpkins	22,385
Leeks	3542
Salads, &c.	4206
Carrots...	2738
Vegetable Marrows	279
Spinach	382
Cucumbers	913
French Beans	8398
Bananas	711
Peaches	30
Blackberries	800
Pine Apples	90
Callaloo	60
English Potatoes	131
Chillies	80
Fodder, consisting chiefly of Oats, Indian Corn, and Grass	143,000

French Beans were perfectly at home, and proved invaluable. Two roods of White Canterbury Kidney Beans, sown with seed saved on the spot, produced in one fortnight 1245 lbs. of green Beans, and 3 bushels of seed had been saved from 20 perches of land.

The Coffee shrub was making some progress in spite of difficulties, and had furnished a couple of pecks of very fine Coffee Beans last January. Vines brought by Commodore ADAMS from Sierra Leone, where they prosper, had been planted in a place made as Vine borders are in England, in the hope that this fruit, which has not yet thriven, might thus be established. Pine Apples, brought by Sir WM. WISEMAN, were making capital progress. A piece of waste ground had been formed into a terrace along a bank of American Aloes, and supplied with rich vegetable mould brought down from the Peak. This, mixed well by the spade with the chalky tufa of the soil and a third of stable droppings, had formed a border 2 feet deep. In February there were 500 plants growing as vigorously as under the best English cultivation. The Cochineal insect, brought to the island by Sir WM. WISEMAN, was breeding fast upon a kind of Opuntia called the White Prickly Pear, which has become plentiful all over the island. About two hundred plants were established with the insect upon them in large quantities, and there was reason to believe that its cultivation might be turned to profit. In short every crop that had been tried had succeeded, more or less, with the exception of Turnips.

A piece of ground attached to the Hospital has been successfully planted with ornamental shrubs, and now forms an extremely gay and agreeable place of resort. A yellow Tecoma from India had completely established itself, and for four months successively kept the garden in beauty with its rich golden flowers. With it are associated species of Ficus, Eucalyptus, Ilex with very large leaves, Vitex, and Laurus, with Oranges, Melia Azedarach, Acacia leucophylla, Buddlea madagascariensis, and some Grewias. Brugmansia suaveolens grows well and flowers abundantly.

A sheltered ravine planted with Guavas, Loquats, sour Limes, Peaches, Oranges, and Figs, was very flourishing, and the Guavas were showing fruit in abundance. In another place, called Palmer's Springs, Bananas were growing away most vigorously.

Rains continue to be more frequent than formerly. They set in last year as early as August, and Mr. WALLACE, in charge of the farm and garden ground, is of opinion that if the island is equally favoured this year, the gardens and fields on the mountain will be as luxuriant and well cultivated as any in the world.

New Plants.

189. CASTANEA CHRYSOPHYLLA, *Douglas in Hooker's Flora Boreali-americana, II.* 159. *Bot. Mag. t.* 4953.

We find in the new No. of the Botanical Magazine an excellent figure of this rare plant, with the following description.

"One of the greatest rarities perhaps in the Arboretum of the Royal Gardens of Kew, is the subject of the present plate—a Chesnut with the under side of the leaves of a pale golden hue, occasioned by the presence of innumerable minute peltate scales of that colour. Specimens of the plant probably exist in the herbaria of many botanists; for the tree was discovered so long ago as 1830, by Mr. David Douglas, about the grand rapids of the Columbia (Oregon), Cape Orford, and near Mount Hood, in North-West America, constantly inhabiting the hills; and it has since been found by travellers in California, especially by Burke and Hartweg, and these collectors were able to send seeds to Europe, of which very few indeed appear to have germinated. Our solitary plant was reared from a seed gathered by Burke: and, although now only about five feet high, it has for several years produced spikes of flowers, and these, in one instance, were succeeded the following year (1856) by several fruits of the size here represented, but which fell off before they were mature. The tree bears our severest winters perfectly unharmed. This is said by Douglas to form a beautiful tree in its native country, varying in height from 20 to 70 feet. We make our description from our own small plant above mentioned, which is branched almost to the base, the young branches tawny or golden-colour. Leaves, the smallest of the Chesnut kind, two and a half to three inches long, shortly petiolate, ovato-oblong, acuminate, coriaceous, entire, glabrous, very dark green and somewhat glossy above; beneath clothed with dense, minute, farinaceous scales of a golden-yellow colour. Spikes of flowers from the axils of the upper or terminal leaves, as long as, or shorter than, the leaves, on short peduncles. Male flowers occupying the upper half, numerous, crowded; female flowers one to three or five, distant, scattered at the base, all sessile. MALE FLOWERS:—Perianth cup-shaped, small, villous, six-cleft, three lobes external; three inner less villous than the outer ones. Stamens 10 to 12 or 13; filaments long, flexuous, much longer than the perianth. FEMALE FLOWERS, accompanied by some imperfect stamens. Perianth as in the male. Ovary having its base incorporated with the perianth, very hispid, dividing above into three glabrous styles. These ovaries remained the whole winter on the plant; and during the following summer became a three-lobed fruit of the size represented at fig. 5, and then fell off immature before the autumn. It is three-lobed, and very prickly, as in *Castanea vesca*."

VEGETABLE PATHOLOGY.—No. CXLVI.

603. PARASITÆ (*Gymnosporangium, Podisoma**). The very curious productions comprised under the genera which form the subject of our present notice cannot be considered as materially affecting the cultivator. They are, however, in themselves and the considerations they involve so important, that a treatise on the maladies of plants would not be complete unless it included a notice of them. They are confined exclusively to species of the genus *Juniperus*, on the branches of which they form clavate or lobed gelatinous masses which resemble externally the species of *Tremella*, which are so common on decaying sticks in winter. The branches, however, on which these genera grow are by no means decayed, and the same branch will produce a new crop for many successive years, each individual leaving behind every year a little orbicular disc, which waits merely for a new season to sprout out again into a fresh plant. In general the branches of the matrix are not at all distorted; but in *P. macropus* an orbicular excrescence is formed, looking very much like the strolilus of a Cypress.

604. This latter is very common in Pennsylvania upon those plants of the Virginian Juniper which have been closely clipped, and is known under the name of Cedar Apples, and brought into the market as a popular vermifuge. The trees, though covered with the parasite, do not seem to suffer, for as fast as the parasite grows so fast the swelling increases upon which it is developed. In like manner those species which affect the branches of other Junipers without causing much distortion, if injurious at all, are so only after a long series of years, which is the more surprising as the large gelatinous masses must make a strong demand on the mother plant.

605. It was said that these parasites are externally like a *Tremella*. The resemblance is, indeed, not merely external, and there is no doubt that these plants form a nice connecting link between the two grand divisions *Coniomycetes* and *Hymenomycetes*. In *Tremella* the base of the plant consists of interwoven threads bearing at their tips large globose swellings which frequently divide into four lobes, each lobe giving rise to a long thread tipped by a boat-shaped spore. In like manner the base of the gelatinous mass in these parasites consists of a mass of flexuous distinct threads springing from a more intricate set beneath. The tip of each thread is crowned by a uniseptate somewhat conical cell which has all the appearance of the spore of a *Puccinia*. Each cell, however, germinates at two or four points, and the elongated threads resulting from this germination bear the true spores, which are broadly cymbiform and capable of germination. There is therefore a very close resemblance between the *Tremella* and the *Podisoma*. The great difference exists first in the arrest of development which takes place in the pseudospores of the latter, a circumstance which is still stronger in *Puccinia* and other allied genera; and secondly in the fact that the sporiform bodies in *Podisoma* germinate like true spores, while the apparent germination of the sporophores of *Tremella* is nothing more than an extension of the walls of the cell into filiform processes. In *Podisoma* the inner membrane protrudes in the form of a mycelium, exactly as the pollen tubes are protruded in Phænogams. The better plan, perhaps, is to regard the growth of *Podisoma* and its allies as a sort of alternation of generations, the propagation of the plant depending upon the germination of the spores of the second or third order; and it is this postponement of propagation which in all probability keeps up the connection of the parasite with the parent plant. Months may elapse between the failure of the parasite and the appearance of a new crop; meanwhile the parasite has been making preparation for fresh attacks, for which had the ultimate germination taken place at once the nurse might not have been prepared for the reception of the new generation. *M. J. B.*

* *Gymnosporangium* from γυμνος naked, σπορα a seed, and αγγειον a vessel, *Podisoma* from πους a foot, and σωμα a body, in allusion to the solid mass formed by the pedunculate spores.

DECREPITUDE OF THE PEAR TREE.

As already stated, every individual being, whether of an animal or vegetable nature, has its average period of existence, during which it passes through all its stages, falls into decay, and arrived at its limit disappears from the face of the earth. As many years as a seedling Pear tree requires to arrive at its full growth, so many years it takes to decay and die off. The age depends on the particular race, its degree of acclimatation, the conditions, more or less favourable, under which the tree has been planted, and the care with which it has been subsequently managed.

Of all fruit trees the Pear, when sprung from a good race, attains the greatest age. This age varies from 100 or 150 up to 300 years or more. It is easy to ascertain its age by examining, when the tree has been sawed over by the ground, the annual layers, which show the progress of its growth, its stoppage and decline. These layers, very large near the centre, become smaller and smaller towards the circumference, where they are almost imperceptible. It is in accidental situations that trees attaining the greatest age are found; but the soil must be rich, deep, and free from stagnant water. From these observations, the truth of which may be corroborated by every careful observer, it will be understood how necessary it is in our cold and variable climates, when it is intended that the trees should attain a great age, only to plant stocks raised from seeds of hardy and vigorous sorts. In raising from seed, there are always some seedlings which have no similarity to their parents. For this reason it is necessary to make a careful selection in the second year of their growth. All the seedlings having a smooth bark, of an olive green colour, spotted with grey, and a stem that naturally grows straight and upright, may be considered to possess the characteristics indicative of firmness of growth and long duration.

The seedlings from the wild Pear of the woods have been patronised; some authors have recommended the Sucrée Verte Pear, which succeeds better in a strong soil than those of the Poire d'Amande and Napoleon. In several experiments made within the last 10 years we have obtained fine stocks from these three varieties; but have found that the most substantial have been derived from the Sucrée Verte. Nevertheless we have observed that vigorous varieties from recent regenerations gave a better result. The stocks which were selected and planted were budded in the summer of the fourth year of their growth, not at six inches above the ground, but at three feet or more, for the following reason: trees worked too near the ground are liable to sun-stroke, as formerly stated, whilst those budded at the height of three feet are not. Those young trees raised for orchard culture do not undergo any cut or wound which cannot heal the same season. Their shoots are shortened back at the proper period in order to form a fine pyramid, either with a half stem or tall stem; and when older the trees are subjected to a moderate thinning of the branches. Thus treated, they afford the prospect of good crops for many years. It will be understood that the nearer we conform in practice to the rules of a rational system of cultivation, the farther we put off the period of weakness and decay, and the more we deviate from such system the sooner does that period arrive. Crops too heavy for the richness of the soil, too severe pruning, and inconsiderate lopping or thinning of the branches, and inattention to the destruction of insects are so many causes which hasten the period of indi-

vidual decay in the Pear tree. The time however will come when attention to all these points is useless, when the tree loses its vigour and only produces poor and flavourless fruit containing no seeds. The terminal shoots are short, slender, their bark cracks, and they no longer perfect their wood, losing their leaves and becoming dried up.

When a tree presents these characteristics of old age it ought to be destroyed, for it uselessly occupies room, has an unsightly appearance, and can only deposit diseased excretions by its roots, which it ought not to be allowed to do. No other tree ought to be planted in the same place till many years have elapsed, unless, indeed, the soil occupied by the decayed tree be removed. *J. De Jonghe, Brussels.*

Home Correspondence.

Fuel for Conical Boilers.—There is an old adage, "None are so deaf as those who will not hear," which has its parallel, "None are so dull as those who will not understand;" so that I fear I shall ever fail to make myself intelligible to your correspondent "D. A." There is certainly a slight ambiguity in the expression which he has quoted from your Paper of Nov. 22; but it does not seem to occur to him that there are ascending as well as descending series, and that the numerals, 1, 2, 3, 4, may be said to be valuable (or to have value) in the order in which they stand. With this explanation all I have written is clear and consistent. With respect to his second difficulty, it seems also to have escaped his apprehension that a boiler is not always most available when its fire is most powerful, but that it may be desirable to have a fire which shall come to its maximum power some hours after it has been left, especially if the pipes are hot when the fire is made up for the night. The object of a hot-water apparatus is duration and uniformity of heat, not to boil the water out of the pipes at 9 P.M., with the probability of finding them cold in the morning. I too have had to do with many boilers of many forms for the last 30 years and more, and have witnessed many varieties of mismanagement, the result of which is that the very last person I should think of employing to manage my fires is "An Old Stoker." I should have some hope of his stoke-hole boy if he had not been too long with him, and I think he would sufficiently appreciate the comfort of 10 quiet hours in bed in winter to be willing to take some pains to attain it. A simple statement of the work performed by the boiler of my Orchid-house will show what may be expected from a conical boiler with proper fuel properly managed. The house, consisting of two compartments, is 32 feet 6 inches long by 14 feet wide, and span-roofed. One part is a transept 4 feet higher than the other, and the sides and ends being also glazed with vertical glass, on an average 3 feet 6 inches high, exclusive of the gables, it presents a form more than usually difficult to heat. It is heated by 170 feet of 4-inch pipe, to reach and return from which the water traverses a tool-house through 26 feet of 2-inch pipe, where some slight waste of heat takes place. The consumption of fuel (Welsh coal exclusively) amounts on an average of six years to 7½ tons per annum, which is as nearly as possible 46 lbs. per 24 hours, on an average through the year. The absolute consumption ranges as high as 80 lbs. to 90 lbs. or perhaps even more in very severe weather such as we had in 1855, when the thermometer was 10° below freezing by day. At such seasons some slight waste takes place up the chimney. My under gardener who manages the fire resides two miles off, and at this season leaves soon after 5 P.M., and does not return much before 7 A.M.; he finds on his arrival a fire as good as he left, and the pipes at least as warm. I know that the house is not often below 60° at 8 A.M., and that it has not varied two degrees above or below that during the night. I have two other boilers in constant work whose performance does not differ materially from the above, but they are less easily checked and reduced to a definite statement. I observe in your Paper of Nov. 22, in which my remarks on fuel occurred, a statement by a correspondent, "A. C.," which seems inconsistent with mine, and which therefore calls for some notice. He states that in 1855 he expended 21*l.* 10*s.* in fuel in forcing a Vinery 44 feet long, with a conical boiler, and that in 1856 he obtained the same results with another boiler with an expenditure of only 12*l.* 10*s.* I may remark that the season 1855 was one of extraordinary severity, and that my own Orchid-house during the early months of that year consumed nearly double its usual amount of fuel. I am however not disposed to attribute the difference of which he writes to that cause alone. I think it was more probable that the conical boiler was unequal to its work, in which case a great waste of fuel would take place. Moreover, as he does not state what kind of fuel he employed, it is very possible that he used bituminous coal, which is altogether unsuitable, and could only be employed with great waste both of fuel and labour. I have stated my results in weight of fuel, because that alone affords data for comparison in all places. From the country in which "A. C." lives coal ought to be cheap, and his diminished consumption, computed at the highest price he gives, 18*s.* per ton, appears to me very large. Coal with me costs 25*s.*, and Welsh coal 32*s.* per ton; and as carriage forms a large proportion of its cost, I consider the highest priced coal, that is to say that which is intrinsically the strongest, to be the cheapest fuel, not to mention the advantage of getting rid of all smoke. I have trespassed full much on your readers' patience, but from the data I have given I believe all who wish may calculate pretty nearly what their consumption of fuel ought to be in proportion to the size of their houses, and the quantity of pipe employed to heat them. It should however always be borne in mind that there is no worse economy than the use of an insufficient amount of pipe. Where that is the case the house can be heated only by keeping the pipes always at an extreme temperature; and this is attended with very great waste of fuel from heat passing up the chimney. A Vinery 14 feet wide ought scarcely to have less than six rows of 4-inch pipe if it is to be used for early forcing. *J. Rogers.*—I wish "An Old Stoker" and others distinctly to understand that I recommended an economical plan for excluding frost from an orchard house, and that I said nothing about forcing. I have burnt cinders in a conical boiler; they do not keep up a strong heat longer than six hours, and the boiler must even in this case be a large one. Welsh coals are excellent both for giving out a strong heat and for lasting purposes. The joints of iron pipes, made with Portland and Roman cement mixed, will not stand a great pressure of water. I have tried experiments at 35 feet pressure, and have found that although the joints be of even double thickness, still the water oozes through. *Sigma.*

Hogg's Edging Tiles.—Mr. —— informs me that he has written to you stating that these tiles will not stand the weather. The fact is that the tiles supplied by Mr. Hogg to your correspondent were not made by me. I have made them for four years and never had a complaint, and can show specimens laid in 1853 as perfect as when new. I am satisfied that my earth will bear any exposure, which is not the case I admit with all brick-earth. It appears to me to be about as reasonable to condemn this material for garden edging, as to argue that because some bricks perish by frost, therefore bricks are not a suitable material for building purposes. The following is a copy of a note received from Mr. Hogg. *Russell Blacket, Railway Wharf, Witham, Essex.* "The tiles, which were supplied to Mr. ——, were not yours, but were made at Ely, in Cambridgeshire, or rather at Soham, a place within three miles of Ely. So that, if these, which I afterwards found were made of a clay which did not stand the frost, are brought forward as an objection to yours, you may with confidence assert that they were not yours." *Robert Hogg, Hungerford Wharf, Nov.* 21.

New Roses.—I observed in your last week's Paper an excellent article on this subject by Mr. W. Paul of Cheshunt. How far his remark relative to the fable of "the fox and the Grapes" may be applicable to the case in question I will not pretend to determine, but this much I will say, that I consider the poor unfortunate new Roses have been depreciated to an extent they do not deserve. I am quite ready to admit that our novelty-loving neighbours across the Channel have palmed upon the public far too many new kinds with high-sounding names which have not realised the descriptions with which they have been accompanied. But why condemn all because a few have proved unworthy? All the new Roses as they appear have been annually imported into this establishment with a view of testing their respective merits, but only those of sterling worth have been retained and propagated; out of the large number imported last season the following have flowered here this past summer in great perfection, and I think I may fearlessly assert will be found to please the most fastidious. Hybrid Perpetuals—Arthur de Sansalles, dark crimson purple; Docteur Hénon, white slightly tinged with pale yellow—this, although a very beautiful Rose, I fear will prove rather delicate for our climate; General Pelissier, pale lilac rose, form of William Jesse, with flowers of immense size; General Simpson, bright carmine, form and habit of Louise Odier; Madame Knorr, deep pink with rosy centre, very large; Mathurin Regnier, bright lilac rose, much in the way of William Griffith but having a greater depth of petals; Pæonia, light carmine, form of Robin Hood; Pauline Lansezeur, light crimson, shaded with violet; Souvenir de la Reine d'Angleterre, bright rose, very large and very double—this is, indeed, a very superb Rose; Toujours fleuri, rosy crimson, shaded with violet—this will prove an acquisition as a pot Rose; Triomphe d'Avranches, deep red, a large bold flower, but perhaps a little too coarse to be reckoned first-rate; Triomphe de l'Exposition, bright crimson, the flowers are very large and finely formed. Bourbon—Impératrice Eugénie, rosy blush, with deeper centre, form and size of Souvenir de la Malmaison. *Charles Wood, Woodlands Nursery, Maresfield, Sussex.*

Preserving Ginger.—For the information of your correspondent Col. Mason and others who may be interested in the preservation of Ginger, I send you the following extract on the subject from Browne's Natural History of Jamaica:—"To preserve this root in syrup, as it is usually done, it must be dug while its texture is yet tender and full of sap; and then the shoots seldom exceed 5 or 6 inches in height. These roots are carefully picked and washed, and afterwards scalded until they become tender enough for the purpose. They are then put into cold water and scraped and peeled gradually; this operation may last three or four days, during which time the roots are constantly kept in water, but frequently shifted both from cleanliness, and to take off more of their native acrimony. After they are well prepared in this manner, they are put into jars and covered over with a thin syrup, which, after two or three days, is shifted and a richer put on; and this is sometimes again removed, and a fourth put on, but it seldom requires more than three syrups to be well preserved. The shifted syrups are not useless, but are diluted and fermented into a small and pleasant liquor, commonly called cool drink." *B.*

Pears.—In the *Gardeners' Chronicle* of Nov. 22 I observe an article in which my name occurs several times; and I find that the author acknowledges my ideas respecting the thinning and pruning of fruit trees to be good, and this is much. I will be so courteous as to admit that one year is more favourable to the production of fruit, as well as other vegetable products, than another. But I still persist in maintaining that trees which have been well reared, well planted, and treated according to the rules of art, afford the greatest chance of success. By seeking for the causes of failure, the cultivator will find useful instruction, and of these causes of failure I have pointed out several in previous communications. In No. 48, p. 741, I see that at the exhibition on the 25th of November there were three pyramid trees, of the Louise Bonne (of Jersey), on the Quince stock, one of which had struck root from above the graft, freed itself from the Quince stock, and losing the power of drawing nourishment from the latter, produced cankered shoots, bearing, if any, only imperfect fruits. What is the cause of it? It was not pointed out, although useful to cultivators to know. We have observed the same thing in our cultures for more than 10 years, and the causes to which we attribute it are these:—The roots that are emitted from the junction of the stock and graft are called, I believe, in scientific language "adventitious roots;" and this kind do not subdivide but penetrate far into the soil, whether the latter be good or bad. Without subdivision of the roots there are neither fibres nor spongioles, the function of which unquestionably is to draw nourishment from the soil, that nourishment so essential to the formation of the organs of fructification, and to the growth of the young fruit. It is not only the Louise Bonne which in freeing itself from the stock gives the above result, but all the varieties which have been worked upon the Quince have done the same, forming adventitious roots at the junction of the graft and stock. If this effect does not take place immediately, it will be observed as soon as the roots of the Quince have ceased to perform their functions. In order to avoid this serious evil it is essential to plant the trees on Quince stocks so that the adventitious roots may not form at the junction of the graft and stock. In a special article upon the cultivation of the Pear upon the Quince stock I shall revert to the subject, and treat upon it at greater length. *J. De Jonghe, Brussels.*

Mulberry.—In the kitchen garden here there is a standard "Mulberry Tree" which annually bears great quantities of excellent fruit. The tree is never pruned, and every twig is loaded with berries which begin to ripen towards the end of September, and on through October till the frost cuts them off. I presume that your correspondent "W. D. S." uses the knife too freely. Five years ago I had a fine vigorous Mulberry tree cut down, that covered a piece of wall 20 feet by 10 feet; the tree had undergone the usual routine of pruning and nailing for many years, but it never produced anything, and having plenty of fruit from the "Standard Tree" I employed the space on the wall more profitably. *James Macton, Homme House, Herefordshire.*

Wellingtonia gigantea, Clematis from the Rocky Mountains, &c.—I am sorry the Syrian fruits (see p. 790) never arrived, not on my own account but for that of others. Would it not be well to lay the admirable suggestion of "C. T. W.," of Uxbridge, concerning the Wellingtonia before the Horticultural Society, who could memorialise the American Ambassador in London on the subject, and who would no doubt pay prompt attention to so reasonable a request from so distinguished a body, especially as the movement is made to save the remainder of those magnificent trees from destruction or further mutilation. How ever any persons in their senses could lay axe to or in any way injure such splendid specimens of vegetation passes comprehension. May it not be suggested to the Ambassador that a wider search in the same range may bring other most desirable things to light? In reading Astoria, or Enterprise beyond the Rocky Mountains, by Washington Irving, he mentions, in or near the foot of the above mountains, the following:—"Among the flowering Vines is one deserving of particular notice; each flower is composed of 6 leaves or petals, about 3 inches in length, of a beautiful crimson, the inside spotted with white. Its leaves, of a fine green, are oval, and dispersed by threes. This plant climbs upon trees without attaching itself to them. When it has reached the topmost branches it descends perpendicularly, and as it continues to grow extends from tree to tree, until its various stalks interlace the grove like the rigging of a ship. The stems or trunks of this Vine are tougher and more flexible than Willows, and are from 50 to 100 fathoms in length. From the fibres the Indians manufacture baskets of such close texture as to hold water." He mentions Currants and Gooseberries of 8 and 9 feet high, of excellent flavour. In wandering through the woods last autumn twelvemonth with a companion we came opposite Downton Castle, the residence of the late president of the Horticultural Society, and were beyond measure struck with the beauty of the wild Clematis and the Virginian Creeper, which mingling together ran up from base to battlement of the left wing of the castle; the rich heavy masses of the Clematis contrasted most beautifully with the deep crimson frost-tinted leaves of the Virginian Creeper; scarcely could there be a more beautiful

contrast. Now, if this Vine from the Rocky Mountains could be introduced into England, would it not be adding another most vigorous and, I should think, most certainly a hardy climber to our list, with its splendid large crimson blossom? What an excellent effect it would have on building or tree! I once before saw near Ludlow a wild Clematis running up a Spruce Fir that had been shredded up all but the head. The climber was one mass of blossom, broad at the base, but gradually tapering as it ascended the tree; the effect in this case was good, light green surmounted by dark, but nothing like the superb effect the light green had resting on the crimson. Pray excuse this long epistle. Of course the Clematis was in full blossom at Downton at the time mentioned. *F. N., Shrewsbury.* [We have no faith in travellers' tales of Vines with six petals, and wonderfully good wild fruits. It is astonishing to see how small these great things become when they are put to the test.]

Dioscorea Batatas.—From experiments that have been made, and the specimens produced at the Horticultural Society's meeting of this root, it would appear that it is quite hardy, easily cultivated, and that it occupies but little space in the ground. I therefore think on that account, as well as from the circumstance of its being apparently very prolific, that it is likely to become hereafter, if not exactly a substitute for the common Potato, at all events a valuable acquisition in the feeding of cattle and pigs, and consequently its extensive cultivation ought to be encouraged. Last March I received two small roots of it from Messrs. E. G. Henderson & Son, but, from what cause I cannot tell, did not meet with the same success as you mention others to have done. One of these I planted about the middle of March in the open ground, the other in a small pot, and then placed it in a cold frame. The former, which was inserted about 4 inches deep, came up towards the end of April, but it was cut down by frost when an inch or so high, and it did not again vegetate, nor could I in searching for the root some time after discover any vestige of it whatever. The one in the pot, when it had grown to the height of about 3 inches, was transferred without disturbing the soil into a much larger sized one, where it did not make a greater progress than an inch or two more in height, and it now remains in the frame with its leaves all turned yellow. Will you inform me whether I ought to allow it to stand just as it is during the winter, or take it out and dry the root for replanting next March? Also, in the event of my then cultivating an increased number of roots, what is the proper depth to place them in the soil, if they may be treated like the common Potatoes with regard to manuring, earthing up, &c., and what height the stems usually attain? There is one thing I confess somewhat puzzles me to comprehend, namely, that if planted at only 6 inches apart, how the tubers can find room to swell to such an enormous size as has been represented? Do the roots or fibres, then, extend to a great distance on either side of the row, instead of along the line, and form their tubers at the extremity? If so, the rows I should imagine will require to be several yards separate from each other when the crop is cultivated in that form. *J. H., Whitland.* [The tubers do not swell to an *enormous* size; quite the contrary; they are long and slender. Plant exactly like Potatoes, only on the top of a ridge full 1 foot above the ground level after setting. We should take up the root and replant next March.]

Ferns.—Having been travelling in Switzerland I have brought home a small collection of Ferns, which I have placed for the present in a pan under a glass in a cold room. Many of them having lost their fronds and throwing up young shoots which are weak and watery, as it would do no good to shorten them like another plant, would it be best to let the weak shoots grow or to cut them off close, so as to force the root to throw up fresh shoots? I would also ask whether the rough outside husk of the Cocoanut could be mixed with advantage with the peat soil under a glass case. *Filix.* [Keep them cold for the winter, and in spring they will sprout of themselves unless they are dead. We have no experience with Cocoanut husks.]

Iris reticulata.—A correspondent asks in your impression of the 15th ult. whether this can be procured anywhere. I obtained it this autumn from Messrs. Rollisson, but the plant, if true, certainly does not correspond with Loudon's description of it. He says it is only a quarter of a foot high, but the plant I received is a foot at least. I should be glad to know whether you think I have the true plant, which, I understand, is the best of the genus. *A. R.* [I. reticulata is a *bulbous* species, with rush-like four-cornered leaves, often a foot long. The flowers do not rise half so high. It is a charming plant. There are figures in the Journal of the Horticultural Society, Vol. III., p. 166; and in the Botanical Cabinet.]

Miscellaneous about Trees.—It may have been observed that some of the newly introduced Conifers are liable to split their bark a short distance above the ground, and thereby to cause a wound which takes a long time in healing, though the health of the tree does not seem to be materially affected by it. Such is the case in some instances with Taxodium sempervirens and Cryptomeria japonica. In one young tree of the former species a considerable lump of waxy or gummy resin has exuded from the upper margin of the slit, where the bark has been lifted up by it, and the secretion seems to be increasing. As it is probably a natural healing process it is perhaps not safe to remove it. What is the botanical name of the black or Chinese hardy Bamboo? Is it Arundinaria or Ludolfia glaucescens? [It is Bambusa nana we believe.] Is the Pear called in France Martin Sec to be had in England, and what is its quality? [It is a crisp winter sort of no value here.] The Olea japonica of the Horticultural Society's Garden is what comes as Olea excelsa from Madeira. Is not Maclura now to be had by the hundred for making hedges, and where is it sold? [By all nurserymen of note.] Has the beautiful blue of the fruit of Monnina ever been turned to use? is it of poisonous nature? would alkalies have an effect in fixing it so as to prevent its fading? [Don't know.] A letter from Baron Jacquin, of 1839, now before me, mentions a Ginko female bearing—but not ripening—13 fruits in the Vienna garden. Has it ever done so here? [No.] He also mentions a Gypsophila paniculata from the Levant as a substitute for soap used for washing wool, shawls, and lace; is that generally known? [Yes.] Aster Carolinianus, a very remarkable departure from the common run of Asters, is about to flower with me; it seems according to Loudon and Sweet that there exists no figure of it. N.B. It has been here about 16 years without showing a bud until this season. The Turkey Oaks have borne a vast quantity of acorns this autumn. I have been led to compare the varieties, which seem endless, including Lucombe Oaks, &c. I think I can distinguish the following:—1. Normal Turkey Oak: leaf jagged, stem straight, branches horizontal, leaf early deciduous. 2. Ditto; but semi-evergreen. 3. Leaf regularly and largely indented, handsome foliage; qy. austriaca? 4. Very irregularly sinuato-lobate; luxuriant foliage. 5. Almost evergreen, stem straight, branches thick or ascending, making a fine head; handsome tree. 6. Leaves as No. 1, branches spreading close; habit like Q. pedunculata. All these have mossy cupped acorns. No. 3 may possibly be called a Lucombe Oak of the old original batch. The common Lucombe of 40 to 50 years ago is very different, and seems to bear acorns sparingly. The so-called evergreen Lucombe of 15 to 20 years ago is no Cerris at all (save in leaf), and bears smooth cups like an Ilex. *S.*

Cross Breeding.—I have been lately collecting all the evidence which I can get from the observation of others and my own, on the natural crossing of varieties of plants. The evidence in regard to Leguminous plants is curiously conflicting, but preponderates against their ever crossing without artificial aid. I should esteem it a singular favour if any of your correspondents would give in your paper or send me any evidence showing either that Leguminous crops, when grown close together, do sometimes cross; or, on the other hand, that they may invariably be grown close together without any chance of deterioration. *Charles Darwin, Down, Bromley, Kent.*

Petunia imperialis.—I quite agree with your South Wales correspondent as to the unsuitableness of this Petunia for bedding purposes. It is all that was said of it as a pot plant; it is certainly double, fragrant, and also a free grower. It will strike (to use a common phrase) like weeds, and I have found no difficulty in growing really handsome plants in pots indoors, but bedded out, or in pots and vases, and in a variety of soils, I have never seen it produce one perfect blossom; they will not expand, and if they do partly burst, in every case that I have seen they have not been white but a dirty green. I have seen it bedded this season in very many places, and I have myself tried it in the common garden soil, and also made up different composts for it. In one case I planted in a large vase four plants in the same compost I used for my pot plants, and although carefully watched I never saw a perfect bloom on them, while the dark Petunia triumphans (a decidedly bad grower) flourished and flowered freely. As a pot plant the imperialis is really valuable. It may be had in bloom nearly the whole year. The flowers also stand well when cut, and the plant itself differs from most Petunias, being a compact grower, and not at all liable to mildew. *H. Davies, Edgeware.*

Societies.

LINNEAN, *Nov.* 18.—Prof. Bell, President, in the chair. A. B. Cooke, Esq., R. Garner, Esq., J. T. Law, Esq., and P. L. Sclater, Esq., were elected Fellows. The following papers were read: 1. "Description of a new species of Draparnaldia," by J. B. Hicks, M.D. This plant, which Dr. Hicks first found two years since, and again in the present year, he names D. cruciata, from the cruciate arrangement of its parts. The frond is 3 to 4 inches long, light green; its branches proceed from the main filaments at right angles mostly in whorls of four, placed crosswise; and the ultimate tufts of branchlets also grow in a cruciate manner from the branches, and bear ciliæ of extreme tenuity and length. The filaments are invested with a mucous layer. The plant is met with in the streamlets issuing from some of the bogs of the New Forest, and grows attached to sticks and stones. The paper was accompanied by drawings. 2. "Note on the Palm tree of Timbuctu," by Dr. Seemann. After remarking that the species of Palm which grows at Timbuctu had till now remained a botanical enigma, the statement of its being the Cocoanut Palm being obviously open to grave doubts, Dr. Seemann states, that from information afforded him by Sir H. Barth, together with the descriptions contained in the letters of Dr. Vogel, he had reason to believe he had correctly determined it to be the Borassus? æthiopicus of Martius. This Palm, it appears, is diffused over the whole of Central Africa, and forms extensive forests, especially on the banks of the numerous lagoons. At a distance from such waters it is only found isolated; and sometimes is met with in company with the Date and the Doum Palm. The trunk is about 2 feet in diameter, and according to Vogel 40, Thonning 60-70, and Barth 60-80 feet high, undivided and unarmed, surmounted by a magnificent crown of fan-shaped leaves 5 to 12 feet in diameter. These leaves, like those of other Palms, are used for thatch and for making baskets, mats, hats, and other articles. It produces large bunches of fruits which are nearly round, about as large as an ordinary Melon, each 4 or 5 lbs. in weight. These fruits have three seeds surrounded by a fibrous husk containing pulp, to obtain which the natives suck it. The seeds are then planted, and in about a fortnight young plants have sprung up, and these are eaten either boiled or raw like Celery. Barth believes that a kind of flour called "fidogma" is also derived from their roots. The albumen of the seed, when soft, is eaten. "It is curious," observes Dr. Seemann, "to find this Palm applied to the same uses in Africa as its congener the Palmyra (B. flabelliformis) is in Asia, especially as to the sucking of the husk of the fruit, the eating of the young seedlings, and the preparation of a kind of flour." Though there is nothing peculiar in the mode of eating the fruit, there is in the fact of eating the seedlings, and it is a curious speculation whether this idea is of native growth or has been derived from the East Indies. Though not inclined to give the negroes much credit for inventive genius, Dr. Seemann thinks that in this instance it must be assigned to them; for, he adds, "if the applications of this Palm had been adopted from the Palmyra, it is not likely that the most useful one of them, the extracting of toddy for making wine, vinegar, yeast, and sugar, would have been overlooked. But neither of the B.? æthiopicus, nor of any other African Palm do we find it recorded that they serve for that purpose; all we hear is, that the Date tree in Northern Africa, after the heart of its leaves has been cut out, accumulates a thick sweetish and refreshing juice of a slightly purgative tendency; and that the ancient inhabitants of the Canary Islands, the Guanches, knew how to prepare from it a beverage which replaced the Grape wine, and also vinegar, honey, and sugar." The extraction of toddy seems to be peculiarly Asiatic. In America it is entirely unknown, the so-called Palm wine not being obtained by means of the spathe from a living tree, as in the case with genuine toddy, but by a hole cut under the crown of a tree previously felled. "Both Africans and Americans kill the tree, the sap of which they procure, the former by destroying its terminal bud, the latter by felling its trunk; only the Asiatics preserve it, merely cutting its spathes, and allowing the juice to ooze out through the wounded parts." It is the wanton destruction of the trees in the one case instead of carefully husbanding them as in the other, which furnishes the reason why Africa and America never have produced, and as long as the present process is continued never will produce any Palm-sugar, "of which Asia sends to Europe alone more than a hundred thousand tons annually." 3. "On the previously unobserved Occurrence of certain Fungi in and near London," by the Rev. J. M. Rodwell. The author states that he has found the rare Agaricus ulmarius finely developed on the trees in St. James's Park, in the Green Park, and also in Gray's Inn Gardens; several fine specimens of Polyporus giganteus in St. James's Park and Kensington Gardens; and of Fistulina hepatica at Highbury; and he suggests that it may be due to the greatly increased purity of London air in consequence of the reduction of the smoke nuisance that these fungi have made their appearance in the places mentioned. In St. James's Park he also states that the usual Aregmas and Æcidia are to be found, but these also he has never seen previously to the present year. 4. "On the Nature of the Coronal Scales in Saponaria," by M. T. Masters, Esq. The author considers that the scale on the petals of the Caryophylleæ is a double organ consisting of two abortive stamens united. In some young flower-buds of a semi-double variety of Saponaria officinalis recently examined, the scales were in some instances found completely divided into two strap-shaped bodies, standing quite distinct in front of the petal. In one case, the scale single below was bifurcated above, each subdivision bearing an anther, and several similar scales were found adherent to the claws of the petals. There were also numerous cases showing an intermediate condition between the ordinary scale and that of two distinct stamens. From these observations Mr. Masters concludes that it is fair to infer that the scales on the petals of Caryophylleæ are composed of two abortive stamens united; and in consequence that these bodies do not constitute any real exception to the laws of alternation. The flowers of this Saponaria also afforded instances of both marginal and free central placentation.

ENTOMOLOGICAL, *November* 3.—W. W. Saunders, Esq., F.R.S., &c., President, in the chair. Mr. Samuel Stevens exhibited a specimen of the Chinese Wax insect upon the twig, recently received from Mr. Fortune, and Mr. Bowring stated that the Pela Wax was used by the natives for coating their ordinary candles so as to give them a hard surface. Mr. Stevens also exhibited the larvæ of Noctua Ashworthii and those of a moth still infesting a bottle of Liquorice powder produced at a former meeting of the Society. Mr. Augustus Shepherd exhibited specimens of various rare moths taken near Brighton, including Acronycta alni and Phibalapteryx gemmaria. Mr. Stainton also exhibited some rare moths taken by Mr. H. Cook, including Phlogophora empyrea, Leucania Vitellina and musculosa, Laphygma exigua, and Cucullia Verbasci; also the extremely rare beetle Uleiota planata, taken under the loose bark of Lime trees, and also a remarkable open network cocoon attached by a long footstalk

from China. He also stated that Herr Dohrn had informed him that specimens of the singular blind beetles from the caves of Carniola (Leptoderus three species, and Drymeotus Kovacsi), were now to be obtained at the price of 3*l*. Mr. H. Adams exhibited specimens recently captured of the rare beetles Polystichus fasciolatus, Trechus nanus, and Drypta emarginata, and a larva which was supposed to be that of the last-named beetle. Mr. Foxcroft exhibited some of the rarer species of Lepidoptera captured by him during his excursion to Scotland in the past summer. Mr. Bowring exhibited a monstrous specimen of the Chinese Cybister limbatus, a water beetle which still retained the head of the larva, and Mr. Westwood stated that a similar instance had occurred in the butterfly Nymphalis Populi described by M. Wesmael. Mr. Gregson exhibited Coleophora Vitisella and the case of its larva. Mr. Marshall mentioned the capture of eight specimens of Pieris Daplidice near Glasgow. Mr. S. Stevens read a letter received from Mr. Wallace, dated from Lambok, near Borneo. Insects were so rare in this island that during two months he had only captured 80 species of beetles. A note was read from Mr. Thwaites on the curious manœuvres of a Ceylonese spider in catching its prey. The secretary gave notice that a new part of the Transactions was ready for distribution among the members.

Notices of Books.

Visits to Remarkable Places: Old Halls, Battle-Fields, and Scenes illustrative of Striking Passages in English History and Poetry. By William Howitt. With upwards of 80 highly finished Wood Engravings, New and cheaper Edition. 2 vols. 8vo. pp. 1158. price 25*s*. Longmans.

Two beautiful volumes opportunely produced, and admirably suited to box-giving Christmas. The author visits and details with his acknowledged talent many of the more remarkable places in England and Scotland, enriching his narrative by entertaining anecdotes and traditional histories, in aid of which he has enlisted art, and so presented the reader with as complete a sketch of the scenes before him as any general reader can desire. Penshurst, the ancient seat of the Sidneys; the Field of Culloden; Lindisfarne, Flodden Field, Bolton Priory, Hampton Court; the singular old Mansion of Compton-Winyates; Tintagel Castle; Staffa and Iona; the Battle-Field of Edge-Hill; Winchester; Wotton Hall, Staffordshire; Beaurepaire, Finchall Priory; Lumley Castle; Lambton Castle; Jarrow; Hilton Castle, with the singular history of Stoney Bowes and the Countess of Strathmore; Brancepeth and Raby; Seaton-Delaval, and the Delavals; Morpeth and Mitford; Warkworth, Alnwick, and Bamborough; Hermitage Castle and its traditions; Keeldar Castle and Dilston Hall—these are a few of the curious old places which the author has charmingly illustrated. The work is upon the plan of Walter Scott's popular Border antiquities, and we do no injustice to that great name when we place these volumes of Mr. Howitt on the same level as his.

A Manual of Domestic Economy suited to families spending from 100l. to 1000l. a year. By J. H. Walsh, 12mo. pp. 736. Routledge.

If we are to believe the clever housekeepers to whom we have shown this book it should be just what they want—a library of useful information concerning everything with which the inexperienced have to deal. And in fact in 730 closely printed double columns of small type the author has collected information upon all manner of subjects—as a few of the titles of his chapters indicate. Firstly we have house building, with the prices of masons', plasterers', bricklayers', carpenters' work; plans of houses, and cost of all sorts of furniture, from gas fittings and table lamps down to pots and pans. Then come servants and their wages, the duties of employers and servants, and the laws which regulate such matters. Next in order is the way of choosing what is to be cooked or consumed, mutton and beef, fish, vinegar, grocery, hops, wine and spirits, &c. After this we are told how to keep ourselves in health, how to cook our food, and not to be so absurd as to fancy that French cookery is better than English. Towards the end of the volume we are introduced to the nursery, the lying in room, the sick room, and a treatise on human physiology, with a selection of domestic drugs. What more can we say? except that the author has been "assisted in various departments by a committee of ladies" and that the volume "is illustrated by more than 200 wood engravings." If we were to offer any opinion of our own we should observe that there is too much in the volume, that its prices are likely to mislead, for nothing is more fluctuating than price, and that at least the chapter on drugs ought to have been omitted or greatly simplified. Imagine an author gravely advising the purchaser of medicines for domestic use to supply herself with Bucku leaves, Cascarilla, Catechu and the like. If this is not book making we do not know the meaning of the word. However the volume is well got up and cheap.

Garden Memoranda.

BIDDULPH GRANGE, THE RESIDENCE OF JAMES BATEMAN, ESQ.—*Concluded from p. 776*).—The last and most recently formed division of this place, of which it is necessary to give any description, is the Chinese garden, which stands nearly in the centre of the grounds, being surrounded by the terraces on the north, the Pinetum on the east and south, the Rhododendron ground and larger piece of water to the west, and, more immediately to the south-west, the rocky glen so lately described. This Chinese garden is approached on the one side by steps and a steep inclined plane through a rude cavern-like tunnel, which conducts to a Chinese temple overhanging the water belonging to this part; and, on the other side, it is entered from the eastern terrace, or from the lower terrace, through a very well-arranged and characteristic root-garden. It is the latter of these courses that the visitor will now be supposed to take.

The root-garden, or, as it is here called, for want of a better term, "the Stumpery," consists of a very picturesque assemblage of old roots or rugged stems and stumps of trees—chiefly the latter—piled to the height of 8 or 10 feet on either side of a winding and rapidly descending walk. They are so irregularly arranged as to jut forward in the boldest prominence, and even to be united into a rustic arch in some parts; while in others they recede far enough to allow room at their base for little gatherings of choice herbaceous plants, bulbs, or miniature shrubs.

Mr. Bateman has been singularly fortunate in procuring a quantity of the most gnarled, contorted, and varied masses of wood imaginable for this purpose; and they are joined together and disposed with consummate art. The blocks being all of Oak, too, they are likely to be very durable. Over considerable portions of the whole, masses of Ivy, Virginian Creeper, Cotoneaster, and other trailing plants scramble about in the wildest manner. And the interstices, as well as the open spaces now and then occurring at the base, are all used for the reception of some characteristic and interesting plant or group. For example, near the entrance to this region, the Hellebores, which are among the earliest of the winter-flowering plants, are clustered in great variety. Then follow the Anemones, Epimediums, Scillas, Dog-tooth Violets, Lilies of the Valley, &c., each kind receiving the precise amount of sunlight or shade which is desirable for it, and all being intermingled with Gaultherias, Pernettyas, Cotoneasters, Savins, and such other dwarf evergreens as serve to produce a sufficiency of green clothing at all seasons of the year. Even the rarer hardy Orchises, and the Cypripediums, have an appropriate corner assigned to them, and seem quite at home in it.

Among the Hellebores, H. lividus is remarkable for its large thick evergreen foliage, which resembles that of a Mahonia, and possesses a very decided character. Of the Epimediums, here growing most beautifully, E. rubrum is the most showy. Tiarella cordifolia is a pretty little trailing plant with the appearance of a Saxifrage, which clothes large patches of roots. Spiræa venusta, with its stately habit and fine rosy flowers, is a handsome herbaceous ornament to this part. Actæa spicata also forms a noble feature of the same class; and standard Cotoneasters, with fine drooping heads, have a happy effect at some of the salient points.

Descending through the root garden, the transition to the Chinese department, which first begins to be marked by the use of rocks instead of stumps for sustaining the banks, is gradual and easy. But before the level of the lower ground by the Chinese pool is attained, a general view of the principal features of this curious scene opens upon us, and embraces all the more noticeable objects.

The chief design of this singular piece of landscape, beyond the primary one of collecting together the numerous Chinese and Japanese hardy plants with which our gardens abound, appears to have been the representation of one of those eccentric and somewhat grotesque efforts of gardening art in which the Chinese are said to indulge, and some crude idea of which has no doubt been familiar to every one from childhood, in the old Willow-pattern dinner plate. Into a marvellously small area, the Chinaman delights to crowd his miniature models of mountains and lakes, bridges, and other architectural embellishments, and to furnish the whole with his stunted and crippled trees, or with those exaggerated strainings after picturesqueness exhibited in the use of little decrepid and half dead trees, or other deformed and monstrous vegetable objects. With his puny fort or prospect-tower crowning one of his tiny hills, and his quaint covered bridge and cosy pleasure house to decorate the pool on which a full-rigged junk rides securely at anchor, he probably dreams that he has created a prodigy of art, and adds large dragon-shaped flower beds, and other equally harmonious details, to complete the scene.

Most of these curious features have been aptly imitated and embodied by Mr. Bateman in his Chinese garden; and there is a good deal of artistic grouping, besides, in the rocks, the outlines of the pool, the arches, walls, temple, bridge, &c. But the most important effects are produced by clustering together masses of spiry plants, such as Irish Yew, or plants with a distinct colour, as Golden Hollies. A separate little dell is likewise being prepared and surrounded with banks covered with tufa, various trailing and other plants clothing these banks, for the reception of all the choice and new varieties of Moutan Pæony, which will here have just the amount of shade, protection, and other conditions proper for them, and which, when in bloom, will no doubt be surpassingly handsome.

In another part, on the north side of the pool, there is a straight piece of terrace walk, entered upon through a characteristic arch at either end, these arches being flanked with low walls towards the water, and connected by a wall of a regular curve at the back; the recess thus formed affording space for some singular flower beds, partially filled with coloured sands, while the wall is used for such plants as are of doubtful hardihood, and the border in front of it for tender herbaceous and bulbous plants requiring shelter. Rude blocks of stone are placed at regular intervals in the coping of this wall, and between them, on a bank behind, are fine plants of the Chinese Arbor-vitæ.

As it will be impossible to convey a full description, in writing, of this unique region, only a few of the principal plants in it will be noticed. The Cryptomerias are in admirable health and verdure on a north bank, and there is a peculiarly Chinese species, called C. nana, looking as ragged and dwarf as even a Chinese could desire. Viburnum plicatum is quite hardy here. There is a perennial Heracleum, with the habit of H. giganteum, which is very bold and effective. Griselinia littoralis is a new dwarf evergreen, which has proved hardy. The charming little evergreen Azalea amœna is also hardy, and exists here in a large patch, which is covered with rosy flowers in spring. Azalea pontica is used in quantity, both for its showy orange flowers, and the rich tints of its foliage in autumn. A mass of purple-coloured foliage is procured by the Purple Beech, Nut, and Elm; and, in front of these, by way of contrast, the strikingly white foliage of Amygdalus incana occurs. A large group of the various species of Funkia occupies a prominence near the foot of one of the mounds, and both leaves and flowers form a conspicuous object. There is great character, too, about a mass of different species of Yucca. Tree Ivies, with a few golden-leaved kinds interspersed, compose another large irregular cluster.

The principle of grouping, for the sake of obtaining distinct masses of colour or form, is carried out still more extensively in this department than in the rest of the grounds. It includes, besides the plants already enumerated, quantities of Aucuba, Pyracanths, Pyrus japonica, Thuja aurea, Weigela rosea and coræensis, Anemone japonica and Gordon's hybrid Anemone, Japan Lilies, Chinese Junipers, variegated Cupressus thyoides, and many other sorts. Where any particular character in regard to form alone is sought, such things as the upright or fastigiate Thorn, the American Weeping Willow, the Weeping Larch, Standard Cotoneasters, Sophora japonica pendula, and plants of similar or different habits are employed.

Some of the more noticeable among the species remarkable for their individual peculiarities, are a large-leaved Holly, like Ilex latifolia, but with much thicker foliage and a denser habit. It is growing against a wall, and is called I. Taraja. A variegated variety of Acer Negundo has an unusual degree of whiteness about the leaves; it was obtained from the Continent. The neat little Deutzia gracilis, so familiar in the decoration of greenhouses, stands out here entirely uninjured. Rubus nutans, a thoroughly trailing species, is useful for covering banks, especially as it does not extend itself beyond a reasonable limit. Polygonum vaccinifolium is a very pleasing trailing plant, covering large patches of ground, and loaded with its spikes of pretty pink flowers all through the autumn. Spiræa callosa is somewhat like S. bella, but with a stronger habit and finer heads of flowers. The stately Lilium giganteum, at least 9 or 10 feet in height, has the tropical appearance of a Canna or a Musa, and was apparently seeding with freedom. Laurus regalis is a somewhat new kind of sweet Bay, with an exceedingly powerful odour. Garrya macrophylla, which is a noble evergreen, was growing without even the protection of a wall. Piptanthus nepalensis here assumes a vigorous and compact habit, and is valuable for its deep green foliage, which hangs on very late in the autumn. Taxus procumbens, a dwarf spreading kind of Yew, resembling the common species in everything but height and form, is a plant too little known, and has great merit for clothing banks, or for undergrowth. The Assam Tea, the Chinese Orange, and numerous other inhabitants of China and the East, have warm and sheltered corners duly prepared for them. And so rich is this garden in rare and curious plants, that it would require much more space than can be allotted to the subject to notice their various characteristics and merits.

With the mention of one ingenious expedient for masking the overflow to the Chinese pool, this account—so unavoidably extended—must be brought to a close. It is a matter of common observation that the contrivances for concealing the exit drain to any piece of ornamental water, and for preventing leaves and other floating refuse from entering the drain, are of the clumsiest and most inefficient description. In Mr. Bateman's pool large masses of rock, and single blocks, are tastefully thrown out into the water in front of a bank of rocks, and one of these stones is hollowed beneath so as to overlie the pipe which carries off the surplus water. The edges of this stone rest upon others below the water, and these lift it just sufficiently above the overflow pipe to enable the water to find a free escape, without any leaves or rubbish collecting around. Hitherto the plan has answered perfectly.

The absence of any distinct kitchen garden, and of all fruit-houses and plant-houses beyond the small conservatory, is accounted for by the proximity of Knypersley Hall, the seat of Mr. Bateman senior, where everything of the kind exists in abundance, and from whence the family at Biddulph Grange is supplied.

It remains only to observe that the difficulty of describing a place which is so full of intricacies, without plans or illustrations of any kind, has been strongly felt; and the writer is conscious that, in aiming to convey a distinct impression, he may have stumbled on undue

prolixity. There is very much about these gardens, however, that has yet been but cursorily noticed, or that it was impossible adequately to represent within reasonable limits. And lest it should be assumed that, because these articles do not contain the usual delineations of faults and suggestions of improvements, all that has been done by Mr. Bateman is approved and praised, it must be noted that the writer has purposely adopted the critical principle of pointing out only those things which, for some reason or other, are to be decidedly commended. It is proverbially easy to find fault, and, generally, comparatively useless as well as ungracious.

Undoubtedly the chief defect of the place is the excessive multiplication of parts, which breaks up the whole area into small portions, interferes with unity and connection, and produces, in some degree, a want of breadth and repose. For this, however, a very large compensation is afforded in the surprising variety and distinctness of the numerous departments, and the greatly superior interest that thus attaches to an examination of the place or a residence in it. The relative desirableness of a large open area, with a few subordinate side scenes, or one minutely subdivided like Biddulph Grange, must consequently depend very much on individual inclinations and taste. *Edward Kemp, Landscape Gardener, Birkenhead Park.*

Miscellaneous.

Liquidambar styraciflua, commonly called Sweet-gum (says Dr. Wright in the American Journal of Medical Sciences), is indigenous to nearly every part of the United States, and constitutes one of our largest forest trees. When an incision is made through the bark of this tree, a resinous juice exudes, which possesses an agreeable balsamic odour. When this substance first exudes, it is of the consistence of turpentine, and possesses a stronger smell in that condition than it does after it has become resinified. Contrary to the statements made by Wood and Bache in their Dispensatory, this tree furnishes a considerable quantity of resin in the Middle States, particularly in the States of Ohio, Indiana, and Kentucky, bordering on the Ohio River. It is annually collected in those States, and sold under the name of gum-wax. It is a much more agreeable masticatory than the Spruce-gum, and is chewed in the West by nearly all classes. By proper incisions, one tree will yield annually about 3 lbs. of the resin. The chemical composition of the specimens collected in this latitude correspond with that given by M. Bonastre of specimens gathered elsewhere, viz.: benzoic acid, a volatile oil, a semi-concrete substance separated by distillation and ether, an oleo-resin, a principle insoluble in water and cold alcohol, termed styracine. The bark of the tree contains tannic and gallic acids, to which its astringency is due. What I wish more particularly to call attention to is the employment of a syrup of the bark of this tree in diarrhœa and dysentery, and more especially the diarrhœa which is so prevalent among children during the summer months in the Middle States, and which frequently terminates in cholera infantum. The best formula for the preparation of this syrup is that given in the United States' Pharmacopœia for the preparation of the syrup of Wild-Cherry bark, of which the following is a copy, the Sweet-gum bark being substituted for the Wild-Cherry bark:—"Take of Sweet-gum bark, in coarse powder, five ounces; sugar (refined), two pounds; water, a sufficient quantity. Moisten the bark thoroughly with water, let it stand for 24 hours in a close vessel, then transfer it to a percolator, and pour water upon it gradually until a pint of filtered liquor is obtained. To this add the sugar in a bottle, and agitate occasionally until it is dissolved." The dose of this syrup for an adult is about one fluid ounce, to be given at every operation, as long as the operations continue to recur too frequently. One advantage which this medicine possesses is that of having a pleasant taste, and of being retained by an irritable stomach when other substances are rejected. Children never object to it on the score of bad taste. *Pharmaceutical Journal.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In changeable weather like the present this structure will require very careful management. The best plan is to keep as low and dry a temperature as can possibly be permitted, say from 40° to 45° at night, allowing it to rise a little in the day time. In mixed greenhouses see that the young stock of Heliotropes, Pelargoniums, Cyclamens, and other flowers grown especially for winter, have nice light situations and regular attention as regards watering. This is a good time to introduce the following things into the forcing pit, provided they have received the necessary treatment through the summer:—Rhododendrons, Azaleas, Persian Lilacs, Sweet Briars, Moss and other Roses, Ledums, Kalmias, Daphnes, Anne Boleyn Pinks, Dutch Bulbs, &c. Unless, however, they are in proper trim, it will be labour in vain, and no mode of forcing or form of pit can compensate for this; the great secret of success if the heat is wholly composed of fermenting materials, is to keep down accumulating damp and mouldiness by an almost constant ventilation, increasing the linings in order to raise the necessary temperature. Those who are fortunate enough to possess pits heated by means of hot-water will of course pursue a somewhat different course. Look well to pits and frames containing stores for next summer, and have efficient protecting material always in readiness with which to cover them whenever the weather is unfavourable.

FORCING DEPARTMENT.

PINERY.—Water plants in pots as little as possible at this season; where the general stock is grown in this manner it is a good plan to cover the pots over 2 or 3 inches with the plunging material; where the bottom heat will permit that to be done it obviates the necessity of watering so frequently. VINERIES—Use fire-heat sparingly in houses where the fruit is ripe, but sufficient must be used to prevent the moisture of the atmosphere being frozen to the glass inside the house, for if this is allowed to happen the moisture on thawing is liable to drop upon the bunches, injuring the bloom and causing the berries to decay. Admit air on every favourable opportunity, and examine the bunches often and carefully, so as to make sure of removing decaying berries the moment it can be perceived that they are affected. Where forcing is fairly commenced be careful to maintain a properly moist state of the atmosphere, and this must be especially attended to while severe weather lasts, particularly where the buds are bursting. The evaporating troughs must be kept constantly supplied with water, and the paths, bed, &c., should be frequently syringed, and it will also be advisable not to have the tender foliage too near the glass until the weather changes. If fermenting material is used for warming the border, this must be well covered with dry litter to protect it from the frost, and turned occasionally, adding some fresh as may be necessary to keep the heat in the border regular. It will be advisable, however, to have some dung and leaves thrown up to heat, as there would be some danger of chilling the bed by turning it in the present state of the weather, and mixing it with the dung or leaves which had not commenced fermenting. Houses which it is intended to commence forcing the beginning of next month should also have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited, which will be of great service towards getting the buds to push strongly and without loss of time. STRAWBERRIES.—Where these must be obtained as early as possible, say by the end of February, a lot should now be introduced. Any house or pit will do, provided a temperature of from 45° to 50° can be maintained with a moist atmosphere. Let them also have as light a situation as possible. SEAKALE AND RHUBARB may be brought forward in a Mushroom house.

FLOWER GARDEN AND SHRUBBERIES.

Now that the leaves are off the trees let lawns and shrubberies have a thorough cleaning. Examine pillar and trellis Roses, and if the weather is favourable see if the soil wants renewing, or the kinds changing. For choice sorts roomy holes should be made capable of containing three or four barrow loads of well prepared soil. Turfy loam of good quality is the chief thing; to this add a portion of rich rotten manure, and if at hand a little sandy peat or leaf mould.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground whenever the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens, the soil of which is of a clayey nature. If frost continues, let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps either on the spot where it is to be used, or as near as possible to it. What is not required for immediate digging in should be piled in small mounds and soiled over, to prevent loss from evaporation. Do not uncover tender vegetables after the breaking up of frost until they have become completely thawed, and even then do not uncover suddenly; leave a very light protection on them for a day or two, in order to inure them gradually to sunlight.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Dec. 4, 1856, as observed at the Horticultural Gardens.

Nov. and Dec	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 28	1	29.727	29.680	40	19	29.5	42	46	W.	.00
Satur. 29	2	29.722	29.694	37	16	26.5	40	45	W.	.10
Sunday 30	3	29.940	29.752	35	14	24.5	38	44	N.	.00
Mon. 1	4	29.976	29.900	33	15	24.0	38	43	N.W.	.00
Tues. 2	5	29.958	29.897	35	19	27.0	38	42½	W.	.00
Wed. 3	6	29.964	29.750	37	24	30.5	38	42	N.E.	.26
Thurs. 4	7	30.043	29.920	38	30	34.0	38	41	N.	.12
Average ..		29.895	29.797	36.4	19.6	28.0	38.9	43.4		.38

Nov. 28—Cloudy; hazy; sharp frost at night.
— 29—Frosty; clear; frosty.
— 30—Severe frost; clear; freezing nearly all day; severe at night.
Dec. 1—Severe frost; fine but cold; severe frost.
— 2—Clear and frosty; clear at night; snow at night.
— 3—Rain, and thick fog; cloudy.
— 4—Frosty and foggy; cloudy; rain at night.
Mean temperature of the week 13½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Dec. 13, 1856.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7	46.9	35.9	41.4	17	0.52 in.	4	2	3	2	6	4	5	4
Mon. 8	45.9	33.2	39.5	17	0.36	2	4	2	1	2	9	8	2
Tues. 9	45.6	35.5	40.5	14	0.31	2	7	2	1	1	11	5	1
Wed. 10	45.9	33.8	39.8	10	0.20	2	4	2	1	7	7	4	3
Thurs. 11	45.5	32.3	38.9	7	0.62	—	3	1	4	5	9	5	3
Friday 12	45.3	33.5	39.4	12	0.26	2	2	2	1	6	10	5	2
Satur. 13	46.6	32.6	39.6	10	0.16	1	3	4	1	8	9	2	2

The highest temperature during the above period occurred on the 13th, 1842—therm. 61 deg.; and the lowest on the 13th, 1846—therm. 11 deg.

Notices to Correspondents.

BOOKS: *F J H.* Williams's or Moore's small work on Ferns may possibly answer your purpose. The Index for 1851 may still be obtained.‡

CROSS BREEDING: *Mr. Darwin*, who has been much occupied in an inquiry into subjects of this kind, would be greatly obliged to any practical correspondent who may favour him with his experience as to Leguminous crops. Perhaps our friend at Bromsgrove may have something to say. The main questions are—do Leguminous crops, when grown together, sometimes cross; or may they be invariably grown together without any chance of deterioration? We should like to have the inquiry extended, and to know whether Leguminous plants with papilionaceous flowers ever cross accidentally. The case of the Laburnum and Purple Cytisus producing the Cytisus Adami should be disregarded, its history being very obscure, and probably wholly unconnected with cross breeding.

EVERGREEN OAK: *Ilex.* Cut it down by March; cover the wound, *while dry*, with some melted rosin to keep the wet out, and let the wound slope at 45°.

HEATING: *A Constant Reader.* The meaning is already sufficiently explained. It is useless as well as wrong to continue the discussion.—*H W* asks us to inform him as to the best means of heating a greenhouse under the following circumstances:—It is to be built against the drawing-room, one window of which will open into it; a chimney anywhere visible would not be advisable, and he asks if he could heat it by a coke fire inside? Whether that would require a chimney? And whether the fumes from the coke would injure the flowers? To this we answer certainly they would; and so would gas if recourse were had to it. In short, a good mode of warming very small greenhouses has still to be discovered. Perhaps it could be covered at night with a thick straw mat, or some such material, which would keep out severe frost. To *Diamond* we must give the same reply.—*A Sub.* Use common 4-inch spigot and fosset pipes, such as are sold by thousands from the Carron and other foundries. They are a quarter of an inch thick. According to Hood, 1 foot in length of such pipe will heat 222 cubic feet of air 1° per minute, when the difference between the pipe and air is 125°. He reckons that when the external air is at 10° 200 feet of 4-inch pipe will be required to heat 1000 cubic feet of air to 60°. In your case we suppose that a double row of pipes all round would be necessary.

HYOSCYAMUS: *C E H.* Yes.

MELON PIT: *A Constant Reader.* One circle of 3-inch pipes is enough. We recommended rough slabs for the flooring because they are very cheap. It is true they will not meet, but by laying straw or turves across their joints the earth of the bed will be prevented falling into the chamber. Slate is neater and more expensive, but not better. The space between the earth and front wall should be 4 inches. Undoubtedly some water will find its way down into the chamber between the slabs, but nothing to signify if the turves or straw are packed closely. The chimney pots should be empty, and their base should be 6 inches above the slabs, resting on the earth.

MOSS ON FRUIT TREES: *Reader.* We can scarcely decipher your writing. You may kill Moss by local applications or you may remove it by scraping, but you do little good; it will come again as badly as ever. You must invigorate your trees if the growth of Moss is to be prevented.

NAMES OF FRUITS: *F S.* Your Apple is the Court of Wick.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*F.* Salvia splendens, one of the earliest imported of the brilliant scarlet kinds.‡

NAPTHA WORKS: *H M, Herts.* We have no personal knowledge, but we are assured, upon what we believe to be the best authority, that there is nothing deleterious in connection with them if they are properly managed.

ORCHIDS: *Flora* will be obliged by some of our correspondents informing her whether there are any Orchidaceous plants sufficiently hardy to grow and flower in a conservatory, the heat of which is sometimes as low as 45° at night.

STEEL FORKS: *W C.* The size of this tool must depend on the soil it has to work, and the strength of the workman. Undoubtedly the best size is that with four prongs or tines. But take care that the fork *is steel*: we have seen most rascally tools of this kind, the tines of which bend like iron wire.

STRAWBERRIES: *A Grower* will not easily identify either Sir Harry or any other sort by comparing what he has with coloured prints; nor is there any such representation of that variety that we remember.

THE BOWOOD MUSCAT GRAPE. We speak from personal knowledge of its excellence. It is not yet for sale, but will doubtless be advertised in the spring, when you will learn where to order it.

THE HORTICULTURAL SOCIETY.—So many inquiries reach us as to the new regulations respecting the admission and privileges of Fellows that we find it desirable to print them as they are now described in the official Circular of the Society. *Payments.*—The annual contributions to be paid by the Fellows are either four guineas or two guineas, as they may determine when elected. All annual contributions become due and payable on the day of the anniversary meeting in each year for the year following. Every person who shall cease to be a Fellow of the Society, or whose payments shall have been suspended as herein provided, after the 1st day of May in any year, is liable to the payment of his subscription for that year. *Privileges.*—The Fellows of the Society are entitled to the following rights and privileges: If paying Four Guineas a year, to participate in the distribution of plants and seeds from the garden, and to hold a Transferable Ivory Ticket, which gives the bearer all the personal privileges of the Fellow, except attendance at Special General Meetings of the Society held for the transaction of Corporation business. If paying Two Guineas a year, to participate in the distribution of seeds and cuttings in London. And also, whatever the rate of payment may be, to be present and vote at all general meetings; to introduce visitors at the ordinary general meetings of the Society; to have access to the library and other public rooms of the Society, and there to consult the printed books, plates, and drawings belonging to the Society; to have personal admission, and to introduce personally or by order, visitors to the garden of the Society; to receive gratis such publications of the Society as may appear during the time they continue to be Fellows; to purchase, at a reduced price, Tickets for Special Exhibitions, with such limitation and under such regulations as the Council may from time to time direct. *Ladies.*—Every lady, Fellow of the Society, may appoint any gentleman, being a Fellow of the Society, to vote for her at the general meetings of the Society, upon the production of a proxy, which shall not be changed more than once in each year. If any lady, Fellow of the Society, is the wife of any person not a Fellow of the Society, he will not be entitled in her right to any of the rights or privileges of a Fellow, but she will, so long as she continues to conform to the regulations of the Society, continue to enjoy separately all her rights and privileges as a Fellow of the Society.

MISC: *Sub.* You may prune your Camellias and Gardenias immediately they have done flowering, or before they have begun to make their next year's growth.—*W P.* You will find the information you seek for at p. 675 of the present year's volume.‡

[COPY OF CIRCULAR.]

PROPOSED TESTIMONIAL TO MR. J. C. NESBIT, OF KENNINGTON.

CENTRAL FARMERS' CLUB,
New Bridge Street, Blackfriars.

SIR,—The Members of this Club have resolved on presenting Mr. J. C. Nesbit, of Kennington, with some suitable Testimonial in appreciation of the valuable services he has rendered the Agricultural community: I am requested to ascertain if you would be willing to assist them in carrying this out.

You may perhaps be already aware how much Mr. Nesbit has done to make the Chemistry of Agriculture generally known and practically understood. For many years now he has been in the habit of delivering Lectures on such subjects to the Members of various Farmers' Clubs and Societies throughout the Kingdom. To properly qualify himself for this duty he has in person carefully examined the condition and the results of our best known systems of farming. The effect of this, combined with the scientific knowledge he had previously acquired in the Laboratory, has been to give his addresses a directly practical tendency and influence. The information he had to impart being invariably associated with a style remarkable for its clearness and utter absence of all technicality. It is considered that these Lectures, extending over a period of fifteen years, have been very instrumental in imparting that knowledge of Chemistry our farmers now possess.

Further than this, however, Mr. Nesbit, in conjunction with his father, originated, immediately on the formation of the Royal Agricultural Society of England, the Agricultural College at Kennington, and of which he is the Principal. This is the first institution of the kind in which Analytical Chemistry was made an ordinary and regular branch of education, having been in existence some years previous to the Cirencester College. The manner in which many of the pupils from Kennington have subsequently distinguished themselves is the most satisfactory compliment to the gentleman under whom they were educated.

Mr. Nesbit's labours in a variety of other ways have all been directed towards the advancement of Agriculture. They have tended, amongst other matters, to the discovery of the Phosphates, during the investigation on which he conducted many hundred analyses. Whilst amongst the chief and most unremitting of his exertions has been the endeavour to expose and retard the adulteration of Artificial Manures.

The Members of the Club think they have said enough to warrant them in asking you to join them in offering their substantial thanks to one who has done so much in their behalf. As the Subscription List will shortly close, they will be the more obliged by your at once giving this your best consideration.

I am, Sir, your obedient servant,
HENRY CORBET,
London, December, 1856. Honorary Secretary.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 8*l.* per ton; Superphosphate of Lime, 7*l.*: Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840)

Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.

EDWARD PURSER, Secretary.

40, Bridge Street, Blackfriars, London.

ESTABLISHED 1812.

TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the *weight* and *quality* of the bulbs which it produces; it is besides especially beneficial to the *Grain Crops* which follow, while *Clover* is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to

H. & T. PROCTOR, CATHAY, BRISTOL.

PROCTOR AND RYLAND, { BIRMINGHAM, EDMONSCOTE, WARWICK. And SALTNEY, near CHESTER.

LAND DRAINAGE AND OTHER AGRICULTURAL IMPLEMENTS.

MR. THOMAS SCOTT, 5, Charing Cross, has at present a large number of Skilled Drainers in his employ, and is prepared to Contract for Works of Drainage and to carry them out with the utmost despatch.

All other Agricultural Improvements, such as removing fences, grubbing up Coppice Wood, and trenching undertaken.

Designs given for Farm Buildings, and systems of Farm Management laid down.

Mr. S. has at present several excellent Farms and Residential Properties for Sale and letting.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY

Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

SMITHFIELD CLUB, BAKER STREET BAZAAR—STANDS Nos. 153 & 154, at the North end of the West Gallery.

SUTTON AND SONS,
Royal Berkshire Seed Establishment, Reading.

SUTTON'S CHAMPION SWEDES, AND SUTTON'S SELECTED MANGEL WURZEL.—At the Smithfield Club Show, STANDS 153 and 154, will be seen Swedes and Mangel Wurzel from the fields which gained H. R. H. PRINCE ALBERT'S PRIZE CUPS at the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Society's Meetings.

It is worthy of observation that these same distinguished Prizes have been awarded to the same sorts at these Meetings both in 1855 *and in* 1856.

For Seeds of the same, address SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SMITHFIELD CLUB CATTLE SHOW.—Show Days: 9th, 10th, 11th, and 12th December.

See BENTALL'S NEW PATENT ROOT PULPER, Stand 192.
Manufactory—Heybridge, Maldon, Essex.

SMITHFIELD SHOW, Stand 223.—Wheat Planters or Depositors, Bean and Grain Setters, with from 5 to 15 planting irons in each implement, on wheels, and worked with a lever, doing from 1 acre to 2 acres a day. Other important inventions will be exhibited as above.

SMITHFIELD CATTLE SHOW.

W. SKIRVING begs to acquaint his friends and the public that he will attend at the ensuing Smithfield Cattle Show on the 9th, 10th, 11th, and 12th December, to exhibit ROOTS of his IMPROVED SWEDE TURNIP, and take orders for the Seed of it and all approved kinds of Agricultural Seeds.—Liverpool, December 6.

SMITHFIELD CLUB SHOW.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to HER MAJESTY THE QUEEN, &c., STANDS Nos. 219, 220, 221, and 222, will exhibit specimens of various FIELD ROOTS sent by several of their English Customers, and all grown under ordinary Field Culture. They will also exhibit a collection of Roots from Scotland, specimens of Grain in the Straw, &c.

Catalogues of the various departments of their business may be had at their Stand; or at their London Branch, 27, Great George Street, Westminster.

SMITHFIELD CLUB SHOW.

THE TRACTION ENGINE AND ENDLESS RAILWAY, which appeared in the Procession on Lord Mayor's Day, will be publicly exhibited in operation in the immediate neighbourhood of Baker Street on the four days of the Cattle Show.—For further particulars apply to BOYDELL & GLASIER, Hawley Crescent, Camden Town.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

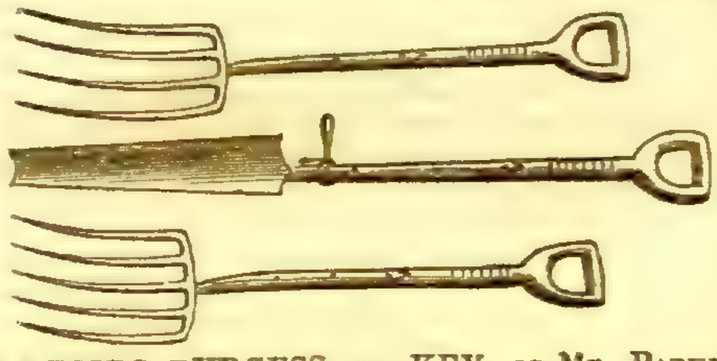
Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „	long 3 „ 3 „	gutta percha,	1	14	0
3 „	ditto 3 „ 6 „	or cast iron	2	8	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	12	0
4 „	ditto 3 „ 6 „	as required.	3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
95, Newgate Street, London.

PRIZE STEAM ENGINE AND THRESHING MACHINE (HORNSBY'S), Prize awarded by the Royal Agricultural Society of England, now ready for delivery at WM. DRAY & Co.'s Warehouses, Swan Lane, Upper Thames Street, near London Bridge.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

MR. DONNE'S DORKINGS & BUFF COCHINS—The Rev. STEPHEN DONNE has Dorking Chickens and a few Adult Hens to dispose of, bred from the Birds which have won the Silver Cups at Birmingham, Liverpool, and Windsor. Also, Eggs from the best Dorkings and Cochins will be ready shortly. The above Dorking Chickens are the Brothers and Sisters of the Birds which have won the Silver Cup, and the Second Prize at Birmingham at the last Show; and the EGGS will be from the parents of these Birds.—Oswestry, Dec. 6.

CRYSTAL PALACE.—POULTRY SHOW.—The Directors beg to announce that a GRAND EXHIBITION of POULTRY, PIGEONS, and RABBITS will take place on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, the 10th, 12th, 13th and 14th of January next.

The Entries will close on Saturday the 13th December inst.

Schedules of Prizes, with the Regulations, may be had on application to Mr. HOUGHTON, Secretary to the Poultry Exhibition, Crystal Palace, Sydenham, to whom all communications may be addressed.

Agricultural Implements.—The largest collection of the best Implements and Machines, by Ransome, Garrett, Crosskill, and other eminent makers, is now exhibited at the Crystal Palace. Prices may be obtained of the attendants.

General Arrangements.—The Palace is open daily. On Saturdays (when a Concert of vocal and instrumental music is given) from 12 till dusk; Admission, 2*s.* 6*d.*; Children, 1*s.* On other days from 10 till dusk; Admission, 1*s*; Children 6*d.* The Crystal Palace Band performs daily in the New Concert Room.

By order, G. GROVE, Secretary.

Crystal Palace, Dec. 6.

COLCHESTER POULTRY EXHIBITION.—ESSEX ASSOCIATION FOR THE IMPROVEMENT OF THE BREEDS OF POULTRY.—The Fourth Annual Exhibition of this Society will be held in the Castle Bailey, Colchester, on WEDNESDAY, THURSDAY, FRIDAY, and SATURDAY, December 31st, 1856, and January 1, 2, and 3, 1857, and the Entries close on WEDNESDAY, December 17.

The COLCHESTER CUP, value 20 Guineas, for the best collection of Poultry, (not less than ten pens and five varieties,) shown for general competition; the COUNTIES CUP, value 10 Guineas, for the best collection of Poultry, (not less than six pens and three varieties,) shown for general competition; a Piece of Plate, value Five Guineas, for the best collection of Poultry, (not less than five pens,) shown for general competition, contributed in this case by Essex or Suffolk Exhibitors; a Silver Medal, value Two Guineas, for the best collection of Pigeons, (not less than five pens,) will be awarded, in addition to the ordinary prizes.

Prize Lists, Certificate Form of Entry, &c., may be had on application to the Honorary Secretaries, 19, High Street, Colchester.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of Prize Cattle, Seeds, Roots, Implements, &c., commences on TUESDAY MORNING and closes on FRIDAY EVENING, December 9, 10, 11, and 12. Bazaar, King Street and Baker Street. Open from daylight till 9 in the evening. Admittance One Shilling.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The GENERAL MEETING of the MEMBERS will be held on SATURDAY, December 13, at 11 o'clock.

By Order of the Council.
London, Dec. 6, 1856. JAMES HUDSON, Secretary.

The Agricultural Gazette.

SATURDAY, DECEMBER 6, 1856.

A SHORT account of the Midland Counties Show at Birmingham this week is given in another page. We doubt not we shall next week have to refer more particularly to some of the principal animals exhibited when they make their appearance at the Baker Street Exhibition of the Smithfield Club. Among the agricultural events of the ensuing week are the meeting of the London Farmers' Club, when Mr. THOMAS opens a discussion on the important subject of crop rotations—the meeting of the Smithfield Club and their annual show on Tuesday, Wednesday, Thursday, and Friday at the Baker Street Bazaar—and the meeting of the Society of Arts on Wednesday, when a discussion will take place on the utilisation of town sewage.

IT is a fact characteristic of many a profession besides agriculture that the man most defective in the theory he may hold, is nevertheless often most successful in the practice he exhibits. This arises either from a false theory being held entirely in abeyance; or, if it be merely deficient, from what is sound in the opinions entertained being energetically developed. Take the relation in which the working man stands to his employer as an instance—how many masters there are of liberal sentiments and large profession in this matter who nevertheless leave their neighbours to themselves—while others, holding, as we believe, defective views, are conscientiously carrying out the plans they believe the best, and effecting great good in consequence.

Of the several speakers at the London Farmers' Club the other day, when the condition of the agricultural labourer was discussed, we sympathised most fully with Mr. WILLIAMS, of Baydon, Wilt-

shire—if, indeed, we except his remarks on the propriety of making it a breach of the law to enter a public-house on Sundays. Take his remarks on allotments, for example :—

"He and Mr. BAKER of Writtle differed, he thought, only as to the mode of cultivation: Mr. BAKER thought that 20 perches was sufficient for the labouring man, because he would not allow him to grow any white crops. Now, he differed from Mr. BAKER on that point He hoped the labourer would be found sufficiently honest to be permitted to grow a certain amount of white crops without exposing himself to the suspicion that he grew more per acre than his master could ever produce. There was an idea abroad that if the labouring man were allowed to cultivate Wheat and Barley, his produce would increase through the opportunities which he had of taking home a portion of his master's; and that his small Wheat crop would yield, rateably, double what his master's crops would yield under the highest cultivation. He trusted he should live to see the day when the labourer could be allowed to grow white crops, without its being supposed that he must rob his master every day to increase his production. As regarded the rood of land of which he had spoken, if the labourer were placed in a proper position, a certain portion of this would be required to obtain a sack of Wheat or Barley. If he made the best use of the offal of his cottage, he would be in a position to keep a pig. He would then require a certain amount of straw to litter his pig, and he would, to some extent, be a farmer—that was to say, to the extent of the land which he cultivated. The pig would be the stock on his little farm, producing manure to keep the land in condition. The straw which the white crop produced would help him to litter his pig, and, in its altered shape, would be returned again to the soil; and after the pig was killed, the labourer would have two flitches of bacon hung up for winter-consumption, in addition to the Potatoes, Cabbages, and so on."

This we believe to be the true way of treating the labourer. Trust him—put him in the way of working for himself—sympathize with him in all his successes. Having some 10 or 12 years ago let 20 acres to 60 or 70 allotment tenants in Gloucestershire, 40 to 80 perches being allotted to the tenants in proportion to their ability to cultivate the land—the only stipulation being that not more than one-half should be in any year in Potatoes or in corn—and all the conditions as to moral conduct, Sunday working, &c., being well understood without having ever once been made the subject of remark or rule, we can testify from the success of the whole plan to its soundness. Having revisited the place last summer after an absence of some years, we found better crops of Wheat had been reaped last year than had been ever known before—most families had three months' bread besides their vegetables from their plots—and it was a common thing to hear it said they would not lose their plot of land for 6*l.* or 8*l.* a year.

Nevertheless look at the patient, laborious, and successful practice of some men, who look with a degree of suspicion on the working man, or if this be too harsh a term, who think that, though there is a possibility of educating him too well, he must be looked after, and tended and provided for. We do not know if Mr. BAKER, of Writtle, or Mr. THOMAS, of Lidlington, will admit that they are properly placed among this latter class; they appeared to us to think that it was the business of the farmer to "form the principles" of his men, and "to give continaal attention to their wants;" sentiments which may be considered redundant rather than defective as regards the theory of the relationship between labourers and their employers. But whatever may be thought of their opinions no one can fail to admire their practice. And Mr. BAKER with his cottage building, his evening schools, and even his allotments—and Mr. THOMAS with his admirably organised and managed "classes" of boy-labourers—may be safely left in the enjoyment of what opinions in the abstract they may choose to teach, so long as methods so well conceived, benevolent, and efficient are kept by them in operation for the benefit and instruction of the people in their employ.

IN a recent number of this Journal we quoted the opinion of Mr. WILLOUGHBY WOOD on the profitableness of attention to the principles which guide the successful breeder of our domestic animals. "In a knowledge of the principles of breeding the agriculturist will find a mine which will repay the working as amply as the chemistry of the soil or the physiology of vegetation."

At the late meeting of the Chemico-Agricultural Society of Ulster, Mr. ANDREWS of Comber, in his excellent address on the claims of that society to public support, referred, on the other hand, to the importance of knowing the principles of cultivation. "Hundreds of pounds a year of premium are applied in rewarding the breeder who had lengthened by a few inches the hough of an ox, or produced in some degree a more rotund development of some muscle which was admired and which no doubt was useful—but the observation he made was that while the breeder who produced these beauties in utility and fashion was largely rewarded, a very small sum was considered quite enough to give to those who applied themselves to produce the means by which the animals were supported."

These are the two aspects in which the theory and practice of agriculture present themselves. On the production and on the consumption of the food for stock upon the farm depends its yield of food for man. These two divisions, however, ought not to be pitted against each other—they are the parts of a consistent whole. We cannot sell our root crops, and it is therefore of the highest importance that we should be enabled to consume them profitably. The cultivator has every reason to thank the breeder and to thank those societies through whose encouragement the breeds of of cattle have been by him so much improved.

Stated positively, however, on its own account, and not in depreciation of the other divisions of farm practice, there can be no doubt of all that Mr. ANDREWS said on the primary importance of the art of cultivation and on the first class value of all such efforts to teach right principles on this subject as the Ulster Chemico-Agricultural Society are making. This is we believe the only society of its kind now existing—and we hope that its labours and those of its able chemist, Dr. HODGES, will not be allowed to drop for want of that support for which Mr. ANDREWS urged so powerful a plea.

His address will be found in another column.

TREATMENT OF PLEURO-PNEUMONIA.

THERE are perhaps not many holders of live stock, who being at a distance from a veterinary of skill, do not give attention to the treatment of them when ailing. Such are my circumstances, and latterly I may say that this office has chiefly been discharged by myself.

During the present season my own feeding stock, but more especially milk cows, have been visited with that discouraging disease pleuro-pneumonia. As the remedies I have applied differ in some respects from any I have noticed, and have also been comparatively speaking successful, I seek to explain them in your columns. My feeders are strictly enjoined without loss of time to announce to me any appearance of ailment—a practice I most strenuously advise to any one who concerns himself about the treatment of his cattle, more particularly as regards the disease of which I am speaking, the chance of success in which essentially depends on early application.

The first appearance which arrests the feeder's attention is loss, or partial loss, of appetite. If on examination I detect any of the symptoms which characterise pleuro, viz., a cough, quickness of respiration, intermittent warmth and chillness of horns, loss of and acceleration of pulse, I proceed at once to bleed till the pulse is sensibly affected. This usually requires 5 to 6 quarts to be taken. I then give—

Epsom salts	8 oz.	Digitalis	½ drachm.
Spirits of nitre ...	1 „	Flour of sulphur ...	4 oz.
Tartar emetic ...	½ drachm.	Treacle	16 „
		Coco-olein	6 „

These ingredients are mixed, and given with plenty of warm gruel, for which I use my pig food—boiled Indian meal mixed with a small proportion of Pea-meal. In some instances when a renewal of the difficulty of breathing and acceleration of pulse have shown themselves, I have thought it advisable to repeat the bleeding to a less degree, say 3 quarts, and give likewise the Tartar emetic and digitalis in the gruel. I think this treatment applicable only to the very early, and on no account to be resorted to in the more advanced stages of the disease.

I continue to give morning and evening in gruel—

Coco-olein	4 to 6 oz.	Flour of sulphur	4 oz.
Spirits of nitre ..	½ to 1 „	Treacle or sugar	8 „

At noon I give the gruel with the addition of a little sugar only. The doses of sugar or treacle and sulphur are modified by circumstances, and so as to keep the bowels sufficiently open. It will be observed that in the first dose I give Epsom salts, on account of their quick action, but afterwards I prefer treacle with sulphur. The patient requires watching with the greatest care; the sick room ought to be well ventilated at the top, but kept warm day and night. A depression of temperature or exposure to draught has been observed to disturb the breathing. When the feverish symptoms have abated, I give oatmeal instead of Indian meal in gruel; I continue the coco-olein with sugar or treacle morning and evening throughout, with occasional doses of ½ to 1 oz. of spirits of nitre. In several of the cases, when the pulse has become feeble and below 60 beats per minute, accompanied by languor and weakness, I have given a wine-glass of brandy in the morning and evening's gruel with apparent advantage. The attendant is taught to offer the animal changes of food, brewers' grains, bran mash, hay, Grass, green Rape plant, or other palatable material. It is encouraging to find the animal begin to eat, and make its selection.

The treatment has varied in some respects from what I first started with; towards the commencement I lost two, but latterly and since I have used the precise treatment I have described, I have been uniformly successful; out of the whole 14, 12 have recovered.

The time they have been unwell has varied from 14 to 21 days; the healthy action of the skin has been in a great degree maintained, as I have scarcely observed in any instance that extreme fastness of hide or staring coat which usually accompanies this disease in its lengthened stage. They have lost in weight to the extent of 1 cwt. to 1¾ cwt. each. The milk cattle whilst suffering have reduced their yield of milk to 3 or 4 quarts per day, but on their recovery have in a great measure regained this. In no instance have I found a greater falling off than 2 quarts per day, a diminution scarcely greater than could be expected from loss of condition and of price.

My success is attracting the attention of my neighbours, two of whom have tried it, each on one animal only, with success. In a future paper I purpose to treat of the theory or adaptation of means to end of this treatment. Messrs. Price & Co. at my instance have prepared coarse olein for cattle at a cheaper rate than is used by medical practitioners. *T. Horsfall, Burley Hall.*

DIARY OF A DAIRY FARM.

NOVEMBER AND DECEMBER.

VERY little remains now to be added to the information given in previous months upon the management of the dairy, except to attend to the rules already laid down. Great attention must, however, be paid to the late made cheese, for if the frost sets in while it is tender it will prevent its ever becoming firm, and it will run out in the sides and become indented and rough on the top, which of course causes much waste; however, if this does occur, the cheese thus affected will be found to be most usefully appropriated by being used for toasting; the taste is generally mild, and it has been very good indeed when used in this way, and generally approved, it being more tender and digestible than ordinary toasted cheese, which often becomes hard from the process of toasting, whereas this never becomes so, and is more like a rich cream on the dish; but there is a greater advantage in keeping it from the injury occasioned by the frost than in using a larger quantity than may be required for toasting. It may be well to prevent the severe weather from taking effect upon the late made cheese by removing it to a warmer situation than the dairy or cheese loft, where it may not be so likely to suffer; if convenience offers, a dry underground cellar or a room where it may have the advantage of a fire would be very desirable. Woollen cloths also may be thrown over the cheeses, or anything that would in some degree protect them from the frost is quite worth attending to, and the quality may be preserved from injury by attention to these particulars. The cheese vats should be well scalded before being stacked away, which should be done in a manner to allow of air passing between them, otherwise they will become mouldy; this should be avoided, and they require frequently to be examined and be rubbed with a dry cloth if any mould appears upon them, everything requiring to be kept from any unpleasant smell, and the cheeses when they are used are liable to have the taste affected, if this is not prevented by proper attention. The cheese cloths should be boiled in sour whey before they are washed to be put away for the winter; if there should be any salt left in them this will entirely remove it, the salt would cause them to become rotten if left in. Butter is usually troublesome to manage at this season. Cream should not be allowed to be chilled at any time before it is prepared for being made into butter, which must at this season be done by warming in a tin vessel placed in a furnace of boiling water; the heat of the cream must be regulated by the weather, which, if very severe, will require more heat than if less so, and care and experience is necessary to regulate this, as if made too warm, the quality of the butter will thereby be deteriorated. Sometimes dairy cows are allowed to eat Turnips or the tops of Mangel Wurzel at this season, which has an improper influence upon the butter by giving it a very unpleasant flavour; this should be prevented if possible, but if this food should be allowed, a small quantity of saltpetre is a very good thing to remove the taste; about the proportion of a small Walnut to 2 quarts of cream will have a good effect. It should be put into the cream pan before the cream is poured into it, and then be frequently stirred before it is churned. The milk is now generally from cows which have calved many months, and has sometimes not that sweetness which it has earlier in the season, therefore it is a sufficient reason for skimming it every 12 hours instead of allowing it to remain 24, which is sometimes done, the butter will be the sweeter when this plan is adopted. If the temperature of the dairy can be regulated by stove or otherwise, so that the milk may not feel the severity of the season, it will have a very beneficial influence on the butter, both as to quantity and quality.

The colour of late made butter may be very materially improved, and the taste will prove to be much fresher and sweeter by adopting the following recommendation:—The night before the cream is to be churned, take two or three good-sized red Carrots for each gallon of cream; after washing, grate them, and stir the pulp into the cream; the juice will mix with it, and the pulp will remain in the cloth or strainer when the cream is poured into the churn. The flavour of the butter will be much improved and the appearance changed for the better by this simple and wholesome addition. The Carrot as a colouring is far less expensive than Annatto, which is sometimes used for this purpose.

The dairy cattle should now get all the warmth and shelter the farm buildings can supply. The oldest cows being generally those which calve earliest in next year should now be dried, and these will do well on a liberal supply of Oat or Wheat straw, with one bushel of 40 lbs. of roots given to them, half in the morning and half at night. The younger cows, which are still milked on for another month or so, should during this time get more liberal fare, hay being substituted for straw, or if not this, double the quantity of roots should be given them, or they soon become poor; and they should not

be allowed to lose flesh before they come to be dry. Young heifers to calve for the first time next season should now get careful attention, as it is very desirable their growth should not be checked up to the time of milking, good wholesome food tending more to health and good growing condition, such as hay or straw, or both perhaps, cut into chaff and mixed with roots, being better than any meal or cake, as less likely to produce fat, which is not desirable in young in-season heifers. Cutting dry food into chaff is much the best plan for these animals, as it prevents waste and induces them to eat more of it, as young cattle will not, as older cows, consume the straw whole or uncut. Great attention should be paid to any cows calving now, and shelter and the best food is indispensable to their doing well. Weaning calves should be in the yards; chaff and roots being their best food, the latter cut fine enough for their feeding on them readily. Should the supply of roots be insufficient on some dairy farms to give all a full quantity, the weaning calves might have one meal given of oilcake—about 3 lbs. a week would be sufficient—or half a pint of meal from Barley or refuse Wheat thrown over their chaff, with a bit of salt. It is quite necessary that weaning calves should have warm shelter and divided into small numbers together. It is an old saying of men of experience, "That if you have but two weaning calves on a farm you should keep them in two places." It is certainly more conducive to health, not only on account of each getting its proper share of food, but also to hinder their breathing each other's breath, which often occasions infectious disease, for from their disposition to herd so close together, should one be only a little disordered, and the breath sour, another catching this might be subject, and often is, to a worse attack, and so infectious complaints are often increased and become fatal.

The year's accounts of the dairy can this month be closed, and the produce of a cow, on an average in a large dairy, has yielded at present prices the following amount:—

	£	s.	d.
4 cwt. at 60s.	12	0	0
40 lbs. of butter (milk and whey)	2	0	0
A calf	1	10	0
The keep of a store pig from sour whey ...	1	0	0
	£16	10	0

HOME FARM MANAGEMENT.—No. XII.

PRACTICAL farmers are still far from being convinced that the application of manures in a fluid form is profitable or can possibly be made so. A more general and economical demonstration of its profitableness must be afforded ere they shall have confidence in the system and be induced to adopt it. It is the interest as much as the duty of the proprietor of an estate to afford on his home farm that evidence of its utility which his tenantry require, and which can only be obtained by considerable outlay and at some pecuniary risk. This risk is incurred simply because the principles of liquid manuring are so imperfectly understood that it is scarcely possible to get them put into practice without some failure being experienced, arising either from miscalculations, or from the ignorance of those intrusted with the execution of the operations. Perhaps the worst error that can be committed is that of laying down a greater extent of subterranean pipeage than can be occasionally kept at work. It was an error of this kind more than anything else that made the irrigating works at Myremill so unprofitable to the landlord. The interest on the pipes lying unused in more than a hundred acres is something considerable, and at Myremill there was always a large extent of piped land not subjected to the irrigating process. Wherever the system is to be tried on a home farm then, let it be so only on a small scale at the first. An acre of Italian Rye-grass takes an enormous quantity of tank liquid, and at the first it is much better to have an over-supply of the latter than a deficiency for the extent of land it is intended to be applied to.

But the question is a natural one—"Is liquid manuring profitable?" And it may be equally well asked—"Will good crops pay?" The answer to the first query will serve as a reply to the second. Liquid manuring will assuredly prove remunerative provided it be carried out on economical principles. It is not always the farmer who raises the heaviest crops that has the largest profits. The best returns are usually obtained in cases where a fair bulk of produce is obtained and a strict economy observed in the every day expenditure. There may be true economy, however, in liberal applications of both solid and fluid fertilisers. No good farmer will deny that farm-yard manure, guano, bones, and other enriching substances used in a solid form are sure on most soils to prove faithful in returning their price with liberal interest. And it would be no difficult matter to prove that the same fertilising ingredients employed in a fluid form would be still more profitable under proper management. Without attempting to go so fully into the subject as its importance may warrant, I shall endeavour to show some of the advantages which ought and must result from manures being applied to the soil in a soluble state. Every one knows that before manurial matters can have any effect in promoting the growth of plants they must be dissolved—they must, in other words, be converted into liquid manures. This is done slowly but effectively in the soil partly by rains and partly by atmospheric action. These are the agents provided by Nature for bringing about those changes in the composition of fertilising ingredients which are necessary to their being assimilated by living plants. Now, does it not appear evident that while the laws of vegetable nutrition require that plants be supplied with nourishment in a soluble form—that while Nature has indicated the necessity for meeting these wants by effecting certain important changes on the substances employed as manures—it becomes the farmer, though acting from no other motives than those which common sense may dictate, to help Nature in the performance of her very important operations? Chemical, pluvial, and atmospheric agents are all capable of reducing and thereby promoting the solubility of solid manures that may be put into the soil; but if the various processes are to be combined in one, and to be kept completely under the control of the farmer, it is in the liquid tank rather than in the soil that this must be done. Nothing certainly is easier than to prepare a "soup" suitable for the nourishment of a crop of any kind that may be to be grown. Whether it be a cereal, a leguminous, or a root crop it matters little. The ingredients which are known to be capable of nourishing any particular species of plant are put into the tank in the proportions necessary to give a normal produce, and on the liquid mixture being applied to the land it immediately begins to act. But it may be said that this is the most direct course that can be adopted to produce plethora and abnormity in cultivated plants. Not at all, if the mixture is skilfully prepared. Under the ordinary solid manuring system the dung applied to the soil in one year is intended to last several years—during the whole rotation course. Were that manure or its equivalent in fertilising substances applied to the soil at once in a liquid state the plethoric effects on the immediately succeeding crop might be very injurious for the manure intended for four or five years would in this case be made to expend its strength in one year. The proper way to employ tank liquid is to use no more at one time than the crop on the land requires. It may even be necessary to divide the liquid requisite for the production of the season's produce into two or three dressings. One very obvious advantage resulting from the liquefying of manures is that the solid fertilisers necessary to go over a hundred acres of land managed on the four-course rotation may be made a suitable dressing for one crop over no less than four hundred acres. In this way the sound commercial principle which aims at speedy returns is brought into play. Instead of manurial ingredients being locked up in the soil for several years they are at once made to bear a part in the development of vegetable structures, and this tells most conclusively on the profits of the farmer.

It is necessary perhaps to state before going further, that by the term "liquid manure" I mean something more than either the urine of animals or the severely diluted drainings of an exposed dung-heap. The only kind of tank-liquid which can be profitably employed in the nourishment of general farm crops is that which contains all the elements found in animal fæces as well as in urine. These may be obtained either from dissolved stall-manure, or from guano, bones, flesh, rape-cake, or other matters that may be put into the tank. Urine alone will nourish Grasses and produce great luxuriance in other crops; but as it contains some ingredients in excess, and is destitute of others which are required to balance with them if a sound produce is to be obtained, it can only be looked on as an uncertain and dangerous dressing, unless used in small quantities.

Another most important advantage resulting from the adoption of the liquid manuring practice, is the facility afforded by the appliances it requires, for dressing hay and other crops that are flagging in consequence of drought with such water as may be at command. In some dry seasons the saving effected by this means alone will be sufficient to repay a large part of the outlay on the irrigating works. Then, if from any unexpected weakness in the soil, a crop should seem sickly in the early part of the season, a suitable liquefied dressing will renew its growth and give a large produce, when otherwise it might have been an inferior and unprofitable one. The whole cost per acre of tankage, pipeage, engine, pumps, and other fittings, may be taken on an average at 5*l.*, and this at a rent charge of 7½ per cent. adds only 7*s.* 6*d.* to the annual rental of the soil. Now if we consider the many advantages which are derived, from the power being possessed of promoting the growth of a crop at any time in the vegetative season we may think it needs it, there cannot be a doubt that even by that means alone the irrigating process may in many cases be made remunerative. And when we take into account the enormous benefits which result from the use of liquid manure in the raising of Italian Rye-grass, the evidence of its profitableness is still farther increased. It was ably shown nearly two years ago by Mr. John C. Morton that this crop is capable of affording an extraordinary amount of food for house-fed stock, and that the only means by which it can be grown in perfection is by liberal applications of liquid manures. Mr. Telfer, of Cunning Park, has proved experimentally that so much as 12 to 15 feet of Grass, measuring the various cuttings, can be taken in one season off land which was originally little else than blowing sand. He uses very large quantities of manures by the acre, but it is because they are applied in a liquefied state that he gets such returns. Mr. Ralston, of Dunduff, also in Ayrshire, has increased the aggregate produce of his farm more than six-fold by the adoption of the irrigating system. And as for Mr. Mechi, he tells us after a fair trial that he really finds in it the key to profitable farming.

Did space permit I could afford most convincing evidence by "facts and figures" of the profitableness of employing all kinds of manures in a liquid state. Yet I do not expect the practice will gain favour for a long period with tenant farmers. It is so much more simple to soak up the drainings of the cattle stalls with litter, and requires so much less skill and attention to prepare and apply solid manures that they are not likely to think of, or to adopt the liquefying system. But the fact is nevertheless indubitable that in this system we have a germ which with the Tullian practice of soil culture shall one day or other revolutionise the farming of the United Kingdom. The time has not yet arrived but will assuredly come round when the clamant wants of the British stomach shall compel the British farmer to grow double the produce he grows at present. And then liquid manuring and the careful use of every pint of city sewage that can be got hold of, will, as matters of course, be adopted on all hands.

If landed proprietors wish to set a good example in the use of tank liquid on their home farms they ought to be most careful to make it remunerative. Operating on a small scale an inexpensive tank will suffice in the first instance. A single action force pump connected with a little air-vessel will be quite capable of distributing by means of engine, water, or horse-power the liquid over a few acres in the vicinity of the homestead. The land laid with pipes should be charged with all the sunk and floating expenses that may be incurred in carrying out the operations and credited with the produce. A few years will thus afford convincing proof of the profitableness or otherwise of the system, and this if made known to the tenantry will bear its fruit either one way or another. An acre or two should be laid out under green crops—a similar extent under corn—but the larger part of the experimental field ought to be put under Italian Rye-grass. To secure the successful culture of the latter crop it is necessary to put the soil into very high condition before the seed is sown. If the seed at the rate of from three to four bushels per acre is put into the ground in autumn the young plant will be ready to come away early in the following spring. A liberal dressing should be given just when vegetation has started, and a similar one after each cutting during the season. Even on poor stubborn clays I have seen three to four cuttings taken in the year, and on loamy good soils five or six cuttings may be expected.

The first thing in carrying out the irrigating process is to secure a liberal supply of water. In many cases this can be easily effected by taking advantage of the facilities which may be naturally afforded for bringing it from a higher level. But in other cases it will be necessary to form a reservoir for the collection of rain water, or to sink a well for an underground supply either from drains or springs. All this may be done in most instances at a very small expenditure when a mere experimental plot is to be attempted, and therefore there can be no good reason for liquid manuring not being practised to some extent on every home farm in the country. It is only by this means that the practice if deserving of imitation will find its way into every part of the land, and be adopted by tenant farmers as one of their regular branches of farm management.

John Lockhart Morton, Parliament Street, Westminster.

Home Correspondence.

Hoeing and Cultivating between Rows of Corn in the Early Stage of Growth.—After some years experience in hoeing and stirring between the rows of Wheat and other grain, I have been able to form the following opinion, both as regards the mode of operation and the results to be obtained. I proceed thus with corn that has been drilled, or what is far better, with grain that has been deposited at stated intervals in the rows, in other words, planted in or dibbled with a very small iron rod, for the plants or stools of two or three together not only grow in the natural circular form, and throw out short stems before winter (if planted early), but the intervals admit of the rows being hoed across, which I conceive to be of equal importance with the usual method of hoeing. As soon as the rows are sufficiently defined I take a sharp hoe and run it over the surface to cause the soil to be mellow, and if the plants be high enough I earth them up slightly; this is of great importance, as the earthing up induces the plant to throw out fresh roots, and very stout ones too, above the first roots; this tends to cause early tillering, and at the same time it strengthens and stays the plants when they have afterwards to contend against violent winds and rains. This hoeing likewise cuts off all young weeds which have just commenced their growth. I hoe again before winter (for I seed early in September), and rather deeper this time, so as to cut the roots and excite the plant to tiller, for I prefer the plant to tiller well in autumn and avoid this operation as much as possible in spring. I now leave the crop alone till the following year, when I hoe again, but this time not deeply, for if at this season you hoe and stir 2 inches deep you cut the roots of the corn, which excites the plant into action and causes it to tiller afresh (I do not mean to say that the plants will not tiller on the approach of warmer weather, but if you do not cut the roots they will not do so to the same extent), and the late stems that have been thrown out in consequence do not ripen their ears with the rest of the corn, the sample becomes uneven, and the other ears suffer; besides that, if it be Wheat, the firm bed in which this

plant delights will be disturbed. By the two former hoeings the weeds will in a great measure be eradicated, still there are always plenty of weeds in spring; but this last hoeing is chiefly to break the crust and open the channels of the soil, allowing the air and dews to penetrate. Now these three hoeings come rather expensive if done in the usual manner, but the expense is not in proportion to the benefit derived by the crop, but I know of no hand-hoe, excepting the one I am about to speak of, which will do the work as I should wish to see it done. A man, generally speaking, is obliged to work too fast to do the work well, and as he often treads on the weeds after they have been cut off, they take root again; at any rate he presses down the soil with his feet, which instead of being left open and mellow to admit air and dews, is again closed up. My idea of a hoe is, that a man should have it entirely under his control, so that if he wishes to hoe exactly half an inch he should be able to do so, or 1 inch or 2 inches; and also, excepting by great carelessness, he should be unable to hoe up a single plant, and that he should not tread on a weed after it has been cut off; also that the soil should be left open and mellow, and above all that he should be able to hoe one acre a day. Such a hoe I trust I have invented, and if any one wishes to see it he can do so at 223 Stand, Smithfield Show, where he will see other original inventions. *Sigma.*

Large and Small Potatoes as Sets.—With respect to planting large Potatoes close in the drills, and giving the greater distances between the rows, I willingly give way to Mr. Knight's opinion as stated by "J. T." in the *Gazette* of November 29. It suits with my general rule of tillage better than planting them at equal distances each way. But it is not as only regards the advantage of exposure to the direct rays of the sun, which I believe they would obtain either way, but as allowing, in the greater distances between the rows, a freer passage of air; this I consider most essential as affording a more continuous supply of fresh aerial food to the leaves of plants. In rows at narrow distances, and more so in broadcast tillage, more or less stagnation of air must occur, and the plants be thus compelled to re-imbibe the excrementitious matters they have thrown off in perspiration. As the diffused light of the sun appears as effectual to the decomposition of carbonic acid as the direct one, I do not know that it may not be advisable to give the lines of plants the direction of the most prevailing winds instead of that of north and south. I have never planted whole large tubers so near to each other in the rows as Mr. Knight recommends, but I doubt not, in allowing them the greater distance from row to row, from the small leaf and manner of growth of the plant, that it is a plan deserving of all attention, and as productive over wider dropping as he, in his practice, found. If I do not change my mind I will adopt it to some small extent, say half an acre, in the coming summer. I shall take 4-feet rows, with Scotch Dons or Downs, and as Cabbages are found to answer well in our beds, perhaps try some between the rows; in their young growth they will not check the passage of air. *J. M. Goodiff.*

Thick or Thin Seeding.—Seeing in your Paper that a discussion on this subject is proceeding, I beg to give you an account of a field I sowed last autumn. The kind I sowed was what is locally called Kissingland, a red Wheat with white chaff. The field was sown about the middle of December broadcast, and three bushels and one peck of seed to the statute acre. It was then top-dressed with dissolved bones at the rate of three cwt. to the acre, and harrowed in along with seed. The crop did well and proved not at all too thick. The specimen I send will show you that it does not appear stunted or ill fed. I do not mean to advocate thick sowing, but the quantity of seed sown is so different from Farmer Newlight's, that the circumstance appears very uncommon, and my crop was not in the slightest way too thick. It obtained the prize at the Hale show held here in the neighbourhood on the 11th of September last, so I will leave you to form your own conclusions. No doubt there is much difference to be observed in locality, time of sowing, nature of soil and kind of seed. It was sown on a poor field, but the ground was fine and well harrowed. *Henry Ganthorp, Harnworth, Warrington.* [What was the produce per acre?]

Cross Breeding.—I have been lately connecting all the evidence which I can get from the information of others and my own, on the natural crossing of varieties of plants. The evidence in regard to Leguminous plants is curiously conflicting, but preponderates against their ever crossing without artificial aid. I should esteem it a singular favour if any of your correspondents would give in your Paper or send me any evidence showing either that Leguminous crops, when grown close together, do sometimes cross; or, on the other hand, that they may invariably be grown close together without any chance of deterioration. *Charles Darwin, Down, Bromley, Kent.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL: *Dec.* 3.—Mr. EVELYN DENISON, President, in the Chair.

FINANCES AND HOUSE.—Mr. Raymond Barker, Chairman on the Finance Committee, presented the monthly report of the accounts of the Society; from which it appeared that the current cash-balance in the hands of the bankers on the last day of the month just ended was 650*l.* Mr. Barker, as Chairman, also read the report of the House Committee. These reports were adopted.

PRIZES FOR ESSAYS.—Mr. Thompson, Chairman, of the Journal Committee, reported the following awards:—

I. To PETER LOVE, of Naseby Manor Farm, Northamptonshire: the Prize of 20*l.*, for the best Essay on the different mechanical modes of deepening the staple soil, in order to give it the full benefit of atmospheric influence.

II. To T. W. P. ISAAC, of Terrace Walks, Bath (Land-Surveyor): the Prize of 20*l.*, for the best Essay and Plans for the construction of Labourers' Cottages, with special reference to domestic convenience.

VETERINARY LECTURES.—Mr. Raymond Barker and Mr. Thompson, as the Chairmen respectively of the Finance and Journal Committees, brought up a joint-report, which was referred to the monthly council in February.

SALISBURY MEETING.—Mr. Cavendish, Vice-Chairman of the General Salisbury Committee, reported the recommendation that the Country Meeting of next year should be held in the week commencing Monday, the 20th of July. This recommendation was adopted by the council.

PRIZES FOR IMPLEMENTS AND STOCK.—On the motion of Mr. Fisher Hobbs, the preliminary arrangement of the Country Meeting Prize Sheets for next year was referred to the Implement Committee, and a Special Live-Stock Committee then named, with a request that they would report their recommendations to the Special Council of Thursday, the 11th of December,

STEAM-PLOUGHING.—The Council received from the Stewards the Judges' report of the trial of Mr. Fowler's plan of ploughing by steam-power. The President directed a Special Council to be summoned for the ensuing week, when their report on the trial of machinery competing for the Society's prize of 500*l.* "for the steam-cultivator that shall in the most efficient manner turn over the soil, and be an economical substitute for the plough or the spade," may be taken into deliberate consideration.

DECEASE.—Notice was given that the vacancy in the Council, occasioned by the lamented decease of Mr. Woodward, would be filled up by election at the monthly meeting in February.

COMMUNICATIONS were received from Mr. Pain, Mayor of Salisbury, on the subject of Prizes for Hampshire Down Sheep; from the Board of Agriculture of Lower Canada, on the establishment of an Agricultural Society; from the Smithsonian Institute of America, a present of books; from the Agricultural Society of the Duchy of Nassau, on the entering into communication; from the Baron de Forrester, a valuable collection of his works relating to the capabilities of the soil and climate of Portugal; from Mr. Knowles, a copy of his Pocket Herd-book; and from Mr. Brown, a copy of his Farm-Account Book: along with various other presentation-copies of works connected with agriculture, for which the Council ordered their usual acknowledgments.

The Council adjourned to their weekly meeting at 12 o'clock on Wednesday, the 10th of December, open to all Members of the Society.

BIRMINGHAM CATTLE SHOW.

THE Midland Counties gathering has been this year a week earlier than usual, in order that its interests and those of the Smithfield Club may not clash. It has gained by this in the appearance of many good animals, which will no doubt reappear in Baker Street, and would have been sent there only, had the meetings been together.

A new section for Welsh Cattle has been this year opened, which ought to have some influence on the cattle of the Principality, considering its nearness to the scene of the show. The Herefords were as usual a very excellent class, Mr. Philipps, of Berkshire, Mr. Naylor, of Welshpool, and others, contributing to it first-class animals. The Devons were an unusually good class. The short-horns hardly came up to their usual standard, first-class animals, however, being exhibited by Mr. Stratton and others. The best division of the exhibition was that of pigs, which is more useful than any of the others, seeing that prizes for breeding stock are offered, and a very excellent class of animals, better probably than have ever before been seen in Bingley Hall, were gathered to compete for them. As to the numbers shown, we may say that last year and this have been on the whole nearly equal, viz., cattle, 112 against 109; sheep, 107 against 46; and pens of pigs, 28 against no fewer than 101. A good show of roots was exhibited, and the poultry show, especially in the principal classes, was as usual the finest thing of the kind that is.

The following is the award of premiums:—

FAT CATTLE.

Class I. Hereford Oxen.—10*l.*, Mr. J. Phillips, Ardington, Wantage.

Class II. Hereford Steers.—10*l.*, Lord Hatherton, Teddesley Park.

Class III. Hereford Cows.—10*l.*, Mr. E. Herbert, Powick, Worcestershire.

Class IV. Hereford Heifers.—10*l.* with Gold Medal, Mr. G. Pitt, Chadnor Court, Leominster.

Class V. Short-horn Oxen.—10*l.* with Gold Medal, Mr. R. Stratton, Swindon.

Class VI. Short-horn Steers.—10*l.*, Duke of Beaufort, Badmington, Gloucestershire.

Class VII. Short-horn Cows.—10*l.*, Mr. R. Stratton.

Class VIII. Short-horn Heifers.—10*l.*, Mr. J. Armstrong, Palterton, Chesterfield.

Class IX. Devon Oxen or Steers.—10*l.*, H.R.H. Prince Albert.

Class X. Devon Steers.—10*l.*, Earl of Leicester.

Class XI. Devon Cows.—10*l.*, Mr. A. Umbers, Weston Hall, Leamington.

Class XII. Devon Heifers.—10*l.*, Mr. A. Umbers.

Class XIII. Long-Horn Cows or Heifers.—5*l.*, Mr. D. B. Holborow, Knockdown, near Tetbury, Glocestershire.

Class XIV. Cross-bred Oxen.—10*l.*, Mr. J. Naylor, Leighton Hall, Welshpool.

Class XV. Fat Cows.—10*l.*, Mr. J. Faulkner, Bretby Farm, near Burton-upon-Trent.

Class XVII. Scotch Oxen or Steers.—10*l.*, Duke of Beaufort.

Class XVIII. Welsh Oxen or Steers.—10*l.*, Colonel Pennant, Bangor.

SHEEP.

Class XXI. Three fat Leicesters, Wethers under 22 months.—10*l.*, Mr. J. Smith, Riseborough, near Kirbymoorside, Yorkshire.

Class XXII. Three fat Leicester Wethers, under 34 months.—10*l.*, Marquis of Exeter, K.G.

Class XXIII. Fat Long-woolled Wethers, under 22 months.—10*l.*, Mrs. Sarah West, Bletchington.

Class XXV. Three fat Southdown Wethers, under 22 months old.—10*l.*, Lord Walsingham.

Class XXVI. Three fat Southdown Weathers, under 34 months.—10*l.*, Lord Walsingham.

Class XXVII. Fat Shropshire Wethers, under 22 months.—10*l.*, Mr. S Pilgrim, Burbage, near Hinckley.

Class XXVIII. Fat Shropshire Wethers, under 34 months.—Mr. Henry Smith, jun., Sutton Maddock, Shiffnal.

Class XXIX. Fat cross-bred Wethers under 22 months.—10*l.*, Mr. A. C. Keep, Wollaston, Northamptonshire.

Class XXX. Fat cross-bred Wethers under 34 months.—10*l.*, Mr. H. Thornley, Marston Hall, near Birmingham.

PIGS.

Class XXXI. Three fat Pigs of one litter, under 10 months.—10*l.*, Mr. G. B. Morland, Chilton, Abingdon.

Class XXXII. Three fat Pigs of one litter, under 15 months.—10*l.*, Prince Albert.

Class XXXIII. Fat Pig over 15 months old.—10*l.*, Mr. R. H. Watson, Bolton Park, Wigton, Cumberland.

PRIZES FOR BREEDING PIGS.

Class XXXIV. Pigs of a Large Breed. Pen of five Pigs of one litter, exceeding three and not exceeding six months old.—10*l.*, Mr. J. Smith, Henley-in-Arden, Warwickshire.

Class XXXV.—Pigs of a Small Breed. Pen of five Pigs of one litter, exceeding three and not exceeding six months old.—10*l.*, Prince Albert, Windsor Castle.

CHEMICO-AGRICULTURAL OF ULSTER.—At the annual meeting of this society, the annual report was read, and the following remarks were made by Mr. Andrews of Comber:—He thought it was fair and right when they met on any occasion like the present, that they should express their feeling that while other societies, having greater show and parade, received a far greater extent of support from the great body of the community, the silent operation of a society of that kind, whose objects were not of less importance than others but even of greater importance, was comparatively neglected. It was not for the purpose of depreciating the efforts made in other departments that he would ask them to adopt the resolution that he had to propose to them, but merely that they should endeavour to induce those who were so deeply interested fully to appreciate the importance of the Chemico-Agricultural Society, and to place them more nearly on a footing with the efforts made in other departments, and which were individually of very great importance, but certainly not in a relative degree to the support which they received compared with that society. As to the improvement of implements, it was a matter of unquestionable importance, and in the efforts that had been made for the improvement of implements there had been but a moderate expenditure, and no waste of power whatever. He believed it cost the great Agricultural Society very little to reward exhibitors of implements, and it was both an economical and an extremely useful appropriation of the small sum which they applied to that purpose, but they found enormous sums applied to the improvement of stock. Now, there could be no question of the great utility of improved breeds of cattle. They knew that they tended to economise the food. They knew that the same quantity of food applied to the feeding of a good race of animals would produce a greater return than in feeding an inferior race; but it was a matter of not less importance that food should be produced in sufficient abundance, and in the most profitable manner, for the purpose of sustaining the cattle. Hundreds of pounds a year of premiums were applied in rewarding the breeder who had lengthned, by a few inches, the hough of an ox, or produced, in some degree, a little more circular or rotund development of some muscle which was admired, and was, no doubt, useful. But the observation he made was, that while the breeders who produced some of these beauties in utility and fashion were largely rewarded, a very small sum was considered quite enough to give to those who applied themselves to produce the means by which the animals were supported. He did not speak for the purpose of depreciating their efforts, but for the purpose of inducing persons to believe that the efforts of their society were, at least, of equal importance, and that they were entitled to some little support beyond that which had been doled out to them. The resolution which he asked the meeting to adopt was as follows:—

"That, in the present state of agriculture, it is obvious that, while the efforts of the national and provincial societies have been conspicuously successful in the improvement of stock and of implements, sufficient attention has not been given to the diffusion of the knowledge of the fundamental principles which govern the nutrition of plants that, for the prosecution of these objects, the funds hitherto supplied by the public have been found inadequate, and the society is again compelled to appeal to the proprietors and all persons interested in agriculture who have hitherto withheld their support to enrol their names in the list of subscribers."

Mr. Andrews went on to say that it was not on the ground of either taste or fashion that he asked support for that society. It was really as a matter of absolute gain. It was quite impossible that the farmer could prosecute his labours with advantage if he had no knowledge of the grounds which grew certain crops best. They had at-

tained, only within the last few years, a considerable amount of knowledge. Twenty years ago they knew almost nothing, he believed, of the action of manures, of the constituents of plants, or of what was necessary to be supplied to plants to supply the want which the growth of certain plants had made of the elements of fertility in the soil, but now the farmers had got some little insight into these matters. Mr. Andrews proceeded to give an illustration of the greatly-improved cultivation of green crops in a district with which he was acquainted, in consequence of the farmers having been led to use guano and bone manure, and continued—Some knowledge of chemistry was absolutely necessary to enable the farmer to understand the phenomena which he observed, and to prevent his being led by appearances into the commission of great errors. The more they considered the subject the more they would be persuaded of the great importance of exteading their own chemical knowledge, and the knowledge of those upon whom the immediate cultivation of the soil necessarily devolved.

Calendar of Operations.

NOVEMBER AND DECEMBER.

WESTER ROSS, *Nov.* 25.—The weather since the close of harvest has been favourable for all out-door labour; so favourable, indeed, that notwithstanding the lateness of harvest, our autumnal work is nearly as far advanced as it is at this season in ordinary years. Should the weather continue favourable our Wheat sowing will be completed in a few days. In this neighbourhood, however, as a large proportion of the Wheat crop is sown after Turnips eaten off by sheep, the sowing of Wheat cannot be completed until spring. In this county, of late years, the proportion of Wheat has been so materially increased, that Barley has been well nigh supplanted, and the breadth of Oats has been much narrowed, but I believe that many farmers, from the high price of and brisk demand for Barley, would willingly have their inferior and presently unsaleable Wheat transmuted into a respectable sample of Barley. Our Potato crop has been lifted, and a miserable affair it is. The produce is greatly below an average, and a large proportion is under the marketable size; and, besides, the disease is so energetically at work that there is danger of scarcity at seed time. The Cup Potato, a sort that stood out wonderfully for years, has now become so weak constitutionally, that, unwilling as we are to quit with it, we must allow it to take its place amongst the things that were. A dweller in the south can only have a faint idea of the pain a true Highlander experiences in taking farewell of a race of Potatoes on which he has long fed deliciously and abundantly three times a day. Our Turnip crop is beyond an average. I had the curiosity to weigh a certain proportion of a field of Pomeranian Turnips, when I found the following, viz., 19 Turnips in each 6 lineal yards of a drill, and each Turnip weighed, on an average, 4 lbs.; the drills were 27 inches wide, and the quantity per acre was 36 tons 9 cwt. The largest Turnip weighed 18 lbs., and its circumference was 38 inches. I found also that the root and stem, on an average, weighed one-fourth of each Turnip, so adding one-fourth to the above quantity, we have as the whole weight grown, on an acre, in 4½ months, 45 tons.

Notices to Correspondents.

CORN AVERAGES: *Mr. C M Willich* tells us that the average prices for the year ending Michaelmas, 1856, were:—

Wheat	73*s.* 2¾*d.*	per imperial quarter.
Barley	39 11¾	ditto
Oats	35 10½	ditto

while for the six following weeks, ending 14th November, 1856, the average prices were:—

Wheat	65*s.* 6*d.*	per imperial quarter.
Barley	44 8	ditto
Oats	26 5	ditto

It appears from the reports this week from almost all the places of European supply, that prices are rather receding, and as America has still a large surplus to export, we may reasonably expect that the present price of Wheat here will not be exceeded, although it must be admitted that in Paris the price of bread is now nearly the same as in London, and that in Spain and Italy prices range very high in consequence of local deficiency. France and England are both importing countries. According to an account made up annually to October during the last ten years the average importation of Wheat (including flour) into England approaches 4½ millions of imperial quarters. For the six years to Michaelmas, 1856, the imports of Wheat stand as follows:—

	Imperial Quarter.	Average price to Michaelmas.	Value.
1851	6,073,555	39*s.* 5*d.*	£11,[illegible]69,964
1852	3,600,521	39 10	7,171,037
1853	6,097,697	45 7	13,897,677
1854	5,586,218	72 1	20,133,660
1855	2,898,876	71 10	10,411,762
1856	4,337,616	73 2	15,868,445

During the last 40 years France has been, on the average, an importer of Wheat, and during the last few years to a large extent, as may be seen by the following return of the estimated value in sterling during the years named:—

1851	£60,000
1852	184,000
1853	4,348,000
1854	6,860,000
1855	4,912,000

GOLDEN PHEASANTS: *J G.* Lentils, Buckwheat, Barley, maggots. *W C S.*

PUBLISHER: *W B P.* Offer the MS. to some agricultural journal first, and failing that, offer to Ridgway or Longman.

RABBITS: *J G.* If the part is sore try the following:—Sulphate of zinc 1 scruple, tincture of opium 1 ditto, water 2 ozs. *W C S.*

TUSSAC GRASS: *A Welsh Farmer* asks whether the Tussac Grass of the Falkland Islands (Dactylis cæspitosa) has been cultivated in this country, and if so, with what success? From the account given of it in the Journal of the R. A. Society of England in 1843, it would appear to be a most valuable addition to our Grasses in farms where some of the land is wet and boggy, as it is described as growing very luxuriantly on peat bogs near the sea shore where other Grasses can scarcely live. The report says that lean cattle become fat on this Grass in three or four months. In the same report there is a most favourable description of another Grass—(Arundo alopecurus) scarcely inferior to Dactylis cæspitosa in its nutritive properties, which also grows on bogs. It is a very rich Grass in summer, and in winter it is converted without any trouble of mowing or drying into pale yellow hay, a very good food for cattle. [We believe it has been grown successfully on some of the Western Islands. Perhaps some correspondent may give us an experience of it.]

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

SMITHFIELD CLUB CATTLE SHOW.

Baker Street Bazaar, London, December 9th, 10th, 11th, and 12th.

B. SAMUELSON'S STANDS—Nos. 148, 149, 150, 151, & 152.

Gardner's Patent Turnip Cutters, Turnip Graters and Pulpers, Chaff Cutters, Linseed Cake Breakers, Corn Crushing Mills, and other Agricultural Machines.

B. SAMUELSON, Britannia Iron Works, Banbury,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. **BETWEEN SIXTY AND SEVENTY THOUSAND** of these Machines have been made in, and supplied from the above Works.

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

MALT MILLS of various sizes.

LINSEED CAKE BREAKERS, from 2*l.* 6*s.* up to 10*l.* each.

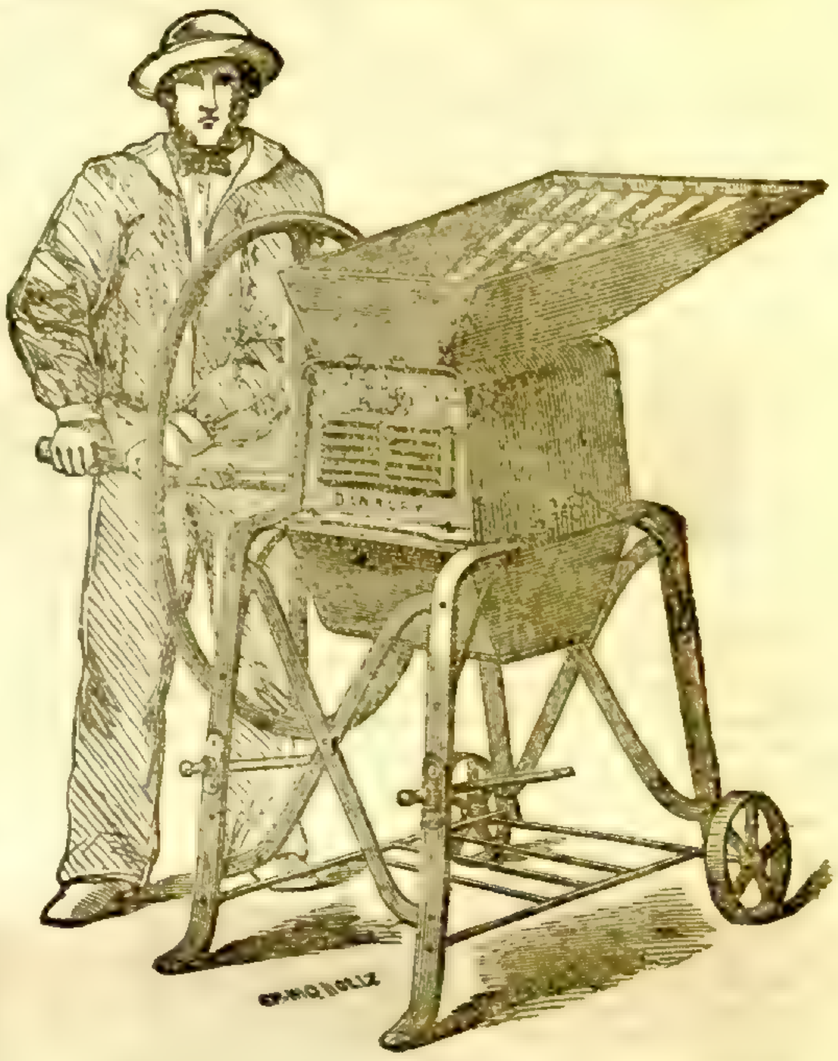
CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

BARLEY HUMMELLERS.

WEIGHING MACHINES, MANGLES, &c. &c. &c.



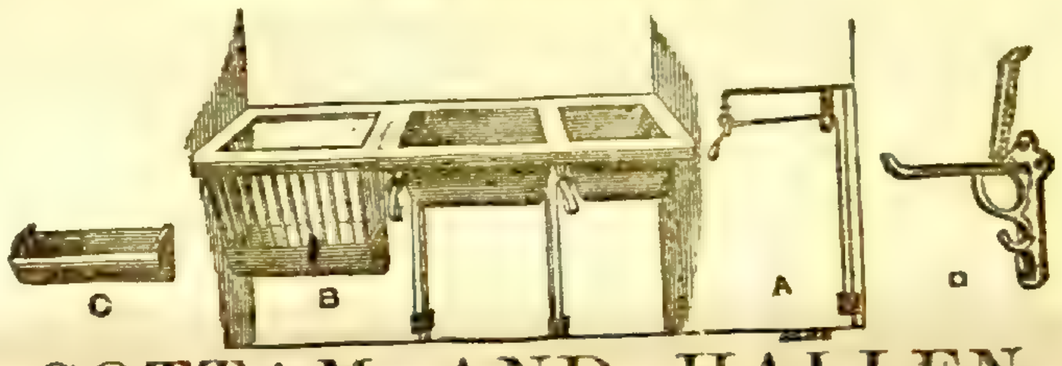
The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.

The Prices in the Catalogue include carriage to any Railway Station.

SMITHFIELD CLUB SHOW.—STANDS 268, 269, & 270.

Cottam's Patent Inventions for Stable Requisites.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM & HALLEN, the Inventors, have designed these Fittings on strictly scientific principles, and they are, if not perfect, the most in keeping with the science of the present day of anything yet produced. The facts of their having been extensively introduced by architects of known practical experience, besides obtaining the favour of both the English and French Governments, are valuable proofs of their utility.

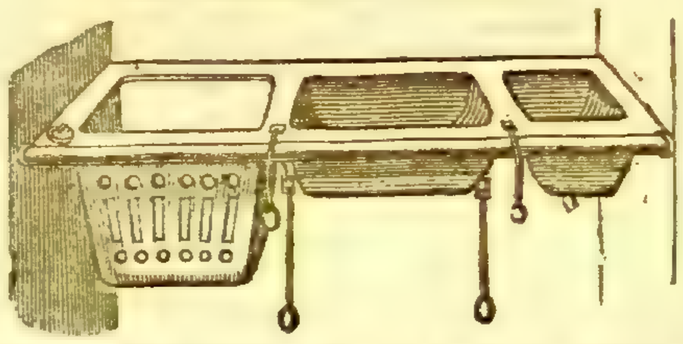
COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Patent Loose Box Fittings, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Illustrated Catalogues and Estimates gratis on application.

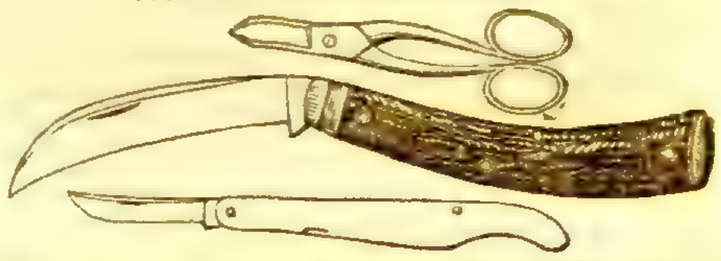
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

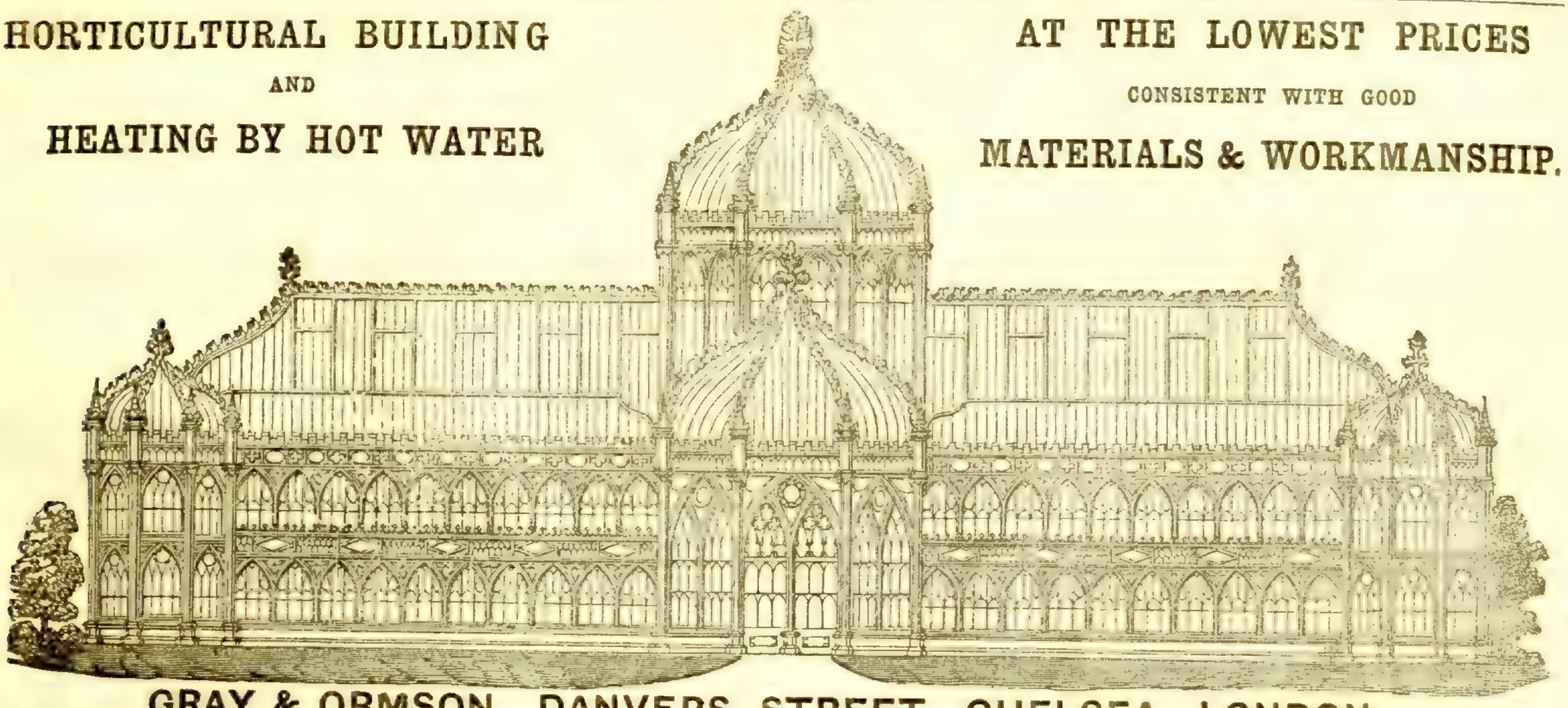
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

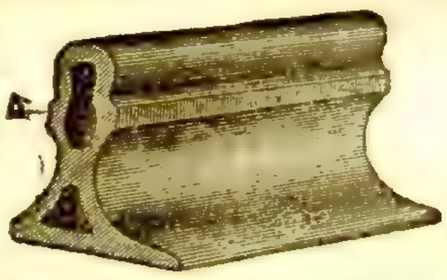
GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

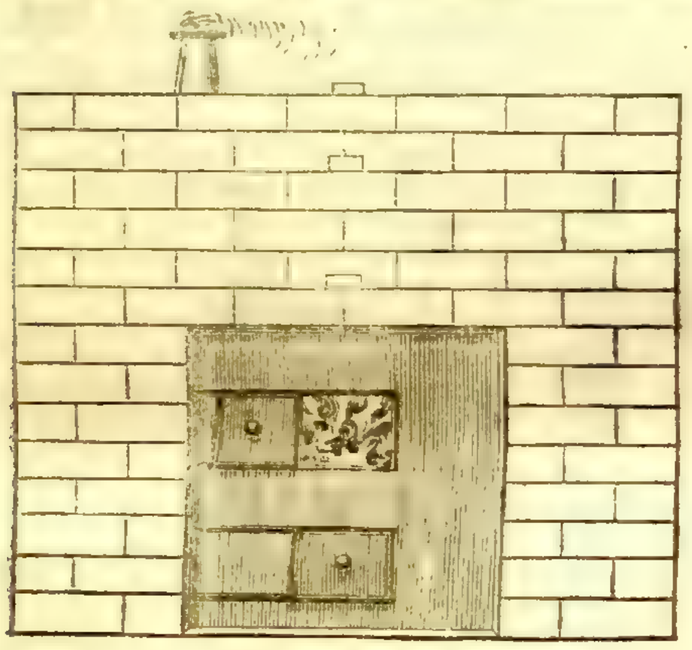
HOGG'S GARDEN EDGE TILES: a cheap, elegant, and durable substitute for Box Edging. 13*s.* per Hundred, or 4½*d.* per yard.

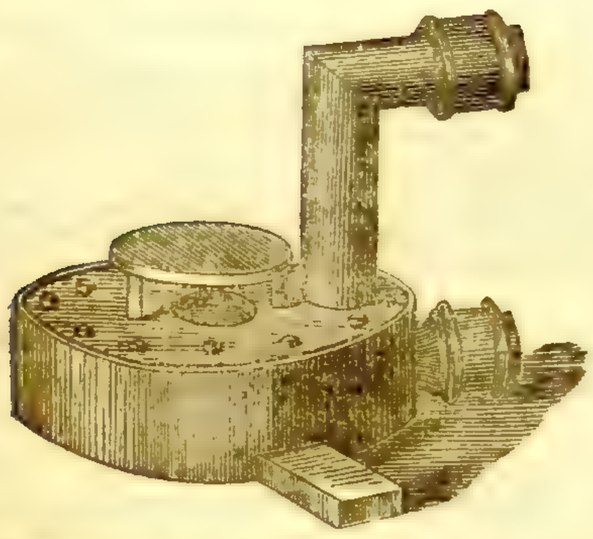
Exhibited at Court of Inventions, Crystal Palace; and at the Office of "The Builder."

Full particulars from Mr. R. BLACKET, Witham, Essex.



F. WATSON'S NEW INVENTED ROUND ARCHED BOILER FOR OBTAINING EXTRA HEAT.





F. W. respectfully informs the Public that he has invented a Boiler and Hot-water Apparatus for Heating Conservatories, Vineries, Pits, &c., at less expense and trouble than those now in use. It requires only one attendance in 16 hours; fuel, half bushel of coal, and 1 bushel of cinders will keep the pipes properly heated for 30 hours.

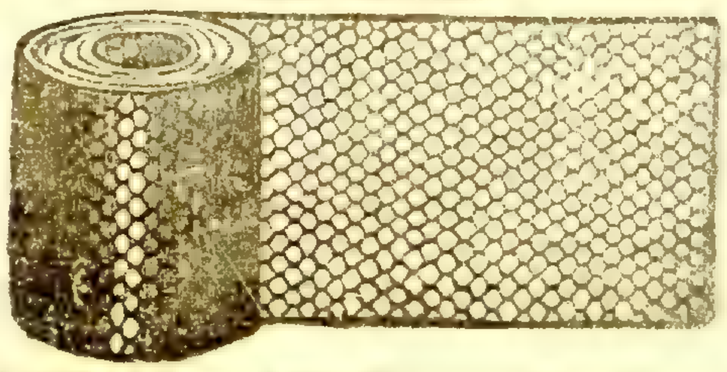
No. 1 Boiler (without fittings), 1*l.* 15*s.*

The Best Cast Iron Pumps fitted with Copper Apparatus and Glazed Pipes. Also Pumps of every other description fixed to order at moderate charges.

FREDERICK WATSON, Pump Maker and Well Sinker, Church Street, Bishop's Stortford, Herts.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

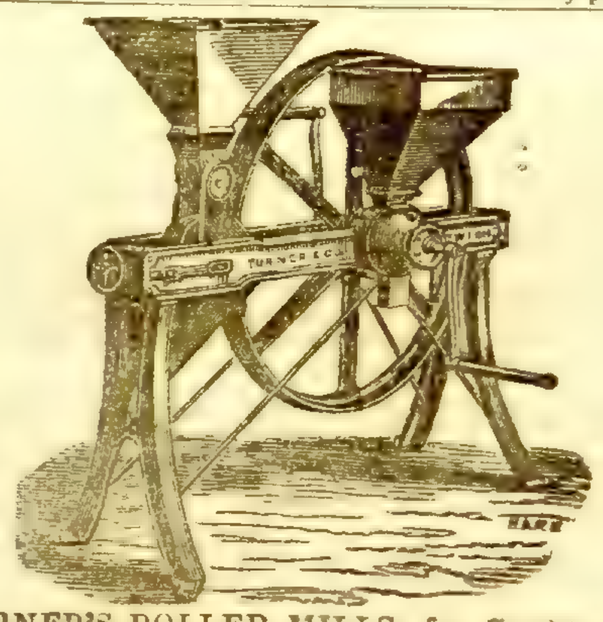
	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5¼ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.



TURNER'S ROLLER MILLS, for Crushing Oats, Barley, Linseed, Malt, &c., and Grinding Beans, are the most effective Crushing Mills manufactured, and work with less power than any other. The Prize of the Royal Agricultural Society was awarded to E. R. & F. TURNER for "the best Linseed and Corn Crusher," at the Carlisle Meeting—(the last occasion on which a Prize was offered)—and at their previous Shows at Norwich, Gloucester, and Lincoln. Also the 1st Prize of 150 francs and Gold Medal at the Paris Universal Exhibition of Agriculture, 1856. A great variety of these mills are manufactured, adapted for farms of all sizes, large coaching and carrying establishments, gentlemens' riding stables, breweries, Linseed-oil mills, &c.

TURNER'S PATENT COMBINED CRUSHING AND GRINDING MILL is highly effective for Crushing Grain, Seeds, &c., and is also a most excellent Mealing Mill for Barley.

Chaff Cutters for horse or steam power; Oil Cake Breakers for English and Foreign Cake; Fixed and Portable Steam Engines; combined Threshing Machines; Saw Tables; One-horse Carts, &c., all of a superior description, are manufactured by E. R. & F. TURNER, St. Peter's Iron Works, Ipswich. Illustrated Price Lists sent free on application.

NOTICE.

SMITHFIELD CLUB CATTLE SHOW, BAKER STREET BAZAAR, Dec. 9th, 10th, 11th, and 12th.

E. R. & F. TURNER'S STANDS, Nos. 69 and 70.

SHEET GLASS FOR ORCHARD HOUSES.

On Mr. RIVERS' Plan.

20 by 12,	...	...	20 by 13	...	18*s.*
20 „ 14,	...	...	20 „ 15	...	

Per 100 feet.

LARGER SIZES, NOT EXCEEDING 40 INCHES LONG.

16 oz. from 2*d.* to 3½*d.*, 21 oz. from 3*d.* to 5*d.*, 26 oz. from 6*d.* to 7½*d.* per foot superficial, according to size and quantity.

JAMES PHILLIPS & CO.,

116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under	6 by 4	at	1½*d.*	is £0 12 6
From 6 by 4	„	7 „ 5	„	2*d.*	„ 0 16 8
7 „ 5	„	8 „ 6	„	2¼*d.*	„ 0 18 9
8 „ 6	„	10 „ 8	„	2½*d.*	„ 1 0 10
10 „ 8	„	12 „ 9	„	2¾*d.*	„ 1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

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MONTHLY POULTRY SALE.

MR. C. J. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, December 9, at 12 o'Clock precisely, a selection of very choice Poultry and Pigeons, including Dorkings, Spanish, Brahmas, Buff and Partridge Cochins, Hamburghs, Sultans, Polands, Bantams, &c., from the yards of Messrs. Rider (Staplehurst), Bridges (Croydon), Leno (Harpenden). The Pigeons are from the yard of E. R. Maddeford, Esq., Staines. Catalogues had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London.

PLANTS—FROM GHENT FOR ABSOLUTE SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, Dec. 12, at 12 o'Clock precisely, a collection of Plants from the Nursery of Mr. Jean Verschaffelt at Ghent, viz., Camellias, of choice sorts with flower buds; Azaleas, including six beautiful new varieties which have not yet been sent out; a new Rhododendron, Kalmias, Pæonies, Magnolias, Liliums, Gladioli, Fruit Trees, &c.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CAMELLIAS, AZALEAS, AND OTHER PLANTS FROM GHENT FOR SALE WITHOUT RESERVE.

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MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, December 11, at 12 o'Clock, a first class collection of Dutch Bulbs, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculuses, Gladiolus, &c.; also a selected assortment of Standard and Dwarf Roses, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes; selected American Plants, &c.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

COVENTRY.—TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Ogden to Sell by Auction on the premises, Warwick Road, Coventry, on MONDAY, December 15, and following days, at 11 o'Clock in consequence of the number of lots, all the select and well transplanted stock of those old established Nurseries, consisting of a choice selection of Fruit Trees, including upwards of 60 strong Dwarf (Quenouille trained) Pears of the best kinds, grown as specimens; a large stock of Green and Variegated Hollies, safe for moving, of all sizes, up to 12 feet high; several hundreds of Grafted English Elms, 10 to 15 feet, and other Trees well adapted for Avenues; fine specimens of Weeping Trees, large Purple Beech, with a general assortment of Evergreen and Deciduous Ornamental Trees, Azaleas, Rhododendrons, Hardy Ericas, Camellias, &c. May be viewed one week prior to the Sale.—Catalogues after 1st December may be had 6d. each, returnable to purchasers, on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex. A suitable time will be allowed to remove the Trees. The Greenhouse and Bedding Plants, with the Greenhouses, Pits, Frames, &c., will be offered early in the Spring, unless the whole is previously disposed of.

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MESSRS. THOMAS WINSTANLEY AND SONS will offer for Sale on TUESDAY, December 16, at half-past 1 for 2 o'clock in the afternoon precisely, at the Clarendon Rooms, South John Street, Liverpool, (in one or more lots, and subject to such conditions as may be then and there declared, if not previously disposed of by private contract, of which due notice will be given, all that important Freehold Estate called NEW HALL, in the township of Thornton-Hough and parish of Neston, in the county of Chester, comprising Mansion House, two Farm Houses, Stables, and Outbuildings, and about 270 statute acres of excellent arable and meadow Land. The property is situate at about six miles distance from Birkenhead, one from Parkgate and Neston, and three from the Spital Station of the Birkenhead Railway. The Mansion House is roomy and convenient; the Outbuildings thereto comprise Stabling for 12 Horses, Gardener's Cottage and Lodge. The pleasure grounds and gardens attached to the house occupy about 14 acres, and contain a well of excellent water. There are, besides, a larger Farm House of superior character, with Stabling for 10 Horses, Shippons, and very complete outbuildings, with Cottages for men attached, and a smaller Farm House, a short distance from the Hall, with convenient Outbuildings. The Land consists of about 270 acres, and lies most compactly within a ring fence, being bounded on three sides by the well frequented turnpike roads leading to Birkenhead, Chester, Parkgate, and Heylake. It affords several very eligible sites for Villas, and is well sheltered with plantations of 30 years' growth. The poor-rates and other local charges are very low.—Plans of the Estate may be seen, and further particulars obtained on application at the Offices of Messrs. TOWNSEND, RIDLEY & JACKSON, Fenwick Street, Liverpool, and Mortimer Terrace, Birkenhead; of Messrs. CHESTER, TOULMIN & CHESTER, Solicitors, 11, Staple Inn, London; of Messrs. JANSON, COBB & PEARSON, Solicitors, 4, Basinghall Street, London; and of Messrs. THOMAS WINSTANLEY & SONS, Church Street, Liverpool.

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APRICOTS.	APPLES.
FIGS.	PEARS.

Priced Catalogues on application.
Nursery and Seed Establishment, Hammersmith, near London.

SEED WHEAT FOR LATE SOWING.

TALAVERA, RED NURSERY, AND HYBRID WHEAT, the best sorts for late sowing, may be had on application to H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

TO THE SEED TRADE.

GEORGE TABER, Nurseryman and Seed Grower, of Rose Cottage, Rivenhall, Witham, Essex, begs to inform the Trade that his Carrot, Mangel, Swede, Turnip, and other Seeds are now harvested in good condition; and prices and samples may be obtained on application.

RED BEET SEED.

EDWARD SANG AND SONS, Nurserymen and Seedsmen, Kirkcaldy, beg to offer to the Trade RED BEET SEED of their own raising from carefully selected full grown roots. The sort is very superior, producing well-shaped medium sized bulbs of remarkably fine quality and colour. Price on application.—Kirkcaldy, Dec. 13.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than 1 peck), carriage free. Whites, for pastry, at per bushel (56 lbs.), 11*s*. 5*d*.; Fine Households, recommended for bread making, 11*s*.; Seconds, 10*s*. 4*d*.; Wheat Meal, for brown bread, 10*s*. 4*d*.; Best Coarse and Fine Scotch Oatmeal, Indian Corn Meal, &c.—Address, Hornsnail & Catchpool, Bulford Mill, Witham, Essex; or, Caledonian Road, Islington. Directions for making bread supplied gratis. Terms cash. German Yeast.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent, with the Mails throughout, by the
CONTINENTAL EXPRESS PARCELS AGENCY, of which the proprietors are the sole correspondents at the Royal Prussian Post Office, the Belgian Government Railways, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had gratis on application to the Chief Office, 32, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

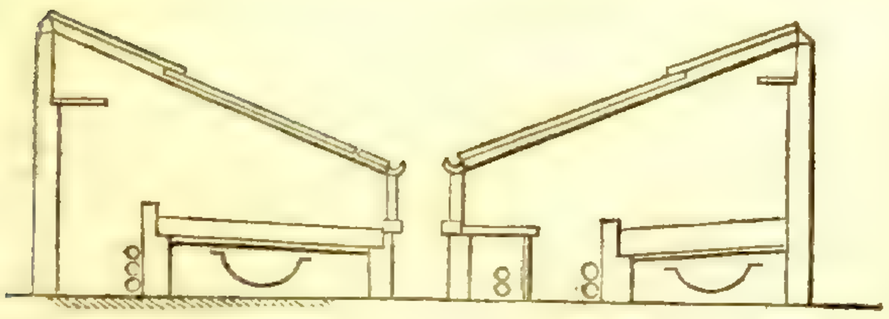
GARDENERS' CHRONICLE NEWSPAPER STAMP ONE PENNY

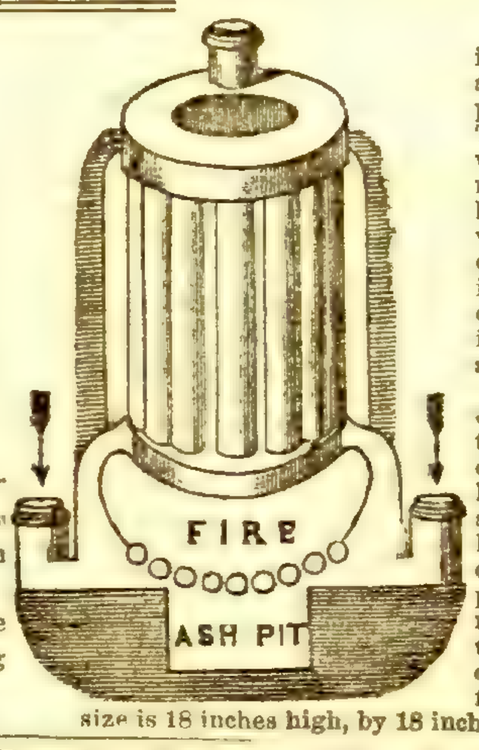
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

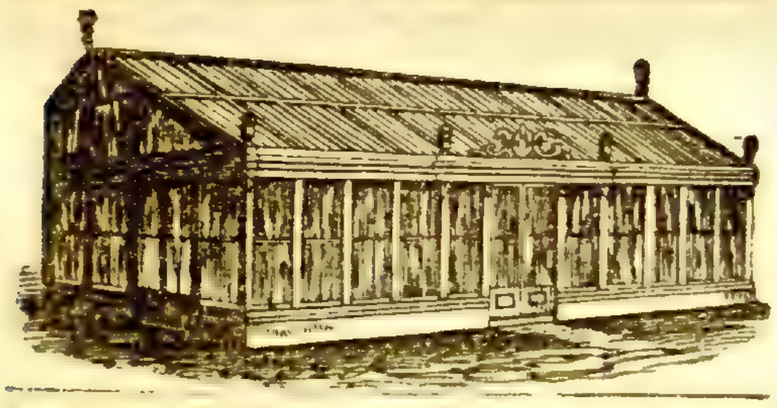
JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

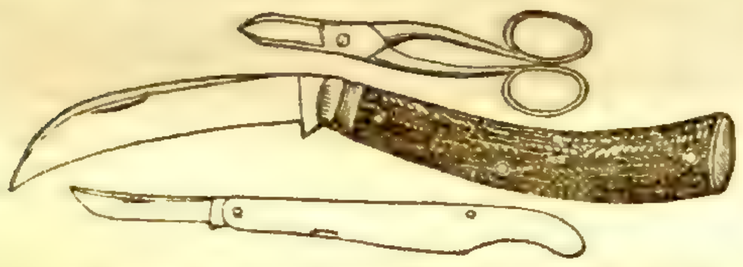
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



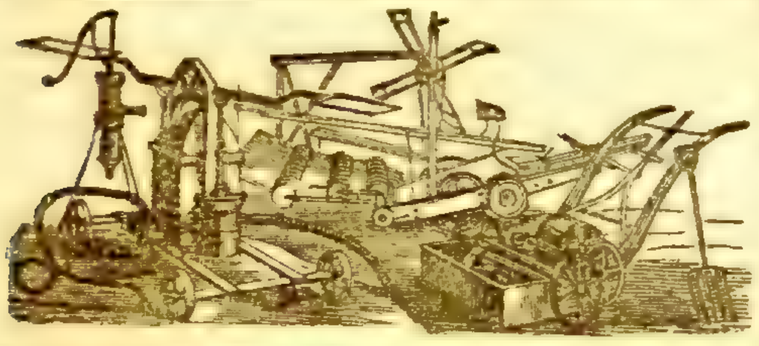
JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.



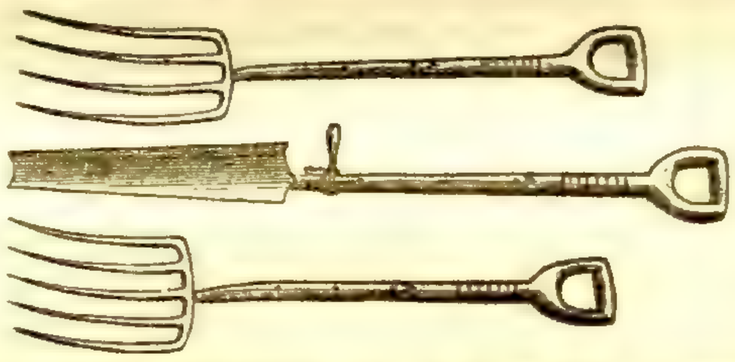
BURGESS AND KEY, AGRICULTURAL ENGINEERS, PATENTEES and MANUFACTURERS of the Royal Agricultural Society's First Prize Reaping Machine, Sole Proprietors of Anthony's Patent American Churn, and Kase's Farm Fire Engine and Garden Pump, Wholesale and Retail Agents for Parkes' celebrated Steel Digging Forks, General Agents for the sale of all kinds of Agricultural Machinery.—Warehouse, 95, Newgate Street, London; Factory, Brentwood.

Illustrated Catalogues sent on receipt of 6 postage stamps.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps. 95, Newgate Street, London.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „	long 3 „ 3 „	gutta percha,	1	14	0
3 „	ditto 3 „ 6 „	or cast iron	2	8	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	12	0
4 „	ditto 3 „ 6 „	as required.	3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto ditto		2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER APPARATUS ON AN IMPROVED PRINCIPLE.

MESSRS. COLLS AND CO., Builders, Camberwell, beg to inform the nobility, gentry, and the public in general, that they have made arrangements with an eminent Inventor and Hot-water Engineer for the management of this portion of their business, and are prepared to take contracts for Warming Churches, Chapels, Private Residences, Greenhouses, &c.

Estimates upon application.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Coil-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

THOMSON'S RETORT BOILERS.

The Triple Retort,	to heat	3000 ft.	of	4-inch pipe	£8	10	0
The Single	do.	do. 1000	do.	do.	4	0	0
The Amateur's	do.	do. 500	do.	do.	2	10	0

These unique and most powerful Boilers have been invented by Mr. THOMSON, of Dalkeith Gardens, where in some instances he has fixed one of them to supersede six of those previously in use there, and the Advertiser has obtained Mr. T.'s sanction to manufacture and supply the public with them, which from his great facilities he is able to do at the above extremely moderate rates for Cash. The price includes a peculiar boiler plate, and free delivery to Ship or Rail in Edinburgh.

JOHN MEIKLEJON, Westfield Foundry, Dalkeith, N.B.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

GARDEN VASES, FOUNTAINS, ETC.

J. SEELEY respectfully solicits immediate orders for any work of this kind that may be required next spring. It is always desirable that it should be made two months before it is used.—Artificial Stone Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½	... 12*s.*	8 by 6, and 8½ by 6½	... 13*s.* 6*d.*
7 by 5, and 7½ by 5½	... 13*s.*	9 by 7, and 10 by 8	... 13*s.* 6*d.*

11	by	9,	12	by	9,	10	by	9,	14	by	9,	15	by	9				16	0
16	„	9,	12	„	10,	10	„	10,	14	„	10	...		...					
15	„	10,	16	„	10,	17	„	10,	18	„	10	...		...				17	0
13	„	11,	14	„	11,	15	„	11,	16	„	11	...		...					
13	„	12,	14	„	12,	15	„	12,	16	„	12	...		...					
18	„	12,	19	„	12,	20	„	12	...		...			...					
16	„	13,	17	„	13,	18	„	13,	19	„	13	...		...				18	0
20	„	13,	16	„	14,	17	„	14,	18	„	14	...		...					
19	„	14,	20	„	14	...		...	...		...			...					

Boxes charged 2*s.* each, but returnable at full prices.

ORCHARD HOUSES.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet, 34*s.*, 38*s.*, 40*s.*, and 42*s.* pe case.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousand of of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA; and they have supplied several RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage."*

Our plan of packing them succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet, producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2s. 6d. per quart, 35s. per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2s. 6d. per quart, 40s. per bushel.

W. J. EPPS offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Dec. 13.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

R. M. STARK begs to intimate that his LIST OF NEW AND RARE PLANTS for the season is now ready. It comprises many interesting plants seldom offered, which were gathered or purchased on the Continent by him during last summer. A similar List of Seeds may also be had.

The following R. S. would particularly recommend:—

	s.	d.		s.	d.
Cystopteris alpina ...	2	0	Saxifraga cæsia	2	6
" montana ...	5	0	Pinguicula grandiflora ...	1	0
Eugenia apiculata ...	2	6	Primula mollis	2	6
Molinia cærulea variegata	1	0	Trichomanes speciosum...	7	6
Leptodactylon californicum	5	0	Viola digitata	2	6
Lastræa Filix-mas, var." cristata	1	6	Delphinium formosum, per doz.	15	0
Ranunculus parnassifolius	2	6	Dodecatheon elegans, do.	4	0

Edgehill Nursery, Edinburgh, Dec. 13.

YORK NURSERIES.

BAINBRIDGE AND HEWISON have much pleasure in offering the following NEW SEEDS, &c., being confident that they will prove to the possessor a great acquisition:—

SHEPHERD'S LARGE EARLY MARROW CABBAGE (now ready, 1s. packet for 13 postage stamps). This Cabbage will undoubtedly prove one of the best in cultivation, being large, early, and of superior flavour.

YORK NEW PROLIFIC CUCUMBER (now ready, 4 seeds for 13 postage stamps). Under good management this may be grown from 18 to 30 inches long. It is a rich dark green, and abundantly productive.

DELPHINIUM, QUEEN OF ENGLAND.—Plants free by post, April 1, 1857, 5s. each. The spike of flower on strong plants 18 inches long; colour dark blue, with a clear white eye.

BELLIS PERENNIS, AUREA VARIEGATA (now ready, and may be had free by post for 14 postage stamps).

THE YORKSHIRE FILBASKET GOOSEBERRY, 6s. per dozen, October, 1857.

This is an extraordinary great bearer; colour dark red, in size between the Ashton and Crown Bob.

The above may be had of the Proprietors, 7, Bridge Street, York; the principal Seedsmen and Nurserymen in London and in the country; also of DRUMMOND & SON, Dublin and Stirling.

The Cabbage and Cucumber are strongly recommended to Market Gardeners; also the Gooseberry.—7, Bridge Street, York, Dec. 13.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Junipers, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chiliensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high

Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

VERONICA SYRIACA,

NEW BEDDING ANNUAL FOR 1857.

MESSRS. E. G. HENDERSON AND SON having just concluded arrangements with Messrs. Ernst & Von Spreckelsen, successors to J. G. Booth & Co., Seedsmen at Hamburgh, relative to the above, have great pleasure in announcing the purchase of the entire Stock of Seed of this new and striking dwarf annual. Colour beautiful (Gentian blue), lower petals white, habit very dwarf, from 8 to 9 inches in height, compact, and covered with bunches of flowers; foliage ample and bright green; in packets at 2s. 6d. each.

Early in January next a coloured plate of above by Mr. Andrews will be published and presented with every order received previous to the 15th January, 1857.—Trade Packets, 5s., 10s. 6d., and 21s. each.—Wellington Nursery, St. John's Wood.

JUST PUBLISHED,

HORATIO BUNTING'S WHOLESALE FLOWER SEED CATALOGUE FOR 1856-57, containing a list of nearly every popular Annual, &c., in cultivation. The whole of the seeds having been grown under his own immediate superintendence not only enables him to warrant them true to name and genuine, but also to offer advantages in the prices (to purchasers) seldom to be met with. Catalogues forwarded to any Seedsman in the world post free on application. A Vegetable List is in preparation for publishing.

Address in full HORATIO BUNTING, Lexden Road Seed Establishment, Colchester.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2s. 6d. per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2s. per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to announce that his NEW CATALOGUE, No. 68, for the year 1857, is now ready, and can be obtained on application at his Agent's, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London. His Catalogue contains all the English and Continental Novelties.

A. V. also recommends his work "L'Illustration Horticole," of which the 12th Number (December) of the 3d Volume has just appeared, and contains the following coloured plates:—

1. Rose (Perpetual) Victor Trouillard.
2. Lilium philadelphicum.
3. Meconopsis simplicifolia.
4. Cocos botryophora.
5. Rhododendrum Blandfordiæflorum.

N.B. The same Number contains the General Programme of the Grand Horticultural Exhibition of the Royal Botanic Society of Ghent, open to all nations, and which will be held on the 1st, 2d, and 3d of March next (1857).

Price of VERSCHAFFELT'S "Illustration Horticole," 12s a year.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

ROYAL EXOTIC NURSERY, CHELSEA.

JAMES VEITCH, JUN., respectfully announces that his CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS for 1857, with a List of Implements and other Garden Requisites is now published, and will be forwarded post free on application.

J. V., Jun., devoting his PERSONAL attention to this department of his business can warrant his seeds TRUE TO NAME and of the most GENUINE DESCRIPTION.—Dec. 13.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 13, 1856.

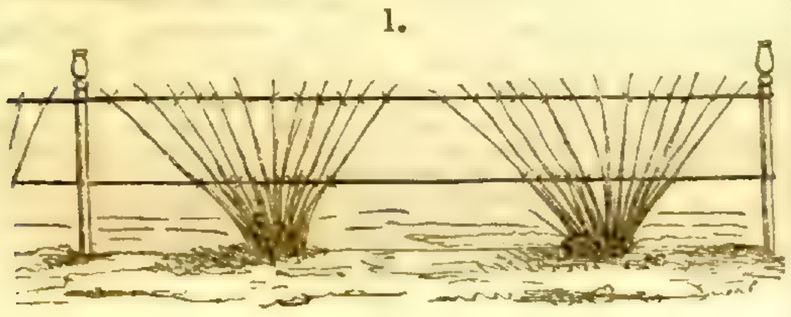
AMONG the fruits that are natives of this country, there is scarcely one more generally cultivated and esteemed for its delicious flavour than the Raspberry. It occupies a place in almost every garden, and when in season we scarcely know a fruit that is more refreshing and agreeable to the palate, or one that is more useful and in greater request for making into a preserve. Considering how valuable it is for the dessert and other purposes, we are somewhat surprised on contrasting it with the Strawberry, that, while the latter has been so wonderfully improved of late years by superior cultivation and the arts of man, very little change has been effected in the Raspberry. In saying this, let us not be misunderstood as overlooking or undervaluing one or two excellent varieties that have been brought into notice within the last 10 or a dozen years; on the contrary, we regard them as a move in the direction we have ourselves in view in offering these remarks, but what we mean to state is, that in no instance do we remember to have met with a Raspberry whose fruit is so superior in size and flavour to the old Red and White Antwerp, when grown in perfection, as the British Queen and one or two other kinds of Strawberries are, in comparison with the old sorts of that fruit which were cultivated some 20 years ago. How are we to account for this? We have no

ground for saying the one kind of fruit is more easily cultivated and susceptible of improvement by artificial means than the other, for almost everybody knows the contrary to be the fact, the Raspberry being a plant that will grow and fruit in a soil and situation where the Strawberry would barely exist. Perhaps it is owing in a great measure to this circumstance that so little attention has hitherto been paid by our great fruit growers to the improvement of the Raspberry; but to whatever cause it may be ascribed, let us hope that the time is not far distant when varieties of our favourite fruit the Raspberry may be obtained which shall as far surpass, in size and flavour, those of the present day as the fruit of our first-rate Strawberries now surpass those of years long gone by.

The Raspberry is found naturally to grow in groves or thickets, in rather low situations where the soil is moist, but not under the drip of trees. When cultivated, we find it to thrive in a great variety of soils—from a clayey loam to a black vegetable mould—we have seen excellent crops in all; but the highest flavoured were those grown in a rich loam, where the plants were fully exposed to the sun and air. Raspberries are seldom grown singly, but occupy a small compartment of the garden, where they are usually planted in rows 4 feet apart, and about the same distance between each plant. One great advantage of having them in a plantation by themselves is, that it enables them to be more easily covered with a net, and protected from birds when the fruit approaches maturity. It is also more convenient for staking and training in whatever form may be considered the most favourable for the production of fruit.

Almost every one knows that the shoots or canes of Raspberries are only of two years' duration, and that they require to be pruned in a peculiar manner. At this time, if it should happen not to have been done at an earlier period, the whole of the old stems which bore fruit last summer must be cut close to the ground and removed, and a selection made of such canes as are considered the best for fruiting next year. These may be tied together and supported by stakes until spring, when the unripe portion near the point of the cane is to be shortened, and if approved of they may be trained in the way represented in the annexed cut, taken from our volume of 1849, where the uprights between every two or three plants are supposed to be iron, and the horizontal lines to which the canes are attached tar-rope.

1.



But we think a neater and better mode of training Raspberries is the one we gave in our volume for 1842, from which we borrow the accompanying woodcuts.

2.

3.

Where this method is practised a row of Raspberries will have something of the appearance represented in fig. 3. The arched portions tied to the stake in the centre are the canes which fruited last year. These must now be cut away, and replaced by the upright shoots of last summer trained in a similar manner to those represented in fig. 2. By means of bending the canes in this way the buds are induced to break more regularly than when allowed to remain in an erect position.

A method of training at Haarlem closely resembling in some respects the one just noticed has recently been figured and described in the Revue Horticole; from which we infer that although it has been practised in many of the Scotch and English gardens for nearly half a century, it is almost unknown to our gardening friends across the Channel.

However opinions may vary with regard to training the Raspberry, and the effect which such treatment may have upon the size and quality of the fruit, there can be no question that by pruning we may very considerably prolong the fruiting season, and even make the plants bear a second crop in autumn after the first crop has been gathered. The way in which this may be done is thus described in the last edition of the "Theory of Horticulture," page 365. "The strongest canes, which in the ordinary course of things would bear a quantity of fruiting twigs, are cut down to within two or three eyes of the base; the laterals thus produced being impelled into rapid growth by an exuberance of sap, are unable to form their fruit buds so early as those twigs in which excessive growth is not thus produced, and consequently, while the latter fruit at one season the others cannot reach a bearing state till some weeks later."

Another mode of obtaining an autumnal crop of Raspberries was many years ago communicated to the Horticultural Society by the late Mr. John Mearns, when gardener at Shobden Court, in Herefordshire. This was by removing in May the young fruit-bearing shoots from the canes, leaving in some cases one or two eyes, in others cutting them clean off. Under either plan they soon show an abundance of vigorous shoots, frequently three or four from each eye, which produce blossoms in the beginning of July, and on these a good crop of fine Raspberries is borne in August when all the regular produce on the plants not so treated is consumed.

It was probably owing to some such mode of treatment that we were indebted for the beautiful dish of Raspberries which formed a part of the fine collection of fruit exhibited from the garden of the Right Hon. the Speaker, at the meeting of the Horticultural Society on the 25th of November last, and to which the first of the prizes offered by Mr. Wentworth Dilke was justly awarded.

We were rather disappointed some time since in seeing it stated that the Raspberry was not worth the trouble of growing in an orchard-house, as we had an idea that it would have been found well suited for such a purpose, especially when we recollected to have seen it forced so successfully about thirty years ago in what was then Mr. Labouchere's garden at Hylands, in Essex. The result of future experiments, now that orchard-houses are becoming more numerous, will we trust prove more satisfactory, and entitle this fruit to a very different character from that which it has received.

Before concluding our remarks, we would briefly notice a fallacy respecting the Raspberry which appears to have obtained general belief. From the roots being what are called travelling they keep near the surface and spread in all directions, throwing up suckers at some distance from the main plant. Hence it has been supposed that Raspberry plantations require to be renewed every six or seven years, but this is decidedly a misconception, as we know that by judicious thinning and management, and an occasional supply of good manure, they will continue to produce abundance of fine fruit for 15 or even 20 years, without the necessity of making a new plantation.

We shall be glad if the few observations we have made on this subject should be the means of inducing some of our great fruit growers to give the Raspberry a larger share of their attention than they have yet done, and there is no doubt but in due time the same degree of success will attend their efforts to improve this fruit as have rewarded the labour of those who have devoted so much of their time to similar pursuits. *B.*

NEW GARDEN FERNS.—No. XVI.

28. Goniophlebium appendiculatum. Polypodium appendiculatum, Linden, Catalogue, 1856; J. Smith, Cat. Kew Ferns, 1856. Polypodium scriptum of gardens.

Fronds oblong with a broad base, pinnatifid or subpinnate; segments linear-oblong acute or attenuate, the lower one sublobate; sori small, sub-immersed; rachis, costa, and veins purple; rhizome creeping smoothish green.

This is one of the most elegant of recent additions to our living Ferns, the conspicuous coloured veining, purple on a pale green, producing a very pleasing effect. The rhizome is creeping, as thick as a stout quill; the fronds a foot or more long, oblong, or elongately triangular, that is, broadest at the base, where it is 4 or 5 inches wide, narrowing upwards; deeply pinnatifid, almost pinnate in the lower part; the lobes linear-oblong, acute or with a longish tapering point, the lower ones often again sublobate. The rachis, costa, and veins (the branches of the latter clavate at the tips) are purple, and in the younger fronds beautifully apparent on the pale green ground colour. The sori seem to be small; they are sub-immersed, and are produced on the apices of the lower anterior veinlets in a single series, as in the common Polypody. The plant, referred to Polypodium by M. Linden and Mr. Smith, is undoubtedly a Goniophlebium. It was introduced by M. Linden. We have seen it in the collection of Mr. Veitch, of Chelsea, as well as in some of the public gardens. Some of the plants at Kew have been received direct from Mexico; but we are not aware whence M. Linden's plants were obtained.

29. Gymnogramma rutæfolia, Desvaux, Prod. 213; Hook and Grev. Icon. Fil., t. 90.

This curious little Australian Fern, looking something like a simple-fronded hairy Asplenium Ruta-muraria, has been raised both by Mr. Henderson, of Wentworth, and by Mr. Young, of Taunton. Its fronds are pinnate, with flabellato-cuneate pinnæ more or less lobed and cuneated. The sori form several lines, occasionally forked, on each of the small pinnæ. *M.*

CANKER IN FRUIT TREES.

Every gardener and cultivator of fruit trees knows well the trouble this tiresome disease gives, more particularly with Apple trees; there are, indeed, some varieties of Apples, such as the Ribstone, Golden and Newtown Pippin, and the Nonesuch and Old Nonpareil, that in most descriptions of soil defy the care of the pruner, and in spite of cankered shoots being removed and cankered places being cleanly cut out, become so diseased as to be barren and worthless.

Some few years since I commenced an experimental Apple plantation on a dark-coloured tenacious kitchen garden soil, about 2 feet in depth, resting on a yellow unctuous calcareous clay. This site had been planted with Apple trees by one of the earlier members of my family about the year 1720. Some of these trees grew to an enormous size and gave large crops; others, such as the Nonesuch and Old Nonpareil, were in 1820 comparatively small trees and their heads masses of cankered shoots—occasionally they bore fair crops, but the trees were most unsightly and unhealthy; still in spite of this they lived as long as those of large size, and all died off gradually before 1830. On the site of this old orchard I commenced my experimental Apple garden, feeling that if I could make Apple trees of tender kinds grow without canker under such circumstances it would be a step in the right direction. I therefore planted a piece of ground with young trees grafted on the English Paradise stock (very nearly related to the Doucin of the French), in rows 4 feet apart, and the trees 3 feet apart in the rows; this was about seven years ago.* I allowed them to grow two years and then had them taken up (all but a few which had not made much progress), and replanted in the same places they had occupied, not pruning their roots unless one long and straggling made its appearance, and giving to each tree two shovelsful of charred and burnt earth. My intention was to remove them biennially, but owing either to the pressure of business or forgetfulness, they rested three years unremoved, and only within these few days they have had their third lifting, all having been replanted in the places they were taken from, and I have the great satisfaction of finding my experiment completely successful, for the Old Nonpareil—still a Nonpareil, or rather a Sanspareil in flavour and consistency, *i. e.*, in tenderness and juiciness of flesh—the old Golden Pippin, the Ribstone Pippin, the Red Astrachan, the Golden Reinette, the Royal Russet, the Scarlet Nonpareil, the English Codlin, and many others all terribly subject to canker are compact dwarf bushes full of healthy blossom buds, and without a speck of canker on them; their roots are so fibrous that I find their removal does not affect the size of the fruit, in fact some of the largest and finest Apples I had in 1855 were on dwarf bushes on the Paradise stock planted out in March of the same year; and, by the way, I have more than once had some of the finest Pears from trees on Quince stocks removed early in March, and crops on them when all others failed, owing to their blossoming period being retarded by being removed till the danger from early spring frosts was over. This seems to open a new field to cultivators. Pear trees on Quince stocks may be taken up, say in January, their roots laid in the ground, their tops against a north or north-east wall, till the middle of March, and then replanted in their proper situations. Let some of your readers who have shaken off the trammels of old-fashioned fruit gardening, and who dare to build orchard houses, try this.

To return to Apple trees. If larger trees are sought for than those grafted on Paradise stocks are likely to make, trees grafted on the Crab stock may be planted; these will give a larger produce, and by biennial removal can be kept in a perfectly healthy state, even in soils adverse to their culture as orchard trees. It must be recollected that this system is not adapted for orchards where cattle are suffered to graze, but to orchards and gardens devoted only to fruit culture.

I have in my experimental garden two trees that most forcibly exemplify the good effects of biennial removal and the bad effect of deep rooting. I have before stated that my trees remained three years ending last November without being lifted; two trees only have suffered from this, and these are two of the most delicate varieties cultivated in our climate, viz., the

* In this soil the varieties alluded to in the text commence to canker when two and three years old.

Fall Pippin or White Spanish Reinette, and Newtown Pippin, both received from America; they are rapid growers, had both rooted deeply, and have on them large blotches of canker, which, under ordinary circumstances, would soon cause their destruction. I have had their roots brought near the surface, shall cut out the canker as deeply as possible, and make them healthy trees. When one looks into our old gardening authors and sees the specifics for the cure of canker, a smile will come, for how simple is the remedy!

It is strange to observe the backwardness of the Belgian and French gardeners in inducing fruitfulness and health in their trees by attention to their roots. I, "once upon a time," made a long stay at Bruges and looked into most of the gardens in and near the town; the soil I found rich, black, and unctuous beyond any I had ever seen, but their Apple trees were masses of canker; they were pruned carefully every year, but their roots having struck deeply into the soil out of the influence of the sun and air, the young shoots were cankered, and large blotches of the disease were to be observed on the stems and old branches; the idea of operating on their roots was ridiculed and treated as a Chinese would a recommendation from an "outside barbarian."

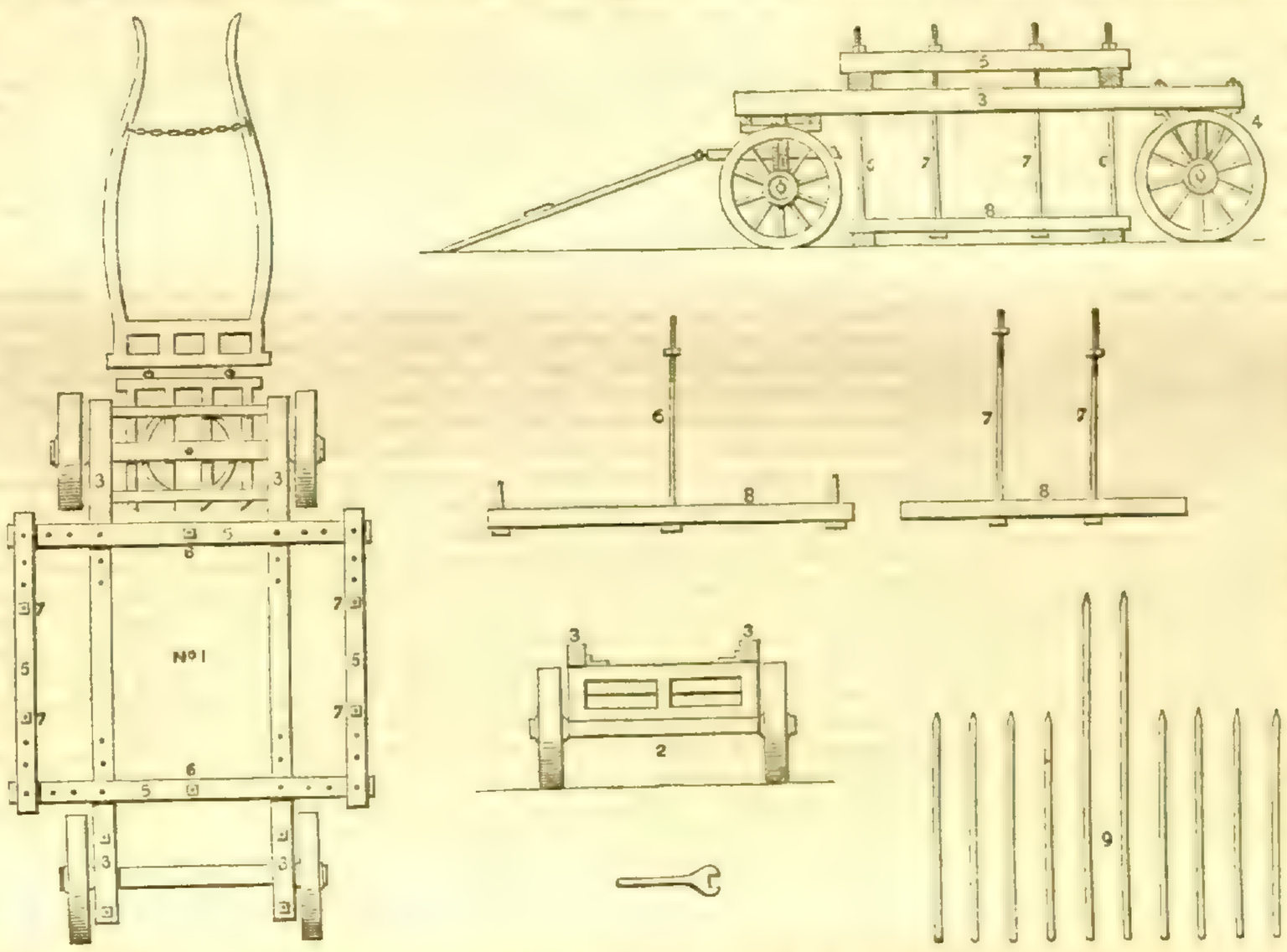
To conclude, it must be borne in mind that there are many varieties of Apples the trees of which are not subject to canker, and which on the Crab stock grow into large healthy orchard trees, or on the Paradise make healthy espaliers, pyramids, or bushes for the fruit garden; but those who wish to enjoy those good old Apples, the Golden Pippin, Old Nonpareil, and Ribstone Pippin, should devote a portion of ground to a plantation in rows four feet by three of trees of those sorts on the Paradise stock, and have them lifted biennially in November. If the soil be deep and tenacious, like that in which my trees are planted, a dressing of burnt earth or charred garden refuse mixed with the soil when they are replanted, will be most advantageous; if, on the contrary, it be light and poor, two-thirds rotten dung and one-third tenacious loam or clay, prepared and well mixed during the summer, and two or three shovelsful added to the soil for each tree in replanting will give additional health and vigour. The biennial removal I have recommended is but light labour, for an active labourer can lift and replant 40 trees per diem. I need scarcely add that this treatment is equally efficacious for Pear and other trees liable to canker; if a cultivator is inclined to be idle he need only to remove those trees liable to it, and as soon as the disease makes its appearance subject the tree or trees to biennial removal, which is the only cure for canker. *Thos. Rivers, The Nurseries, Sawbridgeworth.*

TREE-LIFTING MACHINE.

IN the autumn of last year the Marquis of Huntley signified his intention to have a number of valuable trees transplanted on the grounds here; but not having had anything suitable for such important work it occurred to me that a machine might be constructed expressly for the purpose. I therefore submitted a design to his lordship, who soon after gave orders for the plan to be carried out. It was put on trial immediately after it was finished, and having been found well adapted for purposes of transplanting, and also as a means for conveying various materials from one place to another, I am induced to attempt a brief description of its construction and mode of working.

The machine in question has four wheels (see fig. 1). The hind wheels are 3 feet in diameter, and the fore wheels are 2 feet 10 inches in diameter, and similar in make to those of a broad-wheeled cart, but not dished. The axles are 6 feet 6 inches in length, and 4 feet 10 inches in the clear between each pair of wheels. The axles are bolstered (see fig. 2), so that the under surface of the bearers (fig. 3) are above the top of the wheels. The front wheels are furnished with shears and shafts, and consequently turn on a strong centre bolt. The bearers are 12 feet 6 inches in length, 4 inches in breadth, and 6 inches in depth. They are connected in front by means of three wooden bars, two of which are morticed into the bearers, the third bar is tolerably strong, intermediate, and lower down; through this the centre bolt passes, and is the only means by which the bearers are attached to the front wheels. The hind wheels are attached to the bearers by an upright flange from the top of the axle, through which and the bearers a ¾-inch bolt runs horizontally on each side, and is fastened by a nut. There are also two stays at each side passing under the axle, No. 4 and up to the bearers (at an angle) to which they are fixed by ¾-inch bolts and nuts.

I may here notice that the bearers are a fixture at the fore-wheels, it not being found necessary to detach them, as is the case with the hind wheels before adjusting the whole apparatus for lifting a tree. The clear space between the hind and the fore wheels is 7 feet, thus allowing a mass of earth 7 feet in length, and it may be 8 feet in breadth and 2½ feet in depth to be raised; but in order to show that this can be effected, a few remarks regarding the upper frame may be necessary. This frame (No. 5) consists of four wooden bars, 7½ feet in length, 4 inches in breadth, and 4 inches in depth. It is so adapted that it is capable of contraction and extension to suit the purpose of the operator, and its arrangement is as follows:—Two of the bars are laid across the bearers at 5, 6, or 7 feet separate. On account of their length they project at both sides, and have a hole exactly through their centre to admit 1¼-inch bolt (fig. 6), the import of which will be subsequently noticed; the remaining two bars are placed above the transverse bars and consequently run parallel with the bearers, these having each two 1¼-inch holes at 1½ feet apart (No. 7). These and the transverse bars have other corresponding holes at equal distances towards their ends, so that the size of the mass to be lifted can be determined at pleasure, by sliding the bars out or in and dropping a ¾ inch bolt having a head into the hole at the regular places at which they intersect each other; from this it will appear that the workmen have complete guidance in proceeding to dig the trench around the tree to be lifted. This trench necessarily requires to be roomy, as the four wheels must be let down to near the level of the bottom of the ball. Having made the necessary excavation, the aid of another frame (fig 8) is required; this frame also consists of four wooden bars, having holes perpendicular from those in the upper frame, and is placed around the sides at the bottom of the ball and fastened at the corners by bolts and nuts; but before fixing it six iron bolts 1¼ inch in diameter as previously adverted to (No. 7), having a screw 1 foot 6 inches down from the top with strong heads, are introduced through the holes in the bars before noticed, two of these being at each side, and one at each end; thus arranged their heads hold on the under surface of the under frame. Ten iron bolts (No. 9) should be at hand at this stage of the process, two of them 7 feet 6 inches in length, 1¼ inch in diameter (see fig. 9), the other eight bolts should be 5 feet in length and 1 inch in diameter, all pointed. The long bolts should be driven through the ball, which they should enter close on the upper surface of the lower frame, keeping them 9 inches apart, and directing them so that their points shall come through on the top of the frame at the opposite side of the ball; the remaining bolts should be drawn through diagonally.



Having the machine at hand, the upper frame should be lifted off, the hind wheels, including the axle, detached. The bearers must then be drawn back over the ball, the hind wheels brought in behind the tree, adjusted, and fastened to the bearers; the upper frame should then be put on, taking care to introduce the screwed bolts, which are 4½ feet in length (fig. 7), into the upper frame, that their points shall appear above to afford the nuts a hold, which nuts, it may be noticed, are 3 inches square. Six men should then be stationed around with a wrench 18 inches in length at each nut, and commence simultaneously to turn them, which operation they will easily perform, and no resistance is likely to impede the process of lifting the tree. In the various trials by this machine the ball has been lifted entire, and drawn to the place assigned it by horses without being shortened or compressed. It may here be remarked that the tree or shrub, as the case may be, is raised and carried erect, and when lowered into its place no difficulty is experienced in extracting the round iron bolts; I may also notice that the tree is simply raised 10 or 12 inches from its bed when it comes in contact with the bearers, by which and its own weight it is rendered so perfectly firm, that no guide rope is required. Six men are employed in working the machine, and the greatest weight yet attempted, viz. 4 tons, has been raised with slight effort. *John Reid, Orton Hall.*

Home Correspondence.

Biddulph Grange.—Mr. Kemp having concluded his very clever and graphic, though far too favourable, account of the grounds at this place, I feel that the time has come when I ought to tender my acknowledgments to another artist, my friend Mr. Cooke to wit, to whose ever-ready pencil and inexhaustible invention my gardens, I am well aware, owe their chief attractions. With Mr. Cooke's skill as a landscape-painter the public is abundantly familiar, but it is not so generally known that he occasionally forsakes his studio to practise the craft of a landscape gardener. In this capacity he has helped me through so many difficulties, and enabled me to realise so many, but for him, impracticable conceptions, that I feel naturally anxious at once to confess my own obligations to him, and to point out the quarter from whence others also may hope to derive the like assistance. *James Bateman, Biddulph Grange, Dec.* 10.

To Keep Cattle from Barking Trees.—Having planted some standard fruit trees in a meadow, I was long annoyed by the cows rubbing against them and barking them, &c. After trying the usual means without success, I employed the following, which has answered every purpose:—When planting drive in a stout stake, and make fast the plant; drive into one side of it a few stout nails, leaving them projecting about an inch; this will protect one side of the plant. Take two or three strips of 1-inch deal board, about 2 or 3 inches wide, according to the size of the stem of the plant, and drive some stout nails through, so that the points shall stand out about an inch; bore a hole through each end of the strips in the direction of their width, pass a bit of galvanised iron wire through as many of them as will nearly surround the tree; place them in position, and twist the ends of the wire to secure them. In the winter when the cows are away, untwist the wire, remove the strips, clean and wash the tree, and replace in due time. There is no fear of the cattle hurting themselves; I have often seen them come up and gently scratch themselves against the nails, but have never had a tree injured by them since, and I have adopted the plan some years. *T. H.*

Horticultural Society.—"Hippolyte" was very glad to see the statement relative to the new conditions of subscription to the Horticultural Society. It is perfectly clear and satisfactory; he does not, however, quite understand the phrase "seeds and cuttings in London." Will you kindly state whether this means that the subscriber of 2*l.* 2*s.* will have to apply for them in London, and that to those who pay 4*l.* 4*s.* they will be sent? If this be not the meaning, perhaps you will explain its real signification (1). "Hippolyte" also begs your kind advice on the following matter. A Ghent seedsman advertises in his seed list seeds of from 50 to 60 species of Fern. Having read recently in the *Chronicle* that no success attends the attempts to raise Ferns unless the fronds or theca are gathered prematurely and placed on pots of soil, he is doubtful of the propriety of procuring any of the seed in question. Do you think it would be safe to purchase, or to sell if purchased? H. would be very thankful for a reply to this query in your next Number (2). [1. London means such seeds and cuttings as can be provided for general distribution. Applications are made by letter. This is to draw a distinction between London distributions, and rarer plants which may be propagated in the garden. 2. We should not be purchasers of Fern seeds.]

Large Boiler System of Heating.—The most efficient and economical mode of heating horticultural erections is a subject well worthy the attention of gardeners and horticultural builders; but there seems to be at present some dispute as to which is the best. There has been a discussion in your pages lately about conical boilers; but I have been recently informed by a gentleman in the vicinity of London who has been making extensive alterations in the heating of his houses that the boiler he has made use of is the tubular boiler, something similar to that manufactured by Messrs. Weeks. The gentleman referred to formerly had 10 fires, but

by putting a boiler at each end of the range of houses he has now only two, and I believe the alteration promises to give every satisfaction. I know another place in this neighbourhood where one boiler heats two Vineries and a range of pits, and warms them efficiently. It is therefore worth the trouble to inquire whether the present almost universal plan of having a boiler to every house is the best that can be adopted, or whether Messrs. Weeks's plan, followed out to a certain extent, is not a better method of heating. That there is ample room for improving both the heating and ventilating of houses few will deny, and it is not a little surprising that one of the heaviest bunches of Black Hamburgh Grapes that has ever been grown in this country was produced in a house heated on the much abused Polmaise system of heating. *C. Anderson, Monks Orchard, West Wickham.*

Sir Harry Strawberry.—Noticing that you state that Sir Harry and other Strawberries cannot be identified by comparing them with coloured plates, I beg to say that as regards Sir Harry this can certainly be done, as I possess a coloured lithographed copy of the oil-painting now in the Crystal Palace at Sydenham of a one-year old runner of that variety. This plate I purchased from the propagator, and no one can be mistaken if they compare a genuine Underhill's Sir Harry with one of the prints in question. *Henry Huskisson, Hazlewell Hall, Worcestershire.* [We abide by our opinion.]

Law relating to removal of Glasshouses.—A case of considerable importance to the clergy was lately tried, but judgment not given at the time, and since then I have been unable to meet with anything about it. I forget the names, but the case was an action brought by a clergyman who had been presented to a living, to prevent the executors of the deceased clergyman from removing a hothouse erected by him. Could any one tell me how the judgment was given, and whether it would equally apply to a cold (brick) frame built on the surface of the ground, the foundation being concrete and the brick-work built upon that? Perhaps some of your readers may remember the case and be able to give me the judgment. *A. R., Bromley.*

Ice-houses.—I should be much obliged by any of your correspondents stating, from practical experience, the smallest size an ice-house could be made to receive the material; for of course the greater quantity the more certainty of keeping. Also any experience they may have of an ice-house built in a well-sheltered wood, chiefly above ground, with double walls, &c., and very thickly enclosed with Heather. *An Old Subscriber.*

Heating.—The best way to heat a small greenhouse at the back of a room where another chimney would be unsightly, is to make a circular chamber at the back of the fireplace of the room, and conduct the heated air by means of pipes carried along the sides of the walls of the greenhouse. Let a valve for cold air be placed opposite the valve in the chamber through which the hot air escapes, to cause it to circulate. This plan will be found efficient for a small greenhouse. *An Old Subscriber.*

Grapes at Basing Park.—Mr. Duncan, the gardener here, having sent us three Grapes of which we had no previous knowledge, and of which two were first-rate black sorts, he has favoured us with the following account of them:—The black Grape No. 2, which I forwarded to you for inspection, differs widely from the Barbarossa, to which it had been referred. The bunches are smaller, and generally without shoulders; berries above the middle size, roundish oval in form, of a deep black colour, and somewhat densely covered with a rich blue bloom, skin very thin, flesh delicate, and flavour, I think, unsurpassed. The Barbarossa, on the contrary, has large shouldered bunches, berries nearly globular in form, and neither so deep in colour nor so well bloomed as this variety. The skin, too, is acknowledged by all to be extremely thick, and the flavour is not equal to that of this Grape. The foliage partakes more of the Hamburgh than Barbarossa character, from which it differs in being much smaller, cupped in form and narrower than in that sort; the lobes, too, are more deeply indented and the serratures much more pointed. In the Barbarossa the leaves are rounder, less firm in texture, and they become reddish purple on approaching maturity, whilst those of this Grape remain green until they are fully ripened. This Grape ripens simultaneously with the Hamburgh, and is invariably black under all circumstances; it has the great merit of keeping for a lengthened period after ripening, and it is so very much esteemed here that I am very considerably extending its cultivation. It has been grown here for a number of years, cuttings of this and several other good sorts having been presented to me by a gentleman who obtained them from some Spanish source. One of these, a white or rather golden-coloured variety, with downy leaves, much resembles the Hamburgh in point of form; the flavour too is rich and excellent. The No. 3 Grape, a specimen of which I also forwarded, and which you referred to the Greek Grape of Speechly, is from the same source; the bunches and berries are scarcely medium size, form of the latter roundish oval, skin thin, of a golden yellow colour when ripe, and somewhat transparent, flesh delicate and rich, and the flavour sweet and good. The foliage is very downy, and the leaf-stalks make wood of a brownish red, which gives it a very remarkable appearance. No. 1.—Cuttings of this black Grape were received into the collection here many years since from Mr. William Lindsey, formerly gardener to the Duke of Devonshire at Chiswick House and was labelled "new black Grape," "name unknown," nor have I seen it in fruit elsewhere. The bunches are large and shouldered; berries small, globular in form, of a very deep black colour, thickly covered with a pale blue bloom, flesh almost destitute of fibrous matter, flavour very sweet. This sort is much esteemed here; it does not however keep to a late period on account of the berries being so free from pulpy matter. The foliage is peculiar, being large and very downy underneath. This variety, like No. 2, colours deeply black whenever it is grown and they are less liable to shank than any other sorts that have come under my observation. *James Duncan, Basing Park.* [The names of these varieties appear to be unknown in this country. No. 2 is decidedly different from the Barbarossa, and is a thinner skinned and much richer Grape. The Barbarossa belongs to that class of Vines, the leaves of which assume a deep reddish-purple tinge when beginning to fade; but the Grape in question, No. 2, does not. We attach no importance to No. 3; but Nos. 1 and 2 are real acquisitions, remarkable for the excellence of their quality.]

Temperature on Windermere from 28th November to 4th December both inclusive, situation high and exposed. Thermometer on a north wall 5 feet from ground. Readings show the maximum and minimum of preceding 24 hours.

	Max.	Min.	Mean.	
Nov. 28	37.	26.	31.50	
„ 29	35.	24.	29.50	
„ 30	32.	22.	27.	20. on Grass
Dec. 1	33.	21.50	27.25	19.50 „
„ 2	32.	19.	25.50	18.50 „
„ 3	28.	17.	22.50	16. on earth of garden
„ 4	29.50	14.	21.75	11.50 on snow, no Grass visible.
	32.36	20.50	26.42	

The instrument is a Six's thermometer. *T. S. P.*

Ripening Strawberries on Hollow Walls.—The Strawberries that were grown here last season were some of the finest I have ever seen for flavour and size; the British Queen was ripened on both sides and to the very point; and although the season was wet and without much sun, the flavour was exquisite. Myatt's Surprise was certainly a surprise as regards size, but the flavour could not be praised; probably with more sun there might be more richness, and if this could be obtained it would be invaluable, for never saw I a Strawberry that could be compared with it for size and producing abundance of fruit. Now I am about to mention a plan which I think throws a new light on Strawberry ripening, *i. e.* of exposing the fruit on small hollow walls, a plan I adopted last season with the greatest success. The walls I used were small curved cylinders, a separate one to each plant. I procured the common 2-inch draining tile, and having curved it when freshly made, so as to form a half circle, I placed it on the side of the plant where the fruit grew, so arranging the fruit as to give it the full power of the sun. The benefits derived were as follows: The heated tile imparted warmth to the fruit, which not only caused it to ripen quickly but thoroughly. Being hollow it did not become overheated, and unlike perpendicular walls the circular form caused the fruit to be exposed to the direct rays of the sun; and, what is of importance, it received none of the splashings from rain; at the same time the hollow pipe prevented evaporation in some degree, and snails were easily caught under the tile, as in a trap. This contrivance I have found beat all others for ripening and producing prize fruit. These tiles can be obtained at the kiln for about 1*l.* per 1000, a little more being charged for bending them into a half circle. *Sigma.*

Camellia Buds.—I beg to inquire the reason why the buds of large Camellias have turned brown and died off, so that instead of their being as usual in magnificent flower, they are very poorly furnished with blossoms, and those of a small half-withered size. The trees have been fresh planted in large tubs. What drainage do they require? What watering do they need? The foliage looks healthy, and the formation of flower-buds was so abundant that half of them were taken off with the hope of the remaining flowers being very fine; but none of them are fine, and they soon drop off, even when vigorous enough to come out. The trees are all under glass. *R. A. H., Wansfell, Windermere, Dec.* 8. [There is something wrong at the root. Perhaps the soil is too cold in comparison with the air of the house; perhaps the plants have not made new roots enough to feed the blossom buds.]

Societies.

LINNEAN, *Dec.* 2.—The President in the chair.—J. Ball, Esq., M. P.; W. B. Carpenter, M.D.; R. S. Hill, Esq.; John Garland, Esq.; and W. H. Holdsworth, Esq., were elected Fellows. The following papers were read:—1. "On a new form of Corynoid Polypes," by P. H. Gosse, Esq. Of this new polypus, which was named Lar Sabellarum, a beautiful drawing accompanied the paper. 2. "Note on the African species of Copal," by T. C. Archer, Esq. This communication referred to the gum-resin of the Robo-tree of Sierra Leone (Guibourtia, Bennett), of which a description was read at the last meeting of the Society. Mr. Archer thinks this gum-resin is probably one of three kinds imported largely into Liverpool under the name of African Copal, African Yellow-gum, and African Red-gum. The first comes in rounded tears, usually large, transparent, but rather dull on the surface and of a pale straw-yellow colour. The other two are in masses of fragmentary appearance. The yellow sort is often semi-opaline, from a milkiness which exists in some of the masses; pieces of this, evidently only portion of gigantic tears, have been seen, which weighed nearly 3 lbs. The usual size of the fragments is that of a hen's egg. The quantity of these gums received in the port of Liverpool is enormous; more than 150 tons were imported in 1855, the whole of which it was stated is consumed in the manufacture of varnishes, under the general name of Copal. 3. "Note respecting certain glandular appendages of the leaves in the autumn rosettes of Epilobium montanum," by D. Oliver, Esq., jun. This paper consisted of a description of certain glandular appendages observed on the younger leaves of the autumnal rosettes of the Epilobium montanum, and which the author believed were undescribed. 4. The commencement of a "Memoir on the phenomena of torpidity, and the production of fat in hybernating animals," by G. B. Holland, M.D.

Notices of Books.

The Lord of the Isles, a new illustrated edition. 8vo. Black, Edinburgh.

An exquisitely beautiful book. The wild scenery amidst which the poem is laid seems to have led the publishers to entertain the happy idea of bringing out an edition illustrated in a manner worthy of its author; they have been ably seconded by Birket Foster, John Gilbert, and Messrs. Whimper and Evans, and the result is one of the handsomest volumes which the English press has produced. The paper itself, a delicate Maize colour, like that which Her Majesty was pleased to select for the "Natural History of the Dee-side," sets off the cuts to great advantage; add to which the binding of the volume is as gay as deep blue, scarlet, and gold can render it.

Descriptive Geography of England. By T. Challener. Small 12mo. Longmans.

Although this is a neat little volume it is not to be recommended as being fit for school or any other purpose. Take for instance what the author says of "Timber trees, fruit-trees, Agricultural and Horticultural productions," things which have no earthly connection with geography. He teaches children that plants are found in *every* climate, which is not true. Among our timber trees he teaches children to include the Laurel, the Laburnum, and the Elder, which are not only not timber trees at all, but mere exotics having nothing to do with the geography of England. He teaches that the "very peculiar features of the vegetable productions of England" are—the Royal Forests!; and he teaches moreover that the Ohio Squash is one of our principal garden productions!! We look no further. We must add that the plan is no better than the execution; it includes all sorts of things that "children" do not want to know, and those things are as we have shown very ill explained.

On Poisoning by Strychnia, with comments on the Medical Evidence given at the Trial of William Palmer for the Murder of John Parsons Cook. By Alfred S. Taylor, M.D. London, Longmans. 8vo, pp. 152.

The great Palmer case may be regarded as having settled once for all the important point that the non-detection of poison in a corpse is not conclusive evidence of non-poisoning. Every one remembers with what emphasis the counsel for the prisoner dwelt upon the fact that the scientific witnesses for the Crown had failed to detect strychnia in the body of Cook, and how certain medical witnesses called for the defence endeavoured to make the jury believe that if strychnia had been administered Dr. Taylor ought to have discovered it. The question at issue between the scientific gentlemen was one of the highest importance to society, as well as one of considerable interest in a medical point of view; it was a question whether evidence furnished by chemistry was alone worthy of credence, or whether that derived from physiology and pathology had not at least as high claims to attention. Of course, as a matter of law, chemical tests are not conclusive, but an effort, a desperate effort, was made on behalf of the prisoner to persuade the jury that reliance ought to be placed on chemical tests alone, to the exclusion of tests derived from other branches of medical science. The object of Dr. Taylor, in the publication before us, is to show the danger and error of such a notion; he says—

"*Can a person die from poison, and no poison be found by chemical analysis in the body?*—I here put this question generally. At a very early period in the progress of this case, it was found that if the defence failed in assigning the symptoms of Cook to some latent disease, the only point on which it could rest was this:—If it be alleged that a person has died of poison, let it be produced in a visible and tangible form; if it cannot be produced, then, supposing proper skill to have been employed, the only inference to be drawn is, that no poison was taken, and that death was caused by disease. This is bringing the question of death from poison to a very simple issue indeed. It is casting aside physiology and pathology, and requiring our law authorities to place entire and exclusive confidence in the crucible and test-tube of the chemist. But has organic chemistry, with all its modern advances, yet reached a point that no death can occur from poison, speaking generally, except the poison be still found either in the stomach, the tissues, the blood, the excretions, or in all of these parts at one and the same time? Is the viper-poison easily revealed by tests? Can the poison of rabies,

producing one of the most formidable convulsive affections known, namely hydrophobia, be detected in the tissues? Is there any chemical process by which the poison of the Ordeal Bean of Africa, or even of the common Laburnum, the seeds of the *Ricinus communis*, the poisonous fungi, Darnel, and the sausage-poison of Germany, the poison of the Œnanthe crocata—can be separated and demonstrated to exist after death in the blood and tissues? If not, then the allegation that no person can die from poison except the poison be found in the body is a mockery, a delusion, and a snare, admirably adapted to cover a multitude of deaths from poison, which, but for this dogma, might be revealed by pathology and physiology. It is all the more dangerous, because the history of crime shows us that the arts of the murderer, especially of the scientific or professional murderer, are daily becoming more refined. I could add largely to the list of poisons which either by their nature, by their tremendous power in very small doses, or by the mode in which they are introduced into the system, might infallibly produce death without leaving a physical or a chemical trace of their presence in the body. I forbear to do this. Such an enumeration would undoubtedly serve my purpose of refuting that which I believe to be a gross and dangerous error on the part of some of the chemists who gave evidence for the defence at the trial of Palmer; but it would be at the cost of making public means of death and modes of perpetrating crime which it would be dangerous to promulgate. The fallacious doctrine here broached for the temporary purpose of saving the life of a wretched criminal was, however, such as to receive, at least for a time, a large amount of popular support. There was an astonishing plausibility about it, especially in the form in which it was almost daily circulated in newspaper paragraphs emanating from the solicitor for the defence or his agents. It only required bold assertion, and the chemical differences hitherto admitted by chemists to exist between organic and inorganic poisons at once vanished. Alarm was also spread and allowed to pervade the public mind by the allegation, that unless poisons were invariably detected in, and separated from the dead body, in cases of alleged poisoning, any innocent person might be convicted of murder by poison when the death was really due to some latent disease. It is fortunate that the jury in Palmer's case have, by their verdict, given the deathblow to this novel and dangerous doctrine, and have shown that 12 men may be as safely directed to a just decision by the views of pathologists and physiologists as by the assumptions of chemists. This is as it should be. Chemistry may detect a poison; but it fails, without the aid of physiology and pathology, to show whether it was or was not the cause of death; and, in some instances, it cannot enable us to determine whether the poison was introduced into the body during life or after death. Even with regard to the poison in question in this particular case—strychnia—this substance is now so extensively employed as a medicine, that the discovery of traces of it in the stomach, blood, and tissues (assuming that the processes used are satisfactory) would not justify an allegation of death from poisoning by it. *The symptoms must be made known.* The 'tetanic complications' which it ordinarily produces in the body when taken in poisonous doses must be clearly established, and a judgment must be based on these symptoms. We are not, therefore, to suppose, as the public have been erroneously led to imagine, that toxicology and chemistry are convertible terms, that the finding of poison in a body is a proof of death from it, and the not finding the poison is a proof of death from some natural cause."

Having investigated the general question above stated, the author proceeds to the particular case of poisoning by strychnia, and asks, "Can a person die from strychnia and no trace of that poison be found by chemical analysis in the body?" A careful comparison of all the cases upon the subject known to medical men leads to only one answer, which is in the affirmative. Then comes this further question, "What becomes of the strychnia in a case of poisoning in which it cannot be detected by chemical analysis?" In the opinion of Dr. Taylor the poison is absorbed and diffused in the blood, and this opinion is not a new theory, as the witnesses for the defence wanted to make the jury believe; it is of more than 30 years' standing, has been adopted and widely promulgated for 14 years by Liebig, and is generally received as true amongst well informed medical men.

A careful perusal of all the evidence given on Palmer's trial, and of the interesting comments upon it, must force an unprejudiced mind to the conviction that the great triumph achieved in that case over cunning, deceit, and sophistry was mainly owing to Dr. Taylor himself, and if, as we fear has been the case, the courage and impartiality exhibited by him at the trial have brought down upon him accusations, as unfounded as they are uncharitable, it may at least be a source of consolation to him to know that the great body of his fellow-countrymen feel that they are deeply indebted to him. To quote from our able cotemporary the *Examiner*—"The truth is, and it evidently is the duty of the public now to say so, that if Dr. Taylor had not abided firmly and resolutely by his justified opinion, he would have been open to the severest censure, and his reputation would have suffered not a momentary but a lasting injury."

The Palmer case was a sad example of the manner in which talent may be prostituted. The credibility of scientific witnesses received a blow from which it will not easily recover; and if any value yet attaches to the testimony of surgeons, physicians, and chemists, as a class, it is entirely owing to the straightforwardness, caution, impartiality, and courage of the few gentlemen who upon that memorable occasion formed so honourable a contrast with their less scrupulous and candid brethren.

We have received from our correspondent M. DE JONGHE a *Catalogue of the Fruit Trees* on sale in his establishment, No. 20, Rue des Visitandines, Brussels, and we direct attention to it because it contains descriptions of all the new Belgian Pears, the names of which are beginning to appear among us.

The author of *The Great Law of the Human Mind* (Savill and Edwards) tells us that "this work begins the Millennium." That being the case we feel ourselves quite incompetent to examine his book.

Garden Memoranda.

MESSRS. SHARP AND CO.'S NURSERY, SLEAFORD, LINCOLNSHIRE.—An idea prevails very extensively that Lincolnshire is a flat fenny county, that its climate is damp and rainy, that aquatic birds and eels find everywhere congenial resort, and that Lincolnshire men can be distinguished by a peculiarity common to the mud-loving creatures they are reputed to possess in such numbers. In travelling to Sleaford from Grantham, the visitor entertaining this belief, and probably indulging in the prospect of agreeably extending his acquaintance amongst these aquatic delicacies, will not only be disappointed in his expectations, but will have his preconceived ideas of the aspect of the county completely upset, and his locomotion impeded by encountering bold swelling hills, and seeing a rich undulating country on every side, possessing every component of a picturesque landscape but water. We are glad to have the opportunity of disabusing our non-travelling friends of a long-cherished error, and rejoice in relieving our Lincolnshire friends from the weight of a prejudice which exists against their county and climate. Lincolnshire has its fens, it is true, but these are well drained and successfully cultivated, and are, or should be, a pride rather than a reproach to Lincolnshire men. The geological characteristics of the county are varied and valuable. A fine range of Oolitic limestone runs through the county, affording in several instances excellent building stone; rich lias clays occur in extensive tracts, and immense alluvial deposits of unexampled fertility are spread over the lower parts of the county. With these advantages the county possesses liberal landlords, good farmers, and large, well arranged, well cultivated farms, uninjured by hedgerows, timber, or extensive woods. This may seem somewhat digressive, but in reality it is not so; the actual bearing of all these circumstances on the subject of our notice is direct and considerable, and besides it might appear unreasonable to those entertaining the common prejudice against Lincolnshire that a county, such as they imagine it, should be chosen for the establishment of a nursery, and for seed grounds. The actual circumstances explained, it will be seen that singular advantages belong to the position. Messrs. Sharp & Co.'s home nursery is situated near the thriving town of Sleaford. Thirty-one acres are here devoted to the rearing and cultivation of forest trees, shrubs, fruit trees, &c. &c. The soil of the nursery facilitates the operations of the nurseryman, being a sandy calcareous loam, evidently congenial to the majority of plants which are generally cultivated to meet the requirements of the horticultural world. The presence of lime in the soil renders the cultivation of the Rhododendron and its congeners a matter of difficulty.

Coniferous plants are extensively cultivated, and the collection comprises all the beautiful and hardy introductions of late years; Araucaria imbricata grows with singular vigour and beauty. The bright green foliage of Pinus insignis, united with its hardy nature and beautiful habit, renders it a desirable tree for all planters, and its presence in this, and our nurseries generally, indicate a deserved public appreciation of it. Large quantities of the elegant Cedrus Deodora share the same ground; with these are associated Abies Douglasi and Morinda, Cupressus Lambertiana, and many others of our largely extended collection of this interesting and valuable tribe of trees. Picea Webbiana appears here with its leading shoots destroyed by frost; it is a variety which cannot be recommended for general planting, though eminently beautiful where it does thrive. The common Silver Fir does not succeed in this nursery. Judging from the immense quantities of Larch in various stages of growth, this tree ranks high in the favour of foresters. The Spruce Fir, by the same rule, enjoys a similar appreciation; hundreds of thousands of both those kinds of trees are annually removed from this nursery to supply plantations in all parts of the country. Pinus maritima and the Scotch Pine have each large quarters appropriated to their cultivation. Examples of the various deciduous trees are adequately represented on the grounds, and several large divisions of the nursery are devoted to shrubs for ornamental planting.

Extensive plantations of fruit trees exist, and seem to prosper in the peculiar soil of the place. So general is the appreciation for the queen of flowers, that it is almost needless to say that many thousands of Roses are here cultivated. A walk, a quarter of a mile in extent, runs parallel with the public road, and is rendered interesting to visitors by a judicious arrangement of flowers and ornamental shrubs, and trees placed in borders on each side of the walk. The Sleaford Horticultural Society holds its annual exhibition on Messrs. Sharp's grounds. We are informed that there is a decided disposition in this agricultural neighbourhood to encourage horticultural pursuits. The Society is liberally patronised, the exhibitions have hitherto been singularly successful, and the productions exhibited have given a deserved repute to the Society.

Messrs. Sharp's principal seed grounds are situated at and near Heckington, a village a few miles distant from Sleaford. A very extensive track of land is here employed in the cultivation of farm and garden seeds, and even this is inadequate for the various requirements of the business of seed growing. The necessity which exists of keeping the different vegetables having a natural affinity apart from each other to prevent hybridisation is a formidable difficulty, and entails much trouble and expense on seed growers. The varieties of the various vegetables which cannot with propriety be associated with each other are distributed in several distinct localities. Messrs. S. have land engaged in the growth of seed in no less than eight different parishes.

In pursuing the business of seed growing, it is as obviously the interest of the grower to secure the best and most genuine samples of seed as it is advantageous to the gardener to have his seed true to its description. Amongst other things conducive to this result is a due observance of the rule of inheritance, now practically recognised by horticulturists. The objects which owe their present importance to their ready adaptability to the arts of the cultivator, fall more immediately within the scope of this rule. It is sufficiently evident that if we desire that a plant shall transmit to its progeny unimpaired its required peculiarities, we must employ a specimen in full possession of the properties we value and desire transmitted. To ensure purity of stock, the plan pursued by Messrs. Sharp, in the case of the ordinary farm and garden seeds, is first to grow a limited quantity of each kind, and satisfied of their genuineness to save seed for their own sowing from them; the seed thus saved is employed in their seed grounds. The extended cultivation of the Turnip leads to the demand for large quantities of seed, hence this valuable vegetable in all its approved varieties occupies a considerable share of attention in these grounds. For seed roots the seed is sown in July, and the Turnips are transplanted in land prepared for them in October. Messrs. S. find large succulent bulbs are subject to injury if they remain exposed during the winter, and that they suffer deterioration if housed in dry sheds. They find it better to employ bulbs of a medium size, which in transplanting are covered with soil; being established in the ground they maintain a vigour and succulence which ensures a vigorous growth in the spring. Sharp's improved large Swede appears the favourite; of this variety alone 30 acres are cultivated for seed. Green and Purple-top Swede rank next, taking up 26 acres. The White, Green and Red Globe occupy 45 acres; and, altogether, 130 acres are appropriated to Turnips for seed. We do not mean to say that all these varieties are grown together; as we before observed, in such cases varieties of the same plant when likely to hybridise are widely distributed.

In the management of Carrots for seed purposes the seed is obtained from carefully selected stocks and sown in May. In October the Carrots are selected and transplanted in rich soil, receiving a dressing of Peruvian guano; they are then covered over with soil to protect them from frost. By the adoption of this system—which by the way is not generally practised—the Carrot makes roots and starts into growth early in the spring. The seed harvest is thus forwarded; as many as 30 acres of the different varieties of Carrot are cultivated.

Mangel Wurzel is treated in the same manner as Carrot, and Parsnips share in the same management.

The Cauliflower, Cabbage, and other members of the Brassica family, from their close relationship and consequent liability of intermixture, present in their cultivation many difficulties to the seed farmer; that these are not always successfully overcome, growers of any of the multifold varieties of these useful vegetables know full well. For seed purposes plants of the leading varieties of the Cabbage tribe are planted out in July, and attaining maturity produce seed the following year.

Seed crops are proverbially exhaustive; hence high farming is of necessity practised, and artificial manures are called into requisition, and the soil maintained in the highest state of fertility. There is a proneness in cultivated vegetables to degeneracy in poor soils, and high cultivation is essential to maintain the character of a highly developed vegetable. This principle is well observed here; the natural soil, too, is in favour of the successful culture of garden vegetables. We cannot too emphatically enforce on seed growers the necessity of a strict observance of a system of management that secures soil possessing every constituent of fertility, and plants perfect in maturity and health.

Celery is planted from the seed beds in the month of October. Lettuce grown for seed is seldom remunerative, foreign seed keeping down the price, although the imported seed is inferior. The hottest land is chosen, but a good crop is seldom secured. The cultivation of Radish for seed was an experiment made last year for the first time; it succeeded so well that 10 acres were employed this season for the purpose. The seed is sown in February and harvested in October.

Peas are grown very extensively by the Messrs. Sharp, and as they are considered liable to mésalliances, considerable precautions are employed to secure separation. The locality offers varieties of soil and position,

and the growers are thus enabled to give suitable soils to the hardy and more delicate varieties. 180 acres of Peas were grown this season, and 30 acres of Beans. Onions are not largely sown.

In connection with this large seed farm are necessarily many extensive barns and store rooms. At Sleaford Messrs. S. have been fortunate enough to secure a large building, formerly the Assembly Room of the town, which when we saw it was filled with many thousands of bushels of Turnip seed, besides quantities of Carrot and other seeds. In novelties Messrs. Sharp possess a very fine Swede Turnip, discovered in the neighbourhood; a dwarf hardy Broccoli of great excellence, called Ingram's Hardy Late Winter; and an excellent second early Potato called Parker's Seedling. We should mention that the land of the locality produces excellent Potatoes, and the best sorts are much cultivated by Messrs. Sharp.

We noticed a marvellous quantity of Quick in Messrs. S.'s grounds; a quantity was about being raised at the period of our visit, and it evidently deserved its title, it being 2 to 3 feet high, and one year old. This rapidity of growth is due to the warm rich soil of the place.

We are glad to recognise the existence of a seed farmer who, holding a large extent of land, can cultivate his own seed, giving at the same time personal supervision to the numerous interesting operations connected with the business.

Miscellaneous.

Uniformity of Nature's Operations.—The agencies that now operate on and modify the surface of the globe—that scoop out valleys and wear down hills; that fill up lakes and estuaries and seas; that submerge the dry land and elevate the sea bottom into new islands; that rend the rocky crust and throw up new mountain-chains; and that influence the character and distribution of plants and animals, are the same in kind, though differing it may be in degree, as those that have operated in all times past. The layers of mud and sand gravel now deposited in our lakes and estuaries and along the sea-bottom, and gradually solidifying into stone before our eyes, are the same in kind with the shales and sandstones and conglomerates that compose the rocky strata of the globe: the marls of our lakes, the shell-beds of our estuaries, and the coral-reefs of existing seas, year after year increasing and hardening, belong to the same series of materials, and in process of time will be undistinguishable from the chalks and limestones and marbles we quarry; the peat-Mosses, the jungle-growth, and the vegetable drift that have grown and collected within the history of man, are but continuations of the same formative power that gave rise to the lignites and coals of the miner; the molten lavas of Ætna and Vesuvius, and the cinders and ashes of Hecla, are but repetitions of the same materials which now compose the basalts and green-stones and trap-tuffs of the hills around us; while the corals and shells and fossils, the fragments of plants and skeletons of animals now imbedded in the mud of our lakes and estuaries and seas, will one day or other be converted into stone, and tell as marvellous a tale as the fossils we now exhume with such interest and admiration. Without this uniformity in the great operations of nature, the history of the PAST would be an uncertainty and delusion. We can only read the past as connected with the present; and premise of the future from what is now going on around us.—*Advanced Text-Book of Geology, by David Page, F.G.S.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Next to Camellias, Azaleas are perhaps the most showy plants that can be had in bloom at this season, and where there is a good stock to select from some of the most forward plants should be placed in heat at once, moistening them overhead two or three times a day. Unless, however, plants can be had which made their growth and set their buds early in the season, they need hardly be expected to flower so finely as under more natural circumstances in spring, and unless the buds are plump there will be some danger of the plants starting into growth instead of flowering. Dutch bulbs should be largely used for forcing at this season, and where hardy shrubs are forced for the decoration of this house, these should be got into flower as soon as circumstances admit. Do not forget to introduce into gentle heat a good batch of Roses, choosing the most promising plants of Teas, Bourbons, and Hybrid Perpetuals, which are the best kinds for winter flowering; a gentle bottom-heat will be of great service to these as also to most other plants subjected to heat in order to get them into flower as quickly as possible, and a moist state of the atmosphere must be secured, admitting a little air freely on every favourable opportunity. In greenhouses damp or insects soon do irreparable injury to soft-wooded plants at this season, and these must be very carefully attended to if they are to be wintered in first rate condition. Pelargoniums should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that the superfluous moisture may be removed before the evening, avoiding the use of fire heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air. Calceolarias require very similar treatment, except that they are very subject to the attacks of thrips, unless afforded a moist atmosphere; they must therefore be narrowly watched for this enemy, and smoked lightly two or three evenings successively if this pest makes its appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage from flagging. Cinerarias for late blooming must also be kept cool and airy, and should not be allowed to suffer from want of pot room. These must not be trusted in cold pits after this season, for they cannot endure much frost. Plants intended to flower early should be encouraged with a gentle heat, keeping them near the glass and admitting air on every favourable opportunity.

FORCING DEPARTMENT.

PINERIES.—If circumstances should render it necessary to subject a portion of the stock intended for fruiting to a brisk temperature at once to induce it to start, the most promising plants should be very carefully selected, and placed in a small house or pit by themselves; and, where anything like a regular supply of ripe fruit is required, several houses, or separately heated compartments, should be at command; and without this convenience no gardener can reasonably be blamed for having too many ripe at one time and none at others. It is not by any means desirable to start more plants into fruit at this early season than may be absolutely necessary, for they will produce finer fruit later in the season than can possibly be obtained from them now; and where a separate house cannot be commanded for those which must be subjected to a high temperature, we would advise that the plants selected for fruiting should be placed in the warmest part of the house at command, filling the rest of the house with young stock. The former should be afforded a bottom heat of about 85°, and the latter about 10° or 15° lower; the atmosphere should range from 68° to 75° by fire heat, allowing it to rise 5° with the assistance of sunshine, keeping the young plants near the glass, and properly supplied with water at the root. This temperature will be considerably too high for young stock at this season, but we have seen this system practised with considerable success; and although the young plants may get somewhat drawn, they will gain substance as light increases, and the evil will be less than running the risk of starting at this early period of the season the greater portion of the plants that are at command for keeping up the supply throughout the summer. VINERIES.—Until the buds are fairly broken the points of the shoots should be kept nearly on a level with the lowest part of the Vine; and if this should not be found sufficient to induce the buds to start equally throughout the length of the Vine, the rod should be bent so as to bring the most forward buds to the lowest level, elevating those that are backward. Maintain a thoroughly moist atmosphere by frequently sprinkling the floor and passages, &c.; and syringe the Vines lightly at least twice a day until the leaves begin to appear, when the amount of moisture must be moderated. Give every attention towards securing a gentle warmth for the roots; turning the litter, and adding fresh as may be requisite, and keeping it well protected from the effects of heavy rains and severe weather. Be satisfied with a moderate night temperature until the buds begin to push, when it may gradually be raised to 60° by the time that the leaves fairly begin to open.

FLOWER GARDEN AND SHRUBBERIES.

Where the tenderer kinds of Roses are found to require protection this should be applied at once, for it may soon be too late to save the plants. Also get in the stock of Briers for budding upon next year without delay, for unless these are planted before spring they seldom furnish strong shoots for early budding. Many object to planting shrubs or trees in winter, believing that the roots if hurt at that season are liable to rot, and certainly early in autumn is a very preferable season; but with favourable weather we would not delay such work a single day, and if the soil is properly prepared by draining, &c., where necessary, as should always be done before planting, there will probably be fewer failures from planting now than if the work was delayed until March. Where however the ground to be planted is of a clayey nature, and in an unkind state at present, it will undoubtedly be better to defer planting until spring, meantime using every means to improve the state of the ground; and soils of this nature should always be dug or trenched some considerable time before planting, as neither draining nor anything but exposure to the action of the atmosphere will bring them into a fit state for planting; while, however, we would not hesitate to plant small "stuff" generally, at present things which are at all tender had better be left until the chance of severe frost is past, and the transplanting of large evergreens which has unfortunately been delayed until now should be put off until the weather becomes mild in spring, especially things which are known not to be perfectly hardy. Roll walks and lawns after frost to keep them firm and smooth. There will be comparatively little to be done in the flower garden at present, and any spare time will be well spent in going over the stock of Plants in pits for next season's use, removing every decaying leaf, and where the surface soil has got green, removing this and top dressing with sandy loam. There is nothing so unfavourable to these plants at this season as damp, therefore take every opportunity of admitting fresh air.

HARDY FRUIT AND KITCHEN GARDEN.

It is always desirable to get as much of the pruning and nailing done before the approach of spring as possible; lose no favourable opportunity therefore of forwarding these operations; for, besides the advantage of having that kind of work done before the busy season, the garden will present a much neater appearance after the wall trees are nailed and the borders made trim, and the small fruit bearing bushes pruned, and the ground among them turned over. See that standard trees which have been recently moved or root pruned are firmly secured against injury from winds, and also get any root pruning or transplanting remaining to be done this season executed as soon as possible. Endeavour as far as circumstances will permit to have a good supply of Parsley under safe protection; for there is generally a large demand for this, and in the event of a severe winter it is difficult to save it by the ordinary protection of hoops and mats. Lettuces, Cauliflowers, &c., in frames should be freely exposed on all favourable occasions. See to maintaining a regular supply of Seakale, Rhubarb, and other forced vegetables, for which it is likely there may be a considerable demand. Look over root stores occasionally to see that nothing is going wrong, and be very careful of any Broccoli that may be fit for use or turning in. As was recommended last week, take advantage of frosty weatherto get manure wheeled upon spare ground, and see to ke eping a good supply well rotted and fit for use when wanted.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Dec. 11, 1856, as observed at the Horticultural Gardens.

Dec.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep.	Temperature. Of the Earth. 2 feet deep.	Wind	Rain.
Friday	5	☽	29.627	29.371	55	40	47.5	40	41½	S.	.04
Satur.	6	9	29.502	29.473	57	51	54.0	45	42	S.W.	.62
Sunday	7	10	29.564	29.5.3	60	53	56.5	46	43	S.W.	.03
Mon.	8	11	29.553	29.401	59	51	55.0	49	44½	S.W.	.03
Tues.	9	12	29.500	29.319	59	50	54.5	49	46	S.	.15
Wed.	10	13	29.419	29.275	56	43	49.5	50	46½	S.	.33
Thurs.	11	○	29.512	29.201	52	42	47.0	50	47	S.W.	.19
Average			29.525	29.370	56.8	47.1	52.0	47.0	44.3		.79

Dec. 5—Drizzly with thick fog; rain.
— 6—Partially overcast; densely clouded; rain; boisterous
— 7—Boisterous; cloudy and fine; rain.
— 8—Uniformly overcast; densely clouded; mild for the season.
— 9—Fine; densely clouded; rain at night.
— 10—Rain; cloudy; heavy rain at night.
— 11—Partially overcast; very fine with bright sun; cloudy; rain.
Mean temperature of the week 11½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 30 years, for the ensuing week, ending Dec. 20, 1856.

Dec.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	14	46.3	34.4	40.3	12	0.32 in.	2	3	2	2	8	8	5	—
Mon.	1	46.9	35.5	41.2	18	0.50	1	3	1	3	9	7	5	1
Tues.	16	46.2	35.1	40.6	14	0.68	1	3	2	2	4	7	6	5
Wed.	17	46.2	34.2	40.2	16	0.37	4	3	1	2	4	9	4	3
Thurs.	18	44.8	34.1	39.4	16	0.34	3	8	—	2	5	7	5	—
Friday	19	44.9	35.6	40.3	16	0.38	2	4	4	2	5	8	4	1
Satur.	20	44.3	33.4	38.9	11	0.76	2	7	2	2	9	5	1	2

The highest temperature during the above period occurred on the 15th, 1849, and 17th, 1852—therm. 57 deg.; and the lowest on the 16th, 1853—therm. 7 deg.

Notices to Correspondents.

BOILERS: *M N G.* We are of opinion that your boiler is set properly.

BOOKS: *E K.* We do not know whether there is to be any new edition of the Cottage Gardeners' Dictionary.—*A Z.* M'Ewen on the Strawberry.—*F J H.* Mr. Smith's list of Ferns can only be obtained by application to himself. It chiefly consists of exotic species.

EXHAUSTED FLOWER GARDEN: *W G.* No one can advise you without knowing of what description of *soil* it consists.

FICUS ELASTICA: *A D T.* It will bear cutting down; in your case, however, the best way would be to take off the top and strike it in a gentle bottom heat. Your new plant thus obtained would be some time before it grew too tall for your house.‡

GAS LIME: *D R.* Don't use this material. Make a mixture with lime, sulphur, and tobacco juice, and with it paint your stems, having first scraped off all loose bark. If of two Pine Apples, one a Queen and the other a Cayenne, the weight of each is the same, then the Queen is the better fruit, because it is naturally so much smaller a sort than the Cayenne.

HOT-WATER PIPES: *W L G.* There is no reason why the water should not be drawn off from pipes if you wish to do so. If you turn hot water into pipes at the temperature of freezing you will crack them.

IMPATIENS HOOKERIANA: *J D B.* It was raised at Kew, where it flowered in 1852. It should be treated like a Balsam; but have more heat in summer.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Cultor.* 1, Cupressus Lawsoniana may be right, but as it has not its old leaves there is no saying; 2, Thujopsis borealis; 3 and 5, Chamæcyparis we know nothing about, they are certainly distinct from No. 4; Nos. 4 and 6 seem different; 4 is, we presume, the young state of Libocedrus decurrens; of No 6 we can only say that if it was raised from Jeffreys' seeds then it ought also to be L. decurrens. These Conifers, before they acquire their adult leaves, can scarcely be named.—*P.* Some Glycine probably; but it is necessary to see its pods before speaking positively.—*Scotus.* Cotoneaster obtusa, *Wallich.*—*M B.* We never heard of such a plant as Sempersukia Remusina.—*C R.* Dendrobium speciosum.

PEACH-TREES: *A B C.* Plant inside the house; but direct the roots through below the front wall (which should be set on arches) into the border outside. The size of your house must be regulated by the number of trees you intend to plant in it.

PEAS: *G B.* Sangster's No. 1.‡

PLANS OF FLOWER GARDENS: *J U F.* Several very pretty designs for flower gardens have appeared during the past season in the "Florist and Fruitist;" but the best collection that at present occurs to us will be found in "Mackintosh's Book of the Garden," vol. i. *B.*

QUERCUS ILEX: *C E.* Its timber is worthless; it is chiefly used for firewood and charcoal. Its structure is the same as that of other Oaks, but the sapwood is browner. All timber trees must, of necessity, have both heartwood and sapwood, although it is not always easy to distinguish them.

ROSES: *A R.* Next week.

MISC.: *A B C.* We cannot at present recommend a purchaser for your vols. An advertisement would cost 2s. 6d.

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F. Boshell, Seedsman, 86, High Street, Borough.
Dawe, Seedsman, 36, Moorgate Street, City.
Hooper & Co., Central Avenue, Covent Garden Market.
William Kibble, Florist, Richmond Road, Dalston.
John Noble, Seedsman, Pond Lane, Lower Clapton.
Pamplin & Son, Florists, Lea Bridge Road.
Henry Potter, Seedsman, 65, Farringdon Street.
B. S. Plummer, Upper Thames Street; and 54, Seed Market, Corn Exchange.
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HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
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"May 20th, 1850.

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

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Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
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The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum. The College course of lectures and practical instruction is complete in one twelvemonth, though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

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LAND DRAINAGE.

MR. BAILEY DENTON undertakes the Drainage of Estates by Contract or Commission.—For terms apply to him, 52, Parliament Street, Westminster.

MR. DONNE'S DORKINGS & BUFF COCHINS—The Rev. STEPHEN DONNE has Dorking Chickens and a few Adult Hens to dispose of, bred from the Birds which have won the Silver Cups at Birmingham, Liverpool, and Windsor. Also, Eggs from the best Dorkings and Cochins will be ready shortly. The above Dorking Chickens are the Brothers and Sisters of the Birds which have won the Silver Cup, and the Second Prize at Birmingham at the last Show; and the EGGS will be from the parents of these Birds.—Oswestry, Dec. 13.

LIVERPOOL GRAND POULTRY SHOW.—The FOURTH ANNUAL EXHIBITION OF POULTRY will be held at Messrs. LUCAS & Co.'s Carriage Repository, Great Charlotte Street, Liverpool, on WEDNESDAY, THURSDAY, and FRIDAY, the 28th, 29th, and 30th of January, 1857. Managing Committee—Joseph Hindson, Esq.; Henry Lafone, Esq.; Lawrence Peel, Esq.; Henry Worrall, Esq. Hon. Secretaries—Gilbert W. Moss, Esq.; William C. Worrall, Esq. Sixteen Silver Cups or Pieces of Plate, in addition to liberal money prizes, will be offered for competition. Entries close on the 10th January.—6, Lower Castle Street.

The Agricultural Gazette.

SATURDAY, DECEMBER 13, 1856.

The paper read by Mr. FOTHERGILL COOKE at the Society of Arts last Wednesday descriptive of the Leicester Deodorising and Sewage Works is given in another page. We hope next week to give the discussion which ensued, in so far as it turned upon the agricultural value of the material that results from Mr. WICKSTEED's process as it is there carried out. At present we may say that the general result of all that was said appears to be that the manufactured material is not so valuable as to pay for carting it to any great distance. The only facts indicating otherwise that were elicited being that a thousand tons of it had been actually removed during the past week by the farmers around Leicester. No analysis was forthcoming from the promoters of the scheme indicating the composition of the material in its fresh condition; the only figures of this kind being given by Mr. LAWES, who quoted Dr. VOELCKER to the effect that 50 per cent. of chalk, 16 of sand, 10 of water, and only .7 per cent. of ammonia were present in it. Such matter will not pay the farmer for his cartage of it. Mr. LAWES accordingly, who led the discussion, came to the conclusion that the off-hand decision quoted in derision by the lecturer, "Away with it to the German Ocean!" was a result to which we were driven by the pestiferous character of the material on the one hand, and the agricultural valuelessness of its product under Mr. WICKSTEED's process on the other.

Mr. CHADWICK argued for the liquid or irrigation method of applying the manure as against that of extracting its solid part—pointing out that in so far as the nitrogen in sewage matter had assumed the form of ammonia, the addition of lime, as in WICKSTEED's process, would not throw it down, so that thus the best part of the liquid must run to waste—contending too that when added in the liquid form the soil absorbed and deodorised it at once—and showing from agricultural experience at Rugby and elsewhere the possibility of throwing all the sewage of the town hour after hour upon the land as soon as made, with the best effect upon the crops.

Mr. SIDNEY, in a most vigorous address, drew from the wonderful extension of all the appliances and all the results of agriculture during the past ten years, along with the fact that all schemes for utilising sewage had failed, the inference that the thing was agriculturally valueless. Farmers could not, in the face of all the illustrations he adduced be accused of supineness—their unwillingness to use the sewage matter offered to them must be accounted for only on the ground that the expense of so doing would exceed the returns. Mr. SIDNEY devoted a good deal of his address to pointing out the errors on this subject that had been spread in the earlier days of its discussion, and the agricultural failure of those illustrations which Mr. CHADWICK had adduced.

We then had two addresses from members of the Metropolitan Board, the one of whom contended for the propriety of conveying all the sewage matters of the town to a distant point there to be thrown away or dealt with agriculturally, as might be found advisable—illustrating, however, the way in which dilution destroyed its value by the case of gas water, for which manufacturers of ammoniacal salts gave 1*s.* 6*d.* per 100 gallons when the ammonia in it was strong enough to need so much sulphuric acid for its saturation, and for which they would give nothing at all when half that quantity of sulphuric acid sufficed to saturate its ammonia. The other member made a very telling reply to his colleague's argument—leading the meeting back to what, after all, is the true point from which to view the subject. He contended that these commercial illustrations were entirely out of place; that the problem for solution really was how to render sewage matter harmless in the cheapest manner—that Mr. WICKSTEED's process did this, as was proved by the increasing health of Leicester, and that whether the result was worth anything to the countryman or not was beside the question to the citizen. The question for the latter was whether it was cheaper to carry all the contents of his sewers 20 miles away by pipeage at enormous cost there possibly to do mischief—or to extract and fix the mischievous part at home and deal with the solid result—one part in a thousand of the whole—giving it away, perhaps, or paying men to fetch it if they would not take it otherwise.

As Christmas approaches the public is supposed to become unusually hungry: and after the English fashion of "feeding the mind" with anticipated viands, and whetting the appetite over a "bill of fare," it has this week flocked to the live larder in Baker Street. People unskilled in the bucolic heraldry of the "Herd-book"—the "Peerage and Baronetage" of the beeves—may wonder what utility there can be in forcing dumb animals to such a miserable state of repletion, and distending them to an amplitude of fatness that certainly proves how good-natured their skins must be. And assuredly if all that the Smithfield Club did was to show the marvel-loving public what degree of magnitude and ponderosity certain varieties of cattle can be made to attain when over-feeding is strained to the extremity of Nature's endurance, its proceedings ought to meet with execration instead of applause, and the members themselves to be indicted under MARTIN's act.

When we remember, however, that it is not alone the size but the character and quality of the animals which enters into competition; that consumers of meat are interested in the production of cattle having a minimum of bone and offal in proportion to their flesh, and the graziers are profited by a breed which comes earlier to maturity than another; when we consider also that the nutrition of animals according to their destined use, whether for supplying fat, muscle, or dairy produce, is now almost a science, we perceive a new significance in the instituting of a test-point to which cattle, sheep, and pigs can be reared and fed. The most "oblate spheroid" of an ox that has seemed to challenge to eat and get fat against any beast of his age becomes a standard of excellence in aptitude for feeding and ability to furnish the world with beef.

If it were practicable to test a steer as we do a steam-engine, by trying how much "duty" (in the shape of meat) he can get out of a given weight of food, with anything like a constant result that would be applicable to the whole breed represented

by him, the comparative virtues of our meat-producing animals would have been long ago ascertained and registered for the guidance of agriculturists and the advantage of the community. But from the numberless feeding experiments hitherto made no such rigid conclusions can be drawn; and our only course is still to bring all the rival varieties of cattle and systems of management into competition, allowing each by a comparison of cost of time and weight to establish its position as better or worse than another. The prize animals of the domesticated menagerie in Baker Street may be neither directly remunerative to the feeders, nor, when butchered, palatable to consumers, but they are valuable as being the greatest achievements of our live stock improvers, labouring to outvie each other; and it is precisely that breed and that management yielding the most extraordinary specimens under extraordinary circumstances, which is found to be most profitable for ordinary business where lesser degrees of bulk and fatness are required.

The Smithfield Club does not lavish its distinctions upon the most corpulent bullocks and pinguid swine, simply as such, but with a more practical issue confers them upon those which have most economised their rations. When the Society was instituted, in 1798, one condition for candidates was that "the kind or kinds of food must be certified;" the next year a discrimination was made between beasts fed on "Grass, hay, Turnips, Cabbage, or other vegetables," and those fattened by "oilcake, corn, or any other food in addition," and the rule was that the judges should decide only after the selected animals had been slaughtered, and the difference between their living and dead weights, and even the proportions of fore and hind quarters, tallow, hide, offal, and butcher's meat in each carcass ascertained. In 1801 the candidates were required to state the condition of flesh of their animals when put up to feed: and the time of fatting as well as the age and breed, and the sort of food, has always been a main point considered in the adjudications.

Undoubtedly the fat stock exhibitions have tended wonderfully to remodel and improve all our varieties of live stock, not only advancing the art of agriculture, but effecting a saving in the consumption of cattle-food relatively to the amount of meat produced, and amazingly increasing the supply of a better quality of beef, pork, and mutton for our tables. Think of the days (not so very remote) when we had no short-horns, which are now grazing so many English counties and infusing into the native cattle of many countries the blood that insures perfection of form, indicating propensity to fatten, beautifully-grained meat, and soundness of constitution. The famous beasts of our fathers' day seemed bred with a view to superphosphate rather than to good roasting beef. What clumsy bone, what coarse ungainly heads, what a pelican-like dewlap, what a leathery integument of hide, stretched over sharp hip and wiry rib; and if sometimes of mighty weight, how sluggish had they been in arriving at maturity, and how tough were the joints they furnished for the spit! Again, in the days before BAKEWELL made a "new Leicester," what unshapely slow-feeding flocks were scattered thinly upon our meads; and what lean lank hogs prevailed alike in farmstead and village, that no abundance of meal could make sleek, and that advertised the coarseness of their bacon by their porcupine-like bristles. Now, thanks to the exertions of our leading agriculturists not only to cultivate the best breeds themselves, but to instruct the public by competitive exhibitions, unthrifty animals are becoming rare, and the wonder is how our swine can grow so portly at such an early age; how the improved varieties of sheep on mountain, vale, and marsh-land can accumulate so quickly their delicately-flavoured mutton; and our graceful cattle thrive with such rapidity in pasture, byre, and stall. It is a fact that short-horns now reach maturity in two and a half years in place of four or five formerly. The quantity of meat, too, in an ox of a given weight is now vastly greater than in the early days of the Smithfield Club, owing to the smaller percentage of bone. The "offal" of the prize beasts used to average as much as from one-quarter to more than one-third of their live weight, a proportion that would now be thought preposterous.

As an illustration of the benefit accruing from such shows, take the case of our poultry. The "mania" of the last few years and the competitive exhibitions have not only wonderfully extended the taste for poultry-keeping, in preference perhaps to maintaining inedible dogs or cats, but has doubled the weight of the individual fowls; thus by judicious breeding wonderfully augumenting the quantity of a costly article of diet, with little greater outlay in the birds' food. The varieties, too, are all defined and classified, and their adaptability to different conditions and circumstances reduced to a complete system, so that everybody has now learned not only to have game fowls for laying eggs, Dorkings for producing plenty of delicate food, and hardy Cochins for an unfavourable country and climate, but where to procure the sorts that will give him most eggs, rear most chickens, or average the heaviest weight.

Another word we add while on the subject of cattle shows and meat eating: if the public will live so freely upon lamb and veal and other young delicacies, they must no longer inquire for delicious flavoured four-years'-old mutton; and the fewer animals they spare to develope into maturity, the scarcer and dearer must they expect to find full-grown beef and mutton. *I. A. C.*

WE are unable to give this week a report of the very interesting discussion ON CROP ROTATIONS that took place on Monday last before the London Farmers' Club. Mr. THOMAS, of Bedfordshire, who farms on the estate of his Grace the Duke of Bedford—the pattern tenant of a pattern landlord—contended most unanswerably for greater liberty of action than the bonds of agreements, or still worse, those of custom imposed upon the cultivator, by insisting on his following an order of cropping—proper for the day when agriculture was a thing of mere routine, but hindering men now from using those means which increasing intelligence and skill had given them, and not only so but involving them in losses arising from the incompatibility of the rules laid down with the very nature of the plants they cultivate. Mr. THOMAS took for his illustrations the faults of the four-course system on the one hand, and the Duke of NORTHUMBERLAND'S agreements on the other. He showed how Clover every four years was in the very nature of things as proved by universal experience impossible, and the modification of it, which had been devised, by which Beans or mixed seeds were made to alternate every other fourth year with broad Clover were insisted on as necessary. He showed how the heavy crops of Turnips grown as guano and superphosphate now could grow them—consumed by sheep, fed on corn and cake as they now were fed—rendered the land unfit for producing good malting Barley. The crop was sure to fall, and in great measure therefore spoil, and when some one urged that the way to meet this was to cart home the crop and not consume it on the field, or to give his sheep less enriching food along with it, he replied with great force, that the proper object of agriculture was not to find methods by which the fertility of soils might be kept in check, but how the very highest degree of fertility which could be conferred might be profitably utilised. His expedient was to make the four a five years' course, by taking Wheat after the Turnips, and Barley after the Wheat, and this he contended was possible, now that artificial and imported fertilisers could be purchased and supplied. Mr. THOMAS's criticisms of the Northumberland agreements were of course received with general applause. He showed how the point insisted on—the application of so much farm dung to the several crops specified—was simply impossible. The consumption of all the crops would not produce the manure which, according to this agreement, was needed for their growth. And the enormous penalties must of course in every case be incurred, and cultivation would become impossible.

The only criticism of any moment which Mr. THOMAS's argument received was from Mr. W. BENNETT, who pointed out that the arrangements proper in the case of Mr. THOMAS and in that of his Grace the Duke of BEDFORD—both men of intelligence and honour—might not be generally advisable, inasmuch as neither character nor conduct were universally trustworthy, whether among landlords or among tenants; that the necessity of rules arose out of the absence of that intelligence and ability which, however, whenever they did exist, ought to have the freest scope given to their exercise. We shall again refer to the other addresses that were given.

EMIGRATION TO CANADA.

SEEING a request for information from an intending emigrant to Canada, I beg to offer him my assistance, having resided several years in that country. I should recommend him on no account to stay in Lower Canada, as from the peculiarities of their laws and system of tenure (though now perhaps about to be remedied), and want of ambition and energy in the French Canadians, he will not find himself very comfortable there. Upper Canada, west of Kingston, is the part I should recommend. There is a very fine country round Cobourg, at the back of Toronto, in fact all the way to Amherstburg, where he may purchase with advantage. This seems giving a very wide range to select from, but good land is found in all those parts; in fact, the whole of the land in Upper Canada, as a rule, is of excellent quality, and with common care and skill one cannot go wrong. The price of land of course varies much. Round large towns, such as Toronto, Hamilton, and London, especially the former, as it is the largest town in Upper Canada, it is very expensive, as choice farms may fetch from 100 to 150 dollars an acre (buildings included, unless of brick), a dollar being 4*s.* 2*d.* sterling, and even more should they be so situated as to be near or on the site of a future town or village, a possibility contemplated by every Canadian. Round smaller towns they average from 50 to 100 dollars the acre, or even less, according to distance, roads, and other circumstances.

West of London stretches a huge tract to Lake St. Clair and Amherstburg, of most fertile black soil, but as it is a dead level the whole way, it might be too subject to the ague to be pleasant. As a rule, flat rich land is subject to the ague, and will remain so till more generally cleared and drained; it is a gently rolling tract, with good natural drainage, that is the most healthy. It is of very great importance to select a farm that is thoroughly well watered, both with springs and running brooks, if possible; but care and judgment will provide against the trouble and loss incurred by want of water, the greatest calamity that can happen in dry hot weather. The spring and brooks get lower and lower all the summer, till the September and November rains, the first of which refresh, the second fill them, though the end of October is generally the driest time.

Land in Upper Canada is, as a rule, divided into lots of 200 acres, each subdivisible again into half and quarter lots, they being so laid out, somewhat on the chessboard plan, that there is a road to each 50 acres; should more be required, it is not difficult to add another half or whole lot to his farm.

The best Wheat is generally grown in a tract of land reaching from Simcoe, 5 miles north of Lake Erie, round by Brantford and Paris, to the head of Lake Ontario, north of Hamilton; but drought is rather too frequent a visitor there for me to recommend it too strongly for settlement; besides, the land, originally rather too light, and cultivated rather too exclusively with Wheat, and very lightly stocked with cattle, must have its powers decreasing. The county of Oxford, of which Woodstock is the capital town, is the part I am best acquainted with, and an emigrant will find there the requisites of good land, plenty of water, and thriving and energetic farmers, who will prove to the newcomer most valuable books of reference. It is situated on the highest part of the peninsula lying between Lakes Huron, Erie, and Ontario, and receives from all three refreshing rains and mists that pass over the lower country lying round; at the same time the rise is so gentle that the fact is only discovered by the superior greenness of the Grass, statistics of railway levels, and the flow of the rivers watering those parts. From all I have heard and seen of other parts, I would unhesitatingly recommend it as a place of residence.

The best book I believe to be "Morton's Cyclopædia," as it contains such full information on every point, though "Stephen's Book of the Farm" is also an admirable work; and should he add to that the *Gardeners' Chronicle* to keep himself up to the topics of the day, he will find himself thoroughly provided. Of course, allowances must be made for the difference of climate and the cessation of labour on the land during the winter; for instance, he must not expect Wheat after Turnips or any root crop, as the Wheat ought to be in by September 15, and the root crops till towards the end of October. His neighbours, however, will give him all information he may require on that point.

As for the time for going, the earlier the better, as farming operations commence directly the snow is off and the ground dry—say April 1; and the winter stock of food having been consumed, the grain all threshed out and sold, fat stock disposed of to the butcher, &c., it is the time preferred by all for giving up possession, though the summer is, of course, the best time for judging of the quality and cleanness of the land and its crops. There are, however, always some farms in the market that can be entered on almost at any time. I would remind "E. J. C. B." that it is no insult to a man to offer to buy his land, though some of the first class farmers would require a good bonus to induce them to quit places they had made for themselves, and lived many years in.

As regards clearing land, it will be difficult to find a farm in a good situation that requires clearing to any extent at first. A fresh settler would not like quite a new lot, nor would he find it easy to get one in a good situation, and such a farm as he could buy would have from 50 to 100 acres cleared (speaking of a whole lot), with a log or frame house on it, and a barn and out-buildings; so there would be time for him to discover for himself the best way of laying out his property. He should be careful too, in examining his intended purchase, to see there is a sufficient quantity of woodland, say at least a quarter, and that not cut into and picked over, as he may find when too late that all the good trees have been cut down and burnt, or sold in a neighbouring town, and nothing but the knotty twisted wood left, which is very difficult to convert into firewood; and it is only in the towns that coal is burnt, and not altogether even there.

Should it be necessary to purchase land in the winter with snow on the ground, it is always possible to arrive at a very correct idea of the quality of the land by the trees that grow in the woods. Good hard-wood land, as it is termed, marked by a plentiful growth of Beech and Maple, with large straight clear trunks, is the best, and of a very good quality, from light to heavy loam. Oak and Pine prefer light land, though I have seen them both growing on soil of the nature of pure brick clay. Ash, Hemlock, and Cedar point out swamps.

He should also be careful as to his neighbours, that he may settle among those of a congenial stamp, the different nations having naturally a tendency to cling together; so he might cast his lot among Irish, Germans, Scotch, or native Canadians, instead of Englishmen, of which latter race I presume him to be.

I think Canada will astonish "E. J. C. B." when he sees it, so little having been said about it, as Canadians lack that power of boasting so peculiar to our cousins south of the lakes, but it surpasses the States in every point. The rapidity of increase in material prosperity, in true liberty, being free from that mob law so characteristic of the States, in the soundness of its institutions, in public morality, in freedom from taxation, in everything dear to a Briton it is immeasurably superior; and in the breed of animals and knowledge of agriculture it fearlessly challenges comparison.

I ought to mention the prices of stock of different sorts, but they vary so, such high prices being given for animals of a superior stamp for breeding purposes, that I can only give, as it were, the two extremes. Horses, for instance, fetch from 80 to 200 dollars; cows from 30 to 80; sheep from 3 to 10. Thorough-bred animals of the different English breeds, of course, are at a fancy price, as here.

I should sum up in the following words:—Buy good rolling hard-wood land, taking especial care it is well watered, near a town, either present or future (as towns rise quickly in Canada), on a good macadamised road, leading to a railway station, with good neighbours. Put your shoulder to the wheel (an idle man had better stay here), and if you do not become a happy and a wealthy man, you have no one but yourself to blame. *A Canadian Farmer.*

Home Correspondence.

Cotton Cake.—I observe in your publication of the 8th ult. an article upon the subject of feeding cakes for animals, in which is introduced an analysis of Cotton cake. It is so different from that made of my cake by Professor Way, that I am induced to send you a copy of the latter; and I also take the liberty of sending by rail to your address a sample of the cake itself. You will do me a favour by presenting it to the author of the article referred to. I am afraid many spurious articles have been introduced to the public under the name of Cotton cake, which by disparaging the genuine article may result in a grievous injury to the agricultural world, for there can be no doubt of its intrinsic value. I have read and heard so much tending to its disparagement, that I am induced to withdraw my efforts for its introduction; but I sincerely hope that some enterprising individual may take my place, and that so valuable a boon to the agricultural community of this country may not be lost. I believe a patent has been lately taken out in France for refining the oil made from Cotton seeds, and, if successful, will no doubt tend to continue the supply of cake. Whether the patent has been extended to this country I am not aware, but I hear some negociations have been set on foot to effect a purchase by a very eminent firm in Liverpool.—Copy of Professor Way's analysis of Cotton cake:—

Moisture	6.58
Oil and fatty matters	19.40
Albuminous do.	28.31
Woody fibre	10.64
Starch, gum, and sugar	26.98
Mineral matters—ash	8.09
	100.00

—*Wm. Barber, Poulton Hall, Sutton, Cheshire.*

Leaf Feeding.—The courtesy of Mr. Ben Giles is worthy of all consideration from me irrespective of the interest which on this subject I feel. I therefore enter with pleasure on it with him, and I am happy to have met with so old a leaf-feeder. I myself am but a novice in comparison, for I am only a leaf-feeder with intent for some 20 years, although like every one else who hoes a rowed crop, I have innocently been one from my earliest village days. Mr. Giles touches rather incidentally on a subject that, if considered at all, may lead to much discussion, as lighting on the cause of the ascent of sap; to this I will again refer, but first I would discourse with him on one or two things in which we do not appear to be of accord. He says "the better the culture the less this evolvement," that is of inorganic matter from the soil (and necessarily, according to my views, of organic matter also), thus affecting my whole argument in favour of leaf-feeding by exhalation from the soil, promoted by this more perfect culture, and facilitated by repeated stirrings of the surface. If good culture promotes, as we have reason to believe it does, the reduction of the crude matters of the soil into a soluble state, and so accessible to the roots of plants, it must render them also capable of entering into that state of which Liebig remarks, "we cannot say whether they have really assumed the form of gas or are dissolved in one," and in which state I have supposed them offered to the leaves of plants, and, if capable of being so offered, there cannot be a doubt that every movement of the surface effectuates an escape of gas or vapour—our noses even tell us so—and necessarily the ascent of the inorganic matters that this vapour carries with it. I instanced salt as being most open to common observation; but, as with some a doubt may exist of the capability of such bodies as are comprehended under the term of inorganic elements of plants, of entering into the above condition, it may be as well to refer to the authority of Liebig. In his "Chemistry in its Application to Agriculture," London, 1842, p. 108, he observes—"How much more wonderful and inexplicable does it appear, that bodies which remain fixed in the strong heat of a fire, have under certain conditions the property of volatilising, and, at ordinary temperatures, of passing into a state, of which we cannot say whether they have really assumed the form of gas or are dissolved in one! Steam or vapours in general have a very singular influence in causing the volatilisation of such bodies, that is, of causing them to assume the gaseous form. A liquid during evaporation communicates the power of assuming the same state in a greater or less degree to all substances dissolved in it, although they do not of themselves possess that property." Note, this extract is from the chapter on the inorganic constituents of plants. That the leaves of plants are fed by an ascending gas or vapour is, I think, plainly indicated by the stomata or mouths by which they receive it being placed on the under side of the leaves; were they fed by a descending gas—that is, from the falling atmospheric food—we should expect to find these stomata or mouths on the upper surface of the leaves, from which probably they perspire. To me roots appear to have two principal objects in descending deep into the earth, the fixation of the plant and the obtaining of water, at the same time admitting that with the water they necessarily take up whatever they find dissolved in it; but Mr. Giles seems to express a doubt of this last hypothesis, and "thinks it quite as probable that they send their roots so deep into the earth in search of food less organic than what they find nearer the surface." If one of the greatest objects of tillage is the breaking up and decomposition of the crude inorganic constituents of plants so as to render them soluble, the only state in which they can be taken up by them, the greatest amount of their inorganic food must be found near the surface; it does not appear then very probable that the roots in search of this inorganic food should descend through an area in which they abound into one of scarcity. Nor indeed can we conceive in this inorganic food any attraction that could draw down the roots. We labour for an end, and we must suppose that within the more immediate circles of our labours the end is to a greater degree arrived at than at more distant ones. If it is necessary for the purpose of supplying our plants with their daily bread of inorganic food to keep the soil continuously open to atmospheric action, to oxidate the metals of the soil, how can we suppose the crude inorganisation of the soil to be acted upon at depths to which it is scarcely possible the oxygen of the air can penetrate? Most roots descend into the subsoil; Mr. M'Arthur says the roots of our cereals will descend 6 feet into the ground; is it likely they should descend so deep in quest of soluble inorganic matter?—but what shall we say of the tap roots of Oaks and other trees seeking it 40, 50, or 100 feet below the surface, or what shall we say of the enormous trees lately discovered in America, and whose roots must descend into the earth to depths proportionate to the heights their heads tower in the air! Can they seek at these depths inorganic food which has been rendered soluble by contact with the atmosphere; is it not more probable that they seek water, that they may furnish a continuous stream to supply the enormous respiration of their lofty heads! Are roots ever found to spread or extend themselves into a dry medium, be it ever so redolent of inorganic food? But the attraction between the root of a plant and water does not rest on argument, it has been subjected to experiment, and a wet sponge placed near a root has been found to attract towards it the thirsty mouths of its fibres. We have a self-evident cause in a known necessity for the descent of the root, why need we look for any other? why tax our imagination? But to what end works this immense perspiration of plants? Is it, as in the animal, mainly to get rid of excremental matter, or does it not act a most important part in constituting the motive power which causes the ascent of the sap? As it takes place, the water immediately in contact with that evaporated supplies its place, and thus in succession a continued conduit is created; the laws of adhesion and capillary attraction seem to me all sufficient to effect this from root to leaf. *J. M. Goodiff.*

Societies.

THE SMITHFIELD CLUB CATTLE SHOW.

THE current week has seen meetings of the Smithfield Club, the Society of Arts, and the London Farmers' Club; and the subjects which have severally engaged their attention stand first, second, and third in regular agricultural sequence. The subject of manures, especially those derived from the consumption of food by man, occupied on Wednesday night the attention of a large meeting, partly agricultural, at the Society of Arts; the rotation of cropping by which manures are converted into vegetable matter occupied the attention of a large meeting, wholly agricultural, at the London Farmers' Club; and the results of the consumption of those crops were shown at Baker Street by the Smithfield Club, to what may be termed a multitude of the general public.

The Exhibition of the Smithfield Club is not, however, wholly one of results—the means to those results also occupy attention. We had specimens of poudrette and other manures, and also of implements in wonderful variety—among them no fewer than 12 combined locomotive steam-engines and threshing machines, and specimens of vegetables, the results of the use of these implements and manures, as well as fat cattle, sheep, and pigs, the result of their consumption. Probably the implements exhibited in the galleries, and the steam-engines placed below exceeded 12,000*l.* in value, while the cattle, sheep, and pigs may have been worth 7000*l.* or 8000*l.* as food.

The general objects and results of the Smithfield Exhibition are referred to in another page; we refer here merely to one or two items in the present show.

Many of the prize animals of Birmingham were successful here as well. The Hereford and short-horn heifers, shown by Mr. Heath and Mr. Stratton respectively, each received the first prize in its class at both places, though the Gold Medal for the best in the yard was awarded to the Hereford at Birmingham, but to the short-horn, as we thought more justly, at Baker Street. There is, however, no satisfaction in looking at these classes, so well filled too as they were at both the shows. It ought to be no satisfaction to any one to see a well-bred young cow—fit only for the butcher: and the classes for heifers under four-year-olds, if they do any more than merely gather such animals as will not breed, do mischief. It is probably the system of over-feeding breeding stock for exhibition that fills these classes, which may to some extent be looked upon as the unfortunate complement and result of the July and other shows of our agricultural societies. Lord Feversham showed a 2 years and 9 months old pure bred short-horn heifer, worth perhaps 40*l.* to the butcher, but worth much more if she would breed, which, it would seem as if she had not had the chance of doing—a chance certainly not improved by the course of feeding which must have fitted her for exhibition here.

The short-horn oxen were of various quality, some of them apparently hardly ripe for exhibition, which could not be said however of the prize ox in the younger class, viz. the 2 year and 10 months steer exhibited by the Duke of Beaufort from the stock of Mr. Sainsbury, in which the value of Mr. Bates's blood was apparent.

The Devon classes were good, and the Gold Medal for the best ox in the yard was won by one of them shown by Mr. Heath, of Ludham Hall—a remarkably thick, even, well made animal girthing 8 ft. 4 in., which is an extraordinary thickness for a Devon.

There was a remarkably good show of Sheep. The Southdowns were remarkably good, especially the light weight pens, where, as well as elsewhere, his Grace the Duke of Richmond was successful.

The Pigs were few compared with the large show at Bingley Hall. The prize lists in these as well as in other classes indicate where the merit lay. We may here add that we have received from Mr. Wiley, of Rugeley, a protest against the decision of the veterinary referee at Birmingham, who had disqualified his pen of 3 pigs as not being of one litter. This protest is accompanied by declarations subscribed before a magistrate, by three several witnesses, to the truth of his statement.

In the galleries we noticed the stands of Messrs. Howard (ploughs), Garrett (drilling machines, water-drop drill, &c.), Busby (carts, ploughs, and horse hoes), Wedlake (haymaking machines, &c.), Dray (waggons and a general assortment of implements), Clayton & Shuttleworth (fixed steam engine, &c.), Hornsby (drilling machines, &c.), Hill & Smith (hurdles, gates, wirework, &c.), Warner (pumps), Crosskill (carts and rollers, &c.), Holmes & Son (drills, &c.), Ransome (ploughs, chaff-cutters, &c.), Barrett & Exall (threshing machine, chaff-cutters, &c.), Hansom (patent Potato digger), Burgess & Key (reaping machine, &c.), Patterson (crushing mills, with obliquely arranged grooved rollers for acting scissors-fashion on Beans and corn, &c.), Boby (patent corn dresser), Philipps (Turnip grater), Moody (Turnip grater), M'Neill (roofing felt), Moore & Co. (Hydro-thermal, or, as it ought to be called, *hot-water* churn, in which the beaters are a tin flanged vessel capable of holding hot water), Sigma (dibbles and hoes), beside many others: and we may name Messrs. Burrell, Garrett, Wedlake, Cambridge, Tuxford, Barrett, Ransome, Brown & May, Clayton & Shuttleworth, Holmes, Boby, and Hornsby as showing each a complete locomotive engine and threshing machine.

We must refer to the stands of seeds and roots by Messrs. Gibbs, Skirving, Sutton, Lawson, and the Irish collection of the Dublin Society. The Swedes by Messrs. Gibbs were wonderful, the Mangel Wurzels of Mr. Skirving were astonishing, the general merit of Mr. Sutton's collection was first-rate, their specimens being more like the result of agriculture than of horticulture; the collection of Messrs. Lawson, too, was admirably arranged and very full. The weight of crops from which the specimens were selected had been ascertained, and the specific gravity of the roots themselves was given; thus some specimens of Turnips were stated as being of a crop of 30 tons per acre, specific gravity as high as .893; while others from a crop of 27 tons, sp. gr. .752—differences these of enormous agricultural importance.

The following is the award of the Judges:—

DEVONS.

Class I. Oxen under 3 years.—25*l.*, Mr. T. W. Fouracre, Durston, near Taunton; 10*l.*, H. R. H. Prince Albert.

Class II. Oxen over 3 years.—25*l.*, Mr. W. Heath, of Ludham Hall, Norwich; 10*l.*, Mr. J. Coate, of Hammoon, near Blandford.

Class III. Heifers under 4 years.—15*l.*, Mr. J. Tucker, Staplegrove, near Taunton; 5*l.*, Mr. R. Farthing, North Petherton, Bridgewater.

Class IV. Cows over 4 years.—20*l.*, Mr. J. Ford, jun., Blandford; 10*l.*, H. R. H. Prince Albert.

HEREFORDS.

Class V. Oxen under 3 years.—25*l.*, Mr. W. Heath, of Ludham Hall; 10*l.*, Mr. W. Aldworth, Frilford, Abingdon.

Class VI. Oxen over 3 years.—25*l.*, Mr. J. Naylor, Leighton Hall, Welshpool; 10*l.*, Mr. W. Heath, Ludham Hall.

Class VII. Heifers under 4 years.—15*l.*, Mr. W. Heath; 5*l.*, Mr. G. Pitt, Chadnor Court, Leominster.

Class VIII. Cows over 4 years.—20*l.*, Mr. E. Herbert, Powick, Worcester; 10*l.*, Mr. C. Duffield, Marcham Park, Abingdon.

SHORT-HORNS.

Class IX. Oxen under 3 years.—25*l.*, Duke of Beaufort, Badminton; 10*l.*, Mr. C. Duffield, Marcham Park.

Class X. Oxen over 3 years.—25*l.*, Mr. R. Stratton, Swindon; 10*l.*, Mr. E. L. Betts, Preston Hall, Maidstone.

Class XI. Heifers under 4 years.—15*l.*, Mr. J. Armstrong, Palterton, Chesterfield; 5*l.*, H.R.H. Prince Albert.

Class XII. Cows over 4 years.—20*l.*, Mr. R. Stratton, Swindon; 10*l.*, Earl Spencer, K.G., Althorp Park.

SCOTCH OR IRISH BREEDS.

Class XIII. Oxen of any age.—20*l.*, Duke of Beaufort, Badminton; 5*l.*, Rev. J. Arkwright, Mark Hall, Harlow.

Class XIV. Cows of any age.—10*l.*, Mr. A. Campbell, Monzie Castle, Crieff.

WELSH BREEDS.

Class XV. Oxen of any age.—20*l.*, Sir R. Bulkeley, Bart., M.P., Beaumaris; 5*l.*, Mr. W. Williams, Plasgwyn, Pentraeth, Anglesea.

Class XVI. Cows of any age.—10*l.*, Mr. B. E. Bennett, Theddingworth, Northamptonshire.

OTHER PURE BREEDS.

Class XVII. Oxen of any age.—10*l.*, Mr. Robert Neame, of Hernhill, near Feversham.

Class XVIII. Cows of any age.—10*l.*, Messrs. J. and P. Gorringe, Selmeston, Lewes.

CROSS OR MIXED BREEDS.

Class XIX. Oxen under 3 years.—15*l.*, Mr. Isaac Niblett, of Broad Street, Bristol.

Class XX. Oxen over 3 years.—15*l.*, Mr. James S. Bult, of Dedhill House, near Taunton.

Class XXI. Heifers under 3 years.—10*l.*, Mr. C. S. Cantrell, jun., Datchet, Bucks.

SHEEP.—LONG-WOOLLED BREEDS.

Class XXII Wethers under 22 months.—20*l.*, Mr. George Walmsley, of Rudston, Bridlington, Yorkshire; 10*l.*, Mr. C. J. Bradshaw, of Burley-on-the-Hill, Oakham; 5*l.*, Mr. G. S. Foljambe, of Osberton Hall, Worksop.

Class XXIII. Wethers under 22 months and 220 lbs.—20*l.*, Mr. C. J. Bradshaw; 10*l.*, Lord Berners, of Keythorpe Hall; 5*l.*, Mr. W. de Capell Brooke, Kettering.

LONG-WOOLS, NOT LEICESTERS.

Class XXIV. Wethers under 22 months.—10*l.*, Mr. W. Slatter, Stratton, Cirencester.

CROSS BREEDS.

Class XXV. Wethers under 22 months—10*l.*, Mr. C. Howard, Biddenham, near Bedford; 5*l.*, Mr. J. Overman, Burnham.

Class XXVI. Wethers under 22 months and 220 lbs.—10*l.*, Mr J. Overman.

SHORT-WOOLLED BREEDS.

Class XXVII. Wethers under 22 months.—20*l.*, the Duke of Richmond, K.G.; 10*l.*, Lord Walsingham, Thetford.

Class XXVIII. Wethers under 22 months and 200 lbs..—10*l.*, the Duke of Richmond, K.G.

Class XXIX. Wethers over 22 months.—20*l.*, the Duke of Richmond, K.G.; 10*l.*, Mr. William Rigden, Hove, near Brighton.

SHORT-WOOLS, NOT SOUTHDOWNS.

Class XXX. Wethers under 22 months.—10*l.*, Mr. William King, New Hayward Farm, Hungerford.

PIGS.

Class XXXI. Over 13 and under 26 weeks.—10*l.*, Mr. J. V. Williams, Haygrove Farm, near Bridgewater; 5*l.*, Mr. R. Hall, Kingsbury Green, near the Hyde.

Class XXXII. Over 26 and under 52 weeks.—10*l.*, Mr. J. Coate, Hammoon, near Blandford; 5*l.*, Mr. M. Biddell, Playford, near Ipswich.

Class XXXIII. Over 12 and under 18 months.—10*l.*, Mr. J. Coate, Hammoon, near Blandford; 5*l.*, the Rev. J. Holmes, Brooke Hall, near Norwich.

EXTRA STOCK.

The Silver Medal for the best Beast, to the Duke of Beaufort; for the best Long-woolled Wether Sheep, to Mr. G. Walmsley, Rudston, Bridlington, York; for the best Long-woolled Ewe, to Mr. G. Walmsley; for the best Short-woolled Wether Sheep, to the Duke of Richmond, K.G.; for the best Short-woolled Ewe, to Mr. W. Rigden, Hove, near Brighton; for the best Cross-bred, to Mr. G. Hine, jun., Oakley, near Bedford; for the best Pig, to Mr. J. Holdway, of the Post Office, Weston, Somerset.

GOLD MEDALS.

For the best Steer or Ox in any of the classes, to Mr. Wm. Heath, of Ludham Hall, near Norwich.

For the best Heifer or Cow in any of the classes, to Mr. Richard Stratton, of Broad Hinton, near Swindon.

For the best pen of one-year-old Long-woolled Sheep in any of the classes, to Mr. George Walmsley, Rudston, Bridlington, York.

For the best pen of one-year-old Short-woolled Sheep in the 27th, 28th, or 30th classes, to his Grace the Duke of Richmond, K.G.

For the best pen of Pigs in any of the classes, to Mr. John Coate, of Hammoon, near Blandford.

Judges of Cattle and Long-woolled Sheep—Mr. W. F. Hobbs, Boxted Lodge, near Colchester; Mr. Charles Stokes, Kingston, Kegworth, Notts; and Mr. J. Bodley, Stockley, Pomeroy, Crediton, Devon.

Judges of Cross-bred Sheep, Short-wools, and Pigs.—Mr. W. Symonds, Milborne, St. Andrews, Blandford; Mr. A. Denman, Stoneham, Lewes; and Mr. R. Woodman, Glynde, Lewes.

At the meeting of the Smithfield Club on Wednesday it was resolved to increase the list of prizes, increasing the whole sum offered from 850*l.* to 1200*l.*, and offering rewards for Sussex, Norfolk, Longhorns, Scotch polled and Irish breeds. The prizes for cross bred sheep are also to be largely increased.

SOCIETY OF ARTS, *Dec.* 10.—*The Utilisation of the Sewage of Towns.*—The following is an abridged report of the Paper read at the meeting of the Society. We are indebted for it to the columns of the Society's Journal:—Mr. FOTHERGILL COOKE said—I am to have the honour this evening, in compliance with a request from the Council, of addressing the Society on the important subject of the utilisation of the sewage of our larger towns for agricultural purposes. The proposition includes, not only the converting of putrefying refuse matter, rich in the food of vegetable life, to a useful purpose, but also the purification of our streams, and the improved health of the crowded population of our streets. This three-fold good may be attained in different ways—1st, by employing the sewage as it passes from the town, to flood or water the land. 2d, by separating chemically and mechanically both the salts dissolved and solid matter suspended in the sewage, allowing the purified water to flow off into its natural channel-beds, whilst the solid residuum is prepared in a convenient form for agricultural use. The plan of irrigating by sewage water has long been in operation on a small scale at Edinburgh and elsewhere, with the most satisfactory agricultural results; and the deodorising system has, so far as its sanitary and manufacturing results are concerned, achieved a perfect success at Leicester. There the entire sewage of a population of 65,000 has been operated upon since May, 1855, to the present day, and 6000 tons of solid matter have been separated from seven or eight million tons of sewage. We have, then, in both cases practical facts, not theoretical schemes, to deal with, but the commercial question, whether the sewage will bear the cost of conveyance and distribution, and the solid manure the cost of manufacture, remains to be determined.

Having mentioned that fluid sewage has been most advantageously applied to land (especially meadow land and crops of Italian Rye-grass) under particular circumstances of season and locality, I desire, before I proceed to describe the deodorising system, to state my reasons for thinking that no method yet proposed for the employment of unprepared fluid sewage is applicable on a large scale to the metropolitan district, and then in due order, I shall have an opportunity of pointing out how the objections to the fluid system may be obviated, by working it in conjunction with deodorisation. The supply of fluid sewage being constant, it should be dealt with constantly; it cannot be accumulated or stored up. But the farmer cannot constantly employ it. He cannot employ it where his ripening crops are standing, nor during frosts—nor will he desire it when long continued rains or deep snows have soddened his heavy clays. During the dry winds of March, and after the hay harvest in June, he will gladly take a full supply; and again, during the autumn season of continued drought and with bare fields, all the farmers of the district would be clamorous for a portion of the then stinted stream of sewage, shrunk by the same drought below its average amount. This sewage of the metropolis is said to contain some 10,000 tons of ammonia, a quantity which would suffice to supply with ammonia about 500 square miles of land annually. But the sewage containing that quantity of ammonia would be too small to be distributed equally over the land; and, practically, one square mile daily would be the largest surface that could be dressed with sewage. The demand during the dry season would exceed this. The idea that naturally suggests itself is, let a reservoir be made that shall store up the accumulation of the previous season. But the reservoir for London required for only one day's supply during dry weather must measure more than 12 million of cubic feet, and would occupy some 31 acres of land 10 feet in depth, and such a reservoir, with its putrescent exhalations, must be hermetically sealed up. Such a project is obviously impracticable. The sewage, when not required for irrigation, must either run to waste or be differently treated. But even without such a storing of putrescent matter, would there be no danger to the health of the country population in having several square miles of land between London and the Thames' mouth soaking, or drying after a soaking, with fermenting sewage-dressing leaving on the surface a scum of putrifying organic matter under a burning July sun,—a gentle easterly breeze wafting the fragrance over the metropolis during the dog-days, mixed with the miasma of the Essex marshes?

Now let me turn, in contrast to the deodorising system:—

The leading feature of the deodorising system is, that it does not deal with highly putrescent sewage, abounding with liberated ammonia, but with the fresh sewage as it descends in the sewer before putrescence has made any material advance, and it is in that state, and before the sewage leaves its underground course to enter the deposit reservoir, that it is intimately blended with cream of lime, which instantly deprives the sewage of all odour, and precipitates almost the whole of the salts and solid matter contained in it to the bottom of a reservoir, from which it is removed again, always under the cover of several feet of scentless water, through covered channels to filter frames, and in these filter frames the consolidating process is completed. I will now, by the aid of these drawings and models, describe the process, arranged and perfected by Mr. Wicksteed, at Leicester, to whom we are indebted for conceiving and working out the system. The sewage is conveyed to a spot less than a mile distant from the town of Leicester, and there as rapidly as it arrives, and scarcely allowing time even for incipient putrefaction, it is raised 18 feet, by pumps worked by steam power. Whilst passing from the pumps the sewage becomes intimately mixed with a body of lime and water, proportioned to, and constantly varying with the nature of the sewage, which produces an instantaneous and perfect deodorisation. It then flows successively through two canals; the first 60 and the other 130 feet long, 45 feet broad, and 16 deep, which are traversed by the sewage water in about two hours and a half, and the water which emerges when the lime has been well proportioned is almost pure and perfectly scentless, whilst the greater portion, or about seven-eighths of the solid matter originally held in solution or suspension, is deposited as fine mud in a trench at the bottom of the first canal, from which, by an Archimedes, or endless screw, the fresh deposit is moved by a continued action from beneath the deep stratum of the deodorised water into a covered well. Thence it is lifted through a brick shaft to a small tank, in the upper part of the building by a Jacob's ladder, similar in principle to the ladder of buckets used in dredging machines. A series of centrifugal machines are then charged with it, and effect the separation of the remaining water, leaving the deposit in a plastic state, fit to be formed into a brick or cake for drying. At present nearly 3000 tons of this half dry deposit are heaped up in the yard of the Leicester works, and emit no smell whatever.

The inhabitants of London in maintaining their vitality consume about 12,000 tons of nitrogen annually, equal to about 15,000 tons of ammonia, 10,000 tons of which are, as I have before stated, carried off by the sewers. The phosphates amount to about 6000 tons. Now, good guano, as it reaches the farmer, contains, on an average, about 16 per cent. of ammonia; and 4 cwt., or 450 lb., of such guano per acre, would be considered a rich average dressing, and would contain 72 lbs. of ammonia. The ammoniacal matter in the sewage of the metropolis would, as I have already said, supply that quantity to 320,000 acres, or 500 square miles. Now, this quantity of ammonia, if it could be entirely preserved, would represent, at the market price of 60*l.* per ton, 600,000*l.*

When the idea first fixed itself in my mind, that during my own lifetime thirty million pounds' worth of ammonia had thus gone to waste from the city of London alone, I felt that the utilisation of the sewage of towns had become a question of the highest financial importance; but I felt also that there is another question linked with it of a much higher order—the sanitary precautions which must precede that utilisation, on which precautions the health and lives of the population are greatly dependent, as I will proceed to show. For, mark how improved sanitary arrangements, with deep drainage, and a rapid removal and purification of the sewage, and consequently of the river, have been associated at Leicester with a decrease in the number of deaths—a decrease amounting to 275 yearly, as shown by this return from the Board of Health:—

TABLE OF MORTALITY OF THE BOROUGH OF LEICESTER.

	First quarter.	Second quarter.	Half-yearly Total.	Third quarter.	Fourth quarter.	Half-yearly Total.	Yearly Total.
1852	432	374	806	591	466	967	1773
1853	448	348	796	404	480	884	1680
1854	420	421	241	399	340	739	1580
1855	450	366	816	344	348	692	1498
1856	340	324	664	355	—	—	—

Deaths from Zymotic Disease.

1852—561	1854—450
1853—371	1855—232
Proportion in 1853—61,000	Proportion in 1856—65,000

275 lives saved to the population of Leicester would be proportionate to 12,000 lives to the metropolitan population. To aid in bringing about in London such a result as the spirited corporation of Leicester, by employing Mr. Wicksteed's plans and inventions, have effected in that borough, is an object worthy of any man's ambition; and a man who has devoted his engineering experience and inventive talents to so great a cause, can never look back, in future years, to the period of his life so occupied, or to his money so spent (whether with profit to himself or not) as time or money spent in vain, and such may justly be the reflections of Mr. Wicksteed. There is but one feeling throughout England, as to the necessity of introducing every practicable sanitary regulation into our crowded towns, including an increased and improved supply of water, a deepening of the drainage, and a purifying of the streams from pollution. But all men are not so ready to admit that utilisation of our sewage should be part of such a system. "Away with it to the German ocean!" is the easier solution of the question.

I fear also there is even a stronger and more general feeling against the process of deodorising, and the manufacture of manure from the sewage; but I believe this feeling arises chiefly from the subject being taken in a wrong point of view. I must beg you will strive to banish foregone conclusions from your minds when listening to the statement I am about to make.

I am not going to describe solid sewage as an English guano, worth 4*l.* or 5*l.* per ton, but as a substance containing ingredients especially valuable on heavy soils, and available near the place of its production. I shall show that it can be made at 3*s.* or 4*s.* per ton, and that it is likely to realise a rather larger sum in the market under judicious arrangements. It must be remembered that the great mass of farmers do not look alone to manures rich in nitrogenous matters. Lime, chalk, marl, seaweed, road scrapings, old mortar, cinders, and even clay, are paid for, and carted sometimes many miles during the less busy season of the year; and sewage manure will also find purchasers, at a low price, where it can be obtained at a short and cheap carriage. In this respect solid sewage works in London would be admirably situated, commanding by the river a water carriage on a tidal stream both up and down its course, in conjunction with several canals, offering great facilities for barging to foreign depôts. Solid sewage, though it may contain only 1 per cent. of ammonia, would be valuable on some soils from the earthy matters held in it in an extremely divided state. Its composition is very variable; the analyses that have been published have been too often made from the dry lump, after long exposure to the air, and are so far fallacious.

Sewage contains the debris of every description of animal and vegetable matter, mixed with some valuable mineral substances. The refuse from our abodes unquestionably forms the greater and more valuable portion. Man does not, like our farmyard animals, which fatten in a few weeks or months, carry off or retain much of the nourishment he consumes; his food is chiefly employed in renewing and not in increasing his frame. Every kitchen sink also supplies a large quantity of animal refuse, or waste. Every falling shower washes into the sewers impurities of the air, quantities of soot, finely triturated mineral matters, as well as potash from the decomposed granite of the streets. Manufactories add many other substances to the foregoing, and tons of soap increase the richness of the stream. These miscellaneous matters, dissolved and broken down in the waste water, unite to form the sewage of London, which, unless stained by some bright coloured dye, generally offers a nearly uniform blackish grey mixture, of which this is a fair specimen. Very little solid matter, except chips or shavings of wood, or feathers, ever make their appearance. This sewage then contains a vast variety of ingredients, the most valuable being held in solution, and in the state most favourable for assimilation by vegetables. Plants do not live principally upon nitrogenised food, not even those which most abound with it when harvested. Who ever thinks of giving his Clover a nitrogenised manure? Gypsum, or ashes, are the most energetic stimulants to the growth of Clover. Yet a crop of Clover contains three times as much nitrogen as a crop of Wheat. Give a crop of Clover only sulphate of lime, and it will find its own nitrogen from the ammonia in the air or in the soil. Again, the Clover plant, after carrying off with it so large a quantity of nitrogen, is one of the best preparers for a crop of Wheat, which delights in nitrogenous manures. Solid sewage manure, therefore, should not be valued solely by the nitrogen it contains—nevertheless, it contains more nitrogenous matter than farmyard manure—besides many other substances which roots can feed upon during the gradual progress of decomposition.

Deodorisation, in its practical sense, does not simply mean the removal of offensive smell, but the purification of the water by the abstraction of all extraneous matter, 800 or 1200 tons of water only furnishing one ton of solid dry residuum.

If this deposit is to be utilised, it must contain the salts, and especially the ammoniacal salts, with the undecomposed nitrogenous matter, but it the fluid part is to be employed for irrigation, then the suspended matters alone should be separated, leaving the more valuable salts in solution.

We now arrive at the question, what is the cost of production of this heterogeneous compound! I will give the answer for a population of 500,000.

		Per Annum.
Buildings and machinery, consisting of the reservoirs, Jacob's ladders, and filters, 40,000, at 4*l.* per cent.		£1600
6 lime men, at 20*s.* per week ...	£6	
15 filter men " " " ...	15	
6 lads at 10*s.* " " ...	3	
2 reservoir men at 20*s.* " ...	2	
29 hands Total ...	£26 ...	... 1352
Wear and tear and stores ...	... ...	... 475
100 tons lime per week, at 12*s.* 6*d.*, 62*l.* 10*s.*		... 3250
Engine-power, hired per pumping engine, 6*l.* 5*s.*		... 325
Total		£7000

The make of deposit from the filters will be 60,000 tons per annum in a plastic state, like clay ready for brickmaking, the cost being 2*s.* 4*d.* per ton, including the discharge into carts or barges lying alongside the works. The cost of removal I have

not thought it necessary to include, as it may be set against the clearing out of the proposed reservoirs on the Thames. The cost of pumping is greatly in favour of the deodorising plan. Mr. Bazalgette shows, in his report, that the engine-power for the western district will be reduced by deodorising at Kensington from 15,120*l.* to 800*l.* per annum. The above calculations are made upon the supposition that the whole of the sewage is deodorised and solidified in the outskirts of the metropolis. If, however, it were determined to combine deodorising with irrigation, this portion of the expense would be much diminished, whilst the make would be nearly the same. To effect the double object, I suggest that the effluent stream on its course to the river—say at Long Reach—be conveyed through such an extent of the comparatively level county of Essex as could consume the water for irrigation. Supposing the season to be favourable for irrigation, and the whole of the water to be required at any particular time by the farmers, the sewage would be treated with a greatly reduced charge of lime, only just sufficient to fix the sulphur, and precipitate the coarser and more putrifiable matters in suspension, allowing the salts in solution to pass off with the still turbid but deodorised water in such a state that the whole would sink into the soil without leaving a putrifying scum on the surface. When a reduced quantity of irrigating water was needed, it would be passed down during a sufficient time only to meet the demand, and at those hours when experience would have shown that the fertilising salts were most abundant in the sewage. Such an arrangement might be facilitated by a simple line of telegraph between the sluice-keepers and the London works."

Mr. Cooke then proceeded to discuss the new drainage plan for the metropolis.

[We shall report the discussion next week—meanwhile we add that we have received letters urging the adjournment and reopening of this discussion, on the ground of its present incompleteness.]

Notices to Correspondents.

BOX-FEEDING FOR PIGS: *J S E.* Mr. Warne's mixture will no doubt feed bacon well; but the plan of box-feeding, *i. e.*, of letting the litter accumulate under the animals, does not answer with pigs. They root the straw about so much as to further fermentation more than their treading checks it. Linseed, however, makes very oily flabby bacon.

INEFFICIENT MANURES: *F R S.* The following is a case against you, proving that justice may be had in instances of loss arising from expenditure in useless manures. The case was decided by Sheriff Barclay at Perth. An agent for "Rolland's British Economical Manure," which is stated in the prospectus furnished by him as being equal in effect to twice the same quantity of guano, sold a considerable quantity to farmers in St. Martin's, who had been apparently tempted to try it from the certificates in its favour, as well as from its being much cheaper than guano. Wherever it was tried, however, in that quarter it turned out a total failure, and so far as the farmers could discover, it had no effect whatever as a manure. In such a case it was hardly to be expected that the farmers were to pay for the article, seeing that they had been heavy losers by using it. Some of them accordingly refused, and a small debt complaint was served upon two of them—Messrs. Reid and Luke—for the amount of their purchases. In evidence it was proved that on these parties' farms, and on others in the neighbourhood, it had turned out a total failure, and their plea was, that as they were led to expect an article which would act as a manure, they were not bound to pay for it when it had not done so. For the pursuer it was pled that the statement in the prospectus was correct, and that the whole certificates annexed were genuine, and that if he proved this, he was not bound to guarantee that a crop would be raised—that he fulfilled his part of the contract by supplying the article, which was what he pretended it to be, and which succeeded elsewhere. The sheriff, however, held that it was proved that the manure was of no use whatever in the defendants' district, and that he was not entitled to judge of what it had done elsewhere. If the agent sold the manure to these farmers, he was to be held as guaranteeing its fitness for raising crops.

LINSEED: *Farmer.* "English Linseed," *i.e.*, the Flax crop, is of easy and profitable cultivation. Paper-makers cannot afford to give the price per acre for it that linen manufacturers will—and so while it is perfectly possible to make paper of the Linseed fibre before converting it into linen and then to rags, yet it is not likely to be done.—*S M.* If you use plenty of hay or straw chaff, we should prefer Linseed to Linseed cake. Boil the meal into a thin mucilage or soup.

MONSTER CROP OF TURNIPS: *Wondering Sandy* will have seen that we referred to this case the week before last. He says—"Allowing the Turnips to be only 14 lbs. a-piece, and singled out to 12 inches apart, the produce per acre would only be about 120 tons! That is not bad, however, when we consider that the field is 'sand' and manured with 'Tiger's manure' (of Beverley) to the acre. What a run there must be for Tiger's manure next season!"

PROFESSIONAL ADVICE: *A Subscriber* relates the following case. He says:—"Last spring I received (by invitation) a professional visit from a well-known draining engineer. He had previously informed me that his terms were three guineas a day and expenses. He arrived at half-past 2 P.M. on one day and left me at noon the next, and thus his time of absence from his home (London) would be about 40 hours; his time at my residence, 22; time of actual work, 6. His charge is for three days, 9*l.* 9*s.*; expenses, 6*l.* 8*s.* 6*d.*; total, 15*l.* 17*s.* 6*d.* He explains his charging for three days by saying that he 'calculates eight hours to a day,' as 'regulated by professional custom, and acknowledged by Acts of Parliament as the length of a day.'" [Your card did not reach us; but that is immaterial. The charge is excessive.]

ROOTS: *M P.* A sheep will eat from 18 to 20 lbs. of Swedes a day. If store sheep have access to any other food on the ground on which they are folded less will suffice, but we suppose you will find about 20 lbs. a day the quantity required.

WEED: *Mr. R. Daniell.* Potentilla anserina, Goose Tansy, must be simply hand-weeded, or spudded out of pastures which it infests.

WHAT IS DREDGE? *G Summers* refers us to Walker's Dictionary. Dredge is "from a noun now known only as a provincial word, which signifies a mixture of Oats and Barley sown together." Dredge, we are told, is often sown in the neighbourhood of Blandford and used as food for farm-horses. When Barley is grown there it produces a thin grain with a bad yield per acre, but when grown mixed with Oats they get a bulky grain, and it is believed it adds much to the weight per acre. They sow one-fourth Barley and three-fourths Oats. This, with a slight admixture of Beans when given to the horse, tends more than any other corn to produce the muscle and fat which is wasted during the working hours. Barley does not offer so great an amount of flesh-forming compounds, but tends more to the formation of fat. Beans contain twice the amount of flesh-producing substances either of Oats or Barley, therefore we add Beans with advantage.

ERRATA. In page 810, col. *b*, 61st line from bottom, for "loss of and acceleration" read "loss of cud, and &c.;" in col. *c*, 1st line, "loss of condition and of price," should be loss of "condition and of time;" and in 8th line from top, "coarse olein," should be "coco-olein."

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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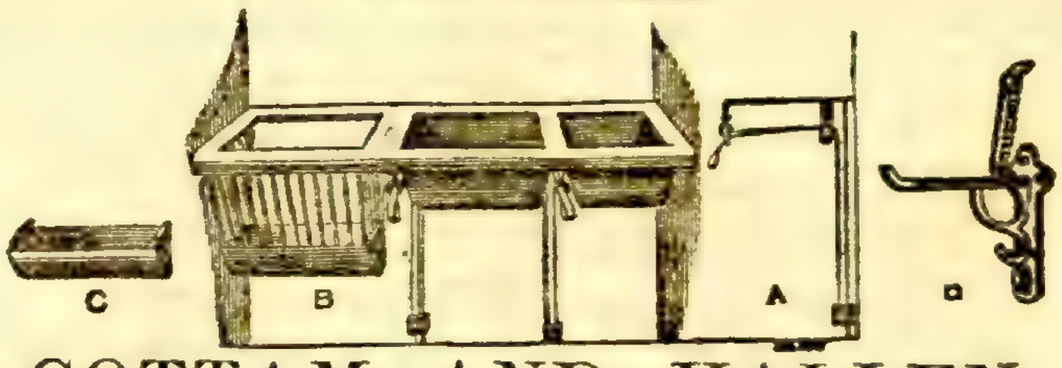

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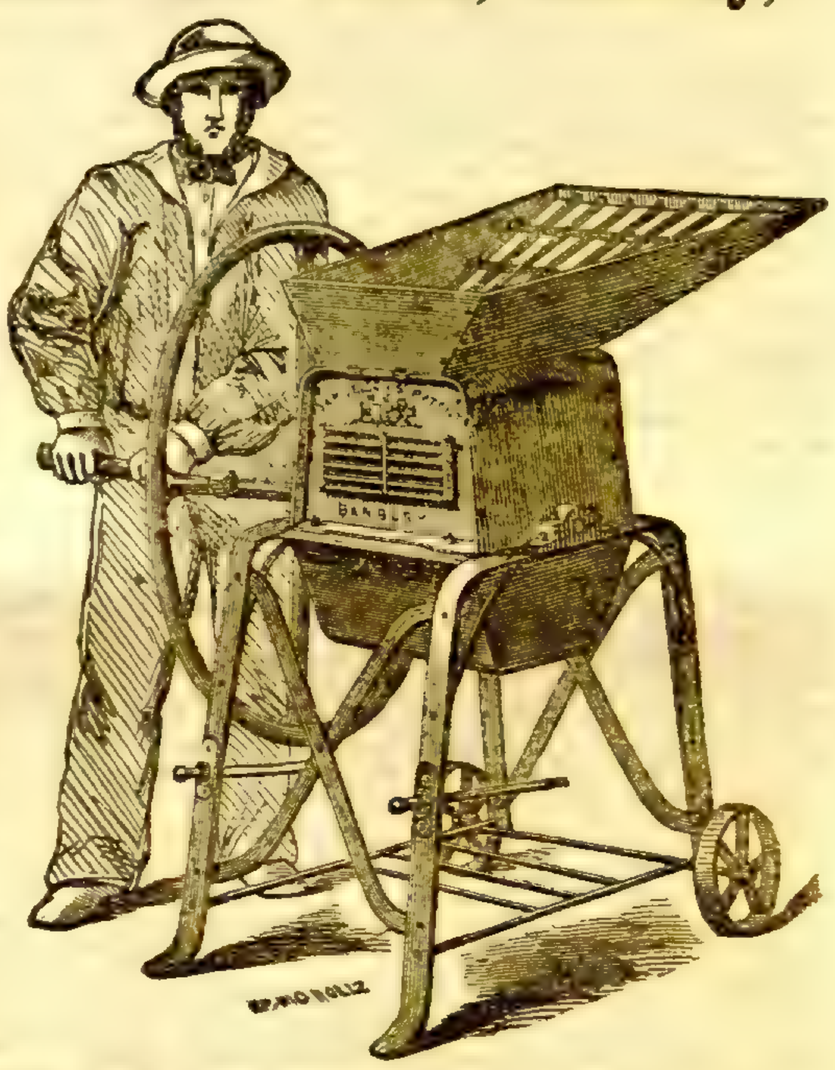

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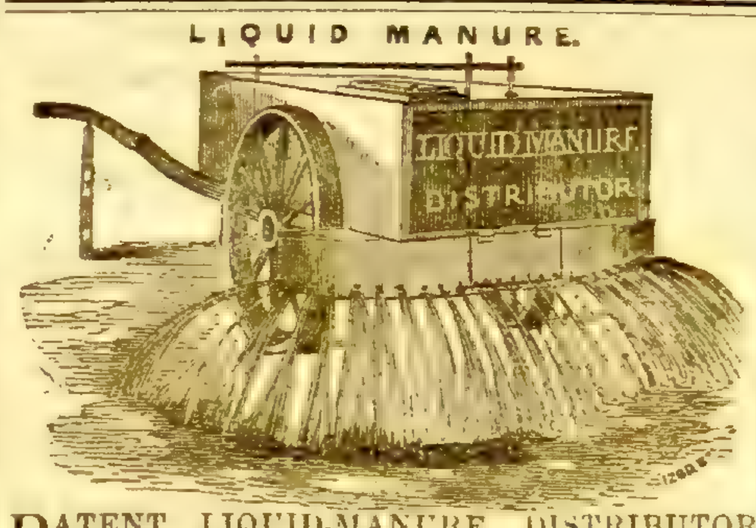

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HORTICULTURAL SOCIETY OF LONDON,
21, Regent Street.

WANTED, A GENERAL SUPERINTENDENT OF THE CHISWICK GARDEN.

The Council have resolved to place the whole practical management of this Garden under one person, with a salary of 150*l.* a year, and a prospective increase. Such a person must be a native of the United Kingdom, in the prime of life, and enjoyment of sound health, well educated, of active and methodical business habits, of good address, and with conciliatory manners, experienced in the management of men, and having a knowledge of practical Gardening of the highest order.

Testimonials (in writing only) from Candidates for the Office, addressed *To the Chairman of the Council,* will be received at this Office up to the 10th of January, 1857.

By order of the Council, W. B. Booth, Librarian.

HORTICULTURAL SOCIETY OF LONDON, 1857.
GENERAL MEETINGS.

TUESDAY, Feb. 3, at 2 P.M. } For the Exhibition of Flowers, Fruit, and Vegetables, the Election of Fellows, &c.
" Mar. 3, at 2 P.M.
" April 7, at 3 P.M.
FRIDAY, May 1, at 1 P.M. (Anniversary).
TUESDAY, May 5, at 3 P.M. } For the Exhibition of Flowers, Fruit, and Vegetables, the Election of Fellows, &c.
" June 9, at 3 P.M.
" July 7, at 3 P.M.
" Oct. 13, at 2 P.M.

The days for Extraordinary Meetings will be announced hereafter.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY'S EXHIBITIONS for 1857 are fixed to be held on the following days:—Summer Show, WEDNESDAY and THURSDAY, June 24th and 25th; Autumn Show, WEDNESDAY and THURSDAY, September 16th and 17th; on the same grand scale as in former years.

Schedules will be published early in the year, to be obtained of the Secretary, or of E. Spary, Queen's Graperies, General Superintendant of Exhibitions, and Thos. Attree, Esq., Chairman of Committee. Edwd. Carpenter, Secretary,
Brighton, Dec. 20. St. James's Street.

BOTANICAL AND HORTICULTURAL SOCIETY OF DURHAM, NORTHUMBERLAND, AND NEWCASTLE-UPON-TYNE.—GREAT DAHLIA AND HOLLYHOCK PRIZES FOR 1857, open to the United Kingdom.

The above Society proposes to give the following special Prizes for Dahlias and Hollyhocks at the GREAT AUTUMN EXHIBITION, to be held at the Society's Show Ground, Barras Bridge, Newcastle, on WEDNESDAY and THURSDAY, the 9th and 10th of September, 1857.

For 24 DAHLIAS, dissimilar: 1st Prize, a Silver Tea pot, value 12 guineas; 2d, a Time-piece, value 5 guineas; 3d, a Time-piece, value 2½ guineas; 4th, the Society's Large Silver Medal.

For 12 DAHLIAS, dissimilar: 1st Prize, a Time-piece, value 5 guineas; 2d, a Time-piece, value 3 guineas; 3d, One Guinea; 4th, Large Silver Medal.

For 6 FANCY DAHLIAS, dissimilar: 1st Prize, One Guinea; 2d, Large Silver Medal.

For the Best DAHLIA: Half a Guinea.

For 18 HOLLYHOCKS, not less than 9 varieties: 1st Prize, Three Guineas; 2d, One Guinea; 3d, Half a Guinea.

Further particulars may be obtained on application to the Secretaries. H. V. Wilson, } Secs.
29, Sandhill, Dec. 20. W. Dickinson, }

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that the Annual General Meeting of the Members of this Society will take place at the Horticultural Society's Rooms, No. 21, Regent Street, on WEDNESDAY, the 14th January next, for the purpose of receiving the Accounts of the Charity for the last year and Electing Officers for the ensuing year.

The Committee beg to give notice that FOUR PENSIONERS will be added to the List on that day; but in consequence of William Anderson, of Newcastle-upon-Tyne, being in distress, having subscribed upwards of 15 years consecutively, and complied with all the requisitions of the Committee, he will, in accordance with the Rules, be placed on the List of Pensioners without an Election.

An Election will take place for the THREE remaining vacancies from among the several Candidates whose cases have been examined and approved of by the Committee of Management, and detailed in the voting papers.

No person will be allowed to vote whose subscription for 1856 is unpaid on the day of Election.

The usual Voting Papers have all been delivered, and it is respectfully requested in the event of any subscriber not having received one he will make immediate application.

Edward Roger Cutler, Sec.
14, Tavistock Row, Covent Garden, London.—Dec. 20.

SEED WHEAT FOR LATE SOWING.

TALAVERA, RED NURSERY, AND HYBRID WHEAT, the best sorts for late sowing, may be had on application to H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

NEW GARDEN SEEDS, GROWTH OF 1856.

SUTTON AND SONS *are now prepared to execute orders for all kinds of* GARDEN SEEDS, *and can warrant them genuine.*

Royal Berkshire Seed Establishment, Reading.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

MESSRS. JOHN WEEKS AND CO., King's Road, Chelsea, beg to intimate that they have received their supply of SEEDS for the ensuing Season, in the best possible condition, *direct from eminent growers;* and are THUS ENABLED TO VOUCH FOR THE PURITY AND EXCELLENCE OF EACH ARTICLE.

Their annual Catalogue is in course of delivery, and will, on application, be sent free by post to any address.

THE CHAMPION HAMBURGH.

JOHN AND CHARLES LEE have a few good VINES of this magnificent BLACK GRAPE to offer, which is unsurpassed for size both of bunch and berry and abundance of crop. These qualities, combined with a thin skin and a luscious flavour, render it desirable for every good collection. Price 10*s.* 6*d.*

Nursery and Seed Establishment, Hammersmith.

BLACK HAMBURGH VINES.—Well grown Vines of the above sort from eyes, two years old, well ripened under glass, 5 to 6 feet high, 42*s.* per dozen, paid to London.—Thomas Rivers, Nurseries, Sawbridgeworth.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection,* they feel confident of their superior quality. Catalogues can be obtained free on application.

Highgate, Middlesex.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. Waite, Seed Merchant, 181, High Holborn, London.

TO THE SEED TRADE.—A few quarters of SCIMETAR and BEDMAN'S BLUE IMPERIAL PEAS, also EARLY EMPEROR, warranted Stocks. Price on application.

Wood & Ingram, Huntingdon.

JOSEPH MAY AND CO., FLORISTS AND SEEDSMEN,
1, Wellington Street, Strand.

JOSEPH MAY, for the last fifteen years in the employ of Mr. John Kernan, begs to inform his friends and the public that he has taken the premises No. 1, Wellington Street, Strand (near Waterloo Bridge), which he intends to open in a few days in the SEED BUSINESS, and respectfully solicits a share of their patronage. From his experience in every branch of the Seed trade, more particularly the Retail department, he feels confident of being able to supply them with all kinds of VEGETABLE and FLOWER SEEDS of the best quality and at reasonable prices. From his arrangements, also knowledge of the Nursery business, he will be enabled to supply all kinds of Nursery Stock at Catalogue prices.

A Catalogue of Vegetable and Flower Seeds may be had on application—also of Roses, Fruit Trees, Shrubs, &c.

THE LANCASHIRE SHOW GOOSEBERRIES AND CURRANTS.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to refer the readers of the *Chronicle* to his list of the HEAVIEST SHOW GOOSEBERRIES AND CURRANTS in this Paper of November 29.

CHOICE FRUIT TREES AND STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. BARRATT, Landscape Gardener, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society,* page 19.

A fine stock of Pyramid and Orchard-house Trees.

LAWN TREES.—A Descriptive Priced CATALOGUE of a choice selection of TREES and SHRUBS, including Pendulous and Flowering Trees for Lawns, by Thos. Rivers, is now ready for delivery free.

Nurseries, Sawbridgeworth.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4½ feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

Wood & Ingram, Huntingdon.

H. WALKER, Londonderry, offers for sale a quantity of 1 and 2 year PEARS on Quince Roots. Prices on application.

FOREST TREES.

FOWLER AND WRIGHT, Seedsmen & Nurserymen, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

CAMELLIAS.—To be Sold, the property of a gentleman, Four very handsome CAMELLIAS, 5 feet high, from 4 to 5 feet across, and well grown trees. Two Double White, one Double Rose, and one Warwick Torch.—Can be seen at Harris's Nursery Ground, Ball's Pond Road.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is now ready, and can be had from the Booksellers or from the Proprietors in exchange for seven postage stamps.*

A Bound Edition *has also been prepared this season, which will be sent free for* 18 *postage stamps. Application to be made to*

William E. Rendle & Co, Seed Merchants, Plymouth.

TO PURCHASERS OF SEEDS.

SUTTON'S SELECT SEED LIST, *now in course of publication, will be found highly useful. It will be sent gratis and post free to any address.*

Also, in the Press,

"SUTTON'S AMATEUR'S GUIDE," containing much useful instruction in Horticulture and Agriculture. Price 1*s.* (or gratis to purchasers of seeds).

Royal Berkshire Seed Establishment, Reading.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

ROBERT KENNEDY, Seedsman, Bedford Conservatory, Covent Garden, Agent for Messrs. Platz & Son, Seed Growers, Erfurt, informs the trade that their extensive CATALOGUE for 1857 is ready, to be forwarded on application. It contains a large number of new articles, which can be recommended with confidence. Early orders are solicited.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, respectfully announce that their PRICED LIST may now be had on application. Contents: Seedling and Transplanted Forest Trees, Ornamental Trees and Shrubs, Herbaceous Plants and Ferns, Auriculas, Pinks, Greenhouse Plants, &c.

TO THE SEED TRADE.—Just Published,

HORATIO BUNTING'S WHOLESALE CATALOGUE OF FLOWER AND VEGETABLE SEEDS, which will be forwarded to any Seedsman in the world post free on application. All seeds warranted genuine and true to name.—Address in full Horatio Bunting, Seed Grower, Lexden Road, Colchester.

TAYLOR'S PINE AND GRAPE SHOW,
"THE GRAND STAND,"
St. John's Market, Liverpool.

Growers must forward as above, to arrive not later than December 24, in order to realise high prices.

GEORGE TAYLOR, Jun.,
Proprietor.
Terms—"Cash."

SEEDLING CALCEOLARIAS.

WILLIAM BARNES has now ready to send out a few dozens of his superb SEEDLING CALCEOLARIAS, in fine, strong, healthy plants, at 5*s.* per dozen, without hamper. Orders from unknown correspondents will receive no attention unless accompanied by a remittance.

Camden Nursery, Camberwell.

WORCESTERSHIRE CHAMPION CUCUMBER—BLACK SPINE.

JOHN JENNINGS can confidently recommend the above Cucumber as good, in quality a great bearer, and has been grown to the length of 33 inches.

12 Seeds, 30 postage stamps. | 6 Seeds, 18 postage stamps.

Furze Hill Nursery, Shipston-on-Stour.

FLORICULTURE.—In consequence of Mr. John Edwards having REMOVED FROM HOLLOWAY it is respectfully requested that all communications be addressed No. 20, Sharp's Alley, London.

MR. DAVIDSON, extensively engaged in LANDSCAPE GARDENING and GARDEN ARCHITECTURE, respectfully offers his services to Noblemen, Gentlemen, and the Public, in designing and directing new works and improvements in Parks, Gardens, and Cemeteries, &c.

Offices: 36, Great Russell Street, Bedford Square, London.

GARDEN ARCHITECTURE, LANDSCAPE GARDENING, AND GENERAL IMPROVEMENT OF DOMAINS.

CHARLES M'INTOSH, F.R.P.S., A.L.S., Member of the Architectural Institute of Scotland, author of "The Book of the Garden," and other horticultural works, &c., begs respectfully to state, (in consequence of letters being frequently misdirected), that all communications should be addressed, Newcome Villa, Murrayfield, Edinburgh.

EXHIBITION OF CHOICE FRUITS AT

"TAYLOR'S GRAND STAND."

WANTED, BEFORE DECEMBER 25,

Good Pines, from 2½ to 3½ lbs.	Muscat Grapes
" Black Grapes	Forced Mushrooms
" Cucumbers	Asparagus

All goods to be of first-class quality only.

GEORGE TAYLOR, JUN.,
CHOICE FRUIT SALESMAN,
St. John's Market, Liverpool.

Terms—"CASH."

FOR TERRACES.

STANDARD PORTUGAL LAURELS.
STANDARD COMMON LAURELS.
STANDARD COMMON HOLLIES.
STANDARD LAURUSTINUS.
STANDARD COMMON BOX.
STANDARD RHODODENDRONS of sorts.

SEVERAL HUNDREDS of the above on clean straight stems with good well-shaped heads of various heights and sizes. All transplanted last year. Prices may be had on application to JOHN & CHARLES LEE, Nursery and Seed Establishment, Hammersmith, near London.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE, having largely increased their Stock of this indispensable and interesting class of FRUIT TREES, have still several hundred very superior plants to offer of the following kinds, which they will warrant to produce good crops of Fruit in FORCING or ORCHARD HOUSES the ensuing season.

PEACHES.	CHERRIES.
NECTARINES.	PLUMS.
APRICOTS.	APPLES.
FIGS.	PEARS.

Priced Catalogues on application.
Nursery and Seed Establishment, Hammersmith, near London.

GLENNY'S SUPERB BALSAMS, altogether unapproached; 6 classes 37 stamps; mixed, 13; Hollyhock, 13; Geraniums, 37; Pink, 37; Calceolaria, Verbena, Cineraria, Heliotrope, 13 each; Asters and Stocks, the finest double in the kingdom; best 24 Annuals, 74 stamps; best 12, 37.

THE TWO SPLENDID DAHLIAS, NAPOLEON AND EUGENIA, dry roots, 5s. to 10s. 6d. each.

Everything connected with a Garden procured from the best sources, by G. GLENNY, Horticultural Agent, Dungannon House, Fulham.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA; and they have supplied several RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage."*

Our plan of packing them succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES and SHRUBS of various sizes, adapted either for immediate effect or for extensive new Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he this season offers upwards of a hundred thousand of the two most valuable Trees lately introduced, the ARAUCARIA IMBRICATA and CEDRUS DEODARA, of various sizes, from one to six feet.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria Imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country, or to any part abroad.

CAMELLIAS, some of extra large size, well adapted for Conservatories, and an extensive collection of smaller sizes, all well set with flower Buds, at very moderate prices.

Priced Lists will be sent on application.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Dec. 20.

CHRYSANTHEMUMS.

W. HOLMES offers the above in strong plants, at 5s. per dozen. The large flowered varieties include Alfred Salter, Voltaire, Webb's Delight, Stellaris globosa, Antigone, Madame Lebois, &c. Pompones include Scarlet Gem, Duruflet, Aurore Boreale, Saint Thais, &c. For the cultivation of the above see Monthly Calendar by W. H. in "Gossip for the Garden."—WM. HOLMES, Florist, Well Street, Hackney.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2s. 6d. per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2s. per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than 1 peck), carriage free. Whites, for pastry, at per bushel (56 lbs.), 11s. 8d.; Fine Households, recommended for bread making, 11s.; Seconds, 10s. 4d.; Wheat Meal, for brown bread, 10s. 4d.; Best Coarse and Fine Scotch Oatmeal, Indian Corn Meal, &c.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or Caledonian Road, Islington. Directions for making bread supplied gratis. Terms cash. German Yeast.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'s PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

GARDEN VASES, FOUNTAINS, ETC.

J. SEELEY respectfully solicits immediate orders for any work of this kind that may be required next spring. It is always desirable that it should be made two months before it is used.—Artificial Stone Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½			12s.	8 by 6, and 8½ by 6½			13s. 6d.
7 by 5, and 7½ by 5½			13s.	9 by 7, and 10 by 8			13s. 6d.
11 by 9,	12 by 9,	13 by 9,	14 by 9				15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10				16 0
	16 " 10,	17 " 10,	18 " 10				
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11			16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12				17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12				18 0
16 " 13,	17 " 13,	18 " 13,	20 " 13				
	22 " 13,	24 " 13					
20 " 14,	22 " 14,	24 " 14					
10 " 15,	22 " 15,	24 " 15					
	20 " 18						£1 2 0

Boxes charged 2s. each, but returnable at full prices.

ORCHARD HOUSES.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3 d.

Foreign Sheet Glass, in cases of 200 feet, 34s., 38s., 40s., and 42s. per case.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, London.

GLASS FOR HORTICULTURAL PURPOSES.

Good 15 oz. Sheet in Squares cut to size:—

Not exceeding	per foot	Not exceeding	per foot
8 inches long	1½d.	24 inches long	2½d.
12 " "	1¾d.	30 " "	2½d.
16 " "	2d.	40 " "	2¾d.

T. & W. FARMILOE, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

EXCELLENCE, ECONOMY, AND CONVENIENCE.

SUTTON'S COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY.

GENTLEMEN who do not employ a professed Gardener, or who may prefer ordering their Seeds themselves, will find it most convenient to order one of SUTTON'S COMPLETE COLLECTIONS, which are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3.
Do, do. Collection (No. 2) is £2.

AND COMPLETE COLLECTIONS FOR SMALLER GARDENS MAY BE HAD AT PROPORTIONATELY LOWER SUMS.

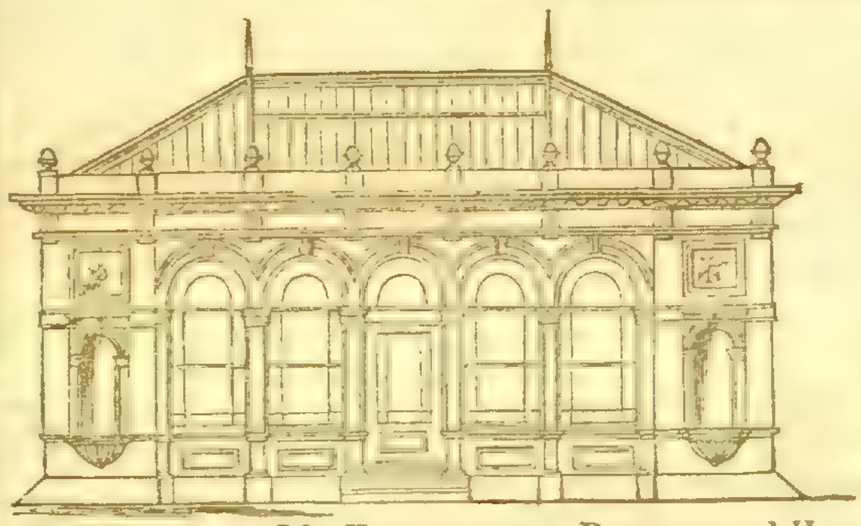
The No. 1 Collection contains 20 quarts of the best sorts of Peas, 10 quarts Garden Beans, 5 pints French or Kidney Beans, and all other Vegetable Seeds in due proportion.

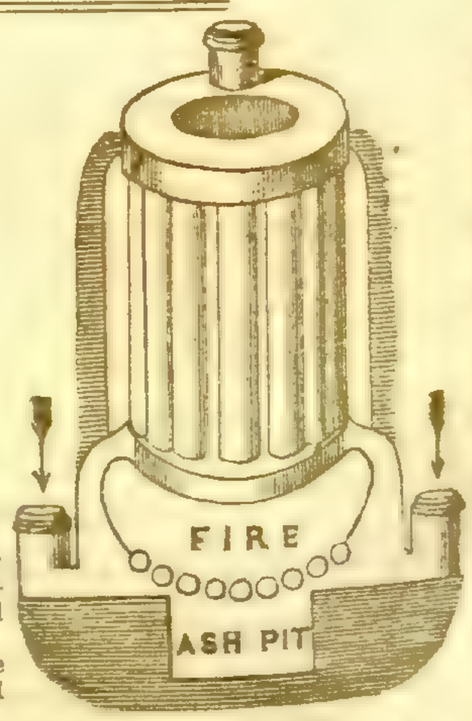
N.B. If any kinds of Seeds are already possessed they should be named, that we may omit them and increase the quantities of others in lieu of them. Those purchasers who may prefer making their own selection are recommended to apply for our GENERAL SEED CATALOGUE for 1857, which is now in the press. It contains all the newest and best kinds of Kitchen Garden and Flower Seeds yet introduced, many of them from the Continent, with the prices affixed to each article.

SUTTON & SONS, Seed-Growers and Merchants, Reading, Berks.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.
JOHN WEEKS, F.H.S., & CO.,
KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture these Boilers of all sizes. The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Dec. 20.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.

WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet ...	5*s.*	0*d.*
Do. 12 do. do.	2	6
Do. good mixed	1	0
Border varieties, good mixed, ground roots, per 100 ...	20	0
Do. do. in colours do. do. ...	30	0

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to announce that his NEW CATALOGUE, No. 63, for the year 1857, is now ready, and can be obtained on application at his Agent's, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London. His Catalogue contains all the English and Continental Novelties.

A. V. also recommends his work "L'Illustration Horticole," of which the 12th Number (December) of the 3d Volume has just appeared, and contains the following coloured plates:—

1. Rose (Perpetual) Victor Trouillard.
2. Lilium philadelphicum.
3. Meconopsis simplicifolia.
4. Cocos botryophora.
5. Rhododendrum Blandfordiæflorum.

N.B. The same Number contains the General Programme of the Grand Horticultural Exhibition of the Royal Botanic Society of Ghent, open to all nations, and which will be held on the 1st, 2d, and 3d of March next (1857).

Price of VERSCHAFFELT'S "Illustration Horticole," 12*s* a year.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	*d.*
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
„ stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5*s.* each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Clymax and Alliance), *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn; J. W. NUTTING & SONS, Cheapside; and CHARLWOOD & CUMMINS, Covent Garden, London. Price 5*s.* per quart.

Usual allowance to the trade.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2*s.* 6*d.* per quart, 35*s.* per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2*s.* 6*d.* per quart, 40*s.* per bushel.

W. J. EPPS offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

VERONICA SYRIACA,
NEW BEDDING ANNUAL FOR 1857.

MESSRS. E. G. HENDERSON AND SON having just concluded arrangements with Messrs. Ernst & Von Spreckelsen, successors to J. G. Booth & Co., Seedsmen at Hamburgh, relative to the above, have great pleasure in announcing the purchase of the entire Stock of Seed of this new and striking dwarf annual. Colour beautiful (Gentian blue), lower petals white, habit very dwarf, from 8 to 9 inches in height, compact and covered with bunches of flowers; foliage ample and bright green; in packets at 2*s.* 6*d.* each.

Early in January next a coloured plate of above by Mr Andrews will be published and presented with every order received previous to the 15th January, 1857.—Trade Packets, 5*s.*, 10*s.* 6*d.*, and 21*s.* each.—Wellington Nursery, St. John's Wood.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—Celebrated and invaluable for its earliness, coming into use early in February: a full sized handsome head, of excellent quality but a shy seeder, 1*s.* 6*d.* per packet, or 12*s.* per ounce. Highly favourable testimonials, too numerous for insertion, from gardeners in various counties. New Seed can be had in sealed packets from the following Agents in London:—HURST & M'MULLEN, Leadenhall Street; MINIER, NASH, & Co., 60, Strand; CHARLWOOD & CUMMINS, Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON & Co., Truro, Cornwall.—December 20.

LORD RAGLAN.

A. PAUL AND SON have a large Stock of fine Plants of this superb New Rose, figured in the "Florist" of last month, price 3*s.* 6*d.* to 5*s.* each, and all the New Roses of the season. A few of the best Hybrid Perpetual, Tea-Scented, Moss, Provence, &c., of extra size, suited for immediate forcing, 24*s.* to 30*s.* per dozen. A large stock of Roses, Standards, Dwarf Standards, and Dwarfs in pots; the leading kinds at the usual price.

A Priced Descriptive Catalogue will be forwarded free by post on application.—Nurseries, Cheshunt, Herts.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s.* per quart, with an allowance to the trade.

9, Mansion House Street, London.

MR. ROBERT BAKER, of Writtle, Essex, having for many years past paid great attention to the improvement of Agricultural Seeds by selecting and transplanting the best roots, begs to offer them at the following reduced prices, and warranted to grow at the rate of 95 per cent.:—

	s.	*d*
Purple-top Swede.—Very superior, per bushel	36	0
Improved Skirving's Swede.—Do. do.	36	0
Long Red and Globe Red Mangel Wurzel.—Very select, and the most productive of any, per lb.	1	6
Globe Orange and Long Orange.—Do. do.	1	6
Cattle Cabbage, for March sowing.—A celebrated hardy and prolific variety, produces from 40 to 60 tons per acre, invaluable for winter and spring feeding, per lb. ..	4	0

Remittances, or Post Office Orders upon Chelmsford Office from unknown correspondents.

HUGH LOW AND CO. respectfully announce to their friends and the public in general that their CATALOGUE OF GARDEN AND FLOWER SEEDS is now ready, and may be had on application. H. L. & Co. have been careful in making a selection to have none that has not been proved of first-rate quality, having the greater portion direct from the growers—this applies to both Vegetable and Flower Seeds. The German Flower Seeds are from Mr. Haage and Mr. Ernst Benary, two of the most careful growers in Prussia.

Clapton Nursery, London, N.E., Dec 20.

ROYAL EXOTIC NURSERY, CHELSEA.

JAMES VEITCH, JUN., respectfully announces that his CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS for 1857, with a List of Implements and other Garden Requisites is now published, and will be forwarded post free on application.

J. V., Jun., devoting his PERSONAL attention to this department of his business can warrant his seeds TRUE TO NAME and of the MOST GENUINE DESCRIPTION.—Dec. 20.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is now ready, and can be had from the Booksellers or from the Proprietors in exchange for seven postage stamps.*

A BOUND EDITION *has also been prepared this season, which will be sent free for* 18 *postage stamps. Application to be made to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Gardeners' Chronicle.
SATURDAY, DECEMBER 20, 1856.

AN advertisement in another column will have apprised the public that the Council of the HORTICULTURAL Society are contemplating a fundamental change in the objects to which they propose to devote the Garden, the maintenance of which appears to them, and to many others, indispensable to the welfare of the Corporation. The subscription that was opened with this great object in view, although not reaching the amount which the Council anticipated, has nevertheless made very considerable progress, and, with the money to be realised upon the sale of the House in Regent Street, will, it is expected, place the Society's pecuniary affairs upon a satisfactory footing.

Although unable to announce the plans of the Council with respect to the ensuing year, their views not being yet matured, we nevertheless understand that they are resolved to throw all possible vigour into the operations of the Society. It is intended that the Garden should be principally devoted to practical Horticulture in all its branches, and made a great school of experiment, where all new inventions, new fruits, new garden plants, new vegetable seeds, and new building contrivances shall be fairly tested. A guide book for the information of visitors is in preparation. Communications have been opened with foreign countries with a view to procuring exotic seeds for distribution, the forerunner of which may be regarded the beautiful hardy Pampas Grass now giving away, and the valuable seedling Camellias, for which the Society is indebted to the liberality of one of its members, FRANCIS J. SLOANE, Esq., of Florence; these will be in distribution about Midsummer next.

In addition to the usual monthly meetings in London, which retain their former character, it is said that two grand meetings are to be held in London, in some large commodious building, the one early in May for such horticultural productions as may be then procurable, and the other in October for a grand exhibition of fruit in which continental fruit growers will be invited to join the English gardeners. It is even whispered that an exhibition in the Garden, upon an entirely new plan, is under consideration, the great iron conservatory being cleared for the purpose, in aid of the usual tents.

We entertain no doubt that these arrangements, or such of them as may be eventually carried out, will be so framed as to give the Fellows of the Society all possible advantages and privileges, beyond what the public can obtain by the mere purchase of tickets. Should this be so a very large accession of Fellows, under the new regulations, may be anticipated. So well indeed do these regulations already work, that at the very first meeting after they came into operation 17 new Fellows were elected, on the second meeting 37, and we hear that many more candidates for the Fellowship have since presented themselves for ballot at the meeting in February. The cost of a Fellowship is now indeed so small, admission fees having been abolished and the annual subscription being either four guineas or two guineas, at the option of the Fellow, that a considerable increase in the numbers of the Corporation seems to be a certain event. So large a number as 54 elections in two meetings has not occurred since July 1821, the period when the Society was in its highest prosperity.

IT will be in the recollection of our readers that we some months since announced Lord FITZWILLIAM'S intention to institute some experiments upon the relative strength of the timber of our two species of native Oak, *Quercus sessiliflora* and *Q. pedunculata* (see *Gard Chron.* 1855, *p.* 803). A very interesting communication from Mr. HENDERSON, who has charge of his lordship's woods at Wentworth, shows that these experiments have now been made.

With the view of settling a disputed point, about which we have interested ourselves, and taken some pains to get set at rest, "I have now," he writes, "inclosed for your consideration the details of all the experiments and the results, and also specimens of the two sorts of timber experimented upon. You will see by the inclosed tables that these experiments, taken as a whole, are in favour of the greater strength of the timber of Q. pedunculata. The pieces of each sort differ considerably from one another in the weights which they bore, but Q. pedunculata sustained weights varying from 68 stone to 52, whilst the greatest weight borne by Q. sessiliflora was 60, and the least 44 stone. Taking the average of all the experiments, A (pedunculata) gives 57, and B (sessiliflora) 51 stone.

"In order that you may better understand the inclosed tables, I will now explain the manner in which the experiments were conducted. Two strong trestles 4 feet 8 inches high were placed 6 feet asunder, and fastened together by tie-boards; on these the scantlings (2 inches square by 6 feet 9 inches long) were placed, each end resting with about 4 inches on the trestle. The 6 feet of scantling between the two supports was in each case divided into eight equal parts, numbered in the tables 1, 2, 3, &c., No. 4 being the centre where the weights were suspended, and at each of these points the deflection was taken as the weights were added, in sixteenths of an inch. The weights were suspended by means of an iron strap (made to fit on to the scantling), to which was attached an iron chain carrying a box to contain the weights. The box, chain, and strap weighed together exactly 4 stone, and all the weights used in the experiments were 4-stone weights. A 4-stone weight was added at the end of every two minutes from the commencement of the experiment, and the greatest deflection of the scantling marked in the centre at the time of its breaking. In the tables A represents Q. pedunculata, and B Q. sessiliflora; 13 experiments were made on each sort. A scantling also of each kind was afterwards weighted—at once—with 52 stone to prove how long they would bear it without breaking; A bore the weight six and a half minutes, B only half

a minute. Taking the greatest deflections of the different pieces, it appears that the aggregate amount is greater in A than in B, but in comparing individual pieces, the greatest deflection in A is only very little over that of B, and the least of A not much over that of B.

"However, the experiments, taken altogether, would indicate a greater degree of toughness in the timber of A than of B. In the seventh experiment a scantling of A bore a weight of 60 stone with a deflection of 8 inches; it then splintered and slipped from the support at one end. It was then reversed and weighted with 40 stone, when it broke with a deflection of $9\frac{10}{16}$. In the ninth experiment a scantling of B bore 48 stone, splintered with a deflection of 6 inches, and was reversed and weighted with 28 stone; it then broke with a deflection of $9\frac{1}{2}$ inches. In the progress of these experiments it very soon became evident that there was a very perceptible difference between the weights of the scantling of A and B; and that difference became more manifest in finding the specific gravity of the two species. A 4-inch cube of Q. pedunculata gave as a result 972, while one of sessiliflora gave only 864. Other experiments made on larger and smaller pieces gave a somewhat similar result, showing the greater density of the timber of Q. pedunculata.

"In most of these experiments the outer or back side was placed underside, as being the position in which—in the opinion of some—timber bears the greatest strain; but other trials were also made with the bark side uppermost, and although the weights sustained were not the heaviest which either kind had borne during these experiments, yet they were also not the lightest. The specimens inclosed are two 4-inch cubes similar to those used in finding the specific gravity, and the other pieces are parts cut off the ends of the scantling used in the experiments. Lord FITZWILLIAM has directed that two more trees be set aside for experimenting on next year. If any one can suggest improvements in the manner of conducting the experiments, so as to make them more decisive, we would very gladly adopt them."

Mr. HENDERSON has forwarded the details of the experiments, in which the amount of deflection step by step until breaking occurred is noted down with minute exactness. Those tables are too long for insertion in this place; but we have abstracted the following tables showing the general result:—

A. QUERCUS PEDUNCULATA.

No. of Experiments.	Resisting		Breaking		Observations.
	Weight.	Deflection.	Weight.	Deflection.	
	Stones.	Inches.	Stones.	Inches.	
1	64	5.25	68	9.50	Broke 1½ min. after the last weight was put on.
3	52	5.00	56	3.75	
7	52	3.00	64	9.67	Splintered with 56 stones; finally broke with a deflection of 8.500.
8	48	4.67	52	6.12	
10	52	4.87	56	6.50	
12	48	3.67	52	5.50	
13	56	4.87	60	7.00	
14	52	3.37	56	4.75	
15	48	3.93	52	9.00	
17	60	4.67	64	8.50	
20	60	5.00	64	9.00	
23	60	5.00	64	6.12	
	54.3	4.44	59	7.11	AVERAGE.

B. QUERCUS SESSILIFLORA.

No. of Experiments.	Resisting		Breaking		Observations.
	Weight.	Deflection.	Weight.	Deflection.	
	Stones.	Inches.	Stones.	Inches.	
2	44	3.87	48	8.31	
4	44	3.75	48	6.75	
5	48	3.87	52	9.00	
6	48	4.31	52	6.00	
9	44	4.50	48	9.50	Splintered at 6.000 deflection, a minute before it bent to 9.500 and broke.
11	44	4.00	48	7.00	
16	40	3.31	44	3.31	Snapped suddenly
22	56	4.73	60	7.50	
24	48	4.00	52	6.00	
25	44	4.25	48	5.50	
26	52	4.50	56	8.50	
	48	4.09	50.5	7.12	AVERAGE.

These results do not entirely correspond with Mr. HENDERSON's conclusions, probably owing to some difference in our mode of looking at the tables from which they are drawn. They however show that while the average breaking weight of Q. pedunculata was 59 stones, that of Q. sessiliflora was only $50\frac{1}{2}$. The tables themselves place Q. sessiliflora in a yet more unfavourable light, as appears from the following statement:—

	Q. PEDUNCULATA, out of 12 trials, carried	Q. SESSILIFLORA, out of 11 trials, carried
40 stones	12 times	11 times
44 "	do.	Ten times
48 "	do.	Three times
52 "	Four times	Once
56 "	Once	Once
60 "	Three times	*Not at all*
64 "	Once	*Not at all*

Mr. HENDERSON speaks of three experiments with these Oaks when the scantlings were placed with the bark uppermost. In these cases the tables give the results as follows:—

A.* QUERCUS PEDUNCULATA. Bark side uppermost.

No. of Experiments.	Resisting		Breaking		Observations.
	Weight.	Deflection.	Weight.	Deflection.	
	Stones.	Inches.	Stones.	Inches.	
21	48	4.00	52	6.00	Broke suddenly in 1½ minute.

B.* QUERCUS SESSILIFLORA. Bark side uppermost.

No. of Experiments.	Resisting		Breaking		Observations.
	Weight.	Deflection.	Weight.	Deflection.	
18	48	3.73	52	7.00	Bent very rapidly, then broke suddenly.
19	48	3.50	52	4.37	
	48	3.61	52	5.68	AVERAGE.

So that it appears to be by no means immaterial in what manner the bending is conducted; for while Q. pedunculata with the bark upwards broke with 48 stones, it bore more than 54 stones when bent in the opposite direction. There can be no doubt that as a general rule wood bent outwards breaks with a small strain, and that it is only when bent inwards that it shows all its elasticity: as is familiar to archers; a circumstance probably due to the greater hardness of the inner layers of wood. Nevertheless, in the experiments before us, the position of the scantlings seems, in the case of Q. sessiliflora, to have been unimportant, 42 stones having been the average weights resisted by it in both cases, and that it even required 52 stones to break it when bent outwards instead of 50 which broke it when bent inwards.

This very striking circumstance was not without its parallel in other instances, as we find upon a careful examination of the tables before us. Thus in Exp. A 1, it required 60 stones to bring the deflection to 3 inches, while in A 8 48 stones were sufficient for the purpose; and again the breaking weight of A 1 was 68 stones, but in A 8, 12, and 15 it was only 52: an excessive difference. Similar differences occurred among the experiments with B.

These variations show how little value belongs to single experiments in cases of this nature. The manner of cutting the timber must indeed be attended by great differences in resistance, as we have formerly shown (*Gard. Chron.* 1856, p. 244); accidental unobserved flaws, a sudden twist in the grain of the wood, some indeed say the north or south sides, will cause further differences in the strength of scantlings from the same tree; and these causes of error cannot be wholly avoided except by taking the average from a considerable number of trials. It is therefore extremely satisfactory to learn from Mr. HENDERSON that Lord FITZWILLIAM intends to push the inquiry still further; and it is much to be desired that the example set by this great and enlightened nobleman should be followed by others. As far as they go the experiments at Wentworth are certainly unfavourable to Q. sessiliflora; and if the second series shall correspond it will be a necessary inference that on the Wentworth estate Q. pedunculata is the more valuable tree. But it by no means follows that it would prove to be so on other soils; take for instance those of the New Forest or the Forest of Dean; and it seems to us worthy of the consideration of Mr. HOWARD whether it may not be desirable to have the present question tested experimentally in every one of the Royal Forests. The new (34th) report of the Commissioners upon the Woods and Forests of the Crown shows that the honourable gentleman has directed his attention to questions of practical forestry; and we venture to submit that this is one which most especially deserves to be the subject of inquiry. It could be prosecuted more easily and satisfactorily by the examination of Oaks grown on the various soils in the Royal domains than by any private individual, even though inspired by the zeal of a FITZWILLIAM, and an official return of the results would probably settle for ever a most important public question.

HORTICULTURAL JOTTINGS MADE DURING A JOURNEY TO PARIS.

HAVING lately made a journey to the French capital, and had an opportunity (through the kindness of my respected employer) of seeing the Royal and the best market gardens, with the nurseries and seed establishments there, I venture to commit to paper a few notes which I hope may prove interesting to the readers of this periodical.

I had gone to Paris with the idea that we English gardeners were a long way behind our ingenious neighbours, and had much to learn from them, but I now think very differently. The productions which so largely fill our markets, the beautiful Spring Lettuces which come here in the fullest perfection long before ours are ready, these, with many other things, have excited our surprise and made us feel almost ashamed at being so much in arrear; but when we come to know that in the climate of Paris, at M. Vilmorin's, Thunbergias were ripening their seeds in the open air, and also the different kinds of Maurandia, it needs no great stretch of imagination to conclude that they have a far better climate than ours.

They have a great advantage over us in the dryness of their climate, being upon the chalk, and when the sun shines that luminary has much greater power, which must very materially aid them in the management of the cloches, or bell-glasses, under which their fine Lettuces are grown. I give them the greatest credit for their assiduous ingenuity in the management of these; but fully think it impossible to succeed in our constantly moist climate as they do with them.

Judging from the fine fruit which I saw in the shop of M. Joret, in the Rue Marché St. Honoré, and also at Versailles and Fontainbleau, I should say they are very good Pine growers. They cultivate the young plants principally in beds prepared for them, without pots, and fruit them in very small pots considering the size of the fruit produced by them. They seem to feed the plants much by a large supply of ammoniacal gas, fruiting them over a chamber filled with hot dung, and plunging them in a shallow bed of tan.

In Vines they do not shine at all as we do; no such Grapes as English gardeners produce are to be met with. Here are none of those fine fleshy delicious Muscats, or Hamburghs, that were shown at the meeting of the London Horticultural Society the other day. Their only well grown Grape is the Chasselas de Fontainbleau, which at that place covers a wall 1300 yards long and from 12 to 15 feet in height. The Vines when I saw them (the 18th of October) were loaded with produce fully ripe over the whole of this space; they were of the richest amber colour, and were in fact delicious in taste, and most inviting to behold. The Chasselas thus ripened is one of the very best of Grapes, but such as these are not met with in any quantity in the markets; those are smaller and much less ripe; but from such Grapes and a piece of bread many a Parisian workman makes his dinner. They are grown for the market at Thoméry.

In French gardens the Vines are trained on a low trellis, and when they want to force them a frame is placed over them about 3 feet 6 inches high at back and 1 foot 6 inches in front. It is made of old ship timber, not painted, and a dung lining surrounds this economic structure, which has as well two flat copper pipes along the front for heating. Unlike good English gardeners in the present day, they do not force the same portion of the trellis in successive years; but if this piece is forced this year, another is chosen for the next year's crop. I think that they are wrong in pursuing this antiquated notion, as there can be no doubt that all plants which are forced soon acquire a habit of pushing their buds at that particular period of the year at which they have been excited. I could not help smiling therefore when gravely assured that this resting was an element of their success.

In Figs they do not seem to shine so much as they ought to do; I saw only some small green ones, not over-ripe, in M. Joret's shop.

Their Peas are truly magnificent.—I saw Crassane, Passe Colmar, Duchesse d'Angoulême and Beurré Diel prodigiously fine, particularly the Crassane, which was of an exquisite flavour too.

In the way of vegetables, magnificent Cauliflowers were hawking about the streets, as were also Peas, in the middle of October. Fruit of the purple Egg Plant, called Aubergine, were on sale for culinary purposes, and the seeds of Haricot Beans, about three parts grown, were exposed under the name of Flageolets. I saw the Dioscorea after the second year of cultivation little better than we have it in this country, and they say it is of no use without two years' growth in Paris. If, as experience proves, it is so shy, we may take our leave of it as an article of staple food, and it will only serve to make a dish at the tables of the wealthy portion of society. Magnificent Cardoons were to be seen in all directions, as well as Escarolle, the Batavian Endive, beautifully blanched; but their chief point of excellence is their cultivation of Asparagus. M. Joret had some of the finest Asparagus I ever beheld. Its culture is a specialité into

which I felt much interest in making inquiry. It is managed thus:—The ground is deeply trenched with a most abundant addition of the best rotten dung from old Melon beds. It is then divided into beds, about 3 feet 6 inches, with alleys 2 feet 6 inches in width. In March they plant their roots 20 inches or 2 feet apart in the row, and the usual routine follows till the next autumn, when the bed is liberally manured and deeply covered by the mould from the adjoining alleys. Thus excavated they form a receptacle for hot dung, with which they are filled as the produce may be required; the beds being covered with their small frames, which are about the width of the bed. These beds produce the Asperges blanches, or large white Asparagus.

The beds are not cut previously to being forced, and those who desire to have this excellent vegetable in its full perfection, must give it special culture. The system of forcing old roots from beds which have been long in cutting can only disappoint those who expect fine produce. Indeed this plant seems simply to require a deep and rich soil, an abundant space between the plants, and a three years' course of this before cutting the shoots. In the market gardens around Paris both Celery and Cardoons are blanched by filling up amongst them with long dry stable litter, of which large stacks meet the eye on entering the grounds. The Cardoons are planted about four feet apart on the flat surface, and are entirely filled up with this material. I saw this in the grounds of M. Chevalier, at La Chappelle, whose quarters of Cardoons were wonderful to behold.

Perhaps it is one of the strangest things that they have not a morsel of curled Parsley in their gardens; it is all as perfectly plain as the wild plant, and looking to the fondness which the French evince for decoration, one wonders at this.

It is usual with market gardeners, who are obliged to crop heavily, to manure heavily also. But I have never seen soil so rich in manurial matters as the Paris gardens seem to be.

It being the middle of October I had an opportunity of seeing the very interesting process of planting the Lettuces under the cloches or bell-glasses of which Dr. Lindley gave some account in a former Number of the *Gardeners' Chronicle*. A sloping bank is formed for the purpose, the soil for which is almost entirely composed of well-rotted manure from the old Melon beds; nothing could in fact be lighter or richer than it is; each bank is made 6 or 7 feet in width, and the glasses are placed in rows close together. The Lettuce plants which are raised under one or more glasses are now most carefully transplanted, putting 32, to be again thinned to 8, and finally to 1, under each glass. The success with which these are cultivated is very great, and they supply the English markets long before we get them. In severe weather straw mats (made from Rye) are placed over them, and great vigilance is used in giving and taking air. But their sheet anchor is the dryness of their climate, wanting which I do not think the same results could be obtained in this country, however indefatigable we may be.

I had expected to have seen the Chinese Yam producing very fine large tubers in this "land of the sun," but was truly disappointed when I saw that the roots were not bigger (after two years' cultivation in M. Vilmorin's garden) than those I have at Nuneham. I noticed a pretty pyriform Tomato in that garden, and the Chinese Radish, of which I bought seeds. *Henry Bailey, Nuneham, Dec. 8.*

(*To be continued.*)

NEW GARDEN FERNS.—No. XVII.

30. GYMNOGRAMMA PERUVIANA, *var.* ARGYROPHYLLA.

Fronds densely pruinose on the upper surface.

This very elegant Fern, which might be called the Silver-frosted Fern, was exhibited at the Crystal Palace shows during the past summer, from the gardens of T. Brocklehurst, Esq., of Macclesfield, where it appears to have originated. Its history, however, is not very clear, though it is probably a natural variety, the spores of which have been imported among South American Orchids. Though a very desirable plant for cultivation, and of very distinct appearance in an ornamental point of view, owing to the dense coating of ceraceous particles on the upper surface, producing the appearance of being frosted with silver, yet there can be no doubt it is only a variety of the true Gymnogramma peruviana as figured by Kunze (Schkuhr Supp. i., 65, t. 32), which is not the plant usually so named in gardens. The latter appears to be that called *G. distans* by Link. The silver-frosted variety produces from a short erect caudex a spreading crown of tripinnate ovate fronds, the secondary pinnules of which are roundish and lobed. These fronds, frosted above (not whiter there than other kinds are beneath, as was stated in the gossip of a contemporary), are on the under surface quite white, as in the species itself and the other silver Ferns grown in gardens. We have seen this variety in the collections of Mr. Veitch, of Chelsea, and Mr. Parker, of Hornsey.

31. ONYCHIUM AURATUM, Kaulfuss. PTERIS CHRYSOCARPA, Hooker and Greville. LOMARIA AUREA and CARUIFOLIA, Wallich. ALLOSORUS AURATUS, Presl.

Fronds decompound, deltoidly ovato-lanceolate, firm, smooth, sterile and barren fronds usually separate; barren segments, small, narrow, the ultimate divisions linear, cuneate, entire or inciso-dentate; fertile segments, more elongated, stalked, siliquiform, mucronate; sori linear elongated, marginal, but occupying the whole under surface of the narrow divisions, golden-coloured; stipes cæspitose, adherent to a short decumbent scaly caudex.

This is a very elegant evergreen stove Fern, remarkable for its habit of bearing distinct fertile and sterile fronds, and occasionally others which are only partially fertile. It grows about a foot and a half high, the fronds deltoidly ovate-lanceolate, pale green in colour, firm and glossy in texture, quite smooth and cut up into very numerous minute segments; they are supported by stoutish and rigid stipes, which are scaly at the base. These fronds are at least quadripinnate, the primary and secondary divisions and often the tertiary ones being very distinct, beyond which they are perhaps rather pinnatifid or pinnatisected, the narrow decurrent bases of the segments not being distinguishable from the rachis-like parts. The primary and secondary pinnæ are attenuately ovate, the tertiary divisions ovate, the segments of the latter cuneately oblong below and cut into simple linear teeth, narrowly cuneate and simple, or with one or two teeth above; so that the ultimate divisions may be described as narrowly wedge-shaped and simple or inciso-dentate, each of the divisions having a single vein along its centre, which terminates before reaching the point. The fertile fronds are equally com-

pound, but they differ in having the ultimate segments not cuneate but linear and mucronate, considerably longer, the terminal ones frequently an inch long, and every one distinctly narrowed into a stalk at the base. These narrow segments have a linear sorus extending along each margin, the indusia of which meet in the centre, so that the whole segment is occupied by the fructification, which usually assumes a rich golden colour. It is a native of the East Indies, where it is found in Nepal, Assam, and Khasiya; in Malacca, Java, and the Philippine Islands. It is a very elegant Fern, which will no doubt become a great favourite with cultivators. Judging from its North Indian habitats, it may be expected to succeed in a close greenhouse, especially if the cultivated plant should have been obtained from any of the cooler habitats of the species, of which, however, we have no information. *T. M.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. XIII.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

Flower.—From what has been said of leaf-buds and flower-buds, it will be understood that flowers are always developed about the summits of branches, although such branches are often reduced to the state of a mere "floral receptacle," just sufficient to support the floral organs. It is instructive, and will lead to correct notions of the relation subsisting between leaves and floral organs, to observe the way in which buds sometimes affect an intermediate character between leaf-bud and flower-bud, hesitating, as it were, whether to form an ordinary branch with leaves, or a peduncle with floral organs at its extremity. Garden double Roses often have the parts of their innermost whorls green and leaf-like, and these sometimes extend into a leafy branch which again reverts to the condition of a flower. One of my village class last year pointed out a bush of the "*trailing dog* Rose" (*Rosa arvensis*) covered with flowers whose petals were all small and green. Portions of this transferred to Kew and my own garden have fully retained their monstrous character.

N.B. Illustrative examples of the relation subsisting between leaf-buds and flower-buds are common among garden Tulips. Half a bract (longitudinally divided) is, in these cases, green, the other half coloured. One side of the peduncle is evidently under the influence (whatever it be) which induces the formation of a perianth, and this side shows a decided tendency to cease growing; whilst the other side contiguous to the green half of the bract increases as usual. In consequence of these different tendencies on opposite sides of the peduncle, it curves and cracks repeatedly. I have known the tension so great that the peduncle has snapped asunder and the flower fallen by an act of self-decapitation!

Floral Organs of the Bean.—Although "floral organs" generally have been noticed in No. 5, those of the Bean may be here referred to as an example which serves to typify an extensive group of plants whose flowers are constructed on the same plan.

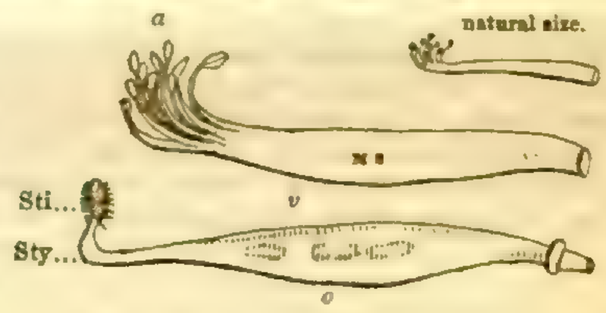
Calyx (wood-cut to No. 12) of 5 cohering sepals (*monosepalous*), the lowermost of which is the longest, the others in pairs of equal length.

Corolla. Five petals, forming a "Papilionaceous" (*Butterfly-shaped*) flower. The uppermost or innermost

s. Petals of the Corolla.

petal (s), differently shaped from any of the others, is the "standard" (*vexillum*). On either side of this is a petal (*w*) termed a "wing" (*ala*). These two resemble each other. The two lowermost (*k*), which also resemble each other, together form a "keel" (*carina*). These sometimes cohere more or less by their contiguous edges. The upper portions (*l*) are the limb, and the lower (*c*) the claw, of these petals.

Stamens. The filaments (M. S.) of the ten stamens cohere (*monadelphous*) through the greater part of their



STAMENS AND PISTIL (ENLARGED).

length, and thus form a membranous tube about the pistil. Each of the free upper portions supports an anther (*a*).

N.B. The majority of British papilionaceous flowers have the uppermost stamen free, the other nine cohering. Such are consequently "diadelphous." In many exotic papilionaceous flowers, the filaments are all free from cohesion.

Pistil.—This consists of a single carpel, and offers a good illustration of the mode in which such an organ is constructed. It is regarded as a small simple leaf folded longitudinally upwards till its edges meet and cohere. The outside of the carpel thus constructed will correspond to the under surface of the leaf, the inside of the cavity to the upper surface. The line of union between the cohering edges is called the "ventral suture" (*v*). The main body of the carpel is the ovary (*o*). The extremity lengthens out and forms the curved "style" (*sty*), on the summit of which is the "stigma" (*sti*), where the external tissue of the carpel is exposed, all the rest being covered, as in all leaves, by a skin (*epidermis.*) Within the ovary (*o*) the margins of the carpellary leaf swell a little along the line of ventral suture, and are termed the "placenta." From the placenta are developed small round bodies alternately from each side, called "ovules" (*little eggs*) destined to become seeds when the ovary passes to the state of fruit.

N.B. The formation of compound pistils may be deferred to a more general explanation of the alterations which take place in ovaries and ovules as they respectively pass to the condition of fruit and seed.

(*To be continued.*)

TRADE MEMORANDA.

GEORGE WOOLMER; states that he is a Market Gardener, with 10 acres of land, living at Stratford.

Home Correspondence.

Orchids.—Having a great friendship for "Flora," allow me to furnish, in reply to her inquiry about growing Orchids in a conservatory where the temperature falls to 45°, an extract from Paxton's Magazine of Botany, vol. xiv, p. 13. "In our principal Orchid house at Chatsworth, a large erection long and wide, we have spaces which constitute the back portion; the border is made of rough blocks of Oak, scraggy pieces of gnarled and distorted trees; these are placed close together and thinly covered with leaf mould from the woods, pieces of twiny Mosses are also introduced, and into these the Orchis roots spread. The sorts used are Cœlogyne odorata, Anæctochilus setaceus, Trichosma suavis, Miltonia spectabilis, Oncidium Lanceanum, Stanhopea tigrina, Odontoglossums, Dendrobiums, Cymbidiums, Lycastes, Zygopetalums, Bolbophyllums, and a host of other genera are included, and the largest measure of success has attended the experiment. The temperature has been that of a close cold pit. No bottom heat, very great

shade, and not so subject to great alterations of drought and wet. They are fastened on the blocks by copper wire, but soon their roots cling to them like Ivy." In answer to an inquiry by another of your correspondents, Paxton says in the Magazine of Botany, vol ix., p. 90, that Messrs. Loddiges make use of Orchid baskets of Cocoa Nut husks split into halves slightly dressed at the edges and fastened together with copper wire. The loose way in which they are attached at the edges allows the water to drain through, and the interior being of a loose fibrous nature the roots adhere to it readily. *Novice.*

British Ferns.—In a small book on British Ferns lately published by Mr. R. Hardwicke, 26, Duke Street, Piccadilly, I find Asplenium palmatum introduced for the first time as a British Fern, and said to have been found in Essex, Lancashire, and Ireland. Would you inform me whether this account may be considered as correct, and the Fern treated as hardy? *S. N.* [You will find that we have ourselves objected to the introduction of this plant into our list of native Ferns (see *Gard. Chron.* 1854, p. 270). We do not believe that Asplenium palmatum has been found wild in Great Britain or Ireland; if it had surely we should have heard of it otherwise than by Mr. Hardwicke's book.]

Ice Stacks.—The following method of preserving ice was for many years successfully practised at Hatton Castle, Aberdeenshire:—On the south side of the pond a foundation of rough gravel was made, about 1 foot high, over which was placed another foot in thickness of dry branches; on this a circular stack of ice was built, 12 feet in diameter, 7 feet to the eaves, and about 4 feet more to the point. This was well thatched from top to bottom with Oat straw, from 10 to 12 inches thick. It was again thatched with branches (mostly old Pea-sticks) about 2 feet 6 inches to 3 feet thick, and again thatched with Oat straw, tied down with straw ropes. There was a drain from the centre of the stack running to the pond, but entering below its lowest surface. The stack was shaded by Spruce trees. *J. H., Rotherham.*——We have a very economical plan of preserving ice at this place. I had a circular hole dug in a dry bank with a north exposure, and shaded by trees. The hole is 12 feet diameter at top and 2 feet at bottom, 8 feet deep, with a common drain at bottom, the outlet of which is covered over with loose rubbish to prevent the air getting to the ice. Before putting the ice in the hole I put about 1 foot in depth of faggots at the bottom, then a layer of clean dry straw (Wheat straw is best) on the top of the faggots, and also all round the sides of the hole 6 inches thick; then the ice is put in, well broken, and rammed together till the hole is full. It is then piled up in the shape of a cone and covered over with a layer of straw put on as evenly as possible; then a covering of Fern 2 feet thick, which is thatched over with Laurel boughs. The above plan I have practised for four years, and I find it to answer the purpose perfectly, viz., it secures a good supply of ice during summer and autumn; in fact, we have always plenty of old ice till we get the new—a desideratum which many with expensively constructed ice-houses would be glad to realise. Some object to this plan, because of the waste that takes place when opening to take out ice; I do not, however, find such to be the case to any great extent when the operation is speedily performed and the hole well stopped up again. During the very hot weather we had last July we had occasion to take out ice every day, and during autumn every other day, and now we have a good supply of "old ice." I also find that the cleaner the ice is when got together, the better it keeps. I do not know the smallest quantity that would keep under the circumstances your correspondent described. I have not tried less than 20 tons, but our general rule is to gather 30 tons. I have no doubt that were the pit made double the size, we could keep a supply for two years. *James Maxton, Homme House, Herefordshire.*

Anomalous Fructification in a Fern.—I take the liberty of writing to you in reference to a botanical fact which I accidentally became acquainted with, and which I trust you will not deem an intrusion. I have cultivated Asplenium marinum for some considerable time, but have never observed any trace or sign of fructification upon any of the fronds. In October I cut some of the fronds off; they were put in a flower-pot with the superfluous mould. In about a fortnight I required the pot to put some other plant in, when I was very much astonished to see the tender green colour so peculiar to the Ferns, and on examination I found that fructification had made its appearance. I immediately showed it to Mr. W. M. Searby, my master, who was as much surprised as I was. He advised me to bury some more, which I did, with the same result; the spore cases were empty. I have sent you a specimen of one, but I am sorry to say it is badly pressed. I mentioned the fact to two great Fern growers in the city, but they both laughed at me. *Candell Clarke, White Lion St., Norwich.* [We have never observed anything like what Mr. Clarke describes, which if we understand him rightly is this—"that fronds of Asplenium marinum quite barren, cut off and buried amongst refuse soil, had in about a fortnight become fertile." We fancy there must be some error of observation, and yet as he speaks of repeating the experiment this seems hardly possible. We very much doubt whether a slow growing plant like the species in question could under any circumstances *produce and mature spore-cases* within so short a period. It is however a plant of thick substance and firm, so that it is not at all remarkable that the fronds *kept fresh* under the conditions stated. Perhaps the explanation may be that the fronds when cut off had already formed their sori, but that these were accidentally "oligocarpous," and had not lifted the indusium so as to make themselves apparent, the inherent vitality of the fronds sufficing to enable them subsequently to protrude themselves in spite of the disadvantageous conditions in which they were placed—just as buds are sometimes produced on specimens of plants drying for the herbarium. This may be all the more likely if (as seems not improbable) the spores are in some measure analogous to buds. Under the microscope we find some unopened spore-cases, and spores with their muricate or granulate outer coat evidently lying amongst the more numerous spore-cases which have burst, these latter appearing to be partially decayed, as they might well be buried amongst damp earth. This rather suggests that the spore-cases had been there from the first. Though we are thus unable to explain satisfactorily or to confirm Mr. Clarke's statement, we quite believe that the development of sori, though commonly, is not always coincident with the development of the frond. We have sometimes noticed what appears to be a gradual production of fructification after the frond has been formed. *T. M.*]

Roses.—I hope you will allow me a little space in answer to Mr. Paul's communication on Roses, in No. 48. I rejoice to think my remarks have drawn out a professional; we amateurs want a little more of their knowledge in such matters to be vouchsafed to us. I shall have a word or two to say on his general remarks before I have done, but now let us go straight to the point about my list of 12 Roses. He selects five as second rate kinds, and would imply them to be very second rate. If they are, I am very sorry to think that dealers' catalogues should so mislead persons who wish to buy, and have no other means of ascertaining the qualities of the different Roses but from the descriptions therein given. I will just place in parallel columns Mr. Paul's descriptions of the five Roses he selects, as given in the *Chronicle* and his Catalogue for 1855-56; perhaps this will the best explain what I mean:—

CHRONICLE.	CATALOGUE.
La Reine.—Sometimes fine, but very uncertain.	Rosy pink, tinged with lilac, magnificent, very large and full.
Madame Laffay.—Small and transitory.	Rosy crimson, beautiful, large, and double.
Gen. Jacqueminot.—Loose, flimsy, and often washy in colour.	Purplish crimson, large and full, fine.
Louis Bonaparte.—Of indifferent shape.	Vermillion, glowing, very large and full.
William Jesse.—Little more than semi-double.	Purplish crimson, tinged with lilac, superb, very large and very double.

Here, too, is the description of the same Roses by two of the most eminent growers, Messrs. Wood and Rivers:

WOOD.	RIVERS.
La Reine.—Brilliant rose colour, immensely large.	Brilliant glossy rose; one of the largest, most perfect, and finest of Roses.
Mde. Laffay.—Deep rich rose, cupped and double; an old, but still a great favourite.	Rosy crimson; one of the oldest Roses in this family, and most excellent.
General Jacqueminot.—Rich velvety purplish crimson; a superb show Rose.	Purplish red, a large and fine Rose of the most perfect shape.
William Jesse.—Bright rose, very large, highly scented, one of the finest.	Light crimson, tinted with lilac.

Louis Bonaparte is not in Mr. Rivers's catalogue.

Now, one thing seems quite clear—either the dealers' catalogues are intended to take in the uninitiated by these splendid descriptions, or else the Roses are what I say they are. Mr. Paul can settle that. If at the end of the description of La Reine the word "inconstant" had appeared, I for one should have had nothing to do with it, but not a syllable about that defect in any catalogue; and I said in my communication on Roses that it had that fault, and it is a great one; but I say, too, that if you do catch a good bloom, not one Rose in its class can compete with it. If you will allow me, I will next week send you a few observations on Mr. Paul's list of 12, but now I must stop. I have only to tell him that so far from having "just awakened from a long long sleep," I have been wide awake a long long time; too wide awake to give a high price for a thing of which I have only seen a dealer's description. Amateurs buy experience as well as Roses, and if they take my advice, they will "look before they leap;" nevertheless, I shall heartily thank Mr. Paul or any of the large growers if they will give us a true and faithful list of what Roses are really worth their price. *A. R., Bromley.*

Steel Forks.—You say you "have seen most rascally tools of this kind, the tines of which bend like iron wire." Now I use and superintend the using of a great many. I have tried more than one maker, and from many years' experience I can say that those made by Parkes, near Birmingham, will never disappoint any one who wants a good tool. I am sure they will not bend like iron wire. I believe Parkes is the original maker, and I think none of the many imitators can equal him. I received three forks about a year ago with a request to try them, but I found they were all too soft, and were sent back (these were from another very large manufacturer). You say 4-tined ones are the best. I think that depends on the kind of ground; that about here is very light and gravelly, for which we use the 5-pronged fork. The 4-pronged one would not lift it, but for cleansing land from Couch and other weeds, the 4-pronged one is the best, and would do for digging in strong clayey soils. I can only say that whoever has once used these forks will never wear out many spades afterwards. They have set the spade at rest amongst gardeners in this neighbourhood, except just for edging of beds and a few other small jobs. I merely send you this for the benefit of your correspondent "W. C." and others, who may want a really good tool. The size I use for digging costs (buying them singly) 6*s.*, and when they get too short I send them to the works, and they make them equal to new for 3*s.* *E. H.*

Veronica.—I send you a specimen of a new Veronica, a hybrid between V. decussata and a seedling from V. speciosa, by which you will perceive that the habit of the former is maintained, thus improving speciosa, while the colour is quite distinct from that of both parents. *A Devonian.* [In colour the flowers are a beautiful lilac; the spike sent was however small, and not sufficiently advanced in bloom to enable us to form a correct opinion respecting the merits of the variety.]

Notices of Books.

A Guide to the Propagation of Plants; or the Art of Multiplying Plants by Seed, Cuttings, Grafts, &c. [*Guide Pratique, &c.*] By E. A. Carriére. Pp. 271. Paris 12mo. Librairie Agricole.

The author of this volume is already known to the public by his edition in French of Endlicher's Coniferæ, and by various contributions to horticultural periodicals. Placed at the head of the nurseries belonging to the Garden of Plants at Paris, his position gives him opportunities of acquiring practical knowledge of the art of propagation, such as can only be gained in such places; and as a ready writer, with a well arranged mind, he possesses the power of communicating his knowledge clearly and precisely to others. With these qualifications he could hardly do otherwise than produce a work of value in practical gardening. And he has done so. Not that we find much novelty in M. Carriére's pages; the subject is in truth threadbare; but what we do find is what is most wanted, plain detailed directions for doing the various works of the garden propagator.

The matter is divided under five principal heads. 1, Seeds and the various ways of dealing with them; 2, the general management of plants, both hardy and tender; 3, of propagation by layers, 4, by cuttings, and 5, by grafts. In nothing has the author shown his good sense more conspicuously than in the manner in which he has treated the last subject, which in France has been refined upon, or, we should say if speaking of our own country, wiredrawn and mystified, till at last it may be compared to a spot on which the sunlight is concentrated, and which is so much illuminated that nothing can be seen. It seems that by one device or another somewhere about 130 sorts of grafts, as they are called, have been proposed as different, a number, as M. Carriére says, quite enough to startle the boldest gardener. Like a sensible man he sweeps away all this rubbish, and with it the names of horticultural worthies by which the so-called 130 sorts of grafts have been distinguished. Instead of the grafts Palladius, Thouin, Duhamel, Atticus, Aiton, and so on, we have the following table, in which we think it will be admitted that differences are carried quite far enough:—

TABLE OF GRAFTS.

Div. I. *Grafting woody plants*
- SECT. 1. Grafting with branches
  - *Groupe* 1. Grafts with separated scions
    - Cleft grafting
      - on parts above ground
        - with barren wood ripe
        - with bearing wood ripe
        - with barren wood ripe and protected
        - with young wood, or scions in leaf
      - on parts underground
    - Side grafting
      - with ripe wood
      - with young wood
    - Crown grafting do.
    - Place grafting do.
    - Mixed grafting do.
    - Shuttle grafting do.
    - English grafting (whip)
  - *Groupe* 2. Grafts by approach
    - X grafting
    - Straight grafting.
- SECT. 2. Grafting with scions having neither branches nor wood
  - 1 *Groupe.* Grafting with pieces of bark each having one eye
    - Budding ... with a growing eye / with a dormant eye
  - 2 *Groupe.* Grafting with rings of bark, each having several eyes
    - Flute grafting: terminal / lateral

Div. II. *Grafting Herbaceous plants*
- Cleft grafting: on parts above ground / on parts underground
- Central grafting.

This has at least the merit of being intelligible; we think, however, that it is susceptible of some improvement. We may possibly select occasionally some small portions of M. Carriére's book for translation, unless we should hear of its being about to receive an English dress, which it well deserves. In the meanwhile an extract or two will show how the author treats his subject.

On the soil and situation suitable for Cuttings.—With some few exceptions, sandy soils, somewhat moist, are best adapted for striking cuttings. When this mode of propagation is employed on an extensive scale, which however is rarely the case, it is generally in soil of an opposite character, that is to say in those that are strong and wet. Indeed meadows, or marshy grounds, are almost the only soils in which recourse is had to propagation by cuttings, and Willows and Poplars are almost the only species of plants propagated in such places; but in gardens where the extent of ground devoted to the striking of cuttings is generally small,

where, consequently, all necessary care can be bestowed, and where the species which can be propagated by this mode are extremely numerous and variable in their nature, the soil is almost always modified. In most cases peat is employed; or, in its absence, mixtures are substituted. If cuttings are struck in the open air, in dry soil, the beds should be hollowed out by drawing the soil from the centre towards the edges. If, on the other hand, the soil is moist, the ground should be raised, and if necessary may even be formed into ridges. Further, if the ground can be slightly shaded, it will suit many species. Nevertheless, the plants must be sufficiently exposed to air and light to prevent their being drawn up. As for cuttings, which, from any cause, cannot be struck in the open ground, recourse is had to hothouses or frames; for those which ought to be struck, without heat, under bell-glasses, a northern aspect sheltered by a wall or hedge is chosen, the ground being prepared as may be necessary, and according to the nature of the plants intended to be struck. This mode of propagation is very advantageous, and is very frequently employed in nurseries.

On the most expeditious modes of causing Seeds to germinate.—In the absence of practice and observation, science might inform us what those modes are, for it teaches us that heat and moisture excite and occasion fermentation; that fermentation is the commencement of decomposition, and that decomposition is accompanied by a disengagement of heat, which, added to that which already exists, transforms the decomposing body, and changes its nature. This being admitted, we say—Since a seed is a body, but a living one, of which the vitality is latent, and the action of which, so to speak, is suspended by elements which are torpid, or in a state of lethargy; that this state can only cease on the transformation of the principles; and as we know that this transformation can only take place by the influence of two principal agents, moisture and heat, it results that, according as these agents manifest their presence with more or less energy, the awakening the vitality, consequently the germination, will be more or less active.* This fact is beyond doubt; its correctness is daily proved by practice; hence the use of stimulants, as fire heat by flues, hot water, steam, dung, hotbeds, &c. But as heat and moisture play, as far as our knowledge goes, the most important part in germination, it is by their more or less skilful combination that more or less successful results will be obtained. Nevertheless, the mode of heating employed is not a matter of indifference; for, according as the heat is obtained by one or other of the above modes, its action will be more or less favourable to germination. Thus, all other things being equal, dung-heat is the best, then that of hot water, then that of steam, and lastly fire-heat by flues. The first, dung-heat, has a double action which is peculiar to it alone; for whilst it produces heat it also disengages ammoniacal gases which are very favourable to germination. The second does not dry up the soil (which is rather saturated with humidity) but it does not give out any gaseous matter. The third is similar in its effects to the preceding, but it has the defect of varying to a considerable extent; for, as soon as the fire goes out, or even when it is not properly fed, the production of steam ceases, and consequently that of heat. Lastly, when flues are employed the heated air and smoke pass through them together, and only a dry and parching heat is obtained; frequent waterings are necessary, the great drawback of which is that they wash the soil, and carry away from it a portion of the organic matter which it contains.

If to any one of these modes of heating the beneficial influence of propagating glasses is added, more or less satisfactory results are always obtained, and this explains their frequent use.

* We have no doubt but electricity, which performs such an important part in animal life and which is probably the prime mover, also plays an active part in the process of germination; but its office being still unknown to us, we must confine ourselves to suppositions.

Garden Memoranda.

GARDENS AT LEWS CASTLE.—In the middle of last September I visited the Lews, one of the largest islands of the Hebrides. It is separated from the mainland by a sea some 40 or 50 miles broad, and it forms the northern extremity of the county of Ross. Lews Castle is the seat of the proprietor, Sir James Matheson, Bart., M.P., and is one of the finest residences in the north. As it may be interesting to hear something of gardening in this quarter, I beg to furnish a few remarks on what appeared most deserving of notice. One is apt to expect that in a district so far north plants used for embellishment in the open ground must be confined to native sorts or to those kinds that are reckoned most hardy. This, however, is found to be a mistake, for the influence of the sea occasions a temperature during winter comparatively high, and adapts the situation for many kinds of plants which suffer from frosts on the mainland.

The principal flower garden covers a large space in the immediate vicinity of the castle. It stands on a lawn of the most vivid green, with a surface partly level and partly irregular, and generally has a south-western aspect; and from many parts commands a fine view of Loch Stornoway and its capacious harbour. It was rendered gay by a profusion of flower clumps and beds. The richness of the bloom of the following kinds was very remarkable:—Saponaria calabrica, Salvias, Verbenas, Nemophilas, Cupheas, Stocks, Agapanthus, Gladiolus, Heliotropes, &c. The blossoms of the plants last named were so vigorous and abundant that the foliage was almost hid with trusses 6 and 7 inches in diameter. Shrubberies of the richest foliage divide the flower garden into compartments pleasingly varied by terraces, slopes, rocky mounds, colonnades, and fountains. In the shrubberies the Fuchsias become unusually large, several yards in diameter, and endure the winter without dying down. The Aralia japonica assumes a timber-like figure; the Leycesteria formosa becomes a great bush, sheds its seed, and multiplies like a weed; and Escallonia macrantha appears as hardy as a Rhododendron.

A glazed avenue, extending alongside one of the divisions of the flower garden, had a very brilliant effect. Here Roses were remarkable for their vigour and beauty. I measured some of their foliage, and found single leaves 6 inches long by 3 inches broad. They stood in pots sunk on a level with the surface. The most attractive sorts were Devoniensis, Goubault, Baronne Hallez, Dupetit Thouars, Acidalie, Vicomtesse Decazes, Duchess of Sutherland, and Géant des Batailles. Fuchsias, Lilium lancifolium and Humea elegans were particularly handsome; the Humeas stood 9 and 10 feet in height. A space beyond the flower garden and shrubberies down to the margin of the sea was planted with a vigorous and waving crop of Tussack Grass.

All the departments, but particularly the orchard house, gave ample evidence of a skilful gardener. The Peaches and Nectarines had been an abundant crop, and were nearly over, but the Pears and Plums were at their best. The trees, about 3 and 4 feet high, stood in pots, none of which exceeded 12 inches in diameter, and they were loaded with fine fruit. Pears generally ranged from one to three doz. on each tree, fine well-grown fruit. One tree bore only three Pears, but they were far above the ordinary size; none of them was under one pound weight. The largest fruit yielded by the same tree the previous year is said to have weighed 23 ounces. The plant was received without name; from its appearance and the reported quality of the fruit I think it is the Van Mons. Leon le Clerc. Here, under pot cultivation, the fruit of the Marie Louise is more subject to crack and become unshapely than any other kind. The summer pruning had been performed most skilfully; some were operated on heavily, while others that naturally produce fruit-buds or young wood were left untouched. The state of the Plum trees was all that could be desired; the variety was great, among which were Golden Drop, Green and Purple Gages, Jefferson, &c. For appearance and fruitfulness perhaps the Golden Drop deserves the first place in the orchard house.

Mr. Conlon, the head gardener, attributed the successful management of this house (upwards of 100 feet long), and of all orchard-houses, to the free circulation of air and uniformity of temperature, particularly at the time of the blossoming and setting of the fruit. The quality of the soil used in potting the trees must also form a very important element in this mode of cultivation. Here, generally, the soil was composed of a mixture in which a coarse gravel, or broken rock, formed the principal commodity, and was made rich with well prepared manure. Sheep manure, applied in a liquid state, is found to be most congenial.

A large assortment of Cherry-trees in pots stood in a cool situation in the open ground. These had been forced early in summer, and displayed the tints of autumn on their shedding foliage. The fruit in the vineries was nearly over, with the exception of one part appropriated to the White Muscat of Alexandria, which bore a fine crop of large fruit.

Extensive ranges of pits were closely filled with very promising young plants for bedding newly struck; they were unusually far advanced for this purpose, but it appeared the nature of the climate rendered it necessary to have them well advanced before the approach of winter.

The kitchen garden was only remarkable for the vigour of the growth of vegetables in general, a vigour which enhanced the value of all the crops, we observed, except that of Onions, of which all the sorts appeared far too luxuriant to mature their bulbs during the remainder of the season. Fortunately, however, the influence of the soil and climate had not a similar effect on the Cereal crops throughout the country; those generally were quite ripe. The stack-yards were filling up; new grain was manufactured and in the market; and the harvest was farther advanced than in any of the many districts I had recently seen throughout Scotland. *J. G.*

Miscellaneous.

The Gardens and Fruits of Egypt.—Before leaving Cairo, I had an opportunity which I had almost despaired of, of seeing the gardens at Shoobra, about four miles from that city, and the finest in Egypt, but which have been closed to the public for some time. Through the kindness of Dr. Abbot I obtained access to them a day or two before leaving Cairo. All gardens are laid out on the same plan in this country, in long straight alleys or walks, crossing at right angles, or converging to a centre, where is often a kiosk or summer residence of the owner. Every garden, like every field, must be kept perpetually watered by the *sakeeyeh* or *shadoof* (the Persian wheel, or the more simple pole and bucket), in this arid clime. Egyptian gardens, both public and private, consist of squares or phalanxes of trees, intersected by little raised channels, or water courses, fed by the wheel at the river, or from a well of generally brackish water on the premises, which is also raised by one or other of the two primitive machines just named; for pumps are unknown, except in Frank houses, or in sugar manufactories, in every part of Egypt. The trees are mostly of the following scanty catalogue; various others are met with there, but are not in such common employment for ornament or utility. Orange, Lemon, Lime (abundant), Pomegranate, Myrtle, Oleander, Fig-Sycamore (Ficus Sycomorus), Mulberry (Morus alba and nigra); Nebr (Zizyphus Spina Christi), Prickly Pear or Indian Fig (Opuntia vulgaris, Cactus Opuntia, L.) chiefly for hedges; Cassia fistula, Lebbek (Accacia Lebbek), a native of India, and the pride of Cairo in the Usbeekeh, &c., Poplar (Populus alba), a tree of northern origin, but which resists drought and heat to a surprising degree, although delighting in wet places; Willow (Weeping W. chiefly, Salix babylonica), Khenna (Lawsonia inermis spinosa), called in England Egyptian Privet, and in Jamaica Mignonette tree. The leaves of the Khenna are in great demand when dried, for tinging the nails, fingers, and palms of the hands of a dull orange colour, amongst the Egyptian women of all classes, and even the men colour the nails of the hands and feet with this very unbecoming pigment. Roses, which grow well in Egypt, and are very sweet, form with flowering shoots of Khenna almost the only fragrant nosegays in use amongst the people, and branches of Khenna either by itself or encircled by Roses, are hawked about the streets, and sold for a few paras or fuddahs, and are carried at the many public and private processions that are perpetually blocking up the narrow thoroughfares of Cairo, thronged as they necessarily are with the passing stream of everyday life, carts, carriages, donkeys, horses, camels, and the human animal. The scent of the Khenna blossom is very powerful; to myself, it recalls that of Roses mixed with the fragrance of the Wallflower; but the flowers soon fade, and the smell becomes vapid, and positively unpleasant. I have nowhere met with the shrub wild in Egypt or Nubia, but it is raised abundantly along the Nile in both countries for its leaves and about Cairo for its flowers; a fence or plantation of Lawsonia will perfume the air of the whole neighbourhood, particularly in the cool of the evening. The other shrubs in general cultivation in Egyptian gardens for ornament, are Jessamine, white and yellow, (Jasminum officinale, and J. revolutum?) the former, a larger flowered variety than ours; the pretty Duranta Ellisi, most extensively used for garden hedges; Sessaban (Sesbania Ægyptiaca), wild in the upper country; a beautiful purple Convolvulus, with deeply five-cleft leaves, used for covering walls and houses, and which I also found in its wild state in Nubia, but do not know the name of at present. These, with some others, are the principal plants of a ligneous or arborescent character seen in cultivation. Of Egyptian floriculture very little can be said in praise; the garden of the humblest cottage in England can show a more choice assortment of border flowers than that of the proudest palace of the ruler of Egypt himself. Of the fruits of Egppt, I can now say with confidence that on the whole, in no part of the world are they fewer in number, or of worse quality. This is the height of the season, and I have visited the fruit and vegetable markets of Cairo repeatedly, as well as those of the provincial towns, and found little or no variety in any of them. Water Melons hold the first rank among Egyptian fruits; they are grown in vast quantities in the fields throughout this country and Nubia, and at this time of year constitute a great item in the diet of the poorer and middling classes, and are seen at the table of the upper ranks also, it being the custom to eat slices of Water Melon at dinner in the intervals of each dish that you partake of. They certainly come to great perfection in this country, and, as I myself experience, may be eaten freely in any quantity without danger; and deliciously refreshing the pulp of the Water Melon is in this sultry climate. Grapes are plentiful, and have been in season about three weeks: they are of all kinds, good, bad, and indifferent. This, after the Water Melon, is the fruit most to be depended upon for quality: but Grapes are neither so abundant nor so cheap as the former. I forgot to say that common Melons of every kind are plentiful in the markets, but not liking this fruit, I am no judge of their merits: I believe, however, from the report of others, that a large proportion are of very indifferent sorts; no pains being bestowed in Egypt in selecting and propagating superior varieties of fruit and vegetables: grafting and budding being rarely practised, and thinning out and pruning equally neglected, every advantage that the sunny clime of Egypt would afford to the horticulturist is thrown away. Stone fruit is universally bad; the fruiterers' stalls and the markets are now filled with Peaches, fair to the eye, but small, and very stones for hardness, on one side at least. Most of the Peaches here have a point or projection opposite the stalk, and a somewhat oval form. Apricots are over for the season: all I have seen are extremely small, hard, and tasteless, and are usually gathered before they are quite ripe. In Syria, Apricots are dried in great quantities, and exported to Egypt under the name of Mishmush, where they constitute a most palatable and convenient article of a traveller's commissariat, as, when stewed, they make an excellent dish, soon got ready; the fruit keeps perfectly well in this dry climate, and sufficient for a month's consumption, or longer, can be stowed in a very small compass. Mismush was a principal article in our cuisine during our voyage up the Nile, and from its portability, it is ex-

cellently adapted for desert travelling. Zummer è deen (the moon of the faithful) is the same fruit differently prepared, and is equally known as mishmush, but is very inferior in quality to the former kind. It consists of the pulp of the Apricot rolled out (after drying I should suppose) into thin sheets 2 or 3 feet long, and a foot or two in width; and from its dark colour, and the edges of the sheet being left untrimmed, it resembles nothing so much as a blacksmith's old leather apron; when dressed, however, it is no despicable dish, and in the upper country is the kind of mishmush most usually seen in the markets; we could seldom procure the entire fruit, and when we could it was rarely of the best description. A small round Plum, the size and colour of our Greengage, and (if I recollect right) very like the Yorkshire Wine-sour, is sold in quantities, and though scarcely eatable at dessert, is the only Plum I have seen in the country. A dish of small wretched green Apples and Pears made its appearance for several weeks successively at the dessert at Shepherd's hotel, for ornament only I suppose, as no one could reasonably be expected to partake of them! Figs are good and plentiful; the larger kinds, as the green Ischia, &c., I have never seen in Egypt, and I have eaten Figs from St. John's garden at Ryde fully as saccharine and as well-flavoured as in this country. Pomegranates abound later in the season; I eat them in their perfection last year at Alexandria, Cairo, and up the Nile; but at best, they are an insipid, though refreshing and splendid looking fruit. Bananas succeed well even in Lower Egypt, where I have eaten them as good as in the West Indies; but their cultivation is confined to the gardens of the wealthier class generally, and to the vicinity of the principal towns. Dates of course grow everywhere, and are so emphatically the fruit of the country as to have obtained the name of Iamr, a word which signifies fruit of all kinds in Arabic. This concludes the list of eatable fruits, or such as might be made so at least by proper culture in Egypt; there are others called fruits by courtesy, such as the Prickly Pear (Cactus Opuntia), the Nebr (Zyziphus Spina Christi), and especially that of the Sycomore (Ficus Sycomorus), whose Figs are much in request amongst the common people. In taste as well as in aspect they resemble the common Fig (Ficus Carica), but are vastly inferior in the quantity of saccharine matter they contain. Of the vegetables, esculent and economical, which are grown in the valley of the Nile, I shall give an account at some future time. A bare list of the various productions that line the banks of this ancient stream with, I really believe, not a single mile of interruption in any part of its vast length, would almost fill one of these pages. *Letters of W. A. Bromfield.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Attend carefully to specimen hard wooded plants, which it may be necessary to winter in this house; many of these are impatient of fire heat and a confined atmosphere. Use no more artificial warmth, therefore, than is absolutely necessary, and endeavour to counteract its drying effects either by means of evaporating pans, or by sprinkling the borders, &c., in order to prevent anything like a dry parched state of the atmosphere. It is in many cases difficult to maintain a sufficiently moist atmosphere without causing drip, as the moisture in the house gets condensed upon the glass, and unless provision is made by means of inside gutters and pipes to catch the condensed moisture and carry it off, it is nearly impossible during frosty weather to preserve the beauty of flowers for any length of time; and in cases where there is no provision made against this kind of moisture falling upon the plants, the temperature should be kept as low as may be consistent with safety, avoiding moisture in the atmosphere as far as possible whenever the glass is affected by frost. Plants in cold pits that may have been excluded from light and air for a few days must not be too suddenly uncovered; on the contrary, they should be very gradually inured to exposure. Take advantage, however, of mild days to give air freely and keep the plants very sparingly supplied with water at the root so as to prevent the production of weakly sappy wood. Look frequently over anything subject to the attacks of mildew, apply sulphur the moment this pest makes its appearance, and see that everything is perfectly free from insects. If there is any prospect of a scarcity of bloom next May, a portion of the Achimenes and Gloxinias should be repotted at once and placed in a warm part of the stove, choosing such as have been the longest at rest; and a few Clerodendrons, Allamandas, a plant or two of Echites splendens and Dipladenia crassinoda, may also be started; but unless plants of these are at command with well ripened wood, and that have been some time at rest, there will be nothing gained by attempting to start them into growth at present, for in most cases it is difficult at this season to maintain a sufficiently warm temperature to secure anything like free growth from these unless the plants have been well prepared for an early start. A gentle bottom-heat of about 80° or 85° will be of great service to such things in inducing a healthy root action, and if this can be secured there will be little difficulty about obtaining free vigorous growth. Let Ixoras and all other hard-wooded plants that have made sufficient growth be kept rather dry at the root in order to check their growth, and induce a tendency to form bloom buds; but do not let the soil in the pots get so dry as to affect the foliage.

FORCING DEPARTMENT.

PINERIES.—The supply of ripe fruit from May until August being usually obtained from plants that start into fruit without making growth in spring, a fair proportion of the stock should therefore be in a well matured state by or shortly after this season, and any sudden changes of temperature which might induce too many of them to show fruit at once should be carefully avoided. That portion of the stock expected to furnish the autumn supply of fruit should not be too much checked at present, indeed these may be kept growing slowly all the winter, which is perhaps the most certain method of preventing their fruiting too early in spring. Where the stock of plants likely to fruit without making farther growth is considered insufficient to meet the demand until August, the stronger plants of those for autumn fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for showing fruit in April. Examine the soil occasionally about young stock growing in the open bed, and do not allow it to become unhealthily dry, for this would probably result in a great portion of the stock showing fruit prematurely, and it is also a work of some difficulty properly to moisten the bed if it is once allowed to get too much dried up. Use no more fire-heat for the present than will suffice to maintain the requisite temperature, which, for the general stock, need not be high for some time yet. VINERIES.—As soon as the buds in the early house are fairly started the temperature should be increased to 60° at night and 65° by day, allowing it to rise 10° on bright days. Take every opportunity of admitting a little fresh air, but recollect that the foliage will not bear exposure to cold drying winds, therefore air should be admitted in contact with the heating apparatus, and when it may be necessary to give back air the sashes or ventilators must be opened but very little, and if pieces of netting could be nailed over the openings this would greatly assist in preventing cold currents blowing into the house. Where the border cannot be warmed, see that it is well protected from wet, &c., by a thick covering of dry litter, or whatever more efficient covering can be recommended. Look over ripe Grapes often, removing any decaying berries, and aim at securing a dry atmosphere with the least possible application of fire heat. PEACHES.—Until the trees are fairly on the move do not keep the night temperature higher than from 40° to 45° by means of fire-heat; but an advance of 10° early in the day, with plenty of moisture in the atmosphere, should be secured. Syringe the trees frequently, and secure a thoroughly moist atmosphere. Also see that the inside border is in a moist healthy state, and if this is not the case, two or three applications of tepid water should be given. It is becoming very much the order of the day to have Peach trees and most other things which are wanted for very early forcing in pots; and this plan offers the advantage of being able to afford the roots a mild regular bottom-heat, which is of the greatest importance in early forcing, and excellent crops are thus obtained. But the trees must be prepared for this purpose by having been grown some time in pots; and where these are not at hand, unless they can be purchased from the nurserymen who prepare them, nothing can be done this season except to procure and pot the trees, and prepare them for next year. STRAWBERRIES.—Where ripe fruit is wanted early, a portion of the most promising plants should now be selected and placed in a pit where they can be afforded a gentle bottom-heat; or if this cannot be commanded, a Peach-house or Vinery which has just been closed for forcing will do. They must, however, be kept close to the glass, for they require all the light that can possibly be afforded them at this season, and a free admission of air on mild days, with a low temperature until the fruit is fairly set, and if these conditions can be combined with bottom-heat, success will be more certain than under any other circumstances, and this will be more easily done in a small pit than in a house, the temperature of which must be regulated by other things.

FLOWER GARDEN AND SHRUBBERIES.

If not already done, get all borders neatly trimmed up for the winter; in doing this, places intended for Hollyhocks, Dahlias, &c., next summer should be prepared by deep digging and working in plenty of good rotten manure; there is generally as much time to spare now for that kind of work as at planting time. See that coarse growing plants which may be encroaching upon their weaker neighbours are reduced so as to occupy their proper places. Valuable plants, as variegated Hollies, Rhododendrons, &c., if not growing as freely as it is desirable that they should do, would be benefited by a liberal allowance of rotten manure or well-decayed leaf soil applied as a top-dressing, covering it with a little fine soil, and working it into the ground around the ball towards the extremities of the roots. But Rhododendrons, and what are generally termed American plants, bear removal so well that these where not growing satisfactorily should be taken up, the ground well prepared by a liberal addition of peat or leaf soil, and replanted. Continue to give careful attention to half hardy plants in cold frames, taking advantage of every favourable opportunity to expose them freely to air. Anything of which there is but a spare supply of plants to propagate from should be placed in growing quarters at once, taking care to keep them near the glass and free from insects, mildew, &c., for soft-wooded plants in heat at this season are very subject to the attacks of insects.

HARDY FRUIT AND KITCHEN GARDEN.

Do not let Pears get overripe before being used; also look over the whole stock as often as time can be spared, removing any fruit that exhibit symptoms of decay, and put them aside for immediate use. Any of the choicer varieties of Pears that do not ripen properly in the fruit room should be removed to a warm dry room for a few days which will be found to greatly improve them. Keep all fruit as cool and dry as possible; if frost is excluded from the house, it can scarcely be too cool where the object is to preserve fruit plump and sound as long as possible. Push forward pruning, nailing, tying espalier trees, and such like tedious operations as fast as the weather and circumstances will admit. Get manure wheeled upon vacant ground when the weather is frosty and this can be done without injuring the walks, and get all spare ground turned up as soon as possible, so as to expose it to the action of the weather. For land that has been long cropped with vegetables a dressing of fresh loam would in many cases be preferable to manure, and where this is wanted and can be obtained it should be got to hand, in order that advantage may be taken of frosty days for wheeling it upon the ground. Where fresh soil cannot be obtained, charred vegetable refuse, such as prunings of shrubberies, edgings of walks, and many things which turn up in course of the season, may be cheaply made to form an excellent substitute.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Dec. 18, 1856, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 12	15	29.318	28.955	54	39	46.5	48	47	S.	.44
Satur. 13	16	29.093	28.834	49	39	44.0	48	47	S.W.	.02
Sunday 14	17	29.922	29.412	47	31	39.0	47	47	N.W.	.01
Mon. 15	18	30.465	30.232	42	21	31.5	44	46½	N.	.00
Tues. 16	19	30.540	30.535	39	20	29.5	42	44	N.	.00
Wed. 17	20	30.435	30.120	44	31	37.5	44	42	N.W.	.00
Thurs. 18	21	30.198	29.832	48	32	40.0	44	43	S.W.	.07
Average		29.981	29.701	46.1	30.4	38.3	45.3	45.2		.54

Dec. 12—Clear; very fine; overcast; cloudy; rain.
— 13—Rain; cloudy; fine; barometer very low.
— 14—Slight rain; cloudy and fine; sudden rise of barometer.
— 15—Clear and fine; frosty at night.
— 16—Sharp frost; clear; frosty and foggy.
— 17—Sharp frost; foggy throughout.
— 18—Hazy and drizzly; rain; densely overcast.
Mean temperature of the week 2¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 30 years, for the ensuing week, ending Dec. 27, 1856.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	43.0	33.1	38.0	11	0.20 in.	—	7	3	1	2	11	3	3
Mon. 22	44.8	32.8	38.8	16	0.37	3	5	3	1	2	8	5	3
Tues. 23	43.8	32.2	38.0	16	1.13	4	7	2	2	1	9	1	4
Wed. 24	43.6	32.1	37.8	12	0.30	3	4	3	2	1	12	1	4
Thurs. 25	43.3	29.0	36.2	7	0.22	2	6	3	—	2	8	6	3
Friday 26	43.1	32.2	37.6	11	0.39	1	4	3	4	4	9	2	3
Satur. 27	42.8	30.2	36.5	11	0.40	4	4	1	—	5	7	6	3

The highest temperature during the above period occurred on the 25th, 1827—therm. 58 deg.; and the lowest on the 22d, 1855—therm. 9 deg.

Notices to Correspondents.

BOOKS: *G R.* Sweet's, Donn's, and Loudon's Catalogues of Plants have all great merit.—*B.* Hoare, Saunders, and Roberts on the Vine are all useful works on that subject.‡

GRAFTING WAX: *Sub.* Take four proportions by weight of pitch, four of resin, two of bees'-wax, one of hog's lard, and one of turpentine, and melt and mix them well; spread it on brown paper, which, when cut into slips, can be easily applied. We however prefer grafting clay.‡

JOYCE'S STOVE: *J Wason.* For some purposes this is useful: but it deteriorates the air and dries it so much that some precautions are necessary. It ought only to be employed for a few hours at a time, and plants should be well syringed afterwards. As to the quantity of fuel which any stove consumes, everything depends upon management. We have one of Joyce's stoves in occasional use, but not for plants.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*F & A D & Sons.* Poinciana pulcherrima.

SEEDS: *J H.* All kinds of seeds which are useful in England are worth taking with you to Australia; first class vegetable seeds especially you will find there particularly serviceable.‡

THERMOMETERS: *Glacialis.* Six's thermometer consists of a bent tube, containing spirits of wine and mercury. The central leg of the tube ascends, then turns to the left, then downwards, turning to the right at bottom and then upwards, like the letter U. The central portion of the tube is wide compared with the other, and contains spirits of wine, which fluid likewise extends down the left leg till it meets with the mercury, which occupies the lower portion of both legs. Now, according to this arrangement, supposing the temperature is 32°, if it should get warmer, the spirits of wine will expand and force the mercury down in the left leg, and of course it must then rise in the right; and in doing so it pushes up a steel index, which remains at the highest point till drawn down by a magnet. This index marks the highest temperature for the day. As the night gets colder, the spirits of wine contracts and allows the mercury to rise in the left leg, pushing an index upwards till it reach the minimum, where it leaves the index to mark that point. When well constructed this kind of thermometer acts very well, but the index is sometimes apt to slip down; and although the instrument is more elegant in appearance it is not on the whole so truthful as are the registering thermometers made on Rutherford's principle. These depend on the simple action of one fluid in a tube; in Six's the compound action of two fluids enters into the principle.‖

WEEDS ON WALKS: *H R.* Mr. Fleming, of Trentham, kills them with boiling salt and water delivered from a portable boiler. In general, however, labour is the best remedy. If, indeed, you disregard colour, and will accustom yourself to black walks, then you may kill weeds permanently by painting the ground when dry with hot gas tar.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

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PATENT WOOL MANURE COMPANY (LIMITED).—Wool Manure for Corn, 7*l.* 10*s.*; Turnips, 6*l.*; delivered to any Railway Station or Wharf in London. Applications for Agency from influential persons attending Provincial Markets to be forwarded to Mr. C. H. TIDBURY, Secretary, Gracechurch Street, London.

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1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
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PRIZE HORSES AND NEAT CATTLE.—No Animal can be highly fed for a continuance without producing disease of some kind, unless the ill effect is counteracted by Medicine, and the safest and best for this purpose is
CUPISS'S CONSTITUTION BALLS.
The excellent condition of the Cart Horse which obtained the First Prize at the Royal Agricultural Society's Exhibition at Norwich, in 1849, the proprietor informed Mr. Cupiss, was mainly attributable to the frequent use of the Constitution Balls. Mr. Nunn, Secretary to the Diss Farmers' Club, obtained the first prize at this local Show, for the best fat bullock, and he writes, "the Constitution Balls were a most valuable assistance in getting my bullock in high condition;" and he further adds, "I found with continued high feeding the animal frequently became glutted, when upon giving him a dose of your Balls his appetite was restored, his spirits enlivened, while his appearance rapidly improved, and I am satisfied without the use of the Balls I could not have got my bullock into such prime condition, in so short a time."
The Constitution Balls are prepared only by FRANCIS CUPISS, M.R.C.V.S. Author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the horse whilst taking them. Also a Pamphlet of Testimonials from many Gentlemen who have used the Balls in various complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

MR. DONNE'S DORKINGS & BUFF COCHINS.—The Rev. STEPHEN DONNE has Dorking Chickens and a few Adult Hens to dispose of, bred from the Birds which have won the Silver Cups at Birmingham, Liverpool, and Windsor. Also, Eggs from the best Dorkings and Cochins will be ready shortly. The above Dorking Chickens are the Brothers and Sisters of the Birds which have won the Silver Cup, and the Second Prize at Birmingham at the last Show; and the EGGS will be from the parents of these Birds.—Oswestry, Dec. 20.

LIVERPOOL GRAND POULTRY SHOW.—The FOURTH ANNUAL EXHIBITION OF POULTRY will be held at Messrs. LUCAS & Co.'s Carriage Repository, Great Charlotte Street, Liverpool, on WEDNESDAY, THURSDAY, and FRIDAY, the 28th, 29th, and 30th of January, 1857. Managing Committee—Joseph Hindson, Esq.; Henry Lafone, Esq.; Lawrence Peel, Esq.; Henry Worrall, Esq. Hon. Secretaries—Gilbert W. Moss, Esq.; William C. Worrall, Esq. Sixteen Silver Cups or Pieces of Plate, in addition to liberal money prizes, will be offered for competition. Entries close on the 10th January.—6, Lower Castle Street.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is now ready, and can be had from the Booksellers or from the Proprietors in exchange for seven postage stamps.*
A BOUND EDITION *has also been prepared this season, which will be sent free for* 18 *postage stamps. Application to be made to*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

The Agricultural Gazette.

SATURDAY, DECEMBER 20, 1856.

THE supplement to those tables already published on Scottish Agriculture, which indicated the acreage of the several crops this year, has at length appeared: and the average produce per acre for every district in the country as determined by local Agricultural Committees being applied to the acreage of each crop in those districts respectively, we have the total agricultural produce of Scotland for the year 1856. In the following table the figures for the current year are compared with those of 1854 and '55, and it will be seen what a rapid and continuous advance has annually been made in the produce of the Wheat crop. This and the diminished growth of Potatoes are the principal points deserving notice in this year's returns. In neither case, however, is the whole truth told. The seven million bushels of Wheat of 1856 are not worth so much for food as the five millions grown last year; and the 400,000 tons of Potatoes, though existing at the date of the inquiry, were then in a rotting state, and have since no doubt diminished in quantity from this cause. This year's crop is therefore of less value intrinsically as well as in the market than that of 1855:—

AGRICULTURAL PRODUCE OF SCOTLAND.

Year.	Wheat.	Barley and Bere.	Oats.	Beans and Peas.	Turnips.	Potatoes
	Bushels	Bushels.	Bushels.	Bushels	Tons.	Tons.
1856 ...	7,270,952	6,083,076	31,966,381	1,279,440	6,540,267	413,890
1855 ..	5,063,074	6,649,927	30,081,351	1,183,647	6,461,988	732,170
1854 ...	1,848,679	8,290,746	34,093,040	1,081,263	5,411,419	529,915

Mr. HALL MAXWELL continues to report the frank and cordial manner in which Scottish agriculturists have furthered this statistical inquiry. "It is my pleasing duty," he says, "to inform my Lords that the returns continue to be freely and voluntarily made by the agricultural community. Instances there are, no doubt, of opponents who plead the objections so frequently heard in England; but such cases are singular. The farmers of Scotland have practically satisfied themselves that the inquiry is in no respect inquisitorial, and that it cannot possibly divulge or compromise individual interests. They appreciate with intelligence the importance of statistical information, and they would rejoice could the inquiry be systematically extended over the three countries, believing that its results are comparatively valueless so long as its operation is partial."

THE *Times* informs us of the failure of an expedition fitted out at Aden for working the guano to be found on the Kuria Muria Islands. Captain ORD and his party were forcibly hindered by the Arabs from prosecuting their object, which was to collect guano from such of the islands as had been ceded to her Majesty by the Imaum of Muscat. He was immediately and in the most peremptory and insulting manner ordered to quit the islands within one hour. The islands, it was averred, were never a dependency of the Imaum, but belonged to a chief who resided at Marbat, on the mainland adjacent, without whose authority no person had any right to set foot on his territory.

It is to be regretted that this scheme has for the present failed, but if the same energy is brought to bear upon it again, and adequate protection supplied either by her Majesty or the Indian Government, there seems every probability of its eventual success.

IT is a compliment to Mr. CAIRD's agricultural foresight and intelligence that the very words which many years ago he used in reference to that part of the agreement between landlord and tenant which determines the course of cropping permitted to the latter, should have been adopted by the London Farmers' Club in their recent resolution on the subject of crop rotations. This resolution states, as Mr. CAIRD had written long ago, that "the landlord who continues to bind his tenant down to a prescribed routine from which he must not under a penalty deviate inflicts upon him a very serious injury without any corresponding advantage."

These words were quoted by Mr. THOMAS at the close of his paper on this subject as the result to which his past experience and his present argument had led, and they were adopted by the Club after a full discussion of all the points involved—to which landlords, farmers, and land-agents had all contributed. In this discussion the danger of too great liberty as well as the injuries arising from excessive stringency of rule had been fully insisted on, and not only the general principles which should influence the relationship of the owner and the occupier of the land, but the details of every separate point in which these principles would have to be developed were fully represented. On the one hand, it was justly argued that the particular routine of practice which was undoubtedly a great improvement on the cultivation of a century ago, and might most properly have been made the rule of agricultural improvement then, was not necessarily an improvement on farm practice now, and could not properly be made the rule of agricultural routine at a time when much fuller knowledge exists of the causes of fertility, and when much more abundant means for the maintenance and increase of that fertility are at our command. And, on the other hand, the several particulars in which our ordinary rotations, as generally prescribed in leases, are at fault were examined and exhibited

The alternate system of cropping as shown in the four-years' course is a vast improvement on the—(1) Wheat, (2) Oats, (3) fallow, which was common long ago, but we have long learned that the Clover which it prescribes every fourth year cannot be grown every fourth year, and that the Turnips, which came round as often, often fail. We have learned, too, that in those cases where this crop succeeds, as latterly by the aid of bone-dust and superphosphate it has been made to yield, there has followed on its consumption by sheep upon the land such a growth of straw in the succeeding Barley crop, that the earliest rains have laid it, spoiled the sample of the grain, and killed the Clover lying under it. Hardly any more unfortunate agricultural dilemma can exist than the light land farmer on the Norfolk course of cropping thus encounters. Probably he fails in getting Clover and in getting Turnip, and then of course he fails of getting corn; possibly he succeeds in getting Turnips; and then his Barley falls, spoiling the grain which it yields, and killing the Clover which it covers.

The remedy generally adopted for this unfortunate predicament is to make the four-years' course one of six or even eight years' duration: in the latter case, as regards the Barley crop, laying down only half the extent with Clover seeds, taking Beans or Peas upon the other half; and as regards the Wheat crop breaking up only half its stubble for the Turnip crop, and putting in Mangel Wurzel on the other half. The crops then come round thus:—(1), Wheat; (2), Swedes or common Turnips; (3), Barley; (4), Clover; (5), Wheat; (6), Mangel Wurzel; (7), Barley; (8), Beans or Peas; and every green crop thus is taken at eight-year intervals. The fault, however, pointed out by Mr. THOMAS as regards the Barley crop after Swedes or Turnips eaten on the land remains in full force. A luxuriant growth falls, and a good malting Barley becomes impossible. And Mr. THOMAS's plan of remedying the Norfolk course by taking Wheat after Turnips, and Barley laid down with seeds after Wheat, is the great innovation on the alternate system sanctioned by the resolution of the London Farmers' Club.

Mr. BAKER, of Writtle, a land-agent as well as a farmer, seems to have sanctioned some such plan as this in agreements which he has recently drawn up, for he told us that by these agreements he had enabled tenants to take a second corn crop in any

case where 30*s.* worth of guano was applied along with it per acre: and there seems no reason why, provided fertility be in this or any other way preserved, any crop which the farmer grows should not be taken on any field whatever which he occupies.

It is well, we think, to call the attention especially of Scottish farmers, who even more than English agriculturists are bound down to a prescribed rotation of cropping, to a resolution affirming the advantage to all parties of more liberty in this matter, agreed to by a meeting comprising Lord BERNERS and other English landowners, along with a large and influential body of English farmers.

It may be well, no doubt, for a while to bind down ignorance to a routine prescribed by greater knowledge; but after the lapse of years the knowledge which prescribes it itself is ignorance in comparison with the discoveries which have since been made: and the rule proper for a time when (1) Oats, (2) Oats, (3) Oats, followed by natural Grasses for as many years, was the custom cannot properly apply to the present, when chemists have answered the question—What is fertility? and when commerce has furnished the means of its artificial maintenance.

Home Correspondence.

The Cottage of the Working Man.—The extensive circulation of the *Gazette* throughout the United Kingdom offers a valuable channel for the publication of suggestions having for their o ject the welfare of the working classes. It is quite impossible in either one or two communications to embrace all the points connected with the imperfect dwellings of labourers, artisans, and poor travellers, particularly as the space allotted to correspondents is necessarily limited in a paper having so many claims upon its columns. Nevertheless a few words may induce inquiry and exertions, and lead to a change in what all must deplore. The disgraceful state of the lower class houses in towns and villages entails so many miseries on the inhabitants which may escape the knowledge of those who live in comfort and are exempt from such trials, that it may be an advantage to all parties—those who would thankfully receive and those who would willingly perform kind offices—to enter rather more fully into detail. Education is a most comprehensive term—instruction should be carried much further than the mere mechanical operation of reading and writing. The ideas of adults and children ought to be guided in the proper direction, teaching them to feel their position towards their Maker and their neighbours, giving them a taste for useful employment and a hatred of idleness, thus preparing youth to value character above all things, sowing the seed of truthfulness and honesty, and inculcating a proper distinction between right and wrong. In cases of sickness so prevalent in ill-ventilated and crowded rooms, where the vitiated atmosphere is the cause of disease, producing fever, diarrhœa, consumption, &c., the sufferings of the poor are terrible. It does not require any stretch of imagination to picture the distress of an unfortunate member of a family, prostrate from some infectious ailment, lying on the only bed in his possession, his complaint aggravated by the presence of his wife and children, who are obliged to remain in the same room, without the conveniences so requisite to insure cleanliness and common decency; what must be the feelings of those who hourly witness the anguish and destitution of a father, mother, wife, or child, unable to afford relief by changing the fœtid, suffocating, noisy room for one at least free from the intrusion of others, and where comparatively fresh air and more humanising comforts might be enjoyed? In vain does physician prescribe, medicine is not so much wanted as the pure breezes of heaven, wholesome food, quiet and freedom from dirt, not any one of which can be obtained in the confined and disgraceful cellars and garrets crammed with human beings, whose very natures become demoralised. Under such an accumulation of horrors what prospect has the minister of religion of making any impression, since the most zealous man would be deterred from labouring in so hopeless a field, no energy or exertion can overcome the habitual profligacy of many years' standing, interrupted as a clergyman must be by every conceivable abomination. Under such disadvantages any attempt to improve either body or mind will end in disappointment, and man is reluctantly compelled to leave his fellow-man in a position inferior to the animals which we keep for pleasure and use. The true prosperity of a country depends upon its religious, moral, and social condition being in a wholesome state; each class contented and enjoying freedom and protection, labouring in their vocation not only for their own benefit, but cheerfully assisting in the preservation and observance of laws and institutions so requisite to insure the greatest amount of happiness to a people. England, though blessed above all other countries, does not pay sufficient attention to the instruction of the youth of both sexes. The immorality amongst high, low, rich, and poor, is frightful, and may be attributed, in a great measure, to the apparent ignorance of the great truth—that the Eye of their Maker, which neither slumbereth nor sleepeth, is always upon them. *Falcon.*

Keeping Mangel Wurzel.—I am sorry that I have been too much engaged to reply to the inquiries of "A Grower" respecting Mangel Wurzel before. I stow my Mangel Wurzle in the usual way, about four or five feet at the base, and then packed up to a point and well turfed over, leaving chimneys of straw about every 6 feet. In the spring I open the stacks at both ends, first for immediate use, and the other if "sprouting" to have them turned over, the sprouts rubbed off, and some soil again thrown over them to keep them moist. After the end of May I merely keep a sufficiency for my pigs through the summer months, and find very few rot till the end of August when the stubbles come in for the pigs. I last year and the year before had (merely from curiosity) a few bushels put in a heap and again covered with soil, to see how long they really would keep. Last year they were most of them sound till near Christmas. The Orange Globe keeps rather better than the Long Red. Mangel Wurzels are such gross feeders that I have never attempted to grow any without farm-yard manure; two cwt. of salt per acre, and superphosphate at discretion, I would recommend in addition. I have this year grown some very respectable roots, on soil so near the slate bank that it is impossible to pitch hurdles on it. *S. P.*

Pig Feeding.—I have turned my attention to this branch of farming, and, as you signify in your last week's Paper that some statistics on the subject would not be unacceptable, I shall be happy if my experience can be of service. I breed all my own pigs. The sows are of the improved Essex breed, commonly known as Mr. Fisher Hobbs's; the boars principally of Mr. Northey's breed, which he called the improved Leicester, and which with the same prime quality are rather larger than the short Essex sort. I have accommodation for 57 feeding, 19 pens of 3. They require one responsible man, a woman and a boy to attend, to bed them, to scrape and steam the Swedes, to feed them, and throw out the dung. This latter is done every Friday, when I find that each pen contains a one-horse load of very rich dung. My steaming apparatus is very simple, but most effective; thanks to Mr. Mechi's recommendation in your columns of Mr. C. W. Williams's book on the "Combustion of Coal," &c., I can steam 1 ton per day of Swedes with less than 50 lbs. of coal and a little wood. Owing to climate our corn is not of first-rate quality, but we make up in quantity by sowing an equal mixture of Barley and Oats, which we call dredge-corn. This crop is also better suited to our land, which presents two or three different characters in every field, from stiff clay to light Barley soil. The expense of grinding is met by the miller's customary toll of 4 lbs. to the bushel. This covers waste and carriage. For the Dr. and Cr. account below, I have taken an average pen of 3 pigs for the sake of conciseness:—

DR. ACCOUNT.	£	s.	d.
3 pigs put up to feed Nov. 1, 1855, estimated market value	9	0	0
4 qrs. of dredge-corn, at 30*s.*	6	0	0
4 tons Swedes, at 13*s.*	2	12	0
Fuel for steaming do.	0	3	4
Attendance 16 weeks	0	16	0
24 cwt. of straw ...	1	4	0
Expense of feeding	£19	15	4

CR. ACCOUNT.	£	s.	d.
59½ stone of pork sold on the spot to higgler, at 6*s.* 8½*d.* ...	19	19	1¾
16 loads of dung, at 2*s.* 6*d.*	2	0	0
3 pigs' bellies ...	0	3	0
Gross return	£22	2	1¾
Deduct profit on 3 pigs	2	6	9¾
	£19	15	4

Thus I calculate if I can clear the dung, it is as much as I can do after making the market value of my own farm produce at home. I cannot give any estimate of the expense of rearing pigs to a proper age for feeding, unless the old saying is true, that it costs 11*d.* per week to make a store pig gain 1*s.* *Walter T. Bullock, Hegadon, Holsworthy, Devon.*

Reaping Machines.—My last letter appeared hard upon the present reaping machines, and hence it might be supposed I condemned the attempt to introduce a reaping mechanism, in lieu of the unassisted scythe, altogether; such was not my intention, I consider the desire to substitute the former for the latter as a step in the right direction. Your readers will have observed I make a wide distinction between a transaction with a live plant and with dead material; now Wheat when ripe comes under the law of dead material, and is to be dealt with by inanimate mechanism accordingly. I termed the present contrivance unphilosophical because it is fixed, or permanent and expensive; and uneconomical, because it does in no wise abridge the after labours of carting and threshing. In this letter I can only point to what I shall consider the perfection of harvesting our Wheat crop, viz., by "topping" it (when standing in the field), so as not to get on the average more than 12 inches of straw with the ear, thereby saving the labour of carting, stacking, and threshing. I shall be asked what "condition" is necessary to be fulfilled by the farmer that so great an end may be attained. To which I answer, the sole condition required of him is that the crop be maintained in an erect position, and then labourers (mechanically assisted) shall "top" an acre of Wheat with the same certainty as they can now top an acre of "hedgerows." But to enable a farmer to maintain his Wheat in the field in an upright position by artificial or natural means, he must divide his fields into small allotments—which proposal for the subdivision of fields into parts is the very basis of operation on which my circular system of tilling land depends for its success. The question will be asked "Would it pay to maintain the Wheat crop in an erect position?" Ask the Messrs. Hardy whether they consider it would pay them after all their toil and expense to allow their precious seeds to go down just before maturation! Ask any seed-grower. [Will Mr. Burcham tell us how it can be done!] When studying field practice I several times maintained half an acre of Wheat in an erect position, when all around it went down and became laid through neglect; and I also "topped" and secured a number of square yards of the ears of this Wheat, quite sufficient to prove that, with the aid of my general tillage machine and circular method of cultivation, harvesting the "staff of life" could be rendered both safe and certain. I had a model in the Exhibition of 1851, and a reporter in describing the corn-cutting apparatus, facetiously termed it as "a number of scissors, evidently intended for cutting corn." Now he might have used the more high-sounding word "shears," and it would have been correct. With 4840 strokes of a very cheap and durable mechanism, the "strokes" divided among a limited number of men, according to my calculation and experience in the field, we could cut and cart straight away to a storehouse an acre of Wheat in a period of time so short that I dare not now name it. But would a little more care or expense pay? My answer to this is let your readers again peruse that capital letter of "A Landlord" in the *North British Agriculturist*, given us in the *Gazette*. See what a labour our present harvesting Wheat is—cutting, collecting, band-making, tying, stooking, pitching, binding, carting; unbinding, unpitching; stacking, thatching; unthatching, unstacking, unbinding, threshing straw rather than corn, restacking straw! If nearly all these labours could be avoided by adopting the simple expedient of maintaining the Wheat plant in an erect position (so that it might be decapitated), is there not sufficient inducement? I know I shall be charged with aiming at a perfection in harvesting Wheat such as can never be attained, but time will show who is right and who wrong in this as in many other matters of the field. *C. Burcham, London.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *Dec.* 10.—Mr. EVELYN DENISON, M.P., President, in the chair. Communications were received: from Mr. King, of 25, Albany Street, Regent's Park, on Wine made from the Australian Vineyards, with samples of his different vintages; from Mr. Reeve, of Randall's Farm, Leatherhead, a statement of the advantages to be derived from prizes especially offered for dairy stock; and from Mr. Ferryman, on the peculiarities of his Lever-Churn.

SPECIAL COUNCIL, *Dec.* 10.—Mr. Evelyn Denison, M.P., President, in the chair; for the purposes of receiving the Judges' report on the trials of the steam-cultivators, and of appointing the General Committees for the ensuing year.

SPECIAL COUNCIL, *Dec.* 11.—Mr. Evelyn Denison, M.P., President, in the chair; for the purpose of receiving from the Implement Committee and Live Stock Committee their respective recommendations of Prizes to be offered by the Society for the country meeting of next year.

AUDIT OF ACCOUNTS, *Dec.* 12.—Mr. Raymond Barker, V.P., in the chair, Colonel Challoner, Mr. George Raymond Barker, and Mr. Dyer. The accounts were examined, audited, and certified as correct.

SPECIAL COUNCIL, *Dec.* 12.—Colonel Challoner, Trustee, in the chair. On the motion of Mr. Raymond Barker, seconded by Mr. Wren Hoskyns, the Report to be made by the Council to the ensuing general meeting, was taken into consideration and agreed to.

GENERAL MEETING, *Dec.* 13.—Mr. Raymond Barker, V.P., in the chair. The Secretary read the following report from the Council:—

REPORT.

The Society consists at the present time of
85 Life-Governors,
137 Annual Governors,
862 Life-Members,
3917 Annual Members, and
19 Honorary Members;
making a total of 5020 Members, or an increase of 41 names on the list of the Society since the last half-yearly meeting.

The Council have elected the Earl of Powis and Mr. Edward Pope to supply the vacancies respectively occasioned in the Council by the transfer of Mr. Evelyn Denison, M.P., to the class of Trustees, and the lamented decease of Mr. Hampden Turner.

The Funded Capital of the Society stands at the same amount as reported at the last general meeting, namely, at 9264*l.* 8*s.* 11*d.* in the New Three per Cent. Consolidated Stock.

The following Prize-Schedule for the Essays and Reports of next year, to be sent to the Secretary by the 1st of March, and to be subject to the usual conditions of competition, has been adopted:—

	£	s.	d.
1. The results of microscopic observation applied to the vegetable physiology of agriculture ...	50	0	0
2. The best mode of levelling ridge and furrow pasture land after drainage	20	0	0
3. The permanent amelioration of soils by admixture with others	20	0	0
4. Destruction of vermin infesting the homestead and stackyard	10	0	0
5. The comparative advantages of entering upon farms in spring and autumn, together with instructions to the young farmer on his entry at either season	20	0	0
6. The results of drilling Wheat or Barley at different distances with the same quantities of seed; and also with varied quantities of seed per acre	10	0	0
7. Any other agricultural subject	10	0	0
8. On the comparative advantages of sowing Beans in spring and autumn	10	0	0
9. On the early or late sowing of root crops. ...	10	0	0

Professor Way, the Consulting Chemist to the Society, has delivered to the Members a second time his lecture on the chemical composition of the waters of land drainage, for the purpose of detailing the further progress of his researches on that subject; and the Council have adopted a new scale of charges to be made to those Members of the Society that may avail themselves of their privilege of consulting him, or obtaining from his laboratory chemical analyses at reduced rates. Prof.

Simonds, the Veterinary Inspector of the Society, has delivered the concluding portion of his lecture on destructive parasites attacking the internal organs of the body in the case of different domesticated animals.

The Country Meeting at Chelmsford has proved eminently successful in carrying out the objects of the Society, although the expenses incurred have entailed a heavy charge on its general funds. The interest attached to the exhibition of live stock, on that occasion, was increased by the great number of horses shown for the Local Committee's Special Prizes, and the select Specimens of Foreign Stock sent over to the meeting at great expense by the French Government, as a token of their friendly regard towards the Society and its national objects. The implements gave evidence of distinct improvement in their simplicity and efficiency; and the trials in the field, as well as the public working of machinery in the show-yard, were witnessed with deep interest by a numerous concourse of spectators. The reaping machines and steam cultivators were reserved for subsequent trial; and the Council have voted to Mr. Fisher Hobbs their best acknowledgments of the kind manner in which he offered his land for the purposes of that trial, which took place in August last; for the liberality in which he placed men and horses at the disposal of the Stewards and Judges for working the machinery; and for the facilities he so readily afforded for rendering the trial satisfactory to all parties. The Judges have made a special report to the Council on the trials made by them on the steam-tillage apparatus respectively of Mr. Smith and Mr. Fowler, competing for the Society's undivided prize of 500*l.* for the steam-cultivator that should in the most efficient manner turn over the soil and be an economical substitute for the plough or the spade. This report will be published for the information of the members in the ensuing part of the Journal; in the meantime, the Council have the satisfaction of stating, that although the conditions included in the terms of the prize have not been fulfilled by either of these inventions, Mr. Fowler has made considerable progress, by his application of steam-power to the operation of ploughing, towards the probable attainment eventually of the great object of a more economical tillage of the soil. The Council, in carrying out the arrangement for the Chelmsford Meeting, received the cordial and efficient co-operation of the Local Committe; and on that occasion, as on so many former ones, the Society were essentially under obligation to the different Railway Companies of the kingdom for the liberality of their concessions to the exhibitors, and the facilities they afforded in the transit of live-stock and implements to and from the Meeting.

The Country Meeting of next year will be held in the week commencing Monday, the 20th of July; and the authorities of Salisbury have already placed the land for the trial of implements under a due course of preparation. The Council have decided upon the following schedules of the Prizes to be offered by the Society for Implements and Live Stock at that meeting, subject to such terms and conditions of competition as the Council at their February Meeting may think it necessary to adopt.

I. IMPLEMENTS.

	£.	s.	d.
Class of Drills	30	0	0
" Manure Distributors (liquid or other)	20	0	0
" Horse-hoes	10	0	0
" Hay Machines...	10	0	0
" Reaping Machines	20	0	0
" Mowing Machines	20	0	0
" Horse-rakes	10	0	0
" Carts	10	0	0
" Waggons...	10	0	0
" Carts of special construction, with specifications	15	0	0
Steam Cultivator	500	0	0
	£655	0	0

II. LIVE STOCK.

	£	s.	d.
Shorthorn Cattle	170	0	0
Hereford Cattle	170	0	0
Devon Cattle	170	0	0
Channel Islands' Cattle	30	0	0
Cattle of other established breeds	45	0	0
Agricultural Horses	130	0	0
Dray Horses	40	0	0
Thoroughbred, Hunting, and Hackney Horses	105	0	0
Leicester Sheep	110	0	0
Long-woolled Sheep (not Leicesters) ...	110	0	0
Southdown Sheep	110	0	0
Short-woolled Sheep (not Southdowns) ...	110	0	0
Pigs	75	0	0
Farm Poultry	125	0	0
	£1500	0	0

The Council continue to be favoured by the Earl of Clarendon with successive reports received at the Foreign Office from countries abroad, in reference to the occurrence of manuring matter in different parts of the world, and to the progress of disease among cattle.

The vigorous prosecution of agricultural research in every department of husbandry, and the more definite application of scientific reasoning to the elucidation of every branch of practical detail, as well as the gradual establishment of general principles, are circumstances which constitute at the present day a still greater necessity for that division of labour which the local societies throughout the kingdom on the one hand are so competent to execute, and that unity of action on the other which can only be given by a great central body like the Royal Agricultural Society of England, which is at once the representative of the individual interests of the farming community, and the ready means by which their united energies may be most effectively brought into action for the purpose of gaining any given practical object. The increase of its members, and the estimation in which its labours are held, afford strong grounds of hope to the Council that its usefulness may continue unimpaired, and its advantages become more widely distributed by a still further co-operation of the farmers of the country in the promotion of its national objects.

By order of the Council,
JAMES HUDSON, Secretary.

By direction of the Chairman he also read the following communication received at the Foreign Office, and transmitted to the Secretary by the instructions of the Earl of Clarendon :—

"Consulate of Pernambuco, Pernambuco, Nov. 18, 1856.

My Lord,—I have much satisfaction in informing your lordship that having prosecuted my researches according to your instructions of the 14th May, 1855, I have at length succeeded in discovering the existence of nitrates in large quantities within this empire. The gentleman who has assisted me in this service writes to inform me that he has traversed the mountains N.W. of Ipu for 60 miles, and finds that the stratum of carbonate of soda extends the whole distance and in any quantities; your lordship will remember that I have already sent specimens of this mineral, which Professor Way analysed, and the President of the Agricultural Society pronounced to be of immense importance to commerce. To the west of Ipu he discovered the nitrates of which I transmit specimens, and also of the earth in which they were found; the formation has extended as far as Mr. Lowden's search, which is about 15 or 20 miles. Alum, of which I also forward specimens, abounds in the neighbourhood. Gold is very abundant, both in quartz and in the streams, particularly the Luré. I forward a small sample. From Lapa to St. Antonio the ground is covered with hematite or red iron ore, and the mountain range of S. Icão appears to be composed of it: I forward specimens and some pyrites which appear full of metal. I will forward your lordship a small map of the country by the next opportunity, with some suggestions respecting the formation of a port at Camoci for the export of these various productions; and as I naturally feel the liveliest interest in this wonderful region, the metallic riches of which I discovered, perhaps your lordship would permit me personally to continue its survey, as it altogether lies within the district of my Consulate.

"I have the honour to be, &c.,
(Signed) "H. AUGUSTUS COWPER."

"To the Right Hon. the Earl of Clarendon, K.G."

On the motion of M. de Trehonnais, seconded by Mr. Fisher Hobbs, the best thanks of the Society were voted to the Earl of Clarendon.

Mr. Raymond Barker, as Chairman of the Finance Committee, laid before the meeting the balance-sheet of the auditors, and also the country meeting balance-sheet of the Chelmsford Account.

On the motion of Mr. Druce, seconded by Prof. Simonds, thanks were voted to the auditors, Mr. George Raymond Barker and Mr. Dyer, for their kindness in auditing the accounts of the Society. Those gentlemen, with the addition of Mr. Astbury (in the place of Mr. Knight, whose continued indisposition obliged him unwillingly to relinquish the duties of the office), were appointed auditors for the year ensuing.

On the motion of Mr. Astbury, seconded by Mr. Burness, the thanks of the Society were voted to Prof. Simonds and Prof. Way for the lectures delivered by them before the members. Prof. Simonds returned thanks.

Mr. Corbet and Mr. Fisher Hobbs expressed a hope that the December General Meeting might in future be held earlier in the week of the Smithfield Club Show.

On the motion of Mr. Etwall, seconded by Mr. Jonathan Gray, and supported by M. de Trehonnais, the cordial acknowledgments of the meeting were voted to the Chairman for the kindness and impartiality with which he had presided over it on that occasion.

The meetings of the Council stand adjourned over the Christmas recess to the 4th of February.

[We very deeply regret to learn that Professor Way is suffering from an illness brought on during the discharge of his duties as chemist of the Society. We understand that during some mineral research he has suffered from the injurious effect of mercury.]

SOCIETY OF ARTS, *Dec.* 10: *Utilisation of Sewage.*—A very interesting discussion ensued on the reading of Mr. Cooke's paper on this subject, and we make the following extracts from the report of it in the Society's Journal.

Dr. Lyon Playfair (the Chairman) said—When they recollected that the whole system of vegetable and animal life depended one upon the other—that vegetables lived upon carbonic acid, water, ammonia, and certain mineral substances—that these afforded food to animals during life, and were again resolved, by the effete matter during life and decay after death, into the same substances, viz, carbonic acid, water, and ammonia, it was not, he thought, a wise policy on the part of the metropolis to send away all that matter to feed sea-gulls and sea-lions, in order that it might be brought back again from Ichaboe in the form of guano. Instead of this general and wasteful distribution of our treasures throughout the world, it would be far better to use them economically and productively at home. He would mention one philosophical fact. The effete matter of a population was of all things just the thing to supply as manure for the growth of the food of that population. The Irish fed very much upon Potatoes, and Potatoes grew well in Ireland, because the effete matter of the Potato feeder was exactly suited for the growth of that crop; and, in like manner, the population of the metropolis of this country would be best provided with food suited to it by the application of the sewage of the metropolis to the land. The 12,000 tons of nitrogen consumed in the food of its inhabitants was capable of being applied to the growth of a similar representative of food if we followed Nature's teachings. He was in the first instance surprised at the statement that the inhabitants of London, in maintaining their vitality, consumed about 12,000 tons of nitrogen annually; but, ignorant of the mode of arriving at this result by Mr. Cooke he had made the calculation on his own data, and came to the result of 11,768 tons, which was very near the amount stated in the paper.

Mr. J. B. Lawes said, that he read before this Society, about two years ago, a paper upon the sewage of London, in which he expressed an opinion that it would not be possible, by any process hitherto discovered, to manufacture a solid manure from sewage, which should be remunerative both to the manufacturer and to the agriculturist.

This subject was very fully entered into at that time. Indeed, the interest taken in it was so great, that the Council of the Society was kind enough to devote an extra night to the discussion. Mr. Wicksteed's pamphlet was then before the public, in which he endeavoured to show that a profit of 22 per cent. could be obtained upon a capital of one million, by applying to the sewage of London that process which had since been carried out at Leicester, and described this evening by Mr. Cooke. Mr. Wicksteed considered that his solid manure would sell for 2*l.* to 2*l.* 13*s.* per ton. It was, however, argued by him (Mr Lawes) and others, that the chemical composition of the manure would not justify Mr. Wicksteed in assigning to it a greater value than a few shillings per ton. It must be gratifying to those who, like him (Mr. Lawes) considered that the value of any manure could be determined by its chemical composition, to find that this opinion had been confirmed that night by Mr. Cooke. This sewage deposit was no longer a valuable artificial manure, but it was to be ranked with lime, chalk, clay, &c. Mr. Cooke had said, "that it would find purchasers at a low price, when it could be obtained at an easy and short carriage; and that, by judicious arrangements, it might sell for rather more than it costs." The great objection to Mr. Wicksteed's process was this, that while increasing the sewage by an enormous bulk of worthless matter, it failed to arrest the greater portion of that which was most valuable in the sewage, which, consequently, flowed back into the sewers or rivers. It was well known to chemists that lime would not precipitate ammonia or its salts from a liquid containing them. Mr. Cooke endeavoured to meet the objection by saying, that in using Mr. Wicksteed's process they did not deal with highly putrescent sewage abounding in ammonia. Professor Way, however, held a different opinion: he examined sewer-water from places in the centre of London, from Barret Court and Dorset Square, and stated that all the nitrogen in the liquid state seemed to be in the form of ammoniacal salts; that in one case 84 per cent., and in the other 89 per cent. of the whole ammonia in the sewage existed in the soluble state. While, therefore, he (Mr. Lawes) might lament, with Mr. Cooke, that thirty million pounds worth of ammonia had gone to waste in the city of London during his life, he (Mr. Lawes) could not admit that this waste would be stopped by the application of Mr. Wicksteed's process. Mr. Cooke had, perhaps wisely, abstained from furnishing an analysis of his manure, but he (Mr. Lawes) would, however, venture to quote one which had lately been given him by Professor Voelcker, Professor of Chemistry to the Royal Agricultural College, Cirencester:—

Analysis of Leicester bricks made from the sewage of the town of Leicester, by Mr. Wicksteed's lime process.

Water	10·52
Organic matters	12·46
Oxides of iron and alumina	2·89
Phosphate of lime (bone earth)	2·27
Carbonate of lime...	52·99
Sulphate of lime	1·76
Carbonate of magnesia	3·67
Potash	0·26
Chloride of sodium	0·45
Insoluble siliceous matter	13·50
	100·77

And containing nitrogen equal to 0·60; ammonia, 0·72.

Now, here was a substance containing 80 per cent. of matter to which it was impossible to assign any money value, and containing not more than 16 or 17 lbs. of ammonia in a ton. What could be done with 300,000 tons of this substance, the annual amount which would be produced if Mr. Wicksteed's process was applied to the London sewage? It certainly could not be sold, and it was doubtful whether it could be taken as a gift. He (Mr. Lawes) could hardly think that the Chief Commissioner of Public Works would consider himself justified in permitting deodorising works to be erected in the metropolis, from which 8 or 9-tenths of the ammonia in the sewage operated upon would flow back into the sewers or river, more especially as ammonia was the element which, more than any other, was supposed to be the vehicle of miasma and contagion. He (Mr. Lawes) considered that the proper method of using sewage was by irrigation. If, however, it was found impossible to select any district upon which the fluid could be deposited, he was disposed to join in the cry of those who say, Away with the sewage to the German ocean!

Mr. E. Chadwick, C.B., said that, on the statement made by Mr. Cooke, that "it behoved the authorities generally to consider whether the effluvium from an extensive area saturated with sewage, poisoning the atmosphere by putrifying and steaming during the heat of the summer, might not be as injurious to the health of Kent, aye, to the metropolis itself, as the most efficient subterranean removal of sewage might be beneficial," it was to be observed that by one set of authorities, at the least, the foundation of such apprehensions had been carefully examined, and provisions made to meet them; and it was, doubtless, the duty of those who had the responsibility of new works to re-investigate the subject, and to examine the works in actual operation. The first scheme for applying the sewage of the metropolis to other towns was proposed by the late Mr. Smith, of Deanston, and was simply an application of the practice at Edinburgh of applying it by submersion. The result of the investigation of the Board of Health was to establish sanitary objections to this system, as well as objections of an agricultural and economical nature.

Most persons who lived in the neighbourhood of the parks, at the period of top-dressings, had been annoyed by the foul odours arising from this operation. Indeed, he had known frequent illness occasioned by them. Similar evils were at times experienced during the heavy dunging and top-dressings of market gardens with decomposing animal manures. Great loss also ensued; agriculturists agreed that two-thirds or three-fourths escaped in a gaseous form. The mode of preventing this loss and nuisance was not to apply chemicals, but simply to perform the work of disinfection at once by putting the solid manure into water to arrest the gases, and applying it by the water cart or by steam power. The application of those principles to the disposal of the refuse of towns in the prevention of nuisances, was now proved in a sufficient number of instances. It had been done at Rugby now for three years. In respect to the drainage, it was to be observed, that those who only knew sewage under the old conditions, as decomposing manure from the overflow of cesspools or house drains, where it had been detained for weeks, months, or years, were unaware of the new conditions of town drainage, in which all cesspools were abolished, self-cleansing tubular house drains and sewers being substituted, and the refuse removed at once, before it could become decomposed. At Rugby, all refuse was immediately removed by the new self-cleansing drainage and sewers, and afterwards distributed by steam power on the principle of the water cart. The results of the working were in complete accordance with the principles and facts to which he had adverted. The sewage was at once received in the soil, and held there, not merely in mechanical suspension, but in chemical combination, until it was taken up by vegetation. The effect was shown in the pellucid and usually inodorous condition in which the surplus water ran away on the days when there was no rainfall.

Mr. S. Sidney said this was the third time that the value of sewage manure had been discussed by the Society of Arts. On the first occasion he characterised as wild exaggerations the poetical view which Mr. Mechi took of the refuse of cities. On the second occasion, Mr. Bennet Lawes, in a most able paper, exhausted the chemical part of the question, and came to the conclusion, that a distant limited application of sewage manure to Grass land in a liquid state was its only profitable use; and now Mr. F. Cooke, in his very candid paper, was content to take manufactured solid sewage at from 2*s.* to 4*s.* per ton, a price that would not bear the cost of carriage, as he (Mr. Sidney) had shown in former discussions.

This theory of the enormous value of town sewage was not new. In 1848, Mr. Smith, of Deanston, in a report circulated under the authority of the Board of Health, wrote—"Assuming that 5 cwt. of sewer water is equal to 2½ cwt. of guano—that the sewer water of every town was worth 1*l.* per head per annum (that would give three millions sterling for London); and that, therefore, 'such an income annually would provide a fund for the improvement of all towns in a manner corresponding with the most enlightened views with respect to sanitary regulations.'"

A very little inquiry served to show, that while 2½ cwt of guano was worth 30*s*., and would produce an increase of 6 bushels of Wheat per acre over ordinary crops, the same quantity of sewage matter was all but valueless. Nevertheless, in the first report of the Board of Health, dated July, 1849, it was said, "That in the local works which it is necessary to execute for the sanitary improvement of towns, an entirely new system of sewerage must be combined with a new system of house drainage, with a new system of water supply, and with a new system of removing and of applying the refuse of towns to agriculture." In this paper, two examples only of enlightened cultivation were cited—the well-known liquid manure farm, of 170 acres, at Tiptree (where his worthy friend, Mr. Mechi, never grew good corn crops, or good root crops, until he followed the example of his neighbours, and gave his Wheat 30*s*. an acre of solid guano, and drilled in a good dose of Lawes' superphosphate with his Mangel Wurzel), and the sewage manure farm of Mr. Walker, at Rugby, where, on 200 acres of Grass land, on a wonderfully porous soil, a very good effect was produced by the liquid sewage in summer. Here, then, after all, were just two towns, or rather villages, using town sewage on the Deanston plan—Watford, where the machinery did not as yet work successfully, and Rugby. But the sewage manure theorists maintained that the absence of demand for the fertilising streams of cities was to be attributed to the stupidity of the British farmer. But had the farmer been standing still during the last 16 years? During that period a million sterling had been invested in manufactories for producing annually hundreds of steam engines, threshing machines, drills, horse hoes, clod crushers, ploughs, harrows, &c., which were eagerly bought up. During that period millions had been sunk in draining, paid for by farmers' rents; hundreds of thousands of tons of guano, costing from 10*l*. to 15*l*. a ton, had been consumed. Manufactories of another costly manure, superphosphate of lime, had been established in every great town and every agricultural district. These manufacturers imported bones, bone ashes, and burned flesh from South America; they ransacked even the battle-fields of Europe for the same invaluable material; they imported apatite from Norway; and they did all this while sewage lay at their doors, offered to them gratis, and yet they did not find it worth while to accept it. After bringing forward other instances in support of his views, Mr. Sidney said that in thus following out the history of British agriculture it was impossible to doubt that the profitable use of liquid manure must depend on special and exceptional circumstances, as, for instance, where it could by gravitation be cheaply applied to Grass land, of a quality sufficiently porous to absorb it. At Rugby it flowed away rapidly enough; yet even there it could not be all used, and the river was polluted. But few soils were like that of the Rugby farm. If he were asked why we neglect British, and send so far for Peruvian guano, at more than one hundred times the price of the home production, he would answer, why do we drink China tea instead of British herbs, Eastern sugar instead of British honey? Why do we wear American cotton and Italian silk, instead of British home-spun? Why do we prefer Rosewood to British Oak? Why toast our friends in foreign champagne instead of the domestic Gooseberry? Because the foreign article was cheaper at the higher price.

Mr. Sheriff Mechi said that the earth was the best and cheapest deodoriser that they had. So effective was it that where he had applied large quantities of liquid manure of the strongest description, saturated with the dead bodies of animals in large quantities, he had found his cattle feeding upon the pasture so treated within twenty-four hours after the application, and forty-eight hours after no smell whatever was emitted.

Again, with respect to liquid manure not being good for other crops than those of Grass, he had found it beneficial to every description of crop, and so effective that, where it was applied in considerable quantities, he had seen its effects on subsequent crops for three or four years. Having a piece of land undone, and comparing it with that which was done, the result had been unquestionable for several years. But before they could apply liquid manure to clay lands they must be well drained. On chalky, gravelly, and sandy soils, they might put any quantity of liquid manure with effect, especially for those quick-growing crops which consumed large quantities of food by their rapid growth. But the great question was, to persuade the agricultural public that it was to their interest to use this description of manure. If sewage was profitable to be used by the farmer, it was useless unless the agricultural public were prepared to lay down the pipes to bring it upon their land. This could be done at a cost of something like 6*l*. per acre. Having adopted the system himself, he could state as the result of his experience for the last four years, on his farm of 170 acres, that it was a most profitable operation. Applying the water of London alone—even without the 12,000 or 15,000 tons of ammonia—over properly drained land, would be profitable. The water meadows of Winchester and the Duke of Portland proved this. He hoped never again to hear it asserted that water cannot percolate through the stiff clays, for unless that notion were exploded, it was in vain to hope that agriculturists would apply the sewage of towns upon clay lands.

Mr. Wright (a member of the Metropolitan Board of Works) said it was a favourite practice to point out in strong language the enormous amount of fertilising matter that was lost under the ordinary system of town sewage.

He appealed to the chairman, as a chemist, and one acquainted with manufactures, whether the cost at which it could be saved was not an essential element in the question. Quartz might contain gold, but in so small a proportion that it would not pay the expense of extraction. He applied that remark to the subject before them. Until it had been shown that it would cost less to abstract the valuable matters in the sewage than the value when extracted, they must adopt the best plan they could for getting rid of it. He would instance ammoniacal liquor of gas works. The ordinary strength of that product in gas works was, that it took about 16 ounces of sulphuric acid to saturate a gallon of the liquor, and thus form a salt of ammonia. It was more profitable to sell it for a low price to parties who took it away from the gas works and manufactured from it a valuable chemical salt, than for the gas company to attempt the manufacture themselves. But the manufacture could not be carried on profitably if the dilution exceeded a certain per centage. Now the per centage of ammonia in sewage was infinitely less than in any ammoniacal ever made. He had hoped for more detailed facts as to the expenses at Leicester. If, as was stated, they were selling it at 2*s*. per ton, could they buy lime for the process at 2*s*. per ton? Those were the practical questions which required to be answered. He thought, that after the diversity of opinion they had heard that evening, to ask the Metropolitan Board to rush into this scheme, would be asking more than practical men of business would be inclined to concede. The Board of Works were doing all they could to bring the sewage to one or two points, and when there it could be operated upon.

Mr. Wilkinson said he belonged to an increasing section of the Metropolitan Board, who believed that in deodorising would be found the successful solution of the great question of the day.

He contended that they had nothing to do with the commercial consideration of the question. The question was how they could most efficiently, in a sanitary point of view, effect the complete drainage of the metropolis. He could confirm all that had been stated by Mr. Cooke with regard to the sanitary effects of that system upon the town of Leicester, and the process might be carried on under their drawing-room windows without offence to any one. He considered the most magnificent results had ensued in a sanitary point of view from the adoption of the deodorising process; and as the representatives of the sanitary interest of the metropolis, it was the duty of the board to pause before they committed themselves to the vast expenditure proposed.

Dr. Letheby, Medical officer of Health for the City of London, said the constituents of the sewage of towns consisted for the most part of undigested matters, and when those were acted upon by lime—whether they were in an undecomposed state, or in a putrescent state, the lime precipitated the phosphates, which, in the act of falling, carried mechanically other matters existing in sewage waters, and there were left urea, uric acid, and other substances of value, wholly untouched. The process, therefore, he considered deficient in the first principles of chemistry.

Another argument was, that the mortality of the town of Leicester had been very considerably reduced since that mode of disinfecting the sewage had been introduced. The tabulated return before them would at first sight indicate that fact, and if they relied upon it they might conclude that the health of the town had progressed, *pari passu*, with the introduction of this system. But let them look at the other towns in the North-Midland counties, and they would find that there also, in precisely similar proportion, had there been an improvement in the state of the public health. He was therefore of opinion that the two points to which he had directed his remarks, viz., the chemical principle involved, and the sanitary result claimed, were not founded upon sure data.

Mr. Cooke replied.

He had ascribed the diminished number of deaths at this all-important fact to the general sanitary measures adopted. It had been said that quicklime liberated the ammonia of the sewage, and that the Leicester plan was, therefore, chemically wrong. He (Mr. Cooke) had stated that it was cream, or hydrate of lime, that was employed, and that the ammonia, in consequence, could not be, and was not, liberated by the process. It had been said that the chemist of the Agricultural College at Cirencester declared that in the dry bricks there was only 72 per cent. of ammonia. He (Mr. Cooke) had shown that the dry brick lost its ammonia, and should not be taken as the product of the system. It had been said that the process was a fallacy, and the product worthless, because it did not sell. He (Mr. Cooke) had stated that it did sell, at a price that covered the outlay in production, and that 1000 tons had been sold in the last fortnight. He was told that there was a fallacy in valuing the ammonia in manure at 60*l*. per ton, as that was the price of the pure article. He replied, how, then, was guano valued? It contained sixteen per cent. of ammonia, and sold in the market in proportion to the quantity of ammonia in the sample. Another gentleman urged that the English farmer would only use the pure guano, on the same ground that in private life tobacco was used instead of rhubarb leaf, coffee instead of chicory, champagne instead of gooseberry wine. He (Mr. Cooke) replied that that gentleman was wrong in each case. The counterfeit was extensively used because it was cheaper, but the deodorised sewage was no counterfeit; it was of low value, but still of value, and sold at the low price at which it could be produced, and for what it was worth. He (Mr Cooke) showed, by sales that were going on, that it could be disposed of at a price which would cover working expenses, but the Metropolitan Board were willing to spend 38,000*l*. per annum, without any return. He showed a saving of 1,200,000*l*. per annum on the engineers' estimates. Another gentleman declared that irrigation was desirable, but that it infected the air. He submitted a plan for purifying the sewage water before it was employed for irrigation. He was told that the ammonia escaped in the effluent water, but the chemists could not detect it.

A vote of thanks was passed to Mr. Cooke.

The following letter has been received since the meeting:—

"There was no time for practical farming men to make any observations last evening, otherwise I should have stated that since I have been engaged in farming on rather a large scale (farming 560 acres), I have been constantly studying all the different modes now known for manuring and enriching any land at the least cost; and with respect to the manure made by Mr. Wicksteed's process, I should say that it is with the farmers merely a question of cost. If Mr. Wicksteed's solid manure contains 73 per cent. of ammonia and 12 per cent. of animal matters (as the analysis of Mr. Voelcker proves) then one ton of it is worth to the farmer as much as 100 lbs. of guano; and if the farm is near to the works, it may be cheaper for him to buy and distribute on his land 3½ tons of this manure, than 8 cwt. of guano; but that cost depends, of course, on the distance and expense of carrying this manure on to his fields. The great advantage of applying liquid manure by pipes is the small cost of its distribution, as the engine will pump up and distribute manure at a cost of 1½*d*. per ton; whereas the carting of solid manure alone from the farmyard on to the fields and distributing it, will cost 4*s*. per ton. Also when the manuring principle is applied to land dissolved in water, it permeates more rapidly through the soil, and becomes more quickly combined with it, than when put on the land in a solid state; and until the manuring principle has chemically combined with the soil, the food for plants is not produced. Professor Way has shown us, by one of his most valuable experiments, that when liquids containing ammonia are filtered through six inches of earth containing such usual proportion of alumina as all corn lands have, all the ammonia is retained and chemically combined with the alumina, and the liquid is discharged free from it, wherefore it is more desirable to apply the manure dissolved in water, and, as is now the custom, to apply guano to the land in wet weather, that its ammonia may be quickly washed in; and I may here remark in answer to one gentleman's observations, that Mr. Way has found that peat charcoal has not so good an effect in arresting ammonia from liquids as common earth, and it is therefore of no value for that purpose. If I could get a supply of liquid manure brought to my farm, I should be glad to receive it, and would distribute it over my land; but until that can be done, I see no reason why farmers should not use Mr. Wicksteed's solid manure, if its cost per ton, when put on the land, will not exceed the cost of 100 lbs. of guano. But, of course, if by Mr. Wicksteed's process the per centage of ammonia can be increased, its value to the farmer will also be greater. JOHN BETHELL."

Farmers' Clubs.

CENTRAL: *Discussion on the Rotation of Crops.*—**Mr. Thomas referred first to agriculture in the reign of the earlier Georges, when two crops and a fallow were the rotation which prevailed, and that of the Romans, when a fallow every other year prevailed. He then spoke of the improvements first effected in agriculture north of the Tweed. He said:—**

I believe I am only doing justice to our friends north of the Tweed if I state that it was the agriculturists of that country who, at the close of the last century, took the lead in those vast improvements which began to distinguish our husbandry. They observed that the same crops repeated consecutively became smaller and smaller in their produce, whilst with intervening crops of Clover or roots the produce increased, and this led them to the conviction, which the science of chemistry has now elucidated, that cereals and bulbs each extracted a different substance from the soil, and that this extracted matter, whatever it was, was in time restored, either by the effect of the atmosphere or the agency of manure. The researches of the agricultural chemist were then unknown, but the idea was correct in the main; and thus first arose the famous agricultural system of alternate corn and green crops, which has now so long maintained its ascendency. The rotation of cropping which on strong lands in Scotland first obtained, and still retains the greatest favour, is the six course—always premising that the land must be first made dry by draining—usually commencing with a fallow, or fallow crops, such as Tares, or Coleseed, and then Wheat, Beans, Barley, Clover, and Wheat. It is sometimes altered to fallow, Wheat, Clover, Oats, Beans, Wheat; but by some, there is an objection to this course, from the Bean Crop being so late in the rotation as to cause more difficulty in keeping it clean. But, if a landlord will insist that his tenant shall be bound down to one course of cropping, perhaps none better than one of these two could be found. The cultivation of the Turnip soils of Scotland may be included with those of England. Whilst this energy was being displayed by our northern friends, enterprise and experiments were not wanting in England. J. W. Coke, afterwards Earl of Leicester, had succeeded to his vast estates in Norfolk, where a soil naturally poor only produced the poorest crops when their cultivation was attempted, but the greater part presented only sterile sheep walks, or was devoted to the purposes of the warren. His active and energetic mind deplored such a state of things, and he resolved upon improvement. He saw that the soil wanted solidity before it would yield productive crops of corn, and the Turnip and Clover crop seemed to afford a remedy. And hence sprung the famous rotation of Turnips, Barley, Clover, and Wheat, which appeared for many years to promise unparalleled and permanent success. The Swedish Turnips, then called Ruta Baga, were then first introduced to this country. Red Clover had been but little cultivated, and the invariable luxuriance of these two crops, and also of the corn crops which succeeded them, seemed to point out the Norfolk system as one without a rival. Was it to be wondered at, then, when landlords beheld the gigantic improvements which were here displayed, that they were anxious to introduce the like into their respective estates; and when they found persuasion unavailing, to compel their tenantry to improve by coercion? There can be no doubt, but that when the stringent covenants and restrictions to which I have had so often to allude were first introduced, both their object and their tendency was to introduce an improved system of agriculture; but it has at last broken down, after holding its supremacy over half an century; and, indeed, that it contained the germs of its own dissolution was clearly seen many years back by the late Sir J. Sinclair, and many other eminent agriculturists. I know not how the case may be in Norfolk; but this I do know, that in every part of England with which I am intimately acquainted, there is one universal lamentation over the difficulties which the system now presents. The Swedes, though more certain of obtainment than they once were, through the agency of peculiar manures, are yet subject to strange and inexplicable diseases; sometimes resulting, as was the case last year, in the total ruin of the crop. The Barley, where the crop of Swedes had proved large, and had been fed on the ground with the addition of cake or corn, we find in fruitful seasons laid flat on the ground; and when a period of wet takes place at the time of harvest, seriously sprouted, even before touched with the scythe, the grain unfit for the maltster, and the straw valueless as fodder. The farmer then finds that his young Clovers have been killed by the lodgment of the Barley crop; the next year produces him either an inferior crop of hay or a scanty run for his flock; and the succeeding one yields him but an inferior crop of Wheat; for every practical man knows how much the produce of this crop, when it succeeds Clover, is influenced by the degree of fertility in its predecessor—occasioned, no doubt, by the amount of roots left in the ground, as has been so accurately pointed out in more than one lecture of our friend Mr. Nesbit. Let us endeavour now to ascertain the cause of this disease among the Swedes (the cause of the frequent failure of the remaining three crops I have already alluded to), and then see if we can throw out some hints for an improvement of the rotation. That when a longer period than four years elapses between the crop of Swedes, the crop is usually found to be heavier, and success more certain, is well known. A remarkable instance of this I may quote, as taking place in a parish adjoining the one in which I reside. At the close of last year my neighbour Mr. A. W. Crouch, in common with the rest of us, lost almost the entire crop of a fine piece of Swedes in a certain large field, by some inexplicable disease; but across this large field was a broad belt of magnificent Swedes, totally uninjured by disease, and presenting a marvellous contrast to their decayed and offensive neighbours. What was the cause? Each part of the field had been manured alike, and each acre had received the like attention. The secret was this—four years previously this belt of sound bulbs had been preceded by Mangel Wurzel; the remainder of the field had at the same period been cropped with Swedes. Our friend Mr. Joseph Paine has told me that the same phenomenon occurred on the occupation of a near relative of his, and I have witnessed it in other places as well. Let us at least gather something from these remarkable facts.

Mr. Thomas then proposed alterations in the 4-course system, not as a rule, but as the relaxation of a rule possible under certain circumstances.

Let us now suppose that we change the rotation from the four to a five course; and that it be Turnips, Wheat, Barley, Clover, and Wheat. Its advantages would be these. In the course of 20 years it would be found that the four crops of Swedes, each at five years' distance from each other, would have produced a greater aggregate amount of food than five crops would have done, each four years distant from the other, and that the bulbs would be much freer from either disease or failure. I then propose to take a crop of Wheat, as our Scotch brethren almost invariably do. We know by practice that our ordinary Wheats succeed remarkably well when sown after Turnips up to the middle of February. We have, then, the Talavera, and other more prolific Spanish Wheats to fall back on; and, lastly, the April Wheat, which may be sown with security up to the 1st of May. I may here mention in parenthesis that a remarkably good farmer (now I am sorry to say no longer a member of this club), and who adopts the rotation we are discussing—I mean Mr. Shaw, of Cotton End—sows much of the Wheat drilled after Turnips with Italian Rye-grass, for the keep of his couples during the month of March, and, ploughing this land about the 1st of April, sows it with Barley and the ordinary Clover seeds. It is, however, very doubtful whether the Italian Rye-grass could be introduced in this manner to any large extent. Next, then, in order to the Wheat, comes the Barley—the proscribed act—two white straw crops together. The experience of every one who has tried this tells him that this is the very mode to obtain a fine sample of malting Barley; and, as there appears to be no prospect of a remission of the malt tax, this, to those who cultivate the grain, is a great object indeed. But I do not propose to sow this second white straw crop without bestowing upon the land some nitrogenous manure. I should do it in the form of guano. Our friend Mr. Mechi would, no doubt, do it with liquid manure. Perhaps either means would answer the purpose, but I agree with the late Mr. Pusey, "that liquid manure is a pretty toy, but solid dung is for farming in earnest." By guano I, of course, mean genuine Peruvian, and not the worthless trash which is under that name vended by hosts of unprincipled dealers, whose advertisements crowd the columns of our agricultural periodicals. I read in the report for East Lothian, in the Journal of the Royal Agricultural Society, "It is now found that guano, at the rate of 2 cwt. per acre, can always be applied with profit to the Oat crop, however high

the condition the land may be in;" and if this applies to the Oat crop (Barley is but little grown in Scotland) I imagine it must apply to the Barley also. The idea of growing Barley after Wheat, or two crops of Barley consecutively, is not new. In Bachelor's report of Bedfordshire, 1807, he says, "Barley is a favourite crop towards Biggleswade, and is frequently sown after Wheat;" and speaking of another part of the country he says—"The large quantity of London and other manure which is here used, causes the Barley to grow too luxuriantly to make it prudent to venture the Clover to be sown, in the first season. The Barley is therefore repeated for that purpose, and with better success." But in much more recent times, we find the same course much recommended. In the report for Dorsetshire, published in the Journal of the Royal Agricultural Society, it is mentioned as becoming universal. In Mr. Caird's report, too, of the farming of Lancashire, he is loud in the praise of a Mr. Longton, of Rain Hill, and adds (p. 268):—"Mr. Longton is decidedly of opinion that Barley after Wheat is the best management with which he is acquainted." With such examples, there would be no doubt about the success of the Clover crop, and after a luxuriant crop of Clover, but little of that of the Wheat. I have thus endeavoured to sketch out what I believe would be found, upon trial, to be a great improvement on the Norfolk four-course system. I could not have ventured upon recommending such a rotation to your notice, did I not recognise the powerful assistance which agricultural chemistry has brought to our aid; and, although I agree with the remark, "that it is a great mistake to suppose that men can be made farmers by teaching them doubtful chemistry;" yet I do think that our best thanks are due to those gentlemen who have given up their time to its study; and to those who have kindly initiated us into its principles, and made us familiar with its deductions, something more substantial than empty thanks can be offered without offence. I have not as yet alluded to the covenants which should secure a landlord from the results of an impoverishing and faulty management. To avoid this, much depends on the judicious choice of a tenant; but, to make "assurance doubly sure," I should recommend an agreement, relinquishing into the incoming tenant's hands, one year before the expiration of an agreement not renewed, a proportion of the holding—say one-fifth—and a further covenant that in the last year not more than three-fifths of the entire occupation should be under white straw cropping. I conceive that some such arrangement would unfetter the hands of a tenant very much during the major part of his lease, and could not, by any possibility, result in injury to the landlord.

Mr. Thomas concluded with remarks on the Duke of Northumberland's agreement with his tenantry.

Mr. J. Paine (Bedfordshire) had long recognised the difficulty of getting his Turnips every fourth year, and the subject connected with his name, which Mr. Thomas had mentioned, came under his notice about two years ago.

It happened that on a 30 acre piece, well cultivated for Turnips, and with a good plant, the greater part of the field became blighted during the summer; the only exceptions being about seven acres, which had borne a crop of Peas during the routine of the previous four years, and which was consequently eight years from the Swede crops, and about an acre and a half which had been well limed. Here the produce was very good, but these portions were all that was worth a farthing, though the entire field had been sown with the same seed, under precisely similar circumstances. When the process of hoeing was performed, a more luxuriant crop could not be seen; yet within six weeks from that time, saving the two portions referred to, the roots were not worth picking up. What was the conclusion to which he naturally came? Why, that the fault lay in sowing the Turnips too frequently. For his own part, he was inclined to think that, through the agency of artificial manures, the farmer might in some districts cultivate his land even upon a six-course. There was one ingredient in the question, however, which should never be lost sight of. Mr. Thomas had alluded to the Duke of Northumberland's agreements. Now, if they had none but such men as the Duke of Bedford to deal with as landlords, there would be little need of requiring what was called fixity of tenure. The farmer would feel himself tolerably safe and quiet without. But, unfortunately, that was not the case, and there would, he presumed, be always some black sheep in the flock. Before, then, a tenant invested his capital in artificial manures, and the improvement of the soil, he ought, in justice, to have a guarantee that he would be enabled to reap the benefit of his outlay. Land was not all fitted for Turnips; but where it was so, he thought that if they commenced one course of four or five years with Mangel Wurzel and the next course with Turnips, they would not experience much difficulty in getting a good Turnip crop. Moreover, upon strong lands they would never do better than raise a crop of Wheat; but they could not get two crops of Wheat in five years without incurring the cost of two or three cwt. of guano per acre in one of those years. The absence of the security to which he had alluded was the only obstacle in the way of the improvements recommended by Mr. Thomas, though this might be easily remedied by the establishment of a good understanding between landlord and tenant. Let it not be supposed that they were aiming to benefit themselves at the expense of the landlords of the kingdom. On the contrary, they had no wish to extend their cropping, without, at the same time, extending their improvements in cultivation; but, to do this, they must have security of tenure. Were the English Turnip introduced in one course, and the Swede in another, he believed it would also be found greatly to aid the growth and fertility of the latter. Certainly a plan, similar to that which he had adopted with Clover, was attended with much advantage. That plan was to sow mixed Clovers (white Clover Grasses and so on—not broad Clover) in one course, and then broad Clover in the following course. If the seeds of Turnips were "coursed" in this same way, he saw no reason why equal benefit should not arise from pursuing that system.

Mr. R. Baker was satisfied that Mr. Thomas's excellent paper would be attended with beneficial results.

The true principle in the rotation of crops appeared to him, to be, not to bring in rotation in successive years such crops as draw from the land the same description of support, but rather that one crop should so alternate with another as to supply its successor with food, or, at all events, not to be injurious to it. On lands well managed the fallowing would admit of a green crop of Rye or Tares, or other vegetables, to conclude with Turnips. On his light land he always took Rye before Turnips, after the Turnips, Barley, and then Clover. The Turnips furnished abundant food for the Barley, and the Barley was a good preparation for the Clover. To the Clover succeeded Wheat: then he followed with an autumnal fallow, manured slightly, and took Barley again. But of course the rotation must vary according as the description of soil varied or changed; therefore the farmer should have the privilege of selecting that mode of rotation which was best adapted to the soil. Upon his light land, also—and many gentlemen present had seen the experiment—he had adopted the system of taking Oats after Turnips, and Wheat after Oats, and he found that he could grow better Wheat in this order than by any other process he had ever tried. In fact, the crop was a most productive one, his last yielding, upon being threshed out, five quarters an acre; and whenever he could get that quantity he was fully satisfied. The time had now arrived when the old idea about the exhaustion of the soil ought to be entirely abandoned. There was no such thing as exhaustion of the soil. Only give him an opportunity of clearing the crops as they came in rotation, and an ample supply of manure of an organic character, and he could go on producing crops year by year for ever; in other words carry out what had been ironically termed the "everlasting shift." But unfortunately, leases were too restrictive on the tenants, and tied them down too stringently to a particular system of cultivation, whilst it was difficult to induce the landlord to alter that system even in the present day. In the cases, however, of some farms which he had let since Michaelmas, he had been able to introduce a clause to the effect, that two white straw crops should not be taken in succession, unless the tenant first manured the land upon which such crop was so intended to be taken with guano or other manure of like nature, not the production of the farm, of the value of 30*s.* per acre at the least. So long as the tenant did that—so long as he put into the land that which was necessary to support the crop he took out, if he took it in rotation—he would do injury neither to the landlord nor himself. Indeed whenever a second straw crop was introduced in that way by artificial manure, all the straw being returned to the land, the tenant might go on producing and reproducing to the advantage of both. The circumstances of the times demanded that the farming capabilities of the country should be developed. We had a limited area upon which to maintain a rapidly increasing population; and if the support of the people was to be derived from the soil of the country, there must be more liberal covenants in leases to enable occupiers to raise the largest amount of produce. It was advisable that the "customs" of the country relative to the letting of land should also be changed, for some of them were most obnoxious.

Mr. W. Bennett went a long way with Mr. Thomas in acknowledging the desirability of removing the restrictions which in many cases fettered good farmers in developing the resources of the land—and he doubted not on much good land of the country an extra white straw crop might be produced under cleanly farming, and an outlay for artificial manure, to the benefit of the farmer and without injury to the land.

At the same time he felt bound to say, indeed, it would be useless for that club to argue this point unless they could take pretty largely the landowners with them in the views they entertained. For it must be admitted there are, as in all other cases, two sides to this question—before you can change very largely the system of farming from four to the five course, they who let the land will require some security that such privilege shall not be abused. With spirited and good farmers (and more especially where land is unkind for Turnips)—under good cultivation it would be a great improvement. The five or even the six course system might be followed to advantage by a judicious arrangement of crops, and a liberal appliance of manure. But it must ever be born in mind that a bad, instead of a good farmer, with such latitude given him might beggar the land; and that laws are not made for the good, but for the disobedient. In self-defence, therefore, rather than to cramp the efforts of enterprising good farmers, somewhat stringent covenants are introduced into leases and agreements for land—and sometimes (he would admit) very vexatious and foolish ones (cheers). It would be idle, however, not to admit that this subject was surrounded with difficulty. The great desideratum is how to give full scope to an enterprising go-ahead farmer, who will keep his land clean, and in these days of artificial manure keep it up to the mark. Perhaps the granting of a lease with general covenants to keep the farm in good heart and plight, without restrictions as to cropping (except for the last four years), when to save any retrograde movement in farming on the one hand, or claim for unexhausted improvements on the other, the renewal of the lease would best obviate the difficulty. His friend (Mr. Thomas) must excuse him if he said that he thought he had rather overdrawn the case in pointing out the evils of the four-course system. That gentleman said, "to feed on the land the whole Turnip crop and often with corn or cake, only threw down the Barley, damaged the quality, and often spoiled the young seeds," which was all very true; but he (Mr. Bennett) very much questioned the policy of such a course. On well-farmed land he thought, at least, one-third of the Turnips should be consumed in making the manure at the farm homestall. Mr. Thomas further stated, that the two frequent repetition of Swedish Turnips caused their failure, which was another serious evil. He (Mr. Bennett), however, thought this might be largely obviated by the substitution of Mangel, the common Turnip, or even Kohlrabi, alternately. He had found it answer himself, more especially in transplanting the Kohlrabi after Tares, on a portion of his fallows. The difficulty of getting seeds so often as once in four years had also (and very properly) been pointed out. This evil, by all judicious farmers, is avoided as far as possible by the substitution of the different varieties of Clover alternately with Peas or Beans, on a portion of the Clover season; and the landlord who debars his tenant against the latter, acts most injudiciously. While, therefore, we are seeking some amelioration of farm covenants, and he thought properly so, the purposes for which the four-course system was adopted, and the astonishing advancement of agriculture within the last 50 years, must never be lost sight of.—Mr. Owen Wallis proposed the following resolution:—"Resolved, that it is the opinion of this meeting that the landlord who binds his tenantry down to a prescribed routine, from which they must not, under a penalty, deviate, inflicts both upon them and the public a very serious injury, without conferring any corresponding advantage." Mr. Smithies seconded the motion, which was put to the meeting, and carried unanimously.

Notices to Correspondents.

A CIRCULAR ACRE: *H W P.* Its diameter is as nearly as possible 78½ yards. A circle with that diameter encloses about a square foot less than an acre. The diameter of a half acre circle is about 55.6 yards.

ALDERNEY COWS: *G L E.* All cows ought now to be brought in from the fields. Carrots and Parsnips and Mangel Wurzel and Kohlrabi are all roots which you may give in moderation, without injuring the milk. Be that as it may, however, milk will be injured in quantity, if not in quality, by letting the cow remain in the field in December.

SILICATE OF POTASH: *A Subscriber.* Perhaps your best plan would be to write to Mr. Paine of Farnham. His property is over beds containing a large quantity of soluble silica, and he could, no doubt, give you useful information.

SMITHFIELD GREAT MARKET: *X.* The following are the numbers and the prices of cattle at this market for the past few years:—

Year.	Beasts shown.	Prices per 8 lbs. s.	d.		s.	d.
1840	3523	4	4	to	5	8
1841	4500	3	8	„	5	0
1842	4541	3	4	„	4	8
1843	4510	2	8	„	4	4
1844	5713	4	0	„	4	6
1845	5326	3	6	„	4	8
1846	5470	4	0	„	5	8
1847	4282	3	4	„	4	8
1848	5942	3	4	„	4	8
1849	5765	3	4	„	4	6
1850	6341	3	0	„	3	10
1851	6103	2	8	„	4	2
1852	6271	2	8	„	4	0
1853	7067	3	2	„	4	10
1854	6181	3	6	„	5	4
1855	7000	3	8	„	5	2
1856	6748	3	4	„	5	0

TURNIPS: *T S B.* The Scotch yellow is a common Turnip.

WHEAT: *Constant Reader.* Good Wheat yields from 70 to 80 per cent. of fine flour: there will be on an average 25 per cent. of bran, pollards, and boxings; or if you use what is called one-way grist, just taking the bran out, you may expect 200 lbs. from a sack of 248 lbs.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER APPARATUS ON AN IMPROVED PRINCIPLE.

MESSRS. COLLS AND CO., Builders, Camberwell, beg to inform the nobility, gentry, and the public in general, that they have made arrangements with an eminent Inventor and Hot-water Engineer for the management of this portion of their business, and are prepared to take contracts for Warming Churches, Chapels, Private Residences, Greenhouses, &c.

Estimates upon application.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Cor.-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

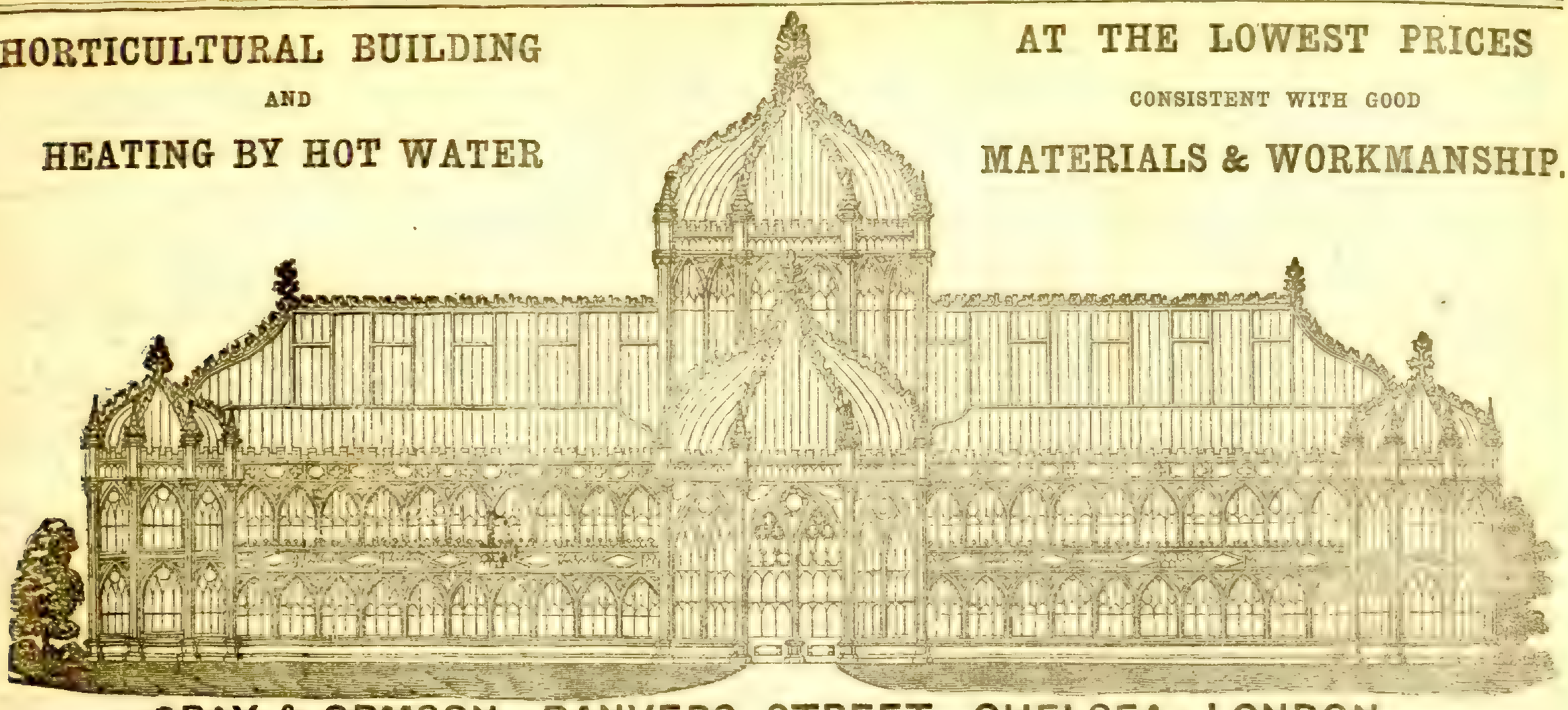
Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, Great George Street, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., 60, Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollison & Son, Tooting, Surrey.
Mr James Veitch, Chelsea.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
Messrs. John Edmondson & Co., Seedsmen, 61, Dame Street, Dublin.
Messrs. B. Reid & Co., Seedsmen, Nurserymen, and Florists, Union Street, Aberdeen.
Messrs. Austin & McAslan, Nurserymen & Seedsmen, Trongate, Glasgow.
Mr. J. H. Cottrell, Seedsman, 2 High Street Bull Ring Birmingham.

HORTICULTURAL BUILDING AND HEATING BY HOT WATER

AT THE LOWEST PRICES CONSISTENT WITH GOOD MATERIALS & WORKMANSHIP.



GRAY & ORMSON, DANVERS STREET, CHELSEA, LONDON.

GRAY AND ORMSON, Danvers Street, Chelsea, having had considerable experience in the construction of Horticultural Erections, which, for elegance of design, good materials, and workmanship, combined with economy and practical adaptation, cannot be surpassed by anything of the kind in the country, are in a position to execute orders on the lowest possible terms.

G. & O. have been extensively employed by the Nobility, Gentry, and London Nurserymen; and they can with the greatest confidence give the most satisfactory references to all by whom they have been favoured with orders. Their Hot-water Apparatus is also constructed on the most approved and scientific principles, for all purposes to which the application of Heating by Hot Water can be made available.

Gardner's Patent Turnip Cutters, Turnip Graters and Pulpers, Chaff Cutters, Linseed Cake Breakers, Corn Crushing Mills, and other Agricultural Machines.

B. SAMUELSON, Britannia Iron Works, Banbury,

WILL have pleasure in forwarding, post free, on receipt of application, his Illustrated Priced Catalogue of Implements.

SAMUELSON'S PATENT GARDNER'S DOUBLE-ACTION and SINGLE-ACTION TURNIP CUTTERS, which have been awarded the Royal Agricultural Society's Prizes ELEVEN TIMES at its yearly meetings, the last being at Carlisle in 1855; the Prize Medal at the Great Exhibition, 1851; and at nearly all the provincial societies' meetings. **BETWEEN SIXTY AND SEVENTY THOUSAND** of these Machines have been made in, and supplied from the above Works.

SAMUELSON'S NEW PATENT MACHINE FOR CUTTING AND MIXING ROOTS AND CHAFF AT ONE OPERATION (or Chaff and Roots may be cut separately if necessary). Prices—for one man, 6*l.* 10*s.*; larger, for two men, 8*l.*

MOODY'S, PHILLIPS', GAUNTLETT'S, BUSHE AND BARTER'S, and every other description of Patent TURNIP GRATERS and PULPERS.

CHAFF CUTTERS.—B. Samuelson's Cornes' Chaff Cutters of all sizes, varying in price from 6*l.* 10*s.* up to 14*l.*

CHAFF CUTTERS, for stables and small occupations and for exportation, 3*l.* and 4*l.*

CORN BRUISING MILLS (adapted also for exportation), from 3*l.* 5*s.* up to 7*l.* 10*s.* each.

MALT MILLS of various sizes.

LINSEED CAKE BREAKERS, from 2*l.* 6*s.* up to 10*l.* each.

CHURNS.—Samuelson's Registered Atmospheric and Anthony's Patent American, manufactured solely by B. Samuelson.

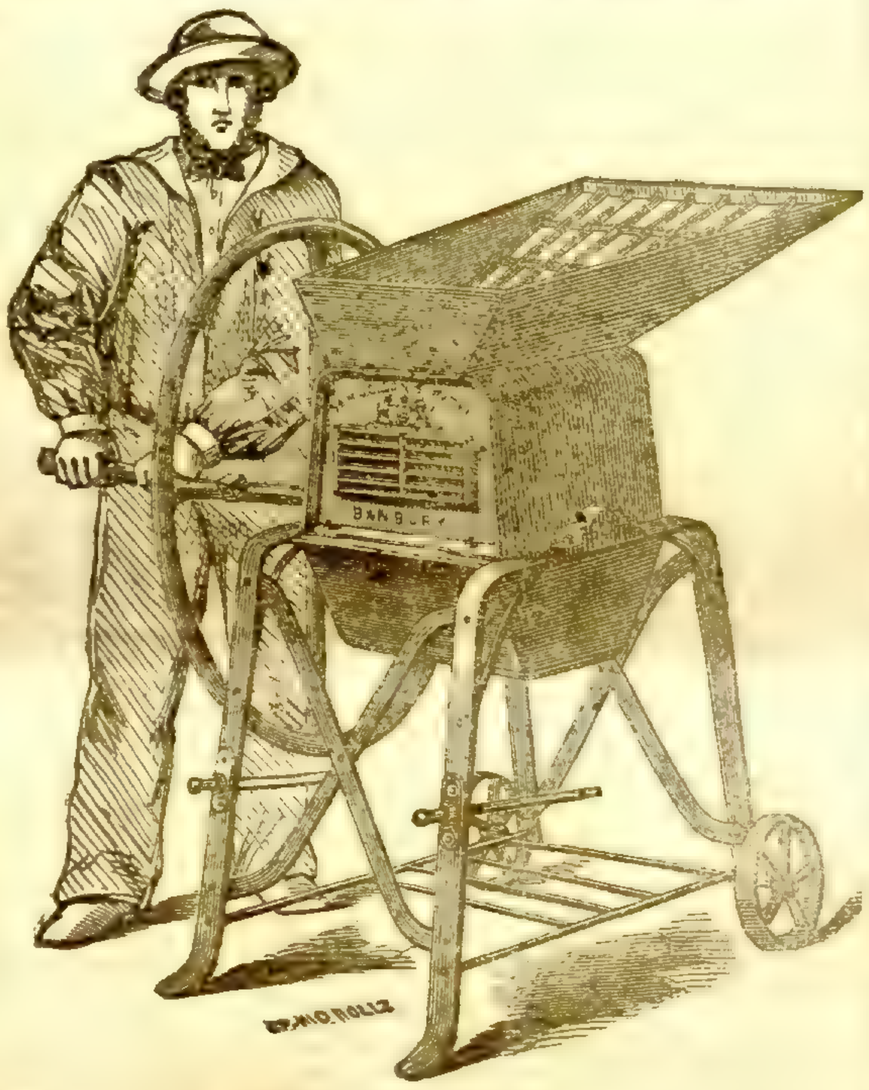
KASE'S PATENT DOUBLE-ACTION FORCE PUMPS.

GALVANIZED IRON BARREL PUMPS, at 2*l.* 5*s.*

BARLEY HUMMELLERS.

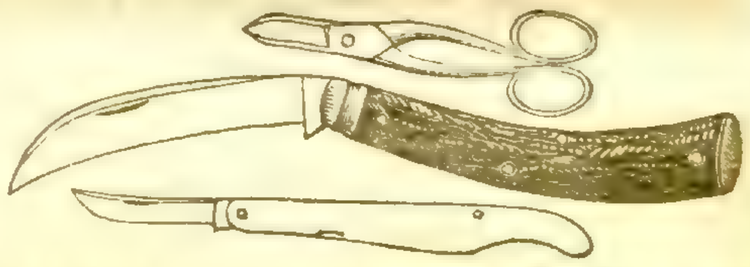
WEIGHING MACHINES, MANGLES, &c. &c. &c.

The above may be procured of all respectable Ironmongers and Implement Dealers in the Kingdom; or direct from the Works, Banbury, Oxon.



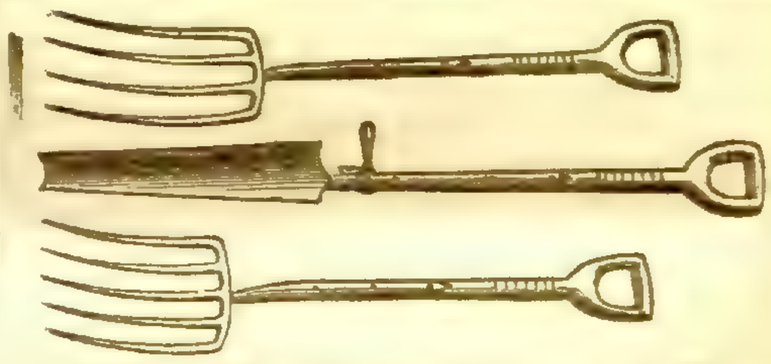
The Prices in the Catalogue include carriage to any Railway Station.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

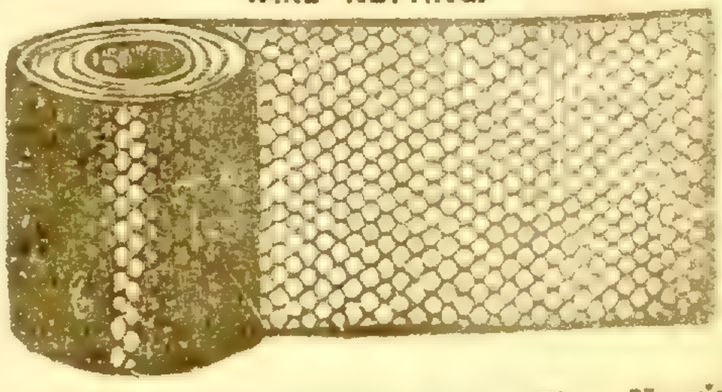
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4½ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5½ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London.

Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, JOSEPH MAPPIN and BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

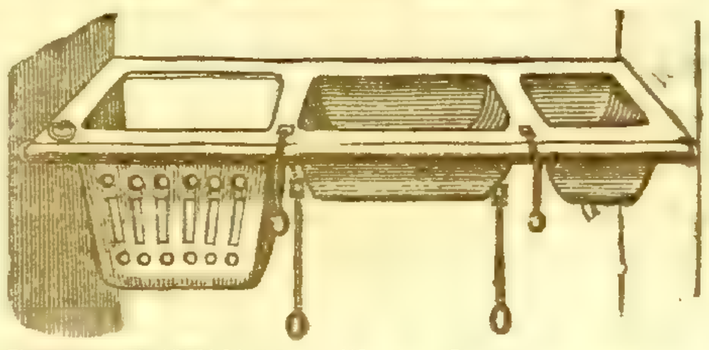
MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder &c., 370, Oxford Street, London.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges: and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2¼ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

NO CHARGE FOR WATERPROOFING.

BERDOE'S OVER-COATS, CAPES, AND SHOOTING JACKETS are guaranteed to resist any amount of rain, without obstructing free ventilation or extra charge. The established character and extensive sale of these well known garments are their best recommendation. A very large stock for selection also of Waterproof LADIES' CAPES, &c.—W. BERDOE, 96, New Bond Street, and 69, Cornhill.

FORD'S EUREKA SHIRTS.—"The Eureka is the most unique, and the only perfect fitting shirt made." *Observer.* "FORD'S Eurekas are the acme of perfection." *Court Journal.*

In half dozen boxes, ready for use, or made to order. Best quality, 42*s.*; second quality, 33*s.*

CAUTION.—FORD'S Eureka Shirts are stamped 38, Poultry, London, without which none are genuine. Catalogues post free.

RICHARD FORD, 38, Poultry, London.

VENTILATING STOVES! SUSPENSION STOVES!—Approved by thousands of purchasers, and recommended as the two best, cheapest, most healthy, and economical for Churches, Chapels, Halls, Schools, Warehouses, Shops, Greenhouses, Bedrooms, Libraries, &c. Prospectuses with Prices sent post free.—DEANE, DRAY, & Co., Stove Range, Ironmongery, and Furnishing Warehouse, London Bridge.

HEAL AND SON'S FIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 24*s.* List of Prices and Sizes sent free by Post.—196, Tottenham Court Road.

BEDS, MATTRESSES, AND BEDSTEADS.—WILLIAM S. BURTON'S NEW LIST of BEDS, BEDDING, and BEDSTEADS is now ready, and can be had gratis.

The quality of beds, mattresses, &c., of every description he is able to guarantee; they are made on the premises, in the presence of customers; their prices are in harmony with those which have tended to make his house ironmongery establishment the most extensive in the kingdom.

Feather beds	from £1	5	0	to	£8	0	0
German spring mattresses ...	„ 2	8	0	„	7	0	0
Horse hair mattresses ...	„ 0	16	0	„	5	0	0
Wool mattresses	„ 0	7	6	„	4	9	0
Flock mattresses	„ 0	6	6	„	0	18	0
Best Alva and cotton mattresses	„ 0	6	6	„	0	19	0
Sheets per pair	„ 0	7	6	„	2	6	0
Blankets each	„ 0	3	0	„	1	4	0
Toilet quilts	„ 0	4	0	„	1	7	6
Counterpanes...	„ 0	2	6	„	0	15	0
Portable folding bedsteads, with dove-tail joints	„ 0	15	0	„	9	0	0
Ornamental brass ditto ...	„ 2	10	0	„	20	0	0
Children's cots...	„ 0	15	6	„	5	0	0
Bed hangings, in every variety per set	„ 0	14	0	„	10	0	0

89, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, Oxford Street, London.

SALT AND CO.'S EAST INDIA PALE and BURTON ALES. BREWERY—BURTON-ON-TRENT.

STORES

LONDON	Hungerford Wharf.
LIVERPOOL	52, Henry Street.
MANCHESTER	37, Brown Street.
SHEFFIELD	12, George Street.
BIRMINGHAM	26½, Bull Street.
BRISTOL	Black Hall, Baldwin Street.
DUBLIN	4, Crown Alley.
EDINBURGH	Porthopetoun Warehouse.
GLASGOW	St. Vincent Place.

These Ales, in Casks of Eighteen Gallons and upwards, and in Bottle, obtained from all respectable Bottlers.

OYSTERS BARRELLED.—The Burnham River Native Oysters are the best in the world. Six years old. Four hours from the beds. To be had only at J. SWEETING'S, Fish and Oyster Establishment, 159, Cheapside. J. S. always has the largest supply of the best Fish in season at the lowest market price. In ordering Fish it will be desirable to state for how many persons it is required, and whether for visitors or domestic use. A Post-office Order or reference will have prompt attention. Superior Oyster Rooms.

THE GUINEA EVENING DRESS SEWELL AND COMPANY.

Compton House, Soho, Frith Street, London.

FRENCH MODERATOR LAMPS.—The newest Patterns of the present season.—DEANE, DRAY & Co. have completed an extensive and choice assortment of these Lamps—Bronze from 9*s.* 6*d.* to 6*l.*; China from 19*s.* to 7*l.* 7*s.* each. Engravings with prices free per post. Pure Colza Oil for the above Lamps at the lowest market price, delivered in London or the suburbs periodically or on receipt of letter order.—DEANE, DRAY, & Co. (opening to the Monument), London Bridge.

Established A.D. 1700.

COLT'S PATENT SIX-SHOT REVOLVERS.—The favourite size for Officers, Army, Navy, and Merchant Service, weight 2 lbs. 8 oz., rifle bored. Also, three sizes POCKET REVOLVERS, for travellers and house protection. A large stock of London-made ready for immediate delivery. Holsters, Belts, Pouches, Cartridges. Description and Price Lists furnished.—Order of SAMUEL COLT, the Patentee and Manufacturer, 14, Pall Mall, London.—Beware of counterfeits.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

WANTED TO PURCHASE, A NEST OF DRAWERS; must be in good order.—Address, with lowest price, and where to be seen, DRAWERS, *Gardeners Chronicle* Office.

WANTED, A FARM, from 50 to 100 acres, on Chalk or Gravel subsoil, within 25 miles of London.—Address to W. B., 15, Oxford Street.

FARM WANTED.

WEST OF ENGLAND OR SOUTH WALES.

WANTED, from Lady-day, 1857, a FARM of from 150 to 200 Acres, chiefly Arable, with good House and Out-buildings, well situated, and within four or five miles of a market town.—Address, with particulars, G. M., Barnstaple, Devon.

VALUABLE FARM IN DORSETSHIRE.

TO BE LET, the FARM of HIGHER HILTON, upon the estate of Milton Abbey, the property of Baron Hambro, from Lady Day next for such number of years as may be agreed upon. It contains 516 acres, 2 roods, 35 poles (or thereby), of which one half is arable land of good quality and capable of considerable improvement, the other half consists of superior Meadow Land and sound healthy Pasture. The Farm is well adapted for a Dairy and Sheep stock. It has convenient access to good Markets, being 7 miles from the market town of Blandford, 12 miles from Dorchester, and 10 miles from the Moreton Station of the London and South Western Railway.

Plan of the Farm and Conditions of Lease may be seen on application to JAMES CAIRD, Esq., 6, Serjeant's Inn, Temple, London; or J. GIBSON, Milton Abbey, Blandford, Dorset, by the latter of whom offers will be received until the 20th January next.—Milton Abbey, December 20.

AT A

MEETING OF NOBLEMEN AND GENTLEMEN,

HELD IN WILLIS'S ROOMS

FOR THE PURPOSE OF PROMOTING THE ERECTION OF

A PUBLIC MEMORIAL TO THE MEMORY OF THE LATE

JOSEPH HUME,

IN GRATITUDE FOR HIS LONG AND EMINENT SERVICES IN THE HOUSE OF COMMONS,

EARL FORTESCUE IN THE CHAIR,

The following Resolutions were unanimously carried:—

Proposed by LORD PANMURE, seconded by Sir B. HALL, Bart., M.P.

"That the disinterested services of Mr. Hume for above 40 years in the House of Commons, his successful efforts to check the waste of public money, his constant support of all measures conducive to the spread of moral and intellectual improvement, and his unvarying advocacy of constitutional liberty, claim a lasting record of the gratitude of his countrymen."

Proposed by the Duke of SOMERSET, seconded by THOMAS THORNLEY, Esq., M.P.

"That a subscription be therefore opened for the erection of some public memorial in honour of Mr. Hume."

Proposed by the Right Hon. E. ELLICE, M.P., seconded by Lord HATHERTON.

"That such subscriptions be limited to sums not exceeding 10*l.* from each Subscriber."

Proposed by Earl GRANVILLE, seconded by Lord ROBERT GROSVENOR, M.P.

"That the promotion of such subscription throughout the Kingdom, and the application of the same to the object proposed, be entrusted to a Committee."

Proposed by W. EWART, Esq., M.P., seconded by Colonel SYKES, F.R.S.

"That the following persons be requested to form the said Committee, with power to add to their number:—

The Lord Mayor.
Sir J. Anderson, M.P.
J. Anderton, Esq.
Sir F. Baring, Bt., M.P.
J. Ball, Esq., M.P.
M. T. Bass, Esq., M.P.
Earl of Bessborough.
Rt. Hon. E. Bouverie, M.P.
Marquis of Breadalbane.
J. Brotherton, Esq., M.P.
Lord Broughton.
W. Brown, Esq., M.P.
B. Carter, Esq., M.P.
Sir W. Clay, Bt., M.P.
R. Cobden, Esq., M.P.
R. P. Collier, Esq., M.P.
Raikes Currie, Esq., M.P.
C. Wentworth Dilke, Esq.
Sir James Duke, Bt., M.P.
George Duncan, Esq., M.P.
Viscount Ebrington, M.P.
Right Hon. E. Ellice, M.P.
Sir De Lacy Evans, M.P.
W. Ewart, Esq., M.P.
W. Fagan, Esq., M.P.
George Foggo, Esq.
Earl Fortescue.
W. J. Fox, Esq., M.P.
Dr. Glen.
G. C. Glyn, Esq., M.P.
Earl Granville.
Lord R. Grosvenor, M.P.
Rt. Hon. Sir B. Hall, Bt., M.P.
William J. Hall, Esq.
T. Hankey, Esq., M.P.
A. Hastie, Esq., M.P.
Lord Hatherton.
T. E. Headlam, Esq., M.P.
W. Hutt, Esq., M.P.
Joseph B. Hume, Esq.
Hon. Locke King, M.P.
R. D. Mangles, Esq., M.P.
Sir James Matheson, Bt., M.P.
W. Marshall, Esq., M.P.
J. J. Mechi, Esq., Sheriff of London.
R. M. Milnes, Esq., M.P.
Earl of Mulgrave, M.P.
J. A. Nicholay, Esq.,
Lord Panmure.
Joseph Parkes, Esq.,
Sir S. Morton Peto, Bart.
L. Ricardo, Esq, M.P.
J. A. Roebuck, Esq., M.P.
Colonel Romilly.
F. Russell, Esq., M.P.
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At a PUBLIC MEETING held at the MANSION HOUSE, City of London, for the purpose of promoting the erection of a Public Memorial to the Memory of the late JOSEPH HUME, the Right Hon. the LORD MAYOR in the Chair, the Resolutions passed at the Meeting held in Willis's Rooms were unanimously adopted.

Subscriptions to the present date (November) £1411 11s. 2d.

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No. 52.—1856.] SATURDAY, DECEMBER 27. {Price Fivepence. Stamped Edition, 6*d*.

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BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY'S EXHIBITIONS for 1857 are fixed to be held on the following days:—Summer Show, WEDNESDAY and THURSDAY, June 24th and 25th; Autumn Show, WEDNESDAY and THURSDAY, September 16th and 17th; on the same grand scale as in former years.

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TO THE SEED TRADE.—Just Published,

HORATIO BUNTING'S WHOLESALE CATALOGUE of FLOWER and VEGETABLE SEEDS, which will be forwarded to any Seedsman in the world post free on application. All seeds warranted genuine and true to name.—Address in full Horatio Bunting, Seed Grower, Lexden Road, Colchester.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

ROBERT KENNEDY, Seedsman, Bedford Conservatory, Covent Garden, Agent for Messrs. Platz & Son, Seed Growers, Erfurt, informs the trade that their extensive CATALOGUE for 1857 is ready, to be forwarded on application. It contains a large number of new articles, which can be recommended with confidence. Early orders are solicited.

HUGH LOW and CO. respectfully announce to their friends and the public in general that their CATALOGUE OF GARDEN AND FLOWER SEEDS is now ready, and may be had on application. H. L. & Co. have been careful in making a selection to have none that has not been proved of first-rate quality, having the greater portion direct from the growers—this applies to both Vegetable and Flower Seeds. The German Flower Seeds are from Mr. Haage and Mr. Ernst Benary, two of the most careful growers in Prussia.

Clapton Nursery, London, N.E., Dec 27.

VERONICA SYRIACA,
New Bedding Annual for 1857.

MESSRS. E. G. HENDERSON and SON having just concluded arrangements with Messrs. Ernst & Von Spreckelsen, successors to J. G. Booth & Co., Seedsmen at Hamburgh, relative to the above, have great pleasure in announcing the purchase of the entire Stock of Seed of this new and striking dwarf annual. Colour beautiful (Gentian blue), lower petals white, habit very dwarf, from 6 to 8 inches in height, compact, and covered with bunches of flowers; foliage ample and bright green; in packets at 2*s*. 6*d*. each.

Early in January next a coloured plate of above by Mr. Andrews will be published and presented with every order received previous to the 15th January, 1857.—Trade Packets, 5*s*., 10*s*., and 20*s*. each.—Wellington Nursery, St. John's Wood.

GLENNY'S SUPERB BALSAMS, altogether unapproached; 6 classes 37 stamps; mixed, 13; Hollyhock, 13; Geraniums, 37; Pink, 37; Calceolaria, Verbena, Cineraria, Heliotrope, 13 each; Asters and Stocks, the finest double in the kingdom; best 24 Annuals, 74 stamps; best 12, 37.

THE TWO SPLENDID DAHLIAS, NAPOLEON AND EUGENIA, dry roots, 5*s*. to 10*s*. 6*d*. each. Everything connected with a Garden procured from the best sources, by G. Glenny, Horticultural Agent, Dungannon House, Fulham.

GRAPE VINES IN POTS.

JOHN WEEKS and Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

MESSRS. JOHN WEEKS and CO., King's Road, Chelsea, beg to intimate that they have received their supply of SEEDS for the ensuing Season, in the best possible condition, *direct from eminent growers*; and are thus enabled to vouch for the purity and excellence of each article.

Their annual Catalogue is in course of delivery, and will, on application, be sent free by post to any address.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. To the Trade.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.

Bass & Brown, Sudbury, Suffolk.

SEEDLING CALCEOLARIAS.

WILLIAM BARNES has now ready to send out a few dozens of his superb SEEDLING CALCEOLARIAS, in fine, strong, healthy plants, at 5*s*. per dozen, without hamper. Orders from unknown correspondents will receive no attention unless accompanied by a remittance.

Camden Nursery, Camberwell.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH and SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

Highgate, Middlesex.

CHRYSANTHEMUMS.

W. HOLMES offers the above in strong plants, at 5*s*. per dozen. The large flowered varieties include Alfred Salter, Voltaire, Webb's Delight, Stellaris globosa, Antigone, Madame Lebois, &c. Pompones include Scarlet Gem, Dumflet, Aurore Boreale, Saint Thais, &c. For the cultivation of the above see Monthly Calendar by W. H. in "Gossip for the Garden."—Wm. Holmes, Florist, Well Street, Hackney.

NEW CRESS SEED! NEW CRESS SEED!—Growers or Dealers of plain Cress may meet with a buyer for a few quarters by forwarding sample and cash price to Henry Dean, Seed Merchant, Altrincham, Cheshire.—Persons having good bright Cress Seed to dispose of will do well to attend to the above Advertisement, as further transactions may be the result.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE and CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

THE LANCASHIRE SHOW GOOSEBERRIES AND CURRANTS.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to refer the readers of the *Chronicle* to his list of the HEAVIEST SHOW GOOSEBERRIES and CURRANTS in this Paper of November 29.

CHOICE FRUIT TREES and STRAWBERRIES.—For Catalogues with descriptions of the above, including the Brough Bergamot Pear, apply to Wm. BARRATT, Landscape Gardener, Wakefield.

"This is certainly a first-rate Pear."—See *Transactions of Pomological Society*, page 19.

A fine stock of Pyramid and Orchard-house Trees.

TO BEE KEEPERS.

SOW MELILOTUS LEUCANTHA MAJOR. Seed supplied by Thos. Veitch & Co., Seedsmen, &c., 195, High Street, Exeter.

CITROUILLE, hardy Melon, Giant Vegetable Marrow, small Yellow Vegetable Marrow, Boston Marrow Gourd (rich), Turban Marrow Gourd. The above novelties are offered to the public, 1*s*. per packet.

Thomas Veitch & Co., 195, High Street, Exeter.

TO MARKET GARDENERS AND OTHERS.

FOR SALE, at 8*s*. per hundred, New BLACK NAPLES CURRANT TREES, 2 or 3 years' old. A liberal allowance to the trade.—Apply to William Howell, Market Gardener and Nurseryman, Heath Lane, Hounslow, Middlesex.

FOR SALE, a bargain, 250 dozen of fine CURRANT and GOOSEBERRY TREES; been planted out two years; had great quantity of fruit on this season. Also 1000 of the true Antwerp Raspberry Canes, 500 Moss Roses, La Provence and Cabbage Roses true to name, and 18 large Orange tubs (nearly new) at a reduced price.—Direct (letters prepaid) J. Atterton, 4, West Cottages, Wellington Road, Stockwell.

CYCAS REVOLUTA (SAGO PALM)

FOR SALE, this fine specimen, 7 feet high; shows a large cluster of several hundred fruit. Though 50 years old has never fruited previously.—Apply by letter to W. B., care of Parkins and Gotto, 25, Oxford Street.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

QUICKTHORN.

CHARLES SHARPE and Co have a large quantity of the above to offer of various ages. Prices and samples may be had on application.

PINUS MARITIMA (one-year seedlings).

C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed-growing Establishment, Sleaford.

STANDARD PORTUGAL LAURELS.—A quantity of very fine plants of the above, with stems 3 to 4 feet high, and with beautifully formed heads, may be had on application to the undersigned. They have all been transplanted two years since, and will lift with large balls of earth.

Wood & Ingram, Huntingdon.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance), *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet, producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2*s.* 6*d.* per quart, 35*s.* per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2*s.* 6*d.* per quart, 40*s.* per bushel.

W. J. Epps offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA; and they have supplied several RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing them succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

ROSES.—The following named varieties can be supplied true to name; they are all fine healthy well-grown plants, and warranted to give satisfaction to all purchasers.

Dwarfs worked on the Dog Rose, purchaser's selection, 1*s.* each, or 12*s.* per dozen. Plants on stems 1 to 2 feet in height same price as dwarfs.

HYBRID PERPETUALS.

Adam Paul	Lady Stuart
Aubernon	La Reine
Auguste Mie	Laure Ramand
Baronne de Kermont	L'Enfant du Mont Carmel
Baronne Hallez	Le Lion des Combats
Baronne Prevost, per doz. dwfs 9*s.*	Leonore d'Est
Caroline de Sansal	Madame Campbell d'Islay
Colonel Foissy	Madame de Manoel
Comte Odart	Madame Freemion
Comtesse Duchatel	Madame Guillot
Cymedor	Madame Lacour Jurie
Dr. Marx	Madame Laffay
Duc d'Aumale	Madame Lamoricière
Duchesse de Montpensier	Madame Pepin
Duchesse de Praslin	Madame Rivers
Duchess of Sutherland	Noemi
Eugene Sue [dwfs., 9*s.*	Panaché d'Orleans
Géant des Batailles, per doz.	Pius IX
General Brea	Reine des Fleurs
General Cavaignac	Reine Mathylde
Graziella	Robin Hood
Inermis	Sidonie
Jacques Laffitte	Standard of Marengo
Jeanne d'Arc	Theocrite
Lady Alice Peel	Victoria (Paul's)

BOURBONS.

Bouquet de Flore	Paul Joseph
Comice de Seine et Marne	Paxton
Dupetit Thouars	Queen
Louise Odier	Scipion
Meneux	Souvenir de la Malmaison

The following at 1*s.* 6*d.* each, or 18*s.* per dozen, purchaser's selection:—

HYBRID PERPETUALS.

Alexandrine Bachmeteff	Madame Domage
Colonel Rougemont	Madame Phelip
Deuil de Willermoz	Madame Place
Duchess d'Orleans	Paul Dupuy
Duchess of Norfolk	Prince Chipetouzikoff
General Castellane	Prince Leon
Joseph Decaisne	Sir John Franklin
Jules Margottin	Souvenir de Leveson Gower
Leon Haimann	Triomphe de Paris
Louise Peyronny	William Griffiths

BOURBONS.

Adelaide Bougere (dwfs.)	Prince Albert (Paul's)
Aurore du Guide	Reveil (dwfs.)

PERSIAN YELLOW, dwarfs worked, 10*s.* per doz.

With general Collection of ROSES, &c. Catalogues forwarded post free upon application.

APPLE—Bradley's Golden Permain, standards 2*s.* each, or 18*s.* per dozen.

A remittance or reference requested from unknown correspondents.

RICHARD BRADLEY & SON, Halam Nursery, near Southwell, Notts.

TO EXHIBITORS OF GERANIUMS.—Twenty-four very fine young well-grown compact specimens of SHOW and FANCY GERANIUMS with stout wood, compact, and in the highest health, from 12 inches, 18 inches, and 2 feet through, and in 6 and 8-inch pots, consisting of the following varieties:—Purple Perfection, Rachael Leah, Minerva, optimum, Forget-me-Not, Ajax, Cuyp, Generalissimo, Galatea, Gipsy, Odoratum punctatum, Adèle Odier, Virgin Queen, Sir R. Cobden, Celestial, Exhibitor (Ayres's), Cassandra, &c. The above have been grown by a first-rate Amateur, 10 guineas the whole.

Apply to Mr. Epps, Bower Nurseries, Maidstone.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	*d.*
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

SEEDLING MEDINELLAS, between magnifica and Sieboldi, fine plants 3 years old, 2 feet high, to be sold cheap. New Seed from perfect specimens, true stock, rarely to be brought at any price, comprising Primulas, Cucumbers, and Melons of world-wide celebrity. A few packets of Hollyhock, Pansy, Dahlia, Polyanthus, Gloxinia, Cineraria, Calceolaria, Sweet William, Balsam, Aster, warranted saved from prize varieties by some of the best growers of the day. Testimonials are pouring in from all quarters, which will be published with Latter's Treatise on the Culture of Primulas, illustrated with a coloured drawing, &c. May be had on application to THOMAS WILD, Fancy Seedsman and Importer of Dutch Bulbs, Handford Road, Ipswich.

Agents:—TURNER, Slough; FISHER, HOLMES, & Co., Sheffield; BURGESS & KENT, Stoke-upon-Trent; GARNHAM, Chichester; MACKIE & STEWART, Norwich; KONING & Co., Holland; and other principal Nurserymen in England, Ireland, and Scotland.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Dec. 27.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.*				8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*					
7 by 5, and 7½ by 5½ ... 13*s.*				9 by 7, and 10 by 8 ... 13*s.* 6*d.*					
11 by 9,	12 by 9,	13 by 9,	14 by 9	...	...	15	0		
12 " 10,	13 by 10,	14 " 10,	15 " 10	...	...	16	0		
	16 " 10,	17 " 10,	18 " 10	...	...				
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11	...	16	6		
13 " 12,	14 " 12,	15 " 12,	16 " 12	...	...	17	0		
17 " 12,	18 " 12,	19 " 12,	20 " 12	...	...				
16 " 13,	17 " 13,	18 " 13,	20 " 13	...	...				
	22 " 13,	24 " 13	...	...	...	18	0		
20 " 14,	22 " 14,	24 " 14	...	...	...				
10 " 15,	22 " 15,	24 " 15	...	...	...				
	20 " 18	...	...	...	...	...	£1	2	0

Boxes charged 2*s.* each, but returnable at full prices.

ORCHARD HOUSES.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼*d.* per foot. Twenty-one Ounce, 3¼*d.*

Foreign Sheet Glass, in cases of 200 feet, 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, London.

GLASS FOR HORTICULTURAL PURPOSES.
Good 15 oz. Sheet in Squares cut to size:—

Not exceeding	per foot	Not exceeding	per foot
8 inches long	1½*d.*	24 inches long	2½*d.*
12 " "	1¾*d.*	30 " "	2½*d.*
16 " "	2*d.*	40 " "	2¾*d.*

T. & W. FARMILOE, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GARDEN VASES, FOUNTAINS, ETC.

J. SEELEY respectfully solicits immediate orders for any work of this kind that may be required next spring. It is always desirable that it should be made two months before it is used.—Artificial Stone Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.

The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.

Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety; Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, **370**, Oxford Street, nearly opposite Princess's Theatre.

HORTICULTURE IN ALL ITS BRANCHES.

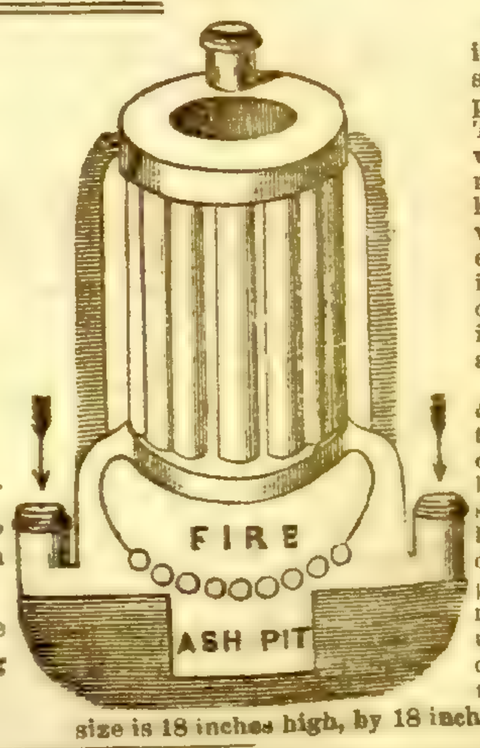
BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ROYAL EXOTIC NURSERY, CHELSEA.

JAMES VEITCH, JUN., respectfully announces that his CATALOGUE of KITCHEN GARDEN, AGRICULTURAL and FLOWER SEEDS for 1857, with a List of Implements and other Garden Requisites is now published, and will be forwarded post free on application.

J. V., Jun., devoting his PERSONAL attention to this department of his business can warrant his seeds TRUE TO NAME and of the most GENUINE DESCRIPTION.—Dec. 27.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

A List of Agents will be advertised in a short time.

Dulwich, Surrey.

A. VERSCHAFFELT, NURSERYMAN, Ghent (Belgium), begs to announce that his NEW CATALOGUE, No. 63, for the year 1857, is now ready, and can be obtained on application at his Agent's, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London. His Catalogue contains all the English and Continental Novelties.

A. V. also recommends his work "L'Illustration Horticole," of which the 12th Number (December) of the 3d Volume has just appeared, and contains the following coloured plates:—

1. Rose (Perpetual) Victor Trouillard.
2. Lilium philadelphicum.
3. Meconopsis simplicifolia.
4. Cocos botryophora.
5. Rhododendrum Blandfordiæflorum.

N.B. The same Number contains the General Programme of the Grand Horticultural Exhibition of the Royal Botanic Society of Ghent, open to all nations, and which will be held on the 1st, 2d, and 3d of March next ('857).

Price of VERSCHAFFELT'S "Illustration Horticole," 12*s* a year.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3. 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Weareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies, 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

DICKSON'S EARLY FAVOURITE PEA.

FRANCIS AND ARTHUR DICKSON AND SONS, SEED MERCHANTS, &c., Chester, have great pleasure and satisfaction in again calling attention to this *distinct* and VERY *valuable* Early Pea, admitted as it is, by *all* who have grown it, to be the *most prolific* and *best* Early Pea ever introduced.

It comes in very few days after the *Earliest* varieties, grows about 4 feet high, and produces a *wonderful* profusion of pods, containing, on an *average*, nine to ten Peas of first-rate quality and flavour.

Independent of its excellence as an Early Pea, it has proved invaluable as a *Late Pea*, having been found to resist *mildew* when most other varieties are destroyed.

The testimonials of its excellence and durability which they received last season (1855) were of the most gratifying description, and they have the satisfaction of stating that the accounts which they have received of it from nearly every county in Britain into which they last spring (1856) sent it, *more than bear out* all that has hitherto been said in its favour.

Testimonials to the above effect, from upwards of Fifty of the first Gardeners in the Kingdom, will be forwarded on application.

Finding that many Seedsmen from whom it was ordered last spring *substituted* other sorts for it, F. and A. D. and Sons have resolved to send it out in SEALED PACKETS, so as to prevent a recurrence of the disappointment which the substitution of other sorts caused many purchasers last season.

The following firms have received a supply from F. and A. D. and Sons, and are their authorised agents. Those marked * are wholesale agents.

*Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London.
*Messrs. Beck, Henderson & Child, Adelphi Wharf, London.
*Messrs. Charlwood & Cummins, Covent Garden, London.
*Messrs. Nutting & Sons, Cheapside, London.
*Messrs. Flanagan & Son, Mansion-House Street, London.
*Messrs. Noble, Cooper & Bolton, Fleet Street, London
*Mr. J. G. White, 181, High Holborn, London.
*Mr. Henry Clarke, King Street, Covent Garden, London.
Messrs. Clarke, Boshell & Co., 86, Borough, London.
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Messrs. James Carter & Co., 238, High Holborn, London.
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Messrs. Bass & Brown, Sudbury, Suffolk.
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" Thomas Wild, Nurseries, Ipswich.
" William Chater, Nurseries, Saffron Walden.
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" John Cattell, Nurseryman, Westerham.
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Messrs. W. Drummond & Sons, Seedsmen, Stirling and Dublin.
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Price 2s. 6d. per quart, or 1s. 6d. per pint, in sealed packages.

Vegetable, Flower, and Agricultural Seeds of superior quality, and at moderate prices, Catalogues of which may be had on application to FRANCIS AND ARTHUR DICKSON & SONS, the old-established Seed Warehouse, 106, Eastgate Street, Chester.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 27, 1856.

OUR readers will not have forgotten the long discussion respecting POLMAISE HEATING which took place in these columns some years since. Although for many reasons the subject was dropped, especially on account of the death of its enthusiastic advocate, the late lamented MR. MEEKE, yet we have never altered our opinion of the advantages that attended its employment under certain very frequent circumstances, provided the great difficulty, that of preventing the splitting of the hot plate from which the air derived its warmth while passing into a greenhouse, could be overcome. Evidence, upon which the utmost reliance may be placed, and which has lately reached us, shows that the difficulty in question no longer exists; and that this simple method of warming greenhouses, as now managed, fulfils every condition that can be demanded of it. Were we at liberty to mention our correspondent's name it would be recognised by many Lancashire gentlemen as one of the highest credit in their county. We do not propose just now to offer any comments of our own, but merely to produce the statement which has been made to us.

"One does not hear much of 'Polmaise' now," writes our correspondent early in December, "but I am more convinced than I ever was that there is no system of heating equal to it. I have had it at work now for many years in my church and schools, and it answers perfectly, and last week at Wansfell, on the banks of Windermere, I saw a greenhouse and stove thus heated, which had been at work for six or seven years, and it was impossible for plants to look more healthy. The stoves made by WHITEHEAD, of Preston, seem entirely to have overcome the difficulty as to any escape of gas. They are made of wrought iron, and are from 5 to 6 feet high. They are lined with fire bricks to about half their height, and the fire bricks of course do not touch the sides of the stove. I should say that in order to give Polmaise fair play it is quite necessary to be able to excavate at least 6 feet under the building to be heated. I thought you might like to hear the testimony of a man respecting Polmaise, who has had it in constant use for some years. I know no place where Polmaise is to be seen to so great advantage as Wansfell, Windermere."

In a second letter, written a few days later, he says:—"I may as well add something more to what I have already told you. In the first pl ce, I have just been pulling down a Polmaise apparatus in my garden—but why?—not because it did not work perfectly, but because, from the situation of the ground, which is liable to floods, the stove could not be placed sufficiently low to secure *bottom-heat*. The stove had been at work six or seven years. It gave abundance of heat and I never was troubled in the slightest degree with the escape of gas. I have already stated to you that there is a Polmaise stove in the church here, and another in the schools. In the church there is a *second* Polmaise stove which I had made of fire brick; it is only sunk 1 foot below the ground level in order to avoid flood waters which annoy us much, and the hot air is admitted into the church about 4 feet above the level of the floor. It works capitally. Sometimes when the fire is just lighted there seems to be some escape from the stove, but nothing to be disagreeable in the church. I do not, however, mention this brick stove by way of recommending it for *plant* houses; but only to give another instance of the successful working of the principle of Polmaise here. I am acquainted with two places where Polmaise (so called) has failed—the one a church at Frayles built by Lord DERBY, the other a church lately built at Ambleside. In the former church my late gardener was sent for to superintend the building of a brick stove. In the latter, WHITEHEAD of Preston put up one of his wrought iron stoves; neither would work, and I will tell you the reason why—because in both cases the *air drains* were altogether wrong. Had my gardener or WHITEHEAD made the drains, I have no more doubt that both stoves would have answered than that I am writing to you. Indeed the system cannot help working if it has only fair play. The more simple the plan the better. In my mind the shorter the drains the better; let them be large enough; let the cold air drain almost drop down to the bottom of the stove, and the hot air drain have a very quick rise into the building to be heated, and all will go well. But good as the system of Polmaise is, hot water is and will be more popular with people in general, because of the common belief that what costs the most is best, and unhappily Polmaise is not to be compared with hot water in point of expense."

It seems to us that this statement is of no small importance to those to whom the cost of hot water is an insuperable bar to the possession of a greenhouse.

SOME observations were made in the *Gardeners' Chronicle* for 1854, p. 740, on a paper of Dr. CASPARY's respecting the formation of plates and threads of ice on the stems of certain exotic plants. The cases in which he observed the curious phenomena were those of plants still remaining in the soil and capable of supplying a rapid succession of fluid from below. LECOMTE, however, states that it may take place in half dead stems, provided they are still green; and the fact we have now to bring forward shows that it may take place equally when there is not the slightest vestige of vitality. A branch of Walnut about 1 inch in diameter, perfectly decorticated and more than half decomposed, attracted our attention just before sunrise on the 19th of December, from the dense woolly coat with which it seemed to be covered. There was only a slight hoar frost on the ground, and from its state the thermometer could not be lower than 30° of FAHRENHEIT, but we had no opportunity at the moment of ascertaining the exact temperature. On inspection, the substance projecting from the wood was extremely beautiful. It was arranged in parallel or slightly spiral lines, according to the course of the outermost wood-cells, and the individual threads, which were of a pure white and lustrous as spun-glass, were an inch or more long, curling over gracefully after the fashion of little tendrils, and sometimes marked at short intervals with slight constrictions. A moment's examination was sufficient to refer the phenomenon to the same series as those recorded by LECOMTE, HERSCHELL, CASPARY, and others. There was at any rate no question of vital action here, and as mere physical causes are sufficient in the present instance to account for it, it is probable that they were the only agents in the other cases.

The half rotten wood was saturated with the moisture of the previous day, and under the

influence of a slight depression of the thermometer below the freezing point, there was just strength enough to affect the outer surface, while the inner substance being gorged with moisture and less expanded acted at once as a powerful mechanical agent to force out the expanding surface water as it was converted into ice, and supplied the consequent deficiency. The threads were protruded only in the depressed striæ of the surface with which one or more medullary rays were in connection, and towards which several ducts radiated. In this case the tissues, whether cells or ducts, were clearly all filled with moisture, and the state of their walls was such from incipient decomposition as to present little impediment to the passage of the contained fluid. Such phenomena do not require a very low temperature, the effect of which would be so rapid that time would not be given for the formation of the threads or the continued supply of fresh fluid. It seems curious, however, that the matter is not of more frequent occurrence; at least, in the course of more than 30 years' observance we have never met with a similar case before. *M. J. B.*

ENTOMOLOGY.

THE NEW ALEYRODES OF THE GREENHOUSE.

DURING the past 12 months the greenhouses both in the public gardens at Kew and in the gardens of the Horticultural Society at Chiswick, have been infested with a new pest, under the appearance of a very minute white four-winged insect, like a miniature moth, to which my attention was first directed by Sir William Hooker, and subsequently by Dr. Lindley. It especially attacks the leaves of Mexican species of Gonolobus, Tecoma velutina, Bignoniæ, Aphelandræ, Solanums, and other similar soft-leaved plants, and is supposed to have been imported with living plants or in the packings of Orchidaceæ from Mexico, in all cases attaching itself to the underside of the leaf. Here it sits tranquilly with the tip of its short naked sucker or rostrum thrust into the leaf, but on passing the hand over the plants, quite a little white cloud of the insects is raised. They soon, however, settle again to renew their attacks, which are shortly followed by a discoloration and blackening, and subsequent drooping and falling of the leaves. The ordinary fumigations have been tried, and the winged insects, which are very delicate little creatures, are easily killed, but in a day or two a fresh brood of the perfect insects makes its appearance in as great numbers as before, and this continues to be the case after repeated fumigations. Nor is the placing of the plants out in the open air more successful in getting rid of the enemy, as Mr. Gordon pointed out to me a cluster of plants which had been in the open air for more than a fortnight, and which were swarming with the insects as thickly as those within doors.

The insect when seated with its four wings closed over its back is not larger than the head of a good-sized pin, and were it not for its beautiful clear white colour it would be seen with difficulty. A microscopical examination proves it to belong to the genus Aleyrodes (one of those aberrant groups allied to Aphis and Coccus) of which we possess in this country several native species, one (A. Chelidonii) found upon Chelidonium majus, and also on the common Cabbage; another first determined by Mr. Haliday infests the common Phillyrea.

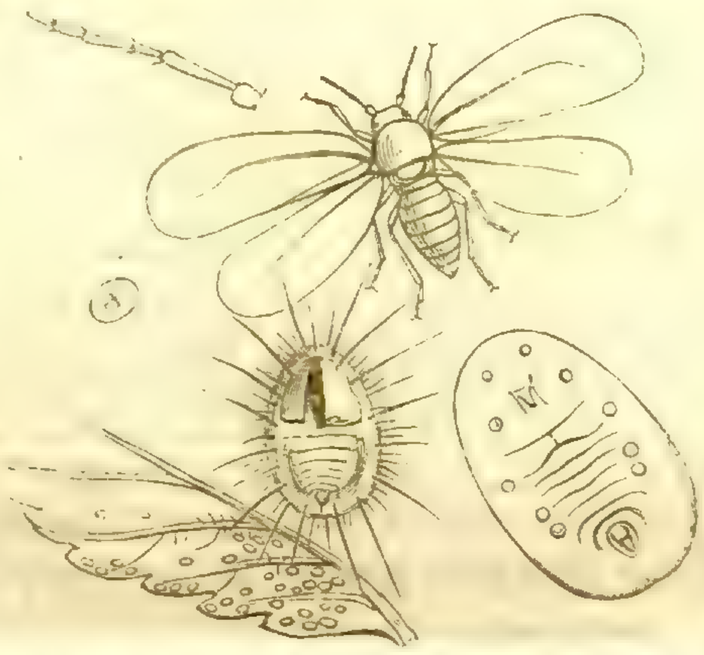
The body is soft and rather fleshy, the head distinct, with a pair of antennæ consisting of only six joints. the first large, the second long, and the four following short and slender; the eyes are four in number, each being small and round, the two on each side placed near each other; the rostrum short, fleshy, apparently two-jointed, emitting from its apex a fine pointed (certainly compound) black seta, which is the real instrument by which the plants are wounded. The whole body, legs, and wings of the insect are covered with a white powdery secretion, analogous to the white floccose matter of the Apple-blight Aphis, the white mass in which the eggs of various species of Coccus are enveloped, and which is developed in many other Homopterous insects; the wings are of moderate size, rounded at the tips, with a single central strong rib; when at rest they are placed over the back roof-wise, and the legs are rather short and simple.

On examining some of the infested leaves I found them covered with great numbers of flat bodies of extremely delicate texture, fringed with long, straight, slender hairs (having a good deal of the appearance of some small species of mites); their number was greatest on the lower leaves of the plants, and I counted not fewer than 250 upon a single leaf of moderate size. They are of an oval flattened form, the margin being very thin; the fore half of the body is occupied by two portions, which shut close by a straight slit along the middle of the back, but are generally seen more or less opened like the doors of a cupboard. These bodies are the envelopes of the pupæ of the Aleyrodes, which have already made their escape in the winged state, but with them were mixed many much smaller specimens of the insect destitute of the fine hairs and very transparent, of a very flat oval figure, the middle and hinder half of the body exhibiting traces of the abdominal segments, with the anal apparatus placed at some distance from the hinder extremity of the body; the rostrum, very minute and conical, is seen at some distance from the anterior extremity, and around are seen several pairs of tubercles, which seem to represent the eyes, antennæ, and legs, and which are seen much more clearly in Professor Burmeister's figures of the young of Aleyrodes Chelidonii.

The present species, although very closely resembling A. Chelidonii, differs from it in its smaller size, in having only 6-jointed antennæ, in the want of the dusky spot on each wing, in the more suddenly angled rib in the middle of the fore-wings, and especially in the long straight rigid hairs with which the body of the pupa case is defended, and within which the insect lies concealed for several days, unaffected by external agents (except heat and cold), which circumstance explains the cause of the sudden reappearance of the insects so soon after fumigation. In consequence of its being only hitherto known in greenhouses it may be specifically named Aleyrodes vaporariorum.

The history of the common species, A. Chelidonii, formed the subject of one of Réaumur's remarkable memoirs (Vol. ii., Mem. 7), and his account furnishes us with several particulars worthy of attention with reference to the question of a possible means of getting rid of this new pest, which doubtless possesses habits quite similar to those of Réaumur's insect. It might be supposed that as the latter was attached to a native plant in the open air, its powers of propagation would be much less continuous than those of the species now before us, which being produced in houses in which an uniform temperature is kept up, would most probably continue to propagate throughout the whole year. This is indeed the more probable because Réaumur expressly tells us that he had observed A. Chelidonii in the months of December and January after sharp frosts, "*comme en été*," in all its stages of eggs, young just hatched, full grown larvæ, and perfect insects. The plants are in fact as thickly infested with the insects in all their stages at the present time (December 24th) as they were two months ago, notwithstanding repeated fumigations.

After describing the structure of the perfect insect, its mode of sucking the leaves of plants instead of sipping the honey of flowers, its four eyes, and its mealy wings—in all of which respects it was so different from ordinary moths as not a little to puzzle the learned naturalist, who could not think that such a tiny creature ought on such account to be removed from them and to



form a separate class by itself—he informs us that on the 25th June he observed a female seated on the under side of a leaf, where she remained several days. By the 27th she had formed a small circular enclosure around her body about a line in diameter, entirely covered with the white powder with which her whole body was covered, and around the circumference of this space were arranged nine small eggs of an elongated oval form, fixed upright. The number of eggs which Réaumur found in one of these groups never exceeded 14. The number is, however, sometimes more than double that stated by Réaumur. This is the more important since Réaumur's calculation that a single female may in the course of a year (owing to the rapidity of the subsequent generations) become the progenitor of 200,000 individuals was based on the supposition that each female deposited only 12 eggs, whereas I have observed not fewer than 36 in a single group. By the 9th of July none of the eggs remained visible in the place where they had been deposited, but at about a quarter of an inch from the patch of white powder were observed a number of minute oval flattened bodies like miniature tortoises, which proved to be the young larvæ, and of which the six legs were visible through the transparent skin of the back. They remained here fixed for four or five days, slightly increasing in size, their nutriment consisting of the fluids of the leaf, which they extracted by means of their rostrum. On the 15th July they underwent a change of form, becoming more oval, with one end of the body pointed. On the 20th July they reassumed their previous tortoise-like form, but somewhat more convex, and beneath this figure the insect assumed its pupa form. On the 24th July the perfect insects appeared, thus occupying less than a month in undergoing their transformations.

The woodcut represents the perfect insect magnified, the natural size indicated within a small oval; one of its antennæ more strongly magnified; part of the underside of a leaf, with the young insects and pupa cases of the natural size; a pupa case, slit down the upper surface, magnified, and a young insect much more strongly magnified. *J. O. W.*

NEW PEARS.

THERE is a fascination in new Pears almost equal to that in new Roses and new plants; but this is not felt in England to anything like the extent it is on the Continent, and more particularly in Belgium. Whether or not the theory of Van Mons is correct, it is undoubtedly to his collection of seedling Pears we owe very many excellent varieties, and some of those lately sent out are remarkable for their hardiness. The way they manage in Belgium about sending forth to the world the new Pears from the Van Mons' collection, and also those (with other kinds of fruit) raised by M. Gregoire and others, is perhaps interesting, and a few words about it may not be out of place.

Some few years ago the whole collection of seedling Pears raised by the late Van Mons was purchased by Monsieur Bivort, author of "Album de Pomologie," and transplanted to his nursery at Geest St. Remy, near Jodoigne, in Belgium. I saw them there two or three years after their transplantation, and well remember the surprise I felt on seeing such large and tall pyramids, many of them 12 and 15 feet in height, and upwards of 20 years old, succeed so well after being removed many miles, and planted in a soil not very favourable to their well doing. A few years since M. Bivort discontinued his business of nurseryman, and originated a society for the distribution of his new Pears, under the title of the "Société Van Mons," and under the patronage of the King of the Belgians. The members of the society pay an annual subscription, and are entitled to receive grafts only of Pears, Plums, Cherries, and Apples, and plants of Strawberries and Raspberries. The society at present, judging from its catalogue, has not entered into the culture of other kinds of fruit. The number of subscribers now amounts to 200 and upwards, the major part of which are residents of Belgium. France comes next in the number of members. A few Bohemians, Hungarians, Americans, and (last and least) one Englishman, fill up the catalogue. A list of the subscribers is published annually; the members who first joined the society are called the founders, and have the privilege by rotation of naming the seedling Pears of the Van Mons' collection after they have been tested by the society and thought worthy of cultivation. Three new Pears from the collection were thus named in the early part of the present year after the three first names on the list of founders, viz., Madame Adelaide de Réves, Seraphine Ovyn, (so named by M. Ovyn of Courtrai), and Napoléon Savinier; these are all described as "de toute première qualité," the first two ripening in October, the latter from January to March. The greater part, however, of the new Pear grafts sent out were from seedlings of M. Grégoire, who, if we may judge from the descriptions attached to them, is likely to rival or even surpass the late Van Mons or Esperen in the excellence of his seedling Pears.

Their names and season of ripening are as follows; I may add they are all first-rate in quality, as decided by the jury of Belgian Pomologists:—Colmar Delahant, January and February; Commissaire Delmotte, end of January; Dr. Lentice, October; Hélène Grégoire, October; Iris Grégoire, December and January; Léon Grégoire, January and February; Nouvelle Fulvie, January and February; Rousselet Vanderweeken, December and January; Dr. Nelis, November and December. With the exception of the two latter, the fruit of which is small, the second of medium size, these are all described as of first size, and consequently likely to add some valuable varieties to our list of late Pears. It must, however, be some few years before they can be fully tested in our climate. I find from long experience that varieties of Pears which are invariably good in Belgium and France sustain their character in all the southern, south-western, and south-eastern parts of England, but that a variety that fluctuates with soil and season in the above countries is scarcely worthy of cultivation in this country. There are some valuable Pears not new to the collector, but new to a great portion of your readers, that are quite worthy of mention, as they have been fully tested in our climate. I have been particularly pleased this season with Alexandre Lambré from the Van Mons' collection; this ripened towards the end of November the fruit gathered from a pyramid on the Quince; in shape and size it resembles a Passe Colmar; indeed it is of that race (for there are races of Pears). The tree grows freely on the Quince, is remarkably hardy, and bears abundantly as an espalier, pyramid, or standard.

Bergamotte Dussart: in 1854 I thought this one of the most delicious Pears I ever ate, its aroma was so delightful; it has not however sustained its high character; it ripens in December, and as so many fine Pears ripen in that month it is not worthy of extensive cultivation. Not so however with Prince Albert (V. M., *i.e.*, from the collection of the late Van Mons), which is likely to prove one of the most valuable hardy Pears we have had introduced for a long time; the tree is a beautiful and luxuriant grower either on the Pear or Quince and does not seem to know how to canker. It is not so precocious in bearing even on the Quince as some other kinds. My specimen tree, budded on the Quince stock and now some five or six years old, is full of blossom buds, so that it will doubtless prove a good bearer when of a tolerably mature age; the Quince stock is most highly favourable to it, but few Pears grow with equal vigour on it. It is in shape much like Beurré Rance, not quite so large, is melting, very juicy, with something of the flavour of Passe Colmar, keeps till March and will probably in some seasons keep

longer; we have thus a most valuable late Pear worthy of extensive culture.

Alexandre Bivort is another excellent kind of Pear; we owe this to the collection of the late Major Esperen; it is named after Monsieur Bivort, the director of the Société Van Mons, and seems well adapted to our climate, grows well on the Quince but is better adapted for an espalier or spreading bush than a pyramid; the fruit is of medium size, greenish yellow, melting, and juicy, with a delicious aroma; it ripened here in February last and is well worthy of culture.

Maréchal de la Cour, (V. M.) or as it is called in Belgium Conseiller de la Cour, is worthy of a place in every garden although it ripens in November when so many good Pears are in season; in vigorous growth on the Quince it rivals Prince Albert but does not form so compact a pyramid, as its habit is spreading something like that of Beurré Diel. When it made its first appearance it was said to be an especial favourite of the late Van Mons; no Pear can be more melting and delicious, and it has a peculiar agreeable aroma unlike that of any Pear I am acquainted with; in size it is about the medium.

Dr. Trousseau (V. M.): this large and most excellent Pear commenced to ripen towards the end of last December and continued good till the middle of January; it is melting, very juicy, with a delicate vinous flavour exceedingly grateful; the tree is very hardy, grows well on the Quince, and is better cultivated as an espalier or dwarf bush than as a pyramid.

Beurré Bennert (V. M.): this is a pretty round Pear rather below the medium size, of a bright yellow when ripe; the tree is very hardy and will not canker, but succeeds better on the Pear than on the Quince. My specimens ripened about the middle of last February; they were not however equal in quality to the description given me by Mr. Bivort from whom I received the variety; it deserves further trial.

Leopold the 1st (V. M): this is a most excellent January Pear; the tree forms a delightful compact prolific pyramid of slow growth, just one of those trees that will grow into beauty without much trouble in pruning.

Passe Tardive (Esperen): this is a long keeping Pear which has been in my collection some years, and has risen and fallen in estimation more than once; it is a great bearer, and flourishes as a bush or low pyramid on the Quince, and probably if planted against a wall with a warm exposure it will prove really good. My specimens kept sound till the end of last May; they were not rich but soft, juicy, and agreeable. If grown as a bush or low pyramid it should have a warm corner and light warm soil.

In writing about this late Pear I am reminded of another which has been placed among kitchen Pears, but which I think may be found worthy of better treatment; this is Léon le Clerc de Laval (V. M.) which is one of the largest and handsomest Pears in cultivation, keeping sound till June and July, and then becoming soft and eatable. Now I am inclined to think that if it were planted against a south or south-west wall it would ripen in April and May and become a good dessert Pear; it is really worthy the experiment.

Bezy d'Esperen (Esperen): this very excellent Pear has been by some of the Belgian Pomologists confounded with Bergamotte Esperen. It is of the same race, but the tree is inclined to be thorny, and it is much more vigorous in its growth; it also ripens from one to two months earlier, generally early in January, whereas the Bergamotte ripens towards the end of March, and often keeps well all through April. I received the Bezy about 12 years ago from the collection of Major Esperen, who then lived at Malines, and at the same time the Bergamotte, Josephine de Malines, Fondante de Malines, and a very late Pear which seldom or never ripens called Bonne de Malines, of course quite distinct from the Winter Nelis which sometimes goes under the name. The Bezy d'Esperen is a most luxuriant grower on the Quince stock, nearly equal to Prince Albert in that respect, and bears well as a pyramid, being quite hardy; it is round with much of the Bergamotte shape, of medium size, and melting and very good without any distinguishing aroma.

Bergamotte d'Esperen may be described in few words: it is one of our best very late medium sized Pears, of the Bergamotte shape, very hardy, a free grower on the Quince, and a most abundant bearer under all circumstances.

Gansel's Late Bergamot: this was raised by the late Jno. Williams, Esq., of Pitmaston, from the Gansel's Bergamot crossed with some late variety (I have mislaid his note sent with it as to its parentage). This is one of the most vigorous growing trees I have ever met with and slow in coming into bearing unless double worked on the Quince. My trees bore for the first time in 1855; the fruit, in shape exactly like the Gansel's, but one-third smaller, ripened towards the end of December. In flavour this delicious Pear is like its parent, having the same exquisite aroma; the flesh is quite melting and full of juice, it is in truth a late Gansel's Bergamot. Mr. Williams advised that it should be grown only as a standard or pyramid and not trained to a wall.

Doyenné Defais: this is a French variety of Pear, raised at Angers; it is full-sized, in shape like the White Doyenné, or as Pear amateurs would say, of the Doyenné shape, as all or nearly all the Doyenné Pears are of a roundish oval with short stalks. It ripened with me the commencement of last January; it is melting, very juicy, with a delicate perfumed flavour, and of high excellence; the tree is hardy, forms a handsome pyramid, and grows freely on the Quince.

Beurré Superfin: this most excellent Pear was raised at Angers; the tree is inclined to be thorny, is remarkably hardy, and like most Pears with that habit is seldom or never inclined to canker. The fruit is as large and of the shape of the Brown Beurré, and its skin is covered with a light russety coat. When first introduced it ripened in September, but latterly it has kept well all through October. No Pear can be more delicious, as it is perfectly melting and full of juice of a most refreshing quality. The tree succeeds well on the Quince, and comes into bearing more quickly than when grafted on the Pear, and forms a healthy nice pyramid.

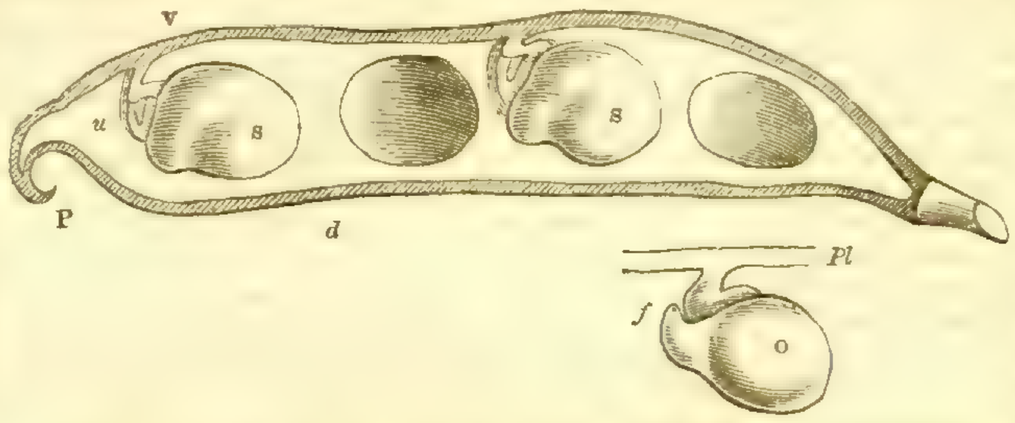
Poire Prevost (V. M.): this is one of the handsomest late Pears we possess, being, when ripe, of a bright red and yellow. It is also one of our most abundant bearers. I have seen clusters of fruit put forth from the buds inserted in the Quince stock, so that a tree budded in August has given fruit the following season. This is very remarkable; it grows well on the Quince, but not rapidly, and forms a small prolific pyramid. Its fruit is medium sized, of a highly perfumed or musky flavour; and keeps well till May. These last two seasons it has not softened or become melting, and seems to require a warm climate. It will be therefore advisable to plant it against a south or south-west wall, or grow it in pots in the orchard house. These highly perfumed flavoured Pears are greatly esteemed by some amateurs. *Thos. Rivers, Sawbridgeworth.*

PRACTICAL LESSONS IN BOTANY FOR BEGINNERS OF ALL CLASSES.—No. XIV.

By the Rev. J. S. HENSLOW, M.A., Rector of Hitcham, Suffolk.

(*Concluded from p. 837*).

Fruit.—In the Bean, the calyx withers, but remains after the petals and stamens have fallen. The stigma and summit of the style perish. The ovary and base of the style gradually enlarge, together with the ovules; the ovary becoming the "pericarp," and the ovules passing into "seeds." A single pericarp (the Bean-pod), and its contained seeds, here constitute the "Fruit." But, in many plants, other portions of the flower remain (*persist*), and form "accessory appendages" (*Exuvies*), to the fruit. For instance, in the Strawberry, the fleshy eatable part is the "floral receptacle," whilst the numerous pericarps upon it are vulgarly regarded as seeds. In the Raspberry, the floral receptacle is not eatable, but the outer part of each pericarp upon it becomes succulent. Whichever part of a fruit may be thus or otherwise modified, the beginner should remember that the pericarp or "seed vessel" originates from the ovary, the seed from the "ovules." Where a calyx-tube adheres (*superior calyx*), and becomes thoroughly incorporated with the ovary, it is not regarded as an accessory appendage to the fruit, but as forming part of the "inferior pericarp" itself.



(P) One valve of the pericarp, with its seeds (s); (v) ventral, and (*d*) dorsal sutures; (*u*) funicular or umbilical cord; (o) ovary, (from the ovarium); (*Pl*) placenta; (*f*) foramen, which becomes the micropyle.

The ripe pericarp of the Bean not only splits readily along its ventral suture, but also along a line parallel to it at the back (*dorsal suture*) though there is here no union of edges, as in the former. The two portions formed by these splittings are called "valves" (P). All fruits which split spontaneously or readily along determinate lines are said to be "dehiscent," in contradistinction to such as do not split and are "indehiscent."

N.B. Compound pericarps, and the few technical names applied to fruits, may be deferred.

Suggestion to Botanical Teachers.—Wherever the restriction of a technical term can be rigorously maintained, it is highly important not to employ it in different senses. Modern Botanists refer all "Heads" (*Capitula*) of flowers to "Inflorescences," with or without an Involucrum, and no longer regard them as "Compound Flowers" with "Common Calyx." But the term "Fruit" is applied to the pericarps and their seeds, with or without accessory appendages, which belong to a single flower, whilst the term "Compound Fruit" is, *in some cases only*, applied to certain crowded pericarps and seeds collectively, which belong to several flowers. Thus the crowded inflorescences of Composites and Grasses are not called "compound fruits" when the ovaries have become pericarps, although those of Figs, Mulberries, Fir-trees, &c., are so regarded. This is apt to confuse beginners, who do not see (any more than I can) why the term "Compound Fruit" should be retained when that of "Compound Flower" is discarded. I have therefore suggested, and have adopted my own suggestion (!) that the term "Infructescence" should be employed to signify the aggregation of all the fruit that is formed on an "Inflorescence." Like many botanical terms its derivation is not unexceptionably classical (except on the precedent of *lucus a non lucendo*), but it alliterates better with the term of which it is a modified representation than the word Fructescence, which may still replace it if it be thought more advisable. Even in less decided cases than those referred to, its use may often be advantageous. For examples, in the "Inflorescence" of Anemone pulsatilla the involucrum is close to the flower, in its "Infructescence" far apart. In Euphorbia we have a remarkable "Inflorescence" of numerous diclinous flowers, but an "Infructescence" composed of a single pericarp, with the accessory bracts.

Seed.—On opening the ovary of Bean-flower, about three or four small ovules (o) will be seen, adhering to the "Placenta," the slightly swollen combined margins of the carpel which form the ventral suture. These ovules are attached alternately to the one and other margin by a short thick stalk, the "funicular or umbilical chord" (*funiculus*), which is somewhat expanded at the summit (*carunculate*). The internal structure of the ovule need not be yet explained, but we see it projects a little on one side which is turned towards the placenta and is perforated at the summit of the projection by a minute hole termed the "foramen," and which, in the ripe seed, becomes the "micropyle" noticed formerly. When the ovule has ripened as a seed, it spontaneously separates from the funicular cord, and the scar left on the surface is the "hile" before noticed.

In conclusion. These notices might have been made a little more complete by tracing a Monocotyledonous plant from the embryo state in the same way as the Bean; but more than sufficient has now been stated in illustration of the general plan which has been pursued for impressing some of the most important particulars of the general structure of plants upon the susceptible minds of young children who possess no other botanical work than the grand folio to which they can have constant recourse in the free Library of Nature. If I may advise those who are desirous of giving practical Lessons in Botany which may not only serve the purpose of conveying useful instruction, but also of *educating* (as I have explained in a former No.) the mental faculties, and improving the moral apprehensions of young children, I should say to them—

1st.—Contrive (what needs very little contrivance) to interest children about the structure of flowers. Among the girls (I speak of purely agricultural villages) you will be sure to succeed; from the boys you can expect little or no progress whilst masters and parents are so little careful to have them educated.

2d. Insist, without any compromise, upon your volunteers mastering the meaning and acquiring the powerof applying a few hard words. It is singular what difficulty some grown-up people feel at shaping their muscles to the pronunciation of a new word, even when clothed in an English dress. A friend of mine keeps his pony Zoe at stables where the country hostler cannot approximate nearer to this name than Zooky. The first Basil lately baptized in this village is still a puzzle to his mother and all her neighbours. But if we begin with little children, we find we have no difficulty in getting them to say a Rose is an angiospermous calycifloral dicotyledon, and as a ready consequence, to be soon able to appreciate the affinity between it and some other angiospermous calycifloral dicotyledon which may be brought before them! *J. S. Henslow.*

Home Correspondence.

The History of my Orchard House—Some few years ago I pitched my tent on one of the pleasant hills in Surrey. My garden is at the foot of the hill and without walls, so I bethought me of an orchard house, and having the pleasure of calling the originator of them my friend, who is accustomed to pay me visits twice a year, I thought I was sure to succeed, as he volunteered to give my gardener such directions as could not fail of bringing on success. Accordingly I had a house built in the valley, and as it was much sheltered, more than usual ventilation was provided for by extra shutters. I must now say that my gardener was a respectable person who had been in his last situation 18 years, and was called a good gardener. My house was duly furnished with very nice trees by my friend; they were potted into 13-inch perforated pots, blossomed the first season very well, and set a fair quantity of fruit. My friend paid his spring visit, was satisfied with all that had been done, gave instructions for daily syringing and abundant ventilation, and went his way. In the autumn he again came, and our first garden visit was to the orchard house; guess his surprise to find a lot of Peaches about as large as Nutmegs and as hard, and the leaves of the trees covered with red spider. The gardener declared he had done all that was needful, and so it ended in a quiet grumble, for a man so respectable would not it was thought deceive his employer. Another season came; the trees, althoug weakened by the attacks of the red spider the preceding summer, bloomed well, and again set a good crop of fruit. The usual spring visit was made by my friend, more stringent rules laid down as to watering the trees abundantly in hot weather, and never to omit syringing twice a day; the summer passed, the autumn came, and my Peaches were

perhaps as large as Walnuts, as hard and as bitter. I was at a loss to account for all this. I thought the system must be at fault, but my friend came and found as before every tree eaten up by the red spider. He then saw that my quiet respectable gardener, knowing my ignorance, had been deceiving me, and some other matters turning out not quite satisfactorily, he was discharged; but not before I had learnt from himself, and partly from others, that he "wanted no instructions to manage Peach trees in pots;" his method was not to give them water till they "asked for it," that is till their leaves drooped and withered, and "as to syringing it was all nonsense," and he had been a gardener all his life without using such a plaything. I last winter engaged a new gardener, industrious, and above all tractable; he at once said that he had never cultivated orchard-house trees, but that if directions were given to him he would follow them; accordingly when my friend paid his visit in the spring, my trees, now but wrecks of what they had been, were pruned, fresh compost added, and as my loam was light and sandy the compost was rammed in with a wooden pestle. I had not much blossom on my trees, but a fair crop of fruit was produced. My gardener ventilated freely and syringed regularly, and last autumn I had the pleasure for the first time of tasting some really good Peaches from my house, many of them measuring 9 and 10 inches in circumference. I should think it is very probable that others as ignorant of gardening as I am have in like manner suffered from the obstinacy of their *soi disant* gardeners, and so I have been tempted to give the "history of my orchard house." *H. D., Surrey.*

British Oak.—I have read your account of the experiments "upon the relative strength of the timber of our two species of native Oak, Quercus sessiliflora and Q. pedunculata," at Wentworth. As I have paid some attention to the growth of Oaks for the last 25 years and my father before me for 20 years previously, I may perhaps be permitted to offer a few remarks on the subject. With regard to the difference in the two sorts I believe there is essentially not any, the apparent difference being occasioned by accidental causes only, and such as soil and locality will always produce. To prove this take the acorns of either selected variety, sow them, and their produce when transplanted to a situation and soil every way similar will prove to be one of the same tree, or which is by far the most common of the two, the Q. pedunculata. I think it likely the wood of Q. sessiliflora (as is natural with trees of a more compact and slower growth, or that have been grown in poor soil, or an elevated black aspect) is the hardest, and that of Q. pedunculata the toughest. The experiments made at Wentworth do not I think prove anything conclusive, much less "the disputed point." I submit that two scantlings of a similar weight and size cut from the same tree would scarcely break at exactly the same deflection with the same weight applied; and in different trees, whether Q sessiliflora or pedunculata, the difference in deflection to the breaking point would be found to vary considerably. I believe the two sorts of British Oak to be identical, and any peculiarity in either to be owing to what may be termed a sport of nature, and as regards the hardness, toughness, or durability of the timber, this mainly depends on age, soil, and situation. I shall be glad to hear if other parties who have studied the growth of Oak from the acorn agree with me in my observations, or if they can produce proof to the contrary. *W. H. Rogers, Nurseryman and Landscape Gardener, Southampton.* [We entirely dissent from the opinions of our correspondent. Undoubtedly Oaks sold some years ago in Hampshire as real Durmast proved to be nothing more than Q. pedunculata, but that was the fault of the man who collected the acorns.]

Couve Tronchuda.—If "Inquirer" (see p. 774) will blanch his Couve Tronchuda, which increases the development of the leaf stalks as well as renders them crisp, he will find a dish of them dressed à la Seakale by no means a bad substitute for that delicious vegetable. *L.*

Training Raspberries.—The following method which I have adopted answers well. The Raspberries are planted in rows 10 feet apart, and one foot asunder in the row. A bar of paling on posts 3½ feet high is placed on each side of the row 3 feet from the plants. The canes are fixed to the paling by means of Willows one foot cane from cane. By this means the fruit-bearing canes are kept free from each other and free from the young suckers to which they form a protection against wind, the space betwixt the rows of paling (4 feet) allowing plenty of room for wheeling manure, gathering fruit, &c. *W. D.*

The Potato Disease.—The following letter was sent to the *Manchester Guardian* at the time it is dated, and as two more years fully confirm all that is here said in favour of drying Potatoes at high temperatures, I think it is worth republishing, particularly as I see by the correspondent from Wester Ross in the *Gazette* of the 6th inst. that in Scotland they are in doubt whether they will have any left sound at seed time. *T. G., Clitheroe, Dec.* 14. "The Potato," says the writer, "is so important an esculent, the distemper to which it has been liable for the last 10 years has produced such disastrous results, that any one who can suggest a plan for mitigating the virulence of the disease even in the slightest degree is entitled to be heard, and provided he deals only with facts and does not dogmatise and theorise upon them, the public will soon learn to appreciate his plans at their true value. I offer the following remarks with some diffidence, for the disease seems to vary from year to year. In one season the Potato is attacked by a dry rot which turns it brown and shrivels up the skin; in another the Potato turns black and dropsical and in a few days is a mass of rottenness, and the thousand and one infallible nostrums for preventing the distemper have left us as ignorant of its cause and cure as we were when it began in 1845. Before the days of Potato distemper it was customary here, and I dare say in many other parts of England, particularly with the early varieties, to expose the Potatoes intended for seed on the surface of the bed where they were grown for a few weeks; the action of the sun and air upon them turned them green, enabled them to resist the frost better, and made the succeeding crop earlier by a week or ten days than it otherwise would have been, thus producing a beneficial effect. I fancy the plan is still resorted to by some persons, but the effect has been very different here since 1845 from what it was before that time. I had raised some exceedingly valuable varieties from the crab of the Lemon Kidney, the whole of which were destroyed by this method, and although a friend to whom I had given some of these for two or three years supplied me with fresh seed, which I persisted in exposing in the same manner from an idea that we should soon see an end to the disease, yet the result was always the same—they all perished. After this there appeared in the *Gardeners' Chronicle* a plan of (I think by a Professor Bollman, or some such name,) half roasting the sets, which was said to entirely eradicate the disease, but this was tried by one of my neighbours without any beneficial results. In thinking on this plan it occurred to me that if any benefit was derived from it, it might be owing to the fact that the spores (or perhaps the mycelium) of the fungus to which the disease is attributed might be destroyed by a temperature considerably lower than was required to destroy the vegetative power of the Potato itself, for this is the case with some fungi. I believe, although I don't grow them, that the proper temperature of an artificial Mushroom bed is somewhere about 60°, but that if the fermentation of the dung of which it is made is so strong as to raise the temperature to 90°, all the spawn is destroyed, and there is no crop. So with the miasma of the plague, the virus of cow pock, &c. Dr. Henry proved that a high temperature (I don't remember what) was quite sufficient to prevent all chance of contagion; whether this will be found true with regard to the cause of the Potato distemper (whatever that may be) I do not know, but it was the idea on which I acted, and with the following results. My friend having again supplied me in the spring of last year with a few more of his early Potatoes when dug up, instead of having them spread on the garden bed as before, they were taken and spread on the upper floor of an engine-house, where owing to peculiar circumstances the temperature was about 90°, and left there a month; the consequence was, that with the exception of two or three that were tainted when they went in, every Potato was quite sound and continued so until they were planted last spring, and the crop that they produced had not one tainted tuber in it. The whole have been treated again in the same manner, and up to the present time (they were dug in July) there has not been an unsound one in them; the same plan was also tried last year with some Red Kidneys, peculiarly liable to the disease both in top and tuber, and with the exception of two or three that appeared to have been diseased before they were exposed to the high temperature, with the same result. These were again planted last spring, and although the tops were attacked by the distemper, yet as the tubers were immediately dug and taken into the engine-house, there is not, so far as I know at present, a failing one among them. Encouraged by these results I have now tried the plan with some store Potatoes of two varieties of Kemps, and although they were digged up in August in the wet weather, in the one kind, which were quite ripe, only four Potatoes have been found tainted in 120 lbs. (half a load); in the other kind the loss has been 4 per cent., or 1 lb. in 24, but other persons who had supplied themselves out of the same lot of Potatoes, at the same time, lost 60 per cent. of theirs. These Potatoes were not ripe (which is easily seen by the epidermis peeling off with the slightest touch). When they had been exposed to the high temperature for three or four days, they began to soften, and this softening still remains, though they were only kept that time (three or four days) in the warm room, but they are perfectly good and seem likely to keep very well; the sort which were quite ripe keep firm, and the quality of the Potato is excellent. It may be objected that even supposing this plan to succeed, there are not many engine-houses with a temperature of 90° applicable to the drying of Potatoes; perhaps not—but there are malt kilns, Oat kilns, Hop kilns, and tile and brick kilns in very many localities where the same plan could be carried out, if it be found to succeed. I do not think I have determined the proper time for keeping them in the hot room, but a month does not destroy their vegetative power, and three or four days seems to check the disease; how much less will be sufficient I do not know, nor how much higher a temperature the Potatoes will bear with impunity. The above plan is submitted rather to suggest what may be done than as the best mode of doing it, and it is offered with much diffidence, seeing how many attempts have been made and how little success has been achieved. The subject is attended with difficulties no one would perhaps expect who had not paid some attention to the subject. In 1846 the variety known as the Kemp was more exempt from disease than any other sort grown in this district, and in consequence of having grown them to some extent in that year I had not only an abundant supply for my own use, but I was able to furnish seed Potatoes to my neighbours when they were not readily attainable elsewhere. In consequence of this I recommended in some of the papers that people should grow Kemps, as being comparatively free from the distemper, but every year since then the Kemp has been as liable to the disease as any other sort. The Fluke Potato has a reputation all over the kingdom for resisting the disease, and the raiser of it from seed had, if I remember aright, a testimonial presented to him by the Potato growers in the neighbourhood of Manchester some two or three years ago, for the great benefit he had conferred on the public by making its merits known. But this year even the Fluke has not escaped, and in my own garden, which is a new one in a dry alluvial soil, one-eighth of them were tainted when they were dug out yesterday, and I hear and see the same complaint of them not only in my own neighbourhood but in the *Gardeners' Chronicle*, and in addition to this in some fields in this district a considerable number of the sets did not vegetate at all when planted last spring. It may be that, like all the sorts of Potatoes I have known, they have a tendency to wear out, and have less vigour in their constitution than they had in the first years of their existence; but if this be the case it is much to be regretted, for they are of first-rate quality and great croppers; however, they produce crabs abundantly, and it is very desirable in my opinion that new varieties should be raised from so good a stock. I have been acting on this idea myself and have now ten or a dozen kinds raised from the crab of the Fluke, some of which seem to be very promising, but being only their first year it is too early to speak positively about them. The only other recommendation my experience enables me to offer is to plant early, but even this does not always succeed. There appears to be a vigour of vitality in the earlier part of the life of the plant which enables it to resist the attacks of the disease; but when this vitality is weakened by the growth of the tubers, if the weather is favourable for the spread of the disease, both top and tuber are liable to suffer. Thus it has happened in some seasons that while the earlier varieties have been much tainted the later kinds continued entirely free, and a favourable change of weather setting in before these later kinds were too far advanced to maturity they escaped with little injury. The importance of the subject must be my excuse for troubling you, and if my suggestions induce other people to experiment on the subject I shall have done as much as I expected. *T. G., Sept.* 15, 1854.

How does the tap root of the Oak penetrate hard and stiff clay?—When we ask botanists this question they inform us that roots do not penetrate hard substances, but that they search out crevices and there insert themselves. This is not a satisfactory answer, when we see plainly that the tap root of the Oak will go straight downwards, penetrating the hardest and stiffest soils of Sussex. The point of the root as it comes from the acorn is soft, not tipped with iron, as might be expected from what it effects; and how is it that a soft substance is able to go straight through a hard substance? I cannot help thinking there must be some other cause besides the one above mentioned. I have two theories on this subject, which appear to me feasible, and, reasoning from analogy, the first one is not unlike what Nature often makes use of. The first, that there exudes from the point of the root some chemical matter with either acid or alkaline properties (probably one kind of plant may exude an acid, another an alkali, so as to suit the different soils adapted to each plant), and that this substance converts the soil into a pappy matter which then allows the point of the root to creep on, and possibly the fluid part of the pap may be again absorbed charged with inorganics for the nutriment of the plant. Nature generally effects two ends, and by the same means: why should not the root eat its way into the soil like the worm, or as the fly eats sugar, moisten the soil first and again suck in the fluid when saturated with nutriment, and push the point further in? Again, can it be that the root follows the course of worms' holes? We know that roots get into drains and fill them with fibres. The earth is full of worms, as may be seen by pouring a weak solution of corrosive sublimate on a lawn, when in a few minutes it will be covered with worms. The chief thing against this is that there must be a worm-hole under each tap root. My suggestions may be quite wrong, I am only writing for information. Can any one enlighten me further? I am not satisfied when told that this is effected by mechanical means. I cannot help thinking that the powerful aid of chemistry must be called in; and if so, and any one knows all about it, I should like to have the full particulars. *Sigma.*

Roses.—If you are not tired of hearing about Roses, I will fulfil my promise of last week. First, I wish to say I do not want to depreciate the new Roses; and I may tell Mr. Paul that among others I have—Gloire des Mousseuses and Maria de Blois, Moss; Duchess of Norfolk, General Jacqueminot, Gloire de France, Lord Raglan, Madame Hector Jacquin, Madame Knorr, Madame Place, Souvenir de L. Gower, Triomphe de l'Exposition, all new Hybrid Perpetuals; and several Noisette and Tea Roses. What I want dealers to do is to eliminate all which do not equal many we already have, and not to charge a high price for them as new only to disappoint their customers. I gave a list of 12 which I thought would disappoint no one; I did not

say they were the best, for I purposely omitted the very new sorts. Now, as to the 12 recommended by Mr. Paul, I find that two, viz., General Castellane and Madame Masson, are bad growers; Madame Desirée Giraud, a most inconstant Rose; Prince Albert, a doubtful opener in many soils; and Gloire de Dijon could not be grown out of doors north of the Trent. Of Lord Raglan I can only say that I marked it and Madame Hector Jacquin (both new) as the two best Roses I saw at the London shows. I am glad enough to get a new variety when it is good as well as new, but no one wants to buy a Rose which must be budded fresh every year to keep it alive, or which will only throw one true bloom in a season, or (as many do which dealers call hybrid perpetuals) which produces only two or three blooms all through the autumn. We want good hardy vigorous growing sorts which will bloom anywhere, and from which you may go on cutting flowers till November, as you may from such old sorts as Mrs. Elliott and Marquise Boccella. We also want the Rose to agree with the description given in the dealers' catalogues, and then we amateurs shall know what we are doing when we purchase. But how can we at present? Why, Mr. Paul abuses poor William Jesse as little more than semi-double, and yet he includes in his 12 first class sorts General Jacqueminot, which is notoriously semi-double, and saved only by its colour. Will Messrs. Paul, Lane, Rivers, Francis, or whoever took the three prizes for cut blooms of Roses at the July show, send a list of the names of those which appeared in their respective stands, and let us see what new varieties were among them. I saw Lord Raglan in only one stand, and can call to mind very few with new names. One word more as to the concluding paragraph of Mr. Paul's article. It is very pleasant to get hold of a diamond, and to be surprised by novelty, but I think most amateurs will agree with me that it is the dealer's business to pick out the diamonds and sell them at their proper price, and not leave it for an amateur to purchase a mixture, and spend money and time in making his own selection, not to speak of wasting ground in the cultivation of indifferent varieties when it might be filled with the choicest and most undeniable collection. *A. R., Bromley.*——Whatever I may think of your correspondent "A. R.'s" knowledge of Roses, I must give him credit for skill in argument. I humbly submit, however, that his skill is that of the dexterous pleader rather than of the sound logician. Now, "A. R." says "the old Roses are the best yet," and among "12 not beaten yet" he includes La Reine, Madame Laffay, General Jacqueminot (hybrid China), Louis Buonaparte, and William Jesse. I, in good faith, differ from him, and am content to leave the public to judge between us; to decide whether these Roses are or are not beaten yet, and whether after reducing the numerous varieties of Roses to "the 12 best" (mark this) they are more than second rate. This is the real question at issue between us, and as "A. R." writes anonymously, I might be allowed to leave the matter here without noticing the insinuations contained in his article of last week. But as the triumph of truth is alone my object, I will endeavour to clear away the dust-clouds in which his dashing charge has enveloped the matter. In the first place he ought in fairness to have seen that in my original article I spoke of these Roses in comparison with 12 "not beaten yet;" whereas in the catalogues they are spoken of in comparison with about 700 varieties. This alone explains the apparent discrepancies so triumphantly paraded. Things are small or large only by comparison; thus, Madame Laffay is small in comparison with 12 "of the best," if of full size in comparison with Roses in general, and so on with the rest. Does he not also see that La Reine may be at once "magnificent" and "uncertain," Louis Buonaparte "glowing," large, and full, but "of indifferent shape." His inference that "either the dealers' catalogues are intended to take in the uninitiated by their splendid descriptions, or else the Roses are what he says they are" is puerile in the extreme. I apprehend the uninitiated do not generally make sweeping statements in matters with which they are imperfectly acquainted, and then read the different catalogues for fragments in support of their assertions. If they read without prejudice they will not select the 12 recommended by "A. R." as the best, at least the catalogues I have seen (I have not seen Rivers's) do not make them appear so. To show how little practical knowledge "A. R." possesses of the case he has in hand, he insinuates that the dealers make the new Roses appear better than they are from interested motives. This is quite the reverse of my experience. For years past we have found the new Roses sell faster than we could propagate them, if backed by our own recommendation, whereas the stock of old favourites is all but illimitable. I do not wish to become the apologist for the Rose-growers' catalogues; they need nothing of the sort at my hands. The catalogues may not be correct in every minute particular, but to argue thence that they are "intended to take in the uninitiated" is ungenerous and unjust. To show however that the many attach more value to them than "A. R." does, I may mention one or two facts in connection with our own: more than 20 editions have been published amounting to nearly 50,000 copies, and the circulation is increasing every year. It would have been more generous if "A. R." had ceased to write anonymously before casting aspersions on a numerous and respectable body of men, who labour hard for the gratification of others with very moderate profit to themselves. Unless he think proper to pursue this course, to stand forth in substantial shape a real man, he must excuse me from continuing this controversy. I confess that I am not sufficiently Quixotic in spirit to find satisfaction in wrestling with a shadow. *William Paul, Nurseries, Cheshunt, Herts.*

Ice Stacks.—By the following method I have been able to supply my employer with ice every day for the last four years. The bottom of the stack is 18 feet long by 10 feet broad, raised one foot above the surface of the ground with broken stones to secure a perfect drainage, and covered over with three inches of sawdust. I build the ice (65 cart loads) in the form of a hay stack, using large pieces for the side walls, and breaking the centre bits as small as possible. I cover the stack with a coat of Spruce or Silver Fir branches, and surround the whole with boards to the height of 6 feet, leaving a space of 2 feet betwixt the boards and the ice. I then cover the ice all over with sawdust 2 feet thick, and thatch the top with straw sufficient to turn rain. *W. D.*

Boilers.—The article in a recent Number respecting the best size of boilers is very suggestive, not only upon its own account, a very important one, but also on the subject of the best size for the various description of houses, and I hope you will permit me to call the attention of the proper authority to these two important subjects, the best description of boiler, and the best description of houses. That proper authority is, no doubt, the Horticultural Society, and I cannot even fancy any reason why it has not years ago adopted the practice of its two sister societies, the Highland Society of Scotland and the English Agricultural Society, and offered premiums for the best description of boiler and the best description of houses—for these societies offer premiums for every description of agricultural implement—and for plans for heating. Other things being equal there can be no doubt that the one large boiler must be far superior to several smaller ones—but is it equal? That is a question which with proper data men of experience can easily decide; yourself, Mr. Glendinning, and others whose names will suggest themselves to your readers, would be judges in whose report the public would place implicit confidence. The only element to be guarded against is having for judges men who are prejudiced, and I need not say the most enlightened are always liable to be prejudiced in favour of systems which they have tried for many years and which have answered their purpose; such men are above all others the very best to supply facts, although for the reason I have given could not make good judges. Anything like jobbery would be impossible. Suppose the judges were to decide that Mr. Weeks' plan of boiler was the best, and that certain sizes would perform certain work, that is, heat to the requisite temperature 4-inch pipe of certain length — any provincial manufacturer could supply a similar boiler, and all Mr. Weeks would get would be the professional credit, and that no small one, of having recommended the best boiler, aided perhaps by orders from those who like to have things made by those who have had most practice. What therefore I would suggest would be that the Horticultural Society should give notice that one or two prizes would be given—I think one would be the best, for it is difficult to separate the questions for practical utility—for the best essay with plans for the best mode of heating the houses usually required for a gentleman's establishment in the country, with plans for the houses. Here another question immediately arises, and one not so easy to be answered: What are the descriptions, number, and size of the houses usually required, differing, as these must necessarily do, in the taste, and habits, and number of the family? One with a fortune of 2000*l.* per annum being quite content with a Cucumber now and then, when his neighbour, with no greater means, requires an almost daily supply of the products of glass, both fruit and flowers. But difficulty is not impossibility, at least to some minds; and although I do not doubt your practical experience would soon suggest a useful solution of the question, in the mean time permit me to offer mine; and what I would suggest would be, that the essays and plans should be confined to one house of each kind of a size suitable to a moderately-sized family, say one stove-house, one Vinery, one Peach-house, one green-house, two Cucumber pits, two Melon frames, two forcing pits. My reason for this is, that with these houses the proprietor, with a skilful gardener, might gratify his own taste—he may grow Pines or not, Orchidaceous plants or not, have abundance of fruit and flowers, although of course he could not expect either a Pine Apple or a bunch of Grapes on his table every day in the year. The best arrangement for these houses, both with the view of heating and appearance, will exercise the ingenuity of the several parties who advertise in your columns as hothouse builders. One whose means were unlimited, at least for this purpose, would of course require two or three, or even more, instead of one of each kind. The plans would therefore require to be different; but depend upon this, the person who carried off the prize would not have the slightest difficulty in extending or diminishing the houses to suit the wishes of those who employed him; and in such employment the successful competitor would reap his merited reward. *An Old Sub.* In my communication last week respecting information about ice-houses, "secure" was printed "receive."

Tropæolum tuberosum.—This tuberous rooted ornamental climbing plant produces abundance of tubers which are of nice flavour and very nutritious. Poor peaty soil suits this plant perfectly, and it might be advantageously grown on this description of land by being planted in rows like Potatoes, and staked as Scarlet Runners are. In proof of its productiveness one small set planted in April and dug up in November produced 43 tubers, averaging 1 ounce each, and all within 1 foot of ground. *Exoniensis.*

Golden Hamburgh Grape.—I learn from Mr. Veitch, of whom I ordered Vines of this variety, that plants of it are not to be sold this season, owing to some failure in its propagation. It is also reported that Mr. Busby has not been able to fruit it this year in perfection; in fact, that it has degenerated. Mr. B. did not exhibit fruit of it during the season that has just passed, and it will be satisfactory to hear why he didnot do so. *Vitis.*

Societies.

LINNEAN, *Dec.* 16.—Prof. Bell, President, in the chair. The Rev. C. Kingsley, and G. H. Kingsley, M.D., were elected Fellows. The following papers were read:—1. "On a species of Pilobolus," by F. Currey, Esq. A species of Pilobolus, recently met with at Blackheath, growing on cow-dung, Mr. Currey considered to be P. roridus of Bolton, which has hitherto been regarded as a doubtful plant. It appeared in the form of small dull yellow points on the surface of the dung, a thin layer of which kept moist beneath a bell-glass yielded an abundant crop of the perfect plants in a few hours, others continuing in succession for a fortnight. The paper consisted of a detailed account of the structure of the fungus. 2. Conclusion of a Memoir "on the Phenomena of Torpidity, and the production of fat in hybernating Animals," by Dr. Holland. 3. "Note on the rhizome of Pteris aquilina as an article of food," by the Rev. M. J. Berkeley. The rhizome of the common Bracken being used in the north of Europe to make a coarse kind of bread, Mr. Berkeley, having lately had occasion to examine some of the rhizomes, was induced to try what sort of food it afforded. For this purpose some of the rhizomes were roasted. They were found eatable, but very disagreeable from their slimy consistence and peculiar flavour, in both these respects resembling ill-ripened Brinjals. Thinking they might afford a better food if the slimy matter could be removed, Mr. Berkeley scraped some of the rhizomes which had been previously washed and peeled. The pulp thus obtained was placed in water, which, after 24 hours, having become extremely slimy and of a yellowish-brown colour, was carefully decanted, the pulp being again washed with water, which was now quite colourless. This water was also poured off, and the pulp when sufficiently dry was kneaded into a cake, and baked upon the hearth. The result was a coarse but palatable food, quite free from any disagreeable flavour, indeed Mr. Berkeley thought it much better, and probably not less nutritious, than Cassava bread. [The analysis of this fecula, which was not given, would have been a useful and interesting addition to this paper.]

ENTOMOLOGICAL, *Dec.* 1.—J. O. Westwood, F.L.S., Vice-President, in the chair. An interesting collection of Lepidoptera from Moreton Bay, Australia, collected by Mr. Diggles, was exhibited; amongst a number of new and beautiful species several were remarkable, bearing a striking resemblance to English species, including Agrotis suffusa, Sphinx celerio, Lithosia pulchella, &c. A species allied to Bombyx pudibunda was interesting from having a wingless female. Mr. Douglas exhibited specimens of Gelechia pauperella, the larvæ of which feed upon Inula dysenterica in August, and it was suggested that it might possibly prove to be the autumnal brood of G. inopella found in the summer, the autumn broods being always larger than the summer ones; the caterpillars of the latter arriving at maturity more rapidly, and consequently taking less food than the former ones. Other instances of this difference were mentioned by various members present, namely Geometra illunaria and Juliaria, G. illistraria and delunaria. Mr. Augustus Shepherd exhibited a new British Agrotis and a new Ypsipetes taken by Mr. Hodgkinson of Preston. Mr. Waterhouse exhibited specimens of Aricerus Coffeæ, a native of India, Africa, and South America, as well as a reputed British species which had attacked Nutmegs; and Mr. Douglas mentioned that it also proved injurious to a quantity of Mace in the London Docks. Mr. Lubbock made some observations on the various recorded instances of fertile eggs deposited by different female insects without impregnation by the male. Various additional instances were mentioned by other members present. Mr. Westwood called attention to the excellent series of memoirs by M. Lederer on the Lepidoptera of Syria, Siberia, &c.; and also upon the generic distribution of the family Geometridæ, published in the Vienna Transactions; and also to the memoirs on exotic Coleoptera by M. Perroud in the Lyons Transactions. Mr. Edward Shepherd stated that he had recently visited M. Lacordaire, the fourth volume of whose great work on the Coleoptera was in the press, as well as the plates of the genera, executed by M. Jules Mignon. Mr. Armitage exhibited some interesting Coleoptera from the Dardanelles and Mount Olympus, and Mr. Stainton read some notes on the generic distribution of insects.

Notices of Books.

A *description of Kitchen Garden plants* [*Description des plantes potagères*]. By Vilmorin-Andrieux and Co., square 12mo, pp. 478. Paris. Librarie Agricole.

The ancient and honourable firm of Vilmorin and Co. stands confessedly at the head of Continental seedsmen.

Wherever seeds are an article of commerce there their name is universally known; and wherever garden or agricultural seeds of the highest class are wanted from foreigners to this mercantile house customers repair. A book therefore treating of the articles in which Vilmorin and Co. so largely deal is of the highest value, and may be taken as a standard of accuracy for the climate of France. The plan of the work is to describe exactly every esculent variety of much importance and briefly those of smaller moment. Thus among Lettuces, the cultivation of which is carried in France to the greatest perfection, 55 sorts are included in the first category and 77 in the second. It is moreover to be remarked that the synonyms are most carefully enumerated, wherever the experience of Messrs. Vilmorin has enabled them to ascertain them. Thus we find that what in the French markets is called the Romaine brune Anglaise is the same as the Incomparable and d'Angleterre of France, and the Brown Cos, very large, Bearfield Cos, and Bath Cos of England. It seems however that our Peas puzzle them, as well they may, for they make no mention of our Charlton, first earlies, double blossoms, Longpods, Nonpareils, and the like, all of which they doubtless regard, not as races, but as well saved samples of one or other of the Pois Michaux. In addition to a good index the volume contains useful tables of foreign weights and measures of length and capacity carefully reduced to the French standard.

Mr. Thwaites's last *report* (for 1855-6) *on the Botanic Garden Peradenia* (Ceylon) is before us. We see with pleasure that its able and active superintendent is combining practice with science and that a Museum of Œconomic plants is about to be built. What gives this return peculiar value is a list which accompanies of the number of indigenous species in each genus found on the Island. Let us hope that it is the forerunner of the much wanted Flora of Ceylon, for which we trust the Government will furnish Mr. Thwaites with the necessary funds. The list in question includes 2916 species, of which 247 only are Ferns.

When we announce a second series of Leech's *Pictures of Life and Character*, issued by Mr. Punch, we know that every person of taste who loves harmless merriment will eagerly seek to be acquainted with these admirable specimens of comic art, unrivalled as they are for a combination of pungency, drollery, and good humour as well as artistic merit of the highest order in the path which Mr. Leech has chosen for himself.

The Cabinet Lawyer, a Popular Digest of the Laws of England. 17th edit. Longmans. 12mo. Pp. 788.

This encyclopædia contains more or less information upon every branch of the law civil and criminal. The fact that it has now reached its 17th edition is alone sufficient to show that it is found useful to a numerous class of persons.

Miscellaneous.

Geology as a Branch of General Education.—Nor is it alone the miner, the engineer, builder, farmer, landscape gardener, and painter, that can turn to profitable account the deductions of geology. The capitalist who speculates in land, the emigrant, the traveller and voyager, the statistician and statesman, may all derive assistance from the same source, and bring a knowledge of its facts to bear on the progress of their nations. So also the holiday tourist, the military officer stationed in distant countries, and others in similar situations, if possessed of the requisite knowledge, may do good service not only to the cause of science, but to the furtherance of our industrial prosperity. Indeed, we do not affirm too much when we assert that had one tithe of those who, during the last 50 years, have travelled or settled in America, Australia, New Zealand, India, and other countries, been possessed even of a smattering of geology, these countries, as to their substantial wealth and social progress, would have been in a very different position at the present day. Their gold-fields and coal-fields, their mines of iron, copper, and other metals, take rank among the most important discoveries of the present age; and as the spirit of civilisation is now evolved and directed, no progress can be made without those mechanical appliances to which the possession of coal and iron is indispensable, no facility of commercial intercourse without a sufficiency of gold, which has hitherto formed the most available medium of interchange. The assistance which geology has also conferred, and the new light its deductions have thrown on the other branches of natural science, are not among the least of its claims to general attention. The comparatively recent science of physical geography, in all that relates to the surface-configuration of the globe—its climate and temperature, the distribution of plants and animals, and even touching the development of man himself as influenced by geographical position—can only lay claim to the character of a science when treated in connection with the fundamental doctrines of geology. So also in a great degree of botany and zoology: the reconstructing, as it were, of so many extinct genera and species has given a new significance to the science of life; and henceforth no view of the vegetable or animal kingdom can lay claim to a truly scientific character that does not embody the discoveries of the palæontologist. In fact, so inseparably woven into one great system of life are fossil forms with those now existing, that we cannot treat of the one without considering the other; and can never hope to arrive at a knowledge of creative law by any method, which, however minute as regards the one, is not equally careful as concerns the other. Combining, therefore, its theoretical interest with its high practical value—the complexity and nicety of its problems as an intellectual exercise, with the substantial wealth of its discoveries—the new light it throws on the duration of our planet and the wonderful variety of its past life, with the certainty it confers on our industrial researches and operations — geology becomes one of the most important of modern sciences, deserving the study of every cultivated mind, and the encouragement of every enlightened government.—*Advanced Text-Book of Geology, by David Page, F.G.S.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

THE forcing houses and pits will now be kept in full activity to supply the various calls for plants in bloom, which at this season of the year are more or less in demand in most establishments. Care should be taken before plants are moved to sitting rooms to gradually harden them for a day or two either by placing them in the conservatory or an intermediate house. In addition to keeping the conservatory gay with blooming plants, let the arrangement of the pot plants be occasionally changed by grouping the plants somewhat differently and adding a few striking ones as some of the hardiest Palms, &c. for effect. Pay attention to the plants intended for successive blooming. Insects should be kept down by the syringe and fumigating and every means enforced to keep the foliage clean and healthy. The numbers of plants brought forward will depend on the demand and must be regulated accordingly. Azaleas, Rhododendrons, &c., for forcing still out of doors should have some protection should severe weather occur or remove them to any spare house till wanted. Narcissi, Hyacinths, &c., should be protected by a frame, as they now begin to grow; remove the plunging material down to the surface of the pots to prevent them rooting upwards. Mignonette and Neapolitan Violets will require abundance of light and air to keep them from damping. As a change from the present to severe weather may come on suddenly, be provided with ample means for covering pits, frames, &c., should it occur. As with the exception of forced plants most other things are now in an inactive state, the temperature of plant houses should fall to its minimum point consistent with the safety of their various inmates. Nothing can well be worse for the development of a healthy vigorous habit in plants than subjecting them to a high temperature at the present season of the year, when light—so important to the healthy action of vegetable life—cannot accompany it. Where Achimenes and Gloxinias are required to bloom early a few pots may now be started by plunging them in a little bottom heat.

FORCING DEPARTMENT.

EARLY VINERY.—As soon as the bunches can be discerned on the young shoots the extra buds should be removed, excepting such as may be required for producing bearing wood next season. In leaving these latter select such as are formed nearest the main stem to avoid the awkward appearance of long spurs at a stage further in their growth. Such shoots as have more than one bunch should have them reduced to that number, selecting the one likeliest to form the handsomest bunch. Tying in the young wood should be managed carefully, bringing the shoots to their proper position by degrees, to avoid the danger of their breaking. After the buds are started a few inches the syringe may be gradually withheld, as too much humidity at this season will sometimes hinder both the foliage and bunches, and a sufficient degree of moisture can easily be kept by sprinkling the floors and heating apparatus several times daily. Regulate the admission of air so as to have a gentle current at all times through the house, increased, of course, by day agreeably with the state of the weather. Gradually advance the night temperature to 60° and then to 65° by the time the flowers are ready to open, keeping the thermometer from 10° to 15° higher by day according to the amount of light you can command. Keep up the heat in the outside border by additions when necessary, bearing in mind the injurious effects any sudden check to the roots now in action will produce on the coming crop. Bring succession Vineries into work as wanted. Late Vineries in which Grapes are still hanging will require fires daily and air sufficient to keep the house and fruit dry; remove decayed berries and dead leaves, and well protect the roots from frost. For a late Grape the Barbarossa is found to possess valuable properties. PEACH HOUSES.—Peaches and Nectarines which have been forced for several years oftentimes produce a large excess of fruit buds, and this more especially on weakly trees; a natural consequence of allowing these to remain are weak flowers and inferior fruit and wood. When therefore such is the case the trees will be greatly benefited by well thinning the bloom buds, leaving the largest and those most favourably placed; of course a considerable number will be still left to allow for casualties. Syringe twice or oftener daily till the bloom is ready to expand, when it must be discontinued. The night temperature may advance to 45°, with an increase by day accompanied with a proportionate admission of air. FIG HOUSE.—Damp the trees over frequently, and if wanted early increase the heat a degree or two weekly. PINERY.—Pines are often deficient in flavour at this season, which is improved by exposing the ripening fruit to all the light you can command, and giving but little water. A good supply of air is likewise essential at all times for high flavoured fruit, and more than ever necessary at this time. Continue an increase of heat to Pines now wanted to start, employing it principally by day. Attend to linings for Pines grown in dung pits and keep the atmosphere in which they grow dry. Strawberries in bottom heat for forcing will require air daily to prevent drawing in those earliest started; when they show the truss of flower they should be removed to shelves in the Vineries and Peach houses to bloom, but the principal crop should be advancing slowly as yet.

FLOWER GARDEN AND SHRUBBERIES.

Except in the driest localities nothing more can be done in this department than paying attention to order and neatness. The bedding stuff, however, must have attention, for in all likelihood many things are suffering from damp, and such plants as appear to suffer most should be removed to other quarters where a drier temperature is kept. Keep the stock in pits and frames well ventilated, and the surface soil of the pots frequently stirred. Dust with sulphur Verbenas and similar plants attacked with mildew. Be particular in keeping the interior of pits containing plants of the above description as dry as circumstances will permit.

HARDY FRUIT AND KITCHEN GARDEN.

Figs against walls will require some protective material placed over them in the Midland and Northern counties. Some wall trees, as Pears, Plums, and Cherries, &c., are often attacked by a species of scale insect, in which case the infected trees should be well washed with a mixture of soft soap, tobacco water, and lime; a half pint of spirits of turpentine, may be added to each 4 gallons of the mixture when they are much infested. The lime is added to give body to the mixture, and to show that no parts of the trees are missed in dressing. Let this be applied during dry weather if possible, that it may remain on for some time and before the trees are nailed.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Dec. 25, 1856, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temp. of the Air. Min.	Temp. of the Air. Mean	Temp. of the Earth. 1 foot deep.	Temp. of the Earth. 2 feet deep.	Wind	Rain.
Friday 19	[illegible]	30.401	30.350	44	28	36.0	45	43	N.	.00
Satur. 20	23	30.426	30.357	47	43	45.0	43	44	W.	.00
Sunday 21	24	30.428	30.310	47	42	44.5	45	44	N.W.	.00
Mon. 22	25	30.103	29.406	47	35	43.0	45	44	W.	.00
Tues. 23	26	30.030	29.864	41	29	35.0	41½	44½	N.	.00
Wed. 24	27	29.473	29.014	45	22	34.0	44	44	W.	.17
Thurs. 25	28	28.867	28.862	34	18	36.0	43	44	N.E.	.00
Average		29.961	29.814	43.7	31.0	37.3	44.1	43.9		.17

Dec. 19—Clear; very fine throughout.
— 20—Hazy; overcast; cloudy at night.
— 21—Overcast; cloudy; fine.
— 22—Overcast; cloudy; fine throughout.
— 23—Partially overcast; clear and fine; cloudy.
— 24—Rain; clear and very fine; heavy showers; sharp frost.
— 25—Very dense fog; barometer exceedingly low; overcast; sharp frost.

Mean temperature of the week 1 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 31 years, for the ensuing week, ending Jan. 3, 1857.

Dec and Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	42.0	28.9	35.4	9	0.18 in.	4	3	3	3	3	2	7	5
Mon. 29	42.9	33.9	38.4	14	0.17	2	5	1	3	4	6	5	4
Tues. 30	41.6	32.5	38.5	10	0.30	1	5	2	2	2	9	8	1
Wed. 31	43.7	32.7	38.2	8	0.44	—	6	—	1	6	9	4	4
Thurs. 1	42.7	31.1	36.9	9	0.70	5	3	2	3	4	6	4	4
Friday 2	42.1	29.8	36.0	11	0.25	3	1	5	1	3	8	3	7
Satur. 3	42.7	31.6	37.1	14	0.56	1	2	6	—	6	6	4	6

The highest temperature during the above period occurred on the 28th, 1855—therm. 58 deg.; and the lowest on the 2d, 1854—therm. 8 deg.

Notices to Correspondents.

OUR CORRESPONDENTS will much oblige us if they will in future place the letters W C at the foot of the addresses of their letters, thus:—

THE EDITOR OF THE "GARDENERS' CHRONICLE,"
5, Upper Wellington Street,
London.
W. C.

The new Post Office regulations require this if country letters are be delivered with all possible punctuality and despatch.

BOOKS: *H N.* We suppose the English price of Carrière is about 2*s.* 6*d.* Any foreign bookseller can procure it. We regard Silver sand as better than River sand for all purposes whatsoever.—*R L.* If not out of print any bookseller can supply you with "Errington on the Peach" if he chooses.‡

ENGLISH TOBACCO: *D B.* This, if home grown, is usually worthless. Yours however seems to be very good; we will try it as soon as a fitting opportunity occurs, and report upon it. In the meanwhile, as it is much the best of English make we have seen, an account of your mode of preparation would be welcome to the public.

INSECTS *and J G.* The insects which attack your young Larches are the Weevil, Hylobius abietis. They may be best captured at night by placing a sheet under the trees and shaking them well, or by carefully examining the stems. *J O W.*

NAMES OF FRUITS: *J S U.* Your Pear is the Beurré Diel.

VINES: *J C.* You can do no harm by removing every other Vine. You may prune off the buds next the rafters if you prefer it: but the first way is preferable.

YOUNG GARDENER: *G B.* Why does not the *Gardeners' Chronicle* contain all you want? If you seek a monthly publication there are the "Scottish Gardener" and the "Florist." As to rudimentary practical work there is for beginners no book like that of Nature, and no rudiments equal to the experience gained by actual work. Learn to understand what you read, for to read is nothing, unless the meaning is studied. Learn to be familiar with arithmetic and the measuring and planning of pieces of ground. Learn the rudiments of physiology as you find them at the end of the last edition of Prof. Lindley's School Botany. Learn the rudiments of Botany from that book. Do this for a year or more, work hard, reflect attentively, learn all you can of your master, and then consult us again. The words mean—To the Gods below (sacred). Hector the father erected (this) to Hector his son.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED
AT ONE OPERATION BY

Samuelson's New Patent Combined Machine.

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The Agricultural Gazette.

SATURDAY, DECEMBER 27, 1856.

IT is worth while to review at the close of the year some of the subjects which have occupied the attention of agriculturists during it. Even though we confine ourselves to our own columns it is surprising in how short a time the whole range of agriculture comes under the criticism of our correspondents and our readers. Soils, manures, machines, plants, cultivation, produce, food, animals, the relations of landlord and tenant, of master and servant, the duties of farm bailiffs, questions and topics past, recent, and current connected with agriculture and agriculturists have engaged the attention of writers in our columns. And if we look through the pages of other periodicals, the journals of our Agricultural societies, the columns of the *North British Agriculturist*, the *Mark Lane Express*, the *Dublin Farmers' Gazette*, or if we look back at the topics discussed at farmers' clubs, or recollect the unreported discussions of the market-place, we shall hardly find a point which has not been commented on.

Take the subject of *Manures*:—Mr. BOWDITCH has described in the Journal of the Agricultural Society the process of fermentation in the dungheap, and he has given us his experience of earth as a conservator of the volatile products of that process. Professor WAY has given us a most admirable and detailed account of the different artificial manures, valuing each according to the several ingredients it contains. Mr. GRADY and others have thoroughly discussed the merits of the different superphosphates manufactured. Mr. BOWDITCH has introduced a new manure into the market in which the waste products of the gas manufacture are collected and condensed. Mr. CHADWICK has again urged the method of liquid or rather liquefied manuring which he has so long advocated. And Mr. WILKINS contends, as heretofore, for the practice of underground liquid manuring on which he is an enthusiast. Mr. FOTHERGILL COOKE has called attention to that plan of utilising sewage which the works at Leicester have developed successfully. Here, too, must be named sundry legal decisions, both in reference to what a manure *is*, involving its freedom from toll, and in reference to fraudulent manure dealers.

On Soils and Cultivation we have had further reports from Mr. WAY in reference to those absorptive properties of earth which he has so ably investigated: the influence of lime upon them has latterly been examined by him: he has examined, too, with most valuable results, the waste of which drainage waters are guilty as regards the soluble fertilising matters which they carry off. Mr. SMITH, of Lois-Weedon, has published his experience on tillage without manuring, or rather on the effects of tillage independent of manuring, on all sorts of crops, a practice which seemed at first as if like TULL's experience it was inapplicable except to Wheat. The application of steam power to the cultivation of the soil has been discussed before the Society of Arts, and it has been successfully illustrated by more than one during the past year. The subject of land drainage too has occupied the attention of our readers, as it always must while it so largely engages the services and the means of landowners, farmers, and drainage engineers.

On Agricultural Machines we can refer to our reports of the meetings at Chelmsford and at Colchester in illustration of the advances that have been made. Reaping machines are admitted as a necessary farm implement. Locomotive steam power is, in England at any rate, wonderfully extending its help to agriculture. Implements of tillage received at Chelmsford a careful trial and examination by the judges of the English Agricultural Society, and the steam plough though not yet acknowledged by our national societies is evidently on its way to meet us.

On Plants and their produce we may refer to the extension of Italian Rye-grass, to discussions on the relative value of different sorts of Wheat, the papers by Professor BUCKMAN on the development of cultivated plants from their wild origin, the series of valuable papers on the diseases of plants by Mr. BERKELEY, the discussion on the multiplication of weeds by seed, and on the hoe as being often a sowing machine instead of an extirpator. The breaking up of Grass land has been discussed by Mr. WOOD; and the rotation of crops by Mr. THOMAS, before the London Farmers' Club. The communications, too, of information on the number of seeds in a lb., and the number sown per acre, by Messrs. RENDLE, LAWSON, "J. C. X.," and HARDY, properly come under this head. The proposals to harvest hay and grain crops, drying them by artificial means, must also be named here; and so must information as to the character of the past harvest—various in England—late and disastrous in Scotland. The subject of thick and thin seeding has been re-discussed: and a crop of Mangel Wurzel has been reported in France the double of our English maximum.

On Animals and their Food, we may name the new cakes which have been introduced—the Carob pod—Mr. HORSFALL's continued reports on Rape-cake as food for dairy stock—his paper on the treatment of pleuro-pneumonia — Sir CHARLES KNIGHTLEY's sale of shorthorns—Mr. WILLOUGHBY WOOD's letters on cattle breeding—the Paris agricultural show and those of the English, Highland, and Irish Agricultural Societies—and revelations and discussions on the adulterations of cattle food. The profits of pig-feeding have been among the last of the subjects under this head discussed in our columns.

Take now another classification of agricultural subjects:—The relations of landlord and tenant have been discussed in papers on the lease by Mr. GREY, of Dilston, and the Hexham Farmers' Club; and the contrast which in different instances they present has been illustrated in the cases of the Dukes of BEDFORD and NORTHUMBERLAND respectively. We had Mr. THOMAS, the tenant of the former, contending the other day for that greater liberty of action which is allowed himself, and holding up to ridicule the agreement insisted on by the latter, armed as it is with all sorts of pains and penalties against the infraction of impossible rules. The subject of farm bailiffs, their duties and their character, was fully discussed in the earlier numbers of our Paper this year. The relation of master and servant, especially with respect to the agricultural labourer, was very ably discussed before the London Farmers' Club.

On the scientific relations of agriculture we may refer to the papers by LIEBIG and by LAWES in the Agricultural Journal—to the reports of Prof. WAY in the same work—to the lecture by Dr. PLAYFAIR before the Royal Institution on the principles underlying agricultural experiments, and to a paper by Mr. BAKER on the relations of geology to agriculture

Among the more important agricultural events of the year is the attitude towards farmers taken by the Society of Arts, which is gradually occupying ground that ought, as it appears to us, long ago to have been

energetically worked by the national Agricultural Society. And no more interesting and important agricultural meetings have been held throughout the year than have filled their hall in the Adelphi, to listen to Mr. FOWLER on Steam Culture, Mr. WREN HOSKYNS on Recent Agricultural History, and Mr. FOTHERGILL COOKE on Town Sewage. The Society has also made a beginning towards the furtherance of agricultural education by initiating an examination on this as well as other topics open to members of the local institutions in union with itself.

The agricultural statistics of the year ought to fill an important place in its agricultural history. The attempt at their collection in Scotland this year has been as usual perfectly successful; in Ireland, too, it has been as successful as the methods there adopted permit; in England it has been abandoned!

This enumeration, then, of the subjects of discussion during 1856 shows how much of the whole field of agriculture comes every year under the review of the agricultural journalist. It is obviously but an imperfect *resumé* after all of the contents of our current agricultural literature—obviously so, we venture to say, even to the readers of our own columns only—much more so of course to the readers of other periodicals as well. And the inference we draw from the enumeration is simply this—that whatever be the defects of 'book farming,' taken by itself, and no one can assert of any art or business that it can be taught efficiently from a book, the farmer who avails himself of books is likely to bring greater intelligence to bear upon his operations than the farmer who neglects them.

ABOUT eleven years ago a plant of Wheat bearing three ears on a remarkable stiff and short straw was pulled by MR. GEORGE HOPE, of Fenton Barns, E. Lothian, out of a quarry in his farm, on the *débris* of which it had accidentally grown. The grains which these ears contained on being sown for a few successive years produced enough to seed a field; and as the Wheat retained during that time the characters which distinguished it at first, MR. HOPE sent it into the market as a new variety, and the Fenton white Wheat accordingly is now known in every part of the country. It is characterised by a moderately large ear of even shape on a straw not only remarkably short, but remarkably various in length. The consequence of this latter peculiarity is that its yield of grain generally exceeds the expectation formed of it by those who see it before harvest for the first time. Its performance has always exceeded its promise during the years that we have known it. This abundant yield is no doubt the result of the distribution of the ears through various heights above the land; there is not that crowding of them which there would be if they stood all on one level. And this one sort accordingly exhibits in itself a result which can be obtained in other cases only by mixing two or three sorts together which grow straw of various lengths. We take this instance, because it is so generally known, to illustrate what might otherwise be a mystery, viz., the result of an experiment reported in France on the productiveness of different Wheats as compared with that of a mixture of them all.

There can be no doubt that the productiveness of a crop is due, among other things, to the use it can make of air and sunshine; and many sorts of Wheat, the ears of which when mixed shall grow at different levels above the land will, just as Fenton Wheat is found to do, yield all the more abundantly from this one cause. But there are other causes as well as air and sunshine contributing to the productiveness of a crop, and it is probable that different sorts of Wheat may vary in their power of using these several tributaries to fertility; and not only so, but it is possible that the neighbourhood of two different plants to one another may affect their power reciprocally of exhausting and so using the fertilising influences around them. Thus, and as an extreme case, whether the plan be generally practicable under ordinary farm management or not, there can be no doubt that alternate rows of, for instance, Beans and Carrots, will under proper management yield more than half a crop of each per acre.

But whatever be the cause the results recorded in another page, as observed in France, may be trusted to as true of that particular case; and, if they may be taken also as indicative of a general truth, it is one certainly of very great agricultural interest. We believe that they do contain a general truth; and the case of Fenton Wheat to which we have referred if it does not furnish the whole theory of the case certainly contributes to it; and the practice which generally prevails and seems to be increasing, of using mixed Wheats for seed, shows that in England, too, we have an experience corresponding to the French.

We commend the subject to the consideration of our correspondents, and shall be glad to learn from any of them any experience bearing either way upon the results recorded in another page.

A CORRESPONDENCE has been published in the *Times* during the past week on the subject of STEAM CULTURE, to which we shall invite the attention of our readers as soon as the space at our command permits. "I. A. C." asks indignantly why the English Agricultural Society has not long since rewarded "JOHN FOWLER" for his success in ploughing land by steam; and WILLIAM SMITH gives one of several reasons in the fact, as alleged by him, that he and not the other has the strongest claim to the Society's award.

We agree with the former in his regret that some mark of distinction appropriate to the great energy and public spirit which Mr. FOWLER has exhibited in this matter, and significant of the respect with which his efforts certainly are regarded by agriculturists generally, should not have been conferred; but it is plain that the "conditions" attached to the premium offered by the Society specifically for success in steam culture, and of which "I. A. C." speaks somewhat contemptuously, *must* guide its award, in justice to the others striving for it, as well as in the interests of agriculture generally, which it is believed by most will not be served by any sanction of the methods yet in operation of obtaining tilth by steam.

THE PRACTICAL VALUE OF FOOD.

In estimating the practical value of an article of food, we must take into consideration—

1. *The Age of the Animal.*—Young and growing animals require a more concentrated and more readily digestible food than full-grown or store beasts, *i. e.* food being, comparatively speaking, rich in nitrogenised matters and poor in indigestible woody fibre. The food upon which growing stock is fed not only has to supply the daily waste of muscle, but must also increase the weight of the animals; and as the process of renewal in young animals moreover proceeds more rapidly than in full-grown stock, the food of the former should contain a larger supply of flesh-forming substances and of bone materials. Hence the great value of Linseed-cake and of Linseed jelly for young stock, and the poor condition of young beasts fed upon too much chaff. The yet tender organs of digestion necessitate a more digestible food than that upon which store beasts may be fed with economy, and thus the same food which may be valuable for store beasts will often be found totally unfit for young stock.

2. *The Various Kinds of Animals.*—We know by experience that the best food for horses is by no means the best for cows or sheep, and hence the nutritive value of an article of food will be different in relation to horses from what it is in relation to cattle. The organisation of the digestive organs of our domestic animals fully accounts for the different effects which are often produced by the same article of food when given to different kinds of animals. Thus whilst Beans are highly nutritious when given to horses, their value for fattening cattle is far less striking; and whilst cut straw, given by itself, may support store cattle, it cannot sustain for any length of time the life of sheep or horses. The nutritive value of food thus varies with the description of the animals to which it is given.

3. *The Natural Disposition or Temper of the Animals.*—Whilst some animals, like the Herefordshire cows and short-horns, are naturally good fatteners, Welsh cattle and Kerry cows, to mention only a few instances, never will become very fat, even if they are kept for a long time on abundant supplies of the choicest food. The practical value of food is thus likewise influenced by the natural disposition of the animal which is kept upon it.

4. *The Purposes for which Animals are kept.*—The effect which food is capable of producing is also influenced by the purposes for which animals are kept on the farm. The value of food necessarily will be a different one, if we speak in relation to working animals, or fattening beasts, or cows kept for dairy purposes. Thus, for instance, the same amount and kind of food which in summer is hardly capable of keeping working horses in good condition, is more than sufficient to render them plump and fat in a short time in winter, when they are retained for days and weeks together in the stable. The nutritive value of food thus is influenced by the work done by the animal. The harder it is kept at work, the greater the waste in muscle, and consequently the richer the food ought to be in flesh-forming matters which is given to working horses or bullocks. Highly nitrogenised food, however, though of great value when given to working animals, does little good, and may even do harm when given in too large a proportion to fattening beasts. Valuable food for fattening stock is food rich in starch, and still more so, food rich in ready-made fat; or, to speak generally, food not so well adapted for working animals, because it does not contain a sufficient quantity of muscle material. These few examples will show that the opinion which is entertained respecting the nutritive value of food cannot be invariably the same, but is regulated, amongst other circumstances, by the purpose for which the animals are kept on the farm. The fitness of the same kind of food thus varies with the age, natural disposition, and kind of the animals to which it is given, as well as with the purposes for which they are kept on the farm; and it is therefore quite impossible to classify the various articles of food in an order which will indicate their relative feeding values in all cases. But supposing the composition of food to be known, and the wants of the animals are well considered, it is still impossible in all cases to estimate beforehand what practical effect a feeding substance will produce, for it may be rich in flesh-forming substances, and contain fat and heat producing compounds, as well as saline and earthly matters; and yet it may be, comparatively speaking, poor food, inasmuch as its constituents are not assimilated by the animal organism. The digestibility of food consequently is a point which ought to be well kept in view in estimating its nutritive value. Our knowledge of this process of digestion, unfortunately, is so limited, that we cannot speak definitely of all the conditions which regulate the digestibility of food. Still, however, a few circumstances may be pointed out, by way of example, which influence the assimilation of food by the animal system. Amongst other conditions the digestibility of good depends—

1. *On the Kinds of Animals.*—The same description of food which is assimilated in a great measure by one kind of animal remains almost wholly undigested when given to another. Thus it has been proved by direct experiments that cows will extract a great deal of nourishment from cut straw, whilst horses do not possess the power in the same degree of appropriating nourishment from cut straw, and sheep likewise do not appear to digest chaff so readily as cattle.

2. *On the amount and character of the Woody Fibre contained in Food.*—Feeding materials, containing but a small amount of woody fibre, are generally more readily digested than those articles of food which, like straw, principally consist of woody fibre. Hence Barley-meal, Oats, and grain in general, substances rich in starchy compounds, are so well adapted to the rapid fattening of animals. The condition of the woody fibre further affects the nutritive value of food in no mean degree. Whilst the woody fibre in roots left too long in a growing state on the land, or the fibre of Grass and Clover left standing until it become dead-ripe, is not readily digested, there can be no doubt that the soft fibre of young Grass, Clover, and roots, is readily assimilated in the animal organism and transformed into starch, sugar, and finally into fat. It is for this reason that grain crops, more especially Oats, when harvested before the plants have become dead-ripe, produce straw which is greatly more nutritious than the straw of dead-ripe grain crops. In some parts of Scotland the custom prevails to cut the Oat when the top of the haulm is still somewhat green; and it is upon straw of that description that store cattle are kept during the winter almost entirely.

3. *On the Amount of Flesh-forming Substances.*—Food too rich in these constituents is not readily digested by cattle, whilst working horses are greatly benefited by food of that description. Thus, Bean-meal or Peas ought to be given sparingly to cattle, because Beans and Peas contain a very large amount of flesh-forming substances, which renders them indigestible when given to cattle.

4. *On the Bulk of the Food.*—The normal functions of the digestive organs not only depend on the composition of the food, but also on the volume. The volume or bulk of food contributes to the healthy activity of the digestive organs, by exercising a stimulating effect on the nerves which govern them. The whole organization of ruminating animals necessitates the supply of bulky food to keep the animal in good condition. Experience shows that horses require a less bulky and more concentrated food than cattle; but if we reverse the case, and feed cattle with too concentrated a food and horses with too bulky a feeding substance, much of the food will remain undigested.

5. *On the Form in which Food is presented to the Animal.*—It sometimes happens that an article of food is said to possess little value, which, properly prepared, may be given to cattle with much advantage. Thus, straw cut into chaff—and, better still, steamed afterwards when mixed with sliced roots—constitutes a very acceptable food for cattle. The bruising of Oats, Barley, cake, &c., the making of Linseed into jelly, the steaming of hay and cooking of food, are illustrations, showing how, by an alteration in the form of a feeding material, its digestibility, and with it its nutritive value, becomes enhanced. The benefit of steaming or cooking of food is principally due to this circumstance. It does not add anything new to the food; it does not call into existence any fresh nutritious matter; but brings the nourishment present in the food in an unfit condition into a state in which it is more readily assimilated by the animal. Steaming, moreover, reduces the bulk of the food, and masticates, so to speak, the food for the animal. The animal, therefore, is enabled to consume in a given time a larger quantity of food, and so saved to some extent the work of mastication, which, like every movement of the muscle, is attended with a certain loss of the substance of the beast. The quieter and warmer we keep the animal, and the more we facilitate the assimilation of food, the more rapidly it will become fat. By steaming, likewise, the disagreeable smell of musty hay or cake is destroyed, and on the whole, steamed food becomes more palatable.

6. *On small Proportions of Substances with which*

we may not even be acquainted.—Professor Liebig's researches on the juices of flesh have made us acquainted with a remarkable crystallised substance, to which he has given the name of Kretine. This substance appears to exercise a remarkable function in the digestion of food. Liebig also showed the presence of phosphate of potash and lactic acid in the juice of flesh, and considers these constituents indispensable for the digestion of meat. He has indeed proved that flesh from which all juice is perfectly extracted by water is so indigestible that even dogs will refuse to eat it. The total amount of the compounds which appear to play so important a function in the digestion of meat is but very small. Now if the digestibility of flesh is determined in a great measure by small quantities of substances, the importance of which remained unnoticed until the master researches of a Liebig on the juices of flesh made us acquainted with the influence the above-mentioned substances play in the process of digestion—is it not likely that vegetable food may contain small quantities of compounds which exercise a similar influence? In conclusion it may be observed, that the economical value of food is further influenced—

1. *By prejudicial substances which food may contain.*—Thus, for instance, Mustard-cake cannot be used as a feeding material, notwithstanding its containing a large amount of flesh-forming and fat-producing substances, because in the stomach of the animal fed upon it, it gives rise to the production of the poisonous irritating essential oil of Mustard; or, the refuse cake, produced in the manufacture of castor oil, cannot be used for feeding purposes on account of the drastic effects which the oil, still remaining in the cake, will produce in the animal system.

2. *By the mechanical effect the food exercises.*—An illustration in point is offered in bran, which, on account of its sharp edges, stimulates the nerves of the digestive canals to such an extent that much of it passes through the system undigested. Otherwise bran ought to be very nutritious, for it contains even more flesh-forming matters, as well as more fatty matter, than wheaten flour. Could not these relaxing effects of bran which, I believe, are principally due to its mechanical condition, be overcome by the cooking or steaming of the bran?

3. *By the physical condition of the food.*—It is so self-evident that mouldy, fusty food cannot be so good as it is in a fresh state, that I need not dwell on this point. Every one knows that the fresher cake and food in general—(there are some exceptions, as for instance, Mangels, which become better on keeping),—the better it is adapted for feeding purposes.

4. *By the flavour which it imparts to the meat or the milk.*—The economical value of an article of food is also regulated by the flavour which it imparts either to the meat or the milk. An article of food may be excellent for producing flesh or milk, and yet, on account of the disagreeable flavour which it imparts to either the one or the other, it may not be desirable to employ it as a feeding material. The case of Fenugreek seed, to which reference is made above, fully proves this. These remarks, and others which will suggest themselves to practical men, show that the chemical composition of food alone cannot determine its economic value, but that a variety of circumstances have to be taken into account before we can arrive at anything like a correct view of the nutritive value of a feeding material. *Dr. Voelcker on the Chemistry of Food.*

EXPERIMENTS ON SOWING A MIXTURE OF VARIETIES OF WHEAT.

(FROM THE JOURNAL D'AGRICULTURE PRATIQUE.)

SOME experiments were lately made by M. Lucien Rousseau, of Angerville, one of the most distinguished practical farmers of the Beauce, with a view to ascertain which of several good sorts of Wheat was best adapted to the soil and climate of his district. These experiments have led to the establishment of a fact of the highest importance, whether we regard that fact by itself or with reference to the careful and methodically conducted experiments by which it was discovered.

Adjoining the ground in which M. Rousseau's experiments were being conducted was a piece of land of much the same size, which on account of some Elms standing upon it, was less favourable for experimental purposes than the ground selected. No Wheat was therefore sown in this piece of land for the purpose of experiment, but it was sown with a mixture of all the kinds of Wheat experimented upon in order that the experiments might not be affected by the presence of an adjoining piece of fallow land. The result was that the land on which the mixed Wheat was ground yielded a much heavier crop than that obtained from the far better land on which the unmixed Wheats were grown for the purposes of comparative trial.

The sorts of Wheat chosen were selected from those kinds which were supposed to be best fitted for cultivation in Beauce; the grain was tender and bright, and the straw was soft and light coloured. A mixture of grain arising from sorts so selected does not present any marked differences of appearance so as to be lessened in value. On the other hand, the increase in yield and the greater chance of success arising from the variety of different constitutions of the kinds sown gives the result obtained by M. Rousseau an importance which ought not to be overlooked. It would lead us to adopt a mode of culture similar to that formerly followed in growing meslin corn, only modified so as to be suited to the present state of agriculture. By taking care not to mix sorts, the grain of which has not the same market value and which does not ripen at pretty nearly the same time, it appears that very important advantages may be derived. *Louis Vilmorin.*

The following is the result of M. Rousseau's experiments, which were made with 15 sorts:—

No.	WHEATS SOWN.	Area of lots in ares.*
1	Mixture of all the 15 following sorts	6.1
2	Red Saumur	5.52
3	Blood red	5.98
4	Blé seigle	5.9
5	Spalding	5.71
6	Red chaff Dantzig	6.08
7	De Haie...	6
8	Winter Richelle	5.89
9	Blé de Noé	6.02
10	White Saumur	6.07
11	Victoria...	5.84
12	Fenton	6.08
13	White Hungarian	6.08
14	Hunters...	6.09
15	Flanders	5.86
16	Hickling	6.13

Character of produce as determined on the spot by M. Vilmorin.

No. 1. One of the best lots.
2. Pretty well grown, early; grain not well ripened.
3. Good, half early.
4. Bad, thin, knocked out.
5. Good, late; ears fine, rather unequal.
6. Good average; ears small, pretty full, well grown.
7. Very bad; ears empty, long
8. Middling, laid, short straw.
9. Ears thin (*fainéant*).
10. Very ordinary, indescribable variety; degenerate, little tillered.
11. Good, well furnished with ears, a little too late.
12. Middling, straw short, ear bad.
13. ——— degenerate, bad.
14. ——— thin, very ordinary, to be thrown away.
15. ——— with less ears than No. 16, ears elongated, straw shorter.
16. Good, well furnished with ears.

Result of the harvest:—

	Number of Sheaves obtained.	Weight of straw in kilogrms.	Weight of Corn in kilogrms.	Straw per hectare in kilogrms.	Corn per hectare in hectolitres.
No. 1...	75	342	162	5606	26.55
2...	70	266	94	4818	17.02
3..	68	282	144	4715	24.08
4...	62	214	88	3627	14.91
5 .	72	291	112	5096	19.61
6...	76	319	112	5246	18.42
7..	73	252	69	4200	11.50
8...	60	228	125	3889	21.22
9..	49	190	94	3156	15.61
10...	67	261	82	4300	13.50
11 .	52	187	81	3202	13.86
12...	81	280	106	4605	17.43
13...	69	262	107	4309	17.59
14 .	66	241	100	3628	16.42
15...	64	227	100	3890	17.06
16...	82	307	125	5008	20.39

The following observations are appended by M. Rousseau to the above:—These different kinds of corn were sown on soil and under circumstances in every respect alike, but they were obtained from very different places. As each of the sorts chosen was calculated to succeed better than any other in a soil and under conditions different from what it was tried in, it is no wonder that some of the sorts succeeded ill. It is not surprising that those kinds which may almost be said to be created for a cold late soil should not have succeeded in the slightly warm ground in which they were placed. I am led to make this observation because all the kinds did not completely germinate, and I do not know whether this ought to be attributed to the time of sowing, the nature of the soil, or the quality of the corn sown.

Early and late and Red Wheats were all sown on the same day and late in the season. The later kinds were under a disadvantage as compared with the early kinds, for as the sun would force them all to ripen at much the same time, if the early Wheat ripened well the late would be sure to be burned. The same relative quantity of Wheat was used, but I attach much less importance to this than to the two preceding conditions just mentioned; for in my opinion it is impossible to determine with any exactness the real productive power of an acre to ascertain what is the greatest number of ears of corn which can be brought to perfection. To grow Wheat well, the field in which it is sown ought to be able to bear more than you put upon it, and in general the heavier the soil the thicker it may be sown; this is clearly shown by the most striking of the results which I obtained.

The Wheat on one of my plots of ground surpassed all the rest both as to quantity and quality, and as well in the grain as in the straw. Some of the seed appeared to have been lost, as was the case with some of the rest, for it was thicker when it first came up. This Wheat was the mixed Wheat obtained by mixing the 15 kinds sown elsewhere separately for experiment. This mixed Wheat, moreover, which was not sown for any experimental purpose, was placed in more unfavourable conditions than any of the others; it was sown by the side of a road, near some large Elms, which kept off the rays of the early sun and left the Wheat exposed to be scorched in the afternoon, and which, moreover, robbed the soil by means of their roots. These circumstances induced me to sow the mixture of which I have spoken, in order that one of the lots of experimental Wheat might not be placed in a position relatively worse than that of the others.

Now, how came it that this mixed Wheat was the finest? All the varieties do not ear at the same time; and is not this an advantage to the earing of those kinds which, stifled if they are alone and too thick, cannot get up or consequently ripen? The mere fact that the ears do not all appear at once necessarily prolongs the time of flowering, and no doubt increases the chances of good impregnation; for if the first flower which has lost its pollen has not been fertilised, owing to the badness of the weather, it may still be capable of being impregnated by the pollen from a later ear. Another advantage seems to result from this want of simultaneous earing and unequal length of stem in mixed Wheats; and that is that the ears being less crowded get more light and air, and their flowers can consequently more easily expand, and are thereby alone rendered more fit for impregnation. This accords with what we find in practice, for Wheat which is a little thin is generally better fertilised than that which is too thick.

This hypothesis of more easy impregnation naturally leads to the supposition of better maturity, and the examples furnished by meslins of Wheat and Rye, of Barley and spring Wheat, seem to confirm the notion. We find in these mixtures that each grain is generally much finer than the grain of the same kind of Wheat grown unmixed. Is not this owing to the fact that the ears, not being all on one level, are more free, afford more protection to each other, and derive more advantage from light, and so escape that early ripeness which we call scorching? Scorching, which is so common with very full Wheat, arises from the formation by the ears of a compact mass not traversable by the sun's rays, which are reflected from the surface, and thus ripen the ear without penetrating to or ripening the root, as is indispensable to perfect cultivation. In mixtures again may not crosses be obtained, which, under favourable circumstances, may lead to new and valuable varieties?

In a practical point of view one of the greatest advantages in sowing mixtures is the removal of all uncertainty as to the particular kind it will be best to select. For even if in a mixture of 15 sorts, three or four are not adapted to the soil and climate, the spaces which will be left by them will be readily filled by the other sorts, and even if some of these should be bad, coarse, and not fruitful, they will still be useful as a protection to the weaker and later kinds. *Lucien Rousseau.*

* 1 are = $\frac{1}{10}$ part of an acre.

Home Correspondence.

Down's Farmers' Friend is much used in this neighbourhood for dressing Wheat and is much approved of; has it or any other preparation been tried for Barley? The crops here suffered dreadfully from blighted ears; in some cases the Barley will not yield more than half as much as usual. What is supposed to be the cause, and what the cure? I have observed that in early sown Barley, where several stalks have grown from one root, if one ear is blighted all are so. Last year I could not find a single good ear produced by a root where others were blighted; this would appear to indicate the seed being in fault or injured after being sown. Any information on this important point would I think be acceptable to many of your readers. *J. K. Pearson, Chilwell, Notts.*

The Utilisation of Sewage.—I attended the discussion on this subject at the Society of Arts on Wednesday evening; and although the subject was ably introduced and ingeniously defended by Mr. W. F. Cooke, yet no satisfactory solution appeared to be arrived at. With the exception of the introducer, the other speakers were limited to 10 minutes, which period, although the utmost that could be given, was of course shorter than many required, and there were also many gentlemen who would have addressed the meeting had there been an opportunity. It is much to be regretted that the discussion was not adjourned, as it was evident that it could not be half discussed. I would suggest, as the subject is one of immense importance as well as highly interesting, that the discussion should be re-opened, that the attendance of scientific and practical men throughout the country should be invited, and that the whole merits of the subject should be fairly gone into. It might facilitate the matter if those who wished to take part in the discussion should previously send in their names to the secretary. Perhaps 20 minutes would be sufficient for each speaker, and it would be better that the discussion should be again adjourned, rather than the matter should be imperfectly discussed. There is no tribunal so fitting as the Society of Arts, and there is no subject more worthy of its consideration. *W. C. Spooner.*

In offering Prizes for Animals at Agricultural Meetings, distinction should be made between those smothered in fat, by which the framework is totally concealed, and those whose proportions are visible, though well covered with wholesome meat. If farmers are to benefit by periodical gatherings and exhibitions of stock, attention must be paid to certain rules by which information can be obtained as to the expense of feeding, when it will be proved that disgusting looking pigs, which cannot stand, but require propping up to eat, are not worth their "keep," that is, will not remunerate the agriculturist who has to live upon his land, and from the produce. It may be an amusement—there is no accounting for taste—to watch an unfortunate quadruped daily increase in size, till he becomes unable to stand without the assistance of his attendant, who is obliged to cram him by hand. This may almost be said to be cruelty to animals for no good purpose. If individuals choose to favour the tallow chandler and soap boiler, in preference to the farmer, they have a right to do so, having it is presumed money to throw away; nevertheless they should not be allowed to carry off the prizes for

the best animals, or at any rate they should come under a separate class—for instance lard and dripping feeders, in contradistinction to those who show for the meat market. Animals are required with the power of producing weight in a short time, on the ordinary food supplied by the farm, and when in fine healthy condition affording a fair return for expenses incurred. A man may be highly delighted with a pig whose head can scarcely be distinguished from his tail, looking more like an oblong feather-bed than anything else, and fancying he will be able to "turn a penny" by such a breed, he ventures, in a moment of enthusiasm, to purchase one of the beauties. Having taken the bargain home, the usual mixture given to growing stores is set before her, however the new comer turns up her nose at the food, and instead of improving in flesh falls off, continuing to do so till she is again pampered up with all kinds of strong and ruinous compounds, so that by the time she attains the age for breeding, she has cost four times the sum of a well made useful cross, profitable at all stages of growth, not very particular as to diet, which will thrive where a "show" pig will starve. The first thing to be considered with regard to stock is not who can, regardless of cost and trouble, bring before a wondering public a live mass of grease, which, after a gleam of astonishment has passed away, fills the mind with a sickening sensation and compassion for the sufferings of the brute. *Falcon.*

Professional Advice.—I have read your correspondent's remarks under this heading in the *Gazette* of the 13th inst., but what do you think of the charges made to me? Last spring I also received (by invitation) a visit from a well known draining engineer of London; he stated his terms to be 3 guineas per day, and actual expenses. He arrived at the station at half-past 10 o'clock, A.M., and left me before 4 o'clock, P.M., the same day. He walked over a part of my land occupying him about two hours; he then lunched with me, and left by the train that would reach London at 11 o'clock the same evening. Under any circumstances he could not have been absent from his home more than 26 or 27 hours. As I am situate under seven hours per rail from London, a person leaving London by the 9 o'clock P.M. train would be with me between 3 and 4 o'clock, A.M., and could leave by the half-past 4 o'clock train, and be in London at 11 o'clock the same night. His charge is for three days 9*l.* 9*s.*, expenses, 6*l.* 8*s.*, total 15*l.* 7*s.* He explains by saying his charges are quite consistent with the terms conveyed to me in the first instance. *A Subscriber.*

Questions answered about a Fen Farm.—1. As regards the level of our farm I have no correct data, but suppose we are fully 6 ft. below high water. We are 13 miles from deep water, and I understand there is 14 ft. of fall, so that there is a good natural drainage. 2. The engines drain 25,000 acres, are of 140-horse power, and raise the water on an average about 8 ft., which is considerably higher than would be requisite if the drain to sea was in a more perfect state. They keep our water about 1 foot from the level of the lower portion of the farm. 3. We draw the water by means of our own private engine, 1 foot 6 inches lower than the general engines. 4. Our own engine is 6-horse power, but not more than 4 is requisite for working the water wheel. 5. The extent of land we occupy drained by these engines is 620 acres; we have 60 acres of wash land adjoining the river—which is drained by a small engine belonging to a neighbouring proprietor. The cost of drainage works for the past 30 years will exceed 5*s.* per acre per annum. 6. The farm has been in our occupation 30 years next Lady Day. 7. The rotation first adopted was—1st, fallow; 2d, Oats; 3d, Wheat; 4th, seeds; 5th, seeds pared and burned, and sown with Rape in July; 6th, Oats; 7th, Wheat. The second rotation was—1st, fallow; 2d, Oats; 3d, Wheat; 4th, seeds; 5th, Wheat, which is still the practice of many Fen farmers. The seeds having been ploughed up for Wheat with one furrow, the burning was given up. The rotation we have followed now for some years is—1st, fallow; 2d, Wheat; 3d, seeds; 4th, Wheat; 5th, Beans, Mangels, or Flax; 6th, Wheat. And for keeping the land in good condition and clean it is much the best of the three; the only inconvenience connected with it is that you are obliged to consume all the Rape early in the season, to enable you to sow the land with Wheat. Our average crop of Wheat is fully 8 bushels per acre more under the present than it was during the two previous rotations, and which I think has been produced from the following causes — 1st, not having two white crops in succession; 2d, from better drainage by means of our own private engine and under draining; 3d, by an enlarged outlay for cattle food, having expended 500*l.* per annum for the past five years in oilcake. 8. The soil of this farm 30 years ago was a light peaty soil, varying from 1 foot to 2 feet 6 inches in depth, upon a subsoil of blue buttery clay, a strong silty clay, and a few beds of silt, and until clayed was not well adapted for the growth of Wheat; from 30 to 40 acres sown in spring was all that was grown on the farm, and that for only a few years previous to our occupation. From draining and deep ploughing the peat on a considerable portion of the farm has wasted until we plough some quantity of clay up whenever we fallow. This year I have ploughed the fallows up with three horses, and it is a strong pull where we get hold of the clay. 9. Our farm was clayed by cutting trenches 2 ft. wide at 20 to 30 ft. intervals, and taking 1 to 2 ft. of clay, according as you thought the land required it, and spreading it on each side of the trench; 190 cubic yards per acre we found sufficient, and at that time cost 30*s.* to 35*s.* per acre. If the clay is near the surface, it is better to make frequent trenches and take a smaller quantity out of each as the land is more easily levelled. Our farm was all clayed many years ago excepting the 60 acres of wash land which was only converted into arable land a few years ago, and I am now claying a portion of it by carting the clay of the old land where it lies close to the surface. By leaving the ploughed soil I can take a foot of the subsoil without damage. There is nearly 3 ft. of peat on the wash land, and the clay not good. The carting, though more expensive (it will cost 3*l.* 10*s.* per acre), will do it better, as by the ordinary mode of claying a considerable portion of good soil becomes buried in the trenches. Excepting the first seven years we have seldom practised burning, and no farmer in our fen makes it a part of regular husbandry. 10. The clay, I believe, is calcareous. By claying we obtain as much lime as is required, and where lime has been applied, which has only been for trials, it is not found to do much good. *T. A. P.*

Societies.

EAST BERWICKSHIRE: *Adulteration of Manure.*—Mr. Wilson, Cumledge, said—In considering the principles upon which the sale and purchase of artificial manures should be conducted, the first idea that strikes the purchaser is how he may best ascertain the quality of the commodity he is about to purchase, and how he is to be assured that the quality of the article to be delivered is equal to what the seller has held it out to be. There is no mode of actually testing this that I am aware of, but by analysis, and that by both seller and purchaser. This may be done in a very satisfactory manner with those I may term simple manures—that is, those that are composed of few ingredients. It is more difficult to ascertain with any degree of exactness the component parts of those called compound manures. A certain latitude ought therefore to be allowed in such cases, and although the same chemist might not always bring out the same results, in different samples of the same cargo, and more likely different chemists might further disagree, yet the difference is not likely to be so much as to affect the value of the manure to a great extent, and, therefore, even in such cases it may be the best guide. Having ascertained the quality of the manure by the analysis made for the seller, which is generally done; but what is not generally done, and what should be strongly impressed upon the attention of the members of the Club, is that the purchaser should have the analysis of the stock after it is delivered to him. Should this system become general, it would not only satisfy the mind of the purchaser, but it would also be the greatest boon to the fair trader, or the manufacturers of these manures, by keeping tricky or unfair competitors out of the market. So long as we can be contented with such manures as guano, bone-dust, dissolved bones, superphosphate of lime, nitrate of soda, or sulphate of ammonia, this would be a satisfactory principle to act upon, as they would be thoroughly tested; but if compound special manures, that are said to be exactly suited to the particular kind of crop they may be recommended for, are to be preferred, then I would suggest that every man should try it for himself in the first place on a small scale, and if satisfied with the result, deal with a party on whose honesty he can place confidence, for a more extended use of it. The only good result that I can see to arise from bringing this subject under discussion is that it may impress more forcibly upon the minds of the Club the propriety of a more extended system of analysis by the purchaser, after the delivery of the stock, to make certain as to how it agrees with the analysis given by the seller, by which means the farmer would be protected from adulteration, and the fair trader from fraudulent competition, and to lessen the expense to individuals all in the same neighbourhood, and purchasing from the same cargo, who might club together, and either fix upon a parcel to take the sample from, or take a little from each and mix; but for those who buy largely it would be well worth while to do it individually.

Mr. Wilson, of Edington Maines, said it was with great satisfaction to him that the subject had been taken up by the Club. For a length of time he had been strongly impressed with the urgent necessity which had existed for the farmers combining to put a stop to a system of wholesale plunder to which they had been subjected. It was more especially their duty to oppose the practice of selling spurious manures, considering the high prices which guano now brought. A very fair plan had been adopted by the Messrs. Townsend of Glasgow, who offered to deal on terms which he thought should suit every one. The sellers first submitted the manure to a competent chemist for analysis, and after that they offered a written guarantee that the manure supplied to the purchaser would be of equal value to that stated by the chemist. He hoped the example would have a good effect, and be generally followed. Some respectable dealers in this district might feel offended if customers said, "Now, I will not deal with you unless I get a written agreement." But they might meet this argument most completely by saying that there is not any man, however high his standing, who could take a horse into the market, and sell it without a warranty of its soundness, and the individual who would complain of being required to do so would be laughed at. In doing so they would be simply doing as they would wish to be done by. In this question there were none more deeply interested than the honest dealers in manures, because it was quite evident that the adoption of such a principle as had been proposed would drive the fraudulent dealers out of the market altogether. It was therefore their duty to proceed, and if they did not do so they would be wanting in a duty to themselves, and to the community. They ought all to combine and require from the seller a written guarantee of the quality of the manure bought. Sone might think that in this district they had not much to complain of. It consisted with his knowledge that within the last year several farmers within the locality had purchased guano at 7*l.* or 8*l.* a ton, and he believed none of them had satisfaction from it. The fact of the agent having a commission of no less than 1*l.* per ton for the sale of the guano was sufficient evidence of its inferior quality! These facts would show how easily they had been imposed upon.

Major Hope Smith said if an article fetched a certain price, the law says it must be warranted.—Mr. Wilson, of Edington Mains, said if Major Smith had paid attention to the result of the various actions which had been brought upon the subject, he would find that a contract required to be entered into in a careful way, with full particulars stated. Recently an individual sold spurious guano for real Peruvian, but because the words "genuine Peruvian" were not in his invoice he got off.—Mr. Cranstoun: But the merchant is bound to supply according to the terms of the order.—Mr. Wilson: Of the thousands of tons of guano used in this county, I believe nearly all have been ordered verbally.—Mr. Milne Home expressed his approval of the remarks which had fallen from Mr. Wilson. He considered that it would be difficult to judge of an article having turned out well or the reverse from a good crop or a bad one. That was a very unsatisfactory test. There were other and more certain tests. After receiving the stock they ought to adopt some chemical test. He did not exactly see that a written guarantee was necessary any more than in the sale of a horse, where no written guarantee was requisite to ensure the success of an action in the event of unsoundness under common law. The great matter was to find out a sufficient test, and he did not see how this could be done except by acquiring a knowledge of chemistry. He was not a chemist, but he had never purchased guano or nitrate ammonia, without testing whether the stock contained a larger amount of sand and salt than the sample.—Sheriff Wood said a written agreement was quite necessary to guarantee quality. The doctrine of price being a warrant of quality had been done away with by a recent act.—Mr. John Cunningham said he had bought a quantity of manure at 7*l.* per ton, which he found to be adulterated 45 per cent. It ought not to have cost 4*l.* per ton.—Mr. Oliver, Farraknowe, said he might mention what occurred to himself two years ago. At that time he was comparatively inexperienced, and had seen manure advertised in inflammatory placards. He wrote to the agent and procured a supply. The manure appeared to have an excellent effect upon the green crops, which induced him to order about double the quantity. He found out his loss, however, as although the crops came away a little at the first, they soon got stunted. The different effect of guano was very marked in comparison, and he had an excellent opportunity then of witnessing it. The manure which he spoke of was the "British Economical."—Mr. Wilson, of Edington Mains, in regard to Mr. Milne Home's remarks, said that manufacturers of spurious manures had got very subtle, and it was advisable that a written agreement should be obtained as well as an analysis, instead of trusting to an analysis by the consumer. The guarantee he considered safer than a sample of the article He would just remind the Club of a case that occurred about eight years ago in Berwick. A merchant or merchants there had two cargoes of guano in the harbour at the same time—the one being genuine, the other spurious. The genuine was supplied to large consumers, and to those likely to have an analysis; the spurious to those who required quantities of half-a-ton or a ton, and so on. He hoped they would al combine to prevent in future such a nefarious system of robbery.

Farmers' Clubs.

HEXHAM:—*The Application of Lime.*—At a recent meeting of this Club Mr. R. E. Ridley read a paper on this subject, from which we make the following extract:—Lime differs from most other manures—it may almost be said from all—in this respect, that it is advantageous in agriculture as a mechanical agent as well as a chemical one. It not only supplies food to the plants directly and indirectly by its influence upon the other constituents of the soil, but it is of great advantage in rendering clay soils opener and lighter, and in making sandy porous soils more compact and firm. It is well known that hot lime has a great affinity for water. It will gradually absorb the moisture from the atmosphere, swell greatly in bulk, and fall to a fine powder. Now, when hot lime is ploughed into the land, and allowed to burst there, it will exert a powerful disintegrating effect upon the soil. Its operation will be something like the action of frost, which we know thoroughly opens and lightens the soil, with this difference, that the particles of lime becoming mixed with the soil prevent it from becoming trampled into so close and hard a state as it would otherwise be. When, therefore, lime is applied with a view principally of lightening the land, it is essential that it be applied as hot as possible. In fact, it should be ploughed in as it is carted from the kiln. None of it should be over-night exposed to the dews, otherwise you may expect it to be powder in the morning, and its utility for the purpose you desired greatly injured. When lime is used on light soils with the object of increasing the tenacity and solidity of such soils, it is better that it should be in the state of hydrate—that is, be completely burst or fallen by its union with water, before it is ploughed in. But water should be thrown on to it as soon as possible, or if it is allowed to fall from the absorption of moisture from the atmosphere, it should be put into large heaps and well covered, and not be spread upon the surface of the field several days before it is ploughed in, otherwise it gradually combines with the carbonic acid of the atmosphere and becomes mild. In this state it is the same as chalk, and will not answer the purpose for which it is intended. The reason is, that hot lime unites chemically with sand, and forms a silicate of lime, and by this means the sandy particles are cemented together to a certain extent; but if the lime be mild or if chalk be used, unless it be applied in very great quantity, there is no consistency produced, the particles of chalk will not

adhere to the sand nor to each other, and the land is as friable and open as before. To obtain, therefore, the best mechanical benefits from lime, it ought to be applied hot, unslacked, to strong land, and slacked, but still hot, to light soils. But perhaps the most important use of lime in agriculture is its chemical effect. It destroys many injurious substances that from time to time are generated in the soil. During the progress of vegetation there are constantly being formed various vegetable acids that are more or less injurious to vegetation. Lime, when brought in contact with these injurious matters, to use a common phrase, kills them, that is, it chemically combines with them and renders them harmless. It does so much more quickly when used hot, but will ultimately effect the same purpose when mild, though much more slowly. Grass land in the state just described is said to be sour, and it is well known that if it is ploughed up and thoroughly limed it will be for a time at least cured. The same process goes on in arable land, though its effects may not be so well known or so easily recognised, and there is no doubt but that in lands deficient in lime, great injury to vegetation is thus caused. Whenever we form compost heaps from the cleansing of ditches, or the cuttings from road or hedge sides, we invariably mix hot lime with these ingredients. And wisely, because it is a powerful promoter of vegetable decomposition. Now, when lime is put into the land it acts exactly in the same way; you are in reality making a vast compost heap. If, for instance, you plough it in with the lea, it will quickly decompose and destroy the Grass and other roots, thereby rendering them more readily useful as manure. So, also, when it is applied to a soil containing fold-yard manure, it will cause the manure to decay much more rapidly, liberate the elements of which it is composed, and render them available to the growing plant. If, on the contrary, it is applied to a poor, hungry soil, it has comparatively small effects. For instance, supposing an unmanured soil to grow six bolls per acre, and a well-manured one 12 bolls, by the addition of lime the former may produce say nine bolls, being an increase of three bolls from the use of lime, while the latter may produce 18 bolls, being an increase of six, and showing a yield of three bolls in favour of lime being applied where there is manure. The reason of this additional produce is perfectly plain to the chemist, who knows that the lime will decompose the manure more rapidly, and make it act more speedily. Land, therefore, that is properly supplied with lime will cause the fold-yard manure that is put into it to be spent much sooner than if it were deficient in lime. It will enable the farmer to have his manure nearly all supplied to the growing crop the year it is applied, instead of having it partially decomposed during the winter, to have its elements washed into the subsoil or into the drains. And it becomes a plain corollary to the principle laid down, that the manure required by land should be supplied to it each year, instead of having put into it in one year what is intended to serve four or five. There is a peculiar property which lime, in common with other alkalies, possesses; it is that of inducing, while decomposing vegetable matter, the nitrogen of the atmosphere to unite with the oxygen that is liberated by the decomposition, and form nitric acid. Nitric acid is the active principle in nitrate of soda, and is, as we all well know, of great value as a manure. Lime, therefore, not only sets free the nitrogen that is in vegetable substances by decomposing them, but also during this process of decomposition so disposes matters that an additional supply of nitrogen is taken from the air and made available as a manure. There are other advantages to be gained by the use of lime, but they are so obvious and so well known that we pass on with the mere mention of them, especially as this paper is already too long. Plants take up lime and assimilate it to their structure in considerable quantity, varying from 3½ lbs. per acre for an ordinary crop of Wheat to 226 lbs. for a crop of Potatoes. It is therefore important that there should always be a supply in the soil which they can reach. Lime is famed for destroying the tough useless Grasses, and for promoting the growth of a sweet tender herbage. It is also valuable for killing noxious vermin, especially worms and slugs, and will, when hot, if it comes in contact with their eggs or larvæ, most certainly destroy them. Lime ought always to be applied to land in a hot or caustic state, where it can be procured in that state at a moderate cost. In its mechanical influence upon soils, we have seen that it is valuable in this state only. And though in its chemical effects it will, generally speaking, in the end be the same, whether hot or mild, yet its action in the former state is so much more rapid and effective that there can be no doubt but that it is most useful when so applied. We ought, therefore, to avoid allowing it to become mild before ploughing it into the soil. We think the proper time for applying lime is on the Grass at the time it is ploughed, for the reason before alluded to, that it is effective in destroying quickly the roots that are being turned into the soil. It ought also, we think, to be applied each rotation of four or five years, as the case may be. And that when the land is in a fairly limited condition, the periodical addition need not be more than from two to three tons per acre, varying with the tenacity or looseness of the soil on which it is used. On Grass land it should be applied as frequently, though not hot, but in the shape of well-limed compost. It is assumed that the land to be limed is moderately dry, either naturally or from being drained, because lime applied to very wet land is likely to do no good whatever. Mr. Wood remarked that he had never seen lime take a greater effect than some taken from the ruins of houses. Mr. Ridley said the plaster of the walls of stables contained a large proportion of nitrate of lime. During the war of France with this country, the importation of nitrate into France was prohibited; and the French obtained from the walls of cellars and stables in Paris sufficient nitrate to make their gunpowder. Lime had a peculiar property in assisting the formation of nitric acid. He had seen it applied to old Grass and it came away green very soon. When lime and manure were put into the soil together they had a wonderful property of making more manure out of the air, which was a clear gain without any expenditure; Professor Liebig said to an immense amount.

Farm Memoranda.

IN THE UPPER WARD OF LANARKSHIRE, between 700 and 800 feet above sea level, is situated a farm of 700 acres on which the tenant, who has a lease of 19 years, is making most important permanent improvements—to a very large extent from his own means. Of the 500 acres of arable land which the holding contains, more than half has been reclaimed by him from a state bordering upon barrenness, and instead of it being worth only from 2*s.* 6*d.* to 5*s.*—its original value—it can now be safely rated at 25*s.* to 30*s.* an acre. About 150 acres of Turnips are grown annually, and of this year's crop it may be said that there are few heavier ones in any part of the kingdom. Roots, Oats, Barley, and Grasses are the principal plants grown; Potatoes, Oats, and Barley being the only crops sold off the land. Beef, mutton, and dairy produce are largely marketed; the whole Turnip crops, supplemented with purchased food, being consumed on the farm. As the result of high farming the tenant required some time ago increased house accommodation for stock, and offered to pay his landlord 5 per cent. interest on the expenditure, but his offer was declined. He received a grant, however, of 400*l.* towards the cost of erecting a new farmstead. With only this aid, and some home-grown wood, which was allowed him, he commenced, and has now very nearly completed, a substantial stone-walled and slate-roofed homestead, on the covered principle, which, with connected works, will cost from 1100*l.* to 1200*l.* The whole buildings are finished in a superior manner, every means having been employed to secure convenience in the carrying out of the daily operations, and afford comfort to the animals kept in them. At his own expense the tenant is also about to lay several fields with cast-iron irrigating pipes, and is fitting up an engine and set of force pumps expressly for the purpose of distributing over the land in a fluid form part of his farmyard manure.

Taking all the improvements made by this enterprising farmer into account—including as they do a large amount of 4-feet drainage—it is certain that during the last 12 or 15 years he has expended several thousand pounds on works which the landlord ought to have carried out, and in consequence he has doubled the produce of the soil and added greatly to its intrinsic value. And now he incurs an outlay of 700*l.* or 800*l.* in connection with farm erections and irrigating appliances, which, according to law, will at the end of his lease become the property of the owner of the soil.

Well, it may be asked—what can the inducement be which leads a tenant farmer who has no other business and never had any other than that of farming to expend his capital so liberally in effecting proprietors' improvements on a property which does not belong to him? The answer is—his own interests induce him to take this course. He knows that a judicious expenditure on such improving works will prove remunerative even to a tenant, provided he gets time to reap the fruits. Impolitic and unfair as it is that landed proprietors should leave enterprising and skilful tenants to carry out improvements which they themselves ought to make, it is at least gratifying to find that there are agriculturists in the country who, if their rights are properly secured, are determined to push forward, even should they in the first instance have to submit to a heavy expenditure. The occupier in this case pays a fair rent for his land, and though his outlay for many years has been very large he admits that his occupation is paying him well. And if he from an exposed farm, on which Wheat can rarely be grown, is enabled by sheer energy and skill, backed as they are with capital, to make a good profit where many an "old school" farmer would not be able to live, does it not afford conclusive proof that we only want these requirements on the part of the farming community generally, and then, with the co-operation of landed proprietors, the cultivable land in the kingdom would become quite capable of supporting our whole population? Landlord and tenant must go hand in hand, and, if they do this, capital and skill, properly devoted to the cultivation of the soil, will produce results which will benefit both the rich and the poor, and provide food for all, however defective continental harvests may be. *J. Lockhart Morton, 26, Parliament Street, Westminster, in the Times of December 17.*

Notices to Correspondents.

HOES: *B.* Sigma will advertise the hoes you ask about as soon as they are ready for sale.

POTATOES: *X Y Z.* You should have got gas lime together in compost months ago, and turned it frequently if you are going to use it now. A "waggon load" per acre is a common dressing. You may apply it broadcast, and leave it for some weeks before turning it in. You should plant early in spring, early sorts in early soils, and so you will run least risk of the disease. We should ourselves prefer a deepish planting early in March to autumn planting.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS. 15*l.*—Illustrations forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

BRITTAIN'S IMPROVED PATENT GARDEN NETTING for Protecting Fruit and other Trees from Frost, Blight, Insects, Birds, &c.—Sole Agent (Wholesale) for the South of England, JOHN ELLISON, 56, Bread Street, Cheapside, London.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*
"May 20th, 1850.

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, Covent Garden, London.
Messrs. Hurst & M'Mullen, Seed Merchants, Florists, &c., 6, Leadenhall Street, London.
Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road, London.
Messrs. Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
Messrs. Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, 1, 2 & 3, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
Messrs. John Edmondson & Co., Seedsmen, Dame Street, Dublin.
Messrs. Benj. Reid & Co., Nurserymen, Florists, &c., Union Street, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High St., Bull Ring, Birmingham.
Messrs. Austin & McAslan, Nurserymen & Seedsmen, Trongate, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen and Seedsmen, Chester.
Messrs. James Dickson, Sons, & Co., Nurserymen and Seedsmen, Manchester.
Mr. Robert Parker, Paradise Nursery, Holloway.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
Messrs. Osborn & Sons, Fulham, Middlesex.
Messrs. Rollisson & Son, Tooting.
Messrs. A. Paul & Son, Cheshunt, Herts.
Mr. W. J. Epps, Maidstone.
Messrs. Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

AGRICULTURAL FOOD-PREPARING & OTHER IMPLEMENTS.

B. SAMUELSON, Britannia Works, Banbury,

MANUFACTURER OF ALL DESCRIPTIONS OF FOOD-PREPARING MACHINES,

Is prepared to supply the following IN ANY QUANTITY and in the following number of days after receiving the order.

GARDNER'S TURNIP CUTTERS	IN ONE DAY
MOODY'S GRATERS	IN ONE DAY
BUSHE AND BARTER'S GRATERS	IN ONE DAY
NEW PATENT COMBINED CHAFF AND ROOT CUTTER AND MIXER ...	IN SIX DAYS
CHAFF CUTTERS, for Gentlemen's Stables or for export, small sizes	IN ONE DAY
DITTO CORNES' PATTERNS, all sizes, from 6*l.* 15*s.* to 14*l.*	IN THREE DAYS
ROLLER MILLS for Crushing all Descriptions of Grain, 5*l.* to 7*l.* 10*s.*... ...	IN FOUR DAYS
BEAN SPLITTING AND SMALL UNIVERSAL MILLS, 2*l.* 2*s.* 6*d.*, and upwards	IN TWO DAYS
LINSEED-CAKE BREAKERS, from 2*l.* 6*s.* to 10*l.* 10*s.*	IN TWO DAYS

B. SAMUELSON will have pleasure in forwarding, post free, his Illustrated Priced Catalogue of the above, and also of his

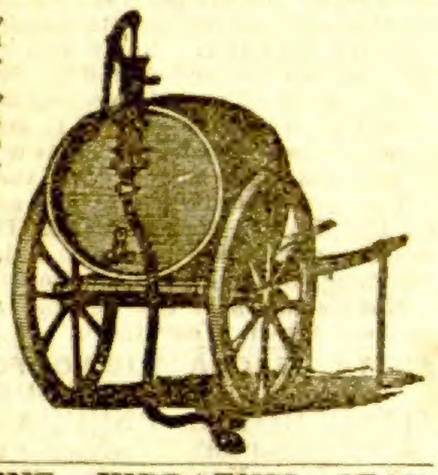
HAY-MAKING MACHINES, CLOD CRUSHERS, HORSE HOES, PATENT HORSE RAKES, FIELD ROLLERS, LAWN MOWERS, &c.,

PATENT AMERICAN AND PATENT ATMOSPHERIC CHURNS, GALVANISED IRON PUMPS FOR LIQUID MANURE, PATENT AMERICAN WASHING MACHINES, MANGLES, &c, &c., &c.

On receipt of application (by post or otherwise) at

BRITANNIA WORKS, BANBURY, OXON.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 6*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

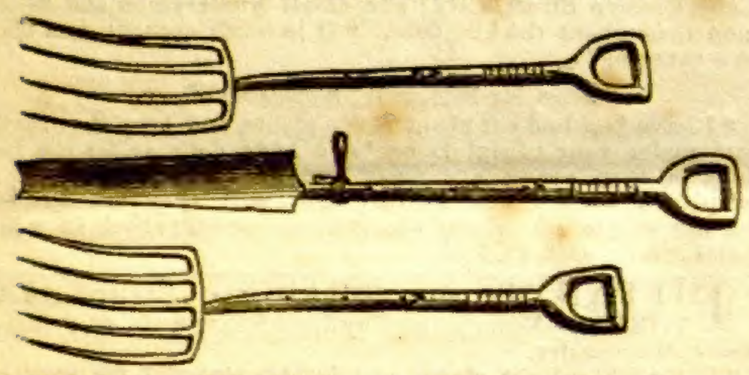
Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2¼ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

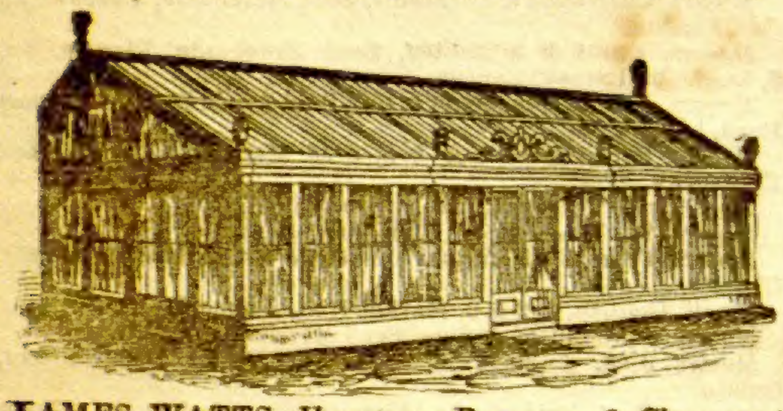
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

TRELOAR'S COCOA NUT FIBRE MANUFACTURES consist of MATTING, DOOR MATS, MATTRESSES, HASSOCKS, NETTING, BRUSHES, &c., and are distinguished for superiority of workmanship combined with moderate charges. Prize Medals awarded—London, Paris, and New York. Catalogues containing Prices and all particulars post free.—T. TRELOAR, 42, Ludgate Hill, London.

HOT-WATER APPARATUS ON AN IMPROVED PRINCIPLE.

MESSRS. COLLS AND CO., Builders, Camberwell, beg to inform the nobility, gentry, and the public in general, that they have made arrangements with an eminent Inventor and Hot-water Engineer for the management of this portion of their business, and are prepared to take contracts for Warming Churches, Chapels, Private Residences, Greenhouses, &c.

Estimates upon application.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

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J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

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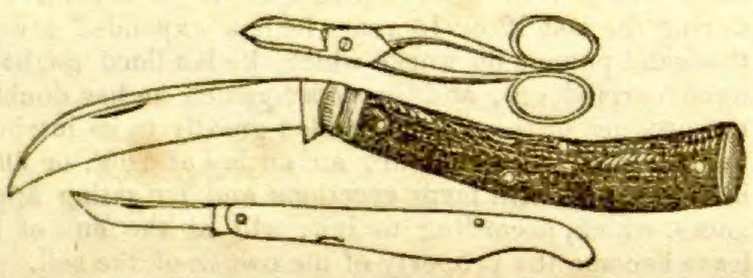
J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50*s.* each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

IMPROVED STEAMING APPARATUS.—FOOD FOR STOCK.—The advantages of cooking the food of animals are so well understood now that a steaming apparatus is considered indispensable to every well-ordered steading. The process of boiling or steaming is known to effect great and important changes, both in the chemical and mechanical condition of food, and to render many substances suitable for the digestion of animals, which in their raw state are indigestible or unwholesome. The mechanical division of boiled food facilitates the acts of mastication, swallowing, and ruminating (in ruminating animals).—Address, RICHMOND & CHANDLER, Salford, Manchester Branch Establishment, South John Street, Liverpool.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had gratis on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857.

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is just published by* Messrs. SIMPKIN & MARSHALL, No. 4, Stationer's Court, London, *and can be obtained through any Bookseller in the United Kingdom; or from the Proprietors*, Messrs. WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth, *in exchange for seven postage stamps.*

AT THE SOLICITATION OF SEVERAL INFLUENTIAL CUSTOMERS, THE PROPRIETORS HAVE THIS SEASON PUBLISHED A BOUND EDITION, WHICH WILL BE FORWARDED FREE BY POST FOR 18 POSTAGE STAMPS.

The present Edition is printed the same size as "The Florist," and contains 112 closely printed pages, comprising much valuable and useful information.

It contains a valuable Descriptive List of KITCHEN GARDEN SEEDS, with prices affixed to every article, and in addition to these descriptions there are short and concise cultural remarks for every kind of *Vegetable*, pointing out the best varieties for *Early*, *Medium*, and *General Crops*.

The List of FLOWER SEEDS has been much improved, and contains descriptions of all the leading sorts, with directions for sowing seeds, and other useful practical remarks; and in this department Mr. Errington has written expressly for the work an original article on ANNUAL AND OTHER FLOWER SEEDS, which will be read with much interest.

The CALENDAR OF OPERATIONS for the whole of the year has also been revised, and will be found even more useful than the one in the previous editions.

The ALMANACK is now a prominent feature of the "Price Current," and a page is devoted to every month.

Full detailed Lists are given of the quantities and descriptions of Seeds sent in the "COLLECTIONS OF SEEDS."

The following are the Contents of the present Edition:—

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